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A Guide to Computer-Based Analytical Tools for Implementing National Forest Plans

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RESEARCH SUMMARY

The National Forest Management Act of 1976 required each National Forest to develop a comprehensive, integrated Forest Plan to guide long-term resource management. Now that nearly all Plans have been completed, implementation is the next step. However, Forest Plans do not have enough detail for direct implementation, so additional analyses are often needed. Although many analytical tools have been developed to assist implementation, much of this work has not yet been widely disseminated. This study provides a comprehensive inventory of the analytical tools available for analyses needed to implement Forest Plans.

This study considers just the computerized analytical tools that are being used or could potentially be used to implement National Forest Plans. The tools are designed to assist in project analyses, subforest (a portion of a National Forest) analyses, or disaggregation of forestwide analyses to subunits. Many of the tools are also applicable for strategic planning.

This study was accomplished through searching the literature and sending inquiries to several hundred Forest Service analysts, planners, resource specialists, and research scientists, as well as selected university faculty. A questionnaire helped us obtain uniform information about each tool.

We obtained information on 250 analytical tools. Almost half (48 percent) of these tools apply to project-level analyses, with the remainder almost equally divided between forestwide and subforest analyses. The most common purpose for which tools were designed (38 percent) was to analyze resource effects or production. Most tool applications (60 percent) involved computer programs (as opposed to database, geographic information system, or spreadsheet applications). Almost half of the tool applications (48 percent) were classified as simulation models.

This guide organizes tools by 12 purposes of analysis: budgeting, cumulative effects, economic/financial, ecosystems, legal documentation, logging systems, monitoring, resource effects/production, resource scheduling, spatial, transportation, and other purposes. Tools were assigned to one of the purposes based on their primary purpose. Tools are arranged alphabetically by acronym or name within the subheading for each purpose. Indexes help identify tools for particular types of analysis.

ACKNOWLEDGMENTS

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Most important, we wish to express our appreciation to the hundreds of contacts and analytical tool developers who took the time to help identify or provide information on tools, and to those who reviewed and commented on our initial efforts.

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The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

The reports on analytical tools presented in this guide were based on information provided by tool developers or our primary contacts. We have not tested or evaluated the tools and cannot guarantee accuracy of the descriptions. The authors make no claim regarding the tools' ease of use, performance, or freedom from viruses.

A Guide to Computer-Based Analytical Tools for Implementing National Forest Plans

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INTRODUCTION

The National Forest Management Act of 1976 requires each National Forest in the United States to develop a comprehensive, integrated plan to guide long-term management of land and associated resources. The forest planning process began in the late 1970's, and most National Forests have completed or nearly completed these plans. Forest Plans are strategic, intended to set general management direction, allocate land, specify production goals, and identify standards and guidelines for management. The next step is implementation of the plans.

Forest Plans are often too general to provide the detailed framework needed to implement them. Such information includes exactly when and where projects will be undertaken, based on information specific to an area. Implementation analyses also deal with issues such as cumulative effects and connected actions, transportation networks, project and resource scheduling, consistency of projects with the Forest Plan, verification of suitable timberlands, documentation required by the National Environmental Policy Act (NEPA), and more.

Forest Service units and other organizations have developed analytical tools that can be helpful in implementing Forest Plans. However, because much of this work is not yet widely known, there may have been unnecessary duplication, both by the Forest Service and by others. At the same time, some Forest Service units may be unaware of specific analytical tools available to assist in Forest Plan implementation.

The significance of this problem was evident by the mid-1980's. One of the Forest Service's first efforts to identify software for Forest Plan implementation was completed in 1985, shortly after the first National Forest Plans were approved. The Forest Plan Implementation Task Force (Anon. 1985) attempted to identify the types and extent of implementation analyses within the Forest Service. A summary and catalog were produced. In 1989, Leefers (1990a) and Kent and Baltic (1989) began separate studies to inventory and categorize Forest Plan implementation analyses. The former study was based on a literature review and telephone interviews, and the latter relied on an electronic mail survey within the Forest Service. Leefers (1990b) later expanded his analysis as part of a review of National Forest planning. Other sources of information on computerized planning tools include the Forest Resources Systems Institute (FORS) manual (Gilluly and Stacey 1989; Gilluly and others 1992; O'Hara and others 1990) and the Natural Resources Computer Newsletter (Michaelsen, various years).

While these efforts were useful, they did not provide a comprehensive, up-to-date, accessible inventory of analytical tools that are available. The Forest Plan Implementation Task Force effort was not widely distributed and, because of the rapidly changing computing environment, it was quickly outdated. Leefers' (1990a,b) studies gave a good overview of analytical tools, but were not comprehensive. Kent and Baltic (1989) did not complete their study. FORS and the Natural Resource Computer Newsletter do not specifically focus on implementing Forest Plans.

Several authors have identified the need for a comprehensive study to identify implementation tools (Hoekstra and others 1990; Leefers 1990b; USDA FS 1989). This study, begun in mid-1991, was designed to meet those needs. It was a joint effort between the Forest Service, U.S. Department of Agriculture, Intermountain Research Station and Washington Office Land Management Planning, and Michigan State University's Department of Forestry.

OBJECTIVES

The objectives of this study were: (1) conduct a comprehensive inventory of computer-based tools available for operational (site-specific project) and tactical (subforest) analyses to assist in implementing National Forest Plans; and (2) disseminate the inventory through this publication and the Forest

Service's computer-based information center, the LMP INFO Center. Information on the LMP INFO Center can be found in Thompson (1993).

METHODS

This study combined a literature search with inquiries to Forest Service analysts, planners, resource specialists, and research scientists, and to university faculty and forest industry analysts. All leads and suggestions were followed up. Based on information we received from our initial contacts, we contacted others until the list of tools was as complete as practicable. We obtained uniform information about each tool. The information is available in this guide and in the LMP INFO Center.

Scope

Analytical tools identified in this study are computerized applications used or potentially useful for National Forest Plan implementation. The tools are designed to assist in site-specific project (operational) analyses, subforest area (tactical) analyses, or dissaggregation of the results of forestwide (strategic) analysis to subunits. Many of these tools can also be used for more general strategic analysis. In most cases, these tools are also potentially useful to land and resource management organizations other than the Forest Service (such as the forest products industry, the Bureau of Land Management, U.S. Department of the Interior, or others).

Analytical tools operate on mainframe computers, minicomputers, microcomputers, or workstations. They are either independent programs or applications that require supporting software, such as databases, geographic information systems, or spreadsheets. Supporting software (such as spreadsheet software) was not considered an analytical tool; however, developed applications of the software (such as spreadsheet templates) were included.

We attempted to include as many tools as possible, provided they were directly relevant to implementing National Forest Plans. We developed three guidelines to determine which tools to include. First, resource production models (such as timber growth and yield models, wildlife habitat models, or sediment yield models) were only included if they were the principal tools available in each Forest Service region or if they were integrated into other tools. For example, we included the principal growth and yield models for each region (such as TWIGS for the Eastern Region and Prognosis for the Northern Region), but did not include localized variations of these models or timber models that were not widely used by the Forest Service. For integrated models (such as DTRAN/GISTRAN/RxWRITE) we included the growth and yield component (RxWRITE). Second, we excluded tools with limited application to Forest Plan implementation, such as tools pertaining exclusively to logging system layout or engineering tools used in project design. Although we did not include tools for such specific purposes in our study, many such tools are currently being used to help implement Forest Plans. Third, we did not include general-purpose, commercial software. For example, we did not include CAD (computer-assisted drawing), graphics, database, geographic information system, spreadsheet, or general financial analysis software. However, this type of computer software is widely used in Forest Plan implementation.

Information Collection

Information collection included three tasks: developing a Tool Description Form, identifying tools, and inventorying tools. First we had to develop a form or questionnaire to promote consistency for our inventory. We then developed a list of tools and persons to contact for information about them. This information was provided by Forest Service employees, university faculty members, our literature search, and our professional acquaintances. The final task was to have the person who developed a tool (or the person serving as our contact) complete our Tool Description Form.

Tool Description Form—We developed a Tool Description Form to collect uniform information about each tool. We requested the following information:

1. Acronym and name
2. Brief description
3. Geographical level of analysis
4. Purpose of analysis
5. Resource or function
6. Type of tool
7. Modeling techniques
8. Supporting software requirements
9. Hardware requirements
10. Documentation/user support available
11. Principal developer
12. For technical information, contact
13. For acquistion information, contact
14. Additional description of tool

Definitions and subcategories are included under "Definitions" in the section titled, "How to Use this Guide" (page 8).

The form was reviewed by a select group of tool users and developers, including researchers and personnel from the Forest Service's Washington Office, Regional Offices, and National Forests to verify content and insure clarity. Reviewers examined the form, the instructions for completing the form, and several examples of completed forms. They also

completed a form for a tool with which they were familiar. This process enabled us to refine the form and ensure its relevance.

Identifying Tools—We learned about tools and their developers primarily by interviewing individuals, but also by a literature search, by reviewing other tool studies and directories, and by requesting information at professional meetings and over the Forest Service's electronic network based on the Data General (DG) computer.

The computerized literature search used the Forest Service's bibliographic reference system, FS INFO. The FS INFO center, accessible through the DG computer system, contains bibliographic citations of forestry publications. Names of modeling techniques (such as linear programming or network analysis) were used as keywords.

We also reviewed previous studies of analytical tools (Anon. 1985; Kent and Baltic 1989; Leefers 1990a). In addition, the Forest Resources Systems Institute's software directories were reviewed to identify tools (Anon. 1992; Gilluly and Stacey 1989; Gilluly and others 1992; O'Hara and others 1990). Finally, we requested information on tools and developers at professional meetings and through the Forest Service's electronic mail network in messages sent to analysts, planners, ecologists, fish and wildlife biologists, and others.

We began the interview process by contacting individuals thought to be knowledgeable about tools and tool developers. We initially contacted 33 individuals—16 from the National Forest System, nine from Forest Service research, and eight from universities. National Forest System contacts were primarily from Regional Office planning staffs: economists, operations research analysts, and forest planners. Forest Service research contacts were primarily economists. University contacts included forestry school faculty specializing in economics, operations research, and management science. We made our initial contacts by telephone, although we also sent Forest Service personnel an electronic message briefly describing the project.

We used a semistructured script to help ensure consistency and thoroughness of our interviews. These initial interviews generated a preliminary list of tools and developers. We obtained the name of the tool, the name of the tool developer or a person knowledgeable about the tool, the primary contact, and an address. We asked our initial contacts to refer us to other persons knowledgeable about analytical tools. We also identified additional tools, developers, and referrals when we made our secondary contacts. We continued contacting selected referrals until we were identifying very few additional tools, developers, or referrals. At this point, we had interviewed 102 out of a total of 132 referrals and identified 313 tool developers or primary contacts and 481 potential tools.

Inventorying Tools—The final task was to have tool developers or our primary contacts complete the Tool Description Form. Forest Service personnel were contacted by electronic mail. The message had two parts: (1) a cover letter introducing the study, explaining tasks to be performed, and detailing instructions; and (2) a blank Tool Description Form. Completed forms were returned via electronic mail. We allowed about 14 days for response. Afterward, two followup electronic messages encouraged them to respond.

All others were contacted by surface mail. Each received a packet containing the same information sent to Forest Service personnel: cover letter, instructions, and Tool Description Form. We allowed about 21 days for response. Afterward, we sent a reminder letter. In some cases, telephone calls were made to request completed forms.

Information Processing

The completed Tool Description Forms were edited for technical accuracy and consistency. We made some modifications so the terminology would be more consistent; however, we had to make many more modifications because forms were completed incorrectly. The most common mistake was to include more than one primary subcategory when only one was allowed, or to incorrectly indicate subcategories for purpose of analysis, resource/function, or modeling technique. Some respondents apparently failed to review definitions or interpretated them incorrectly. We modified some Tool Description Forms based on our knowledge of the tool. However, when we encountered difficult technical questions, we sometimes contacted tool developers directly.

Some tools were determined to be beyond the scope of this study. Generally, these tools were generic software (such as commercial geographic information system and database software), project design tools, or tools inapplicable to National Forest management. When identified, these tools were withdrawn from further consideration and respondents were sent a letter of appreciation explaining why we were not including such tools in our study.

Once the forms were technically acceptable, they were edited for grammar and consistency. Tools were arranged alphabetically by their acronym or name. If the developers did not provide an acronym, we prepared an abbreviated tool name as a substitute for the acronym. Finally, we developed a set of indexes by matching index categories with information on "primary" categories displayed on each form.

The same set of Tool Description Forms was used to develop this guide and the LMP Tools portion of the INFO Center. However, tools contained in the INFO Center will be expanded as new tools are identified or developed.

FINDINGS AND DISCUSSION

This study began in June 1991. By August 1992, we had collected information on 250 analytical tools. Information on another 26 tools was collected, but those tools were later judged to be outside the scope of the study. We never received information on additional tools from 66 individuals, despite repeated attempts to obtain a response.

Almost half (48 percent) of the Forest Plan implementation tools are primarily intended for project level analysis (table 1). The remaining tools are about evenly divided between those intended primarily for forestwide analysis and those intended for subforest areas. The Purpose of Analysis refers to the type of process performed by the tool. The most common purpose is to analyze resource effects or resource production. Tools used for economic or financial analysis are a distant second.

Table 1 also cross-tabulates tools by geographic area and purpose. For example, the most common (34 percent) purpose of forestwide tools is for resource scheduling. The FORPLAN model (see page 222), used extensively in forest planning, is an example of this type of tool. Over half (58 percent) of the tools for subforest areas are used to analyze resource effects or production. HABCAP, a tool to quantify the capability of a subforest area to support wildlife populations (see pages 180 and 181), is an example. The most common purpose (42 percent) for tools used to analyze specific projects is resource effects or production, but tools are also widely used for economic or financial analysis (25 percent). QUICK-SILVER (see page 54), a tool to evaluate financial returns of management investments, is one example.

Analytical tools can be more useful in some resource areas than in others (table 2). The total of 258 tool applications exceeds the total of 250 tools shown in table 1 because some tools can be considered important for more than one resource application. For example, COMPATS (see page 128) computes timber volumes, a wildlife habitat index, and sediment yields. The percentages presented below are based on the total of 258 applications, rather than the total of 250 tools.

Although we found many analytical tools designed primarily to analyze timber (41 percent) and, to a much lesser extent, wildlife resources (10 percent), table 2 shows very few or no tools were designed primarily to analyze air, minerals, water, wilderness, or other resources. In fact, resource areas other than fire, timber, vegetation, and wildlife accounted for less than one-fourth (21 percent) of all tool applications. Tools used to analyze resource effects and production dominate every resource area. For example, resource effects or production tools dominate (72 percent) wildlife-oriented tool applications. The tool HIDE2X (see page 152), used to analyze elk hiding cover, is one example. Similarily, tools primarily intended to analyze timber resources dominate all purposes for analysis. For example, timber is the primary focus of 45 percent of all tool applications used to analyze resource effects or production. DFSIM (see page 131), a growth and yield simulator for Douglas-fir, is one example.

Most implementation tools involved computer programs, with database applications a distant second (table 3). The total of 353 tool applications includes cases in which a tool is important for more than one application. For example, ARCFOREST (see page 215), a decision support tool, is a database application, a GIS application, and a computer program.

Table 1—Purpose of analytical tools, by geographical level of analysis

Purpose	Geographical area		Project	Total
	Forestwide	Subforest area		
Budgeting	7	0	2	9
Cumulative effects	1	4	2	7
Economic/financial	8	1	30	39
Ecosystem	7	4	22	33
Legal documentation	6	0	4	10
Logging systems	0	1	2	3
Monitoring	3	0	4	7
Resource effects/Production	10	35	50	95
Resource scheduling	24	6	1	31
Spatial	1	3	2	6
Transportation	3	6	1	10
Total	70	60	120	250

Table 2—Purpose of analytical tools, by resource(s) or function(s)

Purpose	Resource(s) or function(s)							
	Fire	Timber	Vegetation	Wildlife	All	N/A[1]	Other[2]	Total[3]
Budgeting	3	0	1	1	5	0	1	11
Cumulative effects	0	0	0	0	0	0	7	7
Economic/Financial	0	24	0	3	7	1	7	42
Ecosystem	12	5	8	2	4	0	4	35
Legal documentation	0	0	0	0	1	10	0	11
Logging systems	0	3	0	0	0	0	0	3
Monitoring	0	0	0	0	3	0	2	5
Resource effects/Production	0	44	6	18	2	0	27	97
Resource scheduling	0	22	0	0	8	1	0	31
Spatial	0	2	1	1	1	0	1	6
Transportation	0	5	0	0	0	1	4	10
Total	15	105	16	25	31	13	53	258

[1]N/A (not applicable) refers to tools that are not oriented toward analysis of natural resources, but rather toward administrative considerations.
[2]Other includes air, cultural, fish, insects and disease, minerals, range, recreation, soil, visual and esthetics, and wilderness resources.
[3]The total of 258 exceeds 250 because several tools apply to more than one resource area.

Table 3—Modeling technique of analytical tool, by type of tool

Modeling technique	Type of tool				
	Database	GIS	Spreadsheet	Program	Total[1]
AI/Expert systems	4	5	1	20	30
Dynamic programming	1	1	0	2	4
Heuristic process	1	4	2	7	14
Input/Output analysis	2	0	2	2	6
Integer programming	0	0	0	0	
Linear programming	1	1	1	7	10
Mixed-integer programming	0	1	0	2	3
Multiobjective programming	0	0	1	1	2
Network analysis	1	2	0	4	7
Simulation	16	10	19	123	168
Statistical	2	1	2	14	19
Other	40	14	7	29	90
Total	68	39	35	211	353

[1]The total of 353 exceeds 250 because many tools apply to more than one modeling technique or tool type.

The percentages presented below are based on the total of 353 tool applications, not the total of 250 tools.

Computer programs account for about 60 percent of implementation tool applications, a finding that is not surprising. Computer programs have been around longer than specialized applications such as databases, geographic information systems, and spreadsheets. The most common modeling technique was simulation (48 percent of tool applications). The "other" category for modeling technique (26 percent of tool applications) was dominated by database applications that could not be classified easily into traditional modeling categories.

Computer programs are the most commonly used tool for 11 of the 12 modeling techniques. The sole exception is the combination of database and the "other" category; the 40 tools identified by this combination consist of database applications. Simulation models are the most common modeling technique for all four types of tools.

Far more tools are available for certain purposes than for others. For example, the largest number of tools are for resource effects/production, followed by economic/financial tools, ecosystem analysis tools, and resource scheduling tools; these are traditional areas for modeling. Few tools are available for emerging implementation needs such as monitoring, cumulative effects, spatial analysis, and legal documentation. However, the procedures used in this study (such as requiring tool developers to identify the "primary" purpose or geographical level of

analysis) emphasized numerical disparities. Although many developers identified secondary purposes, those purposes are not identified in our tables. Without doubt, tools have major overlaps in purpose and geographical level. For example, many economic/financial tools primarily intended to analyze timber can also be used to analyze range or recreation resources; similarily many resource scheduling tools intended for forestwide analyses are also applicable to subforest areas. The ability to overlap applications is governed largely by the imagination and creativity of the user, not the intent of the developer. An analysis conducted to assess cumulative effects may be the basis for efforts to monitor Forest Plan implementation.

Not only the availability of certain analytical tools, but the computer operating system for which they were designed can affect the speed and effectiveness of Forest Plan implementation. The list below shows the number of tools using DOS, Data General, and a number of other operating systems:

Operating system	No. of tools
DOS	171
USFS: Data General	83
USFS: NCC-KC	8
UNIX	11
Other	9
Total	282

More than half of the tool applications (61 percent) operate on DOS-based systems. Of those 171 applications, 143 tools operate exclusively on such systems. Yet, the Data General minicomputers owned and operated by the Forest Service are the computer platform most readily available to many, if not most, persons implementing Forest Plans. Only 83 of the tool applications we identified (29 percent) operate on that system. Most existing tools are simply not available on the platform most easily accessible for many Forest Service employees. Another important finding is that only 11 tool applications use a UNIX operating system, the system that will be used by the Forest Service in a few years with the acquisition of workstation technology. The Forest Service will have to consider which tools to convert to the UNIX system, especially since the Data General System will be phased out. The conversion process will be time-consuming and could impede implementation of Forest Plans. The costs of conversion could be substantial.

This inventory of Forest Plan implementation tools provides a starting point for three lines of followup research. First, the tools identified in this study could be evaluated to determine the strengths and weaknesses of tools designed for similar purposes. Many tool users do not have the time or skills for such comparative analysis. This evaluation could also highlight areas where few tools have been developed, pointing to areas that need development, including integrated planning systems. Second, the scope of this inventory could be expanded. The resources available for this study allowed us to inventory just tools obviously useful for Forest Plan implementation. We could not inventory related tools (such as databases for monitoring air quality or localized production models). Similarly, analytical tools could be inventoried worldwide, because forest plans are being developed and implemented in many countries. Third, issues related to information dissemination (or technology transfer) could be explored. Research questions might include: What tools are being used? Why? What barriers exist to effective utilization of existing tools? What are the options for removing those barriers? What are the most effective training programs? Regardless of the research that follows, this inventory is just one of the first steps in improving implementation of Forest Plans.

HOW TO USE THIS GUIDE

Organization of Guide

The Tool Description Form, the basis for the Analytical Tools section, contains 14 categories of information, most of which are self-explanatory (fig. 1). The Brief Description (item 2) is intendedto allow potential users to quickly scan the inventory for tools most capable of meeting their needs. The Additional Description (item 14) provides more information, including how the tool is used in Forest Plan implementation, expected users, inputs and outputs of the tool, links to other tools, geographic limitations, and so forth. Respondents were asked to use "P" for primary and "S" for all secondary categories for items 3, 4, 5, and 7. Only one primary designation was allowed for Geographical Level of Analysis (item 3) and Purpose of Analysis (item 4). More than one primary designation was allowed for Resource of Function (item 5) and Modeling Technique (item 7), but only in cases where all the primary designations were truly meaningful.

The Analytical Tools section of this guide is organized on the category "Purpose of Analysis." The tool descriptions are in subheadings matching the subcategories of Purpose of Analysis. Tools are arranged alphabetically by acronym or name within subheadings. Individual tools were assigned to the subheading based on the "primary" purpose identified on the Tool Description Form.

Five indexes accompany this guide: (1) purpose of analysis by geographical level; (2) purpose of analysis by resource or function; (3) type of tool; (4) modeling technique; and (5) acronym or name. The indexes give the page numbers on which information about the relevant tool appears.

1. Acronym and name.

2. Brief description.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
_ Ecosystem _ Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming _ Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system:
Software package(s):

9. Hardware requirements.

Computer:
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

12. For technical information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:

13. For acquisition information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge: _ Yes _ No

14. Additional description of tool.

Figure 1—Tool Description Form.

Definitions

The following definitions of subcategories were used:

GEOGRAPHICAL LEVEL OF ANALYSIS

Forestwide—Analysis of activities and outputs to assist in the implementation of strategic Forest Plans. Note: Regional or multiforest tools are not included in this inventory because the inventory's focus is on Forest Plan implementation.

Subforest area—Analysis of integrated management activities in a subforest area (such as a ranger district, management area, lake, drainage, timber compartment, or landscape).

Project—Analysis of activities and outputs for a specific project (such as a timber sale or a range allotment plan).

PURPOSE OF ANALYSIS

Budgeting—Analysis of potential budget allocations and programs, and comparison of targets and actual outputs.

Cumulative effects—Analysis of the effects not only of the proposed action, but of past actions and foreseeable future actions. The effects may be ecological, esthetic, cultural, economic, and so forth. The actions may occur in different portions of a landscape at the same time (such as multiple timber sales with extensive road construction) or may occur at a single site at different times (such as the effects of a series of forest practices on a stand).

Economic / Financial—Tools are available for two types of economic analyses (efficiency analysis and impact analysis) as well as for financial analyses.

Ecosystem—Analysis of the structure and function of ecosystems, and their interrelationships.

Legal documentation—Analysis or tracking systems that assist in documentation of the NEPA and other legal processes (such as tracking the status of environmental analysis, public comment analysis, or analysis to assure compliance with relevant laws).

Logging systems—Analysis of alternative logging system designs for a timber harvest project.

Monitoring—Comparison of projected and accomplished activities or resource conditions to assure consistency with the Forest Plan.

Resource effects / Production—Analysis of the effects of activities on specific resources: wildlife habitat models, timber growth and yield models, fire effects models, insect and disease assessment models, and other resource models.

Resource scheduling—Analysis of alternative management strategies for managing resources, including timber harvest scheduling and land allocation.

Spatial—Analysis of a number of actions taking place over a landscape to address spatial concerns, such as the need for wildlife to have some undisturbed areas near areas being disturbed or to examine landscape patterns.

Transportation—Analysis of alternative routes and timing for the transportation system to access a resource.

Other—Other purposes of analysis.

TYPE OF TOOL

Database application—Tools developed for specific database software, such as ORACLE, Paradox and Dbase. Applications in databases normally linked to geographic information systems (such as INFO or ARC/INFO) should be identified under GIS application.

GIS application—Tools designed principally for geographic information systems, including mapping and spatial analysis. Typically this includes standard databases linked with software specifically designed to handle spatial information.

Spreadsheet application—Tools designed as templates or macros for use with spreadsheet software (such as LOTUS 1-2-3, SQL*Calc, Quattro Pro, and CEO Spreadsheet).

Computer program—Tools designed as stand-alone programs or as programs linking two or more applications. Expert systems reported in this study are generally classified as computer programs; many utilities which transfer or transform data from one application to another are also computer programs.

MODELING TECHNIQUE

Artificial intelligence / Expert systems—Approaches that use reasoning processes rather than numerical methods to solve problems in a particular "knowledge domain." Artificial intelligence focuses on mimicking human reasoning; expert systems deal principally with "knowledge systems" that capture expert knowledge that is made available to the user.

Dynamic programming—A generalized mathematical programming approach that typically divides a problem into several, interrelated stages. Decisions at one stage influence decisions made at other stages. Programs are designed to find mathematically optimal solutions for all stages of the problem.

Heuristic process—A judgmental approach that allows unique solutions to problems that are often difficult or impossible to achieve with standard computational methods. These logical, numeric decision rules produce results, but often cannot be proven mathematically. Qualitative and symbolic heuristic processes should be classified in the artificial intelligence/expert systems category.

Input/Output analysis—An approach that classifies industries or sectors within a geographic region and provides financial linkages (usually in terms of annual dollar sales) between them. Models of this type are used to calculate economic impacts of programs or plans, such as jobs, income, or sales created or lost.

Integer programming—A mathematical programming technique that includes an objective function (maximize present net value) and a set of constraint equations (building a campground). This approach uses a single linear objective function and linear constraints. Constraints may be expressed as equalities or inequalities. Unlike linear programming, all decision variables are restricted to integer values.

Linear programming—A mathematical programming technique that includes an objective function (maximize present net value) and a set of constraint equations (nondeclining timber yields). This approach uses a single linear objective and linear constraints. Constraints may be expressed as equalities or inequalities. Solutions may be expressed as continuous numbers.

Mixed-integer programming—A mathematical programming technique that includes an objective function (maximize present net value) and a set of constraint equations (building a campground). This approach uses a single linear objective function and linear constraints. Constraints may be expressed as equalities or inequalities. This approach contains some decision variables that must be integer and some continuous variables. Thus, part of the solution must be integer (build an entire road) and part may be continuous (provide 11.4 acres of elk habitat).

Multi-objective programming—A mathematical programming technique that includes more than one objective function. The objective functions can be either ordinally weighted and sequentially optimized or cardinally weighted and combined into a single objective function. When the objectives are optimized sequentially, each successive attainment is constrained by the previous objective's attainment. When the objectives are cardinally weighted (with prices or other measures of relative value), only a single optimization solution is needed. This approach is used to address multiple objectives and linear constraints. Approaches include goal programming and some applications of parametric linear programming. Constraints may be expressed as equalities or inequalities. Solutions are expressed as continuous numbers.

Network analysis—Approaches that commonly deal with junctions (called nodes) connected by links or branches. Network analysis is commonly used in transportation analysis and provides the basis for the Critical Path Method (CPM) and the Project Evaluation and Review Technique (PERT).

Simulation—Tools that model aspects of natural or economic systems. These tools (or their components) do not use mathematical optimization and are not categorized as artificial intelligence/expert systems, heuristic processes, input/output, or network analysis. Examples include most spreadsheet templates, timber growth and yield models, and many economic models.

Statistical approaches—Tools that use standard statistical techniques (regression analysis, correlation, sampling) to collect, classify, analyze, and interpret numerical data.

Other—Modeling techniques not covered in the categories above. This category includes budgeting models and many database applications.

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ANALYTICAL TOOLS

Budgeting

1. Acronym and name. BUDGET SPREADSHEETS

2. Brief description. This application is a series of linked SQL*CALC worksheets that permit annual budget development analysis, and provide decision support information for use in the budget development, allocation, and decision process.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | S Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Spreadsheet application

8. Supporting software requirements.

Operating system: Data General AOS/VS II
Software package(s): Oracle SQL*CALC version 6

9. Hardware requirements.

Computer: Data General MV4000; more RAM the better
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Brief, multi-page instructions

11. Principal developer.

Jeff Pullen/USDA Forest Service/Huron-Manistee National Forest

12. For technical information, contact:

Name: Jeff Pullen Title: Information Systems Mgr.
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Data General address: J.Pullen:R09F04A

13. For acquisition information, contact:

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421 South Mitchell Street
Cadillac, MI 49601
Telephone: (616)-775-2421 ext. FAX: (616)-779-8737
Data General address: J.Pullen:R09F04A
Data General RIS file: Not currently set up for RISing, as modifications are being made.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The system is used to gather project-specific, work-planning information, combine it by program area, assist in performing analysis, and combine it into a forest total. It assists in further analysis and then permits the distribution of dollars based on the project-specific information received from the field units.

1. Acronym and name. CFES, California Fire Economics Simulator

2. Brief description. CFES is an interactive simulator of initial attack on wildland fire for evaluating the effect of alternative fire protection programs and policies on escape frequency, area burned, resource utilization and costs.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Any Disk space: 360KB RAM space: 448KB
Math co-processor: Mouse:
Printer: Any text printer Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | _ Telephone support
X Other: E-mail support; tutorial

11. Principal developer.

Jeremy Fried and J. Keith Gilless/University of California, Berkeley/ Dept. of Forestry and Resource Management

12. For technical information, contact:

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Data General address: Internet address:gilless@insect.berkeley.edu

13. For acquisition information, contact:

Name: Steven Santiago Title: Software Distribution Coor.
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Office of Technology Licensing
2150 Shattuck Avenue, Suite 510
Berkeley, CA 94720
Telephone: (510)-643-7201 ext. FAX: (510)-642-4566
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

CFES is an interactive program that simulates initial attack on wildland fires. It is intended to improve the efficiency and efficacy of wildlife fire protection when used as a dynamic planning tool to simulate the effects of alternative fire protection policies. Results for each Fire Management Analysis Zone, an area homogeneous in fuels, topography, and structure density, can be aggregated for a state or region-wide analysis. Required inputs are historical fire frequency and spread rates by Fire Dispatch Level (FDL), and the response time and productivity of each firefighting resource at each Representative Fire Location (RFL), with RFL-specific mission costs and per-acre variable costs optional. A list containing the final size, containment time, firefighting costs, and escape status for each modeled fire, the annual number of fires and acres burned by FDL and contained within user-specified size and time limits comprise the principal outputs. The program is compiled in Turbo Pascal, features error-trapped screens for entry and editing of all input, provides context sensitive on-line help, and can display simulation output on a series of screens or send it to a printer or text file.

1. Acronym and name. IAA, Initial Attack Analyzer

2. Brief description. IAA is a part of the National Fire Management Analysis System (NFMAS). After initial inputs, the program "games" different organizational mixes and budget levels. The user is presented with a marginal analysis of the efficiency of the present and alternative organizations.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide	S Subforest area	_ Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	S Timber	S Wildlife
P Fire	S Range	S Vegetation	_ Wilderness
S Fisheries	S Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS 2.1 or later
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer and NCC-KC IBM
Graphics card: Disk space: RAM space: 256KB
Math co-processor: Desirable Mouse:
Printer: 80 character Plotter:
Other: One floppy disk drive capable of reading and writing 5¼ inch, double sided, double-density diskettes.

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.
Stephen F. Pedigo/USDA Forest Service/Fire and Aviation Management; Douglas H. Ford/Minnesota Department of Natural Resources/Division of Forestry

12. For technical information, contact:
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13. For acquisition information, contact:
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Fire and Aviation Management
P.O. Box 96090
Washington, DC 20090-6090
Telephone: (202)-205-1513 ext. FAX:
Data General address: S.Pedigo:W01C
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.
IAA provides input for resource planning, and for fire program development and budgeting. The process evaluates the the efficiency and effectiveness of fire management programs, helps develop and document organization structure, and documents activities and expenditures required by the fire program. The objective of analysis is to identify the fire program and associated budget which will result in the lowest expected total cost, plus net value change (C+NVC). Costs are defined as fire suppression, fire presuppression, and resource value change (loss of resource value due to fire). The program is used to simulate the performance of alternative configurations of the fire management program, across the range of fire conditions that can reasonably be expected to occur over time. The most efficient fire program and the consequences of alternatives to it are identified in the program outputs. Forest Plan alternatives related to fire management can be displayed easily. Expected users are fire planners at local through national levels.

1. Acronym and name. NFMAS, National Fire Management Analysis System

2. Brief description. NFMAS analyzes data and alternatives for fire planning and budgeting.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
S All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: MVS/XA
Software package(s):

9. Hardware requirements.

Computer: IBM mainframe; NCC-KC IBM
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
_ Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Dick Chase/USDA Forest Service/Pacific Southwest Research Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Fire and Aviation Management
P.O. Box 96090
Washington, DC 20090-6090
Telephone: (202)-205-1513 ext. FAX:
Data General address: S.Pedigo:W01C
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. PBDIS, Planning and Budgeting Distributed Information System

2. Brief description. PBDIS currently provides for entry and upward reporting of planning and budget information (e.g., LMP Report to Congress and Program Budgeting). PBDIS 2.2 (just released) allows for local (down to sub unit) customization of budget "processes."

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database applications
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle version 6

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: 6MB DMP file RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Washington Office/Program Development and Budget

12. For technical information, contact:

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Data General address: M.Cummings:W01C
Data General RIS file: Call for latest information

Acquisition charge? X No _ Yes: (Available to FS sites only)

14. Additional description of tool.

PBDIS is a national information system for planning and budget information. PBDIS can be used down to the sub unit (NFC definition) level. Therefore, it can be used by any region, station, forest, lab, or district (accounting center/unit/sub unit) to assist in planning and budgeting. PBDIS will also be used for Management Attainment Reporting (MAR) in FY92.

1. Acronym and name. PLANZ

2. Brief description. PLANZ is a system of computer programs for planning, scheduling, and budgeting post-sale activities, particularly where KV and brush disposal plans must be prepared.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
X Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

David Browder/USDA Forest Service/Lolo National Forest

12. For technical information, contact:

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Coeur d'Alene, ID 83814-2565
Telephone: (208) 765-7407 ext. FAX:
Data General address: G.Tensmeyer:R01F04A
Data General RIS file: Call Greg Tensmeyer

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The software was designed to be used by anyone planning activities that might be included in a BD or KV plan. The software supports a cost database that is useful for tracking district implementation costs. The program is most useful when there are great numbers of activities that must be scheduled and tracked over several years. Some of the routines are specific to Region 1 of the Forest Service, but the core of the program could potentially have utility service wide. The principal outputs are reports based on the user-entered files for each sale or activity area. The database is created by an ISM file and is self-generated by the program. All utilities to create and run the database are internal.

1. Acronym and name. PWPS, Project Work Planning System

2. Brief description. PWPS is a database and report-writing system that will produce Project Work Plans (FS-1900-4) and various summary reports of the work plan data. The system can be used to prepare, edit, check, submit, and revise the Project Work Plan.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS or AOS/VS II
Software package(s): CLI; PRESENT (PRESENT is a reporting and display software for databases)

9. Hardware requirements.

Computer: Data General MV4000 or above
Graphics card: Disk space: 3.2MB RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
X Updates
X Training
X Telephone support
_ Other:

11. Principal developer.

Jim Kucera, Bob Bolt, Bill Eby, Parks Hilliard, Jim Field, Jim Mayo, Bill Damon, Doug Eddy, Lynn Johnson, Jean Hill, and Frank Jackson/USDA Forest Service/Various locations

12. For technical information, contact:

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Telephone: (404)-347-2747 ext. FAX: (404)-347-4448
Data General address: J.Kucera:R08B
Data General RIS file: STAFF:PBSU:SHARE:RELEASES:PWPS_2.50_LIB.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Data are structured around management codes or projects, and the system can be used at any level to prepare work plans, using a format similar to FS-1900-4. A computer-generated output similar to the FS-1900-4 and revised for the NASH (FSH 1309.16) coding structure is available. Several reports are available on personnel, equipment, materials, supplies, and contract costs, as well as accounting and MAR data. The PWPS 2.50 library dumpfile includes several processes that were previously released as separate routines and subsystems. The PWPS Upward Reporting system, PWPS-RMS (Ranger's Management Statement), PWPS-PMS (Project Manager's Statement), and PWPS Proofcheck have been included in the PWPS 2.50 library dumpfile. A Budget Allocation SubSystem (BASS) is available to work with PWPS. PWPS can also be used for program (or out-year) planning. For information concerning this contact Frank Jackson:R03F03A; (505) 761-4650.

1. Acronym and name. R3 IMPLEMENTATION SPDS, R3 Forest Plan Implementation Spreadsheets

2. Brief description. For each budget line item (costs, activities, outputs), other Forest Plan monitoring items, or other items monitored, this tool shows accomplishments: what is planned, percent of plan completed to date, etc., for each of the 10 years in the plan.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Spreadsheet application		

8. Supporting software requirements.

Operating system: Varies
Software package(s): Any spreadsheet software (DG, Lotus, Quattro Pro, etc.)

9. Hardware requirements.

Computer: Varies
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: This is too user-friendly to require documentation.

11. Principal developer.

Reuben Weisz, Jim Crawford, Larry Medlock, Gary Lemkuhl, and Virginia Bowman/USDA Forest Service/Region 3, Land Management Planning: Program Development and Budget

12. For technical information, contact:

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Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. WFRP REPORTING SYSTEM, Wildlife, Fish, and Rare Plant Reporting System

2. Brief description. The Wildlife, Fish and Rare Plant Reporting System is an FES database designed to improve program accountability. The information is needed to justify annual budget requests and to let Congress and our partners know what we are accomplishing in our wildlife and fisheries program.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

P Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
P Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
P Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS 2.01
Software package(s): FES version 2.6

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: 10,000BLKS RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Teri Raml and Antionetta Grant/USDA Forest Service/Washington Office/ Wildlife and Fisheries

12. For technical information, contact:

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Fish and Wildlife
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Washington, D.C. 20050
Telephone: (202)-205-0916 ext. FAX:
Data General address: T.Raml:W01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

In the Washington Office, information from the WFRP Reporting System is used for the Annual Report of the Forest Service, the Challenge Cost Share Report, the Explanatory Notes, and the Expenditure Report for Threatened and Endangered Species required by the Endangered Species Act. At the field level, the information can be used to display resources, opportunities, and accomplishments for the various program elements within the wildlife or fisheries program and rare plant program.

Cumulative Effects

1. Acronym and name. EDA, Equivalent Disturbed Area

2. Brief description. EDA is a method of identifying, assessing, and displaying cumulative impacts of forest activities (timber harvest, roads, range, etc.), as related to 6th-code watersheds.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
P Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | S Monitoring | _ Transportation
S Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | P Soils | S Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
S Fire | S Range | S Vegetation | _ Wilderness
S Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/output analysis | _ Multiobjective programming
P Other: Spreadsheet application

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Methodology writeup and example spreadsheets

11. Principal developer.

Adaptations of methodology: USDA Forest Service/Region 5 and others; Collis Lovely/USDA Forest Service/Apache-Sitgreaves National Forest

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (602)-333-4301 ext. 250 FAX: (602)-333-5768
Data General address: J.Colmer:R03F01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

EDA is an accounting method using a Lotus 1-2-3 spreadsheet to display equivalent disturbed areas. This method is similar to equivalent roaded acres used in Region 5. Various forest practices are assigned disturbance factors and recovery rates to determine when the cumulative effects of these practices has approached a level that would generate a concern or issue within a 6th-code watershed or other planning area. When this occurs, a more specific and detailed watershed analysis is required, or the forest practice may have to be modified or reduced in acreage; or mitigation measures may be required.

1. Acronym and name. ICE, Software Tools for Incremental Cumulative Effects Analysis

2. Brief description. ICE is a collection of computer programs to assist in performance of cumulative-effects analysis. It is currently used for grizzly bears, but could be adapted to any species. Outputs are "habitat effectiveness" and "mortality risk index" for grizzlies.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
P Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
P Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 5.0
Software package(s): Oracle RDBMS version 6.0; QEMM Memory Manager, latest version.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386SX
Graphics card: Disk space: >500MB RAM space: 16MB
Math co-processor: Yes Mouse: Optional
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Collin Bevins/Systems for Environmental Management
Four inter-agency modeling teams from four Western States and Canada

12. For technical information, contact:

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Data General address: R.Richardson:R01A
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

This interagency tool is currently in the testing stage on several different units. It is not yet available for general use throughout grizzly country. The conceptual basis for the model is described in a 12-page document titled, "CEM - A Model for Assessing Effects on Grizzly Bears." ICE uses a GIS, and works on microcomputers.

1. Acronym and name. IMPACTS, Watershed Impact Assessment Model

2. Brief description. This is a cumulative impacts model that addresses the effects of silvicultural activities on water quality and fisheries. The model uses predicted sediment yields as the surrogate for determining cumulative impacts for water quality.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
P Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
S Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
P Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.1 or later; Data General AOS/VS
Software package(s): Executable pc program; Basic DG version

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above; Data General
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ Updates
_ Other:
X User's manual
_ Training
X Publications
_ Telephone support

11. Principal developer.

J. Alan Clingenpeel/USDA Forest Service/Quachita National Forest

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. WATBAL

2. Brief description. WATBAL is a cumulative effects sediment model. Its primary purpose is to define slope stability in the perspective of the watershed. It quantifies and delivers both natural and accelerated sediment, and relates it to a geomorphic threshold developed for that watershed.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
P Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Other:
_ Legal documentation
_ Logging systems
S Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
_ Timber
S Vegetation
_ Visual/Esthetics
_ Other:
P Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
X Updates X Training _ Telephone support
_ Other:

11. Principal developer.

R. Patten/USDA Forest Service/Wasatch-Cache National Forest

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

WATBAL is linked to FISHSED to define Forest Plan standards and guidelines.

1. Acronym and name. WCI, Watershed Condition Index

2. Brief description. WCI is a rating of watersheds based on the physiographic conditions and management activities that are expected to affect watershed parameters. It can only be used for ratings and does not give a good or poor condition.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide	S Subforest area	_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
P Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	P Water
S Cultural	_ Minerals	S Timber	_ Wildlife
S Fire	S Range	S Vegetation	_ Wilderness
S Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
X GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems	_ Integer programming	_ Network analysis
P Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS
Software package(s): Lotus 1-2-3 or any inventory data system, i.e. GIS or database.

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer Plotter:
Other: Can be adapted to any system; very little space is required.

10. Documentation/user support available.

_ On-line help	_ User's manual	_ Publications
_ Updates	_ Training	X Telephone support
X Other: A description of methods is available.		

11. Principal developer.
All BLM hydrologists in western Oregon

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Data General address:

13. For acquisition information, contact:
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Eugene, OR 97440
Telephone: (503)-687-6452 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.
This tool compares watersheds and land-use plans, based on existing data. It will not work for activity plans. The watershed condition index can only be used for comparison.

1. Acronym and name. WRNSHYD, Hydrological Portion of U.S. EPA WRENNSS Manual

2. Brief description. WRNSHYD is the water-yield component of the larger system model from "Water Resources Evaluation Nonpoint Sources Silviculture" (WRENSS). It is an interactive program to estimate effects of existing or proposed silvicultural activities (including harvest) on annual water yield.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
P Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
P Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 700KB RAM space: 256KB
Math co-processor: Mouse:
Printer: Optional Plotter:
Other:

10. Documentation/user support available.

X On-line help | _ User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Robert H. Swanson/R.H. Swanson & Associates

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? _ No X Yes: Cost of disk, mailer, and postage

14. Additional description of tool.

WRNSHYD is an interactive program to estimate effects of planned or existing forest harvests on annual water yield. The program is a full implementation of the graphical procedure given in the U.S. EPA WRENSS handbook. Some modifications have been included to supplement the graphical procedure: i.e., user input of wind speed as it affects snow transport and sublimation; automatic calculation of regeneration height as a function of basal-area increase after harvest; and added curves for deciduous trees in all WRENSS regions. All of these modifications can be switched off to restore original WRENSS results. It is limited to the United States and Canada (excluding Hawaii). Cumulative effects can be obtained. A version to operate directly on dBase files is in development.

1. Acronym and name. XSPRO

2. Brief description. XSPRO is interactive software for analyzing cross-section geometry and flow hydraulics of mountain streams. It can be used to determine stage-discharge relationships for ungauged streams, calculate hydraulic variables useful in assessing channel stability, and monitor channel changes over time.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
P Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | _ Transportation
S Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | P Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
S Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.1 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286, 80386, or 80486
Graphics card: VGA; EGA Disk space: RAM space: 256K
Math co-processor: Mouse:
Printer: Helpful Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Gordon E. Grant, Joseph Duval, and Greg J. Koerper/USDA Forest Service/Pacific Northwest Research Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

XSPRO is intended for watershed specialists, hydrologists, fisheries biologists, or other specialists who need to determine flow conditions in ungauged streams. It is useful for evaluating channel stability, designing channel and riparian structures, analyzing instream flows, reconstructing flood flows and paleo-hydraulics, and monitoring channel changes through time. XSPRO uses channel cross-section surveys and other channel data (i.e. slope, article size) to develop stage-discharge relations. It is specifically designed for high-gradient (slope >0.005) streams typical of many mountainous regions. Special features include supporting alternative resistance equations, allowing for changing slope with discharge, and analyzing complex cross sections with multiple channels.

Economic/Financial

1. Acronym and name. APTHIN

2. Brief description. This program is designed to evaluate multiproduct harvesting opportunities in Appalachian hardwood stands, estimate harvesting revenues for several product utilization options, and identify the product mix that maximizes gross revenue.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
P Statistical

8. Supporting software requirements.

Operating system: DOS 2.1 or later
Software package(s): BasicA or GWBasic Interpreter

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 64KB
Math co-processor: Mouse:
Printer: Optional Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

John E. Baumgras/USDA Forest Service/Northeastern Forest Experiment Station
David O. Yandle/West Virginia University

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

APTHIN uses regression equations developed from thinning yield studies in Appalachian hardwood stands. User enters basal area removals by tree d.b.h. class. APTHIN estimates product yields by product class: large sawlogs, small sawlogs, sawbolts, pulpwood/fuelwood, and whole tree chips. User also enters product prices. The program estimates harvesting revenue for several product marketing options and identifies the option that maximizes gross revenue.

1. Acronym and name. AUTO TIMBER APPRAISAL, Automated Timber Appraisal System

2. Brief description. The Automated Timber Appraisal System is a spreadsheet that automates the Alaska Region's residual value appraisal.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
S Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): DG spreadsheet (is also being converted to Lotus 1-2-3 to be used with an IBM compatible personal computer)

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ Updates
_ Other:
_ User's manual
X Training
_ Publications
X Telephone support

11. Principal developer.

USDA Forest Service/Alaska Region, Timber Management Staff

12. For technical information, contact:

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Data General address: D.Argyle:R10A

13. For acquisition information, contact:

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Telephone: (907)-586-7878 ext. FAX: (907)-586-7843
Data General address: D.Argyle:R10A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The regional office maintains the spreadsheet with the current base year and quarterly data. Field offices request copies and simply fill out the input page with individual sale characteristics. A completed appraisal, including the Form 2400-17, is produced. A modified version runs mid-market appraisals for determining viable sale offerings for planning purposes.

1. Acronym and name. CALDEER, Economic Value of Deer Hunting in California

2. Brief description. CALDEER includes net willingness to pay for deer hunting under different quality levels throughout the State of California. It also includes income and employment generated.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | S Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): FoxBase runtime provided

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 1MB RAM space: 640KB
Math co-processor: Desirable Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

John Loomis and Peter Hunter/University of California, Davis/
Division of Environmental Studies

12. For technical information, contact:

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Davis, CA 95616
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13. For acquisition information, contact:

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Telephone: (916)-752-0523 ext. FAX: (916)-752-3350
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes: Send six floppy disks

14. Additional description of tool.

1. Acronym and name. CASH

2. Brief description. CASH is a cash flow and sensitivity analysis program for evaluating investment alternatives. Outputs include an annual cash flow table, financial performance measures, and a sensitive analysis showing the impact of changes in discount rates and cash flows on profit.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.1 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 360KB RAM space: 256KB
Math co-processor: Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support.

X On-line help X User's manual X Publications
X Updates X Training X Telephone support
_ Other:

11. Principal developer

Dietmar Rose and Charles Blinn/University of Minnesota/Dept. of Forest Resources

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: CBLINN@TELEMAIL:X400
Data General RIS file:

Acquisition charge? _ No X Yes: $30 payable to University of Minnesota

14. Additional description of tool.

CASH is a menu-driven, user-friendly microcomputer program. The program allows project data inputs to be saved and later retrieved from diskette, and utilizes on-screen editing capabilities to allow all inputs to be altered after they are entered. CASH allows the user to quickly evaluate cash flows of costs and revenues (expenditures and receipts or costs and benefits, respectively) over the investment period for any type of investment alternative (forestry, agriculture, engineering, home economics, marketing, etc.). It also makes it possible to easily rank alternative projects based on several investment analysis criteria (NPV, EAI, B/C ratio, payback period, and IRR). For each investment alternative, the program calculates annual cash flows and various measures of project performance. Additionally, it automatically conducts sensitivity analysis on the discount rate and each activity included in the analysis. This type of analysis allows for an easy comparison of projects according to sensitivity of the cash flow estimates.

1. Acronym and name. CHEAPO II, Computerized Help for the Economic Analysis of Prognosis Model Outputs II

2. Brief description. CHEAPO II is intended as a supplemental economic analysis computer program to the Stand Prognosis Model, though it can be used with any computerized timber yield projection system.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
P Economic/Financial _ Monitoring _ Transportation
_ Ecosystem S Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Optional, but recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Lee Medema/University of Idaho; Joe Horn/Boise Cascade Corporation; Erv Schuster/USDA Forest Service/Intermountain Research Station

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Data General address: R.Teck:W04A
Data General RIS file: STAFF:TM:RIS:RIS:CHEAPO.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Since its introduction in 1979, CHEAPO has allowed users of the Stand Prognosis Model to evaluate silvicultural alternatives from an economic point of view. CHEAPO II is compatible with version 5.1+ of the Prognosis Model. CHEAPO II allows users of the Prognosis Model to analyze the economic aspects of management treatments projected by the Prognosis Model and its associated extensions. It also allows users to analyze existing and regenerated stands, even and uneven-aged management, all with a variety of economic decision criteria: soil expectation value, rate of return, and so on. CHEAPO II uses information from two data files, one generated by the Prognosis Model and the other provided by the user. The user-created data file amounts to a set of instructions to CHEAPO II through keyword records. CHEAPO II execution ends with printing of tabular output displaying the set of instructions given to CHEAPO. Because CHEAPO II is executed separately from the Prognosis Model, CHEAPO II can be used to analyze results of any timber yield projection system, provided those results are organized in a Prognosis-like, input data file.

1. Acronym and name. COMMUNITY INPUT/OUTPUT, Community-Intercommunity Input-Output Analysis

2. Brief description. Community models portray the existing economic base of communities and economic impacts at the community level. Intercommunity models indicate the spatial diffusion of impacts across communities.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide	_ Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
P Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	S Other: Equity effects

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
P Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS
Software package(s): Lotus 1-2-3

9. Hardware requirements.
Computer: IBM or compatible microcomputer 80386
Graphics card: Disk space: 10MB RAM space: 8MB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.
_ On-line help X User's manual X Publications
X Updates X Training X Telephone support
X Other: Documentation: "Accounting Structure and Modeling Methods for Constructing Community Input-Output Models." M.H. Robison, 1992.

11. Principal developer.
M.H. Robison/University of Idaho/Dept. of Agricultural Economics
Robison and Associates/Consulting Economists

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Data General address:

13. For acquisition information, contact
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606 Hathaway Street
Moscow, ID 83843
Telephone: (208)-883-2565 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
Community models have been used throughout USDA Forest Service Region 4 to assess the employment and income impacts of forest planning. The models provide impacts at the community level and indicate spill-over impacts, usually to larger, economically dominant places, because of regional trade linkages.

1. Acronym and name. DF PRUNE, Douglas-fir Pruning Simulator

2. Brief description. DF PRUNE is a spreadsheet program designed to estimate the expected financial return from pruning coastal Douglas-fir.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
P Economic/Financial _ Monitoring _ Transportation
_ Ecosystem S Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application X Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3 version 2.01 or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Roger D. Fight/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

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13. For acquisition information, contact:

Name: Title:
Address: Forest Resources Systems Institute (FORS)
122 Helton Court
Florence, AL 35360
Telephone: (205)-767-1250 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

DF PRUNE can be used to help decide which stands should have highest priority for pruning, which trees in those stands should be pruned, and how many trees should be pruned. It can be used to establish the financial return for different stands, to identify acres of silvicultural treatment for the silvicultural needs assessment. It is applicable throughout the Douglas-fir region.

1. Acronym and name. DGECON, Economic and Financial Analysis System - Data General

2. Brief description. DGECON is an interactive system designed for use on Data General MV-Series hardware. The system's purpose is to evaluate proposed Forest Service projects as to their economic and financial efficiency, and to rank alternatives by economic benefit-cost and financial revenue-cost ratios.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

John M. DeVilbiss/USDA Forest Service/Rocky Mountain Region

12. For technical information, contact:

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Data General address: J.DeVilbiss:R02A

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Data General address: J.DeVilbiss:R02A
Data General RIS file: Call for retrieval instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The purpose of the DGECON system is to provide users, primarily forest and district resource professionals, with a "user-friendly" tool for conducting economic and financial efficiency analyses. The DGECON system accomplishes this through a "menu-driven" format that prompts the user for specific, resource related data only. This relieves the user of time-consuming and, often, miscalculation-prone activities, such as deflating/inflating, discounting, other arithmetic functions, and report formatting. The user remains responsible for the proper formulation of project alternatives, ensuring accurate and appropriate data are provided to DGECON, and making evaluations of the analysis results.

1. Acronym and name. DLOG, Delivered Log Price Model

2. Brief description. The model accepts commonly available, timber sale statistics and calculates the timber purchaser's value/cost (V/C) ratio. This ratio portrays the relative economic attractiveness of timber sale alternatives from purchaser's standpoint.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Data General compiled Basic

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Laser Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Dick Artley/USDA Forest Service/Nez Perce National Forest;
Ed Butler/USDA Forest Service/Clearwater National Forest

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13. For acquisition information, contact:

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Telephone: (208)-983-1950 ext.4181 FAX: (208)-983-1553
Data General address: D.Artley:R01F17A
Data General RIS file:
R01E:PUBLIC:APPLICATION_LIBRARY:RETRIEVAL:DLOGPRICE.05.14.87.DMP (for dumpfile); DLOGPRICE.05.14.87 (for abstract)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The model calculates the "out of pocket" expenses for a purchaser to buy a Forest Service timber sale. These total costs are then compared to the total value of the timber delivered at the mill that the purchaser would be willing to pay on the private market; this results in the V/C ratio. Once a Forest has collected some background performance data, a break-even (sell-no sell) V/C ratio can be calculated. The model will accept user input in the following areas: species mix, average d.b.h., average defect, skidding distance and logging system, haul cost, road maintenance costs, BD/KV costs, road miles and cost per mile, local delivered log prices by species, road type and traffic service level, unit and road ROW acres, and cut volume/acre by species, etc. The model calculates stump-to-truck logging costs for the local central Idaho area. The user guide spells out how the users can update the logging cost coefficients to fit their areas.

1. Acronym and name. DPDFSIM, Dynamic Programming with the Douglas-fir Simulator Model

2. Brief description. The Douglas-fir growth and yield simulator model was fit with a dynamic programming algorithm. The intent is to find the best schedule of thinnings and rotation lengths to maximize volume or value, subject to some constraints.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
P Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386
Graphics card: Disk space: RAM space:
Math co-processor: Intel or Weitek Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

K.N. Johnson/Oregon State University
Kathy Sleavin/WO-LMP Fort Collins

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13. For acquisition information, contact:

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333 SW. First
Portland, OR 97204
Telephone: (503)-326-2810 ext. FAX:
Data General address: S.Crim:R6/PNW
Data General RIS file: Not yet available.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

DPDFSIM is a combination growth and yield, and optimizer model. It can be used in project and area planning to evaluate the most economical silvicultural prescription. DFSIM is for managed stands for coastal Douglas-fir. DPDFSIM should be available in Fall 1992.

1. Acronym and name. ECONHDWD

2. Brief description. ECONHDWD is a computer program for assessing the economic consequences of vegetation management on the pine component of unthinned loblolly pine plantations.

3. Geographical level of analysis (P = primary and S = secondary).

_S_ Forestwide
_P_ Subforest area
_S_ Project

4. Purpose of analysis (P = primary and S = secondary).

__ Budgeting
__ Cumulative effects
_P_ Economic/Financial
_S_ Ecosystem
__ Legal documentation
__ Logging systems
__ Monitoring
_S_ Resource effects/Production
__ Resource scheduling
__ Spatial
__ Transportation
__ Other:

5. Resource or function (P = primary and S = secondary).

__ Air
__ Cultural
__ Fire
__ Fisheries
__ All resources
__ Insect/Disease
__ Minerals
__ Range
__ Recreation
__ Not applicable
__ Soils
_P_ Timber
__ Vegetation
__ Visual/Esthetics
__ Other:
__ Water
__ Wildlife
__ Wilderness

6. Type of tool.

__ Database application
__ GIS application
_X_ Spreadsheet application
_X_ Computer program

7. Modeling techniques (P = primary and S = secondary).

__ AI/Expert systems
__ Dynamic programming
__ Heuristic process
__ Input/Output analysis
__ Other:
__ Integer programming
__ Linear programming
__ Mixed-integer programming
__ Multiobjective programming
__ Network analysis
_P_ Simulation
_S_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Recommended Disk space: Variable
RAM space: Variable
Math co-processor: Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

__ On-line help _X_ User's manual _X_ Publications
__ Updates __ Training __ Telephone support
__ Other:

11. Principal developer.

Harold E. Burkhart/Virginia Polytechnic Institute and State University/Dept. of Forestry

12. For technical information, contact:

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Dept. of Forestry
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Data General address:

13. For acquisition information, contact:

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Telephone: (703)-231-6952 ext. FAX: (703)-231-3330
Data General address:
Data General RIS file:

Acquisition charge? __ No _X_ Yes:

14. Additional description of tool.

Stand inputs to the model are number of loblolly pine trees per acre planted, site index for loblolly pine (base age 25), percent of hardwood basal area in the main canopy of the stand at which hardwood reduction occurs, age at which output is desired, merchantability, and conversion limits. Economic data inputs to the model include stumpage prices for pulpwood and sawtimber, stand establishment costs, and harvesting, hauling, and maintenance costs. Outputs include stand and stock tables with and without hardwood control, estimates of the volume in hardwood pulpwood, and economic analysis tables for comparing with and without control regimes. ECONHDWD was developed using 189 old-field and 186 cutover, site-prepared plantation plots, and validated with independent data ranging in percent basal area in hardwood from 0 to 100 percent. For a specified pulpwood or sawlog regime, an economic analysis can be obtained which includes net and gross harvest value, net present value, internal rate of return, and the marginal rate of return on the hardwood reduction operation.

1. Acronym and name. ECONOMIC

2. Brief description. ECONOMIC calculates present value, general cost/benefit streams, and accumulates activities into projects and projects into programs.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
P Economic/Financial
_ Ecosystem
S Logging systems
_ Monitoring
_ Resource effects/Production
_ Legal documentation
_ Spatial
_ Transportation
_ Other:
_ Resource scheduling

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Conrad Mandt/USDA Forest Service/Pacific Northwest Region

12. For technical information, contact:

Name: Fred Page Title:
Address: USDA Forest Service, Pacific Northwest Region
333 SW. First, P.O. Box 3623
Portland, OR 97204
Telephone: (503)-326-3538 ext. FAX:
Data General address: F.Page:R06A

13. For acquisition information, contact:

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333 SW. First, P.O. Box 3623
Portland, OR 97204
Telephone: (503)-326-3538 ext. FAX:
Data General address: F.Page:R06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

ECONOMIC is used for TSPIRS analysis.

1. Acronym and name. EDDAPS, Economic Diversity and Dependency Analysis

2. Brief description. This set of Paradox Scripts allow a person to conduct an economic diversity and dependency analysis for any economic area for which a Micro-IMPLAN analysis has been completed. The Paradox (relational database) software is required.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
P Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
_ GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
P Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS
Software package(s): Micro-IMPLAN (91-09); Paradox 3.5

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Yes Plotter:
Other: Standard hardware requirements to run Micro-IMPLAN (91-09)

10. Documentation/user support available.

_ On-line help	_ User's manual	X Publications	
_ Updates	_ Training	_ Telephone support	
X Other: Read-me file with Paradox Scripts disks			

11. Principal developer.

John M. DeVilbiss/USDA Forest Service/Rocky Mountain Region;
Ken Cushing/USDA Forest Service/Pacific Northwest Region

12. For technical information, contact:

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1117 West 8th Avenue, P.O. Box 25127
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Telephone: (303)-236-9647 ext. FAX: (303)-236-9668
Data General address: J.DeVilbiss:R02A

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Data General address: J.DeVilbiss:R02A
Data General RIS file: Call IMPLAN newsletter bulletin board for retrieval of Paradox Scripts files.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The Economic Diversity and Dependency Analysis is aimed at addressing the following questions: How diversified is an area economy? What are the important "engine" sectors driving the economy? What key sector is the area economy most dependent upon? An associated analysis that may be undertaken independent of these scripts is to use Micro-IMPLAN to answer the question: How dependent is the area economy on adjacent national forest and/or national grassland activities and expenditures? This analysis was developed for, and conducted as part of, the Rocky Mountain Region's Regional Guide effort in 1990. This analysis is documented in the Draft Economic Diversity and Dependency Assessment, a stand-alone document that is part of the regional guide. The Paradox Scripts were used to update the original 1990 draft analysis using the new 1985 Micro-IMPLAN code and database. This final Economic Diversity and Dependency Assessment will be available in the near future.

1. Acronym and name. EFFICIENCY - A Computer Aided Approach to Economic Efficiency Analysis

2. Brief description. EFFICIENCY is a program designed to help avoid numerous repetitive calculations that are necessary in any economic efficiency analysis. It also simplifies testing of different parameters such as discount rates, costs, prices, or various sequences of activities or outputs.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General Eclipse Series
Graphics card: Disk space: Variable RAM space: Variable
Math co-processor: Mouse:
Printer: Laser Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | X Telephone support
X Other: DG mail support via J.Haugen:R06F20A

11. Principal developer.

Jerry Haugen/USDA Forest Service/Winema National Forest

12. For technical information, contact:

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Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A
Data General RIS file: R01E:PUBLIC:APPLICATION_LIBRARY:RETRIEVAL:EFFICIENCY.2. 52187.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

EFFICIENCY was originally designed to analyze the economic efficiency of precommercial thinning of timber stands. It has also been used to compare a full range of alternative timber prescriptions on an economic efficiency basis. Such analysis can be used in the development of prescriptions to be used in FORPLAN or other models. It can also be used in project development to develop efficient ways of implementing the Forest Plan. Applications include the design of a marina in such a way that development would be attractive to a concessionaire, development of soil expectation values for TSPIRS reports, and many others. Inputs are expected costs and returns over time. Outputs are all the efficiency indicators described in FSH 1909.17 (e.g., PNV, B/C, EAI and Se).

1. Acronym and name. ELKECON, Elk Habitat-Hunting Model

2. Brief description. ELKECON links elk habitat changes to elk hunting benefits in the Elkhorn Mountains of Montana, Helena National Forest.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3 version 2.0

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Helpful Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

John Loomis/University of California, Davis/Division of Environmental Studies

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

ELKECON will be available Fall, 1992.

1. Acronym and name. FORSight

2. Brief description. FORSight is a general purpose, linear-regression program with special capabilities for analyzing timber stumpage prices.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
P Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: CGA Disk space: 500KB RAM space: 640KB
Math co-processor: Mouse: Not supported
Printer: Required Plotter: Not supported
Other: Special version for Hercules graphics card

10. Documentation/user support available.

X On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: Distribution and support available through Forest Resources Systems Institute.

11. Principal developer.

J. Michael Vasievich, David G. Kowalski, and Sharon L. Hobrla/
USDA Forest Service/North Central Forest Experiment Station

12. For technical information, contact:

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East Lansing, MI 48823
Telephone: (517)-355-7740 ext. FAX: (517)-355-5121
Data General address: M.Vasievich:S23L03A

13. For acquisition information, contact:

Name: Title:
Address: Forest Resources Systems Institute
122 Helton Court
Florence, AL 35630
Telephone: (205)-767-0250 ext. FAX: (205)-767-3768
Data General address: Forest Service personnel should request through FORS.
Data General RIS file:

Acquisition charge? _ No X Yes: Distribution and support

14. Additional description of tool.

The primary purposes of FORSight are to predict timber bid prices based on statistical analysis of comparable timber sales and to analyze trends in historical timber prices. Users can build databases of regional timber sales, time series of prices, and other data in a common spreadsheet format. Linear- regression analysis is used with user-specified models to estimate bids, find trends, calculate rates of price change, and make short-term projections. Data and results can be graphed on the screen. A user's manual and on-line help screens are provided. The regression procedures used in FORSight are general enough for many common forestry problems requiring multiple linear-regression analyses such as estimating growth and yield models, cost analyses, volume equations, and similar problems.

1. Acronym and name. FORVAL, FORest VALuation

2. Brief description. FORVAL is designed for cash-flow analysis of forestry investments.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS; DOS
Software package(s):

9. Hardware requirements.

Computer: Data General; IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: If available Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Designed for use without a manual, but research paper is available.

11. Principal developer.

S. H. Bullard, T. J. Straka, and T. G. Matney/Mississippi State University

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Mississippi State, MS 39762
Telephone: (601)-325-2781 ext. FAX: (601)-325-8726
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The program is a simple, yet generally applicable tool. It was designed for use in teaching the basics of forestry investment analysis (as a complement to in-class lectures).

1. Acronym and name. FWL-REC, Fish, Wildlife, and Recreation Economic Analysis

2. Brief description. FWL-REC is a pc spreadsheet-based model for economic analysis of fish, wildlife, and recreation projects. It calculates and reports PNV, B/C, IRR, and Net Annualized Value for a project or group of projects.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
P Economic/Financial _ Monitoring _ Transportation
_ Ecosystem _ Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber P Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
P Fisheries P Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application X Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Lotus 1-2-3 version 2.2 or later; Quattro Pro 2.0+; Symphony. Version available is in Lotus.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or 80386
Graphics card: CGA+ Disk space: 100-200KB
RAM space: 640KB min.
Math co-processor: Useful, not required Mouse:
Printer: Dot matrix or laser Plotter:
Other: Wide-carriage printer can print entire worksheet. Print-to-fit capability (e.g. in Quattro Pro) allows regular printers to do the same.

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Christopher S. Hansen/USDA Forest Service/Mt. Baker-Snoqualmie National Forest

12. For technical information, contact:

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Telephone: (206)-744-3276 ext. FAX: (206)-744-3255
Data General address: C.Hansen:R06F05A
Data General RIS file: Not currently set up for RIS, but will be in the future.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

There are three FWL-REC templates: 1) a single project with prenamed activities and outputs; 2) a five-project version; and 3) a free-form, menu-driven version, in which the user can specify whatever activity and output categories are desired. Version 3 is not tied to a database. In Template 1 and 2, a template of activity and output titles is provided, but can be modified or supplemented by the user; template items not used do not affect model calculations. In Template 3, the user supplies all desired activity and output titles. Data on timing and periodic occurrence of costs and benefits, cost and benefit values, and output estimates are entered directly by the user. The discount rate is user specified and may be easily changed for sensitivity analysis. Calculations are summarized into a three-page report, summarizing economic efficiency measures and the costs and benefits associated with the major categories of planning, preconstruction, construction, and operations and maintenance (O & M).

1. Acronym and name. GAMEFISH, Bioeconomic Model of Salmon and Steelhead Fishing in the Pacific NW

2. Brief description. GAMEFISH quantifies economic efficiency value of increases or decreases in salmon and steelhead recreational fishing in Oregon, Washington, and Idaho. It includes a macro-driven Lotus 1-2-3 file, using a travel-cost method.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
S Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
P Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
S Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
P Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3 1A or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 512KB
Math co-processor: Desirable Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

John B. Loomis/University of California, Davis/Division of Environmental Studies

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13. For acquisition information, contact:

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University of California
Davis, CA 95616
Telephone: (916)-752-0523 ext. FAX: (916)-752-3350
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send floppy disks for each state.

14. Additional description of tool.

1. Acronym and name. HDM III

2. Brief description. HDM III is a road deterioration model that gives economic and management information concerning maintenance and construction of roads. User can try various maintenance strategies, and examine resulting maintenance and vehicle costs over an analysis period.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
S Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ Updates
_ Other:
X User's manual
X Training
_ Publications
_ Telephone support

11. Principal developer.

World Bank/McTrans/University of Florida

12. For technical information, contact:

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Moscow, ID 83843
Telephone: (208)-885-6402 ext. FAX:
Data General address: D.Haber:S22L04A
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

This tool is primarily used to estimate costs of road maintenance and vehicle operating costs for a given traffic level and a given maintenance strategy. It can be used for aggregate and flexible pavements, and can be used for a single road analysis or a road system. Environmental factors and road surfacing characteristics should be taken into account. This model is fairly data intensive and takes considerable training to run, but fits easily on most personal computers. It produces very good documents and the output can be entered directly to spreadsheet software for graphical presentations.

1. Acronym and name. HOPPER and HOPPER LITE

2. Brief description. HOPPER is decision-support software for selection and financial analysis of rangeland grasshopper-control options.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | _ Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | S Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | S Water
_ Cultural | _ Minerals | _ Timber | S Wildlife
_ Fire | P Range | _ Vegetation | _ Wilderness
_ Fisheries | S Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | S Linear programming | S Simulation
S Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 with hard drive
Graphics card: VGA Disk space: 1.5MB RAM space: 450KB min.
Math co-processor: Highly recommended Mouse: Optional
Printer: Optional Plotter: Optional
Other: HOPPER LITE will run on any IBM or compatible microcomputer with about 350K RAM and a single floppy drive; graphics card and hard drive not required.

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

James S. Berry, William P. Kemp, and Jerome A. Onsager/USDA/ARS Rangeland Insect Lab

12. For technical information, contact:

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Rangeland Insect Lab
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13. For acquisition information, contact:

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Data General address: Internet rriwk@TERRA.OSCS.MONTANA.-EDU FTS2000 A03LCBOZEMAN
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

HOPPER is limited to western rangelands. It generally must be used in conjunction with the USDA/APHIS-PPQ (Plant Protection and Quarantine) model to make recommendations for large (>10,000 acre) blocks for grasshopper control. Input data requirements are extensive. The program uses an expert system to select appropriate treatments based on environmental concerns, timing, and weather. These treatments are then evaluated economically through the use of forage and grasshopper simulation models and a ranch LP model. HOPPER LITE runs quickly on any machine and requires almost no expertise with grasshoppers. It is not as precise as HOPPER, but can be used for quick, initial evaluations. It uses the same expert system as HOPPER, and simulations are replaced by meta-models that capture most of simulation information by using mathematical functions (developed using AI techniques).

1. Acronym and name. IMPLAN, Impact Analysis for Planning

2. Brief description. IMPLAN is a microcomputer-based system for constructing regional economic accounts, social accounting matrices, input-output tables, and regional predictive models.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
X Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
P Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Can interface with spreadsheets and database systems.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 4MB RAM space: 640KB
Math co-processor: Required Mouse:
Printer: Plotter:
Other: 4MB of disk space are required for system; 1-3MB for applications.

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates X Training X Telephone support
X Other: Bulletin board system 612-625-1296

11. Principal developer.

Greg Alward/USDA Forest Service/Land Management Planning

12. For technical information, contact:

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3825 East Mulberry Street
Fort Collins, CO 80524
Telephone: (303)-498-1861 ext. FAX: (303)-498-1660
Data General address: G.Alward:W04A

13. For acquisition information, contact:

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Address: University of Minnesota, Dept. of Agriculture and Applied Economics
Room 231 Classroom Office Building, 1994 Buford Ave.
St. Paul, MN 55108
Telephone: (612)-625-8246 ext. FAX: (612)-625-6245
Data General address:
Data General RIS file: Forest Service users, see RIS information in the LMP Information Center (IMPLAN folder).

Acquisition charge? _ No X Yes: For non-Forest Service users only

14. Additional description of tool.

With the IMPLAN system's software and database, users can construct non-survey, input-output models for any county, or combination of counties in the United States. It is suitable for conducting economic impact assessments. IMPLAN has also been used by Mexico, Canada, and other foreign countries.

1. Acronym and name. MANAGE

2. Brief description. MANAGE is a computer program that can be used to estimate the costs and benefits associated with eastern hardwood management.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

Chris B. LeDoux/USDA Forest Service/Northeastern Forest Experiment Station

12. For technical information, contact:

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Morgantown, WV 26505
Telephone: (304)-285-1583 ext. FAX: (304)-285-1505
Data General address: C.LeDoux:S24L08A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. MTVEST, MTVEST—DG/PC

2. Brief description. MTVEST is a computer program to evaluate the economic and financial aspects of forestry investment opportunities. MTVEST operates on either an IBM compatible personal computer or the Forest Service's Data General computer.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS; DOS 2.1 or later
Software package(s):

9. Hardware requirements.

Computer: Data General; IBM or compatible microcomputer
Graphics card: Disk space: 500KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes, if wide carriage Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Hans R. Zuuring/University of Montana/School of Forestry; Ervin G. Schuster/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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Telephone: (406)-721-5694 ext. FAX: (406)-543-2663
Data General address: E.Schuster:S22L01A

13. For acquisition information, contact:

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Telephone: (406)-721-5694 ext. FAX: (406)-543-2663
Data General address: E.Schuster:S22L01A
Data General RIS file: Unknown at this time.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

MTVEST is a computer program written in FORTRAN IV language. It performs economic analyses on a data input file that fully describes the costs and benefits of a set of forestry investment opportunities; projects or programs. Economic dimensions of the investment opportunities are organized into "base" problems and "alternatives" to the base problem. Data records are classified into seven "types," which are placed in a specific sequence. Each type of record contains unique data elements that are arranged in a specific order. Input data sets can be provided to MTVEST via conversational (interactive), fixed format, or free format modes. MTVEST can preform a wide variety of economic analyses through a series of special program features, some provided automatically and others specified by the user. The following analyses are performed on each project: discounted costs and revenues (at up to five discount rates), B/C, PNW, AEV, LEV, and IRR. MTVEST accommodates real or nominal discount rates and real value changes. Projects are ranked by eight investment criteria; a marginal analysis summary is also provided. MTVEST is patterned after, and performs similarly to its predecessor, INVEST III.

1. Acronym and name. PJ, PJ Sales

2. Brief description. PJ performs economic analyses and timber sale appraisals on cutting units and collections of units. It works with current and future activities in existing stands and regenerated stands.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
S Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 and above
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Can operate with floppy disks.

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Conrad Mandt, Dale Pekar, Larry Johnson, and Fred Straus/USDA Forest Service/Region 6 and Wallowa Whitman National Forest

12. For technical information, contact:

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Data General address: D.Pekar:R04F15A

13. For acquisition information, contact:

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P.O. Box 3623
Portland, OR 97208
Telephone: (503)-326-7744 ext. FAX:
Data General address: C.Mandt:R06A
Data General RIS file: R06A:STAFF:PLAN:CONRAD:PROGRAMS:PJ.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.

PJ could be linked to general SNAP II output. It has been linked to MOSS through its IMPORT/EXPORT function. PJ includes both short-term and long-term analysis. It is menu-driven with a graphical user interface.

1. Acronym and name. PP PRUNE, Ponderosa Pine Pruning Simulator

2. Brief description. PP PRUNE is a spreadsheet program designed to estimate the expected financial return from pruning ponderosa pine.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3 version 2.01 or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Natalie A. Bolon and Roger D. Fight/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

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Portland, OR 97208
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Data General address: N.Bolon:S26L07A

13. For acquisition information, contact:

Name: Title:
Address: Forest Resources Systems Institute
122 Helton Court
Florence, AL 35630
Telephone: (205)-767-1250 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

PP PRUNE can be used to help decide which stands should have highest priority for pruning, which trees in those stands should be pruned, and how many trees should be pruned. It can be used to determine financial returns for different stands and to identify acres of silvicultural treatment for the silvicultural needs assessment. Its primary area of application is eastern Oregon, but can probably be applied, with care, in other ponderosa pine regions.

1. Acronym and name. PRICE

2. Brief description. PRICE monitors forest products prices and displays recent data in graphical format.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Basic language compiler

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: 100KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Jeff Martin/University of Wisconsin, Madison/Dept. of Forestry

12. For technical information, contact:

Name: Jeff Martin Title: Professor
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1630 Linden Drive
Madison, WI 53706
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Data General address:

13. For acquisition information, contact:

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1630 Linden Drive
Madison, WI 53706
Telephone: (608)-262-0134 ext. FAX: (608)-262-9922
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Supply diskette

14. Additional description of tool.

Send a formatted, double-density diskette ($5^1/_4$" or $3^1/_2$") to obtain a copy.

1. Acronym and name. QUICK-SILVER, Forestry Investment Analysis Program

2. Brief description. QUICK-SILVER version 4.0 is an interactive program to evaluate financial returns of forest management investments. This version is a major revision of earlier editions of QUICK-SILVER.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
S Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
S Other: Cash-flow analysis
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): None required. QUICK-SILVER will run as a DOS application under MS-Windows.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: CGA Disk space: 500KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Required Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
_ Updates X Training X Telephone support
X Other: Training through locally organized workshops; used in university courses; distribution and support available through Forest Resources Systems Institute.

11. Principal developer.

J. Michael Vasievich/USDA Forest Service/North Central Forest Experiment Station

12. For technical information, contact:

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1407 South Harrison Road
East Lansing, MI 48823
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13. For acquisition information, contact:

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122 Helton Court
Florence, AL 35630
Telephone: (205)-767-0250 ext. FAX: (205)-767-3768
Data General address: S23L03A (For RIS requests from FS staff)
Data General RIS file: S23L03A:STAFF:RWU4804:DISTRIBUTION:COMPUTER:QSILVER2/QSILVER4 (when available)

Acquisition charge? _ No X Yes: Distribution and support

14. Additional description of tool.

Quick-Silver calculates financial returns of most forms of forest management investments in any forest region or type. Users can enter and edit data, list investment transactions, display cash flows, produce financial reports, and save, load, and delete case files. Four data input groups are needed to describe each investment case: initial economic conditions; transactions describing activities, costs, revenues, and management schedules; a case description; and economic parameters. Output reports include a transaction list, cash flow details, financial returns, and sensitivity analysis. Outputs are written to disk and are displayed on the screen or printed. A user's manual and on-line help screens are provided. The program is interactive, but users can run multiple analyses in a batch. Users can change forest management activities names, products and units, conversion factors, standard costs and prices, and economic parameters as desired. New features in version 4.0 include: a data dictionary to save default costs and prices; special data files without costs or prices; and output of selected results to a log file. A conversion utility is provided to convert older Quick-Silver cases.

1. Acronym and name. RMM, Recreation Market Model

2. Brief description. RMM is a short-run, partial equilibrium market model for use in planning and policy analysis of recreation sites. RMM performs three primary analyses: demand (travel cost), supply, and partial equilibrium analysis between the consumer demand and the operator's on-site marginal cost functions.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
P Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	S Wilderness
_ Fisheries	P Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
_ Heuristic process	_ Mixed-integer programming	P Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 520KB
Math co-processor: Yes Mouse:
Printer: Very helpful, but not necessary. Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.

USDA Forest Service/Rocky Mountain Experiment Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Fort Collins, CO 80524
Telephone: (303)-498-1885 ext. FAX: (303)-498-1660
Data General address: G.Peterson:S28A
Data General RIS file:

Acquisition charge? X No _ Yes: Send diskette

14. Additional description of tool.

Send double-sided, double or high density, $5^1/4$" or $3^1/2$" diskette.

1. Acronym and name. RMTCM, Rocky Mountain Travel Cost Model

2. Brief description. RMTCM is an interactive, menu-driven program for performing travel cost analysis. The program has four main modules: data input, data modification, regression analysis, and report writing. It graphs second-stage demand curves and estimates consumer surplus.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | S Wilderness
_ Fisheries | P Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 256KB
Math co-processor: Helpful, but not necessary. Mouse:
Printer: Very helpful, but not necessary. Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Rocky Mountain Forest and Range Experiment Station

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes: Send floppy disk.

14. Additional description of tool.

This program is useful in valuing certain kinds of non-market products based on wildland resources. Consequently, information gained from use of RMTCM may be helpful when planning resource management. It is used primarily for recreation, but could be used for other resources where travel to a specific site for a specific purpose is an important cost factor.

1. Acronym and name. SILVIDSS, Silvicultural Decision Support System

2. Brief description. SDSS uses decision trees to identify the optimal sequence of silvicultural treatment for stand conditions, outcome probabilities, and stand and forest-level objectives. It is currently in the prototype stage.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
P Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	S Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other: Decision analysis		

8. Supporting software requirements.

Operating system: DOS 3.0
Software package(s): XMP Mathematical Programming Library (needed for forest-level objectives and constraints); dBase 4 (these may be replaced by public domain packages in version for distribution.)

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:
NOTE: Distributable version should be available March 1993. A test version may be available to those with a valid XMP license and willing to test the concept.

14. Additional description of tool.

SDSS provides silvicultural planners with a tool to calculate expected net benefits of stand re-establishment and tending activities, accounting for the probabilities of treatment success and failure. The model uses a decision-tree approach to determine the optimal choice of treatment at a point in time, given outcomes at previous nodes in the decision tree and probabilities of outcomes occurring in the future. Benefits may be expressed as dollars, volume, or employment. SDSS currently runs in 2 optimization modes: stand level and forest level. In the stand level mode, final harvest is assumed to occur at an optimal (Faustmann rotation) harvest age. In the forest level mode, benefits of treatments are calculated by of a linear programming-based harvest scheduling model incorporating periodic flow constraints. SDSS requires many different kinds of data. Treatment options for different stand types must be identified. The costs options, probability of success, and outcomes of treatments must be identified. To determine the net treatment benefits, timber growth curves, logging and milling costs, product mix, and product prices are needed. If forest level optimization is to be used, forest inventory information and policy constraints are needed. If hard data are not available, best estimates and concensus estimates may be used. SDSS is like a customized "expert system".

1. Acronym and name. STAND EVALUATOR

2. Brief description. This is a set of five programs that post-process growth and yield output from CACTOS/CRYPTOS growth and yield models. The programs use standardized binary unit formats, allowing simulator or other source code output to be easily formatted into Stand Evaluator input.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
P Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Data processing		

8. Supporting software requirements.

Operating system: DOS
Software package(s): Uses output from CACTOS/CRYPTOS as input.
Source code (ANSI-standard FORTRAN) provided.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Yes (87-type) Mouse:
Printer: Plotter:
Other: Any system with FORTRAN 77 compiler

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	_ Telephone support
X Other: Source code		

11. Principal developer.

P. J. Daugherty, J. K. Gilless, and L. S. Davis/University of California, Berkeley/Dept. of Forestry and Resource Management

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Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

The CACTOS/CRYPTOS Stand Evaluator consists of five computer modules that can be used with the CACTOS or CRYPTOS growth and yield simulator in a variety of combinations and ways to facilitate economic analysis of management options: 1) CTLAVG aggregates plot-based growth and yield data to the stand or stand-type level. It produces an average tree list by calculating a weighted average of the plot-based tree lists produced by CACTOS/CRYPTOS; 2) YDSPLT interpolates the periodic (5-year) data in CACTOS/CRYPTOS tree list files or average tree list files to produce annual tree lists for input to short term harvest scheduling models; 3) LGBUCK converts the tree list files generated by CACTOS/CRYPTOS, CTLAVG, or YDSPLT into log list files that describe growth and yield of merchantable timber over time; 4) LOGVAL produces a log-value list file by associating user-supplied prices and costs (up to three types) with individual log records; and 5) RPTWRT produces economic reports for user-defined management units.

1. Acronym and name. TEAS, Transactional Evidence Appraisal System

2. Brief description. This is a program on the Data General that calculates PNV for individual harvest units in a timber sale alternative. It then summarizes the information for the sale alternative and the overall sale.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: 1500Blks RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates X Training X Telephone support
_ Other:

11. Principal developer.

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Data General RIS file: PUBLIC:2400_TIMBER:TEAS:TEAS_LOLO.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This tool is used at the district level to provide information on the PNV for various alternatives designed during the EA or EIS process for a timber sale. It may also be used in a more generic manner to examine the question of economic suitability prior to Gate 1 of the timber planning process.

1. Acronym and name. TECALC, Transaction Evidence Calculations

2. Brief description. This program estimates stumpage prices using the Region 1 transaction evidence appraisal equation. Default values specific to each forest are incorporated. Stumpage price projections are also produced.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help
X Updates
_ Other:
X User's manual
_ Training
_ Publications
X Telephone support

11. Principal developer.

Jim Merzenich/USDA Forest Service/Pacific Northwest Region; Mike Niccolucci/USDA Forest Service/Intermountain Research Station

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13. For acquisition information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file: R01C:APPLICATION_LIBRARY:2400_LIBRARY:TECALC.921.01.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This application is currently limited to Region 1 because the model is derived from R-1 data, but has potential for Service-wide use. Its principle advantage is flexibility, which allows the valuation of multiple-unit timber sales early in the planning process. The forest-specific default values allow pre-sale planners to analyze the viability of timber sales in the preliminary stage, replacing the default values as "harder" data become available. Because of the unit-level analysis and the program's flexibility, the user is able to temporarily exclude unprofitable units from the analysis.

1. Acronym and name. THEBOBS, PROGNOSIS Optimizer

2. Brief description. THEBOBS is a stand-level optimizer for finding optimal harvest regimes for any stand condition. It is useful for classical, even-aged plantation analysis, and for finding optimal, any-aged regimes for mixed-species stands. THEBOBS is applicable to the Northern Rocky Mountains.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
P Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | S Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | S Recreation | S Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Non-linear programming

8. Supporting software requirements.

Operating system: DOS
Software package(s): Prognosis version 5.2; Fortran (can be compiled for the Data General or UNIX)

9. Hardware requirements.

Computer: IBM or compatible micrecomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Robert G. Haight/USDA Forest Service/North Central Forest Experiment Station; Robert A. Monserud/USDA Forest Service/ Intermountain Research Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

THEBOBS is used to develop optimal management regimes, both even-aged and any-aged, for any stand condition encountered in the northern Rockies. It maximizes either present value or volume production. Constrained optimization for alternate resources (wildlife, habitat, esthetics) is also available. THEBOBS could readily be converted to the UNIX platform.

1. Acronym and name. TREEVAL+, Tree Value Simulator

2. Brief description. TREEVAL+ is a system of programs used to calculate tree or stand values and product volumes based on predicted product recovery.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
P Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

TREEVAL+ can be used to value stands of Douglas-fir resulting from alternative silvicultural regimes. TREEVAL+ shows differences in stand value resulting from the effect of stocking and rotation age on wood quality.

1. Acronym and name. TS-ECON, Timber Sale Economic Analysis

2. Brief description. TS-ECON is a pc-, spreadsheet-based model for economic analysis of timber sales. It has a user-specified analysis period and timing of costs and benefits, and an activity and output template that can be modified or supplemented by users.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
S Other: Roads
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Lotus 1-2-3 version 2.2 or higher; Quattro Pro 2.0+; Symphony. Available version uses Lotus.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or 80386
Graphics card: CGA+ Disk space: Up to 100KB
RAM space: 640KB min.
Math co-processor: Helpful; not required Mouse:
Printer: Dot matrix or laser Plotter:
Other: Wide-carriage printer can print entire worksheet. Print-to-fit capability (e.g. in Quattro Pro) allows regular printers to do the same.

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

Christopher S. Hansen/USDA Forest Service/Mount Baker-Snoqualmie National Forest and USDA Forest Service/Pacific Northwest Region/ Fish, Wildlife, Botany Staff

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Data General address: C.Hansen:R06F05A
Data General RIS file: Not currently set-up for RIS, but will be in the future.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TS-ECON calculates and reports PNV, B/C, IRR, etc. on existing stand, regenerated stand, and for total analysis period. It was originally designed for classic clearcut/plant/PCT/CT/regeneration harvest scenarios, but advanced users can also modify the model even further to meet specific needs such as selection cuts. This version of the model is not tied to a database. A template of activity and output titles is provided, but can be modified or supplemented by the user. Template items not used do not affect model calculations. Data on timing and periodic occurrence of costs and benefits, cost and benefit values, and timber-yield data are entered directly by the user. The discount rate is user specified and may be easily changed for sensitivity analysis. Calculations are summarized into a 3-page report, summarizing the economic efficiency measures and the costs and benefits associated with the major categories of the timber management regime (existing stand harvest, reforestation,etc). Macros are supplied for printing reports.

1. Acronym and name. TSPAS, Timber Sale Planning and Analysis System

2. Brief description. TSPAS is designed for planning timber sales. It includes capability for transaction evidence and residual value appraisal, quantifying or rating non-timber outputs, and recording planned future management activities, including their costs and the resulting outputs.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle version 6; GKS version 3.04

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: 1.9MB RAM space:
Math co-processor: Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Greg Jones, Erv Schuster, Mary Meacham, and Rick Cahoon/USDA Forest Service/Intermountain Research Station

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Data General address: G.Jones:S22L01A
Data General RIS file: Not available currently, but will be in the future.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TSPAS is a menu-driven computer program intended to help field teams design and evaluate timber sale alternatives. Features include the option of transaction evidence or residual value appraisal, the ability to handle multiple timber and non-timber products, graphical inputs, and options for multiple entries in cutting units to approximate all-aged management, in addition to even-aged management. Users build sale alternatives through a series of screens for recording basic sale information and objectives, specifying prescriptions for cutting units, appraising cutting units, quantifying non-timber outputs affected by sale alternatives, recording road costs, and recording K-V and other deposits. Sale data can be easily updated later, as plans and information become more refined and specific. Program outputs are user-selected reports, including appraisal comparisons by cutting unit, appraisal comparisons by sale alternative, overall management summaries and comparisons, and TSPIRS Report 2 comparisons across sale alternatives.

1. Acronym and name. WORTH

2. Brief description. WORTH calculates various economic criteria for forest investments (Present Net Value (PNV), Internal Rate of Return (IRR), Soil Expectation Value (SEV), etc.).

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
P Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Basic language compiler

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: <250KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Jeff Martin/University of Wisconsin, Madison/Dept. of Forestry

12. For technical information, contact:

Name: Jeff Martin Title: Professor
Address: University of Wisconsin, Madison, Department of Forestry
1630 Linden Drive
Madison, WI 53706
Telephone: (608)-262-0134 ext. FAX: (608)-262-9922
Data General address:

13. For acquisition information, contact:

Name: Jeff Martin Title: Professor
Address: University of Wisconsin, Madison, Department of Forestry
1630 Linden Drive
Madison, WI 53706
Telephone: (608)-262-0134 ext. FAX: (608)-262-9922
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send formatted DD 5¼" or 3½" disk

14. Additional description of tool.

Ecosystem

1. Acronym and name. AID, AID Programs (includes AID-1 and AID-N)

2. Brief description. AID-1 calculates a variety of diversity indices for a given set of data, and was originally developed for species by sample-unit data. AID-N calculates a subset of diversity indices. Additionally, it calculates several similarity indices for between sample-unit comparisons.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
P Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	S Wildlife
_ Fire	_ Range	P Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Recommended Mouse:
Printer: Any ASCII compatible Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	X Telephone support

X Other: Occasional training sessions offered to ecologists.

11. Principal developer.
Bradley G. Smith/USDA Forest Service/Okanogan National Forest (pc version); Scott Overton and C. David McIntire/Oregon State University

12. For technical information, contact:
Name: Bradley G. Smith Title: Ecologist
Address: USDA Forest Service, Okanogan National Forest
P.O. Box 950
Okanogan, WA 98840
Telephone: (509)-826-3398 ext. FAX: (509)-422-2014
Data General address: B.Smith:R06F08A

13. For acquisition information, contact:
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P.O. Box 950
Okanogan, WA 98840
Telephone: (509)-826-3398 ext. FAX: (509)-422-2014
Data General address: B.Smith:R06F08A
Data General RIS file: STAFF:ECO:IO:EXE:AID.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.
AID programs are used to calculate estimates for a variety of diversity indices. They can be used for baseline studies and monitoring of diversity.

1. Acronym and name. BEHAVE, Fire Behavior Prediction and Fuel Modeling System

2. Brief description. BEHAVE assists in predicting fire behavior and planning prescribed fires. It consists of five programs: NEWMDL and TSTMDL allow the development of custom fuel models; FIRE1 and FIRE2 include fire behavior prediction models; and RXWINDOW assists in prescribed fire planning.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS or Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer or Data General
Graphics card: Disk space: RAM space: 475KB max.
Math co-processor: Recommended Mouse:
Printer: Plotter:
Other: The programs are written in standard FORTRAN with no special requirements. The Data General and pc versions of the program are exactly the same.

10. Documentation/user support available.

_ On-line help | _ User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Patricia Andrews, Robert Burgan, and Carolyn Chase/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

Name: Bruce Keene Title: Computer Specialist
Address: USDA Forest Service, Northern Region,
Aviation and Fire Management
Aerial Fire Depot, Box 6 Airport Terminal
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Telephone: (406)-329-4950 ext. FAX:
Data General address: B.Keene:R01D

13. For acquisition information, contact:

Name: Title:
Address: FORS (Forest Resources Systems Institute)
122 Helton Court
Florence, AL 35630
Telephone: ext. FAX:
Data General address:
Data General RIS file: W01C:FAM:BEHAVE:DUMP:BEHAVE_4.20.DMP (DG version) W01C:FAM:PC:BEHAVE.EXE (pc version)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The BEHAVE system does not use a database, but rather depends on a knowledgeable user for valid input. The input is tailored to the application. For example, for prediction of an ongoing fire, a measured windspeed or wind from a spot weather forecast might be used. For planning purposes, a range of windspeeds might be used to answer a "What if?" question. Some of the calculations that can be done include rate of spread, intensity, flame length, area, perimeter, spotting distance, scorch height, tree mortality, and fine dead fuel moisture.

1. Acronym and name. BIODIVERSITY EXPERT SYS, Biodiversity Assessment Expert System

2. Brief description. An expert system to help an ID team walk through an analysis of project effects on biodiversity. It provides background information about biodiversity issues (taken from "Keystone Report") and uses first a "coarse filter" and then a "fine filter" approach to biodiversity assessment.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
P Fisheries
_ All resources
S Insect/Disease
_ Minerals
S Range
_ Recreation
_ Not applicable
_ Soils
S Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): IBIS runtime (available to the Forest Service)

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: EGA/VGA/SVGA
Disk space: .5MB (HD)
RAM space: 640KB
Math co-processor:
Mouse:
Printer: Optional
Plotter:
Other:

10. Documentation/user support available.

X On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Pamela Case/USDA Forest Service/Rocky Mountain Region/PPB

12. For technical information, contact:

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Address: USDA Forest Service, Rocky Mountain Region
11177 West 8th Avenue
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Telephone: (303)-236-9646 ext. FAX:
Data General address: P.Case:R02A

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11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9646 ext. FAX:
Data General address: P.Case:R02A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This system is for project-level environmental analysis.

1. Acronym and name. CANOCO, Canonical Communuity Ordination

2. Brief description. CANOCO is a software program to summarize species behavior along environmental gradients. This is an extension of DECORANA (de-trended correspondence analysis), with an added environmental variable file.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | S Soils | _ Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS or mainframe operating system
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088 or above; Mainframe
Graphics card: Yes Disk space: 1MB RAM space:
Math co-processor: Yes Mouse:
Printer: Laser or dot matrix Plotter:
Other: Also available for MacIntosh computers. FORTRAN source code is also available.

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Cajo J. F. ter Braak/The Hague, Netherlands/Ministry of Agriculture and Fisheries

12. For technical information, contact:

Name: Richard E. Furnas Title:
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111 Clover Lane, Dept. C8
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Telephone: (607)-272-2188 ext. FAX:
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Telephone: (607)-272-2188 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

CANOCO is designed to assist ecologists in studying community responses. This tool is designed for gradient analysis to relate species behavior to environmental gradients. It is useful also as a classification tool to identify vegetation types and to relate them to environmental factors. The output is a constrained ordination (vegetation ordination constrained by the supplied environmental variables). It is summarized in a two-dimensional, bi-plot diagram showing stand/species centroids and vectors for environmental gradients.

1. Acronym and name. CEP, Cornell Ecology Programs

2. Brief description. These programs are useful for analysis of ecological data, particularly ordination and classification.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Source code is avialable in FORTRAN for those who wish to make modifications.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 512KB
Math co-processor: Yes, not required Mouse:
Printer: Plotter:
Other: Also available in the original FORTRAN-IV to run on other systems.

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | _ Training | X Telephone support
X Other: Sample data sets

11. Principal developer.

Mark O. Hill/Monkwood Exp. Station/Abbotsripton, Huntingdon UK; Hugh Gauch and Charles Mohler/Cornell University

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

TWINSPAN performs two way indicator-species analysis (800 pseudospecies, 500 samples, 30,000 non-zero array elements). DECORANA performs detrended correspondence analysis (500 species, 800 samples, 38,000 non-zero elements). ORDIFLEX consists of four ordination techniques: 1) weighted averages, 2) polar (Bray Curtis) ordination, 3) principal components analysis, and 4) reciprocal average (100 species and 200 samples). Programs for Data Preparation: 1) COMPCLUS is a program for rapid initial clustering of large data sets (3,000 species, 5,000 samples, 27,000 non-zero array elements); and 2) COMPOSE is a data management program which checks for errors, edits, and formats data for use by other CEP programs (1,000 species, 1,200 samples, 27,000 non-zero array elements).

1. Acronym and name. CLIMATOLOGY, Programs for Summarizing Data from the National Fire Weather Data Library

2. Brief description. CLIMATOLOGY provides five basic climatology programs to analyze data by 10-day periods and month. Three averaging programs are included to adjust results from the climatology programs. Intermountain Research Station publication: GTR INT-164, May, 1984.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: MVS/XA
Software package(s): National Interagency Fire Management Integrated Database

9. Hardware requirements.

Computer: IBM NCC-KC
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Intermountain Research Station/Fire Effects: Prescribed Fire and Wildfire

12. For technical information, contact:

Name: Cam Johnston Title: Computer Programmer/Analyst
Address: USDA Forest Service, Intermountain Research Station
Box 8089
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Telephone: (406)-329-4810 ext. FAX:
Data General address: C.Johnston:S22L01A

13. For acquisition information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. CONSUME

2. Brief description. CONSUME is a software product that provides fuel consumption estimates on prescribed slash burns, based on weather inputs and unit information.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | S Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

S Air | _ Insect/Disease | S Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or commpatible microcomputer
Graphics card: MONO Disk space: 1.44MB RAM space: 512KB
Math co-processor: Optional Mouse:
Printer: Optional Plotter:
Other: Display adaptor MDA

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Roger Ottmar/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

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Data General address: J.Hall:SFSL or J.Hall:R06F05A

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4043 Roosevelt Way NE.
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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The expected user is the district prescribed-burning personnel. Some inputs are daily weather variables such as maximum/minimum relative humidity and temperature, and unit variables from prescribed burn plans. Outputs are reports summarizing fuel consumption by date and fuel moisture. The program is best suited for Region-6-type ecosystems.

1. Acronym and name. DEBMOD, Debris Prediction System

2. Brief description. DEBMOD predicts the weight of potential debris from harvesting and thinning.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
P Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS and Data General AOS/VS
Software package(s): Uses timber inventory or sale cruise data, written in ASCII FORTRAN.

9. Hardware requirements.

Computer: IBM or compatible microcomputer or Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Intermountain Research Station/Fire Effects: Prescribed Fire and Wildfire

12. For technical information, contact:

Name: Cam Johnston Title: Computer Programmer/Analyst
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13. For acquisition information, contact:

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Data General address: C.Johston:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. DFINV, Down Fuel Inventory System

2. Brief description. DFINV is a program to calculate the weight, volume, and depth of dead and downed woody material, using the planar intersect technique to collect the data. "Handbook for Inventorying Downed Woody Material" Intermountain Research Station publication 7TR INT-16, 1974.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
P Ecosystem _ Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber _ Wildlife
P Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS or Data General AOS/VS
Software package(s): Written in ASCII FORTRAN

9. Hardware requirements.

Computer: IBM or compatible microcomputer or Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

James K. Brown/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. ECOAID, EcoAid Programs

2. Brief description. EcoAid programs are pc-based tools for ecologists. They are used to analyze and display ecological data, with classification as the primary objective.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | S Soils | S Water
_ Cultural | _ Minerals | S Timber | S Wildlife
_ Fire | S Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database application

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Paradox 3.5 or Paradox SE or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 1MB RAM space: 640KB
Math co-processor: Recommended Mouse: Recommended
Printer: Any ASCII text compatible Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Bradley G. Smith/USDA Forest Service/Okanogan National Forest

12. For technical information, contact:

Name: Bradley G. Smith Title: Ecologist
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Telephone: (509)-826-3398 ext. FAX: (509)-422-2014
Data General address: B.Smith:R06F08A

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Telephone: (509)-826-3398 ext. FAX: (509)-422-2014
Data General address: B.Smith:R06F08A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

ECOAID is primarily used by ecologists to analyze ecological plot data to develop classification systems for forest management and monitoring. It includes programs for tabular data display, and links to DECORANA, TWINSPAN, and CANOCO. (TWINSPAN and DECORANA included.) It requires data to be in Paradox tables.

1. Acronym and name. ECODATA, Ecological Database System

2. Brief description. ECODATA is a system of integrated resource sampling methods and the corresponding databases in which these data are stored. The ECODATAbases currently reside in INFOS-II ISAM database structures in the DG environment.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	S Subforest area	P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
_ Economic/Financial	S Monitoring	_ Transportation
P Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database application		

8. Supporting software requirements.
Operating system: Data General AOS/VS any version
Software package(s): Data General's IS, CLI, PRESENT, UI, INFOS, CEO

9. Hardware requirements.
Computer: Data General MV series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Personal computer version will be available in 1993.

10. Documentation/user support available.

X On-line help	X User's manual	X Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.
Bob Keane/USDA Forest Service/Intermountain Research Station; Wendel Hann and Mark Jensen/USDA Forest Service/Northern Region

12. For technical information, contact:
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P.O. Box 7669
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Telephone: (406)-329-3384 ext. FAX:
Data General address: S.Reed:R01A

13. For acquisition information, contact:
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P.O. Box 7669
Missoula, MT 59807
Telephone: (406)-329-3384 ext. FAX:
Data General address: S.Reed:R01A
Data General RIS file: Several RIS files available; contact S. Reed for the type, size, and composition of these files to fit user needs.

Acquisition charge? X No _ Yes:

14. Additional description of tool.
ECODATA is a standardized methodology for collecting, storing, and retrieving ecological data for multi-disciplinary objectives. The system includes data entry screens and canned query macros using the PRESENT query utility on the Data General computer.

1. Acronym and name. ECOPAC, Ecological Analysis Package

2. Brief description. ECOPAC is a collection of FORTRAN programs that perform detailed ecological analyses on data collected and stored in the ECODATA format.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
S Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Personal computer version available in 1993

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Bob Keane/USDA Forest Service/Intermoutain Research Station; Wendel Hann and Mark Jensen/USDA Forest Service/Northern Region

12. For technical information, contact:

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Telephone: (406)-329-3384 ext. FAX:
Data General address: S.Reed:R01A

13. For acquisition information, contact:

Name: Suzanne Reed Title: ECODATA Coordinator
Address: USDA Forest Service, Northern Region
P.O. Box 7669
Missoula, MT 59807
Telephone: (406)-329-3384 ext. FAX:
Data General address: S.Reed:R01A
Data General RIS file: Several RIS files available; contact S. Reed for the type, size, and composition of these files to fit user needs.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

ECODATA is a standardized methodology for collecting and storing ecological data for multi-disciplinary objectives. ECOPAC is the set of programs currently available for analysis of these data in ECODATA. ECOPAC programs are used for land and vegetation classification, wildlife survey and habitat assessment, site climate analysis, ecological statistical analysis, satellite imagery analysis and ground truth, and a host of other resource and research applications.

1. Acronym and name. FEIS, Fire Effects Information System

2. Brief description. The system is a computerized knowledge processor to provide managers with easy access to the state-of-the-knowledge about effects of fire on plant species, plant communities, and animal species.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
P Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Information dissemination
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS II
Software package(s): Common LISP

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Research publications are in progress.

11. Principal developer.

USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. FIREFAMILY, Fire Planning with Historic Weather Data

2. Brief description. The 1988 NFDRS provides indices to aid in broad scale fire management planning activities. FIREFAMILY performs statistical analysis on the historical weather to aid in planning efforts and to calibrate the NFDRS.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | S Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: MVS
Software package(s): Also requires historical data from the National Interagency Fire Management Integrated Database.

9. Hardware requirements.

Computer: NCC-KC IBM
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Network connection via FTS-2000 from the DG to NCC-KC; or dial-in modem to NCC-KC via microcomputer.

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Main, Paananen, and Burgan/USDA Forest Servic/USDA Forest Service

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Subforest areas input daily weather observations that are stored in the historical database (NIFMID) at the USDA National Computer Center. FIREFAMILY generates statistical analyses, which will aid the fire planner in pre-suppression and suppression planning, as well as fine tuning the NFDRS. Indices are devised to be used for large-scale planning units (greater than 10,000 acres), not for site-specific projects.

1. Acronym and name. FIRESUM, FIRE SUccession Model

2. Brief description. An ecological process model that simulates tree regeneration, growth, and mortality using deterministic and stochastic functions based on ecological principles. It also incorporates a fire behavior and effects module to predict results of prescribed and wildfire on the tree component.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
_ Fisheries
_ All resources
S Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 3.1 or later
Software package(s): Lahey FORTRAN 77, 32 bit executor: F77L-EM/32 or a full FORTRAN compiler.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386
Graphics card: Disk space: 2MB RAM space: 1MB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Bob Keane, Steve Arno, and James Brown/USDA Forest Service/ Intermountain Research Station

12. For technical information, contact:

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Data General address: B.Keane:S22L01A

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Data General address: B.Keane:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Due to inherent complexity and extensive input requirements, it is recommended that FIRESUM be used with the author's supervision. However, if the user feels comfortable using "gap-phase" forest ecological models and has some knowledge of forest micro-meteorology, then the FIRESUM program is available for use and modification.

1. Acronym and name. GAP, GAP Analysis Project

2. Brief description. GAP is an analysis technique using GIS to manage for biological diversity. GAP has been applied on the State level, but is also applicable to smaller scales.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | P Vegetation | S Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Many platforms
Software package(s): Arc/Info version 5.1 or 6.0

9. Hardware requirements.

Computer: Many vendors
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Hardware requirements are machine and Arc/Info version dependent

10. Documentation/user support available.

_ On-line help | _ User's manual | X Publications
X Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

J. Michael Scott and Blair Csuti/University of Idaho/Idaho Cooperative Fish and Wildlife Unit

12. For technical information, contact:

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Telephone: (208)-885-6336 ext. FAX: (208)-885-6226
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

"Gap analysis" is a geographic approach to quantifying the representation of several indicators of biodiversity, in areas that are managed primarily for the long-term maintenance of native species and natural ecosystems. "Gaps" are ecosystem types and species not adequately represented in these areas. Additional areas containing the most efficient representation of these gaps are identified. While the distribution of all ecosystem types and species, including rare and endangered species, is considered in developing a biodiversity management strategy, the emphasis is on maintaining viable examples of all major ecosystem types in the context of landscapes that provide the opportunity for continuing evolution. Several types of distributional information are required for a gap analysis, including vegetation or ecosystem maps, species distribution maps, and the locations of areas currently managed primarily for biodiversity. These maps are overlaid in GIS to identify "gaps."

1. Acronym and name. JABOWA-II

2. Brief description. JABOWA-II is a computer model that simulates the growth of trees on small plots. It includes 40 species of trees, and simulates birth (regeneration), growth, and mortality.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer; UNIX workstation
Graphics card: Yes Disk space: 360KB RAM space: 360KB
Math co-processor: Desirable Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Daniel B. Botkin/Santa Barbara Institute for Environmental Studies

12. For technical information, contact:

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101 East Victoria Street
Santa Barbara, CA 93101
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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

1. Acronym and name. LINKAGES

2. Brief description. LINKAGES is an individual-based forest model that simulates birth, growth, and death of trees; and the decay of leaf, root, and woody litter. Temperature, light, soil moisture, and soil nitrogen availability are limits to growth.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | S Soils | _ Water
_ Cultural | _ Minerals | S Timber | S Wildlife
_ Fire | _ Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS; UNIX
Software package(s): To run FORTRAN version on MS-DOS, a NPD FORTRAN compiler is needed.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386; SUN
Graphics card: Disk space: 10MB RAM space: 2MB
Math co-processor: Intel Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

John Pastor/Natural Resources Research Institute

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (218)-720-4271 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

LINKAGES is used to predict effects of harvesting, succession, browsing, and climate change on forest species composition, productivity, and nitrogen cycling.

1. Acronym and name. MTCLIM, A Mountain Microclimate Simulation Model

2. Brief description. MTCLIM predicts daily solar radiation, air temperature, relative humidity, and precipitation for mountainous sites by extrapolating data measured at National Weather Service stations. GTR INT-414, November, 1989.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | _ Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS; AOS/VS
Software package(s): ASCII FORTRAN

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
Other:

11. Principal developer.

Roger D. Hungerford/USDA Forest Service/Intermountain Research Station

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Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

1. Acronym and name. NFDRS, National Fire Danger Rating System

2. Brief description. The 1988 NFDRS provides indices to aid in broad scale fire management planning activities. The system utilizes current fire weather to derive indices that relate to potential fire occurrence and behavior.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide S Subforest area _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
S Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
P Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: AFFIRMS (GE Mark III) 1988
Software package(s): Also requires historical data from the National Interagency Fire Management Integrated Database (NIFMID), analyzed with FIREFAMILY to calibrate the system.

9. Hardware requirements.

Computer: General Electric Mark III
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Network connection via FTS-2000 from the DG to GE or dial-in modem to Telenet via microcomputer.

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training X Telephone support
_ Other:

11. Principal developer.

Deeming, Burgan, and Cohen/USDA Forest Service

12. For technical information, contact:

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Telephone: (800)-253-5559 ext. FAX:
Data General address: B.Keene:R01D

13. For acquisition information, contact:

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Telephone: (800)-253-5559 ext. FAX:
Data General address: B.Keene:R01D
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Subforest areas input daily weather observations, which are used to generate cumulative fire danger ratings indices as well as being utilized by the National Weather Service to produce forecasted weather and indices. Forest area fire managers use the NFDRS for prepositioning of suppression resources. Indices are devised to be used on large scale planning units (greater than 10,000 acres in size), not on site-specific projects.

1. Acronym and name. NFDRSPC, National Fire Danger Rating System 1.2

2. Brief description. NFDRSPC processes weather observations and forest and rangeland fuels data to produce probable wildland fire-danger indices.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | S Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 512KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Bryan Donaldson/USDA Forest Service

12. For technical information, contact:

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Telephone: (205)-767-0250 ext. FAX:
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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

NFDRSPC is a revision of the 1978 NFDRS program, which was adapted from the mainframe AFFIRMS program. (Source: Directory of Forestry and Natural Resources Computer Software—1991 Supplement.)

1. Acronym and name. NIFMID, National Interagency Fire Management Integrated Database

2. Brief description. NIFMID is the combined weather and fire occurrence historical database. This relational database currently encompasses all weather stations reporting to the AFFIRMS, and fire occurrence records for the USDA Forest Service. Plans are to add other agency fire records in the future.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
P Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
P Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
S All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database		

8. Supporting software requirements.

Operating system: AFFIRMS (GE Mark III) 1978
Software package(s): Also requires historical data from the FireStat system.

9. Hardware requirements.

Computer: NCC-KC IBM/MVS 3090
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Network connection via FTS-2000 from the DG to NCC-KC or dial-in modem to NCC-KC via microcomputer.

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: Currently being converted from NCC-Fort Collins (previously NFWDL and NFODL). Document support expected to be available early spring 1992.

11. Principal developer.

Barrowcliff, Keene, Duncan, and Bunton/USDA Forest Service

12. For technical information, contact:

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Telephone: (800)-253-5559 ext. FAX:
Data General address: B.Keene:R01D
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Subforest areas input daily weather observations, which are used to generate cumulative fire danger ratings indices as well as being utilized by the National Weather Service to produce forecasted weather and indices. The historical weather data and fire reports are stored in NIFMID to assist planners at all levels in the statistical analysis of their data.

1. Acronym and name. PLUME

2. Brief description. PLUME is a one-dimensional plume model to use with atmospheric sounding and fire-characteristic inputs. It estimates characteristics of the plume that result from burning.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
P Ecosystem S Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

P Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber _ Wildlife
S Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation S Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
X GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s): ANALYZE (optional) from the Weather Service

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386
Graphics card: VGA Disk space: 500KB RAM space: 512KB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training X Telephone support
X Other: Training is in conjunction with the Weather Service.

11. Principal developer.

Don Latham/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

PLUME is used by fire personnel who wish to calculate the height of the smoke column from a prescribed burn or wildfire. It is designed as part of the Weather Service FIREWORKS package, but can also stand alone with an independent atmospheric sounding. It should be ready for use in Fall 1992.

1. Acronym and name. PPE, Parallel Processing Extension of the Prognosis Model

2. Brief description. The PPE is a multi-stand simulation model that combines the Prognosis Model (an individual tree, distance-independent stand model) and a method for specifying management policies using rules and activity schedules.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | S Wildlife
_ Fire | S Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | S Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
S Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: AOS/VS
Software package(s): FORTRAN can be compiled with any operating system that allows for a 2MB address (larger than DOS)

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space: 2MB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Nicholas L. Crookston and Albert R. Stage/USDA Forest Service/ Intermountain Research Station

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Data General address: N.Crookston:S22L04A
Data General RIS file: Available upon request.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

PPE requires the same inputs as the Prognosis model: inventory data, user-commands, spatial data (if needed to solve problem), etc. It has the capability for representing spatially-dependent interactions between stands and contagions. PPE simulates and displays management alternatives using decision trees. It also has the ability to schedule multi-stand treatments. Non-timber resources are explicitly represented both by the system or through links with other models. PPE can be used to represent up to 1,000 spatial units (stands or multiple stands), and projections can be made for about 400 years. PPE is currently available on the DG, but could be ported to a pc with an operating system that allows for a two-megabyte address (UNIX or a DOS-extended system. For additional information, see: Crookston, Nicholas L. and Stage, Albert R., "User's guide to the Parallel Processing Extension of the Prognosis Model," Gen. Tech. Rep. INT-281, 1991, 88 p. USDA Forest Service, Intermountain Research Station, Ogden, UT.

1. Acronym and name. PRESCRIPTION DESIGN

2. Brief description. This is an "expert system" for designing fire prescriptions that incorporate fire effects research results and rule-of-thumb type information about burning conditions. The program recommends a burn prescription to meet specified management objectives.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
P Ecosystem _ Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber _ Wildlife
P Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming _ Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s): GOLDWORKS

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 10MB RAM space: 4MB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other: Under development

11. Principal developer.

Elizabeth Reinhardt/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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Telephone: (406)-329-4810 ext. FAX:
Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? _ No X Yes: $100 per license

14. Additional description of tool.

Recommendations from Prescription Design are supported with text documentation. This program is currently under development. It requires a run time package for GOLDWORKS, with a cost of $100 per license. Current plans call for moving the system to a UNIX workstation.

1. Acronym and name. R3VSS-PR, Region 3 Vegetative Structure Stages from Prognosis

2. Brief description. R3VSS-PR calculates Region 3 vegetative structural stages from PROGNOSIS output, based on forest type and stand structure.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
P Ecosystem _ Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range S Vegetation _ Wilderness
_ Fisheries _ Recreation S Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): PROGNOSIS

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: Minimal RAM space:
Math co-processor: Mouse:
Printer: Optional Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates X Training X Telephone support
X Other: Covered in Region 3's PROGNOSIS training sessions.

11. Principal developer.

Dick Bassett, Jim Ellenwood, D. McFarlane, Pat Jackson, and Richard Teck/USDA Forest Service

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General RIS file: STAFF:TM:RIS:RIS:R3VSS.PR

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Vegetative structural stages can be utilized for assessing such concerns as the spatial distribution of old-growth and/or changes in northern goshawk habitat over time, based on alternative treatments.

1. Acronym and name. RXBURN, Prescribed Fire Conditions

2. Brief description. RXBURN provides detailed summaries of planned fire prescriptions from historical weather records. Intermountain Research Station publication: "A Computer System for Scheduling Fire Use" GTR INT-91 & INT-100.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | S Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
P Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
P Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: MVS/XA
Software package(s): National Interagency Fire Management Integrated Database

9. Hardware requirements.

Computer: NCC-KC IBM
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Intermountain Research Station/Fire Effects: Prescribed Fire and Wildfire

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13. For acquisition information, contact:

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Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. RXWTHR, Prescribed Fire Weather

2. Brief description. RXWTHR provides climatological summaries and co-occurrence frequencies of user-selected fire weather and fire danger rating parameters. Intermountain Research Station publication: "A Computer System for Scheduling Fire Use" GTR INT-91 & INT-100.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
P Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
P Statistical

8. Supporting software requirements.

Operating system: MVS/XA
Software package(s): National Interagency Fire Management Integrated Database

9. Hardware requirements.

Computer: NCC-KC IBM
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Intermountain Research Station/Fire Effects: Prescribed Fire and Wildfire

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Data General address: C.Johnston:S22L01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. SAMM, Southeast Alaska Multiresource Model

2. Brief description. SAMM is an interactive microcomputer program that allows users to explore relations among several resources in southeast Alaska (timber, anadromous fish, deer, and hydrology) and the effects of timber management activities (logging and road building) on those relations and resources.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide	P Subforest area	_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
P Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
S Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer 80286 or above
Graphics card: CGA/greater Disk space: RAM space: 640KB
Math co-processor: Strongly advised Mouse:
Printer: IBM graphics printer optional Plotter:
Other: Hard disk strongly advised; RAM disk strongly advised.

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
X Other: Programmer's guide is available on disk.		

11. Principal developer.
USDA Forest Service/Region 10 and Pacific Northwest Research Station; USDC National Marine Fisheries Service Regional Office & Auke Bay Laboratory; State of Alaska/Dept. of Fish and Game

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Telephone: (205)-767-0250 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
SAMM is a valuable tool for exploring effects of timber management activities on several other resources in southeast Alaska. The model is applicable at the watershed level. Management activities include timber harvest, thinning, and road building. The effects of these activities are modeled for anadromous fish, deer, and hydrology. SAMM is intended to show qualitative relations between resources and is not intended to produce quantitative values. SAMM allows simulation results to be shown on-screen and saved for external analysis or display, using other commercial pc software packages.

1. Acronym and name. SERAL, Seral Stage Analysis Module

2. Brief description. This model identifies the seral stage of each stand, based on information in the Wallowa-Whitman Existing Vegetation Database. It is used as a tool to quantify change for biodiversity and other wildlife analyses.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	S Subforest area	P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
P Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	S Wildlife
_ Fire	S Range	P Vegetation	_ Wilderness
_ Fisheries	_ Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database/GIS application		

8. Supporting software requirements.
Operating system: Data General AOS/VS
Software package(s): Oracle 6.0; MOSS

9. Hardware requirements.
Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Color-graphics Plotter: Eight-pen
Other: Color-graphics terminal compatible with the Data General

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.
Dan Gregson and Laurie Smit/USDA Forest Service/Wallowa-Whitman National Forest

12. For technical information, contact:
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Pine Ranger District
Halfway, OR 97843
Telephone: (503)-742-7511 ext. FAX:
Data General address: E.Twombly:R06F16D07A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.
SERAL is designed to be user-friendly for anyone analyzing a project. It is linked to the Wallowa-Whitman Existing Vegetation Database and Vegetation MOSS layer. Outputs are a map and a report. This is part of a system being developed that will develop alternatives that can be compared to the existing condition and other alternatives. Analysis packages will be attached to SERAL for Watershed Peak Flow, Elk Habitat Effectiveness, Biodiversity, Seral Stage, and Insect Models. More will be added later and will be developed for both the DG and 615 systems. (See also TROPPS.)

1. Acronym and name. SLAVES, Stand Layer Analysis and Vegetation System

2. Brief description. The system is designed to provide resource specialists with a way to use existing and future plot inventory data to determine the vegetative structure within and across silvicultural stands.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
P Vegetation
_ Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
P Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS Software package(s):
Oracle Forms version 2.3 (will be ported to Forms 3.0 in the future)

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: Minimal RAM space: Substantial
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
X Updates _ Training _ Telephone support
X Other: DG mailing list and support via DG profile

11. Principal developer.

Norm Cimon and Jay Mills/USDA Forest Service/Pacific Northwest Research Station; Bruce Countryman/USDA Forest Service/ Wallowa-Whitman National Forest

12. For technical information, contact:

Name: Norm Cimon Title: Sup. Computer Sys. Analyst
Address: USDA Forest Service, Pacific Northwest Research Station
1401 Gekeler Lane
La Grande, OR 97850
Telephone: (503)-963-7122 ext. 51 FAX: (503)-963-8804
Data General address: N.Cimon:S26L06A

13. For acquisition information, contact:

Name: Norm Cimon Title: Sup. Computer Sys. Analyst
Address: USDA Forest Service, Pacific Northwest Research Station
1401 Gekeler Lane
La Grande, OR 97850
Telephone: (503)-963-7122 ext. 51 FAX: (503)-963-8804
Data General address: N.Cimon:S26L06A
Data General RIS file: PUBLIC:DISTRIBUTION:SOFTWARE: SLAVES.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Current features of the system include: a single, menu-driven interface that provides access to all of the SLAVES features; layering for both live and standing dead components; a batch option for loading files of multiple stands; aggregated statistics by stand, vegetative layers with stands, and tree species within layers within stands; and the ability to specify the staff drawer/folder where the plot inventory data is located. Loading capabilities for files include: files created via the R6TSE program, or uploaded from the Husky Hunter field data recorder. SLAVES offers direct loading into the EVG* vegetation database. It includes regression coefficients for predicting tree heights, based on district-wide data entered by the user. The EVG vegetation database was designed by Wallowa-Whitman National Forest personnel, and is currently used by both the Wallowa-Whitman and Umatilla National Forests.

1. Acronym and name. SMRP, Soil Moisture Retention Program

2. Brief description. SMRP predicts the amount of available soil moisture on site by date. Soil moisture is based on solar radiation, topo/earth/ solar geometry (season, latitude, aspect, elevation, slope), weather, and site-specific soil characteristics.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	S Subforest area	P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
P Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	P Soils	S Water
_ Cultural	_ Minerals	S Timber	_ Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: Data General AOS/VS version 11; DOS
Software package(s): Basic language, currently available for the Data General, it can be modified for IBM or compatible microcomputers.

9. Hardware requirements.
Computer: Data General; IBM or compatible microcomputers
Graphics card: Disk space: 143,360BLKS RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	X Telephone support
_ Other:		

11. Principal developer.
Thomas Atzet/USDA Forest Service/Siskiyou National Forest

12. For technical information, contact:
Name: Thomas Atzet Title: Area Ecologist
Address: USDA Forest Service, Siskiyou National Forest
P.O. Box 440
Grants Pass, OR 97526
Telephone: (503)-479-5301 ext. 318 FAX: (503)-474-3032
Data General address: T.Atzet:R06F11A

13. For acquisition information, contact:
Name: Thomas Atzet Title: Area Ecologist
Address: USDA Forest Service, Siskiyou National Forest
P.O. Box 440
Grants Pass, OR 97526
Telephone: (503)-479-5301 ext. 318 FAX: (503)-474-3032
Data General address: T.Atzet:R06F11A
Data General RIS file: NR:TPROG:SMRP:SMRP.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.
SMRP is used in evaluating site potential, scheduling planting, and mapping plant associations.

1. Acronym and name. SYTEPREP

2. Brief description. SYTEPREP is a program to predict ecological effects of various site preparation methods using expert system technology.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
P Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
S Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
P Soils
S Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: EGA Disk space: 3.5MB RAM space: 542KB
Math co-processor: Mouse:
Printer: HP Laserjet II/Epson compat. Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates _ Training _ Telephone support
X Other: Computer tutorial

11. Principal developer.

Michael Johnston/University of British Columbia/FEPA Research Unit

12. For technical information, contact:

Name: Michael Johnston Title: Research Associate
Address: University of British Columbia
Room 468, 2206 East Mall
Vancouver, British Columbia Canada V6T 123
Telephone: (604)-822-6479 ext. FAX: (604)-822-6970
Data General address:

13. For acquisition information, contact:

Name: Mike Curron Title: Soil Scientist
Address: British Columbia Ministry of Forests
518 Lake Street
Nelson, British Columbia Canada V1L 4C6
Telephone: (604)-354-6702 ext. FAX: (604)-354-6250
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

SYTEPREP is a prototype adapted to the Nelson Forest Region in British Columbia, and is gradually being adapted to more areas in the Province.

Legal Documentation

1. Acronym and name. ARIS, Administrative Record Indexing System

2. Brief description. ARIS creates an indexing system for administrative records for retrieval of document location by volume, book, and page number; or by requesting information by subject, author, date, etc. It is used as a tool for appeals in preparing transmittal letters and supporting decisions.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | _ Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	P Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	P Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
_ GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database application		

8. Supporting software requirements.
Operating system: Data General AOS/VS
Software package(s): Oracle

9. Hardware requirements.
Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Laser Plotter:
Other:

10. Documentation/user support available.

X On-line help	X User's manual	_ Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.
Wendy Schmitzer, Ellen Frament, and Tani Hofmann/USDA Forest Service/Routt National Forest

12. For technical information, contact:
Name: Ellen Frament Title: Planning Analyst
Address: USDA Forest Service , Routt National Forest
29587 West U.S. Highway 40, Suite 20
Steamboat Springs, CO 80487
Telephone: (303)-879-1722 ext. FAX: (303)-879-0170
Data General address: E.Frament:R02F11A

13. For acquisition information, contact:
Name: Wendy Schmitzer Title: EIS/Appeals Coordinator
Address: Routt National Forest
29587 West U.S. Highway 40, Suite 20
Steamboat Springs, CO 80487
Telephone: (303)-879-1722 ext.2232 FAX: (303)-879-0170
Data General address: W.Schmitzer:R02F11A
Data General RIS file: Contact person above for a copy of the user's guide that contains RIS and installation information.

Acquisition charge? X No _ Yes:

14. Additional description of tool.
ARIS is a tool used in tracking a forest planning process. It is used to create an index of all documentation used throughout the analysis process, but is be most useful in retrieving information. The use of ARIS is for specific projects; however, it could be used for forest-wide projects, such as forest planning.

1. Acronym and name. BIBIS, Bibliographic Information System

2. Brief description. This is a tool used to manage information about library documents. It includes a data-entry system, a report generator system, and database management tools. All components of BIBIS are linked together with menus. A standard report produces a formatted bibliography.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
P Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): DG - Oracle revision 5 or 6

9. Hardware requirements.

Computer: Data General Eclipse Series
Graphics card: Disk space: Variable RAM space: Variable
Math co-processor: Mouse:
Printer: Laser Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates _ Training X Telephone support
X Other: DG mail support via J.Haugen:R06F20A

11. Principal developer.

Jerry Haugen/USDA Forest Service/Winema National Forest

12. For technical information, contact:

Name: Jerry Haugen Title: Operations Research Analyst
Address: USDA Forest Service, Winema National Forest
2819 Dahlia Street
Klamath Falls, OR 97601
Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A

13. For acquisition information, contact:

Name: Jerry Haugen Title: Operations Research Analyst
Address: USDA Forest Service, Winema National Forest
2819 Dahlia Street
Klamath Falls, OR 97601
Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A
Data General RIS file: Contact J.Haugen:R06F20A for a user's guide that includes acquisition and installation instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

BIBIS is typically used to catalog forest planning records and generate bibliographies in response to public requests, appeals, or litigation. In addition, specialists use the system to catalog personal libraries. BIBIS helps in locating new information for Forest Plan updates and other activities. The individual responsible for the library being cataloged would be the user of the system. This is not a "corporate" system and has no direct link to other bibliographic systems.

1. Acronym and name. CONTENT ANALYSIS

2. Brief description. Content Analysis summarizes the extent, content, and nature of public input. It produces a report of public comments, opinions, and variation in opinions.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | P Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | P Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): FES

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

12. For technical information, contact:

Name: Forest's Public Affairs Specialist Title:
Address:

Telephone: ext. FAX:
Data General address:

13. For acquisition information, contact:

Name: Same as above Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Content Analysis provides descriptive and qualitative information about public input. It assists managers in making better decisions through improved understanding of the relative values that the public places on alternative uses of the national forests.

1. Acronym and name. CRS, Citation Retrieval System

2. Brief description. CRS is a Data General, SQL-based system for storing and retreiving bibliographic information.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
P Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS II revision 2.01
Software package(s): DG SQL revision 4.00; FORTRAN revision 4.02; FSAT (Forest Service Application Toolbox).

9. Hardware requirements.

Computer: Data General MV series
Graphics card: Disk space: 6MB RAM space: 1MB
Math co-processor: Mouse:
Printer: Laser, matrix, or line Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
X Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Wally Deschene/USDA Forest Service/Intermountain Research Station; Tim Schwanke/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

Name: Wally Deschene Title: Information Engineer
Address: USDA Forest Service, Intermountain Reasearch Station
P.O. Box 8089
Missoula, MT 59807
Telephone: (406)-328-4875 ext. FAX: (406)-329-4863
Data General address: W.Deschene:S22L01A

13. For acquisition information, contact:

Name: Wally Deschene Title: Information Engineer
Address: USDA Forest Service, Intermountain Reasearch Station
P.O. Box 8089
Missoula, MT 59807
Telephone: (406)-328-4875 ext. FAX: (406)-329-4863
Data General address: W.Deschene:S22L01A
Data General RIS file: S22L01A:PUBLIC:LIBRARY:CRS:CRS.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. DATALIB, Document Management and Retrieval Database

2. Brief description. Datalib is a bibliographic database. The Alaska Region has developed some customized reports, displays, and analyses of retrieved data for the NEPA analysis process, appeals, and litigation efforts.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide _ Subforest area S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
P Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Datalib developed by Centel Federal System Corporation (703) 758-7000

9. Hardware requirements.

Computer: Data General MV, digital equipment, and workstations
Graphics card: Disk space: 35,000 Blks RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates X Training X Telephone support
X Other: Support is for DataLib software.

11. Principal developer.

USDA Forest Service/Alaska Region

12. For technical information, contact:

Name: Berry Webb Title: Computer Systems Analyst
Address: USDA Forest Service, Alaska Region
P.O. Box 21628
Juneau, AK 99802-1628
Telephone: (907)-586-8842 ext. FAX:
Data General address: B.Webb:R10A

13. For acquisition information, contact:

Name: Berry Webb Title: Computer Systems Analyst
Address: USDA Forest Service, Alaska Region
P.O. Box 21628
Juneau, AK 99802-1628
Telephone: (907)-586-8842 ext. FAX:
Data General address: B.Webb:R10A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Region 10 has developed the following four uses for Datalib: (1) document management for timber sales and mineral development; (2) NEPA planning record documentation management and retrieval used for tiering, appeals, and litigation requests; (3) identification of potential FOIA exempt documents; and (4) public comments and addresses management. The Data Dictionary File, developed by Region 10, currently has 20 different input records, one for each broad document type that might be used in the planning/implementation process of a given project. Each input record contains unique data-entry elements relating to the specific document type. Elements commonly found on input records include document dates, subject matter, authors, recipients, enclosures, file designations, etc. In addition, there are elements showing the hard copy file location, which allows retrieval of the actual document by assignment of a unique identifier number. There are both menu and command search/find capabilities. Datalib operates under the Data General's IS environment.

1. Acronym and name. IPNF INDEX SYSTEM , Idaho Panhandle National Forest Index System

2. Brief description. This is a database used to index documents and maps related to forest planning.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
P Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Form Entry System (FES)

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Karl Krueger/USDA Forest Service/Idaho Panhandle National Forest

12. For technical information, contact:

Name: Karl Krueger Title: Computer Programmer/Analyst
Address: USDA Forest Service, Idaho Panhandle National Forest
1201 Ironwood Drive
Coeur d'Alene, ID 83814
Telephone: (208)-765-7499 ext. FAX: (208)-765-7307
Data General address: K.Krueger:R01F04A

13. For acquisition information, contact:

Name: Karl Krueger Title: Computer Programmer/Analyst
Address: USDA Forest Service, Idaho Panhandle National Forest
1201 Ironwood Drive
Coeur d'Alene, ID 83814
Telephone: (208)-765-7499 ext. FAX: (208)-765-7307
Data General address: K.Krueger:R01F04A
Data General RIS file: None

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. KEY CONTACTS PLAN COMMENT, Key Contacts and Plan Comments

2. Brief description. This database organizes citizen's addresses and their responses to the Forest Plan. It is also used in mailings of specific interest, along with content analysis of responses to the Forest Plan and the accompanying Environmental Impact Statement.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	P Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	P Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database Application		

8. Supporting software requirements.

Operating system: Data General AOS/VS version 7.65
Software package(s): Oracle revision 5

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	_ User's manual	_ Publications
_ Updates	_ Training	X Telephone support
_ Other:		

11. Principal developer.

Kris Twardowski/USDA Forest Service/Shawnee National Forest

12. For technical information, contact:

Name: Kris Twardowski Title: Computer Assistant
Address: USDA Forest Service, Shawnee National Forest
901 South Commercial Street
Harrisburg, IL 62946
Telephone: (618)-253-7114 ext. 102 FAX:
Data General address: K.Twardowski:R09F08A

13. For acquisition information, contact:

Name: Kris Twardowski Title: Computer Assistant
Address: USDA Forest Service, Shawnee National Forest
901 South Commercial Street
Harrisburg, IL 62946
Telephone: (618)-253-7114 ext. 102 FAX:
Data General address: K.Twardowski:R09F08A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Key Contacts was used with recruiting public interest. Addresses of key contacts for the Forest Plan and information the key contacts wanted to receive were entered. Forest Plan comments were entered and coded into a specific topic or category, then a final code was entered and comments were grouped for documentation in the Forest Plan. The forest is able to monitor disposition of each individual comment. Reports are generated on each topic, so each specialist can review the comments. This database can also be used by Districts and for contracting mailing lists.

1. Acronym and name. NEPA CHECKER, Expert System for Checking Documents for NEPA Compliance

2. Brief description. NEPA CHECKER is an expert system to help environmental coordinators screen National Environmental Policy Act (NEPA) documents for compliance with procedural requirements.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | _ Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | P Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | P Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s): IBIS runtime (available to USFS)

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: EGA/VGA/SVGA Disk space: .5MB (HD)
RAM space: 640KB
Math co-processor: Mouse: Optional
Printer: Epson or Epson mode Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Diana Menapace/USDA Forest Service/Rock Mountain Region

12. For technical information, contact:

Name: Diana Menapace Title: Env. Assessment Specialist
Address: USDA Forest Service, Rocky Mountain Region
11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9651 ext. FAX:
Data General address: D.Menapace:R02A

13. For acquisition information, contact:

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Address: USDA Forest Service, Rocky Mountain Region
11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9651 ext. FAX:
Data General address: D.Menapace:R02A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

NEPA CHECKER helps environmental coordinators or others with initial screening of NEPA documents for compliance. Users work through NEPA documents with the aid of the expert system, answering questions about information on each document. The user can ask why the expert system is asking a question, and see the source of the NEPA requirement (laws, regs, FSM, FSH, etc.). If the document is okay, the system prints a report. If the NEPA document fails one or more requirements, the system prints a report describing the missed requirement, parent text of requirement, and page number of missing or incorrect requirement. The document can then be passed back to the author for correction and re-submission. Basically, it is an intelligent checklist which contains the full text of all documentation requirements. It helps forest and regional staffs concentrate on documents that are "acceptable" to the expert system, and are ready for human review.

1. Acronym and name. NEPA-NFMA WORKBENCH

2. Brief description. A National Environmental Policy Act (NEPA) scoping, expert system, NEPA-NFMA Workbench is used during the scoping phase of environmental analysis to assist in identifying issues to analyze.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | _ Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | P Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | P Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s): IBIS runtime version 4.6+ (USFS owns license - runtime is freely available).

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: EGA+ Disk space: 2.5MB RAM space: 640KB
Math co-processor: Mouse: Optional
Printer: Optional Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Pamela Case/USDA Forest Service/Rocky Mountain Region/PPB

12. For technical information, contact:

Name: Diana Menapace Title: Env. Assessment Specialist
Address: USDA Forest Service, Rocky Mountain Region
11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9651 ext. FAX:
Data General address: D.Menapace:R02A

13. For acquisition information, contact:

Name: Diana Menapace Title: Env. Assessment Specialist
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11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9651 ext. FAX:
Data General address: D.Menapace:R02A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

NEPA-NFMA Workbench is used in the scoping stage (preliminary analysis) of the NEPA process for projects, programs, and plan amendments that require NEPA compliance. It guides the interdisciplinary team, or individuals, through the NEPA process, identifying relevant procedural requirements and assisting in figuring out how to address them. It automatically produces decision memos, an administrative record, and rough drafts of environmental assessments. A custom-designed module is needed to represent each Forest Plan. This module requires about a day to build.

1. Acronym and name. TOPS, Tracking of Projects System

2. Brief description. TOPS is an Oracle application for planning that tracks projects through the NEPA process, and also keeps track of appellants. Using TOPS, anyone in a unit can quickly obtain a project status, including receptionists responding to public inquiries.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
P Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help
_ User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Southwest Region/LMP;CS&T

12. For technical information, contact:

Name: Cathy Dahms Title: Operation Research Analyst
Address: USDA Forest Service, Southwest Region
517 Gold Avenue SW.
Albuquerque, NM 87102
Telephone: (505)-842-3216 ext. FAX:
Data General address: C.Dahms:R03A

13. For acquisition information, contact:

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517 Gold Avenue SW.
Albuquerque, NM 87102
Telephone: (505)-842-3216 ext. FAX:
Data General address: C.Dahms:R03A
Data General RIS file: Will be supplied at time of inquiry

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TOPS is designed for resource managers, planners, public information employees, and, eventually, direct use by our publics. Database functions are built into the system (first-time user installation, database backup, etc.). Reports can be generated by unit, project type, issues, or environmental documentation type. TOPS is designed to emulate the CEO environment, e.g., it is menu-driven and uses the same function keys.

Logging Systems

1. Acronym and name. AUBURN HARVEST ANALYZER

2. Brief description. This is a spreadsheet for calculating logging costs.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	P Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application X Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS
Software package(s): Lotus 1-2-3; Framework

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.

Dale Greene/University of Georgia; Bobby Lanford and Robert Tufts/Auburn University

12. For technical information, contact:

Name: Bobby Lanford or Robert Tufts Title: Associate Professors
Address: Auburn University
School of Forestry
Auburn, AL 36849-5418
Telephone: (205)-844-1061/1011 ext. FAX: (205)-844-1084
Data General address:

13. For acquisition information, contact:

Name: Bobby Lanford or Robert Tufts Title: Associate Professors
Address: Auburn University
School of Forestry
Auburn, AL 36849-5418
Telephone: (205)-844-1061/1011 ext. FAX: (205)-844-1084
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes: Formatted diskette

14. Additional description of tool.

1. Acronym and name. HELIPACE, Helicopter Production and Cost Estimation

2. Brief description. HELIPACE uses straightforward logic to estimate the production rate and estimated cost of helicopter logging. The program works in a spreadsheet-like environment. The focus of analysis is a harvest unit and treatment alternatives. Summaries of many units are available.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | P Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer:: IBM or compatible microcomputer 80286 or above
Graphics card: EGA optional Disk space: RAM space: 640KB
Math co-processor: Mouse: Desirable
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Aerial Forest Management Foundation/USDA Forest Service/Pacific Northwest Region and Pacific Northwest Research Station

12. For technical information, contact:

Name: Don Nearhood Title:
Address: Aerial Forest Management Foundation
P.O. Box 95
Canby, OR 97002
Telephone: (503)-678-2665 ext. FAX:
Data General address: D.Nearhood:R06C

13. For acquisition information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file: R06C:TM:RIS:RIS:HP1_3.EXE

Acquisition charge? _ No X Yes: $15 - user guide/$25 - guide & diskette

14. Additional description of tool.

Updates to enhance usefulness are in process (e.g. increasing the range of helicopter size to include smaller machines).

1. Acronym and name. SDSS, Spatial Decision Support System for Timber Sale Planning

2. Brief description. SDSS is a GIS-based decision support system for timber sale planning on the Jefferson National Forest in Virginia.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	P Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	S Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	S Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
X GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
P Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system:
Software package(s): Arc/Info 5.0

9. Hardware requirements.
Computer: VAX minicomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	_ User's manual	X Publications
_ Updates	_ Training	X Telephone support
_ Other:		

11. Principal developer.
David. P. Kenney and Thomas W. Reisinger/Virginia Polytechnic Institute and State University/Dept. of Forestry

12. For technical information, contact:
Name: Thomas W. Reisinger Title: Assistant Professor
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228 Cheatham
Blacksburg, VA 24061-0324
Telephone: (703)-231-6391 ext. FAX: (703)-231-3330
Data General address:

13. For acquisition information, contact:
Name: Thomas W. Reisinger Title: Assistant Professor
Address: Virginia Polytechnic Institute and State University
228 Cheatham
Blacksburg, VA 24061-0324
Telephone: (703)-231-6391 ext. FAX: (703)-231-3330
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.
SDSS is a decision support system to implement timber sale planning by opportunity analysis area (OAA). The OAA process involves planning various resource-integrated, site-specific projects over a 10-year period for individual opportunity areas. The SDSS attempts to model the OAA planning process by analyzing the large amount of site-specific data necessary to evaluate the environmental and social concerns. SDSS for timber sale planning is designed to bridge the gap between FORPLAN forest-wide resource allocations and site-specific resource management alternatives developed at the Ranger District level. The prototype SDSS evaluates the effects of harvesting on soil and water quality, visual and recreational use, fish and wildlife habitat, and the harvest economics for candidate stands. SDSS does not attempt to optimize timber sale planning; instead it replicates the manual process that the district timber sale administrator employs in developing harvesting alternatives. This system uses GIS digital datebases that are linked with the Continuous Inventory of Stand Characteristics II (CISCII) database, which contains stand-level, tabular information.

Monitoring

1. Acronym and name. ANOCOVAR

2. Brief description. ANOCOVAR is a spreadsheet macro (currently written for Quattro Pro) that compares two simple linear regressions. Its primary purpose is to compare discharge/water quality relations above and below an activity.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
S Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial P Monitoring _ Transportation
_ Ecosystem S Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils P Water
_ Cultural _ Minerals _ Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
S Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application X Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming _ Simulation
_ Heuristic process _ Mixed-integer programming P Statistical
_ Input/Output analysis _ Multiobjective programming
S Other:

8. Supporting software requirements.

Operating system: DOS 3.2 or later
Software package(s): Quattro Pro 2.0 or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above
Graphics card: Disk space: 3MB (QPro) RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other: Any machine that will run Quattro Pro should run this macro.

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Greg Widner/USDA Forest Service/Gallatin National Forest

12. For technical information, contact:

Name: Greg Widner Title: Hydrologist
Address: USDA Forest Service, Gallatin National Forest
P.O. Box 130
Bozeman, MT 59715
Telephone: (406)-587-6710 ext. FAX:
Data General address: G.Widner:R01F11A

13. For acquisition information, contact:

Name: Greg Widner Title: Hydrologist
Address: USDA Forest Service, Gallatin National Forest
P.O. Box 130
Bozeman, MT 59715
Telephone: (406)-587-6710 ext. FAX:
Data General address: G.Widner:R01F11A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This macro is designed to compare two sets of regressions. For example, suspended sediment and discharge measurements may be taken on a stream above and below an activity. The paired suspended sediment data alone is not directly comparable because it is dependent upon discharge, but relations with discharge at each site (sediment rating curves) may be established. These relationships (regressions) are then compared as per Neter and others' Applied Linear Regression Models. Output consists of an Anocova table and calculated F statistics for difference in means, levels, and overall. It is up to the user to determine the appropriateness of the data and the alpha level of interest.

1. Acronym and name. CRSITES, Cultural Resource Sites

2. Brief description. CRSITES is a database to monitor cultural resource sites in the Medicine Bow National Forest. It includes Smithsonian number, site name/type, eligibility to the National Register, legal description, ownership, USG quad., associated report, and seven site geographic or vegetation variables.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
P Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
P Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
S Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS II
Software package(s): IS 6.42/FES

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

James Heid/USDA Forest Service/Medicine Bow National Forest

12. For technical information, contact:

Name: James Heid Title: Forest Archeologist
Address: USDA Forest Service, Medicine Bow National Forest
2468 Jackson Street
Laramie, WY 82070
Telephone: (307)-745-8971 ext. 218 FAX:
Data General address: J.Heid:R02F06A

13. For acquisition information, contact:

Name: James Heid Title: Forest Archeologist
Address: USDA Forest Service, Medicine Bow National Forest
2468 Jackson Street
Laramie, WY 82070
Telephone: (307)-745-8971 ext. 218 FAX:
Data General address: J.Heid:R02F06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This database will provide better tracking of recorded cultural sites and provide descriptive information about them. It can be used for statistical comparisons and in compiling the annual accomplishment report. It links sites to specific reports for easy cross-referencing. When GIS becomes available, much of the information for GIS will available in the database.

1. Acronym and name. CRSITES/CRSURVEY, Cultural Resource Sites and Cultural Resource Survey Information.

2. Brief description. These two databases contain all cultural resource site and survey information for the forest. CRSITES is a listing of sites by type and location; CRSURVEY is a listing of all surveys by location and results. Both of these programs are on the Data General's present format.

3. Geographical level of analysis (P = primary and S = all secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
P Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
P Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Data General PRESENT

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Jane Albacker Darnell and Keith Matson/USDA Forest Service/ Chippewa National Forest

12. For technical information, contact:

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Address: USDA Forest Service, Chippewa National Forest
P.O. Box 308
Deer River, MN 56636
Telephone: (218)-246-2123 ext. FAX:
Data General address: K.Matson:R09F03D03A

13. For acquisition information, contact:

Name: Richard C. Perrault Title: Computer Systems Analyst
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Route 3, Box 244
Cass Lake, MN 56633
Telephone: (218)-335-8600 ext. FAX: (218)-335-8637
Data General address: R.Perrault:R09F03A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This is a database that provides spatial information on the cultural resource sites and surveys on the forest. The data are arranged for accessing this information by type, location etc. Presently, it is used for reporting and planning purposes. Its primary value lies in its ease for updating and adding information. In the future, we plan on converting this database to the Oracle system, but at present this is strictly in a conceptual status.

1. Acronym and name. GWMONITOR, Monitoring Data Base

2. Brief description. GWMONITOR is a consolidated database to readily retrieve and easily interpret information for use in yearly Forest Plan monitoring and 5-year review, and for use in future revisions to Forest Plans. (As of January,1992, application is still in the developmental stage.)

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | P Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Dave Plunkett and Charles Scott/USDA Forest Service/George Washington National Forest

12. For technical information, contact:

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Telephone: (703)-433-2491 ext. 266 FAX:
Data General address: C.Scott:R08F08A

13. For acquisition information, contact:

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P.O. Box 233
Harrisonburg, VA 22801
Telephone: (703)-433-2491 ext. 266 FAX:
Data General address: C.Scott:R08F08A
Data General RIS file: Not yet final; under development as of January, 1992.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Intended users of GWMONITOR are SO LMP staff, not districts. Inputs include fund codes, work activity codes, descriptions, MAR codes, plan targets, plan costs, actual expenditures/accomplishments, GNP price deflators, and year of input. Outputs being developed include: 1) three-year rolling average of unit costs base on actual expenditures and actual accomplishments; and 2) multi-year report showing overrun/backlog of plan targets and costs compared to actual accomplishments and costs. The expected completion date is June, 1992.

1. Acronym and name. MONITOR - A Data Base System for Tracking Forest Plan Monitoring Efforts

2. Brief description. MONITOR is a database system that contains information about, and progress of, surveying and monitoring efforts associated with Forest Plan implementation. The system is menu-driven and requires no database expertise to enter and update information, or to generate reports.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
P Monitoring
S Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle version 6

9. Hardware requirements.

Computer: Data General Eclipse Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Laser Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
X Updates _ Training X Telephone support
X Other: DG mail support via J.Haugen:R06F20A. As of 1/2/92 the system is still under development.

11. Principal developer.

Jerry Haugen/USDA Forest Service/Winema National Forest

12. For technical information, contact:

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2819 Dahlia Street
Klamath Falls, OR 97601
Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A

13. For acquisition information, contact:

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2819 Dahlia Street
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Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A
Data General RIS file: Contact J.Haugen:R06F20A to obtain a user's guide that includes acquisition and installation instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

MONITOR is an Oracle database system with a CLI macro menu system that links data entry/update (SQL*FORMS) and reports generation (PRO*FORTRAN) components. The system is designed to allow a district specialist to enter information about specific monitoring efforts (items to be monitored, techniques to be used, times of year during which the effort will occur, purpose, partners in the effort, geographic location with links to GIS, and accomplishment). The database would be accessed by the forest specialist to assess progress of monitoring and to identify results to be used in annual monitoring reports.

1. Acronym and name. PASSSFA, Parameter Selection System for Streams in Forested Areas

2. Brief description. PASSFA is an expert system designed to help select the most appropriate parameters for monitoring the effects of different management activities on streams in forest areas.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | P Monitoring | _ Transportation
S Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | P Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
S Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: ** Disk space: RAM space: 384KB
Math co-processor: Mouse:
Printer: Yes (for print version) Plotter:
Other: Color monitor perferred; print version requires an on-line printer.
**Graphics card: CGA, EGA, VGA, or Hercules

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
X Other: On-screen instructions

11. Principal developer.

Lee MacDonald/Colorado State University/Dept. of Earth Resources

12. For technical information, contact:

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Colorado State University
Fort Collins, CO 80523
Telephone: (303)-491-6109 ext. FAX:
Data General address:

13. For acquisition information, contact:

Name: Title:
Address: U.S. Environmental Protection Agency, Region 10, NPS Section WD-139
1200 Sixth Avenue
Seattle, WA 98101
Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send formatted diskette

14. Additional description of tool.

PASSSFA is an expert system designed to help select the most appropriate parameters for monitoring the effects of different management activities on streams in forested areas. Required information includes the designated uses of water, the management activities of concern, and cost constraints. At the end of each consultation, PASSSFA lists the recommended parameters and their associated confidence factors. PASSSFA was developed for the Pacific Northwest and Alaska, but can be applied elsewhere with a corresponding reduction in confidence. Both a print and a no-print version are available. PASSSFA was developed as part of a larger EPA project, and is best used in conjunction with the document: "Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska" (MacDonald et al., 1991). Copies of this document and PASSSFA can be obtained from U.S. EPA Region 10, NPS Section WD-139, 1200 Sixth Street, Seattle, WA 98101.

1. Acronym and name. R8 MAR, R8 Management Attainment Report

2. Brief description. This system utilizes simple CEO templates for recording accomplishment data, LMP objectives, and targets. Optionally, it can use PWPS Upward Reported MAR data. It can include timber accomplishments extracted electronically from TRACS. Three reports are provided.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
P Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database reporting/display
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS or AOS/VS II
Software package(s): CLI; PRESENT (a database reporting and display application)

9. Hardware requirements.

Computer: Data General MV4000 or above
Graphics card: Disk space: 500KB RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: FY 91 MAR Systems Release R8 1930 memo of April 5, 1991, which contains installation instructions, user documentation, and data templates

11. Principal developer.

Jim Kucera/USDA Forest Service/Southern Region/PPB

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Data General address: J.Kucera:R08B
Data General RIS file: STAFF:PBSU:SHARE:RELEASES: MARLIB.DMP; and STAFF:PBSU:SHARE:RELEASES: MARDATA.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

With regard to the LMP objective data, Region 8 forests have been asked to include their best estimates of average annual FLMP objectives for each of the major MAR resource items, based on data and information in their Forest Plans.

Resource Effects/Production

1. Acronym and name. AS-FMAS, Aspen Forest Management Advisory System

2. Brief description. AS-FMAS provides advice on how to manage aspen stands.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming S Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: VGA Disk space: 3MB RAM space: 520KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

H. Michael Rauscher/USDA Forest Service/North Central Forest Experiment Station

12. For technical information, contact:

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Telephone: (218)-326-7107 ext. FAX: (218)-326-7123
Data General address: M.Rauscher:S23L02A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

AS-FMAS can be used to analyze the best management system to achieve timber production objectives.

1. Acronym and name. BDEN

2. Brief description. BDEN allows computation of soil bulk density and percent moisture.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | P Soils | _ Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS or AOS/VS II
Software package(s): FORTRAN 77

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Lynn Starr/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

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Telephone: (503)-963-7122 ext. FAX:
Data General address: L.Starr:S26L06A
Data General RIS file: PUBLIC:DISTRIBUTION:SOFTWARE:BDEN.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The input is expected in a specific format in an AOS file. The format is described in a help file in the dump file, and in "Soil Bulk Density and Soil Moisture Calculated with a FORTRAN 77 Program" by G. Lynn Starr and J. Michael Geist, PNW-GTR-211. This publication is available from the authors or the Pacific Northwest Research Station in Portland, OR.

1. Acronym and name. BHHEICALC, Black Hills Habitat Effectiveness Index Calculator

2. Brief description. This is a model that allows analysis of white-tailed deer habitat effectiveness, based on the spatial distribution of cover and forage, cover quality, and road density.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P= primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Alan Ager and Mark Hitchcock/USDA Forest Service/Umatilla National Forest; Modified by: W.C. Aney and Mark Hitchcock/ USDA Forest Service/Black Hills National Forest

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (605)-578-2744 ext. FAX: (605)-578-2744
Data General address: W.Aney:R02F03D08A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Expected users are forest and district biologists evaluating alternative treatments (timber harvest, prescribed burning, road construction, etc.). BHHEICALC allows an evaluation of the spatial distribution of cover and forage, and can be used to evaluate the amount of edge and interior habitat in a project area. The model has the capability to use MOSS/MAPS GIS input on the Data General environment, as well as the LTPLUS mapping utility microcomputer software (according to documentation). The Black Hills version is a simplification of the original elk version, incorporating more appropriate information for white-tailed deer habitat evaluation. The original elk version is based on the work of Thomas, 1988 (GTR-PNW-218).

1. Acronym and name. BIOPAK, A Software Package for Computing Plant Biomass

2. Brief description. BIOPAK is a menu-driven package of computer programs that calculates the biomass, area, height, length, or volume of plant components (leaves, branches, stem, crown, and roots). The routines were written in FoxPro, FORTRAN, and C.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial |
_ Economic/Financial | _ Monitoring | | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other: |

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | S Timber | S Wildlife
S Fire | S Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics |
_ All resources | _ Not applicable | _ Other: |

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming |
_ Other: |

8. Supporting software requirements.

Operating system: DOS 3.3, or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: EGA/VGADisk space: 4-5MB RAM space: 640KB
Math co-processor: 80287/80387 Mouse: Helpful, not required
Printer: 132 or more cpl Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Joseph E. Means/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

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Data General address: J.Means:S26L05A
Data General RIS file: To be determined at a later date

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Intended users are specialists in forest management, botany, ecology, wildlife, or fire management. The intended user will understand collection, maintenance, and simple analysis of data from vegetation plots. Intended uses are for fuels assessment, wildlife browse and cover estimation, ecological studies, and general forest management. Inputs are vegetation data sets, including measured parameters such as tree d.b.h.; with outputs of plant component calculations (total biomass of the crown, volume of sapwood, cross-sectional area of stem, and total aboveground biomass). Reports, with column headings and legends, are also produced. BIOPAK links vegetation data sets with a library of equations for estimating plant components. The equation library supplied with BIOPAK was developed using equations from the Pacific Northwest. However, BIOPAK was designed to be customized by the user. Geographic areas and equations may be added by the user.

1. Acronym and name. BIRDHAB, Southern Region Bird Habitat Relationships Matrices

2. Brief description. BIRDHAB uses Lotus 1-2-3 habitat relationship matrices for all forest-dwelling birds occurring in the South. Potential occurrences are listed by habitat type and successional stage, with special requirements also shown.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
_ Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	P Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	

P Other: Expert concensus-spreadsht.

8. Supporting software requirements.

Operating system: DOS (future applications DG AOS/VS; UNIX)
Software package(s): Lotus 1-2-3, Excel 3.0, or any spreadsheet that can open 1-2-3 file. (Future applications Oracle; Arc-Info currently available in a spreadsheet only).

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	_ User's manual	X Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.

Jim Fenwood/USDA Forest Service/Southern Region; Paul Hamel/ Tennessee Dept. of Conservation

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: J.Fenwood:R08B
Data General RIS file:

Acquisition charge? _ No X Yes: Send blank floppy

14. Additional description of tool.

BIRDHAB is based on a hardcopy version by Hamel: "Land Manager's Guide to the Birds of the South." It is used to select forest management indicator species, and to predict the likelihood of threatened, endangered, or sensitive species at the project level. Future Oracle application will access stand data in CISC and ultimately be geo-referenced on district GIS.

1. Acronym and name. BOISED, Boise and Payette National Forest Sediment Yield Model

2. Brief description. BOISED is the operational sediment yield model used by the Boise and Payette National Forests. It is a local adaptation of the Region 1/Region 4 sediment yield model. The model estimates average annual sediment yield increases associated with road construction, timber harvest, and fire.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	S Resource scheduling
S Cumulative effects	S Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	S Soils	P Water
_ Cultural	_ Minerals	S Timber	_ Wildlife
S Fire	_ Range	_ Vegetation	_ Wilderness
S Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Personal computer version under development

9. Hardware requirements.

Computer: Data General MV series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

John Potyondy and Ron Beveridge/USDA Forest Service/Boise National Forest

12. For technical information, contact:

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1750 Front Street
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13. For acquisition information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

BOISED is the operational version of the Region 1/Region 4 sediment yield model, adapted to the Boise and Payette National Forests. The procedure provides estimates of on-site erosion, delivery to stream channels, and routing of sediment downstream to critical reaches where impacts to fisheries are interpreted. The model is applied to watersheds, which are stratified using landtypes or other response units. Activities that can be modeled include road construction, reconstruction, obliteration, timber harvest, and fire. The model produces estimates of average annual sediment yields for undisturbed conditions, past activities, and activities proposed for the future. The procedure is commonly used in the preparation of EAs and EISs. Results should only be used as indicators of relative response, not absolute quantities of sediment. Model users must be well acquainted with the concepts, process, assumptions, and cautions described in the R-1/R-4 Sediment Yield Guide. Generally, the model should only be used by qualified hydrologists and soil scientists since extensive judgment is required for proper application.

1. Acronym and name. BROOK2, A Hydrologic Simulation Model for Eastern Forests

2. Brief description. BROOK2 is a hydrologic simulation model that estimates snow, soil water, and streamflow from daily precipitation and temperature. Effects of cutting, or of changing ratios of evergreen to deciduous forest can be studied.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | S Soils | P Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS s.2 or later
Software package(s): ANSI-standard FORTRAN 77 (any computer) or MS-DOS 3.2 or later (.EXE)

9. Hardware requirements.

Computer: IBM or compatible microcomputer.
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

C. Anthony Federer/USDA Forest Service/Northeast Forest Experiment Station

12. For technical information, contact:

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Telephone: (603)-868-5576 ext. FAX: (603)-868-1538
Data General address: A.Federer:S24L06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

There is no evidence that BROOK2 has been used in any forest planning. It should satisfactorily predict changes in soil water and streamflow responses to timber harvest and re-growth anywhere in the Eastern U.S., and could be used by forest hydrologists. Minimum input requirements are one year of daily precipitation and daily mean temperatures. BROOK2 has been used extensively for teaching purposes in North America and for research purposes in Europe. A major revision, known as BROOK90, is underway.

1. Acronym and name. CACTOS, California Conifer Timber Output Simulator

2. Brief description. CACTOS enables the user to simulate a series of growth and harvest periods for individual stands described by site index, species, and a list of trees containing d.b.h., total height, live crown ratio, and trees per acre represented by each tree.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
S Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 640K
Math co-processor: Optional Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates _ Training _ Telephone support
X Other: Menu driven

11. Principal developer.

Lee C. Wensel and Greg S. Biging/University of California, Berkeley/Dept. of Forestry and Resource Management

12. For technical information, contact:

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Telephone: (510)-642-7075 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

CACTOS can be used to generate the data needed for harvest scheduling. However, its primary purpose is simply to predict yields for alternative harvesting practices. CACTOS is part of a system of programs that include STAG; the STAnd Generator used to produce stand descriptions from general stand information, and to fill in missing data, a yield averager, a stand average, and a compare program to evaluate the accuracy of predictions from re-measurement data.

1. Acronym and name. CALWHRS, California Wildlife Habitat Relationships System

2. Brief description. CALWHRS is a tool for performing word-level HEP analysis for California terrestrial vertebrates in any California habitat.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0+
Software package(s): Self contained (Clipper compiler) or could use DBase IV

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: CGA+ Disk space: 20MB RAM space: 640KB
Math co-processor: Yes Mouse:
Printer: Epson dot matrix Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

California Interagency Wildlife Task Group

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (916)-355-0124 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This is a complete set of tools, including several volumes and a computer database.

1. Acronym and name. COMPATS

2. Brief description. The COMPATS system aids in the development and analysis of project-level alternatives. It computes timber volume, wildlife habitat index, and sediment yields, and performs rudimentary stumpage/cost calculations. The database contributes to monitoring. (COMPATS is particular to Region 8)

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
S Water
P Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle version 6.0

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: 10MB RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Dan Keller/USDA Forest Service/Southern Region

12. For technical information, contact:

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13. For acquisition information, contact:

Name: Not available; in beta test Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes: Not yet available

14. Additional description of tool.

COMPATS is not available for distribution. It is still in beta-testing.

1. Acronym and name. COYIELD

2. Brief description. COYIELD is a size-class model for predicting yields of unthinned loblolly pine plantations on cutover, site-prepared lands.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	S Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Recommended — Disk space: Variable
RAM space: Variable
Math co-processor: — Mouse:
Printer: Recommended — Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.
Harold E. Burkhart/Virginia Polytechnic Institute and State University/Dept. of Forestry

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Dept. of Forestry
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Telephone: (703)-231-6952 ext. FAX: (703)-231-3330
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
Inputs to the model are age (years from planting), site index (base age 25), and number of trees planted or surviving per acre. Outputs include predicted height of dominant and co-dominant trees, arithmetic and quadratic mean dbh, number of trees, average tree height, basal area, and volumes by 1-inch d.b.h. classes. COYIELD is based on data from 186 plantations established in the Piedmont and Coastal Plain over much of the natural range of loblolly pine. These plantations represent a wide variety of stand conditions and site preparation techniques. Diameter distributions in COYIELD are modeled using the Weibull density function. Parameter estimates are obtained from regression equations that predict the 50th and 95th percentiles of the diameter distribution from stand attributes. Options exist in COYIELD for specifying merchantability limit based on top diameter outside bark and diameter limit. Users also specify Coastal Plain, Piedmont, or combined Coastal Plain-Piedmont site index equation coefficients. Predicted yields from program COYIELD should satisfactorily represent many loblolly pine plantations on cutover, site-prepared lands in the South.

1. Acronym and name. CRYPTOS, The Cooperative Redwood Yield Project's Timber Output Simulator

2. Brief description. CRYPTOS enables the user to simulate a series of growth and harvest periods for individual stands described by site index by species, and a list of trees containing d.b.h., total height, live crown ratio, and trees per acre represented by each tree.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Optional Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | _ Training | _ Telephone support
X Other: Menu driven

11. Principal developer.

Lee C. Wensel and Greg S. Biging/University of California, Berkeley/ Dept. of Forestry and Resource Management

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

CRYPTOS can be used to generate the data needed for harvest scheduling. However, its primary purpose is simply to predict yields for alternative harvesting practices. CRYPTOS is part of a system of programs that includes a yield averager, a stand averager, and a compare program to evaluate the accuracy of predictions from re-measurement data.

1. Acronym and name. DFSIM, Douglas-fir Simulator

2. Brief description. DFSIM is a whole-stand growth and yield simulator for coast Douglas fir, which produces yield tables for managed stands. An economic option allows the user to estimate present net worth at the same time a silvicultural regime is simulated.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
S Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming S Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.1 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: CGA Disk space: 256KB RAM space: 640KB
Math co-processor: Intel 80287+, optional Mouse:
Printer: 80 col. dot matrix or laser Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Robert Curtis, Gary Clendenen and Don DeMars/USDA Forest Service/Pacific Northwest Research Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

DFSIM projects stands, using either age, site index, and treatment, or initial stand statistics, site index, and height growth-curve treatment. Yield tables include effects of initial spacing, pre-commercial and commercial thinning, and nitrogen fertilization.

1. Acronym and name. DIAGNOSIS

2. Brief description. Diagnosis is a knowledge-based system for diagnosing treatment needs for stands based on a comparison of the existing stand to a target stand. The target stand represents desired vegetative conditions for a given land allocation.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: AOS/VS
Software package(s): Data General Goldworks for MVs

9. Hardware requirements.

Computer: Data General MV series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Jim Chew/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (406)-329-3532 ext. FAX:
Data General address: D.Anderson:R01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Treatment alternatives are provided for any number of stands. These treatment alternatives can then be utilized as input in other planning models or analysis efforts. The system utilizes a target stand that has been defined by resource specialists as a desired vegetative condition, to achieve any variety of resource objectives as identified by a Forest Plan allocation. The system is dependent upon describing existing stands with Region 1's stand examination system, the quantification of resource objectives in terms of desired stand conditions (a target stand), and Region 1's concept of the silvicultural prescription process.

1. Acronym and name. DYNAST, Dynamic Analytic Systems Technique

2. Brief description. DYNAST is a design technique for fitting modules (more than 80) to specific situations and for simulating outcomes for different management regimes. More than 70 demonstration models illustrate the dynamic technique.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
S Cumulative effects
S Economic/Financial
S Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
P Resource effects/Production
S Resource scheduling
S Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems
S Dynamic programming
S Heuristic process
S Input/Output analysis
_ Other:
S Integer programming
S Linear programming
S Mixed-integer programming
S Multiobjective programming
S Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 2.01 or later; MacIntosh OS
Software package(s): Professional DYNAMO for pc; STELLA for MacIntosh Plus and later; STELLA II for MacIntosh with 1Mb of memory.

9. Hardware requirements.

Computer: IBM or compatible microcomputer; MacIntosh with 1MB memory
Graphics card: For pc Disk space: 256KB RAM space: 256KB
Math co-processor: Helps with microcomputer
Mouse: Optional for microcomputer
Printer: Dot matrix/laser/Imagewriter Plotter:
Other: Software and very large programs run on all notebook machines with the above minimum requirements

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training X Telephone support
X Other: Diskettes with 70 DYNAMO models and 50 STELLA II models are available

11. Principal developer.

Stephen G. Boyce/Duke University

12. For technical information, contact:

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Telephone: (704)-884-6556 ext. FAX: (704)-884-6556 (EST nights)
Data General address:

13. For acquisition information, contact:

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Telephone: (704)-884-6556 ext. FAX: (704)-884-6556 (EST nights)
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes: $60 - text & disk; $500 - software**

14. Additional description of tool.

DYNAST expands on observations that mental models are adequate for many management challenges; but physical models, such as graphs and mathematics, help managers arrive at decisions when situations are complex. DYNAST helps managers improve skills in designing, evaluating, and using both mental and physical models. DYNAST is used to gain new insights by manipulating simulation models, improving communications with staff and workers, adapting cultural schedules for natural resources to an uncertain and changing world, and by evaluating outcomes before investments are committed. Inputs are: initial inventories of the simulated system; parameters for modules selected to evaluate such variables as cash flow, growth, habitats, esthetics, water quality, populations, soils, and sales of goods; and controls for structuring outputs of tables and graphs. Analytic procedures apply to all kinds of forest and ecosystems in the world, both managed and not managed. Minimal mathematical and computer terminology is required.

**Purchase rates available.

1. Acronym and name. EARPT, EA Report Writer

2. Brief description. EA Report Writer is broken into several sections that give the interdisciplinary team specifics about a watershed in which a project is planned. The information can be used to analyze current conditions, predict future conditions, and compare these with the desired future conditions.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
S Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
S Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
P Vegetation
_ Visual/Aesthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

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Data General address: J.Varner:R02F06D04A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

EARPT is specific to the Medicine Bow National Forest and Thunder Basin National Grassland Land Management Plan and database. EARPT can be altered to be used with other databases if operators know SQLPLUS commands and SQLREPORTWRITER.

1. Acronym and name. ELK COVER

2. Brief description. ELK COVER is a computer simulation model that determines security cover of forest stands from stand inventory data or PROGNISIS simulations.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals S Timber P Wildlife
_ Fire _ Range S Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: AOS/VS; DOS; UNIX
Software package(s):

9. Hardware requirements.

Computer: Data General; IBM or compatible microcomputer; UNIX
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. EZ-IMPACT

2. Brief description. EZ-IMPACT 4.0 is an expert system for building computer simulation models. It can be used to set objectives and to compare consequences of alternatives.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
P Other: Flexible
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 4.0 and below
Software package(s): Written in structured Basic

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: RAM space: 512KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

EZ-IMPACT is an expert system shell used to construct simulation models to help make decisions about complex issues. The source of this information was from: FORS' Directory of Forestry and Natural Resources Computer Software - 1992 Supplement.

1. Acronym and name. FHI, Fish Habitat Indexes

2. Brief description. FHI is a comparative, mechanistic model that indexes fish habitat quality by valuing various physical parameters for broad, geomorphically similar forest areas. The algorithm contains measured or estimated values of sediment, water temperature, and coarse woody debris (logs).

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
S Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
P Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
S Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
X Other: Written computer documentation available on request

11. Principal developer

David Heller and Mike Clady/USDA Forest Service/Pacific Northwest Region; James Maxwell/USDA Forest Service/Rocky Mountain Region; Mit Parsons/USDA Forest Service/Washington Office

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Data General RIS file: Available on request

Acquisition charge? X No _ Yes:

14. Additional description of tool.

In 1991, a peer review team of scientists from the PNW Station and Oregon State University assessed the FHI model. Their conclusions were that the model lacked scientific credibility. The reasons for this included lack of statistically valid data, and unsubstantiated assumptions and cause-effect relationships. They recommended the forest go to a more qualitative approach in future modeling efforts. The mechanistic approach used in the FHI simply could not stand the test of scientific method as required by research. The forest will develop another approach to modeling fish habitat and watershed health when the Forest Plan is revised. The new approach may include some of the existing FHI, linked to a more qualitative method of habitat quality comparison.

1. Acronym and name. FIBER, Growth Model for Spruce-Fir and Northern Hardwood Forest Types

2. Brief description. FIBER predicts the growth interaction among species within spruce-fir, northern hardwood, and mixed-wood forest types. The forest manager can simulate the growth of trees for management practices and silvicultural treatments over a range of stand types.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 1MB RAM space: 512KB
Math co-processor: Will use if present Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Dale Solomon/USDA Forest Service/Northeastern Forest Experiment Station

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Data General address: D.Solomon:S24L06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

FIBER is a two-stage matrix model. One stage of the model is a set of linear-regression equations that predict transition probabilities of tree growth and mortality as a function of stand density, tree size, and proportion of hardwoods. These predicted probabilities are the elements of stand projection matrices that are used to project the distribution of stand diameters over a 5-year period.

1. Acronym and name. G-HAT

2. Brief description. G-HAT is a system of computer programs used to predict growth and yield of Appalachian mixed hardwoods after thinning.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	S Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Recommended Disk space: Variable
RAM space: Variable
Math co-processor: Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.
Harold E. Burkhart/Virginia Polytechnic Institute and State University/Dept. of Forestry

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
Inputs to the model are tree list or stand table, site index, and stand basal area before thinning. Outputs include trees per acre by species and merchantable volume per acre by species. G-HAT is a distance-independent, individual-tree growth and yield model developed around individual tree, species-specific growth equation. Given a tree list or stand table, along with inputs of stand age and site index, G-HAT software applies the species-specific individual-tree equations to predict tree basal-area increment and total tree height for the residual stand after thinning. Cubic foot volumes based on desired merchantability standards may be obtained for thinned trees, the residual stand, and the projected stand. G-HAT is available as a self-contained interactive program (G-HAT Basic) or as a library of FORTRAN subroutines (G-HAT FORTRAN).

1. Acronym and name. GENGYM, Generalized Growth and Yield Model

2. Brief description. GENGYM is a variable-density stand table, projection-based growth and yield model for mixed conifer and ponderosa pine stands in the Southwest; spruce-fir, lodgepole pine and aspen in the central Rocky Mountains; and ponderosa pine and white spruce in the Black Hills.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0+; Data General AOS/VS
Software package(s): Optional - RMSTAND (from Dan Greene R02A)

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Disk space: 400KB RAM space: 200KB
Math co-processor: Optional Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Carl Edminster, Todd Mowrer and Bill Olsen/USDA Forest Service/ Rocky Mountain Forest and Range Experiment Station

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Data General RIS file: S28A:STAFF:RWU4151:GYMODELS:
GENGYM:GENGYM.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

GENGYM is used for project analysis and Forest Plan implementation to estimate timber outputs and stand conditions for linkage to other resource functions. Expected users are silviculturists and timber resource planners. Inputs are tree attributes summarized by 1-inch diameter classes. Outputs are variable-density yield tables at the diameter class, species, and whole stand level. GENGYM is designed for even-aged and uneven-aged stands of pure or mixed species composition, and includes dwarf mistletoe impacts where applicable. Model relationships are also incorporated in the stand PROGNOSIS-based system supported by WO-TM detached in Fort Collins. It is applicable in U.S. Forest Service Rocky Mountain and Southwest Regions.

1. Acronym and name. GLA, Grazing Lands Applications

2. Brief description. GLA is a comprehensive, decision support system developed for USDA-SCS field offices to facilitate conservation planning on rangelands, woodlands, pastureland, cropland, and hayland. Primary emphasis is on forage and animal inventories, wildlife/livestock relations and nutritional management.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
P Resource effects/Production
S Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
P Range
_ Recreation
_ Not applicable
S Soils
_ Timber
S Vegetation
_ Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems
S Dynamic programming
S Heuristic process
_ Input/Output analysis
P Other: Decision support
S Integer programming
S Linear programming
S Mixed-integer programming
S Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3 or 5.0; UNIX 3.2
Software package(s): DBVISTA III for DOS; INFORMIX for UNIX

9. Hardware requirements.

Computer: IBM or compatible microcomputer; UNIX 386/486 AT&T platforms
Graphics card: Paradise Disk space: 15MB RAM space: 640KB
Math co-processor: Desirable Mouse: w/ graphics applications
Printer: Any Plotter: Any
Other:

10. Documentation/user support available.

X On-line help
X Updates
_ Other:
X User's manual
X Training
X Publications
X Telephone support

11. Principal developer.

J. W. Stuth, J. R. Conner, and W. T. Hamilton/Texas A&M University/Department of Rangeland Ecology and Management

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

This DSS allows the user to characterize forage resources, determine land use, acreage, ecological trend, field entry method, monthly growth, and long-term ecological response to land development to determine levels of stocking, considering wildlife, water, and slope constraints. The system allows characterizations of livestock and wildlife herbivore monthly demand and populations, stored feeds, and schedule access to management units to allow production of grazing schedules and forage balance analysis. GLA includes a long-term, land-improvement practices economic investment tool, an expert system for assessing management risks, a nutritional management tool for cattle, sheep, goats and horses, and a livestock/wildlife diet-stocking analyzer. Currently, a geographic landscape analysis system, plant growth model, and an advanced economic investment module is being added to GLA DSS.

1. Acronym and name. GMLSM, Gypsy Moth Life System Model

2. Brief description. GMLSM simulates population dynamics of the gypsy moth, natural enemies (predators, parasites, and viruses), and the host stand (foliage dynamics, tree growth/mortality); initial populations are required and daily weather data is used to drive the gypsy moth and foliage dynamics within years.

3. Geographical level of analysis (P = primary and S = secondary)

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
P Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: Currently DOS; will move to UNIX (X-Windows)
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088 series
Graphics card: Disk space: 1-6MB minRAM space: 500KB
Math co-processor: Accelerates output Mouse: Under development
Printer: Plotter: Not used directly
Other: Graphics-capable screen for viewing output in graphical form. No plotter or graphics formatted print files are supported yet. Tabular output too.

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates _ Training X Telephone support
X Other: Context-sensitive help system; data-management front end to handle input data, output data, and tables.

11. Principal developer.

J. J. Colbert and George Racin/USDA Forest Service/Northeastern Forest Exp. Sta; Katharome Sheehan/USDA Forest Service/Pacific Northwest Region/FPM; A. A. Sharov/West Virginia University

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Data General RIS file: S24l08A:RIS:DOS:GMLSM.ZIP

Acquisition Charge? X No _ Yes:

14. Additional description of tool.

This model will be of use to anyone interested in the interactions of the gypsy moth and its natural enemies, including viral and fungal pathogens. Simulation of management interventions include direct application of insecticides, sterile insect release, pheromone confusion, or other management actions that affect a single stand.

1. Acronym and name. GMPHEN , Gypsy Moth Phenology Model

2. Brief description. GMPHEN simulates the phenology of the gypsy moth and six eastern hardwood species from weather data (daily minimum and maximum temperatures for 1 year; at 1- to 10-day intervals (selected by the user).

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air P Insect/Disease _ Soils _ Water
_ Cultural _ Minerals S Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
S Heuristic process _ Mixed-integer programming S Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS; Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088 series; Data General
Graphics card: Disk space: 150KB RAM space: 140KB
Math co-processor: Accelerates output Mouse: Under development
Printer: Plotter: Not used directly
Other: No output directly viewable - requires external editor. No graphic output.

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Katharine Sheehan/USDA Forest Service/Pacific Northwest Region/ FPM

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Data General RIS file: S24L08A RIS:DOS:GMPHEN.ZIP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

GMPHEN assists in assessing insect and tree phenology, and can be used to predict the best timing for pesticide application or insect sampling. It reports percentages in each life stage, mean life stage, mean (and by species) percent leaf expansion, and percent budbreak. Users are pest-management specialists.

1. Acronym and name. GROAK, Grow-oak

2. Brief description. GROAK is a stand-level model that predicts cubic and board feet growth and yield for 30 years or longer as a function of stand age, number of trees >2.6 inches d.b.h., basal area, and site index. Especially useful for predicting growth and yield response of thinning in upland oak stands.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.11 or later
Software package(s): BasicA

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 7KB RAM space: 512KB
Math co-processor: RecommendedMouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ User's manual
X Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

Martin E. Dale/USDA Forest Service/Northeastern Forest Experiment Station

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Data General address: C.Scott:S24L05A
Data General RIS file: STAFF:4153:SIMULATORS:GROAK.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

GROAK can be used by timber management to determine expected outputs from specific upland oak stands if treated (thinned) to specified basal area. Inputs required are stand age in years, basal area in trees greater than 2.6 inches/ acre, number of trees/acre greater than 2.6 inches d.b.h., and site index (oak species) in feet. This applies over the upland oak region to upland oak stands with more than 60 percent oak, stand age of 20 to 120 years, 15 to 130 square feet/acre basal area, 20 to 800 stems/acre, and site index 50 to 80 feet. Outputs include growth in basal area, cubic foot volume inside bark, and board foot volume International ¼-inch rule; as well as number of trees per acre, stocking percent, and quadratic mean stand diameter.

1. Acronym and name. GROWPINE, Grow White Pine

2. Brief description. GROWPINE is a short Basic computer program that provides quantitative estimates of yields from white pine plantations. The key variables in the program are stand age, density, and site index.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
S Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS; Data General AOS/VS
Software package(s): Basic (can run on any computer that runs Basic language)

9. Hardware requirements.

Computer: IBM compatible personal computer; Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Arlyn W. Perkey and Brenda L. Wilkins/USDA Forest Service/ Northeastern Forest Experiment Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

GROWPINE provides stand-level growth and yield projections.

1. Acronym and name. GYMTIME, Gypsy Moth Time: A phenology model

2. Brief description. GYMTIME is a population-based phenology model that can assist in gypsy moth management. (1991, Environ. Ent., 20:1516-1525)

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
S Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air P Insect/Disease _ Soils _ Water
_ Cultural _ Minerals _ Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: RAM space:
Math co-processor: Optional Mouse: Optional
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

J. A. Logan and L. A. Weber/Virginia Polytechnic Institute and State University/Dept. of Entomology and Dept. of Forestry

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Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

1. Acronym and name. GYPSES, A Decision Support System for Gypsy Moth Management

2. Brief description. GYPSES is a GIS-based decision support system to help managers allocate their resources more effectively among monitoring, prevention, and intervention activities. The system runs in X-Windows on UNIX workstations and is self-contained, including limited GIS capabilities.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	S Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
S Economic/Financial	S Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	P Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	S Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
S All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
S Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: UNIX SV5R4
Software package(s): X-Windows 11.4

9. Hardware requirements.

Computer: IBM or compatible microcmptr. 80486/25; SUNSPARC;MacIIx;DEC3100
Graphics card: 256 color Disk space: 300MB RAM space: 16MB
Math co-processor: Yes Mouse: Yes
Printer: Yes Plotter: Yes
Other: Digitizer

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Mark Twery/USDA Forest Service/Northeastern Forest Experiment Station; Dan Twardus/Northeastern Area, State and Private Forestry; in cooperation with G. A. Elmes, F. W. Ravlin and M. C. Saunders

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Data General address: M.Twery:S24L08A

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Data General address: M.Twery:S24L08A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The user identifies management units and specific objectives for different units, and specifies priorities for management of gypsy moths. If available, the user provides data on forest composition and previous history of disturbances, gypsy moth infestations, and other relevant information. The system then provides recommendations on how, where and when to sample for gypsy moth populations, and what types of treatments may be appropriate for different areas. Balancing recommended treatments with available control funds is possible with the aid of on-screen information. Outputs include color, hardcopy maps, summaries of data on insect populations, areas at risk, etc. Considerable effort is required to enter initial data to the system through the user's digitizing equipment, but assistance may be available. The system is in early stages of field testing and should be available for distribution in 1993.

1. Acronym and name. GYPSY MOTH STAND DAMAGE, Stand-Damage Model: a Component of the Gypsy Moth Life System Model

2. Brief description. The Stand-Damage Model simulates the host stand for up to 100 years from initial stand conditions provided the user; growth and yield under user-defined defoliation and management entry scenarios. Estimates of decreased growth and increased mortality resulting from defoliation are given.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
P Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS (Will be converted to UNIX environment.)
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088 series
Graphics card: Disk space: 800KB min RAM space: 500KB
Math co-processor: Recommended Mouse: Under development
Printer: Plotter: Not used directly
Other: Graphics-capable screen for viewing output in graphical form. Data is provided in a format for use in plotting packages such as Harvard Graphics.

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates _ Training X Telephone support
X Other: Context-sensitive help system: data-management front end that handles input & output data and tables is both menu driven & user-friendly

11. Principal developer.

J. J. Colbert and George Racin/USDA Forest Service/Northeastern Forest Experiment Station; Katharine Sheehan/USDA Forest Service/Pacific Northwest Region/FPM

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: J.Colbert:S24L08A; G.Racin:S24L08A
Data General RIS file: S24L08A:DOS:GMSTAND.ZIP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The model can be used to assess differences between alternate defoliation and management intervention scenarios. All parameters are provided for 20 tree species in eastern mixed-hardwood forests. The initial data is assumed to be from a spatially homogeneous area. The size of the area being simulated and the size of area sampled is stipulated, adjusting the per-acre outputs. All parameters are accessible, provide means to customize species to specific areas, or build new tree species for extending the range of the model's utility. All parameters are entered through user-interface software that is menu oriented, controls the range of data entered, and keeps data in reasonable ranges for simulations. Users will be forest managers or management consultants, including pest-management specialists. Outputs are both tabular and graphical. Users can save input data and annotate data to assure future use is coherent with changes made to parameters.

1. Acronym and name. HDWD

2. Brief description. HDWD is a computer program designed to predict pine unthinned loblolly pine plantations on cutover, site-prepared lands.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Recommended Disk space: Variable
RAM space: Variable
Math co-processor: Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Inputs to the model are number of loblolly pine trees per acre planted, site index for loblolly pine (base age 25), percent of hardwood basal area in the main canopy of the stand, and age at which output is desired. Outputs include number of trees surviving per acre, basal area per acre, and total pulpwood and sawlog volumes per acre. HDWD was developed using 189 old-field and 186 cutover, site-prepared plantation plots. Validation was done with an independent data set containing re-measured (ages 11 and 24) plot data ranging in percent basal area in hardwood from 0 to 100 percent. Overall, there was close agreement between the observed values and model prediction. HDWD should prove valuable for analyzing the biological and economic implications of controlling hardwood competition to various levels in loblolly pine plantations.

1. Acronym and name. HEICALC/HEIWEST, Elk Habitat Effectiveness Index

2. Brief description. These programs identify the habitat effectiveness index (HEI) as a measure of the quality of elk habitat in a specific area. HEICALC applies to the Blue Mountains of Eastern Oregon and Washington, and HEIWEST applies to Western Oregon.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
P Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): UTOOLS can be used to directly generate input for the HEI programs.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Disk space: 1MB RAM space: 540KB
Math co-processor: Optional Mouse: Optional
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Example data sets and documentation are included with the program.

11. Principal developer.

Alan Ager/USDA Forest Service/Umatilla National Forest; Mark Hitchcock/Sedro Woolley, WA

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Data General RIS file: R06A:STAFF:PEA:MERZ:PROGRAMS:HEI.EXE These are also available from the Fort Collins Info Center in the UTOOLS folder.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

HEICALC evaluates the spatial proximity of forage, marginal and satisfactory cover, and harvest treatment areas. HEIWEST evaluates the spatial proximity of forage, three types of cover (optimal, hiding, and thermal), and various effects of silvicultural treatments and fertilization for forage production. From these spatial relationships, several indices are developed to identify the quality of elk habitat. HEICALC is based primarily on Report PNW-GTR-218 "Habitat Effectiveness Index for on Blue Mountain Winter Ranges" (Thomas,et al. 1988). HEIWEST is based primarily on Report R6-F&WL-216-1986 "A Model to Evaluate Elk Habitat in Western Oregon" (Wisdom, et al. 1986). The first is available from the Pacific Northwest Experiment Station, P.O. Box 3890, Portland, OR 97208. The second report is available from USDA Forest Service, Pacific Northwest Station, Fish and Wildlife, P.O. Box 3623, Portland, OR 97208.

1. Acronym and name. HIDE2

2. Brief description. HIDE2 assists in predicting hiding cover for elk, given tree density and diameter.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide S Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS; Data General AOS/VS
Software package(s): Basic

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Not Hercules Disk space: 10KB RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
_ Updates _ Training _ Telephone support
X Other: Program graphics are self-explanatory.

11. Principal developer.

L. Jack Lyon/USDA Forest Service/Intermountain Research Station

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Data General address: J.Lyon:S22L01A
Data General RIS file: None - request directly.

Acquisition charge? _ No X Yes: Replacement of floppy disk

14. Additional description of tool.

HIDE2 is a computer program in which tree density and diameter are specified by the user. Stems are randomly "planted," and an arcsine transformation calculation is used to determine stem projection at 200 feet. Coverage at that distance is "visual blockage." Coverage of 65-inch segments at that distance is "hiding cover" for elk when a segment is 90 percent blocked. The pc version displays the tree stand graphically.

1. Acronym and name. HIDE2X, A Program Designed to Calculate Hiding Cover Values

2. Brief description. HIDE2X is a variation of HIDE2, a program developed for pc and DG use by Jack Lyon of the Intermountain Station Forestry Sciences Lab. HIDE2X calulates hiding cover values for any size animal, given information about the timber stand being evaluated.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
S Other: Monte Carlo simulation

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General Eclipse Series
Graphics card: Disk space: Variable RAM space: Variable
Math co-processor: Mouse:
Printer: DG laser Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
_ Updates | _ Training | X Telephone support
X Other: DG mail support via J.Haugen:R06F20A

11. Principal developer.

Jerry Haugen/USDA Forest Service/Winema National Forest

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Klamath Falls, OR 97601
Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A

13. For acquisition information, contact:

Name: Jerry Haugen Title: Operations Research Analyst
Address: USDA Forest Service, Winema National Forest
2819 Dahlia Street
Klamath Falls, OR 97601
Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A
Data General RIS file: Contact J.Haugen:R06F20A for a user's guide that includes acquisition/installation instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

HIDE2X was used on the Winema National Forest to calculate hiding cover values for every stand condition in our FORPLAN timber tables. These values were then used to create a hiding cover output within FORPLAN. The model can also be used to calculate hiding cover values for specific timber stands during development of projects to ascertain compliance with Forest Plan direction. The expected user would be a district wildlife biologist. Data input includes the type of animal being evaluated (elk, deer, moose) and diameter and density of objects blocking the field of view through the stand (usually tree stems, but could include crowns of trees, shrubs, clumps of trees, rocks, or anything else). Outputs are the mean hiding cover and the standard error of the estimate. HIDE2X differs from HIDE2 as follows: accepts any size animal, not just elk; allows direct entry of diameters to 9,999 inches, so clumps of trees or other objects can be modeled; allows batch data entry; allows results to be saved; provides CEO-like data entry screens and is menu driven. HIDE2 has been field tested and determined to provide accurate results at a fraction of the expense of direct field measurement.

1. Acronym and name. HSI, Habitat Suitability Index Models 2.0

2. Brief description. HSI models are available for approximately 150 species. These models were developed by the U.S. Fish and Wildlife Service and are to evaluate habitat quality for wildlife species.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 256KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

U.S. Fish and Wildlife Service

12. For technical information, contact:

Name: Warren Mangus Title:
Address: U.S. Fish and Wildlife Service
4512 McMurray Avenue
Fort Collins, CO 80525
Telephone: (303)-226-9293 ext. FAX:
Data General address:

13. For acquisition information, contact:

Name: Warren Mangus Title:
Address: U.S. Fish and Wildlife Service
4512 McMurray Avenue
Fort Collins, CO 80525
Telephone: (303)-226-9293 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Habitat suitability index (HSI) models use field measurements of habitat variables to compute HSI values. Models may be modified to reflect local conditions. Model output is based on a 0.0 (unsuitable habitat) to 1.0 (optimal habitat) scale. Models for warm and cold-water fishes, terrestrial mammals, and birds have been developed. The source of this information is "FORS' Directory of Forestry and Natural Resources Computer Software," 1992 Supplement.

1. Acronym and name. HYSED, R-2 Water and Sediment Yield Model

2. Brief description. HYSED is used to estimate water and sediment yield caused by vegetation management; primarily timber harvest. The model predicts increases in sediment from in-stream sources caused by increasing streampower. It does not predict increases in on-site erosion.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | S Soils | P Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = all secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Any Disk space: 147KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
X Other: Documentation for HYSED is poor. There is a user's manual of sorts, but it is minimally useful. In the past, telephone support has been given.

11. Principal developer.

Dave Rosgen/formerly USDA Forest Service/Arapaho National Forest; Jim Weathered/formerly USDA Forest Service/Watershed Systems Development Group

12. For technical information, contact:

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Fort Collins, CO 20526
Telephone: (303)-498-1093 ext. FAX: (303)-498-1010
Data General address: C.Chambers:R02F10A

13. For acquisition information, contact:

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240 West Prospect
Fort Collins, CO 20526
Telephone: (303)-498-1093 ext. FAX: (303)-498-1010
Data General address: C.Chambers:R02F10A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

HYSED is a water-yield model based on WRENSS ("An Approach to Water Resources Evaluation of Non-Point Silvicultural Sources"; U.S. EPA, Environmental Research Laboratory, Athens, GA 30605; 1980; Publication No. EPA-600/8-80-012), with a sediment-yield model attached. It is primarily used to predict the effects on water and sediment yield due to timber harvest. Intended users are hydrologists. Information needs are elevation, aspect, timber type, and past and planned harvest. This information can come from Rocky Mountain Region's RIS or maps and photos. The model is most applicable to the Rocky Mountain Region, and is beginning to show its age. It is not the most user-friendly model and documentation is virtually non-existent. If your interest is in predicting water yield, one of WRENSS models is recommended; either one developed by the Canadian Forestry Service, which is extremely user-friendly and provides on-line help, or the one developed by the Rocky Mountain Station, USFS, which includes the most up-to-date information from research. However, HYSED is one of the few models that predicts sediment yield from instream sources. Note: The model works best on 3rd to 4th order drainages (500 to 10,000 acres).

1. Acronym and name. INFORM 2

2. Brief description. INFORM 2 is used for editing timber cruise data, creating stand/stock tables, assessing stand value, performing growth projections, simulating harvests, analyzing investments, and loading stand records databases.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Optional: dBase, spreadsheet, word processor

9. Hardware requirements.

Computer: IBM or compatible microcomputer with hard disk
Graphics card: Disk space: 1MB RAM space: 640KB
Math co-processor: Recommended Mouse: Optional
Printer: Any Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Todd Hepp, James Williamson, and Randy Holtzclaw/Tennessee Valley Authority

12. For technical information, contact:

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Forestry Building
Norris, TN 37828
Telephone: (615)-632-1518 ext. FAX: (615)-632-1612
Data General address:

13. For acquisition information, contact:

Name: David Gilluly Title: President
Address: FORS
122 Helton Court
Florence, AL 35630
Telephone: (205)-767-0250 ext. FAX: (205)-767-3768
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

INFORM uses the stand as the beginning point for a forest, not individual plots. Each module performs a crucial step in the forest inventory and management process: TVAFIE edits cruise data, it is processed with TIPS; YIELD-MS projects growth and yield; INFORM-ED calibrates the system; and BATCH-YIELD-MS loads databases. TVAFIE is the cruise data entry/editor program for transferring inventory data from field sheets, audio tapes, or portable data recorder into matching readable form prior to executing TIPS. The primary function of TIPS is to calculate and report stand/stock tables based on cruise data and also generates files used as input for YIELD-MS. Volume equations, form class, volume/weight conversion factors, species names and abbreviations, and other factors affecting TIPS calculations can be modified using INFORM-ED. YIELD-MS can project stand growth, perform financial profitability analysis, and simulate harvest. As an alternative to equations, increment core growth data collected from the stand of interest can be tapped as a basis for growth projections. INFORM 2 supports GA-TWIGS, NE-TWIGS, CS-TWIGS, SILVAH, OAKSIM, and G-HAT growth and yield projections systems.

1. Acronym and name. INFORMS-DG, Integrated Forest Resource Management System - Data General Version

2. Brief description. INFORMS is a decision support system. INFORMS uses automated tools designed to assist forest managers in integrated planning and analysis of complex, multi-resource management problems. INFORMS addresses forest health management concerns stemming from insect infestation.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	S Logging systems	S Spatial
S Economic/Financial	S Monitoring	S Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	S Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	S Range	S Vegetation	_ Wilderness
S Fisheries	_ Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	S Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: Data General AOS/VS II
Software package(s): Oracle 5 or 6; MOSS G., optional.
INFORMS requires maps and attribute files in 32-bit MOSS format.
INFORMS-DG produces MOSS maps that may not be compatible with some recent MOSS features.

9. Hardware requirements.
Computer: DG MV/Eclipse
Graphics card: Yes Disk space: 80,000 BLKS RAM space:
Math co-processor: Recommended Mouse: Or puck required
Printer: Any DG printer for reports Plotter: Recommended
Other: Tektronix Graphics Terminal or PC w/VGA and TEK terminal emulator. Tektronix color printer for graphics output. MOSS for plotting.

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	X Training	X Telephone support
X Other: Systems Documentation/Programmer's Reference		

11. Principal developer.
USDA Forest Service/Forest Pest Management
Resource Analysis Systems (under contract to USFS)

12. For technical information, contact:
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3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-2303 ext. FAX: (303)-498-1660
Data General address: D.Roschke:W04A

13. For acquisition information, contact:
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Fort Collins, CO 80524
Telephone: (303)-498-2303 ext. FAX: (303)-498-1660
Data General address: D.Roschke:W04A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.
INFORMS-DG is in use on two USFS ranger districts in the West, one in Region 1 and one in Region 6. It is a decision support system that relies primarily on simulation models. Simulation models are included for growth and yield (Prognosis), sediment production (local), fish production (local), elk (HEI with local modifications), forest pests (pest extensions to Prognosis), economic (DLOGPRICE), and visual plots based on timber stand data. The primary use is for analysis of resource management alternatives and projected outcomes for support of the NEPA process at the project level. INFORMS-DG may require enhancements if applied beyond the Oregon Blue Mountain zone or western Montana. The extent of modifications are strictly dependent upon which portions of the system are most critically required and the data available to drive the models. For example, the Visual model is broadly applicable with appropriate data and Prognosis is increasingly applicable throughout the U.S.; however, the Fisheries model has been heavily customized for the current sites. The Methods Application Group provides support to the current active sites. Adoption or transfer of the system to other sites is handled case-by-case.

1. Acronym and name. INFORMS-TX, Integrated Forest Resource Management System - Texas Version

2. Brief description. INFORMS is a decision support system currently under development. INFORMS uses automated tools designed to assist forest managers in integrated planning and analysis of multi-resource management problems. INFORMS addresses forest health concerns stemming from insect infestation.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
_ Economic/Financial	S Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	P Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
S Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: SUNOS 4.1.1 rev. A, OPENWINDOWS version 2
Software package(s): ARC/INFO 5.0.1 will update to 6.0.1; Oracle: RDBMS 6.0.33.1; SQL*Plus 3.09; SQL*Forms 3.0.16; SQL*RptWriter 1.1.12; SQL*Menu 5.0.11; PL/SQL 1.9.32; SQL*Loader 1.0.27; Pro*C 1.3.18; CLIPS 4.3; applic. code.

9. Hardware requirements.
Computer: SUN SparcStation 1+ or relative
Graphics card: SUN Monitor Disk space: Two 300MB
RAM space: 6MB min.
Math co-processor: Mouse: Yes
Printer: Laser Plotter: Optional
Other: Also running on SUN SparcStation 2 with 32Mb RAM, 424Mb hard disk, 669Mb SCSI hard drive, ¼-inch tape drive and 664Mb Desktop SunCD Pack.

10. Documentation/user support available.

_ On-line help	_ User's manual	_ Publications
_ Updates	X Training	X Telephone support

X Other: Technical System Description being developed, User's guide and on-line help planned for late FY92 and first quarter FY93.

11. Principal developer.
USDA Forest Service/Forest Pest Management; Douglas Loh/Texas A&M University

12. For technical information, contact:
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3825 East Mulberry
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13. For acquisition information, contact:
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3825 East Mulberry
Fort Collins, CO 80524
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Data General address: P.Janiga:W04A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.
INFORMS-TX is a prototype being developed to apply the objectives of INFORMS within a workstation/UNIX environment. The development is scheduled between 1990 and 1993. Development is being conducted by programmers of the STARR LAB, Texas A&M University and the national forests in Texas (as the user/co-developer role) in cooperation with Region 8 Management Systems and Forest Pest Management with USDA Forest Service, Forest Pest Management-Methods Application Group. INFORMS-TX is designed to help implement and monitor the land management plans of the national forest in Texas. It integrates spatial and tabular data with knowledge-based systems and simulation models under a standard user interface. INFORMS-TX is currently active at the Neches Ranger District, which has used INFORMS-TX to assist in the environmental analysis for several compartment prescriptions and an environmental assessment. INFORMS-TX accesses CISCII-SQL (Continuous Inventory of Stand Conditions) and SPBIS-SQL (Southern Pine Beetle Information System) databases through Oracle DBMS. ARC/INFO in X-Windows is the Geographic Information Systems (GIS) used. CLIPS, developed by NASA, is the rule-base system being used.

1. Acronym and name. IPS PINI, *Ips pini* Management Advisor

2. Brief description. The program chooses management options for the bark beetle, *Ips pini*, based on the answers to questions. It was designed to handle concerns of landowners over the phone, and then write a follow-up letter.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	P Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	S Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS
Software package(s): INSIGHT 2+

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Sandy Gast/USDA Forest Service/Northern Region; Molly Stock/ University of Idaho; Ladd Livingston/Idaho Dept. of Lands

12. For technical information, contact:

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Telephone: (208)-765-7233 ext. FAX: (208)-765-7307
Data General address: S.Gast:R01F01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This expert system was designed specifically for use in northern Idaho to handle Ips pini management concerns of private landowners, as a help to the state entomologist. Its best application is as a tool for use in extension work. It may be useful to district foresters if they are dealing with an Ips problem in a timber sale. It is user-friendly and bases management recommendations on the answers to a few questions. It has the capability to write a letter to a landowner, incorporating the management options discussed. It may be useful in other geographic areas with Ips problems similar to northern Idaho.

1. Acronym and name. IRMA, Integrated Resource Management Automation

2. Brief description. IRMA is a pc-based tool that is used to tie together spatial information from our GIS, and database information for the same areas. It is also designed to incorporate rule bases as an aid to decision making. A prototype is completed and an updated version is being developed.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
S Cultural
_ Fire
S Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
S Timber
P Vegetation
_ Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): MS Windows; PC-Oracle; ArcInfo; CLIPS

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above with 33 MHz
Graphics card: Super VGA
Disk space: 300MB
RAM space: 16MB+
Math co-processor:
Mouse: Yes
Printer:
Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other: Currently being developed

11. Principal developer.

Doug Loh/STARR Lab/Texas A&M University

12. For technical information, contact:

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Rhinelander, WI 54501
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Data General address: D.Hair:R09F06A

13. For acquisition information, contact:

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Title: Director
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Texas A&M University
College Station, TX 77843-2126
Telephone: (409)-845-1590
ext.
FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

IRMA is primarily an area planning tool for either opportunity areas or project areas. It is a user-friendly tool for use at the ranger district level. Expected users are resource management specialists on the district. IRMA pulls together spatial information stored in the forest GIS (MOSS system), and tabular data from various parts of the corporate database on the Data General computer system. This database is currently being converted to Oracle. IRMA allows the user to define a project area and then links spatial and tabular data. The prototype was completed in 1989. The staff is currently waiting for a final version to be implemented on the forest.

1. Acronym and name. MIXUP2

2. Brief description. MIXUP2 is a whole-stand growth model that predicts growth of mixed white pine-hardwood stands in the Northeastern United States, so that various thinning and harvesting schedules and their rates of return can be evaluated quickly and accurately with a personal computer.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 2.11 to 6.0
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 10MB RAM space: 256KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ User's manual
X Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

John E. Carson/Computing and Information Services Dept.;
James P. Barrett/University of New Hampshire/Dept. of Natural Resources

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13. For acquisition information, contact:

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Kingsbury Hall
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Telephone: (603)-862-3639 ext. FAX: (603)-862-4778
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Inputs include: species, trees per acre, site index, basal area per acre, stand age, stumpage price, and harvesting cost per acre. Outputs include: mean stand diameter, basal area per acre, trees per acre, cubic feet, board feet, stumpage value, and internal rate of return. Limitations include: Northeast forest types, i.e. eastern white pine, northern hardwoods, and northern red oak stands. Stands must be even-aged.

1. Acronym and name. NATLOB

2. Brief description. NATLOB is a computer program that can be used to predict growth and yield of unthinned, natural stands of loblolly pine.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Recommended | Disk space: Variable
RAM space: Variable
Math co-processor: | Mouse:
Printer: Recommended | Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Harold E. Burkhart/Virginia Polytechic Institute and State University/Dept. of Forestry

12. For technical information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Inputs to the model are age, height of dominants and co-dominants, and stand density (trees per acre surviving and/or basal area). Outputs include (by 1-inch d.b.h. classes) surviving trees per acre, basal area, and merchantable cubic foot and board-foot volumes. The equations that drive NATLOB were developed using data from stands in the Piedmont and Coastal Plain regions of Virginia and North Carolina. Only stands that contained greater than 75 percent loblolly by basal area were used. Prediction comparisons of the NATLOB model with other published work indicated close agreement at the stand level. In NATLOB, d.b.h. distributions are obtained by requiring a Weibull distribution's arithmetic and quadratic means match those predicted from stand-level characteristics. In the microcomputer version, all results are provided on the monitor attached to the computer system. If a parallel printer is attached, users can easily obtain printed copies of selected results.

1. Acronym and name. NE-TWIGS, Northeast - The Woodsman's Ideal Growth Projection System

2. Brief description. NE-TWIGS is an individual-tree, distance-independent forest growth and yield model used for predicting forest-stand development in the Northern United States. This is a stand-based model with input and output on a per-acre basis.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	S Subforest area	P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS; AOS/VS
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer 80286 or above; Data General
Graphics card: Disk space: 232KB RAM space:
Math co-processor: Yes Mouse:
Printer: Desirable Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	X Telephone support
_ Other:		

11. Principal developer.
Don Hilt and Richard Teck/USDA Forest Service/Northeastern Forest Experiment Station

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Telephone: (614)-363-9233 ext. FAX: (614)-363-1437
Data General address: D.Yaussy:S24L05A
Data General RIS file: STAFF:4153:SIMULATORS:NETWIGS_3.0:NETWIGS.PR

Acquisition charge? X No _ Yes:

14. Additional description of tool.
The system includes mathematical functions for predicting diameter growth and probability-of-survival rates for the important species in the region. Both functions utilize single-model forms with species-specific coefficients developed from forest survey data from 14 states. Diameter growth and survival predictions are dependent on species, tree size, site quality, and an individual tree's competitive position within the stand. There is also an option for predicting ingrowth, which is modeled as a function of stand density, overstory species composition and individual-tree relative shade tolerance. Species-specific merchantable-height equations are used in conjunction with Forest Inventory and Analysis board-foot and cubic-foot volume equations for generating timber yields per acre. User-defined harvest simulations and subsequent economic analysis of alternative harvest strategies are possible using management/economic routines developed for the Lake States (LS-TWIGS) and Central States (CS-TWIGS). NE-TWIGS has also been incorporated into two other forest growth projection systems; PROGNOSIS and NED (a multi-resource management decision model).

1. Acronym and name. NED, The Northeast Decision Model

2. Brief description. NED is a silvicultural decision model for providing expert recommendations for silvicultural prescriptions to meet management goals
for multiple resources; including resolution of potentially conflicting goals and simulations of future effects of different alternatives.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
S Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
S Fisheries
P All resources
S Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
_ Soils
S Timber
S Vegetation
S Visual/Esthetics
_ Other:
S Water
S Wildlife
S Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 4.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or 80486
Graphics card: VGA; EGA Disk space: 2MB RAM space: 1MB
Math co-processor: Preferred Mouse: Optional
Printer: Yes Plotter: Optional
Other: May also be available for UNIX machines.

10. Documentation/user support available.

X On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Mark Twery/USDA Forest Service/Northeastern Forest Experiment Station

12. For technical information, contact:

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Data General address: M.Twery:S24L08A

13. For acquisition information, contact:

Name: Not yet available. Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The Northeast Decision Model is designed to help recommend silvicultural treatments to meet diverse, multiple management goals. It is not designed to determine which parts of a forest should be managed for what purposes, but to help reach a manager's goals once the allocations have been determined. It is designed to be used easily by someone with reasonable familiarity with natural resource management and only minimal knowledge of computers. NED is scheduled to be available in 1994.

1. Acronym and name. NEWPER, PC New Perspectives

2. Brief description. NEWPER is a package for perspective graphic modeling of management activities involving terrain, forest cover, structures, and linear features.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | S Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | P Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286, 80386, or 80486
Graphics card: EGA or VGA Disk space: 5MB +/-
RAM space: low 640KB
Math co-processor: Optional Mouse:
Printer: Optional-any dot matrix Plotter: HP/Calcomp/HI/laser
Other: Digitizer - wide range of 12 button and 16 button models. Demonstration diskette available.

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Devon Nickerson/Visual Simulations, Inc.

12. For technical information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

NEWPER links with: Visual Quality, Auto CAD, USGS DEM database, True Vision, any desktop publishing package, any paintbrush package, and advanced hardcopy output drivers (laser, thermal wax, inkjet, electrostatic).

1. Acronym and name. NICOLET HABCAP, Nicolet National Forest Wildlife Habitat Capability Model

2. Brief description. This is a generalized wildlife habitat capability model based on a habcap model developed in USFS Region 8. It currently runs five species and is easily modified to run other, or additional, species. Also, it can be adapted to other forest types.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Ron Goodman/USDA Forest Service/Nicolet National Forest
(Based on Region 8 Habcap model)

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13. For acquisition information, contact:

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Data General address: A.Albee:R09F06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This program is written in FORTRAN 77. It can be used with a Forest Service Oracle database on the Data General computer system, to load vegetation data based on stand, compartment or analysis area; in an interactive mode to enter stand data for individual stands. The system requires coefficient tables for each wildlife species in the model. These coefficients represent species use and density based on vegetation type and age. The model uses the stands age to predict resulting animal potential, and can be used to evaluate alternative management strategies. It allows activities such as burning, thinning, and regeneration harvest in current or out-years. The Nicolet National Forest hopes to be able to develop yield tables for various Management Indicator Species and T&E species on the forest.

1. Acronym and name. OAKSIM, An Individual-tree Growth and Yield Simulator for Upland Oaks

2. Brief description. OAKSIM is an individual-tree model to predict cubic and board-feet growth and yield for managed upland oaks. The model uses a tree list or stand table by species group and dbh class to compute current and future tree dimensions in height, d.b.h., and volumes, and summarizes stand conditions.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.11 or later; Data General AOS/VS
Software package(s): BASICA; DG.OAKSIM

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Disk space: 200KB RAM space: 512KB
Math co-processor: Recommended Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Donald E. Hilt/USDA Forest Service/Northeastern Forest Experiment Station

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Data General RIS file: STAFF:4153:SIMULATORS:PC: OAKSIM.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

OAKSIM can be used by timber management to determine expected outputs from specific upland oak stands if treated (thinned). Inputs required are a tree list by species and d.b.h., or a stand table by d.b.h. and species group; site index, stand age, and merchantable top diameters desired for pulpwood and sawlogs. OAKSIM is applicable to upland oak stands with greater than 60 percent oak, stand age of 20 to 120 years, 15 to 130 square feet/acre basal area, 20 to 800 stems/acre, and site index 50 to 80 feet. Outputs include growth in basal area, cubic-feet volume inside and outside bark, board feet volume International 1/4" rule, number of trees per acre, stocking percent, and quadratic mean stand diameter. Stand summaries are produced for up-to five species groups, and summaries by years for growth components including initial volumes, cut, mortality, residual, and net and gross growth.

1. Acronym and name. PC PROGNOSIS, Prognosis Model for the Personal Computer

2. Brief description. The Prognosis model projects development of forest stands under a variety of simulated management strategies. Variants are calibrated for most forest conditions in the Western U.S. The model includes regeneration establishment, estimates of tree and shrub cover, and some pest effects.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Any ASCII editor for preparation of input files. Will run on any operating system that supports FORTRAN 77 compilation. Executables provided for DOS 3.3 and later.

9. Hardware requirements.

Computer: IBM or compatible microcomputer (recommend 80386 or above)
Graphics card: Disk space: 2-4MB RAM space: 550KB
Math co-processor: Mandatory Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Albert R. Stage, William R. Wykoff, and Nicholas L. Crookston/ USDA Forest Service/Intermountain Research Station; Ralph Johnson and Gary Dixon/USDA Forest Service/Washington Office, NFS, TM

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13. For acquisition information, contact:

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1221 South Main
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Telephone: (208)-883-2315 ext. FAX: (208)-883-2318
Data General address: W.Wykoff:S22L04A
Data General RIS file: 4154:RIS:RIS PC executable not normally maintained as a RIS-able object. Contact to make arrangements.

Acquisition charge? X No _ Yes: Supply diskettes (3½" HD preferred)

14. Additional description of tool.

The Prognosis model is used to project development of forest stands under a wide variety of management actions. The model can initialize from existing inventory data, or start by simulating regeneration on bare ground. Inputs consist of a list of sample trees and a set of keyword instructions that specify stand attributes, inventory design, and desired management actions. Outputs include a statistical description of the input data, a stand and stock table, descriptions of selected trees through time, a summary yield table, and descriptions of regeneration activity. The model will optionally produce descriptions of tree and shrub cover (currently calibrated only for the Inland Empire) and will create an input file for subsequent analysis by the CHEAPO II economic analysis program. Currently, there are eight variants available for PC Prognosis.

1. Acronym and name. PCWTHIN, PCWTHIN Ver. 2.0

2. Brief description. PCWTHIN is a computer program that can be used to predict growth and yield of thinned and unthinned old-field loblolly pine plantations and perform financial analyses based on those predictions.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Recommended | Disk space: Variable
RAM space: Variable
Math co-processor: | Mouse:
Printer: Recommended | Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Harold E. Burkhart/Virginia Polytechnic Institute and State University/Dept. of Forestry

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Inputs to the model, specified via pop-up menus are age, site index (base age 25), and stand-density index. Outputs include (by 1-inch d.b.h. classes) surviving trees per acre, basal area, and volumes. PCWTHIN 2.0 is based on numerous equations that predict and project whole stand and stand distribution characteristics. Data for the equations are from both Piedmont and Coastal Plain sites. All results are displayed on the monitor attached to the computer system. The d.b.h. distribution of the stand scan be shown as a 3-D bar graph if a graphics card and monitor are attached to the computer system. If a parallel printer is attached, the user can easily obtain printed copies of selected results. Options are available to initialize a d.b.h. distribution for a thinned or unthinned plantation, to thin a plantation according to one of several rules, and to project a d.b.h. distribution through time. With PCWTHIN 2.0, a large number of plantations can be "grown" and studied within a short period of time. Furthermore, numerous thinning strategies can be quickly compared, both from a biological and financial basis, for a specific plantation.

1. Acronym and name. PMDS/PHNMOD, Pest Model Design System/Phenology Model

2. Brief description. The system is used to analyze data and automatically build population-based phenology models of insect pests. (See Environ. Entomol.17: 359-376, 1988)

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | P Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

S AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: RAM space:
Math co-processor: Optional Mouse: Optional
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
_ Updates | X Training | X Telephone support
X Other: Personal support

11. Principal developer.

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Logan, UT 84321
Telephone: (703)-231-7316 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes: Shareware $30

14. Additional description of tool.

1. Acronym and name. POPDYN, Population Dynamics Simulator

2. Brief description. POPDYN simulates growth dynamics of biological populations using four-stage classes of age categories, user-defined survivorship and fecundity vital rates. It does not include density-dependent damping. POPDYN tracks both sexes for all stage categories.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS any version
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Any Disk space: <200KB RAM space: 256KB
Math co-processor: Recommended Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Dr. Fred Samson/USDA Forest Service/Northern Region; Dr. Perez-Trejo/Colorado State University; Dr. Bruce Marcot/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

Name: Bruce Marcot Title: Wildlife Ecologist
Address: USDA Forest Service, Pacific Northwest Research Station
333 SW. 1st Avenue, P.O. Box 3890
Portland, OR 97208
Telephone: (503)-326-4952 ext. FAX: (503)-326-2455
Data General address: B.Marcot:R06A

13. For acquisition information, contact:

Name: Bruce Marcot Title: Wildlife Ecologist
Address: USDA Forest Service, Pacific Northwest Research Station
333 SW. 1st Avenue, P.O. Box 3890
Portland, OR 97208
Telephone: (503)-326-4952 ext. FAX: (503)-326-2455
Data General address: B.Marcot:R06A
Data General RIS file:

Acquisition charge? X No _ Yes: Send pre-formatted floppy disk.

14. Additional description of tool.

This model has been used to calculate time to extinction, time to pseudo-extinction, and future population trends of northern spotted owl populations in the USDA Forest Service spotted owl EIS in 1986-88. It is generalized to deal with any four-stage (age class) wildlife population, but BEWARE of the lack of density-dependence functions in this model; it projects exponential rates of change ONLY. POPDYN is available on a floppy disk. Send a preformatted floppy disk of any size or density with a self-addressed return mailing label to Bruce Marcot, address above.

1. Acronym and name. PREDICT, Pinus REsinosa Diagnostic Consultation Tool

2. Brief description. PREDICT is an expert system to diagnose insect and disease damage, or potential damage, in red pine stands in Wisconsin.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | P Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | S Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 and 80286
Graphics card: Disk space: RAM space: 512KB
Math co-processor: Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Daniel Schmoldt/USDA Forest Service/Southeastern Forest Experiment Station

12. For technical information, contact:

Name: Daniel L. Schmoldt Title: Res. For. Prod. Tech.
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Virginia Polytechnic University
Blacksburg, VA 24061-0503
Telephone: (703)-231-4674 ext. FAX: (703)-231-8868
Data General address: D.Schmoldt:R08F14D01A

13. For acquisition information, contact:

Name: George L. Martin Title: Professor
Address: 120 Russell Lab
1630 Linden Drive
Madison, WI 53706
Telephone: (608)-263-6828 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Because PREDICT uses historical records of pest occurrence, it is limited to red pine stands in Wisconsin. Beyond that, the software requests information about stand and site conditions, injury, and evidence of pest presence. The system is relatively robust in that it will provide an answer (although less specific) when given less than absolutely discriminating information. Better diagnostic symptoms result in more powerful conclusions. Some rather crude explanatory information details the decision process for the user.

1. Acronym and name. PROGNOSIS, Stand Prognosis Model

2. Brief description. PROGNOSIS is a forest vegetation growth model that predicts both natural and managed forest stand development. Output can be linked to economic analysis routines, pest models and wildlife-resource models. The model has extensive capabilities for simulating silvicultural activities.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	S Subforest area	P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	S Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.
Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.
Al Stage, Bill Wykoff, and Nick Crookston/USDA Forest Service/ Intermountain Research Station

12. For technical information, contact:
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3825 E. Mulberry
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Telephone: (303)-498-1772 ext. FAX: (303)-498-1660
Data General address: R.Teck:W04A

13. For acquisition information, contact:
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Telephone: (303)-498-1772 ext. FAX: (303)-498-1660
Data General address: R.Teck:W04A
Data General RIS file: WO4A:STAFF:TM:RIS:RIS:XX6.PR (where XX is one of 14 geographic variants) and WO4A:STAFF: TM:RIS:RIS:PROG6_SUBMIT.PR

Acquisition charge? X No _ Yes:

14. Additional description of tool.
PROGNOSIS is an individual tree, distance independent, forest-growth model. The Prognosis model has 14 variants consisting of Inland Empire, south central Oregon/northeastern California, Utah, Teton, southeastern Alaska, eastern Montana, western Sierra Nevada, Blue Mountains, East Cascades, central Idaho, Klamath Mountains, Black Hills, and Northeast and Central Rockies. The entire Prognosis system consists of pre-processors (regional inventory data translators), the Prognosis growth model, and a series of post-processors and extensions. Extensions to the Prognosis model include Cheapo-II, an economic analysis program; Pest models including root-disease, western spruce budworm, dwarf mistletoe, mountain pine beetle, and Douglas-fir tussock moth. The event monitor and parallel-processing extensions provide multistand analysis and contingency-treatment scheduling. Additional output can be generated with stand alone, interactive post-processor programs, which utilize Prognosis treelists as input. Retrieve post-processors from dump file STAFF:TM:RIS:RIS:POST.DMP.

1. Acronym and name. PROGNOSIS COVER, PROGNOSIS Cover Extension

2. Brief description. COVER predicts tree canopy closure, crown geometry, and foliage biomass; along with probability of occurrence, height, and cover of grasses, forbs, and shrubs in natural and managed stands projected through time with the Prognosis model for stand development.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
P Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 3.0+; Data General AOS/VS
Software package(s): Prognosis, Inland Empire variant, version 6.1

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General; and NCC-KC IBM
Graphics card: Disk space: 2-4MB RAM space: 550KB
Math co-processor: Required Mouse:
Printer: Plotter:
Other: This program can be used on any system that supports FORTRAN 77 compilation

10. Documentation/user support available.

_ On-line help
X User's manual
X Publications
X Updates
X Training
X Telephone support
_ Other:

11. Principal developer.

Melinda Moeur/USDA Forest Service/Intermountain Research Station

12. For technical information, contact:

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1221 South Main
Moscow, ID 83843
Telephone: (208)-882-3557 ext. FAX: (208)-883-0605
Data General address: M.Moeur:S22L04A

13. For acquisition information, contact:

Name: Bill Wykoff (pc version) Title:
Address: USDA Forest Service, INT Forestry Sciences Lab
1221 South Main
Moscow, ID 83843
Telephone: (208)-882-3557 ext. FAX:
Data General address: W.Wykoff:S22L04A
Data General RIS file: See Prognosis instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

See the discussion of the Prognosis model for stand development. The COVER extension is applicable only to the Inland Empire variant. For Data General and NCC-KC acquisition information contact:

Gary Dixon
USDA Forest Service, WO-TM
3825 E. Mulberry
Fort Collins, CO 80524
Telephone: (303)-224-1814
Data General address: G.Dixon:W04A

1. Acronym and name. PROGNOSIS PEST EX, Prognosis Pest Models

2. Brief description. Pest models are used as extensions to the Prognosis Growth and Yield Model to gain a more accurate simulation of yields. Output statistics from Prognosis are changed to show the effects of infestation of insects and diseases within a stand.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
P Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS Version II
Software package(s):

9. Hardware requirements.

Computer: Data General MV8000 or similar hardware.
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
X Updates X Training X Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/Forest Pest Management, Methods Application Group; USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:

Name: Judy Adams Title: Programmer/Analyst
Address: USDA Forest Service, Forest Pest Management,
Methods Application Group
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1727 ext. FAX: (303)-498-1660
Data General address: J.Adams:W04A

13. For acquisition information, contact:

Name: Judy Adams Title: Programmer/Analyst
Address: USDA Forest Service, Forest Pest Management,
Methods Application Group
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1727 ext. FAX: (303)-498-1660
Data General address: J.Adams:W04A
Data General RIS file: STAFF:FPM:RIS:RIS

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Prognosis pest extensions can be used by forest planning analysts, silviculturists, forest pest managers, and resource specialists to assess impacts of insect and disease, evaluate the effects of controlling insects and disease, and select the best alternative for the management of an infested area. Pest models available depend upon the variant of Prognosis being used. Currently, models for root disease (*Armillaria* and *Phellinus weirii*), lodgepole mountain pine beetle, western spruce budworm, Douglas-fir tussock moth, and dwarf mistletoe are available for various areas in the Western United States.

1. Acronym and name. PSME, Plantation Simulator-Mixed Evergreen

2. Brief description. PSME is a computerized growth model for predictingdevelopment of Douglas-fir plantations under specific initial levels of competition from tanoak, Pacific madrone, and chinkapin, and from herb and shrub vegetation in southwestern Oregon.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Basic interpreter

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: CGA Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

T.B. Harrington, J.C. Tappeiner, T.F. Hughes, and A.S. Hester/
Oregon State University/Dept. of Forest Science

12. For technical information, contact:

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Peavy Hall 154
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Data General address: E-mail: Harrington@FSL.ORST.EDU

13. For acquisition information, contact:

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Data General address: E-mail: Harrington@FSL.ORST.EDU
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

PSME uses values for cover of competing vegetation and average size of Douglas-fir seedlings at stand-age 3 years, or for preharvest stand information on hardwood basal area and stem density. It provides tabular and graphical output of the development of the Douglas-fir, hardwood, and herb and shrub components through stand-age 10 years.

1. Acronym and name. PTAEDA2

2. Brief description. PTAEDA2 is a forest-stand simulator for modeling individual tree growth and stand development in loblolly pine plantations on cutover, site-prepared areas.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	S Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS
Software package(s):

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Recommended Disk space: Variable
RAM space: Variable
Math co-processor: Mouse:
Printer: Recommended Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.
Harold E. Burkhart/Virginia Polytechnic Institute and State University/Dept. of Forestry

12. For technical information, contact:
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Data General address:

13. For acquisition information, contact:
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Blacksburg, VA 24061-0324
Telephone: (703)-231-6952 ext. FAX: (703)-231-3330
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
Inputs to the model are number of loblolly pine trees planted per acre or surviving, or the planting spacing, site index (base age 25), and stand age. Outputs include number of trees surviving per acre, basal area per acre, and total and merchantable volumes per acre. In PTAEDA2, trees are assigned coordinate locations in a stand and 'grown' annually as a function of their size, the site quality, and the competition from neighbors. Growth increments are adjusted by stochastic elements representing genetic and microsite variability. Mortality is generated stochastically through Bernouli trials. Subroutines were developed to simulate the effects of hardwood competition, thinning, and fertilization on tree and stand development. Options for varying the spatial location of trees to mimic randomness in machine and hand-planting operations are also included.

1. Acronym and name. QUE

2. Brief description. QUE estimates Q-ratio for uneven-aged forest stands and compares actual to desired diameter distributions.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Basic language compiler

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: <100KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Jeff Martin/University of Wisconsin, Madison/Dept. of Forestry

12. For technical information, contact:

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13. For acquisition information, contact:

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1630 Linden Drive
Madison, WI 53706
Telephone: (608)-262-0134 ext. FAX: (608)-262-9922
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send formatted, double-density diskette

14. Additional description of tool.

Send a formatted, double-density diskette (5¼" or 3½") to obtain a copy of QUE.

1. Acronym and name. R03 WILD

2. Brief description. R03 WILD measures habitat capability of management indicator species by using vegetational structural stages as a variable, and forage and cover value coefficients.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ Updates
_ Other:
X User's manual
X Training
_ Publications
_ Telephone support

11. Principal developer.

Dick Holthausen/USDA Forest Service

12. For technical information, contact:

Name: Bryce Rickle Title: R-3 Habitat Rel. Coord.
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Albuquerque, NM 87102
Telephone: (505)-842-3269 ext. FAX:
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13. For acquisition information, contact:

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Albuquerque, NM 87102
Telephone: (505)-842-3269 ext. FAX:
Data General address: B.Rickle:R03A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

R03 WILD is used to predict wildlife habitat capability to assure compliance with the Land Management Plan.

1. Acronym and name. R1-EDIT

2. Brief description. The R1-Edit is the Northern Region's system for storing and manipulating stand exam (tree, vegetation, and site) data. Tables and reports have been created to analyze the data. The permanent system is on tape at the Kansas City Computer Center. R1-Edit is also located on the Data General

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other:

8. Supporting software requirements.

Operating system: IBM MVS/XA; Data General AOS/VS
Software package(s): IBM S2K Release 11.5 and ASCII FORTRAN

9. Hardware requirements.

Computer: NCC-KC IBM and Data General
Graphics card: Disk space: ** RAM space:
Math co-processor: Mouse:
Printer: Serial printers Plotter:
Other: **Virtual memory

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Moxon Hart, Dick Deden, and Jim Brickell/USDA Forest Service/ Northern Region/Timber, Cooperative Forestry, and Pest Management

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13. For acquisition information, contact:

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Data General RIS file: Available upon request.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The R1-Edit (stand examination) is used by districts and forests for preparing silviculture prescriptions for timber management activities (timber sales, TSI, reforestation, etc.). Other resources often utilize the R1-Edit for analysis. Stand examination data is entered in the R1-Edit. Eleven standard, statistical tables are available, as well as other specialized reports. The R1-Edit is linked to the Timber Stand Data Base, which stores physical stand characteristics and stand data, stand component information, and planned and accomplished activities. The R1-Edit contains stand data for the Northern Region timber inventory and permanent growth study plots. It links with the Prognosis model, R-1 expert system, and ECODATA. The Timber Stand Management Record System (TSMRS) is one of the Region's primary tools for implementing and monitoring the Forest Plans.

1. Acronym and name. R2 HABCAP, Habitat Capability Model, Rocky Mountain Region

2. Brief description. HABCAP is a menu-driven program to quantify the capability of an area to support wildlife populations based on the mix of vegetative cover types and structural stages present or predicted. Forty-five wildlife species and 14 vegetation cover types are included.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
P Resource effects/Production
_ Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates X Training X Telephone support
X Other: Comments in source code also

11. Principal developer.

USDA Forest Service/Rocky Mountain Region; R. Holthausen/
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Data General address: W.Aney:R02F03D08A

13. For acquisition information, contact:

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Data General address: W.Aney:R02F03D08A
Data General RIS file: R02A:STAFF:RWFE:6620_UPDATES:
HABCAP:HABCAP.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

HABCAP is used by some forests as the primary monitoring tool, with a decline in habitat capability used as the "trigger," which would initiate further evaluation. Typical users are forest and district biologists evaluating alternative treatments in a proposed project area, with the habitat capability values used in an environmental assessment as one element in the evaluation of alternatives. Input comes from the resource inventory data base (stage II inventories), and is in the form of acres by structural stage and vegetative cover type. For each wildlife species, each cover type/structural stage combination has a feeding value and cover value assigned to it, and the Habitat Capability value is a weighted geometric mean of these cover and feeding values. The model is not sensitive to spatial arrangement of habitat elements, and has no inherent ability to model habitat capability over time. There are at least two different versions of this model supported by the Rocky Mountain region; one for the Black Hills of South Dakota and Wyoming, and one for the remainder of the region (Wyoming and Colorado).

1. Acronym and name. R8 HABCAP, R8 Habitat Capability Models

2. Brief description. HABCAP provides coefficient models for common Management Indicator Species (MIS), mostly game species. It can be run from within the COMPATS framework, which is menu-driven, and can be customized by the user to include additional species.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	P Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: Data General AOS/VS
Software package(s): Oracle, CISCII (for automatic stand data retrieval)

9. Hardware requirements.
Computer: Data General MV Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help	X User's manual	_ Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.
Eddie Morris, James Fenwood, and Dan Keller/USDA Forest Service/Southern Region.

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
HABCAP is used primarily as a project-level analysis tool. Outputs should only be used to compare alternatives within a given project. Outputs are relative, not absolute, and also may be used for forest-level TSPIRS output predictions. HABCAP links to CISC stand data, and future links are planned to road models and sediment models. Multiperiod predictions are possible. This tool is specific to Region 8, and the coefficients are forest-specific and must be developed for each forest type and age-class combination.

1. Acronym and name. RIM (or RRIS), Recreation Information Management or Recreation Resource Information Sys.

2. Brief description. RIM is a national inventory of national forest recreation facilities, recreational use of these facilities and dispersed areas, and funding needs for operation, maintenance, and repair. The inventory includes trails.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	P Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database application		

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help	X User's manual	_ Publications
_ Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.

USDA Forest Service/Washington Office

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Data General address: T.Yang:W01C
Data General RIS file: This file is not available. After completion of implementation, reports may be obtained.

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

This is a national inventory system that aggregates field levels using Oracle software. RIS contains recreation information, which provides background for predicting recreation needs. Information will eventually be part of the GIS corporate database.

1. Acronym and name. RMYLD, Rocky Mountain Yield

2. Brief description. This is a whole-stand growth and yield model for ponderosa pine, lodgepole, spruce-fir, and aspen stands in the central and southern Rocky Mountains.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later; Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Disk space: 400KB RAM space: 200KB
Math co-processor: Optional Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Carl Edminster/USDA Forest Service/Rocky Mountain Forest and Range Experiment Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

RMYLD is used for project analysis and Forest Plan implementation to estimate timber outputs and stand conditions for linkage to other resource functions. Expected users are silviculturists and timber resource planners. Inputs are whole-stand attributes; output is a multiperiod, variable-density yield table. It is limited to relatively even-aged stands and pure species composition, and includes dwarf mistletoe impacts where applicable. RMYLD is applicable in USDA Forest Service Regions 2 and 3.

1. Acronym and name. RP-FMAS, Red Pine Forest Management Advisory System

2. Brief description. RP-FMAS provides advice on how to manage red pine stands.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: VGA Disk space: 3MB RAM space: 520KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

H. Michael Rauscher/USDA Forest Service/North Central Forest Experiment Station

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

RP-FMAS can be used to analyze the best management system to achieve timber production objectives.

1. Acronym and name. RUSLE, Revised Universal Soil Loss Equation

2. Brief description. RUSLE calculates average annual soil loss from a hill-slope. It is developed for conditions of overland flow, not inter-flow. RUSLE is a computerized update of Agriculture Handbook No. 537.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | P Soils | S Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later; UNIX
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer; ATT 3B2
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
X Other: User's manual is included in ARS publication that is in draft.

11. Principal developer.

J. P. Porter/USDA Soil Conservation Service; Daniel Yoder and David Whittemore/USDA Agriculture Research Service, and others

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Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

RUSLE is developed for situations where there is excess rainfall, that is, where there is overland flow. Thus, it does not apply to forested conditions where there is heavy mulch, and flow results from inter-flow conditions. It is appropriate for roads and disturbed areas that might result from logging, recreational sites, range projects, etc. RUSLE has three database programs: CITY, CROP, and OPERATIONS. CITY contains climatic information. CROP has parameters of crop growth and residue characteristics. OPERATIONS defines the effects of field operations on the soil, crop and residues. These databases can be modified to reflect forested conditions.

1. Acronym and name. RxWRITE

2. Brief description. RxWrite is a prescription writer for harvest scheduling models such as DUALPLAN or DTRAN. RxWrite allows users to specify and simulate alternative management options for analysis areas or individual stands. It can also be used as a stand-alone program for single-stand financial analysis.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
S Resource scheduling
S Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
S Soils
P Timber
S Vegetation
S Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
S Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
S Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 4.01 or above
Software package(s): Professional Basic 7.1 is desirable, but not required.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or 80486
Graphics card: VGA Disk space: 10MB min. RAM space: 640KB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates _ Training X Telephone support
X Other: On-site application development and training

11. Principal developer.

Marc McDill/University of Minnesota/Dept. of Forest Resources

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Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

RxWrite is a prescription writer for harvest scheduling models like DUALPLAN and DTRAN. Mapping capabilities are provided by GISTRAN, an independent, but compatible system of programs. RxWrite allows users to specify and then simulate alternative management options for analysis areas or individual stands. Management options include a variety of thinning, harvesting, and regeneration activities. Output consists of a set of files listing flows over time for each management alternative for each analysis area. These files can be converted into input files for DUALPLAN or DTRAN. Output can be viewed interactively within the program. RxWrite can also be used as a stand-alone program to do single-stand financial analysis. Growth and yield information is provided by the TWIGS model, which is built into the program. Thus, the regional applicability of the program is limited to the same areas as TWIGS, the Lake States area. RxWrite is designed to use the Forest Inventory and Analysis data collected by the North Central Forest Experiment Station. Regeneration tree lists, harvest cost data, utilization standards, and cull factor data can be edited, but default data are included.

1. Acronym and name. SAND, Soil Texture Calculator

2. Brief description. For a given soil sample, SAND calculates the percent of sand, silt, and clay, and the soil class. It assumes that texture has been measured using the hydrometer method, and at least two density readings have been taken.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | P Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Raymond Willis/USDA Forest Service

12. For technical information, contact:

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Data General RIS file: PUBLIC:WASHINGTON:SAND:SAND.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The program assumes you have made two density readings for each soil sample. You can place the readings in a file, which the program will ask for, or you can give the readings on-line; in which case, it will ask you for the density readings and respond with the percent clay, soil, and silt, and the soil class that fits this data. In either case, when the program finishes, it will ask whether you want a written report. If you do, it will give a list of the density readings as input and the results for these readings. The program can apply temperature compensation if you want it. There is an alternative to this program called Clay that expects more than two density readings per sample (usually six). In this procedure, the computer plots summation percentage (P) versus particle size (X), which you can see, if you wish, in a semilog display. From this, the percentages of silt, sand, and class are calculated; and from this calculation, the soil class.

1. Acronym and name. SBEXPERT, Spruce Beetle Expert System and Knowledge Base System

2. Brief description. SBEXPERT is a knowledge base system that provides decision support for spruce beetle management. It consists of four independent applications: SBinfo, SBtext, SBsearch and SBrisk.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
S Fisheries
_ All resources
P Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
_ Soils
S Timber
S Vegetation
S Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

P AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3
Software package(s): Microsoft Windows version 3.0

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286; 80386 recommended
Graphics card: Super VGA Disk space: 21MB RAM space: 4MB
Math co-processor: Mouse: Any
Printer: Any - suggested, not required Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
X Other: On-line help for Windows, each SBEXPERT application, and specific help with individual windows within applications.

11. Principal developer.

Keith M. Reynolds/USDA Forest Service/Pacific Northwest Research Station; Edward H. Holsten/USDA Forest Service/Alaska Region, FPM

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

SBEXPERT consists of four independent applications that run in Microsoft Windows: 1) SBinfo provides an introduction to the system, explaining the basic features of each application; 2) SBtext is an on-line textbook that covers the biology, ecology, and management of spruce beetles; 3) SBsearch performs literature searches on a comprehensive spruce beetle literature database using author, year, and keyword selection criteria; and 4) SBrisk is an expert system that evaluates hazard, risk, and resource impact of a spruce beetle outbreak, and provides management recommendations to reduce hazard, risk, and resource impacts. Common features of all applications include: a graphical user interface, hypertext and hypergraphics, on-line help, and full access to Windows' multitasking features. Principal users are expected to be staff at the district and supervisor's office level.

1 Acronym and name. SE ALASKA HABCAP, Habitat Capability Models for Management Indicator Species in SE Alaska

2. Brief description. These models access habitat and landscape attributes through a GIS, to provide estimates of habitat capability for 13 Management Indicator Species in the Tongass National Forest in southeast Alaska.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
X GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
S Other: GIS application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): ARC/INFO

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other: Publications in draft.

11. Principal developer.

Lowell H. Suring/USDA Forest Service/Alaska Region; Eugene J. DeGayner/USDA Forest Service/Tongass National Forest

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Habitat capability models have been developed for the Vancouver Canada goose, bald eagle, hairy woodpecker, red-breasted sapsucker, brown creeper, gray wolf, black bear, brown bear, marten, river otter, Sitka black-tailed deer, mountain goat, and red squirrel. All models are currently in the draft stage, but some have received more development than others. The models have been developed for application in southeast Alaska. Habitat variables are accessed through an ARC/INFO GIS and are used to provide an estimate of habitat capability for each species. These estimates may be used to evaluate the effects of management alternatives on wildlife species.

1. Acronym and name. SEDROUTE

2. Brief description. SEDROUTE assesses changes to erosion, sediment yields, and water yield from proposed projects. It collects erosion products from map units in a watershed, routes these products to up to four points downstream, and presents totals and summaries of erosion, sediment, and water yields.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
S Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
P Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Wide carriage Plotter:
Other: Output is usually printed on a wide printer, but can be sent to a file and printouts edited, so it will print on landscape 15 pitch.

10. Documentation/user support available.

_ On-line help
X User's manual
X Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

Dennis Kelly/USDA Forest Service/Manti-La Sal National Forest

12. For technical information, contact:

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Data General address: D.Kelly:R04F10A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

SEDROUTE should be used by someone knowledgeable about erosion, sediment yields, and water yields. Inputs include map unit acreage, runoff curve numbers, erosion rates (inches/year), Pollution Hazard Index, water yield rate (inches/year), sediment routing table, and future conditions of the map units. Outputs are: tabulations of erosion, sediment yields, and water yields by map units within watersheds, with tabulations showing changes in above, from projects. Summaries show changes in erosion and sediment yields and water quality. Impacts of future projects are routed downstream to up to four points. SEDROUTE is limited, in that results are "ball-park" data; erosion and sediment yields are impossible to predict with accuracy, and it takes a lot of work to assemble the data to run this program. There are several untested assumptions about transportation of erosion products to stream channels. This program is currently being rewritten for the Data General. It was on the USDA Unisys computer in Fort Collins, CO.

1. Acronym and name. SELOAD, Stand Exam Loader

2. Brief description. SELOAD is specifically designed to extract data from R6's TSE* (*TSE - name of a system) reports developed on the UNIVAC system and load them into the Winema Integrated Resource Data Base. An interim step leaves results in a flat file that could be loaded into a relational database structure.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database loader program

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General Eclipse Series
Graphics card: Disk space: Variable RAM space: Variable
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | _ Training | X Telephone support
X Other: DG Mail Support via J.Haugen:R06F20A

11. Principal developer.

Jerry Haugen/USDA Forest Service/Winema National Forest

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Data General address: J.Haugen:R06F20A

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Telephone: (503)-883-6726 ext. FAX: (503)-883-6709
Data General address: J.Haugen:R06F20A
Data General RIS file: Contact J.Haugen:R06F20A to obtain a user's guide that includes acquisition/installation instructions.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

SELOAD was designed specifically to load data from R6 TSE reports directly into the Winema Integrated Resource Data Base. It is menu-driven and allows the option of halting the process after relational flat files (ASCII format) have been developed. These files can then be loaded into any relational database system. Those with a DG-Oracle database can develop an SQL*Loader control file, which the program can use to automatically load the data, even if the database structure differs from that of the Winema database. The system will be updated to handle Kansas City IBM reports once we get some experience with the IBM formats. SELOAD keys off of specific formats generated by the R6*TSE software and may not function properly with any other versions of the stand exam software. As an example, one table includes species, trees/acre, height, basal area, d.b.h., cubic feet volume/acre, board feet volume/acre, and canopy closure all by diameter class within species for each stand. Just this data could be used for FORPLAN model development, inventory updates, sale planning, wildlife habitat analysis, and so on.

1. Acronym and name. SIMSAP/SIMTIM, A Growth Model for Even-aged Northern Hardwood Forest Stands

2. Brief description. The models can be applied to northern hardwood stands across New England to simulate growth; beginning with a sapling stand (SIMSAP), continuing to a pole-timber/saw-timber stand, and terminating at a user-specified quadratic mean stand diameter or a stand age (SIMTIM).

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 1MB RAM space: 256KB
Math co-processor: Will use if present Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Dale Solomon/USDA Forest Service/Northeastern Forest Experiment Station

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13. For acquisition information, contact:

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Data General address: D.Solomon:S24L06A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

SIMSAP/SIMTIM uses a direct access file to store the input, and uses a menu to create or modify this input.

1. Acronym and name. SIS, Stand Inventory System

2. Brief description. SIS is a stand-by-stand "in-place" inventory system using commercially available standard database utility. It includes a cruise compiler, log merchantizer, stand history file, growth updates from SPS, operability, and wildlife/environmental restrictions files with linkages to PAMAP & ARC/INFO.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide	S Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	S Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
S Economic/Financial	S Monitoring	S Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	S Soils	_ Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	S Simulation
S Heuristic process	_ Mixed-integer programming	S Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Integrative binary solution		

8. Supporting software requirements.
Operating system: DOS 3.3
Software package(s): Microrim's Rbase version 3.1

9. Hardware requirements.
Computer: IBM or compatible microcomputer 80386 or above
Graphics card: Disk space: 100MB RAM space: 500KB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
X Updates	X Training	X Telephone support
X Other: In-house training, workshops, and annual user's group		

11. Principal developer.
James D. Arney/Mason, Bruce and Girard, Inc.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
SIS accepts sample cruises for extrapolation across phototypes. Volumes are tracked by stand, species, size, defect, grade, and log. Values are tracked by stand, species, size, and log-sort array. Costs are tracked by stand for harvesting, silviculture, site-prep, road construction, hauling, administration, and taxes. GIS linkages provide wildlife corridors, stream buffers, and cumulative-effects analysis. There is a built-in, binary search harvest scheduler for volume, value, and cost, by any of the above mentioned attributes including GIS attributes on a stand-by-stand basis.

1. Acronym and name. SITE

2. Brief description. This program estimates site index for tree species found the Lake States region.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Basic language compiler

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: <100KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Jeff Martin/University of Wisconsin, Madison/Dept. of Forestry

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send formatted DD 5¼" or 3½" disk

14. Additional description of tool.

1. Acronym and name. SPOTTED OWL HC, Northern Spotted Owl Habitat Capability Estimator

2. Brief description. SPOTTED OWL HC is used to estimate current and future habitat capability (number of potential pair sites) for northern spotted owls, by spotted owl population or physiographic province in western Washington, western Oregon, and northwestern California.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | P Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Spreadsheet application

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Any Lotus 1-2-3 compatible spreadsheet program for an IBM compatible personal computer (Borland's Quattro Pro 3.0; Microsoft Excel, etc.)

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: EGA/VGA Disk space: 300KB RAM space: 300KB
Math co-processor: Recommended Mouse:
Printer: Graphics, to print graphs Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | X Publications
_ Updates | _ Training | _ Telephone support
X Other: Process documentation submitted to USFS Spotted Owl EIS interdisciplinary team that explains derivation of the model.

11. Principal developer.

Bruce Marcot/USDA Forest Service/Pacific Northwest Research Station; Martin Raphael/USDA Forest Service/Pacific Northwest Research Lab

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: B.Marcot:R06A
Data General RIS file:

Acquisition charge? X No _ Yes: Send floppy diskette

14. Additional description of tool.

This program was developed and used specifically for the USFS Northern Spotted Owl Environmental Impact Statements, 1991-92. It is intended to provide a relative gauge to potential habitat capability for northern spotted owls, under the variety of planning alternatives analyzed in the EIS. It is NOT intended to predict actual population sizes of spotted owls. It requires very specific data as input; including total acreage of suitable habitat found within 5,000 acre grid cells, tallied by 10 percent proportion classes. Thus, you have to run a GIS tally of such acreages first as input. The program is useful only at multi-forest scales (i.e. regional and physiographic provinces), but may have limited use in national forests.

1. Acronym and name. SPS, Stand Projection System

2. Brief description. SPS is a stand growth and yield projection for single and mixed-species stands, with mixed ages and size classes calibrated for over 20 species west of the Rockies; includes thinning, fertilization, snag management, and linkages to the Stand Inventory System.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
S Statistical

8. Supporting software requirements.

Operating system: DOS 3.3
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088 or above
Graphics card: Disk space: 500KB RAM space: 400KB
Math co-processor: Optional Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
X Publications
X Updates
X Training
X Telephone support
_ Other:

11. Principal developer.

James D. Arney/Mason, Bruce and Girard, Inc.

12. For technical information, contact:

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Telephone: (503)-224-3445 ext. FAX: (503)-224-6524
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

SPS accepts stand table inputs or stand averages. It generates stand and stock table outputs based on localized taper functions. Volumes are computed and summed for value and cost by log dimension and soundness. Economic reports include cash flow, discounted net present value, soil expectation, and cost/benefit ratios. All species coefficients reside in external library for localized calculations.

1. Acronym and name. SRGYS, Southern Region Growth and Yield System

2. Brief description. SRGYS simulates growth and yield of all major species and forest types, and stand conditions on the national forests of The Southern Region. The simulation includes tree and stand growth, silvicultural treatments, and calculation of volumes.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
X Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

David Belcher/USDA Forest Service/Southern Region

12. For technical information, contact:

Name: David Belcher Title: Forester
Address: USDA Forest Service, Southern Region
1720 Peachtree Road, NW.
Atlanta, GA 30367
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Data General address: D.Belcher:R08B

13. For acquisition information, contact:

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1720 Peachtree Road, NW.
Atlanta, GA 30367
Telephone: (404)-347-4037 ext. FAX:
Data General address: D.Belcher:R08B
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Major use of SRGYS to date has been to develop yield tables for FORPLAN. This work is usually done at the supervisor's office level. Typically, the forest is first stratified by management prescription, then SRGYS is used to estimate growth and yield over the FORPLAN planning horizon. Input to SRGYS is stand age, site index, and density, where density is specified as number of trees/acre, basal area/acre, or a tree list. Reports are produced, showing the updated tree list and summaries at the end of each projection period. SRGYS is not linked with any other computer program, and is applicable to the geographical area covered by the Southern Region.

1. Acronym and name. SRIDS, Soil Resource Inventory Data System

2. Brief description. This is a database of all soils information that is collected in the field.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | P Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): INFOS II; DG-SQL; DG COBOL

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Personal computer version being developed in Paradox available Fall 1992. DG Space: Program at 3.7MB; Database at 2.4MB; and Present macros at 0.2MB.

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Art Kreger/USDA Forest Service/Wallowa-Whitman National Forest; Dave Roschke/USDA Forest Service/Forest Pest Management, Methods Application Group

12. For technical information, contact:

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Baker City, OR 97814
Telephone: (503)-523-6391 ext. 363 FAX:
Data General address: A.Kreger:R06F16A

13. For acquisition information, contact:

Name: Rich Apple Title: Information Manager
Address: USDA Forest Service, Pacific Northwest Region
P.O. Box 3623, 333 SW. First Street
Portland, OR 97208
Telephone: (503)-326-5161 ext. FAX:
Data General address: R.Apple:R06C
Data General RIS file: RIS file will be available for Paradox version.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The database was designed to help in the management of information required by the National Cooperative Soil Survey (NCSS), and promote sound management of National Forest Systems Lands. The data system was designed around using the National Soil Survey, along with the standard description forms used in the USFS and the Soil Conservation Service. Standardized data-analysis packages are used to analyze the data in the database, to develop soil survey reports and to develop other reports on request. SRIDS is a menu-driven program with questions for the user to answer before entering into the database. Also built into the system is an on-line help screen for each field, to tell the user if they have entered the right code in any given field. This database will also be used to attribute the soils layer in the unit's GIS system.

1. Acronym and name. SRS, Snag Recruitment Simulator (Release 3.1)

2. Brief description. SRS is designed to identify densities of snags by size and decay class, project snag densities over time in a stand, and assist in developing stand-management prescriptions for maintaining desired snag densities over time.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	S Monitoring	_ Transportation
S Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	S Timber	P Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
S Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	X Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
S Other: Spreadsheet application		

8. Supporting software requirements.
Operating system: DOS
Software package(s): Program comes in two forms: (1) stand-alone compiled version; and (2) templates for any Lotus 1-2-3 compatible spreadsheet program. Both forms also require running any separate stand-growth model.

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: EGA/VGS Disk space: 2MB RAM space: 512KB
Math co-processor: Recommended Mouse:
Printer: Graphics, for printing graphs Plotter:
Other:

10. Documentation/user support available.

X On-line help	_ User's manual	X Publications
_ Updates	_ Training	_ Telephone support
X Other: Short program documentation file on disk.		

11. Principal developer.
Bruce G. Marcot/USDA Forest Service/Pacific Northwest Research Station

12. For technical information, contact:
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13. For acquisition information, contact:
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Timber Management
333 SW. 1st Avenue
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Telephone: (503)-326-3602 ext. FAX:
Data General address: W.Knapp:R06C
Data General RIS file: STAFF:TM:RIS:RIS:SRS.EXE (contains both spreadsheet and runtime versions)

Acquisition charge? X No _ Yes:

14. Additional description of tool.
SRS is useful for building generalized scenarios of snag numbers and dynamics in forest stands to be treated under different silvicultural prescriptions. Best used at scales of forest types and silvicultural treatment categories, the model is NOT intended to precisely and accurately predict snag densities over time, by d.b.h. class, within each and every forest stand. However, it is a valuable tool for establishing planning guidelines for snag retention and creation over stand growth sequences, and particularly for establishing testable management hypotheses on how the stand vegetation (snag and within-stand mortality) and wildlife assemblages (primary cavity-users) will respond to management. It is useful as setting hypotheses for monitoring snag creation and densities, and wildlife response (effectiveness monitoring). SRS requires use of any stand growth model that outputs within-stand snag creation rates (typically, suppression mortality rates), by d.b.h. class and number of stems (or basal area) per acre, as an input to the snag model.

1. Acronym and name. STOCK

2. Brief description. STOCK estimates forest stocking percentage for major Lake States forest types.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Basic language compiler

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes Disk space: <100KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Jeff Martin/University of Wisconsin, Madison/Dept. of Forestry

12. For technical information, contact:

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Telephone: (608)-262-0134 ext. FAX: (608)-262-9922
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: Send formatted DD 5¼" or 3½" disk

14. Additional description of tool.

1. Acronym and name. SYSTUM-1, Simulating Young Stand Trends Under Management, Phase I.

2. Brief description. An interactive, pc-type, individual-tree based growth simulator for growing trees and companion vegetation from age 3 years, until at least 20 years. Primary tree species are ponderosa pine, Douglas-fir, incense-cedar, white fir, and sugar pine in California and southern Oregon.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | S Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0
Software package(s): SYSTUM-1 version 1.8
Can read from ASCII files, or from keyboard input.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 370KB RAM space: 400KB
Math co-processor: Recommended (any) Mouse:
Printer: Recommended (any 8.5") Plotter:
Other: Can send reports to printer. Reports come out in standard 8.5x11nch format.

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
X Updates | _ Training | X Telephone support
X Other: Version 1.8 is probably the final version. Some training available through Univerisity of California Cooperative Extension.

11. Principal developer

Robert F. Powers and Martin W. Ritchie/USDA Forest Service/ Pacific Southwest Research Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (916)-224-4902 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Input is site index, tree, and vegetation starting data. Tree data are lists of species and their height from plots of known area. Inputs also can include d.b.h., crown ratio, and past height increment, or these values will be generated if not available. Data may be acquired from existing formats (such as ORGANON or CACTOS), or entered as free format. Tree lists also can be generated from slope elevation and aspect information, or for any age plantation where average tree heights are known for each species. Competing vegetation data inputs are species (up to six), percent cover, and height. SYSTUM-1 expands to an acre basis, and grows the stand with or without a random option for creating height growth differentiation. Tree growth is height driven as modified by vegetation and inter-tree competition. Reports can be generated showing tree height, d.b.h., crown ratio, CCF, and survival, along with vegetation coverage and height at intervals as small as 1 year. Also, the output can be presented in an ORGANON or CACTOS tree-list format for interfacing with those growth models for stands of larger trees. In time, competing vegetation is reduced by shading from tree crowns. Options available for thinning or weeding. SYSTUM-1 is based on California and Oregon data.

1. Acronym and name. THINX, THINX Applications

2. Brief description. These are demonstration models for calculating and displaying effects of oil and gas drilling operations and timber harvest on soils, water quality, stream sedimentation, forest vegetation, and some kinds of wildlife habitats. It employs visual cause/effects using experimental technology.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	P Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	S Soils	S Water
_ Cultural	S Minerals	P Timber	S Wildlife
_ Fire	_ Range	S Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	S Other: Oil and gas	

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
S Other: Object-oriented database		

8. Supporting software requirements.

Operating system: DOS
Software package(s): MicroSoft Windows 3.0 and "THINX"

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: VGA/SVGA Disk space: 2MB RAM space: 1.5-2MB
Math co-processor: Optional Mouse: Required
Printer: Laser Plotter: Supported
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: Demonstration applications only - THINX and Windows provide any necessary documentation. Applications are fairly self-evident.

11. Principal developer.

Pamela Case/USDA Forest Service/Rocky Mountain Region

12. For technical information, contact:

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11177 West 8th Avenue
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Telephone: (303)-236-9646 ext. FAX:
Data General address: P.Case:R02A

13. For acquisition information, contact:

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11177 West 8th Avenue
Lakewood, CO 80225
Telephone: (303)-236-9646 ext. FAX:
Data General address: P.Case:R02A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

THINX allows users to model or simulate environmental effects of typical projects. The calculations can be simple arithmetic functions or fairly complex math. Once a library of objects have been created, and one or more "desk tops" drawn to represent a schematic of the project site, the users can play "What-if?" games to see how much sediment would be produced by increasing the size of a timber sale, etc. A "snapshot" of the situation and results can be printed at any time. If a laser printer is used, the "snapshots" are camera ready for inclusion in a NEPA document. Skill level to learn THINX is minimal and no real drawing skill is required. THINX is a unique technology produced by Bell Labs. It is kind of a graphical database/ spreadsheet application, although it is not really either of these. Basically, you draw an object, and then attribute various data features to it and store the objects in a library. For analysis, you place object on a "desktop" and draw in features such as streams, then manipulate the object. The desktop can show how much total accumulated soil movement, sediment, forest in various age classes, etc. result from manipulations of the object.

1. Acronym and name. TROPPS, Treatment Opportunity Module

2. Brief description. This model identifies the potential treatment of each timber stand, based on the selected alternative in the Wallowa-Whitman Forest Plan, based on the information in the Wallowa-Whitman Existing Vegetation Database, and based on Vegetation MOSS layer. It is used as a scoping tool.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | S Soils | S Water
S Cultural | S Minerals | P Timber | S Wildlife
_ Fire | S Range | S Vegetation | _ Wilderness
_ Fisheries | S Recreation | S Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database and GIS application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle 6.0; MOSS

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Color graphics Plotter: Eight pen
Other: Color graphics terminal compatible with the DG.

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Dan Gregson and Laurie Smit/USDA Forest Service/Wallowa-Whitman National Forest

12. For technical information, contact:

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Pine Ranger District
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Data General address: E.Twombly:R06F16D07A

13. For acquisition information, contact:

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Halfway, OR 97834
Telephone: (503)-742-7511 ext. FAX:
Data General address: E.Twombly:R06F16D07A
Data General RIS file: None yet

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TROPPS is designed to be user-friendly for anyone preparing for the scoping of a project. It is linked to the Wallowa-Whitman Existing Vegetation Database and Vegetation MOSS layer. Outputs are a map and a report. This is part of a system that is being developed, which will develop alternatives that can be compared to the existing condition and other alternatives. Analysis packages will be attached to it for watershed peak flow, elk habitat effectiveness, biodiversity, seral stage, and insect models. More will be added later and will be developed for both the DG and 615 systems. See also SERAL.

1. Acronym and name. TSEA, Timber Sale Environmental Analysis

2. Brief description. TSEA is a menu-driven, Oracle application that draws its data from R2RIS (Stand Data Base - Oracle) and utilizes SQL*Calc and SQL*Plus to calculate a number of summary data for user-defined alternatives to use in assessing a project (i.e. timber sale) on a ranger district.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
S Cumulative effects
S Economic/Financial
S Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
S Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
X Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS II
Software package(s): Oracle revision 6

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Internally documented .SQL files

11. Principal developer.

Landon D. Smith/USDA Forest Service/Southwestern Region; Jean Hill/USDA Forest Service/Gila National Forest

12. For technical information, contact:

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Data General address: L.Smith:R03A

13. For acquisition information, contact:

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Albuquerque, NM 87102
Telephone: (505)-842-3311 ext. FAX:
Data General address: L.Smith:R03A
Data General RIS file: CANNOT distribute until the forest certifies acceptance.

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Current plans call for linking to MOSS in addition to R2RIS. The application is designed for the ranger district rather than other levels.

1. Acronym and name. TWIGS, The Woodsman's Ideal Growth Projection System; Lake States/Central States

2. Brief description. TWIGS predicts growth and mortality of individual trees for species occurring in the Lake States (MI, MN, and WI), or Central States (IN, IL, MO, and IA). Harvesting forest stands can be simulated, and economic evaluations produced.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
S Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application _ Spreadsheet application
_ GIS application X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 2.0; Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer; Data General
Graphics card: Optional Disk space: 360KB RAM space: 384KB
Math co-processor: Mouse:
Printer: Graphics capabilities Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

USDA Forest Service/North Central Forest Experiment Station

12. For technical information, contact:

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13. For acquisition information, contact:

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Experiment Station
1992 Folwell Avenue
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Data General address: G.Brand:S23A
Data General RIS file:

Acquisition charge? X No _ Yes: (For USFS personnel)

14. Additional description of tool.

Input required is a list of trees representing the stand to be projected. For each tree, species, d.b.h., crown ratio (optional), expansion factor, status, and tree class (optional) is needed. Site index is also required. Stumpage prices and management costs are required if an economic evaluation is desired. The models were developed from a regional database and may need adjustment to correct for bias on a local scale. Projections longer than 30 years must be used cautiously.

1. Acronym and name. UNEVEN

2. Brief description. UNEVEN predicts effects of different timber harvest regimes on volume produced and present value of harvests in uneven-aged stands. It also optimizes to find the most profitable harvest scheme.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
S Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
S Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
S Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS; MacIntosh
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer; MacIntosh
Graphics card: Disk space: RAM space: see "Other"
Math co-processor: Yes Mouse:
Printer: Yes Plotter:
Other: 25KB for IBM or compatible microcomputer; 512KB for MacIntosh

10. Documentation/user support available.

X On-line help
X User's manual
X Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

Joseph Buongiorno/University of Wisconsin, Madison/Forestry Dept.

12. For technical information, contact:

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1630 Linden Drive
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Data General address:

13. For acquisition information, contact:

Name: Joseph Buongiorno Title: Professor
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1630 Linden Drive
Madison, WI 53706
Telephone: (608)-262-0091 ext. FAX: (608)-262-9922
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

1. Acronym and name. UNEVEN-AGED TEMPLATE

:

2. Brief description. This tool assists in uneven-aged management of timber stands. It generates the desired J-curve stand distribution, calculates the cut and residual stand (given an existing and target leave stand), computes Stand Density Index (SDI), and generates the marking guide for the stand.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide _ Subforest area P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting _ Legal documentation _ Resource scheduling
_ Cumulative effects _ Logging systems _ Spatial
_ Economic/Financial _ Monitoring _ Transportation
_ Ecosystem P Resource effects/Production _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air _ Insect/Disease _ Soils _ Water
_ Cultural _ Minerals P Timber _ Wildlife
_ Fire _ Range _ Vegetation _ Wilderness
_ Fisheries _ Recreation _ Visual/Esthetics
_ All resources _ Not applicable _ Other:

6. Type of tool.

_ Database application X Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems _ Integer programming _ Network analysis
_ Dynamic programming _ Linear programming P Simulation
_ Heuristic process _ Mixed-integer programming _ Statistical
_ Input/Output analysis _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or higher
Software package(s): Quattro Pro 3.0

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Any Disk space: Minimal RAM space: Minimal
Math co-processor: Optional Mouse: Optional
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Sue Puddy and Steve Trulove/USDA Forest Service/Winema National Forest

12. For technical information, contact:

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P.O. Box 357
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13. For acquisition information, contact:

Name: Sue Puddy Title: Silviculturist
Address: USDA Forest Service, Winema National Forest
P.O. Box 357
Chiloquin, OR 97624
Telephone: (503)-783-2221 ext. FAX: (503)-883-6873
Data General address: S.Puddy:R06F20D02A
Data General RIS file:

Acquisition charge? X No _ Yes: Send floppy diskette

14. Additional description of tool.

1. Acronym and name. UNITPLAN

2. Brief description. UNITPLAN is a snag-dynamics model. It is useful for planning snag retention and creation in harvest units.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
_ Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
S Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
P Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Designed for Lotus 1-2-3, but can be adjusted for use on Quattro Pro.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: A very short and sweet paper explaining how to get started.

11. Principal developer.

Matthew Hunter/USDA Forest Service/Willamette National Forest

12. For technical information, contact:

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13. For acquisition information, contact:

Name: Matthew G. Hunter Title: Wildlife Biologist
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Telephone: (503)-822-3317 ext. 268 FAX: (503)-822-3783
Data General address: M.Hunter:R06F18D01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

UNITPLAN is used to develop a snag habitat maintenance plan for timber harvest units. It can be used to develop options for manipulation of existing snags and green trees in units, or to estimate leave-tree needs in planned units. It is generally used by district personnel, but is also used at forest level to extrapolate wood volume left on-site, based on estimated average densities of green trees and snags to be left on harvest units. Inputs occur at two stages: 1) baseline snag-dynamics data, customized to area of use (one time input) and 2) project-specific data, such as densities of snags of particular character, densities of green trees to kill during specified time period, etc. The model applies survival rates to snag cohorts beginning in any 10-year period, and considers snags from five management-oriented categories. Users can enter and use up to four survival rate-time patterns, customized by species, size class, or other factors. Users can also enter and use up to six snag-recruitment patterns for regenerating stands.

1. Acronym and name. VEGPRO , Forest Vegetation Management Prescription Optimization and Information

2. Brief description. VEGPRO is an interactive computer program designed to assist forest land managers with the selection of forest vegetation management treatments. VEGPRO contains a database that covers selected vegetation types in Oregon, Washington, and northern California.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | P Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
S Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database application

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputerr
Graphics card: CGA Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
_ Updates | _ Training | X Telephone support
X Other: Tutorial

11. Principal developer.

R. G. Wagner, A. A. Robison, P. C. Griessmann, T. B. Harrington, and S. R. Radisevich/Oregon State University/Dept. of Forest Science, CRAFTS Cooperative

12. For technical information, contact:

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13. For acquisition information, contact:

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Telephone: (503)-737-6085 ext. FAX: (503)-737-1393
Data General address: E-mail: Harrington@FSL.ORST.EDU
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

VEGPRO can evaluate site preparation, conifer release, and individual-plant treatments for three forest vegetation types in the Pacific Northwest: 1) coastal and western Cascade deciduous woody vegetation in Oregon, Washington, and northern California; 2) mixed sclerophyll woody vegetation in southwest Oregon and northern California; and 3) Herbaceous vegetation complexes in Oregon and Washington. Target-species composition and treatment costs are entered for a particular forest site being considered for treatment. VEGPRO then uses a treatment efficacy database and user-specified treatment selection criteria to choose the best prescription for a particular situation. Treatments are ranked, based on the amount of vegetation remaining after treatment, treatment cost, and cost efficiency. A user can modify the program's database to conform with local experience and expertise, or to update the database on new treatments. As an information system, VEGPRO includes treatment guideline windows that contain information about treatment specifications. A report related to a prescription can be printed and used to document treatment selection decisions for a site.

1. Acronym and name. VISQUAL, Visual Quality

2. Brief description. VISQUAL is a GIS-like approach to quantitative elements of the scenic resource. It allows large area evaluation simultaneously from many viewpoints. It also allows emulations of USFS Visual Resource Management visual quality objective allocation process.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
P Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Combinatorial logic
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286, 80386, or 80486
Graphics card: EGA or VGA Disk space: 3MB +/-
RAM space: low 640KB
Math co-processor: Optional Mouse:
Printer: Optional, any dot matrix Plotter: HP/CalComp/HI/laser
Other: Digitizer - wide range of 12-button and 16-button models.

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates X Training X Telephone support
X Other: Demonstration diskette available.

11. Principal developer.

Devon Nickerson/Visual Simulations, Inc.

12. For technical information, contact:

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17491 Boones Ferry Road
Hubbard, OR 97032
Telephone: (503)-981-0731 ext. FAX: (503)-981-7225
Data General address:

13. For acquisition information, contact:

Name: Devon Nickerson Title: President
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Hubbard, OR 97032
Telephone: (503)-981-0731 ext. FAX: (503)-981-7225
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

VISQUAL links with: PC New Perspectives, USGS DEM database, ArcInfo, any desktop publishing package, any paintbrush package, and advanced hardcopy output drivers (laser, thermal wax, inkjet, and electrostatic).

1. Acronym and name. WATSED, Water and Sediment Yields

2. Brief description. WATSED is a water and sediment yield model that can be locally calibrated to reflect the effects from specific management activities on water and sediment.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
P Resource effects/Production
_ Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
S Fisheries
_ All resources
_ Insect/Disease
S Minerals
S Range
_ Recreation
_ Not applicable
S Soils
S Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
P Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): dBase IV is preferred

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Disk space: 2MB RAM space: 1MB
Math co-processor: Recommended Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
_ Training
_ Telephone support
_ Other:

11. Principal developer.

Rosa Nygaard and Bill Putnam/USDA Forest Service/Northern Region

12. For technical information, contact:

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Telephone: (406)-329-3461 ext. FAX: (406)-329-3132
Data General address: R.Nygaard:R01A

13. For acquisition information, contact:

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P.O. Box 7669
Missoula, MT 59807
Telephone: (406)-329-3461 ext. FAX: (406)-329-3132
Data General address: R.Nygaard:R01A
Data General RIS file: R01C:PUBLIC:APPLICATIONS_LIBRARY:2500_LIBRARY:R1WATSED_PROGRAMS.02.01.DMP and :R1WATSED_DATA.02.01.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

WATSED is being used by the forests in the Northern Region and by cooperators in the Montana Cumulative Watershed Effects Cooperative to assess the effects on water yield and sediment production from ground disturbing activities. The model predicts changes to water yield and sediment from roads, fire, logging, and site preparation activities. Locally derived effects from grazing and mining impacts can be added. Eleven external files are required to run the model. The files are structured as independent databases that once established can be modified without affecting the model. A Land System Inventory (LSI) file is required to provide basic land-type data for the watershed being modeled. An Activities file requires a history of past ground-disturbing activities and any proposed activities. The model can be run to indicate current conditions and analyze effects of project alternatives.

1. Acronym and name. WOODY DEBRIS MODEL

2. Brief description. This model estimates natural rates of input of large woody debris to stream channels, based on stand density and maturity, and on tree-fall probabilities.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
S Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
S Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | P Water
_ Cultural | _ Minerals | S Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
S Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | S Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
S Other: Geometry; difference equations

8. Supporting software requirements.

Operating system: DOS
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

John VanSickle/Statistical and Modeling Consultant; Stan Gregory/ Oregon State University/Dept. of Fisheries and Wildlife

12. For technical information, contact:

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Data General address:

13. For acquisition information, contact:

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Dept. of Fisheries and Wildlife
Corvallis, OR 97330
Telephone: (503 -737-1951 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

Inputs include: riparian stand density and height distribution; tree-fall probability distributions, classified by height and species classes; regeneration rates; and riparian zone geometry. Outputs are time trajectories of probabilistic woody debris loading rates for stream channels.

1. Acronym and name. YIELDPLUS, YIELDplus 3.0

2. Brief description. YIELDplus can be used to simulate effects of alternative management strategies on forest growth, yield, and financial profitability for major timber types in the Southeastern United States. Information from the program is useful for evaluating and scheduling timber management activities.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | P Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | S Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
S Dynamic programming | _ Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Optional: Lotus 1-2-3; word processor

9. Hardware requirements.

Computer: IBM or compatible microcomputer with hard disk
Graphics card: Disk space: 0.5MB RAM space: 640B
Math co-processor: Optional Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | X Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Todd E. Hepp/Tennessee Valley Authority

12. For technical information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

YIELDplus is appropriate when growth, yield, and financial analysis is required for individual even-aged stands. SMART is YIELDplus's newest feature, which aids the user in analysis of alternative density management regimes through the use of an optimization routine. SMART can change the harvest frequency, timing, method, and intensity to determine an optimal harvest prescription. YIELDplus addresses the forest stand (existing or future) as the unit of analysis. Inputs include current stand conditions, a harvest schedule, and simple financial data. Output consists of concise reports that summarize forecasted volume yield, pine bark beetle hazard ratings, cash transactions, and measures of profitability. YIELDplus allows easy access to the wealth of information found in over 50 separate growth and yield publications. The growth and yield module is integrated with a powerful financial analysis module. YIELDplus makes a wide variety of applications possible due to implementation of the combination in a flexible, interactive framework.

Resource Scheduling

1. Acronym and name. ACES, Allowable Cut Evaluation Simulator, Version 3.1

2. Brief description. ACES allows the quick calculation of allowable cuts using one of six volume control methods, or area control with adjustments for site productivity.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | P Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
S Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS version 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Yes | Disk space: | RAM space: 390KB
Math co-processor: Yes | Mouse:
Printer: Optional | Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Dietmar Rose/University of Minnesota/College of Natural Resources

12. For technical information, contact:

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St. Paul, MN 55108
Telephone: (612)-624-9711 | ext. | FAX: (612)-625-5212
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes: $100 + $5 for shipping and handling

14. Additional description of tool.

ACES is a menu-driven, microcomputer program that allows the user to quickly calculate allowable cuts using one of six volume control methods, or area control with adjustment for site productivity. Input data required for the program consist of stand data describing current inventories of the cover type, for which allowable cuts are to be calculated and a number of run parameters. Stand data or stand parameter inputs created via keyboard input may be permanently saved before logging off to facilitate future analysis with similar data, and to reduce the time and effort for data entry. The program provides very simple editing of all inputs, which are checked by the program for correctness. These checks include not only the mathematical acceptability of data, but also provide range checking on variables such as age, site index, volume per acre, and stocking. Easy-to-understand error messages allow the user to correct an unacceptable input value on the spot. Besides the screen outputs generated by the program, the program generates copies of the output in a user-specified file and directory. This output can easily be incorporated into a report on a specific allowable cut simulation.

1. Acronym and name. ARCFOREST

2. Brief description. ARCFOREST consists of forest management decision support tools. It provides forest managers with a practical application necessary to support a wide range of current and future management.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (Enter P for primary and S for all secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	S Logging systems	S Spatial
_ Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	S Range	S Vegetation	S Wilderness
_ Fisheries	_ Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	

S Other: Database and GIS Application

8. Supporting software requirements.

Operating system: UNIX
Software package(s): Arc/Info 6.0; Oracle 6.0.32

9. Hardware requirements.

Computer: UNIX System (presently SUN workstation environment)
Graphics card: Disk space: 364MB RAM space: 32MB
Math co-processor: Mouse:
Printer: Plotter: Any supported by Arc/Info
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
_ Updates	X Training	X Telephone support

X Other: Education workbooks

11. Principal developer.

ESRI Canada and Ontario Ministry of Natural Resources

12. For technical information, contact:

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Toronto, Ontario Canada M3C 1Y9
Telephone: (416)-441-6035 ext. FAX: (416)-441-6838
Data General address:

13. For acquisition information, contact:

Name: R. Keith Jones Title: Coord. Natural Res. Tech
Address: ESRI Canada, Limited
2nd Floor, 1010 Langley Street
Victoria, British Columbia Canada V8W 1V8
Telephone: (604)-383-8330 ext. FAX: (604)-383-3846
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

ARCFOREST is a framework of models or rather, generic spatial and tabular forest management information support tools. It includes four modules: Forest Records Management, Strategic Planning, Operational Management, and System Implementation and Management. For demonstration purposes, HSG - Harvest Schedule Generator strategic wood supply model has been linked to ArcForest. Through our ArcForest value-added partnership program we plan to identify a number of external models already developed, or planned for development within both the private and public sector, which our ARC/INFO and ArcForest clients would collectively like to see linked and integrated with ArcForest. ArcForest is a land resource data model that will expand in time to include more fully many other land-related resource themes and attributes (e.g. range, water, soils, etc.). The stand data model has been structured to accommodate any vegetation condition (temperate forest, grassland, tundra, tropical, etc.).

1. Acronym and name. BALL, Block Allocation Model

2. Brief description. BALL is a Monte-Carlo integer programming model for scheduling harvest of cut blocks subject to user-defined adjacency constraints, harvest flow constraints, and harvest cost constraints.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
_ Cumulative effects	_ Logging systems	S Spatial
_ Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
S Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Monte-Carlo integer prog.		

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 360KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
_ Updates	_ Training	_ Telephone support
_ Other:		

11. Principal developer.

Patrick Dallain/University of New Brunswick

12. For technical information, contact:

Name: Mark Jamnick Title: Director - ARMS Group
Address: University of New Brunswick, Dept. of Forest Resources
Bag Service 44555
Fredericton, New Brunswick Canada E3B 6C2
Telephone: (506)-453-4501 ext. FAX: (506)-453-3538
Data General address:

13. For acquisition information, contact:

Name: Mark Jamnick Title: Director - ARMS Group
Address: University of New Brunswick, Dept. of Forest Resources
Bag Service 44555
Fredericton, New Brunswick Canada E3B 6C2
Telephone: (506)-453-4501 ext. FAX: (506)-453-3538
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes: No charge for the research version.

14. Additional description of tool.

This model is used for Forest Plan implementation; final scheduling of harvest blocks within planning periods. Blocks within periods still must be scheduled for harvesting system and year-to-year harvesting.

1. Acronym and name. DIGIT 1, Digitizing Utility Routine

2. Brief description. DIGIT 1 provides simple pc-based digitizer input for SNAP II network/scheduling program and LOGGER-PC skyline payload analysis program.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | P Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | P Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Data input from map

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: EGA or VGA | Disk space: 1MB +/-
RAM space: low 640KB
Math co-processor: Optional | Mouse:
Printer: | Plotter:
Other: Digitizer - accommodates wide range of 12-button or 16-button models.

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other:

11. Principal developer.

Devon Nickerson/Visual Simulations Inc.

12. For technical information, contact:

Name: Devon Nickerson | Title: President
Address: Visual Simulations
17491 Boones Ferry Road
Hubbard, OR 97032
Telephone: (503)-981-0731 | ext. | FAX: (503)-981-7225
Data General address:

13. For acquisition information, contact:

Name: Devon Nickerson | Title: President
Address: Visual Simulations
17491 Boones Ferry Road
Hubbard, OR 97032
Telephone: (503)-981-0731 | ext. | FAX: (503)-981-7225
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

DIGIT 1 provides a data-input "front-end" for SNAP II and LOGGER-PC.

1. Acronym and name. DTRAN

2. Brief description. DTRAN is an enhancement of the DUALPLAN model; it is used to consider regional timber supply with multiple forest products and multiple market locations. Its focus is on timber transport considerations and interface between markets over time.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
_ Cumulative effects	_ Logging systems	S Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
S All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	S Integer programming	S Network analysis
S Dynamic programming	P Linear programming	S Simulation
S Heuristic process	S Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 4.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Howard Hoganson/University of Minnesota

12. For technical information, contact:

Name: Howard Hoganson Title: Assistant Professor
Address: University of Minnesota
1861 Highway 169 East
Grand Rapids, MN 55744
Telephone: (218)-327-4490 ext. FAX: (218)-327-4126
Data General address:

13. For acquisition information, contact:

Name: Howard Hoganson Title: Assistant Professor
Address: University of Minnesota
1861 Highway 169 East
Grand Rapids, MN 55744
Telephone: (218)-327-4490 ext. FAX: (218)-327-4126
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

DTRAN overcomes the combinatorial nature of multi-market considerations by eliminating the need to enumerate potential shipping strategies with the prescription-writing process. It utilizes the road network for the region in the solution process, and is best suited for regional problems where interactions between markets are important. The model has been used recently for the statewide timber supply analysis in Minnesota. The model is linked with RXWRITE, a prescription generator based on the STEMS growth model and GISTRAN, a GIS system for examining model output.

1. Acronym and name. DUALPLAN

2. Brief description. DUALPLAN is a model for solving large linear programming models, using a specialized solution technique designed to take advantage of thestructure of forest-wide management scheduling problems.

3. Geographical level of analysis (Enter P for primary and S for all secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | P Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
S All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | P Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 4.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Howard Hoganson/University of Minnesota

12. For technical information, contact:

Name: Howard Hoganson Title: Assistant Professor
Address: University of Minnesota
1861 Highway 169 East
Grand Rapids, MN 55744
Telephone: (218)-327-4490 ext. FAX: (218)-327-4126
Data General address:

13. For acquisition information, contact:

Name: Howard Hoganson Title: Assistant Professor
Address: University of Minnesota
1861 Highway 169 East
Grand Rapids, MN 55744
Telephone: (218)-327-4490 ext. FAX: (218)-327-4126
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

This model decomposes the linear programming formulation and solves it in parts, while maintaining a direct linkage to the forest-wide problem by re-estimating the key dual variables that link the stand-level problems with the forest-wide problem. It is potentially more efficient than an LP approach, because the solution process recognizes some deviations in forest-wide, output-level constraints are acceptable from a practical viewpoint. Solutions generated are integer solutions. Potentially, it can help provide a direct link between forest-wide and stand-level planning, with the capability of recognizing important details for the stand-level problems.

1. Acronym and name. EASY PLAN

2. Brief description. EASY PLAN version 2.3 is a harvest scheduling model that can solve seven different harvest scheduling algorithms.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Written in FORTRAN 77

9. Hardware requirements.

Computer: IBM or compatible microcomputer or mainframe
Graphics card: Disk space: RAM space: 252KB
Math co-processor: Mouse:
Printer: 132 cpl Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Richard Barber/Humboldt State University/Natural Resources Institute

12. For technical information, contact:

Name: Richard Barber Title: Professor
Address: Natural Resources Institute
Humboldt State University
Arcata, CA 95521
Telephone: (707)-826-4284 ext. FAX:
Data General address:

13. For acquisition information, contact:

Name: Richard Barber Title: Professor
Address: Natural Resources Institute
Humboldt State University
Arcata, CA 95521
Telephone: (707)-826-4284 ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

EASY PLAN is an interactive harvest scheduling program that schedules even- and all-aged forests. Area control, volume control, annual growth, percent of inventory, and variations of even-flow can be solved. Yield tables are specified for each age class. Financial data can also be included. A simpler model, HARVEST II, is also available from the author. The source of this information was from: FORS' Directory of Forestry and Natural Resources Computer Software - 1991 Supplement.

1. Acronym and name. F2P, FORPLAN to Paradox

2. Brief description. F2P is used to load data from a FORPLAN flatfile (version 14+) into Paradox tables. A set of queries to these tables, known as scripts, is available for producing reports.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Paradox - any version should work; scripts developed in version 3.5.

9. Hardware requirements (where applicable).

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: Extended memory and math co-processor will improve performance.

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Read me file distributed with application.

11. Principal developer.

Doug Pattie and Dan Camenson/USDA Forest Service/Washington Office/LMP

12. For technical information, contact:

Name: Dan Camenson Title: LMP Specialist
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1736 ext. FAX: (303)-498-1660
Data General address: D.Camenson:W04A

13. For acquisition information, contact:

Name: Dan Camenson Title: LMP Specialist
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1736 ext. FAX: (303)-498-1660
Data General address: D.Camenson:W04A
Data General RIS file: STAFF:LMP:FORPLAN:UTILITIES: F2PZIP.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.

F2P can be used for a variety of implementation tasks including scheduling projects, monitoring, and predicting cumulative effects from planned activities. F2P transfers the FORPLAN solution into a format that can be more readily used. F2P creates 17 normalized database tables from a FORPLAN relational flat file. These tables are further defined in the Read me file found with the documentation. Having the FORPLAN solution information in a database increases the ability to analyze the solution and extract relevant information. Paradox also has the capability of graphically examining the solution. The RIS file is a self-extracting zip file; once it is moved to a microcomputer, simply type F2PZIP and the necessary files are created.

1. Acronym and name. FORPLAN , FORest PLANning optimization tool

2. Brief description. FORPLAN is a linear programming-based forest planning model. This model allows the user to find the combination of activities and outputs that will maximize or minimize the desired objective, subject to constraints.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	S Network analysis
_ Dynamic programming	P Linear programming	S Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 3.3 (for microcomputer version)
Software package(s): LINDO or C-WHIZ (The Forest Service has a site license for C-WHIZ, and it is available through the Forest Service contact listed below for Forest Service users.)

9. Hardware requirements.

Computer: NCC-KC IBM; IBM or compatible microcomputer
Graphics card: Disk space: 30MB free RAM space: 4MB min.
Math co-processor: Intel or Weitek req. Mouse:
Printer: Plotter:
Other: Recommend 80386+ personal computer. FORPLAN is also available on an IBM workstation in Forest Service Region 1.

10. Documentation/user support available.

_ On-line help	X User's manual	X Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.

K. Norman Johnson/Oregon State University; USDA Forest Service/ Washington Office/LMP

12. For technical information, contact:

Name: Kathy Sleavin Title: Operations Research Analyst
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1833 FAX:
Data General address: K. Sleavin:W04A

13. For acquisition information, contact:

Name: Kathy Sleavin Title: Operations Research Analyst
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1833 FAX:
Data General address: K. Sleavin:W04A
Data General RIS file: W04A:STAFF:LMP:FORPLAN:
V2R14_INTEL:FPEXE_I.EXE (self extracting zip file)

Acquisition charge? X No _ Yes: No charge for USFS users

14. Additional description of tool.

FORPLAN was the primary planning model used in USDA Forest Service planning to examine tradeoffs of various land and resource uses. FORPLAN can be used to assist in implementing forest plans in two ways. The first way is to use FORPLAN to test resource effects and outputs predicted for the Forest Plan. Actual effects and outputs obtained from monitoring can be used as input into the FORPLAN model to analyze tradeoffs and to determine if the Forest Plan is implementable. The second way FORPLAN can be used for implementation is to determine the most efficient harvest pattern and roading network for an area. Concurrently, it can assist in the analysis of resource tradeoffs for an area.
For non-Forest Service user information, contact:

Dr. Larry Davis
University of California, Berkeley
Dept. of Forest and Resource Management
145 Mulford Hall
Berkeley, CA 94720

1. Acronym and name. FORPLAN DATABASE

2. Brief description. The FORPLAN Database loads data from a FORPLAN flat file (version 14+) into Oracle tables. A set of queries to these tables, known as scripts, is available for producing reports.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: _Database application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS; MS-DOS
Software package(s): Oracle

9. Hardware requirements.

Computer: Data General; IBM or campatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: This application can be used with a microcomputer; however, all of the queries do not work correctly on this platform.

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Read me file distributed with application.

11. Principal developer.

Dan Camenson/USDA Forest Service/Washington Office/LMPn

12. For technical information, contact:

Name: Dan Camenson Title: LMP Specialist
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1736 ext. FAX: (303)-498-1660
Data General address: D.Camenson:W04A

13. For acquisition information, contact:

Name: Dan Camenson Title: LMP Specialist
Address: USDA Forest Service, Washington Office
3825 East Mulberry
Fort Collins, CO 80524
Telephone: (303)-498-1736 ext. FAX: (303)-498-1660
Data General address: D.Camenson:W04A
Data General RIS file: STAFF:LMP:FORPLAN:UTILITIES:
ORACLEZIP.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The FORPLAN database can be used for a variety of implementation tasks including scheduling projects, monitoring, and predicting cumulative effects from planned activities. It transfers the FORPLAN solution into a format that can be more readily used. The FORPLAN database creates 17 normalized database tables from a FORPLAN relational flat file. These tables are further defined in the Read me file found with the documentation. Having the FORPLAN solution information in a database increases the ability to analyze the solution and extract relevant information. The RIS file is a self-extracting zip file; once it is moved to a microcomputer, simply type ORACLEZIP and the necessary files are created.

1. Acronym and name. FORSOM, Forest Simulation-Optimization Model

2. Brief description. FORSOM is a spreadsheet-based model for examining the implications of various harvest scheduling strategies. Model components are based on cover types (e.g., jack pine, aspen, red pine, etc.) and PATREC (i.e., wildlife) models

3. Geographical level of analysis (P = primary and S = secondary).

_S_ Forestwide _P_ Subforest area _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_P_ Resource scheduling
_S_ Cumulative effects	_ Logging systems	_ Spatial
_S_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_S_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_P_ Timber	_S_ Wildlife
_ Fire	_ Range	_S_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application _X_ Spreadsheet application
_ GIS application _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_S_ Linear programming	_P_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 2.01 or later
Software package(s): Lotus 1-2-3, version 2.0 or later; can also be used with What's Best! for linear programming and with @RISK for Monte Carlo simulation.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above
Graphics card: Yes Disk space: Hard drive RAM space: 640KB+
Math co-processor: Preferred for speed Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	_ User's manual	_X_ Publications
_ Updates	_X_ Training	_X_ Telephone support
_ Other:		

11. Principal developer.

Larry Leefers/Michigan State University

12. For technical information, contact:

Name: Larry Leefers Title: Associate Professor
Address: Department of Forestry, Michigan State University
126 Natural Resources Building
East Lansing, MI 48824-1222
Telephone: (517)-355-0097 ext. FAX: (517)-336-1143
Data General address:

13. For acquisition information, contact:

Name: Larry Leefers Title: Associate Professor
Address: Department of Forestry, Michigan State University
126 Natural Resources Building
East Lansing, MI 48824-1222
Telephone: (517)-355-0097 ext. FAX: (517)-336-1143
Data General address:
Data General RIS file:

Acquisition charge? _ No _X_ Yes:

14. Additional description of tool.

FORSOM is used to create a model of a forested area by combining components for existing cover types (oak, white pine, upland openings, etc.). For forest types, acres by age class are entered and conversion/succession are identified in the spreadsheet template. Then, acres harvested by age class and rotation age are entered. Results are presented in terms of future harvest acres and volumes, future age-class distributions, and economics. The age-class data may be linked with wildlife models. District personnel are expected users. Lotus 1-2-3 or Quattro Pro experience is needed for easy adoption. The components are designed for a 5-decade planning horizon. Components vary by vegetative type, rotation lengths, number of age classes, harvest method, availability of thinnings, type conversions, and existence of successional pathways. What's Best! (LINDO Systems, Inc.) can be used to create linear-programming based harvest scheduling models with the templates. @RISK (Palisades Corporation) can be used to develop Monte Carlo simulations by specifying appropriate probability distributions for various model inputs (volumes, costs, etc.). FORSOM has been used for state forest planning in Michigan and for area analysis.

1. Acronym and name. FPM, Fire and Pest Protection Forest Modeling Problem

2. Brief description. FPM calculates optimal regeneration harvest and pest protection schedules by age and species, taking into account fire risk that produces a desired wood quantity over time, at maximum discounted net profit.

3. Geographical level of analysis (7 = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
_ Fisheries
_ All resources
S Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
S Other: Stochastic
_ Integer programming
P Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): GAMS (Generalized Algebraic Modeling System) - can be obtained from the Scientific Press, California.

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Yes Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Richard Moll/Statistics Canada

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Telephone: (613)-951-3741 ext. FAX: (613)-951-8093
Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

FPM is a linear programming model developed to economically evaluate alternative regimes for protection spraying of susceptible forest tree species against insect infestations, and for analyzing alternative harvesting strategies that include conversion of susceptible species to non-susceptible species by planting. These strategies are evaluated, subject to catastrophic loss due to fire. The forest harvest scheduling model was developed to determine optimal timber regeneration harvest and pest protection schedule that produces a specified wood quantity in the presence of fire and insect infestation risk at maximum net profit.

1. Acronym and name. GIS/FORPLAN , Using GIS to Build FORPLAN Input Files

2. Brief description. Workstation Arc/Info is used to develop analysis area and zone data for PC-FORPLAN, a linear programming model used for land management planning.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | P Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
S All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | S Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: GIS application

8. Supporting software requirements.

Operating system: UNIX; DOS
Software package(s): Workstation Arc/Info; PC-FORPLAN

9. Hardware requirements.

Computer:
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | X Telephone support
_ Other:

11. Principal developer.

Don Norris/USDA Forest Service/Francis Marion and Sumter National Forests

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: D.Norris:R08F12A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Individual analysis area identifiers (levels 1-6) are associated with timber stand and soil polygons in GIS. Through re-definition of these six, two-digit identifiers into a single 12-digit identifier in INFO, analysis areas and zone components are determined and summarized. These are then converted to MS-DOS format and moved to the PC for direct use as input files to FORPLAN. This application is specific to the Francis Marion and Sumter National Forests, but conceptually may be of interest to others.

1. Acronym and name. GISFORMAN

2. Brief description. GISFORMAN is a stand-based, spatial forest inventory projection (wood supply) model, based on the aspatial FORMAN model.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | P Resource scheduling
S Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | S Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
S Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: UNIX (SUN OPS version 4.0)
Software package(s): ARC/INFO version 5.0.x with object code and FORTRAN compiler (77 standard). Provided as source code only.

9. Hardware requirements.

Computer: SUN workstation or mainframe
Graphics card: Disk space: <1MB RAM space: 8MB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
X Other: Unsupported

11. Principal developer.

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13. For acquisition information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

GISFORMAN is a management plan strategy "tester" for forest managers. Inputs are via INFO files. Stand-by-stand output is available, as well as period-by-period summary of forest conditions and treatment actions. It has a simulation horizon of 20 periods and considers adjacency delay (green-up period) between cutblocks. Querying of harvest blocks can be based on all FORMAN rules as well as block-based attributes (e.g. block volume/ha and potential mortality). Wildlife habitat is calculated by period. Requirements include stand list, yield curve file, treatment cost file and neighborhood polygon list. There are some supporting modules that are available. Please note that GISFORMAN is the result of graduate work and has not been thoroughly tested as a piece of robust software. It is available as public domain in source code form, primarily to facilitate its being cannibalized.

1. Acronym and name. HARV, Harvest Opportunity

2. Brief description. HARV is a GIS process that calculates the maximum allowable harvest for an area, with constraints placed on different layers.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
S All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
X GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: GIS application
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): MOSS (or any GIS package)

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
_ User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This method of calculating timber harvest is constrained by multiple geographical resource layers. Constraints are limited by a maximum of five layers at one time. Data is extracted from MOSS into a R2 map format for use in the program. It produces a raster map of the age of timber and a file with harvest acres by geographical resource layers. HARV is a Gifford Pinchot product, which may be of conceptual interest to others, but may not lend itself easily to application on other forests.

1. Acronym and name. HSG, HSG Wood Supply Model

2. Brief description. HSG is a spatially explicit, timber-management simulation model, with links for wildlife habitat and biodiversity forecasting. It operates on large data sets (30,000+ stands) over long time frames (50 to 200 years).

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | _ Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | P Resource scheduling
S Cumulative effects | _ Logging systems | S Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | S Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | S Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | S Wildlife
_ Fire | _ Range | S Vegetation | _ Wilderness
_ Fisheries | S Recreation | S Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | P Simulation
S Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: UNIX; DOS
Software package(s): Requires a relational database and GIS software. It is not specific to any vendor.

9. Hardware requirements.

Computer: SUN; IBM or compatible microcomputer 80386 or above
Graphics card: Yes | Disk space: Extensive
RAM space: Extensive
Math co-processor: Helpful | Mouse:
Printer: | Plotter:
Other: Requires great CPU for large data sets (>1,000,000 ha.)

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | _ Training | _ Telephone support
X Other: Training and support available soon

11. Principal developer.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

HSG is a general purpose, forest inventory projection model and HSI calculator with links to a GIS. It can be used to simulate growth, decline, ecological succession, and response to management treatments. It includes a simple, easy tool for building HSI models. Results of simulation can be interactively displayed as tables, histograms, or maps (when used with a GIS such as IDRISI or ARC/INFO). The tool would be used in a management design process to explore and evaluate alternate management regimes under a variety of assumptions of growth, succession, and response to management treatments. Output consists of proposed treatment schedules, inventory projections, and summary data.

1. Acronym and name. IFPS, Integrated Forestry Planning System

2. Brief description. IFPS is a modeling system designed to ensure consistency between long- and short-term Forest Plans (strategic, tactical, and operational).

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide	S Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	S Logging systems	S Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	S Wilderness
_ Fisheries	S Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	P Linear programming	S Simulation
S Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS 2.0 or later
Software package(s): Harvest Scheduling Model; CRYSTAL; BALL; OP-PLAN; GIS recommended

9. Hardware requirements.
Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help	_ User's manual	X Publications
_ Updates	_ Training	_ Telephone support

X Other: Will discuss system with any interested parties.

11. Principal developer.
Karl Walters, Ted Robak, and Mark Jamnick/University of New Brunswick/Advanced Resource Management Systems (ARMS) Group

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.
This system is an integrated package consisting of a harvest scheduling model, a harvest blocking model, an adjacency model, and an operational planning model, all linked by a common GIS database.

1. Acronym and name. MAGIS, Multi-Resource Analysis and Geographic Information System

2. Brief description. MAGIS is designed for analyzing when and where to conduct land management activities and road construction/ reconstruction projects on watershed-sized areas.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide	P Subforest area	S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	S Logging systems	S Spatial
S Economic/Financial	_ Monitoring	S Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	S Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
X GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	P Network analysis
_ Dynamic programming	S Linear programming	S Simulation
P Heuristic process	P Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.
Operating system: DOS 4.2 or later
Software package(s): MPSIII/pc version 1.1 or later; PAMAP (optional); SPS (Stand Projection System)

9. Hardware requirements.
Computer: IBM or compatible microcomputer 80386 or above
Graphics card: EGA Disk space: 200MB RAM space: 8MB
Math co-processor: Yes Mouse: Optional
Printer: Plotter:
Other:

10. Documentation/user support available.
_ On-line help _ User's manual _ Publications
_ Updates _ Training _ Telephone support
X Other: Support materials are in the process of being developed.

11. Principal developer.
Hans Zuuring/University of Montana/School of Forestry; Greg Jones/USDA Forest Service/Intermountain Research Station; Will Wood/Montana Department of State Lands

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13. For acquisition information, contact:
Name: Software not yet available. Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.
MAGIS is a system for analyzing when and where to conduct land management activities and road construction and reconstruction projects. It is designed for conducting tactical planning on watershed-sized areas (up to approximately 50,000 acres in size). The analysis is geographically-specific and can handle up to five time periods. Economic, financial, and biological issues and objectives can be addressed. Although MAGIS was designed as an optimization tool, simulation options are available and are useful for addressing "what if" questions. Input data in the form of attributes for polygons and road segments can originate in the GIS environment, or can be developed via other means and imported. The Stand Projection System software is accessed by MAGIS for making timber growth and yield projections. MAGIS output options include reports, graphs, and database files that can be easily imported into the GIS environment for display or further analysis.

1. Acronym and name. MIDAS, Malheur Implementation Data Analysis System

2. Brief description. MIDAS is a method of using relational databases to compare forest data and projections with forest-wide FORPLAN projections at the watershed level. A key element is the re-creation of inventory classes from the attributes within the TRI database where there is no current mapping.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	_ Logging systems	S Spatial
_ Economic/Financial	S Monitoring	_ Transportation
_ Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	S Water
_ Cultural	_ Minerals	P Timber	S Wildlife
S Fire	_ Range	S Vegetation	_ Wilderness
S Fisheries	_ Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database application		

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Paradox 3.0 or later

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: Any | Disk space: 20MB min
RAM space: 2MB min
Math co-processor: | Mouse:
Printer: | Plotter:
Other:

10. Documentation/user support available.

_ On-line help | _ User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
X Other: None at this time - system is still under development. Expected completion in 3 to 6 months.

11. Principal developer.

Pete Lindley/USDA Forest Service/Malheur National Forest

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Data General address: P.Lindley:R06F04A
Data General RIS file: Not yet available. Will be supplied later if there is any interest.

Acquisition charge? X No _ Yes: (Portions may be exempt under FOIA)

14. Additional description of tool.

This is not a generic, easily transferable package, but rather an analysis approach that would have to be tailored and adapted for each forest. For example, the logic for the script to derive inventory classes would be different for each forest. We can make available what we have done as a pattern for others to follow. It will be necessary for users to have some programming skill in Paradox Applications Language, or its equivalent. This approach would allow administrative units to package data into logical sets for use in project-level analysis and planning, as well as in district-wide summaries (for upward reporting and/or Forest Plan implementation monitoring). This is currently geared toward testing timber supply questions at the district and forest-wide levels, but could easily connect to watershed, ecosystem, and cumulative-effects testing. Future uses would necessarily be as a database for predictive quantitative work, specifically timber growth, wildlife habitat, and visual quality objectives. The intent is to be able to tie to, and review, desired future conditions.

1. Acronym and name. OP-PLAN, Forest Operation Planning Decision Support System (version 3.3)

2. Brief description. OP-PLAN is used to plan harvesting, roads, wood transportation, stand establishment, and support operations. It provides managers with budgets, product costs, schedules, and logistics for plan alternatives.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | P Resource scheduling
_ Cumulative effects | S Logging systems | _ Spatial
_ Economic/Financial | _ Monitoring | S Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | P Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
S All resources | _ Not applicable | S Other: Human/equipment

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | S Network analysis
_ Dynamic programming | S Linear programming | P Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.3 or later
Software package(s): Compiled Clipper 5.1 is used by the developer, but is not required by the user. An xBase interpreter may be useful.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Various Disk space: 2MB RAM space: 1MB
Math co-processor: Mouse:
Printer: Various Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
X Other: Requires custom modification

11. Principal developer.

FORCE/Robak Associates Ltd.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Managers/analysts can use OP-PLAN to quickly develop cut-area based plans and consolidate them at the district, regional, or forest-wide levels. OP-PLAN provides users with information concerning the costs of machines, systems, and products at the area level or above, as well as information concerning volumes and system usage resulting from any set of decisions. Once default machine and system cost and productivity data are entered by the user, they can be used to develop integrated (harvesting, wood transport, roads, stand establishment, and support) forest-operation plans, and modify them using sensitivity analysis at any level of detail—from the way a machine is used in a particular area to decisions at the corporate or forest-wide level. OP-PLAN is now being used to provide input for LP solvers and Network Analysis tools.

1. Acronym and name. PC-MUSYC, Multiple Use Sustained Yield Calculation

2. Brief description. PC-MUSYC is a forest-level, timber management, optimization model.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	P Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 3.0 or later; UNIX (SUN OS version 4.1)
Software package(s): Users will need a linear programming solution package. (We use LPS.)

9. Hardware requirements.

Computer: IBM or compatible microcomputer; SUN workstation
Graphics card: Disk space: 640KB RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other: The LP package will usually define the system requirements.

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
X Updates	_ Training	X Telephone support
_ Other:		

11. Principal developer.

Forestry Canada

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This is a personal computer version of the MUSYC model, as developed by Johnson and Jones (1979) for the USDA Forest Service.

1. Acronym and name. R3 OPTIMIZING SPDS, R3 Optimization Spreadsheet for Vegetative Structural Stage Distribution

2. Brief description. This spreadsheet is an LP formulation for a goal programming approach, in which at least one of the target goals is to reach a particular vegetative structural stage (VSS) distribution over a specified period of time.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
S Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
S Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
S Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
X Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
P Multiobjective programming
_ Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): Quattro Pro or Lotus 1-2-3 (any version); LINDO (any version); Either your own computer program to re-format the spreadsheet into an equation file for LINDO or SARA (see form on SARA)

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8088, 80286, or PS/2
Graphics card: Yes Disk space: 100MB RAM space: 2MB min.
Math co-processor: Required Mouse: Optional
Printer: Any supported by spreadsheet Plotter: Any supported by spreadsheet
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _ Publications
_ Updates _ Training X Telephone support
X Other: Further info on the SARA system is available via user's manual.

11. Principal developer.

Cathy Dahms/USDA Forest Service/Southwest Region

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Telephone: (505)-842-3216 ext. FAX: (505)-842-3800
Data General address: C.Dahms:R03A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This approach can be used at various levels of planning. An advantage of a spreadsheet approach is that resource specialists and the public can easily be shown how the model is constructed and can provide feedback. Changes can be made on the spot and alternatives run during meetings. Using the spreadsheet with SARA has additional benefits: alternatives can be brought back into a spreadsheet for comparison, as well as providing the opportunity to generate graphics for presentations and documentation. This particular spreadsheet template models a vegetative structural stage distribution representing a desired future condition. The Southwest Region used this template to determine how close we could come to the desired vegetative structure for the northern goshawk. Any of the vegetative structure classes can be weighted for importance, or an allowable deviation can be specified in conjunction with another objective function. There is the flexibility to add other resource concerns for the area being modeled. The columns (decision variables) are strata, prescription, period combinations, and amounts over and under each of the target VSS goals. Rows include tracking VSS, timber information, constraints, and total deviation from target.

1. Acronym and name. R6 PROGRAM LIBRARY, R6 FORPLAN Utilities

2. Brief description. These microcomputer-based utilities are designed to assist in building and interpreting FORPLAN models and data.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: Database applications
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): A relational database program (e.g. Paradox Oracle, Foxbase) is essential for practical use. PKZIP and PKUNZIP are necessary to download the programs (R06A:STAFF:PEA:MERZ:PROGRAMS:PKZ110.EXE).

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: VGA Disk space: 10MB RAM space: 1MB
Math co-processor: 80387 Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates _ Training X Telephone support
_ Other:

11. Principal developer.

Jim Merzenich/USDA Forest Service/Pacific Northwest Region

12. For technical information, contact:

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Data General address: J.Merzenich:R06A
Data General RIS file: R06A:STAFF:PEA:MERZ:PROGRAMS:ALLFORP.EXE (self-extracting zip file)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

These programs open up the world of databases as applied to forest planning. These include programs for converting the identifiers, analysis area, AP prescription source, harvest source, zone, and yield data to an ASCII delimited format for import into databases or spreadsheets. Programs that build the FORPLAN input from a database (ASCII) format are also available. A document describing all programs in the library can be obtained from J.Merzenich:R06A.

1. Acronym and name. SAM , Spatial Approximation Model

2. Brief description. SAM is a FORMAN-based simulation model with age-class profile constraints, applicable for large scale, strategic planning. Spatial constraints are approximated by constraining the residual age-class structure.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
S Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 5.0
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80486
Graphics card: VGA Disk space: 10MB RAM space: 3MB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | X Publications
_ Updates | X Training | _ Telephone support
_ Other:

11. Principal developer.

John Nelson/University of British Columbia

12. For technical information, contact:

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The model is used for strategic forest planning and uses age-class constraints to control the rate and dispersion of harvests. The desired age-class profile of the residual forest can be used to approximate spatial constraints such as adjacency and exclusion periods. In addition, old growth reserves and thermal cover constraints can be met through the application of age-class profile constraints. An optional transportation and costing module can be used to track development of the major transportation network and delivered wood costs. The model supports a range of silvicultural options, including thinnings and shelterwood systems.

1. Acronym and name. SARA, Spreadsheet Assisted Resource Analysis (version 1.0)

2. Brief description. SARA is a spreadsheet-based matrix generator and report-writer software for analysis of land management and other problems by mathematical programming.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	S Logging systems	S Spatial
S Economic/Financial	_ Monitoring	S Transportation
S Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | X Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	S Integer programming	S Network analysis
_ Dynamic programming	P Linear programming	S Simulation
_ Heuristic process	S Mixed-integer programming	_ Statistical
_ Input/Output analysis	S Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): Linear programming solver: LINDO 387, C-WHIZ or other spreadsheet; Quattro 5.0, Lotus 1-2-3 version 2.x or equivalent

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or 80486
Graphics card: Disk space: 100MB RAM space: 4MB
Math co-processor: Yes Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help | X User's manual | _ Publications
X Updates | X Training | _ Telephone support
X Other: User will receive source code 12/92.

11. Principal developer.

Lawrence S. Davis, et.al./University of California, Berkeley/Dept. of Forestry and Resource Management

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145 Mulford Hall
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Telephone: (510)-642-6489 ext. FAX: (510)-643-5438
Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

This is a general purpose, easy-to-learn and communicate support system for analysis by mathematical programming. There is no language to learn, and virtually no "rules" to follow. Application templates for several applications are available including: 1) Mendocino County Forest Practice rules development and application study; 2) Klamath province bio-regional model for evaluation of alternative spotted owl restoration plans; 3) Hoopa Indian Reservation forest planning model; 4) Blodgett forest stand and watershed specific forest planning model; and 5) several agro-forestry formulations. Most of these models recognize commodities, economics, ecological dynamics, and various social impacts. Model sizes run to 5,000 columns and 1,000 rows. There is no real limit on size. Several related programs are available for producing resource yield data.

1. Acronym and name. SDP, Spatial Disaggregation Process

2. Brief description. This process distributes a scheduled activity to subareas of a national forest, while considering the standards and guidelines that apply. SDP is designed to be used iteratively with FORPLAN to develop an implementable harvest schedule.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
S Resource effects/Production
P Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
P All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS required for graphical interface
Software package(s): Relational database program (Paradox, Oracle, Foxbase, etc.). A "screen-capture" program is also very helpful (e.g. PIZAZZ Plus).

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: VGA Disk space: 10MB RAM space: 4MB
Math co-processor: 80387 Mouse: MicroSoft compatible
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
X Updates _ Training X Telephone support
X Other: Manuals are mailed after the program is RISed.

11. Principal developer.

Klaus Barber/USDA Forest Service/Pacific Southwest Region; Dick Dyrland and Jim Merzenich/USDA Forest Service/Pacific Northwest Region; Richard Church/University of California (graphic interface program)

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Data General RIS file: R06A:STAFF:PEA:MERZ:PROGRAMS:SDPALL.EXE (self-extracting zip file)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

SDP serves as a bridge to project analysis. A graphic support system provides a clear understanding of resource relationships to land managers. This is the key for determining a realistic harvest level for forest planning. It is the first step of plan implementation. While existing case examples involve timber, wildlife, and watersheds, this process could be used to model any activity. Currently, SDP can only analyze one period at a time.

1. Acronym and name. SNAP II+, Scheduling and Network Analysis Program

2. Brief description. SNAP is used to find spatial harvest scheduling solutions for strategic plans. SNAP considers adjacency rules, habitat connections, and seral stage distributions over a maximum of four periods. SNAP also considers tradeoffs between road investments, road transport, and harvesting costs.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
_ Resource effects/Production
P Resource scheduling
S Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
S Recreation
_ Not applicable
S Soils
P Timber
S Vegetation
S Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
S Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or above
Graphics card: EGA/VGA Disk space: 2MB RAM space: 4MB
Math co-processor: Intel Mouse: Yes
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates X Training X Telephone support
_ Other:

11. Principal developer.

John Sessions and Julian B. Sessions/Oregon State University/Dept. of Forest Engineering

12. For technical information, contact:

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13. For acquisition information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file: STAFF:SNAP:SNAP200.EXE
Utility programs in object SNAPX.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The SNAP program requires coordinate information and resource information by logical management units (polygon), and a description of the existing and potential transportation system. The Forest Service uses LT-Plus to pass information from MOSS to SNAP. The capacity of SNAP is 1,000 polygons and 2,500 road segments, with a maximum of four time periods. SNAP identifies spatially feasible harvest patterns, subject to various types of adjacency, seral stage, silviculture, and polygon attribute constraints. Output from SNAP is graphical and tabular.
For information, non-Forest Service users contact:

Dr. John Sessions
Oregon State University
Forest Engineering Department
Corvallis, OR 97331-5706
(503) 737-2818 FAX: (503) 737-2668

1. Acronym and name. SS-SMART

2. Brief description. SS-SMART implements timber harvest schedules with flow constraints and adjacency constraints, over several regeneration cycles. It permits riparian restriction. It converges to a high-valued or optimal integer solution.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
P Resource scheduling
S Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
S Soils
P Timber
S Vegetation
S Visual/Esthetics
_ Other:
S Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
P Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.1 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Disk space: RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

Atushi Yoshimoto and Doug Brodie/Oregon State University

12. For technical information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Two articles are also available.

1. Acronym and name. TEAMS, Terrestrial Ecosystem Analysis and Modeling System

2. Brief description. TEAMS is an integrated, geographical information system, ecological and multiresource simulation, and goal-seeking system for natural resource management decision support.

3. Geographical level of analysis (P = primary and S = secondary).

_S_ Forestwide
_S_ Subforest area
_P_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_S_ Cumulative effects
_S_ Economic/Financial
_S_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_S_ Resource effects/Production
_P_ Resource scheduling
_S_ Spatial
_ Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_S_ Fire
_ Fisheries
_P_ All resources
_ Insect/Disease
_ Minerals
_S_ Range
_S_ Recreation
_ Not applicable
_ Soils
_S_ Timber
_S_ Vegetation
_S_ Visual/Esthetics
_ Other:
_S_ Water
_S_ Wildlife
_ Wilderness

6. Type of tool.

_X_ Database application
_X_ GIS application
_X_ Spreadsheet application
_X_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_S_ AI/Expert systems
_S_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_P_ Other: Hierarchical sys. modeling
_S_ Integer programming
_S_ Linear programming
_S_ Mixed-integer programming
_S_ Multiobjective programming
_ Network analysis
_S_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS; OS/2; or UNIX
Software package(s): ARC/INFO; ARC/GRID; ECOSIM; WINGZ; LINDO; SPANS; Informix DBMS

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386; SUN; or VAX
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual _X_ Publications
_ Updates _ Training _ Telephone support
_ Other:

11. Principal developer.

W.W. Covington, D.B. Wood, and S.M. Dewhurst/Northern Arizona University/School of Forestry

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13. For acquisition information, contact:

Name: Title:
Address:

Telephone: ext. FAX:
Data General address:
Data General RIS file:

Acquisition charge? _ No _ Yes:

14. Additional description of tool.

TEAMS is a decision support system that is a research and development prototype used by university researchers and cooperators. It consists of integrated components: GIS, tree growth simulation, ecological simulation, multi-resource simulation, spreadsheet, and mathematical programming modules. It is designed as a flexible system for facilitating access to these modeling approaches by interdisciplinary natural resource analysts and mangers. The system is used to discover the kinds of systems' analytical technology needed for supporting cumulative effects of natural resource management decisions. TEAMS is not available for acquisition.

1. Acronym and name. TRIM+, TRIM+ Enhanced

2. Brief description. TRIM+ is a harvest scheduling model in use for the Bureau of Land Management and Bureau of Indian Affairs.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
S Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting
_ Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
P Resource scheduling
_ Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
S Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
S Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS
Software package(s): FORTRAN V; Lotus 1-2-3

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80486
Graphics card: Yes Disk space: 40MB RAM space: 8-10MB
Math co-processor: Yes Mouse:
Printer: Yes Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training X Telephone support
_ Other:

11. Principal developer.

Richard LaMont and Phil Tedder/Resource Economics Inc.

12. For technical information, contact:

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Data General address:

13. For acquisition information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

TRIM+ is used for timber scheduling at the various geographic levels.

1. Acronym and name. WOODSTOCK, Forest Dynamics and Management Simulation System

2. Brief description. WOODSTOCK is a forest management and forest dynamics simulation system suitable for harvest scheduling.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	P Resource scheduling
S Cumulative effects	_ Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
S Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
P All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
_ GIS application	X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	P Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Hercules** Disk space: 130KB
RAM space: 256KB
Math co-processor: Mouse:
Printer: Plotter:
Other: **EGA/VGA; 640KB RAM space recommended

10. Documentation/user support available.

_ On-line help	X User's manual	_ Publications
X Updates	X Training	X Telephone support
_ Other:		

11. Principal developer.

Ugo Feunekes/R/EMS Research Ltd.; Mark Jamnick and Karl Walters/University of New Brunswick/Dept. of Forest Resources

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

WOODSTOCK is a forest management, simulation modeling system. It is capable of both deterministic and stochastic simulation (i.e., random events). It can be used as a binary-search algorithm for max/min type objectives. Inputs are standard, strata-based information (area information, yield data, cost data, etc.). Outputs include runtime graphics, user-defined activity/output reports in ASCII or Lotus 1-2-3 formats. Activities, outputs, and analysis areas are all user defined, subject to the following limits: up to 20 yield components per development type, up to 10 transitions per development-type specification, and up to eight levels of identifiers. There are not fixed limits, because the program has been developed using object-oriented techniques, and data structures are dynamically allocated at run time. A customized version is available.

Spatial

1. Acronym and name. ATLAS, A Tactical Landscape Analysis System

2. Brief description. ATLAS is a multiple rotation, spatially explicit, block scheduling, and road network analysis program.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
S Resource effects/Production
S Resource scheduling
P Spatial
S Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
S Visual/Esthetics
_ Other:
S Water
S Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
S Network analysis
S Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 5.0
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80486
Graphics card: VGA Disk space: 10MB RAM space: 4MB
Math co-processor: Mouse: Yes
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training _ Telephone support
_ Other:

11. Principal developer.

John Nelson/University of British Columbia/Forest Operations Research Group

12. For technical information, contact:

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13. For acquisition information, contact:

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Data General address: E-mail: john_nelson@unixg.ubc.ca
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The model is used for detailed analysis at the watershed level. Block size, adjacency rules, exclusion periods, and forest cover constraints can be explicitly modeled. Graphics provide displays of scheduling solutions. Road networks are included in the model. ATLAS is useful for analyzing integrated resource scheduling and allocation choices at the watershed level.

1. Acronym and name. CRYSTAL, Harvest Scheduling Allocation Model

2. Brief description. CRYSTAL generates contiguous harvest blocks based on strata-based harvest schedules, subject to block size and temporal deviation limits.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	_ Logging systems	P Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	S Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application	_ Spreadsheet application
X GIS application	_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
P Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): dBASE or compatible DBMS for creating input files

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: 200KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help _ User's manual X Publications
X Updates _ Training _ Telephone support
X Other: Model is still under development, but limited number of beta releases may be available.

11. Principal developer.

Karl Walters/University of New Brunswick/ARMS Group

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13. For acquisition information, contact:

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

Using stand topological data from GIS, CRYSTAL disaggregates strata-based harvest schedules, forming contiguous, economically feasible harvest chances. The model is designed to allocated schedules in different patterns while attempting to minimize timing choice deviations from the original harvest schedule. The alternative blocking patterns can be entered to BLOCK for final scheduling, to address adjacency and harvest flow/harvest cost objectives. The primary usefulness of CRYSTAL is to rapidly generate spatially feasible harvest chances that closely approximate the intent of the strategic harvest schedule.

1. Acronym and name. PREPTER, Prepare Terrain File Program

2. Brief description. This utility program will convert a MOSS export format vector-contour line file into a format that can be downloaded to an IBM or compatible microcomputer, and used with the New Perspectives (NEWPER) three-dimensional plotting and analysis program.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | P Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | P Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: GIS application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): NEWPER ver. 1 or 2.2, MOSS or other GIS package to generate contour line files in MOSS format; CEO_CONNECT (or other software to connect Data General with a PC, NEWPER is a PC program)

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | _ User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Dan Thompson/USDA Forest Service/Kootenai National Forest

12. For technical information, contact:

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Data General address: D.Thompson:R01F14A
Data General RIS file: STAFF:PLNG:RIS:NEWPER:PREPTER.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This tool is used to facilitate conversion of elevation data, originally derived from DEMs, from one format to another, in order to avoid digitizing contour lines. The actual analysis work is done with the New Perspective program available from Visual Simulations Inc., of Hubbard, Oregon. It is an aid to help in implementation of individual projects requiring analysis of effects to the visual resource.

1. Acronym and name. RM SPATIAL ANALYSIS

2. Brief description. This program analyzes the spatial characteristics of mapped attributes. These attributes could be land types, vegetation types, soil types, etc.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	_ Resource scheduling
S Cumulative effects	_ Logging systems	P Spatial
_ Economic/Financial	_ Monitoring	_ Transportation
S Ecosystem	S Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	S Soils	_ Water
_ Cultural	_ Minerals	_ Timber	S Wildlife
_ Fire	_ Range	P Vegetation	_ Wilderness
_ Fisheries	_ Recreation	S Visual/Esthetics	
_ All resources	_ Not applicable	_ Other:	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	P Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: DOS 4.1 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or 80486
Graphics card: VGA Disk space: 100MB RAM space: 4MB
Math co-processor: 80387 Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
X Other: Note: user's manual has not been published yet.

11. Principal developer.

Curtis H. Flather and Robert McNeal/USDA Forest Service/Rocky Mountain Forest and Range Experiment Station

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Data General address:

13. For acquisition information, contact:

Name: Curtis H. Flather Title: Research Wildlife Biologist
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Range Exp Station
240 West Prospect Street
Fort Collins, CO 80526
Telephone: (303)-498-1869 ext. FAX: (303)-498-1660
Data General address: C.Flather:S28A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

RM Spatial Analysis can be used for environmental analysis of biodiversity and landscape ecology (patterns and processes of a landscape). The program takes raster data in whatever categories the user defines: ecological classifications, successional stages, timber types, soils, landtypes, etc. Also the size of the area to analyze and the size of the pixels are user-defined. Outputs are tabular and graphic data of information such as proportions, amount of edge, number and size of patches, diversity, contagion, dominance and fractal dimension. Analysis can be performed for one or several areas.

1. Acronym and name. TOPPS, Topological Polygon/Point Overlay System (version 1)

2. Brief description. This program will read files in MOSS export format and perform an intersection. Currently, it will work only with a polygon file and a file of single points. It was designed to associate point observations of grizzly bears with vegetation types.

3. Geographical level of analysis (P = primary and S = secondary).

_S_ Forestwide _P_ Subforest area _S_ Project

4. Purpose of analysis (P = primary and S = secondary).

__ Budgeting
_S_ Cumulative effects
__ Economic/Financial
__ Ecosystem
__ Legal documentation
__ Logging systems
__ Monitoring
_S_ Resource effects/Production
__ Resource scheduling
_P_ Spatial
__ Transportation
__ Other:

5. Resource or function (P = primary and S = secondary).

__ Air
__ Cultural
__ Fire
__ Fisheries
_S_ All resources
__ Insect/Disease
__ Minerals
__ Range
__ Recreation
__ Not applicable
__ Soils
__ Timber
__ Vegetation
__ Visual/Esthetics
__ Other:
__ Water
_P_ Wildlife
__ Wilderness

6. Type of tool.

__ Database application
_X_ GIS application
__ Spreadsheet application
_X_ Computer program

7. Modeling techniques (P = primary and S = secondary).

__ AI/Expert systems
__ Dynamic programming
__ Heuristic process
__ Input/Output analysis
_P_ Other: GIS application
__ Integer programming
__ Linear programming
__ Mixed-integer programming
__ Multiobjective programming
__ Network analysis
__ Simulation
_X_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): GIS package to generate data files and view graphic results (program developed to work with MOSS) and PRESENT program to query output files for intersection results.

9. Hardware requirements.

Computer: Data General MV Series
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_X_ On-line help __ User's manual __ Publications
__ Updates __ Training _X_ Telephone support
__ Other:

11. Principal developer.

Dan Thompson/USDA Forest Service/Kootenai National Forest

12. For technical information, contact:

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Data General address: D.Thompson:R01F14A

13. For acquisition information, contact:

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Telephone: (406)-293-6211 ext. 2319 FAX:
Data General address: D.Thompson:R01F14A
Data General RIS file: Call for information.

Acquisition charge? _X_ No __ Yes:

14. Additional description of tool.

This tool does spatial analysis for points and polygons by performing an intersection. Two input files are required; one of polygons, and one of points. Two files are prepared by the program. The first is a file of coordinate values that intersect the polygons. Designation of the intersection is made by adding the label of the intersecting polygon to that of the point within the polygon. This file is in MOSS format, so it may be viewed using several GIS systems. The second file produced is a ASCII text file that lists each intersected point with the polygon that intersected it. This file can be opened in any database system for numeric analysis. Input files must be in MOSS export format prior to processing. There are no limits to the number of polygons or points involved in the intersection. There is a limit of 1,000 coordinates per polygon in the standard version, but this can be increased in a custom version if needed. Testing has shown the program will accurately capture points for a polygon of almost any shape. A runstream generator and facilities for batch processing have been included.

1. Acronym and name. UTOOLS, UTOOLS: UCell, UMap, and UPlot

2. Brief description. UTOOLS is software for analysis and display of GIS-derived data. It consists of three programs: UCELL to convert vector coordinate sets of GIS polygons into a raster database, UMAP to create a screen of database rasters/GIS polygons, and UPLOT to plot GIS polygons/ images from UMAP.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | S Subforest area | P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | P Spatial
_ Economic/Financial | _ Monitoring | _ Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
P All resources | _ Not applicable | _ Other:

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Graphics display

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s): Paradox 3.0 or later; UTOOLS capabilities are more limited without Paradox. GIS files exported in MOSS export format are primary source of input data.

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above
Graphics card: Optional Disk space: 10MB RAM space: 512KB
Math co-processor: Optional Mouse: Optional
Printer: Plotter: HPGL language plotters
Other: VGA monitor for UMAP

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
X Updates _ Training X Telephone support
X Other: Example data sets and documentation

11. Principal developer.

Alan Ager/USDA Forest Service/Umatilla National Forest; Mark Hitchcock/Sedro Woolley

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Data General address: W.Connelly:R06A
Data General RIS file: R06A:STAFF:PEA:MERZ:PROGRAMS: to RIS UTOOLS.EXE and UXMPLES.EXE; or from the Ft. Collins Info Center in UTOOLS folder

Acquisition charge? X No _ Yes:

14. Additional description of tool.

UTOOLS has ability to convert up to 28 GIS layers (in MOSS export format) into a single Paradox database table, with each record representing a single raster. Analysis can be performed in Paradox, and results displayed with the UMAP program. UMAP can also display polygons, lines or points from MOSS export files. UMAP images can be saved and recalled as disk files, plotted with UPLOT, or exported for further analysis in the HEI (Habitat Effectiveness Index) or DISPLAY programs. UMAP can also be used for buffer analysis.

Transportation

1. Acronym and name. DG-NET4T, Data General Network Analysis Program

2. Brief description. DG-NET4T is a network analysis program for analyzing the minimum cost of transporting timber over a transportation system, based on costand the schedule and volume of timber sales. Optionally, a net-value solution can be run by providing timber values.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting	_ Legal documentation	S Resource scheduling
_ Cumulative effects	S Logging systems	_ Spatial
_ Economic/Financial	_ Monitoring	P Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	P Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	S Other: Engineering	

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	P Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
_ Other:		

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s):

9. Hardware requirements.

Computer: Data General MV4000 or later
Graphics card: Disk space: 1MB RAM space: 600KB
Math co-processor: Mouse:
Printer: DG laser for graphs Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Ed Butler/USDA Forest Service/Clearwater National Forest.
Adapted from: John Sessions/Oregon State University

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13. For acquisition information, contact:

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Data General address: E.Butler:R01F05A
Data General RIS file: STAFF:ENG:MGT:TRANSFER:
DG_NET4T.DMP

Acquisition charge? X No _ Yes:

14. Additional description of tool.

This program is for use by transportation planners or logging engineers. Input is done interactively and consists of road construction and reconstruction costs, timber haul and maintenance costs, yarding costs, landing costs, and the schedule and volume of timber sales. Optionally, the timber values can be input. Reports are standard reports to list the link and sale data and the solution. The solution consists of a summary for each iteration, a path listing for each sale, a summary of volumes and costs by link, and a summary of miles by road class and type. If a net value analysis is run, graphs of the solution can be produced also.

1. Acronym and name. GISTRAN, Geographic Information System TRANsportation

2. Brief description. GISTRAN manages, processes, and displays transportation network, political boundary, and forest-location data to support timber supply and harvest scheduling models.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
S Resource scheduling
S Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
S Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
X GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
S Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
P Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 4.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80386 or 80486
Graphics card: VGA Disk space: 259KB RAM space: 443KB
Math co-processor: Recommended Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual _ Publications
X Updates X Training _ Telephone support
X Other: On-site support

11. Principal developer.

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Data General address:
Data General RIS file:

Acquisition charge? _ No X Yes:

14. Additional description of tool.

GISTRAN is part of a forest management scheduling system that includes RxWrite and DTRAN. The present implementation uses ISAM databases created from Digital Line Graph (DLG) files. Programs to perform the DLG to database conversion have been developed. Main functions include: 1) finding nearest arc in a transportation network to each analysis area location; 2) finding the shortest (or lowest-cost) route from each analysis area to each market location; and 3) displaying procurement zone maps.

1. Acronym and name. NAP, Network Analysis Program

2. Brief description. The NAP program is a front end and report-writing program to support the NETWORK program. NAP was developed for use in the Pacific Southwest Region to develop haul and maintenance costs for the NETWORK program, and to provide reports to supplement those provided by the NETWORK program.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
P Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s): NAP is a front-end and report-writing program to support NETWORK

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above
Graphics card: Disk space: 500KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

_ On-line help
X User's manual
_ Publications
_ Updates
X Training
X Telephone support
_ Other:

11. Principal developer.

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

NAP builds haul costs using link travel time and costs developed from a travel time matrix, based upon road type and grade information. NAP provides input files for the NETWORK program and a report writer to provide detailed interpretation of NETWORK solutions for project and area analyses.

1. Acronym and name. NETWORK II

2. Brief description. NETWORK II is a multi-period transportation analysis model for examining tradeoffs between road investments, road transport and maintenance costs, and harvesting costs.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
P Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
S Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 8086 or above
Graphics card: Disk space: 500KB RAM space: 640KB
Math co-processor: Mouse:
Printer: Any Plotter:
Other:

10. Documentation/user support available.

_ On-line help X User's manual X Publications
_ Updates X Training X Telephone support
_ Other:

11. Principal developer.

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Data General RIS file: R06C:STAFF:ENG:TRANSPLN:PCFILES:
NETPAK.EXE (Archived File)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The user must provide a description of the existing and potential network (Link File), and a description of the harvest schedule including volumes, entry points, and time periods. Outputs include identification of sale paths, stump-to-mill costs, and traffic volumes per link. The capacity of the program depends upon hardware and software configuration, but the default with 640K is approximately 4,000 links, 1,500 sales, and 1,000 destinations. The number of time periods is unlimited (1,500). NETWORK II could be used to assist in developing transportation plans to implement harvest schedules. For non-Forest Service user information, contact John Sessions (OSU) at (503)-737-2818.

1. Acronym and name. PLANS, Preliminary Logging Analysis System

2. Brief description. PLANS is designed to assist harvest planners perform the analysis necessary to develop harvest and transportation plans for large areas. PLANS facilitates interactive design of harvest units and roads, using a digital terrain model to supply topographic information for the planning area.

3. Geographical level of analysis (P = primary and S = secondary).

_ Forestwide
P Subforest area
S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
S Cumulative effects
S Economic/Financial
_ Ecosystem
_ Legal documentation
S Logging systems
_ Monitoring
_ Resource effects/Production
S Resource scheduling
S Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
_ Not applicable
_ Soils
P Timber
_ Vegetation
S Visual/Esthetics
S Other: Engineering
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

_ Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
_ Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
S Network analysis
P Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 2.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer (AT or faster recommended)
Graphics card: EGA; VGA
Disk space: 4MB
RAM space: 640KB
Math co-processor: Recommended
Mouse: Recommended
Printer: Non-essential (Epson comp.)
Plotter: HPGL compatible
Other: Supports several types of digitizing tablets.

10. Documentation/user support available.

_ On-line help
X User's manual
X Publications
_ Updates
X Training
X Telephone support
_ Other:

11. Principal developer.

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Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

Typical candidate areas for application of PLANS range from 1,000 to 50,000 acres, with planning activities spanning from 5 to 25 years. PLANS allows the planner, aided by an interactive computer system, to examine a wide range of design and planning options - a range not possible with earlier planning methods. By using a digital terrain model to represent the ground surface, PLANS can quickly extract ground profiles, ground-slope information, aspect information, and general landform characteristics for use during the development of a harvest plan. The current version of PLANS can read DTM data from several sources and additional DTM sources can be incorporated. The underlying requirement for DTM data to be used with PLANS is that it must be stored as a gridded structure. PLANS employs a familiar interface to the topographic data, an on-screen contour map generated from the digital terrain model, to assist users in visualizing the terrain data. By allowing users to directly specify ground locations from the on-screen contour map, landings, unit boundaries, roads, and other harvest-plan components can be easily located and evaluated.

1. Acronym and name. RMS, Route Management System

2. Brief description. RMS is a program to manage information about routes (roads/trails) that exist or are planned under contract. Information includes location, design, management (use, access and travel), maintenance, historical agreements, and point features including bridges and major culverts.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide
_ Subforest area
_ Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
S Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
_ Minerals
_ Range
_ Recreation
P Not applicable
_ Soils
_ Timber
_ Vegetation
_ Visual/Esthetics
_ Other:
_ Water
_ Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
_ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other:
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: Data General AOS/VS version 2
Software package(s): Oracle V6 Forms 3.0

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help
X User's manual
_ Publications
_ Updates
_ Training
X Telephone support
_ Other:

11. Principal developer.

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Data General address: C.Russell:R01A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

The program is used to manage all information about transportation routes. While the current version only deals with roads and trails, it can be expanded to cover any form of transportation route (waterways, etc.). It has been designed as an integrated database from which information may be extracted for use in other programs such as WATSED. The primary function of the program is to manage information about existing routes. However, it is possible to record information about planned systems. Ties to a spatial or GIS system are being investigated.

1. Acronym and name. TMS, Transportation Management System

2. Brief description. TMS is a database with an implicit link to GIS for tracking road information. It is designed to replace the old TIS system, and address road closures, accidents, and traffic counts in the January 1992 release.

3. Geographical level of analysis (P = primary and S = secondary).

P Forestwide | S Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
_ Economic/Financial | S Monitoring | P Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | _ Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | P Other: Engineering

6. Type of tool.

X Database application | _ Spreadsheet application
X GIS application | _ Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | _ Statistical
_ Input/Output analysis | _ Multiobjective programming
P Other: Database/GIS application

8. Supporting software requirements.

Operating system: Data General AOS/VS
Software package(s): Oracle 6.0; related forms

9. Hardware requirements.

Computer: Data General
Graphics card: Disk space: RAM space:
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | X Training | X Telephone support
_ Other: System operator installation guide

11. Principal developer.

TMS Core Team/USDA Forest Service/Pacific Northwest Region

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Data General address: E.Bergan:R06C
Data General RIS file: R06C:PUBLIC:ENG.APP:TMS_PACKET.
DMP (Will be in place by 2/31/92)

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TMS is designed to house traditional TIS information on an existing inventory basis. It is an Oracle application, utilizing extensive forms to assist the occasional user. The application will be expanded in a modular fashion as additional needs are identified and time allows. It allows a user to query a robust database of transportation information and pass the resulting subset to a GIS system or, conversely, to have the Oracle database updated, based on GIS analysis. Current modules track road-closure information, accidents, traffic counts, and information formerly included in the Transportation Inventory System, to assist in Forest Plan monitoring and target attainment. Expected users include engineers, GIS personnel, district rangers, etc.

1. Acronym and name. TONTO CADD, Tonto Computer Aided Design/Drafting

2. Brief description. TONTO CADD is computer aided design/drafting software as an add-on to AutoCAD, a PC/Workstation-based commercial CADD package. The software has been principally designed for engineering applications, although some resource-management modules are included.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide
S Subforest area
P Project

4. Purpose of analysis (P = primary and S = secondary).

_ Budgeting
_ Cumulative effects
_ Economic/Financial
_ Ecosystem
_ Legal documentation
_ Logging systems
_ Monitoring
_ Resource effects/Production
_ Resource scheduling
_ Spatial
P Transportation
_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air
_ Cultural
_ Fire
_ Fisheries
_ All resources
_ Insect/Disease
S Minerals
_ Range
P Recreation
_ Not applicable
_ Soils
_ Timber
_ Vegetation
S Visual/Esthetics
_ Other:
_ Water
S Wildlife
_ Wilderness

6. Type of tool.

X Database application
_ GIS application
_ Spreadsheet application
X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems
_ Dynamic programming
_ Heuristic process
_ Input/Output analysis
P Other: CADD applications
_ Integer programming
_ Linear programming
_ Mixed-integer programming
_ Multiobjective programming
_ Network analysis
_ Simulation
_ Statistical

8. Supporting software requirements.

Operating system: DOS 3.3 or later or OS/2 1.1; Windows 3.0
Software package(s): Windows 3.0; AutoCAD Release 10 or Release 11

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286, 80386, or 80486
Graphics card: EGA/VGA Disk space: 3MB RAM space: 2-4MB
Math co-processor: 80287/80387 Mouse: Yes
Printer: Optional Plotter: Optional
Other: I/O devices supported by AutoCAD

10. Documentation/user support available.

X On-line help X User's manual X Publications
X Updates X Training X Telephone support
_ Other:

11. Principal developer.

Robert Toy/USDA Forest Service/Southwest Region

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Data General RIS file: R03A:ENG:RIS:TONTOCAD

Acquisition charge? X No _ Yes:

14. Additional description of tool.

1. Acronym and name. TRANSMAN, TRANSportation MANagement System

2. Brief description. TRANSMAN is an integrated computer program for management of all information needs for road management and road maintenance.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | S Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting	_ Legal documentation	_ Resource scheduling
_ Cumulative effects	_ Logging systems	_ Spatial
S Economic/Financial	S Monitoring	P Transportation
_ Ecosystem	_ Resource effects/Production	_ Other:

5. Resource or function (P = primary and S = secondary).

_ Air	_ Insect/Disease	_ Soils	_ Water
_ Cultural	_ Minerals	_ Timber	_ Wildlife
_ Fire	_ Range	_ Vegetation	_ Wilderness
_ Fisheries	_ Recreation	_ Visual/Esthetics	
_ All resources	_ Not applicable	P Other: Engineering	

6. Type of tool.

X Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems	_ Integer programming	_ Network analysis
_ Dynamic programming	_ Linear programming	_ Simulation
_ Heuristic process	_ Mixed-integer programming	_ Statistical
_ Input/Output analysis	_ Multiobjective programming	
P Other: Database application		

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer 80286 or above w/ hard disk
Graphics card: Disk space: 40MB RAM space: 640KB
Math co-processor: Mouse: Optional
Printer: HP Laserjet/Epson compatible Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
X Updates | _ Training | X Telephone support
X Other: Some training is available, depending on author's time.

11. Principal developer.

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Data General address: T.Erkert:R06F03A
Data General RIS file: D3:STAFF:E:TRANSMAN:PROG_UPDATE:TRANFILE.EXE

Acquisition charge? X No _ Yes:

14. Additional description of tool.

TRANSMAN is primarily an integrated database application for road maintenance and management. It includes, but is not limited to, detailed maintenance management system, road closures, road management objectives, routes, bridges, culverts, road logs, pavements, signs, accidents, traffic surveillance, road rules, operator equipment, overload permits, and rock stockpiles. The emphasis is on easy use for field operators. It includes many standard reports and a custom reporting feature. The majority of the program is directed to the maintenance management system in planning, actual, and appraisal of road maintenance work. We are using it in Forest Plan monitoring for road closure monitoring and accomplishment of road maintenance related items. We have also succeeded in linking the database files directly to AutoCAD drawings of the road network. We are able to run queries on the database from within AutoCAD, and the entities in the drawing are selected based on the search criteria. TRANSMAN is a stand-alone program, but manages dBase III format database files. Other modeling in the program is in accidents analysis, road maintenance planning, and road maintenance timber sale appraisals.

1. Acronym and name. VOC, Vehicle Operating Cost Model

2. Brief description. This program estimates vehicle operating costs over the road length, given vehicle characteristics and cost data, along with road roughness and geometry data.

3. Geographical level of analysis (P = primary and S = secondary).

S Forestwide | P Subforest area | _ Project

4. Purpose of analysis (P = primary and S = secondary).

S Budgeting | _ Legal documentation | _ Resource scheduling
_ Cumulative effects | _ Logging systems | _ Spatial
S Economic/Financial | _ Monitoring | P Transportation
_ Ecosystem | _ Resource effects/Production | _ Other:

5. Resource or function (P = primary and S = secondary).

_ Air | _ Insect/Disease | _ Soils | _ Water
_ Cultural | _ Minerals | _ Timber | _ Wildlife
_ Fire | _ Range | _ Vegetation | _ Wilderness
_ Fisheries | P Recreation | _ Visual/Esthetics
_ All resources | _ Not applicable | _ Other:

6. Type of tool.

_ Database application | _ Spreadsheet application
_ GIS application | X Computer program

7. Modeling techniques (P = primary and S = secondary).

_ AI/Expert systems | _ Integer programming | _ Network analysis
_ Dynamic programming | _ Linear programming | _ Simulation
_ Heuristic process | _ Mixed-integer programming | P Statistical
_ Input/Output analysis | _ Multiobjective programming
_ Other:

8. Supporting software requirements.

Operating system: DOS 3.0 or later
Software package(s):

9. Hardware requirements.

Computer: IBM or compatible microcomputer
Graphics card: Disk space: RAM space: 216KB
Math co-processor: Mouse:
Printer: Plotter:
Other:

10. Documentation/user support available.

X On-line help | X User's manual | _ Publications
_ Updates | _ Training | _ Telephone support
_ Other:

11. Principal developer.

Rodrigo Archordo-Callao/World Bank, Washington D.C.

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Data General address: D.Haber:S22L04A
Data General RIS file:

Acquisition charge? X No _ Yes:

14. Additional description of tool.

VOC allows the user to identify the costs of vehicle operation over roads with different roughness. It could be used to analyze how different road maintenance policies affect the road user.

INDEX A: PURPOSE BY GEOGRAPHICAL LEVEL

INDEX B: PURPOSE BY RESOURCE OR FUNCTION

INDEX C: TYPE OF TOOL

INDEX D: MODELING TECHNIQUE

INDEX E: ACRONYM/NAME

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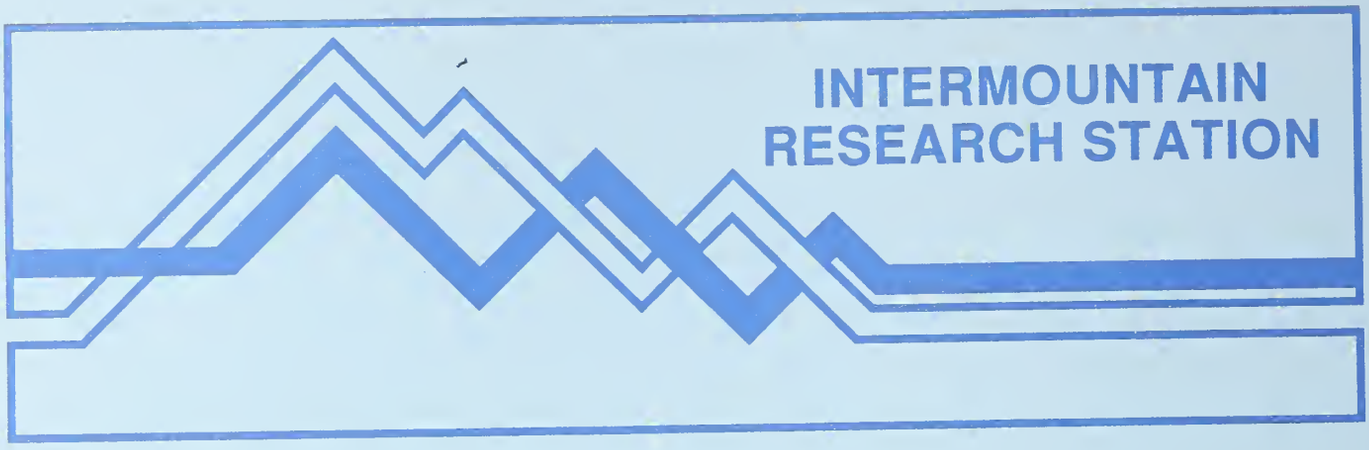
Schuster, Ervin G.; Leefers, Larry A.; Thompson, Joyce E. 1993. A guide to computer-based analytical tools for implementing National Forest Plans. Gen. Tech. Rep. INT-296 Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 269 p.

This guide presents results of an inventory of 250 computer-based tools that can be used to implement National Forest Plans, including tools used in budgeting, cumulative effects analysis, economic/financial analysis, ecosytem analysis, legal documentation, logging systems analysis, monitoring, resource effects or production estimation, resource scheduling, spatial analysis, and transportation analysis. A description provided for each tool includes its purpose, computer requirements, and other details. Five indexes help identify tools for particular types of analysis.

KEYWORDS: computer models, mathematical models, implementation of forest plans, National Forest Management Act (NFMA), planning



The Intermountain Research Station provides scientific knowledge and technology to improve management, protection, and use of the forests and rangelands of the Intermountain West. Research is designed to meet the needs of National Forest managers, Federal and State agencies, industry, academic institutions, public and private organizations, and individuals. Results of research are made available through publications, symposia, workshops, training sessions, and personal contacts.

The Intermountain Research Station territory includes Montana, Idaho, Utah, Nevada, and western Wyoming. Eighty-five percent of the lands in the Station area, about 231 million acres, are classified as forest or rangeland. They include grasslands, deserts, shrublands, alpine areas, and forests. They provide fiber for forest industries, minerals and fossil fuels for energy and industrial development, water for domestic and industrial consumption, forage for livestock and wildlife, and recreation opportunities for millions of visitors.

Several Station units conduct research in additional western States, or have missions that are national or international in scope.

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