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Paleontological Resource Study and Inventory of Part
of the White River Resource Area and Vicinity,
Piceance Creek Basin, Northwestern Colorado

Written by

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Allen J. Kihm

Prepared for

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Craig District, Colorado
BLM Contract No. YA-553-CT1-129

Submitted by

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Roan Cliffs west of Grand Valley (Parachute), Colorado showing varigated red, yellow and brown strata of the Wasatch Formation overlain by gray cliffs of the Parachute Creek Member of the Green River Formation.

ABSTRACT

This report identifies and evaluates the paleontological resources (remains of extinct and/or fossil vertebrates and invertebrates) in part of the White River Resource Area (Craig and Grand Junction Districts of the Bureau of Land Management, northwestern Colorado. The area studied comprises 1,200,000 acres in the Piceance Creek Basin, where strata of the Mancos Shale, Castlegate Sandstone, Sego Sandstone, Iles Formation, Williams Fork Formation, Wasatch Formation, Green River Formation and Uinta Formation are exposed. Results of a literature search of published and unpublished literature on the paleontological resources of the study area are presented in the text and bibliographies. Also, this report includes the results of a field survey that sampled 38,343 acres of the exposed bedrock in the study area, found 218 paleontological locales within the study area, and provided the basis for a qualified prediction of the nature, diversity and distribution of paleontological locales in the unsampled portion of the study area. Within the study area, exposures of the Williams Fork Formation comprise Class I-a lands where immediate detailed study is needed, exposures of the Wasatch, Green River and Uinta Formations are Class I-b lands, having high potential for producing significant paleontologic resources; Class II lands are exposures of the Iles Formation and Mancos Shale; and Class III lands are composed of exposures of the Sego and Castlegate Sandstones.

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PREFACE

On 28 September 1981, ESCA-Tech Corporation was awarded Contract YA-553-CT1-129 by the Bureau of Land Management, Craig District Office, to conduct a paleontological resource study and inventory of geologic formations present in part of the White River Resource Area, Colorado. Co-Principal Investigators for the project were Spencer G. Lucas and Allen J. Kihm. Field work for the project was supervised by the co-principal investigators. The project was administered by ESCA-Tech Corporation, 2015 Yale Blvd. S.E., Albuquerque, New Mexico under the direction of William E. Reynolds. This report was written by Spencer G. Lucas and Allen J. Kihm.

ACKNOWLEDGEMENTS

Numerous people have contributed to the preparation of this report. For assistance in the field, we thank: J. Eaton, J. Indeck, T. Logan, M. Maas, J. McClammer, J. Muenning, E. Oswald, M. Parrish, T. Rasmussen, P. Reser, G. Storrs, J. Wallace and S. Wallace. W. Reynolds and T. Van Huss administered the project through the Albuquerque office of ESCA-Tech Corporation. T. Logan, M. B. Lucas and T. Rasmussen helped on various aspects of report preparation. J. Westlye curated and catalogued specimens collected by the field survey. G. Bayliss drafted the line figures. M. Tart served as technical editor. D. Bert, P. Nagle, M. Schander and D. Umphres typed the manuscript.

INTRODUCTION

Fossil-bearing sedimentary rocks, mostly of the Eocene Wasatch, Green River and Uinta Formations, are exposed in the Piceance Creek Basin in northwestern Colorado. Approximately 750,000 acres in this basin are part of the White River Resource Area within the U. S. Bureau of Land Management (BLM) Craig district (figure 1, table 1). An additional 450,000 acres are part of the Grand Junction District of the BLM (figure 1, table 1). These 1,200,000 acres in and around the White River Resource Area are hereafter referred to as the study area (figure 1, table 1).

Under the mandate of the Antiquities Act of 1906, the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976 (FLPMA), the BLM is required to identify, evaluate and protect paleontological resources (remains of extinct and/or fossil vertebrates and invertebrates) within the study area and ensure that actions initiated or authorized by the BLM do not adversely affect these resources. Thus, the BLM requires information about the nature, diversity, distribution and scientific significance of the paleontological resources in the study area. This report provides this information.

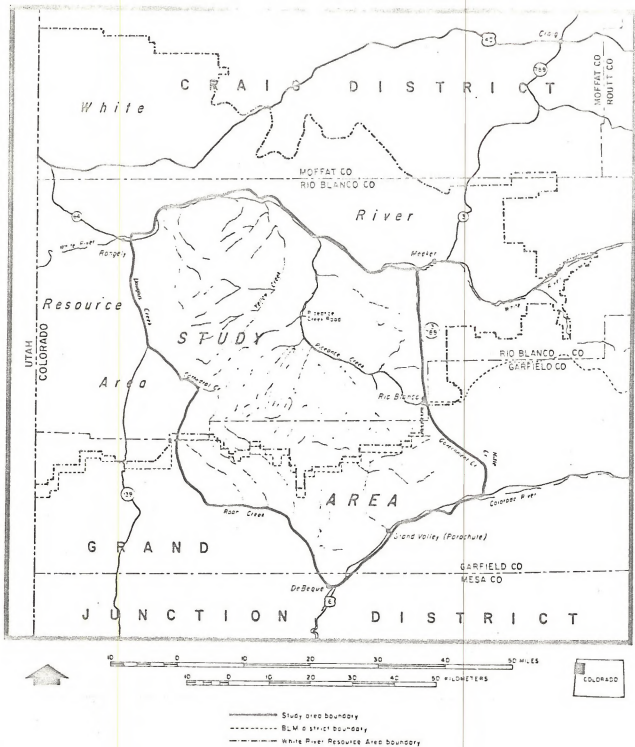


Figure 1. Index map showing location of the study area and the boundaries of the White River Resource Area, BLM Craig District and BLM Grand Junction District

Table 1. Legal Description of the Study Area,
Piceance Creek Basin Paleontological Survey

T1N; R94W:	section 31; portions of sections 29, 30, 32
T1N; R95W:	sections 34-36; portions of sections 25-28, 31, 32
T1N; R96W:	sections 7, 17-21, 27-35; portions of sections 5, 6, 8, 9, 15, 16, 22, 23, 25, 26, 36
T1N; R97W:	sections 1-36
T1N; R98W:	sections 1-36
T1N; R99W:	sections 1-36
T1N; R100W:	sections 1-36
T1N; R101W:	sections 1-6, 8-17, 20-29, 32-36; portions of sections 7, 18, 19, 30, 31
T2N; R97W:	sections 19, 29-33; portions of sections 18, 20, 21, 27, 28, 34-36
T2N; R98W:	sections 6-11, 14-36; portions of sections 1-5, 12, 13
T2N; R99W:	sections 1-36
T2N; R100W:	sections 10-36; portions of sections 1-4, 7-9
T2N; R101W:	sections 13, 14, 23-26, 35, 36; portions of sections 11, 12, 15, 22, 27, 31-34
T3N; R98W:	portions of sections 30-34
T3N; R99W:	sections 35, 36; portions of 25-27, 31-34
T1S; R94W:	sections 6, 7, 18, 19, 30, 31; portions of sections 5, 8, 17, 20, 29, 32
T1S; R95W:	sections 1-36
T1S; R96W:	sections 1-36
T1S; R97W:	sections 1-36
T1S; R98W:	sections 1-36
T1S; R99W:	sections 1-36
T1S; R100W:	sections 1-36
T1S; R101W:	sections 1-3, 10-15, 22-26; portions of sections 1-5, 8-17, 21-28, 34-36; portions of sections 6, 7, 18-20, 29, 33
T2S; R94W:	sections 5-8, 17-20, 29-32; portions of sections 4, 9, 16, 21, 28, 33
T2S; R95W:	sections 1-36
T2S; R96W:	sections 1-36
T2S; R97W:	sections 1-36
T2S; R98W:	sections 1-36
T2S; R99W:	sections 1-36
T2S; R100W:	sections 1-36
T2S; R101W:	sections 19, 29-33; portions of sections 4, 9, 16, 21, 27, 35, 36
T3S; R94W:	sections 5-8, 17-20, 29-32; portions of sections 4, 9, 16, 21, 28, 33
T3S; R95W:	sections 1-36
T3S; R96W:	sections 1-36
T3S; R97W:	sections 1-36
T3S; R98W:	sections 1-36
T3S; R99W:	sections 1-36

Table 1. Legal Description of the Study Area,
Piceance Creek Basin Paleontological Survey
(continued)

T3S; R100W:	sections 1-5, 8-14, 24, 25, 35, 36; portions of sections 6, 7, 15-17, 22, 23, 26, 27, 34
T3S; R101W:	portion of section 1
T4S; R94W:	sections 5-8, 16-21, 27-35; portions of sections 4, 9, 10, 15, 22, 23, 25, 26, 36
T4S; R95W:	sections 1-36
T4S; R96W:	sections 1-36
T4S; R97W:	sections 1-36
T4S; R98W:	sections 1-36
T4S; R99W:	sections 1-36
T4S; R100W:	sections 1-3, 10-16, 21-29, 32-36; portions of sections 4, 8, 9, 17, 19, 20, 30, 31
T5S; R93W:	sections 7, 16-22, 26-35; portions of sections 5, 6, 8, 9, 14, 15, 23-25, 36
T5S; R94W:	sections 1-36
T5S; R95W:	sections 1-36
T5S; R96W:	sections 1-36
T5S; R97W:	sections 1-36
T5S; R98W:	sections 1-36
T5S; R99W:	sections 1-36
T5S; R100W:	sections 1-5, 8-17, 21-28, 34-36; portions of sections 6, 7, 18-20, 29, 32, 33
T6S; R94W:	sections 1-12, 14-21; portions of sections 13, 22, 27-30
T6S; R95W:	sections 1-24, 26-34; portions of sections 25, 35, 36
T6S; R96W:	sections 1-36
T6S; R97W:	sections 1-36
T6S; R98W:	sections 1-29, 35, 36; portions of sections 30-34
T6S; R99W:	sections 1-19, 21-24; portions of sections 20, 25-30
T6S; R100W:	sections 1-6, 8-16, 21-24; portions of sections 7, 17, 18, 20, 25-28
T6S; R101W:	portions of sections 1, 2, 12
T7S; R95W:	portions of sections 5-7, 18
T7S; R96W:	sections 1-11, 14-22, 28-32; portions of sections 12, 13, 23, 27, 33, 34
T7S; R97W:	sections 1-30, 32-36; portion of section 31
T7S; R98W:	sections 1, 2, 12; portions of sections 3, 10, 11, 13, 14, 24, 25, 36
T8S; R96W:	section 6; portions of sections 4-7
T8S; R97W:	sections 1-5, 8-11, 14-16, 22; portions of sections 6, 7, 12, 13, 17, 18, 21, 23, 24, 27

OBJECTIVES

By providing information on the paleontological resources in the study area, this report provides a sufficient basis to enable the BLM district geologist or archaeologist to classify lands within the study area into one of four categories (table 2). The information necessary for such classification, contained herein, is as follows:

- 1) All existing data, published and unpublished, on the nature, diversity and distribution of previously-determined paleontological resources in the study area
- 2) The results of a statistically valid, sample-oriented field survey that located and recorded, from surface and exposed bedrock locales, paleontological resources in the study area.
- 3) A predictive model, based primarily on data gathered in the sampled portion of the study area, that describes temporal, rock-stratigraphic and sedimentological contexts in which paleontological resources are likely to occur in the unsampled portion of the study area
- 4) An informed evaluation of the nature, diversity, distribution and scientific significance of the paleontological resources in the study area

Table 2
Classification Scheme for Lands Within the Study Area

- Class I-a: Areas where immediate detailed study is needed. Fossils of scientific interest are exposed on the surface, or are very likely to be discovered by detailed field work in the area. This classification is to be used for site-specific localities having scientifically significant fossils.
- Class I-b: Other areas with high potential for producing scientifically significant fossils. In these areas, a paleontological evaluation will be done by the geologist, on a case-by-case basis, prior to any surface-disturbing activities. These evaluations will change the classification for these areas to class I-a, II or III, as appropriate.
- Class II: Areas with evidence of fossils but in which the presence of fossils of scientific significance has not been established and is not anticipated. Detailed study may be desirable in the future for the evaluation of all types of fossil collecting. This classification may be used to identify recreational values of fossils.
- Class III: Areas where there is little likelihood of finding fossils of scientific significance. No further consideration of fossils is necessary unless future discoveries require a change of classification.

METHODS

This study consisted of two phases: a Class I survey (literature search) covering the entire study area, and a Class II survey (field survey) covering a limited part of the study area.

The Class I survey assembled all existing information on the paleontological resources of the study area into a coherent, comprehensive summary. It included a review of information from the following sources:

- 1) Literature published by the U. S. Geological Survey, state agencies, universities (including masters and doctoral theses), professional societies and scientific journals
- 2) Correspondence, telephone or face-to-face contact with researchers who have worked in the study area and with local amateur collectors
- 3) Written and verbal inquiries to scientific institutions, individual paleontologists, amateur collecting clubs and commercial collectors

The results of the Class I survey are included in the Mesozoic Era and Cenozoic Era sections (pp. 18-62), annotated bibliography (p. 79) and Appendix D of this report.

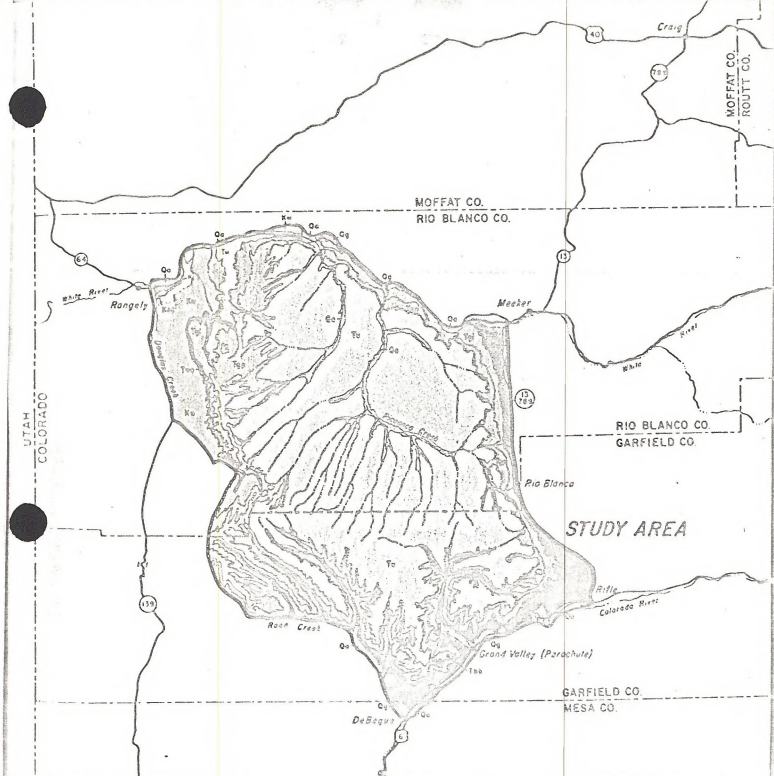
The purpose of the Class II survey was four-fold:

- 1) To relocate and verify the existence and significance of all previously known locales of paleontological resources in the study area, if possible.

- 2) To augment existing paleontological and geologic information about these locales, if needed.
- 3) To locate, describe and sample, as needed, undiscovered locales yielding paleontological resources according to a prescribed sampling scheme (see below).
- 4) To assess the scientific significance of each locale's paleontological resources (table 8 and Appendix C).

The prescribed sampling scheme was derived from the following considerations:

- 1) The entire study area, (figure 1) comprises 1,200,000 acres, of which 750,000 acres are public land. A minimum of five per cent (37,500 acres) of the public land, was sampled.
- 2) Five rock-stratigraphic units were initially recognized to be present within the study area: Mancos Shale, Mesaverde Group (Sego Sandstone, Iles Formation and Williams Fork Formation), Wasatch Formation (including Ohio Creek Conglomerate and "Fort Union equivalents" at its base), Green River Formation, and Uinta Formation (figures 2, 3).
- 3) Examination of relevant geologic maps (Barnum and Garrigues 1980; Cary 1960; Cashion 1969, 1973; Cullins 1971; Donnell and Yeend 1968a, b; Duncan 1976a, b, c, d, e, f; Hail 1972, 1974a, b, c, 1975, 1977, 1978; Johnson 1975, 1977a, b, 1980, 1981; O'Sullivan 1974; O'Sullivan et al. 1981; Pipingos and Johnson 1975, 1976; Roehler 1972a, b, 1973a, b; Rowley et al. 1979; Tweto 1976; Tweto et al. 1978; Yeend and Donnell



- | | | | |
|--|---|--|--|
| | Quaternary alluviums and gravels | | Wasatch Formation (including Fort Union equivalent at base) |
| | Basalt flows and associated tuff, breccia, and conglomerate | | Williams Park Formation |
| | Ulna Formation | | Hies Formation |
| | Green River Formation (Parachute Creek Member) | | Sage shales, Buck Tongue of Mancos shale, and Castlegate sandstone |
| | Green River Formation (lower part) | | Mancos shale |
| | Wasatch Formation | | |

Figure 2. Geologic Map of the Study Area (modified from Taylor, 1947)

1968), topographic maps (figure 4), and aerial photographs enabled the total acreage of bedrock on public land to be determined planimetrically (table 3).

- 4) The scientific significance of paleontological resources present in each formation within the study area were assessed in a preliminary way, based on the literature search. *
- 5) Each formation was ranked according to the amount of bedrock present and the preliminarily assessed paleontological significance (table 3). A revised assessment of the amount of bedrock and paleontological significance of each formation was made during the survey to produce a final ranking (table 4). *
- 6) Intensive survey effort was undertaken in 26 "survey areas" within the study area (figure 5) according to the final ranking. The 26 survey areas thus were chosen according to formations exposed within each survey area, accessibility, and land ownership status (i.e., with minor exceptions, all the land in each survey area is public land administered by the BLM).

* Initial ranking was: Green River (most significant), Wasatch Formation, Uinta Formation, Mesaverde Group (Sego Sandstone, Iles Formation and Williams Fork Formation) and Mancos Shale (includes Castlegate Sandstone) (least significant). The revised ranking was: Wasatch Formation (most significant), Williams Fork Formation, Uinta Formation, Green River Formation, Mancos Shale, Iles Formation, Castlegate Sandstone and Segoe Sandstone (least significant).

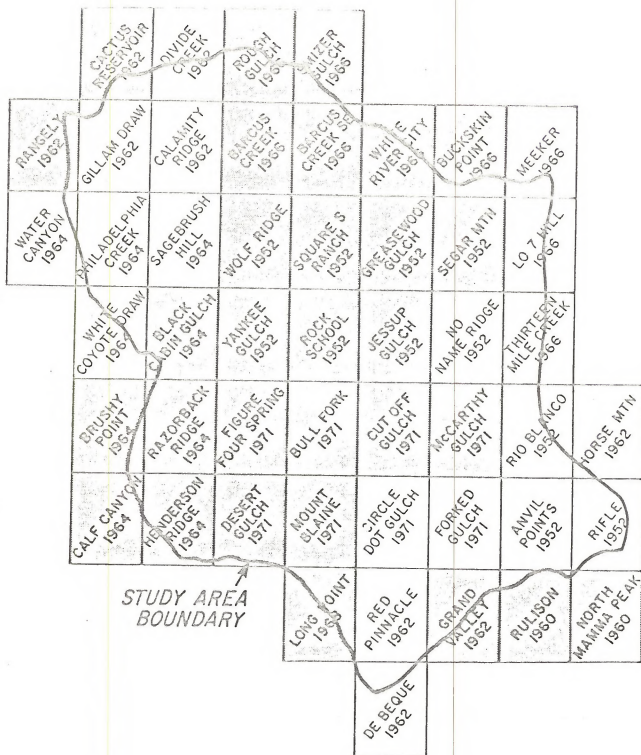


Figure 4. Topographic (7.5 minute) and geologic (shaded) map coverage of the study area.

Table 3. Initial Determinations of the Total Acreage of Bedrock on Public Land in the Study Area.

<u>Formation</u>	<u>Acreage</u>	<u>Percentage</u>
Uinta	300,000	40%
Green River	300,000	40%
Wasatch	112,500	15%
Mesaverde ¹	30,000	4%
Mancos ²	7,500	1%
Totals	750,000	100%

¹Includes Segoe Sandstone, Iles Formation and Williams Fork Formation

²Includes Castlegate Sandstone

Table 4. Revised Assessment and Actual Area of Bedrock Surveyed on Public Land in the Study Area.

<u>Formation</u>	<u>Assessment</u>		<u>Surveyed</u>	
	<u>Acreage</u>	<u>Percent</u>	<u>Acreage</u>	<u>Percent</u>
Uinta	429,750	56.6%	20,175	52.6%
Green River	205,500	27.0%	5,781	15.1%
Wasatch	66,000	8.7%	5,101	13.3%
Mesaverde ¹	46,500	6.1%	5,224 ³	13.6%
Mancos ²	11,875	1.6%	2,062	5.4%
Totals	759,625	100%	38,343	100%

¹Includes Segoe Sandstone, Iles Formation and Williams Fork Formation

²Includes Castlegate Sandstone

³Includes 4,957 acres of Williams Fork Formation, 176 acres of Iles Formation and 91 acres of Segoe Sandstone

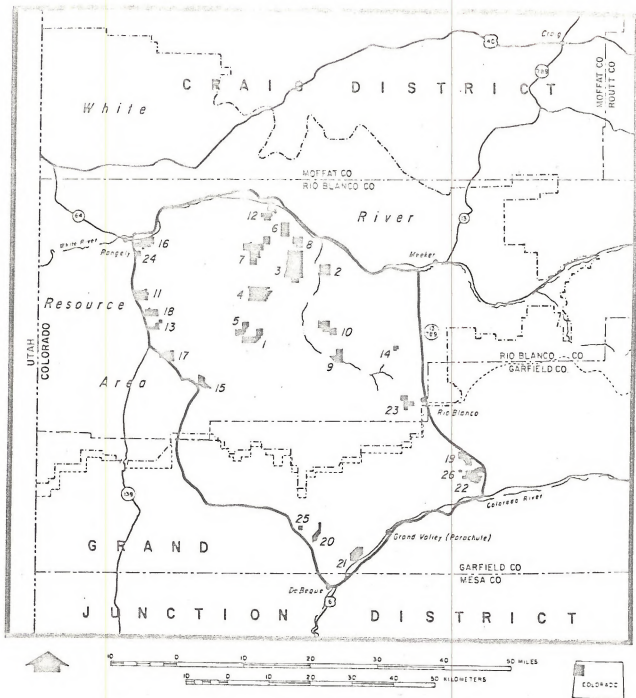


Figure 5. Location of survey areas within the study area.

FIELD PERSONNEL

Fifteen people participated in the field survey: J. Eaton, J. Indeck, A. Kihm (co-principal investigator), T. Logan, S. Lucas (co-principal investigator), M. Maas, J. McClammer (field supervisor), J. Muennig, E. Oswald, M. Parrish, T. Rassmussen, P. Reser, G. Storrs, J. Wallace and S. Wallace (field supervisor). The co-principal investigators, Lucas and Kihm, undertook the literature search with the help of F. Martin Brown, consultant on fossil insects.

STRATIGRAPHY AND PALEONTOLOGY - MESOZOIC ERA

CRETACEOUS PERIOD

The oldest bedrock exposed in the study area is of Late Cretaceous age. Five formations are represented: Mancos Shale (oldest), Castlegate Sandstone, Sego Sandstone, Iles Formation and Williams Fork Formation (youngest). The Sego, Iles and Williams Fork Formations are usually grouped together as formations in the Mesaverde Group (e.g., McGoukey et al. 1972).

The Cretaceous rocks in the study area represent open marine (Mancos Shale), nearshore marine (Castlegate and Sego Sandstones) and fluvio-deltaic (Iles and Williams Fork Formations) deposition that took place near and along part of the western shore of the epicontinental seaway that covered much of central North America during the Late Cretaceous (figures 6, 7).

The following is a brief review of the stratigraphy, paleontology and depositional environments of these Cretaceous formations.

Mancos Shale

The Mancos Shale is only exposed in the extreme northwestern part of the study area (figure 2). Here, over 600 feet of the Mancos is exposed on a small outcrop belt bordered by State Highway 64 to the north and State Highway 139 to the west.

Within the study area, the Mancos Shale has been subdivided into two rock-stratigraphic units. The lower unit, informally termed the "main body" of

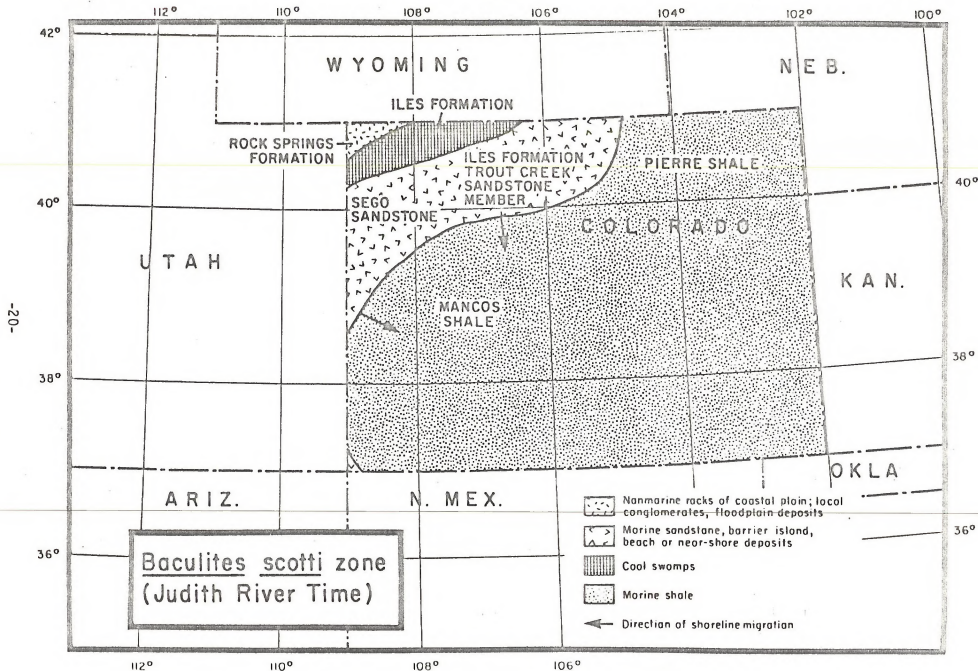


Figure 6. Paleogeographic map of Colorado during the time of deposition of the Mancos Shale, Sego Sandstone and Iles Formation in the study area (modified from McGrokey et al. 1972)

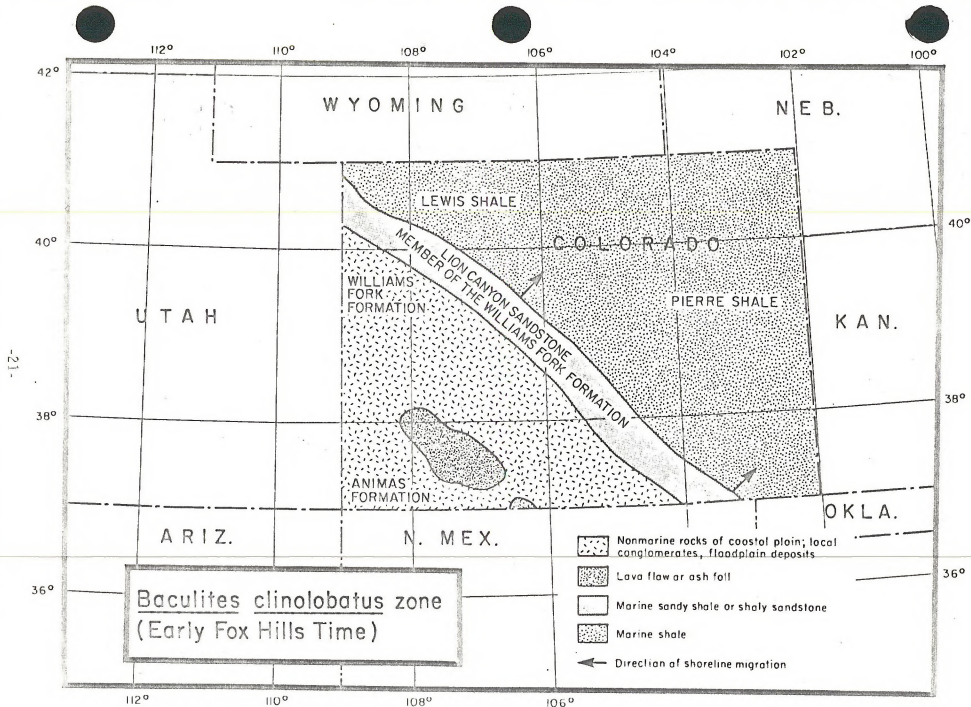


Figure 7. Paleogeographic map of Colorado during the deposition of the Williams Fork Formation in the study area (modified from McGooley et al. 1972)

the Mancos Shale (e.g., Cullins 1971), consists of over 200 feet of brownish- to dark gray shale interbedded with siltstone, fine-grained sandstone and thin beds of bentonite. * The main body of the Mancos within the study area crops out as low and rolling hills and steep, soft slopes (where overlain by the Castlegate Sandstone) (plate 1). The main body of the Mancos often supports shallow, poorly vegetated soil. Deposition of the main body of the Mancos Shale generally took place in relatively deep, marine water below wave base (figure 6). However, thin beds of sandstone and siltstone represent nearshore shoals and bars.

The upper unit of the Mancos Shale in the study area is termed the Buck Tongue and is separated from the main body of the Mancos Shale by the Castlegate Sandstone (described below) (plate 1). The Buck Tongue consists of 250 to 300 feet of gray to brownish-gray shale that contains orange-weathering dolomite concretions and locally abundant gypsum crystals. The Buck Tongue represents an open marine environment similar to that under which the main body of the Mancos Shale was deposited.

Fisher et al. (1959) reported the results of field work on the Mancos Shale in northwestern Colorado, but, as far as we know, neither they nor subsequent workers studied the limited Mancos exposures in the study area. Cullins (1971) noted that Baculites perplexus occurs in dolomite concretions in the Buck Tongue of the Mancos Shale. This is the only previous report of fossils in the Mancos Shale within the study area. Our survey added to the knowledge of paleontological resources in the Mancos Shale in this

* The total thickness of the main body of the Mancos Shale is about 4,500 feet, but only a little over 200 feet of the uppermost part of this unit are exposed within the study area.

area by discovering oysters, gastropods, inoceramids and Ophiomorpha, as well as Baculites (plate 2, figure 1), in the Buck Tongue and oysters, inoceramids, (plate 2, figure 2), fish scales and spines, Baculites and plant material in the main body of the Mancos Shale (survey area 16).

Castlegate Sandstone

The Castlegate Sandstone is only exposed in the extreme northwestern corner of the study area (figure 2). It consists of 35 to 50 feet of light gray fine- to medium-grained sandstone and forms prominent ledges and ridges between the softer slopes formed by the main body and Buck Tongue of the Mancos Shale (plate 1).

The Castlegate Sandstone represents a marine beach deposit. Because of the relatively high energy of such an environment, few, if any, fossils normally are preserved in beach deposits. Indeed, no fossils have been reported from the Castlegate Sandstone in the study area. Our survey only determined one fossil locality in this formation (ET 16-3) where in-filled vertical burrows were present.

Sego Sandstone

Like the Mancos Shale and Castlegate Sandstone, the Sego Sandstone is only exposed in the extreme northwestern part of the study area just south of State Highway 64 and just east of State Highway 139 (figure 2). Here, the Sego Sandstone consists of about 200 feet of very light gray fine-grained massive sandstone (top), brownish-gray sandy shale (middle) and yellowish-gray to grayish-orange fine-grained sandstone (base).

PLATE 1

Mancos Shale at ET 16-7 (next page)

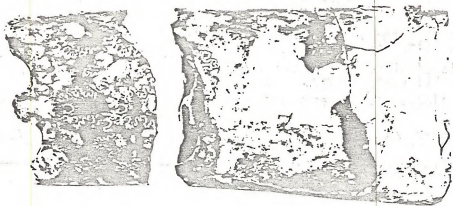
Locality ET 16-7 (circled) in main body of Mancos Shale (KmM) below sandstone ledge of Castlegate Sandstone (Kc) which is overlain by shale of the Buck Tongue of the Mancos Shale (KbM).



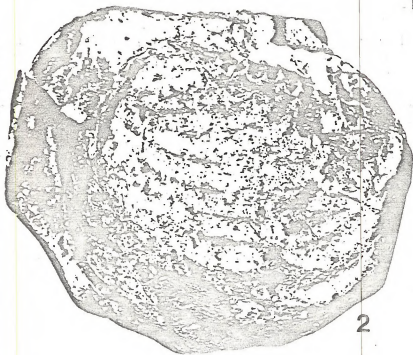
PLATE 2

Cretaceous Fossils from the Study Area (next page)

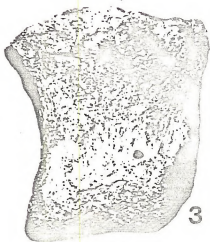
- figure 1 Baculites sp. from the Buck Tongue of the Mancos Shale,
locality ET 16-4, x 1
- figure 2 Inoceramid from the main body of the Mancos Shale, locality
ET 16-7, x 1
- figures
3 and 4 Hadrosaur phalanx from the Williams Fork Formation, locality
ET 17-12, dorsal (figure 3) and ventral (figure 4) aspects,
x 112



1



2



3



4

Sediments of the Segó Sandstone are of marine and freshwater origin and represent a shallow marine (strandline) environment. Freshwater and marine fossils of either invertebrates or vertebrates (no more specific information is available) have been found in the Segó Sandstone in northwestern Colorado (Fisher et al. 1959), but none of these were from the study area. Our survey found no fossils in the Segó Sandstone.

Iles Formation

The Iles Formation, like the Mancos Shale, Castlegate Sandstone and Segó Sandstone, is only exposed in the extreme northwestern part of the study area (figure 2). Here, about 600 feet of the Iles Formation is exposed.

Within the study area, the Iles Formation has been subdivided into two rock-stratigraphic units, the lower "main body" (informal term) and the upper Trout Creek Sandstone Member (Cullins 1971). The main body of the Iles consists of about 500 feet of interbedded light-brown and yellowish-gray fine- to very fine-grained sandstone, gray shale, brown carbonaceous shale and thin beds of coal. The overlying Trout Creek Sandstone Member is about 60 feet of light- to brownish-gray, fine-grained, massive and porous sandstone.

The coal-bearing main body of the Iles Formation represents fluvio-deltaic deposits that are characteristic of a swampy, reducing environment suitable ^{for} to the conversion of organic detritus into coal. The Trout Creek Sandstone Member of the Iles Formation is a marine beach deposit. No fossils have been previously reported from the Iles Formation in the study area, and our survey only determined two localities with poorly preserved bone and wood fragments and a gar scale (survey area 24).

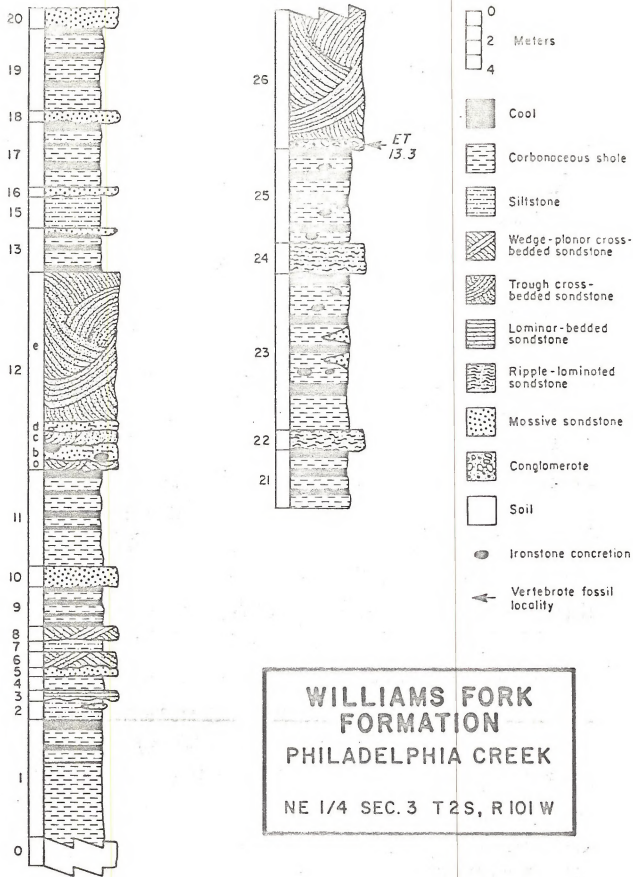
Williams Fork Formation

There is a broad belt of outcrops of the Williams Fork Formation along the northwestern edge of the study area just east of State Highway 139 and along the north bank of East Douglas Creek (figure 2). A very small outcrop of the Williams Fork Formation is also present within the study area just south of State Highway 64 near where Yellow Creek meets the White River (figure 2).

Within the study area, the Williams Fork Formation is nearly 1,900 feet thick and conformably overlies the Trout Creek Sandstone Member of the Iles Formation. The Wasatch Formation unconformably overlies the Williams Fork Formation, but this unconformity is not well exposed within the study area.

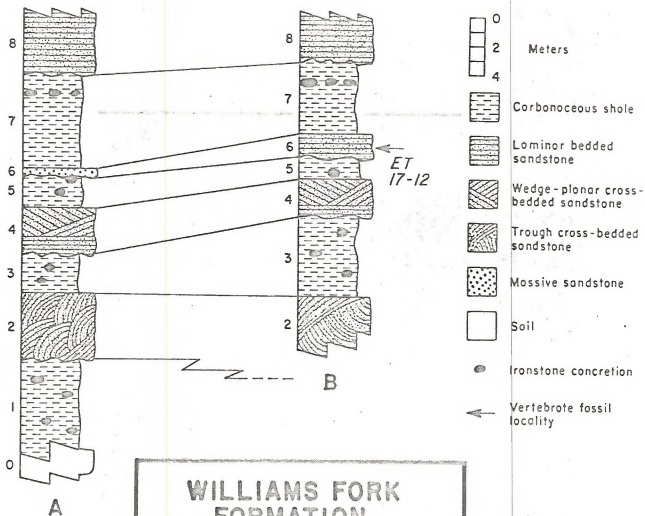
The Williams Fork Formation in the study area consists of interbedded grayish-orange to yellowish-gray fine-grained lenticular sandstone, gray shale, brown carbonaceous shale and coal beds up to eight feet thick (plate 3). Numerous occurrences of strata baked by the in situ burning of coal beds ("klinker") lend a bright red hue to many Williams Fork exposures.

Delta-plain, riverine floodplain and coal swamp environments are represented by the Williams Fork Formation. Like the Iles Formation, no vertebrate or invertebrate fossils had been reported from the Williams Fork Formation in the study area prior to our survey. However, unlike the Iles Formation, our survey uncovered numerous fossil vertebrate and invertebrate localities in the Williams Fork formation in the study area (survey areas 11, 13, 15, 17, 18). Virtually all these localities are at or near the bases of large, channel sandstones (figures 8, 9; plate 3). Particularly significant



**WILLIAMS FORK
FORMATION**
PHILADELPHIA CREEK
NE 1/4 SEC. 3 T2S, R101W

Figure 8. Measured section of part of the Williams Fork Formation in Philadelphia Creek showing the stratigraphic location of locality ET 13-3 where a large concentration of microvertebrate remains was discovered



**WILLIAMS FORK
FORMATION**
ROCKY POINT DRAW
SW 1/4 SEC. 26 T2 S , R 101 W

Figure 9. Measured stratigraphic section of part of the Williams Fork Formation in Rocky Point Draw showing the stratigraphic location of locality ET 17-12 where a partial skeleton of a hadrosaurian dinosaur was discovered

PLATE 3

Exposures of Williams Fork Formation in the Study Area (next page)

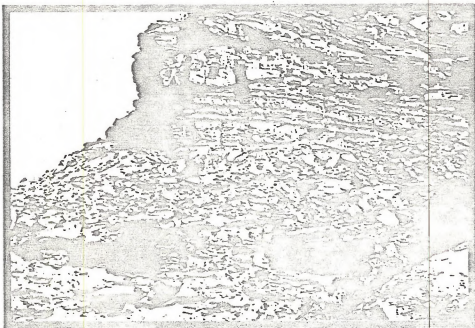
figure 1 Williams Fork Formation (KW) on north bank of State Bridge Draw (section 27, T2S, R101W) with bluffs of Green River Formation (TGR) in distance. Vertebrate fossils in the Williams Fork typically occur at bases of sandstones like that capping ridge in foreground.

figure 2 Williams Fork Formation on north bank of Philadelphia Creek (section 4, T2S, R101W) showing typical multistoried sandstone bodies.

1



2



localities are ET 13-3, where a large accumulation of small vertebrate and invertebrate remains was identified (figure 8), and ET 17-12, where a partial skeleton of a duckbill dinosaur was discovered (figure 8; plate 2, figures 3 and 4).

STRATIGRAPHY AND PALEONTOLOGY - CENOZOIC ERA

TERTIARY PERIOD

Three formations - Wasatch, Green River and Uinta - comprise the Tertiary rocks in the study area (figure 10). These rocks, deposited during the Paleocene and Eocene, represent very different environments than do the Cretaceous rocks just discussed. Thus, with the commencement of Cenozoic time, the Wasatch Formation was deposited by rivers in a wholly continental basin. As deposition of the Wasatch Formation ended, this basin subsided further and the extension of Lake Uinta into the Piceance Creek Basin began. The sediments deposited in Lake Uinta (figure 11) are now known as the Green River Formation. During the late Eocene, subsidence in the Piceance Creek Basin ended, and uplift adjacent to the basin resulted in the Uinta Formation (figure 12).

The following pages briefly review the stratigraphy, paleontology and depositional environments of the Tertiary formations in the study area.

Wasatch Formation

The Wasatch Formation is exposed over about 9% of the study area, primarily as a narrow belt along the southwestern, southern and southeastern margins of the study area (figure 2). Exposures of the Wasatch Formation along the northwestern, northern and northeastern margins of the study area are very limited, due to extensive cover by vegetation and soil. However, some limited, well-exposed outcrops of the Wasatch Formation are present south of State Highway 64 near White River City and near where Yellow Creek meets the White River.

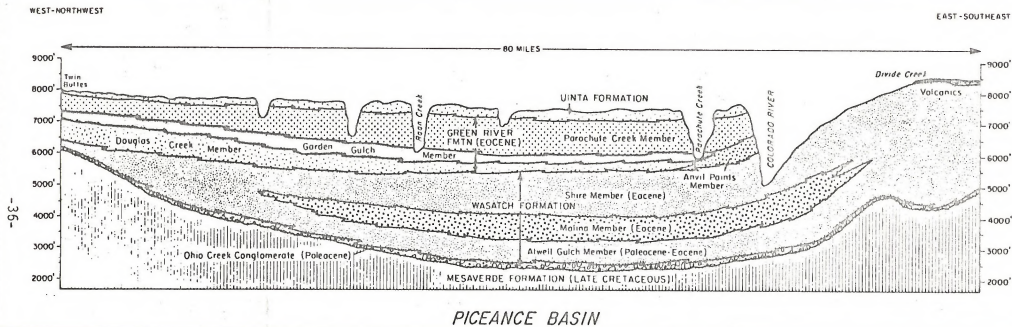
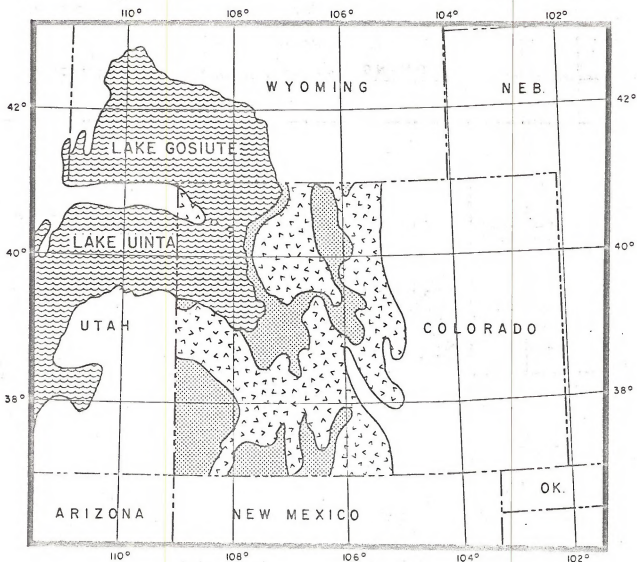


Figure 10. Generalized cross-section of Tertiary rocks in the Piceance Creek Basin (modified from McDonald 1972)



*PALEOGEOGRAPHY IN
LATE EARLY TO MIDDLE EOCENE TIME*




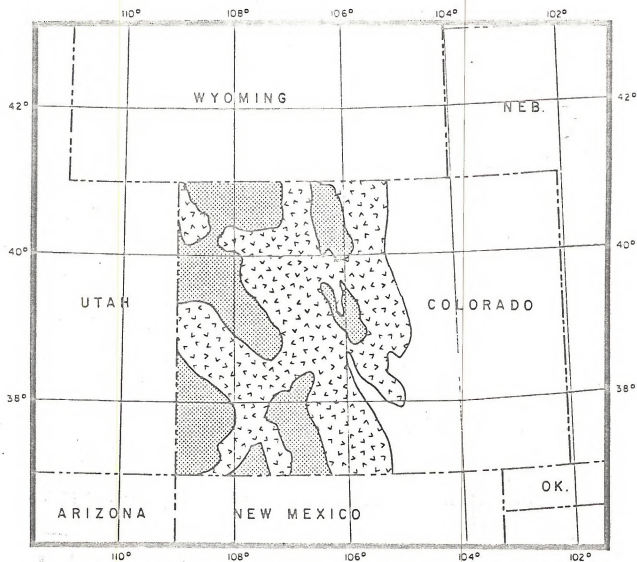
-  Uplift and piedmont
-  Basinal river and floodplain
-  Lake

Figure 11. Paleogeography of Colorado during the time of deposition of the Wasatch Formation (upper part) and Green River Formation in the study area (modified from McDonald 1972)



*PALEO GEOGRAPHY IN
LATE EOCENE TIME*



-  Uplift and piedmont
-  Basinal river and floodplain

Figure 12. Paleogeography of Colorado during the time of deposition of the Uinta Formation in the study area (modified from McDonald 1972)

In general, the Wasatch Formation in the Piceance Creek Basin is a thick sequence of variegated shales and fluvial sandstones that represent a mixture of fluvial, alluvial and piedmont deposits of overall low energy. Put differently, the Wasatch Formation in the Piceance Creek Basin represents extensive drainage systems that meandered across the subsiding basin during the late Paleocene and the early Eocene and built extensive floodplains and channel complexes. Deposits of the Wasatch Formation range in thickness from about 200 feet along the Douglas Creek Arch to nearly 6,000 feet on the eastern side of the basin (McDonald 1972). Typical exposures of the Wasatch consist of steep, denuded slopes of brightly colored (mostly red) clay and shale interbedded with lesser amounts of lenticular channel, bar and point bar sandstone deposits (frontispiece; plate 4).

The Wasatch Formation in the Piceance Creek Basin has had a long and unstable nomenclatural history (Donnell 1969, table 1). In this report we follow Donnell's (1969, table 1) three-fold subdivision of the Wasatch into three members (Atwell Gulch, Molina and Shire) except that we also include the basal Ohio Creek Conglomerate ("Formation") and so-called "Fort Union equivalents" in the Wasatch Formation (figure 10). We note, however, that Donnell's (1969) three members of the Wasatch Formation, characterized and mapped in the southern part of the Piceance Creek Basin, are not recognizable to the north.

Fossil vertebrates are common in the Wasatch Formation, as already existing collections in the Field Museum of Natural History (Chicago), University of Colorado Museum (Boulder), Museum of Western Colorado (Grand Junction), and Carnegie Museum of Natural History (Pittsburgh) indicate. Approximately 3,000 specimens have been collected.

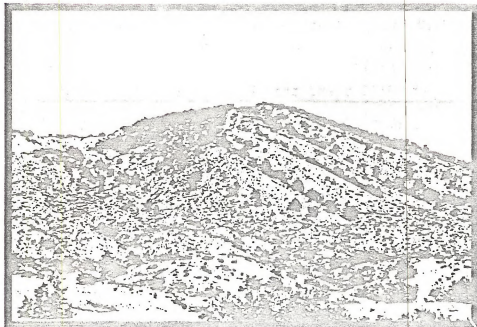
PLATE 4

Exposures of the Wasatch Formation in the Study Area (next page)

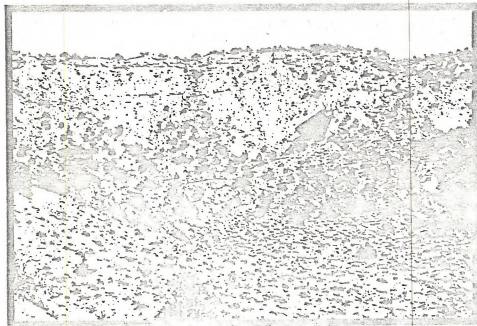
figure 1 Steeply dipping strata of the Wasatch Formation (upper part),
NE 1/4, section 9, T2N, R98W in survey area 12.

figure 2 Flat-lying strata of the Wasatch Formation on the south flank
of Hubbard Mesa showing the location of locality ET 22-5 (arrow)
in the SW 1/4, SE 1/4, section 34, T5S, R93W.

1



2



Most specimens from the Wasatch Formation in the Piceance Creek Basin have come from south of the study area, but there are fossil vertebrate and invertebrate localities (Appendix C) in the Wasatch within the study area, as the work of previous collectors and our survey (figure 13; plate 5) indicate.

During the late 1930's and the 1940's Bryan Patterson of the Field Museum of Natural History collected extensively in the Wasatch Formation in the Piceance Creek Basin. Earl Douglass in 1903 and J. Leroy Kay in the 1950's collected in these rocks for the Carnegie Museum. Collections at the Museum of Western Colorado were made in the 1960's. The University of Colorado Museum collections were made in the late 1970's and are still being augmented by one of the co-principal investigators (A. J. Kihm) of this report.

Although no comprehensive review of the fossils from the Wasatch Formation in the Piceance Creek Basin has been published, numerous papers on parts of the fossil fauna have appeared and the list of fossil vertebrates from the formation is lengthy (table 5). This extensive fossil fauna renders the Wasatch Formation the most scientifically significant formation in the study area.

Green River Formation

The Green River Formation makes up a significant part of the bedrock in the study area, approximately 27%. Exposures of the Green River Formation essentially encircle the entire area and also are present within the north-central part of the study area along Piceance and Yellow Creeks and their tributaries (figure 2).

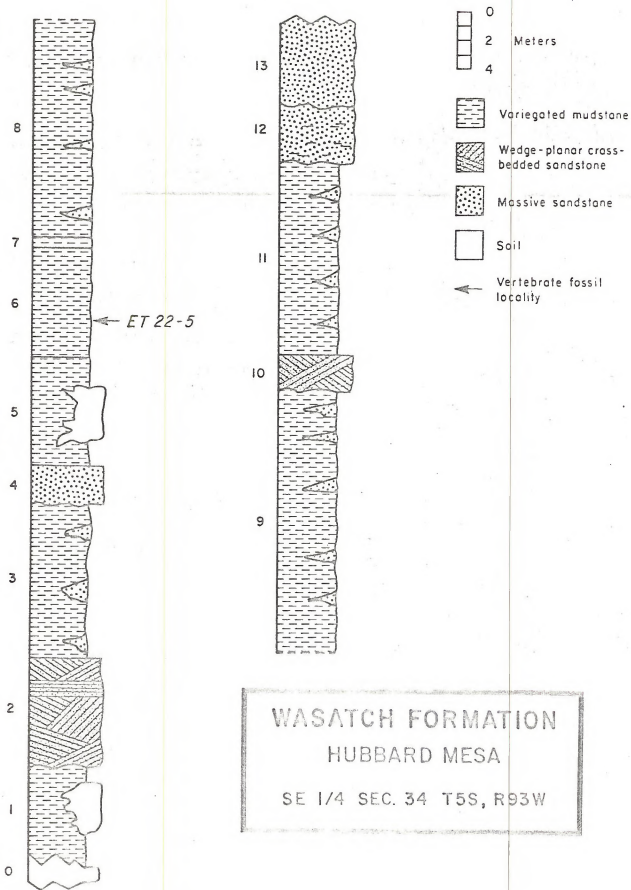


Figure 13. Measured stratigraphic section of part of the Wasatch Formation along the south flank of Hubbard Mesa showing the stratigraphic position of ET 22-5 where numerous vertebrate fossils were collected

PLATE 5

Fossils from Wasatch Formation in Study Area (next page)

- figures 1, 2 Jaw fragment (Colorado University 257) of Coryphodon sp. with left P₂-M₃ from the Wasatch Formation north of DeBeque, left lateral (figure 1, x 11₂) and occlusal (figure 2, x 3/4 views.
- figures 3, 4 Jaw fragment (Colorado University 40960) of Hyracotherium sp. with right P₄-M₃ from the Wasatch Formation at Colorado University locality 78006, right lateral (figure 3) and occlusal (figure 4) views, x 2.
- figure 5 Bird limb bones from the Wasatch Formation at locality ET 25-1, x 1.



40960

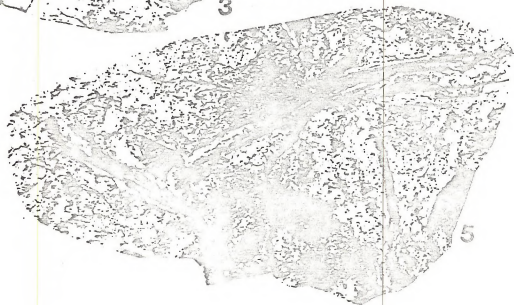


Table 5. Vertebrate Fauna from the Wasatch Formation in the Piceance Creek Basin (From Gazin 1953, 1965, 1968; Gingerich 1976, 1977, 1978; Kitts 1956; Novacek 1977; Patterson 1934, 1937, 1939, 1949; Patterson and Simons 1958; Patterson and West, 1973; Radinsky 1963; Schmidt 1938, 1945; Simons 1960; Sloan et al. 1980; Van Valen 1966; West 1976; Wood 1962; and on-going research by A. J. Kihm.)

Class: Osteichthyes
Order: Semionotiformes
Family: Lepisosteidae

Lepisosteus sp.

Order: Siluriformes
Family: Ictaluridae

Genus indeterminate

Class: Reptilia
Order: Squamata
Family: Anguidae

Genus indeterminate

Order: Crocodylia
Family: Crocodylidae

Allognathosuchus sp.
Leidyosuchus riggsi
Ceratosuchus burdoshi
Genus indeterminate

Class: Aves

Genus indeterminate

Class: Mammalia
Order: Multituberculata

Neoliotomus sp.
Ptilodus sp.

Order: Marsupialia
Family: Didelphidae

Mimoperadectes sp.

Order: Deltatheridia
Family: "Palaeoryctidae"

Didelphodus absarokae
D. altidens

Table 5
(continued)

Order: Insectivora
Family: Leptictidae

Palaeictops matthewi
? Prodiacodon sp.

Family: Adapisoricidae

Scenopagus sp.

Order: Primates
Family: Plesiadapidae

Plesiadapis dubius

Family: Microsyopidae

Microsyops sp.

Family: Adapidae

Pelycodus cf. P. trigonodus
? Copelernur sp.

Family: Paromyidae

Phenacolemur sp.

Order: Tillodontia
Family: Esthonychidae

Esthonyx bisulcatus
E. acutidens

Order: Rodentia
Family: Ischomyidae

Microparamys sp.
Paramys copei
P. excavatus
P. francesi
Reithroparamys debequensis
R. pattersoni
Thisbenys perditus
Lophiparamys debequensis
Pseudotomus coloradensis

Family: Sciuravide

Genus indeterminate

Order: Carnivora
Family: Miacidae

Table 5
(continued)

Didymictis protenus
cf. Miacis exiguus
Vulpavus sp.
Viverravus sp.

Order: Creodonta
Family: Oxyaenidae

Oxyaena sp.

Order: Condylarthra
Family: Phenacodontidae

Phenacodus primaevus
P. vortmani
P. brachypternus
Ectocion osbornianus
? E. parvus
Prosthecion major

Family: Hyopsodontidae

Apheliscus sp.
Haplomyilus speirianus
Hyopsodus walcottianus
Hyopsodus loomisii
H. cf. H. miticulus
Hyopsodus sp.
Alatodon gunnelli

Family: Mesonychidae

Pachyaena ossifraga

Family: Arctocyonidae

Lambertocyon ischyurus

Family: Meniscotheriidae

Meniscotherium chamense
M. tapiacitum

Order: Pantodonta
Family: Barylambdidae

Barylambda faberi
Leptolambda schmidtii
Haplolambda quinni

Family: Coryphodontidae

Coryphodon sp.

Table 5
(continued)

Family: Titanoideidae
Titanoides primaevus
T. zeuxis

Order: Dinocerata
Family: Prodinocerotidae

Bathyopsoides harrisorum
Probathyopsis newbilli

Order: Taeniodontia
Family: Stylinodontidae

Lampadophorus expectatus
Ectoganus sp.

Order: Perissodactyla
Family: Equidae

Hyracotherium angustidens
H. vasacciense
H. craspedotum
New genus and species

Family: Isectolophidae

Homogalax protapirinus

Family: Helaletidae

Heptodon posticus
H. calciculus

Family: Palaeotheriidae

Lambdotherium sp.

Family: Brontotheriidae

Genus indeterminate

Order: Artiodactyla
Family: Dichobunidae

Wasatchia sp.
Bunophorus sp.

The stratigraphy of the Green River Formation in the Piceance Creek Basin is complex, especially because the formation intertongues extensively with the underlying Wasatch Formation and with the overlying Uinta Formation. Put simply, four members of the Green River Formation are present within the study area: Anvil Points Member, Douglas Creek Member, Garden Gulch Member and Parachute Creek Member (figure 10).

The Anvil Points Member (plate 6, figure 1) is a clastic facies that invades the Piceance Creek Basin from the east. It is stratigraphically equivalent to the Douglas Creek, Garden Gulch and lowermost Parachute Creek Members. Lithologically, the Anvil Points is a very heterogenous unit that represents a moderate to high energy fluvial to lacustrine transition zone (lakeshore facies). Its thickness ranges from 1500 to 1900 feet, and it intertongues with the Douglas Creek, Garden Gulch and Parachute Creek Members of the Green River Formation and with the Wasatch Formation (figure 10).

The Douglas Creek Member is approximately 400-feet-thick on the east side of the basin where it intertongues with the Anvil Points Member. On the west side of the basin, however, the Douglas Creek Member is as much as 800 feet thick. The Douglas Creek Member is composed of cross-bedded, fine-grained, ripple-marked sandstone with algal and ostracodal limestone and lesser amounts of interbedded gray shale. It represents low to moderate energy lacustrine environments, some of which are transitional to fluvial environments.

The Garden Gulch Member is composed of gray, fissile shale with lesser amounts of interbedded marlstone, thin fine-grained sandstone and ostracodal, oölitic and algal limestone. It averages 600 to 700 feet thick in the southern and western parts of the basin and is thickest (up to 1000 feet)

in the north-central basin. The Garden Gulch Member represents depositional environments similar to those represented by the Douglas Creek Member.

The Parachute Creek Member is the primary member of the Green River Formation in the Piceance Creek Basin. It forms the sheer, white-weathering cliffs that are such a prominent feature of the present-day topography of the basin (frontispiece; plates 6, 7). At the northeastern synclinal axis of the Piceance Creek Basin, the Parachute Creek Member is over 3000 feet thick, but its thickness in other parts of the basin is much less and very variable due to erosion. Sediments of the Parachute Creek Member are largely oil shale, platy marlstones and limestones with lesser amounts of siltstone, silty shale and oolitic or pisolitic deposits. Recent analysis by Lundell and Surdam (1975) suggests that the Parachute Creek Member was deposited in a shallow water lake.

The Green River Formation in Utah and Wyoming has yielded an extensive fossil fauna that includes fishes, turtles, crocodylians, birds, bats and insects (Grande 1980). The most common fossils in the Green River Formation in the Piceance Creek Basin are plants (plate 8, figure 6) and insects (plate 8, figures 3, 4, 5). These fossils have been extensively studied because of their excellent preservation (see Annotated Bibliography). Although a juvenile crocodylian recently was reported from the Douglas Creek Member of the Green River Formation just southwest of the study area (Langston and Rose 1978), other than a few insects and gastropods no fossil fauna was reported from the Green River Formation in the study area prior to our survey. Our survey augmented the insect and gastropod faunas (plate 8) but only found minor amounts of vertebrate fossil material in the Green River Formation within the study area.

PLATE 6

Exposures of Wasatch and Green River Formations in the Study Area (next page)

figure 1 Wasatch Formation (middle part of Shire Member: TWsm; upper part of Shire Member: TWsu) overlain by Green River Formation (sandstone bed at Long Point: lp; Anvil Points Member: TGa; Parachute Creek Member: TGP; Mahogany oil-shale bed: mb) at Long Point (LP) looking northwest (NE 1/4, section 18, T7S, R97W).

figure 2 Wasatch Formation (TW) overlain by Green River Formation (Parachute Creek Member: TGP; Mahogany oil-shale bed: mb) northeast of Roan Creek on the west flank of Long Point (LP).

1



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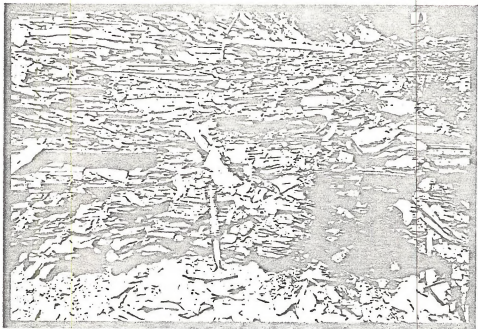
PLATE 7

Fossiliferous strata of the Green River Formation in Study Area (next page)

figure 1 Thinly-laminated shale of the Parachute Creek Member ("Black Sulpher Gulch Tongue") of the Green River Formation at locality ET 1-1 (SE 1/4, SW 1/4, T2S, R98W).

figure 2 Shell fragments of a trionychid turtle (t) in thinly-laminated silty shale of the Green River Formation at locality ET 10-2 (SE 1/4, NE 1/4, section 2, T2S, R97W).

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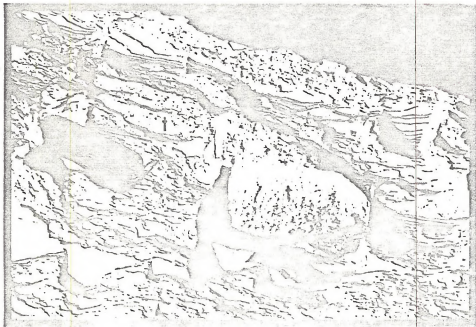


PLATE 8

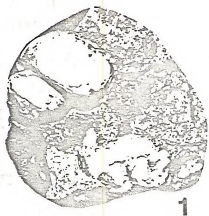
Fossils from the Green River Formation in Study Area (next page)

figures 1, 2 Gastropods from the sandstone bed at Long Point (basal Green River Formation) in section 8, T7S, R97W, x 1.

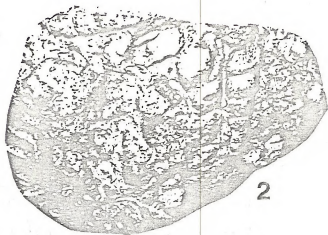
figures 3, 4 Insects from the Parachute Creek Member of the Green River Formation at locality ET 23-5, x 2.

figure 5 Insect larvae from the Parachute Creek Member of the Green River Formation at locality ET 12-20, x 2.

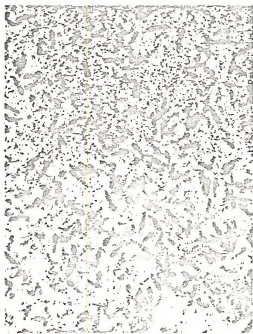
figure 6 Leaf impressions from the Parachute Creek Member of the Green River Formation, x 1.



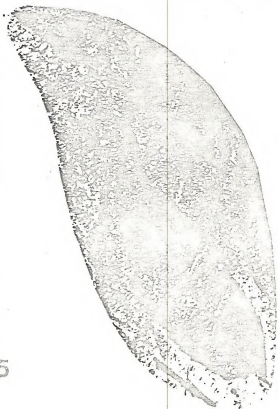
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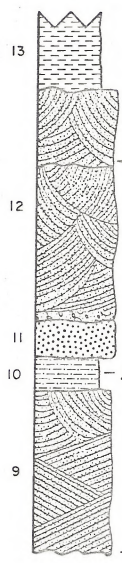
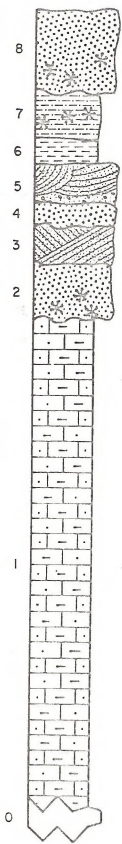


6

Uinta Formation

Outcrops of the Uinta Formation (formerly termed "Evacuation Creek Member of the Green River Formation") represent the majority (57%) of exposed bedrock in the study area. Deposits of the Uinta Formation are thick and massive sandstone (plate 9), siltstone, drab shale and barren mudstone. The formation becomes sandier towards the top. The Uinta Formation was deposited during and just after the final stages of Lake Uinta (figures 11, 12) and represents a return to a fluvial environment.

Very few fossil vertebrates or invertebrates were known from the Uinta Formation in the study area previous to our survey. Our study found numerous fossil localities in the Uinta in the study area although only a few of these yielded scientifically important specimens. The most important locality we discovered in the Uinta Formation yielded a partial skull of Uintatherium (figure 14; plates 9,10), without question the single best fossil vertebrate ever found in the Uinta Formation in the study area.



- 0
- 2 Meters
- 4
- Paper shale
- Silty marlstone
- Siltstone
- Tongentially cross-bedded sandstone
- Trough cross-bedded sandstone
- Massive sandstone
- Conglomerate
- Soil
- * Plant debris
- Leaves
- Vertebrate fossil locality

← ET 7-5

UINTA AND GREEN RIVER FORMATIONS
 NORTH BARCUS CREEK
 NW 1/4 SEC. 7 T1N, R98W

Figure 14. Measured stratigraphic section of part of the Uinta (units 2-12) and Green River (units 1, 13) Formations along North Barcus Creek showing the stratigraphic position of ET 7-5 where a partial skull of *Uintatherium* was discovered

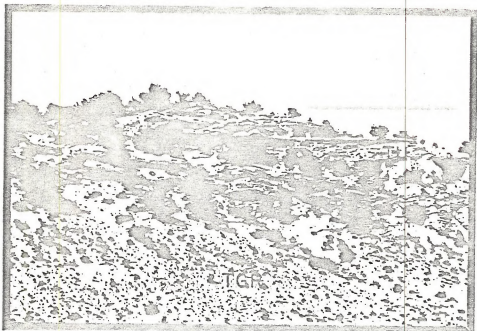
PLATE 9

Uinta and Green River Formations at locality ET 7-5 (next page)

figure 1 Uinta Formation (TU) sandstones above marlstones of the Green River Formation (TGR) just east of locality ET 7-5 (NW 1/4, NE 1/4, section 7, T1N, R98W).

figure 2 Close-up of ET 7-5 showing location in sandstone where Uinatherium skull was preserved (u) just above scour base of sandstone channel (s).

1



2



PLATE 10

Partial skull of Uintatherium sp. from locality ET 7-5 (next page)

figures 1, 2 Skull fragment of Uintatherium sp. from the Uinta Formation at locality ET 7-5 showing nasal horns, dorsal aspect (figure 1) and right lateral aspect (figure 2), x 1/3.

figures 3, 4 Upper canines of the same specimen as in figures 1 and 2, x 1/2.



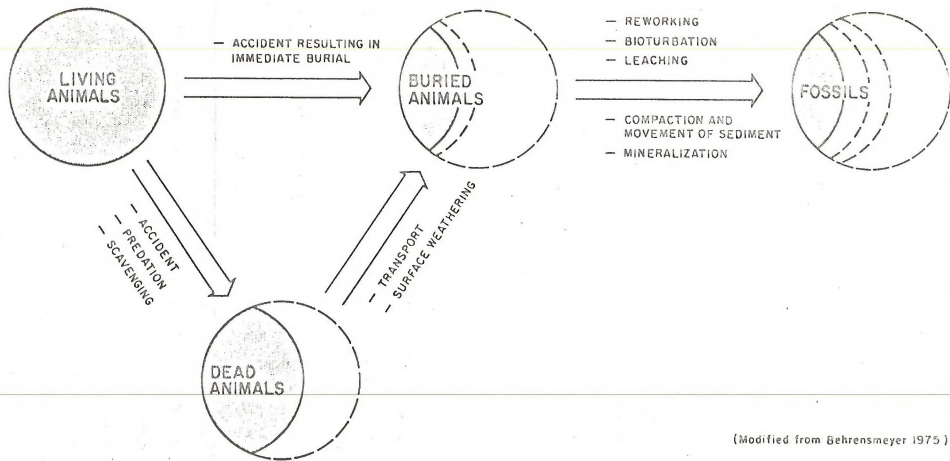
PREDICTIVE MODEL

Rationale

One of the purposes of this study was to develop a model to enable the prediction of localities most likely to contain paleontological resources outside the surveyed portion of the study area. Two main sources of information were used to develop this model:

- 1) The distribution and nature of fossil accumulations in the surveyed area; more specifically, the temporal periods, types of accumulations, scientific significance, stratigraphic positions and sedimentologic contexts of all fossil locales in the surveyed area
- 2) The distribution and lithologies of strata in the study area not surveyed.

Despite the information available from these two sources, the predictive model developed has many problems. The main source of these problems is the fact that all fossil assemblages are largely the result of accidents (Efremov 1940; Behrensmeier 1975); accidents that resulted in the death and/or burial after death of once-living animals (figure 15). The accidental component that influences the distribution of fossil localities renders extremely difficult the prediction of the location of fossil localities with any certainty. In other words, despite the fact that certain conditions are favorable to fossil preservation and discovery (e.g., particular sedimentary environments, presence of well exposed and accessible outcrop), and the discernment of the distribution of these conditions can aid in determining fossil localities, the accidental component in the processes of death, burial and fossilization introduces an element of randomness into the distribution of fossil localities in any area.



(Modified from Behrensmeier 1975)

Figure 15. Processes that result in the formation of fossil vertebrate and invertebrate localities

Bearing the qualifications imposed on any predictive model of fossil distribution by this randomness, we present a simple predictive model of fossil locality distribution in the unsampled portion of the study area. We base this model on the assumption that the quantity, distribution and scientific significance of fossil locales determined in the sampled portion of the study area is a good model of the quantity, distribution and scientific significance of fossil locales in the unsampled portion of the study area.

Results

The quantity, stratigraphic distribution and scientific significance of all fossil locales determined in the sampled portion of the study area has been tabulated (table 6). These figures have then been magnified to give predictive figures of the quantity, distribution and scientific significance of fossil locales that should be present in the unsampled bedrock (not necessarily exposed) in the remainder of the study area (table 7). These predictive figures must be interpreted with the following qualifying statements in mind:

- 1) These figures only apply to bedrock, whether exposed or not exposed, in the study area. Since it is likely that over 50% of the bedrock in the study area is covered by alluvium, soil and/or vegetation, from the practical viewpoint of what can be discovered by surface prospecting, the predictive figures should be cut at least in half.
- 2) Fossil localities in some formations are predicted to be associated with specific sedimentological contexts. Thus, fossil locales in the Uinta and Williams Fork Formations will generally be found at the bases of large channel sandstones or at the bases of channel bodies within

Table 6

Number of Localities Located by the Field Survey from each Formation within the Sampled Portion of the Study Area in each Category of Scientific Significance Evaluation *

<u>formation</u>	scientific significance					<u>TOTAL</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Uinta	4	9	17	25	4	59
Green River	1	12	13	14	3	43
Wasatch	4	12	14	12	3	45
Williams Fork	6	7	9	18	13	53
Iles	-	1	-	1	-	2
Sego	-	-	-	1	-	1
Mancos	-	4	7	4	-	15
<u>TOTAL</u>	15	45	60	75	23	218

* See table 8 for explanation of categories of scientific significance evaluation.

Table 7

Predictive Figures of Number of Localities from each Formation (bedrock not necessarily exposed) within the Unsampled Portion of the Study Area in each Category of Scientific Significance Evaluation*

formation	scientific significance					TOTAL
	1	2	3	4	5	
Uinta	81**	183	345	507	81	1,197
Green River	34	402	443	483	102	1,464
Wasatch	48	143	167	143	36	537
Williams Fork	47	55	71	141	102	416
Iles	0	0	0	0	0	0
Sego	0	0	0	0	0	0
Mancos	0	0	0	0	0	0
TOTAL	210	783	1,026	1,274	321	3,614

* See table 8 for explanation of categories of scientific significance evaluation.

** For example, the predictive figure for localities of scientific significance value 1 in the Uinta Formation is derived by the following equation:

$$\frac{\text{total acreage of Uinta in study area}}{\text{total acreage of Uinta in sampled area}} \times \text{number of localities of 1 evaluation in Uinta in sampled area} = \text{number of localities of 1 evaluation in Uinta in sampled area}$$

$$\text{OR: } \frac{429,750 \text{ acres}}{20,175 \text{ acres}} \times 4 = 81$$

multistoried sandstone channel complexes. Localities in the Green River Formation are likely to be in either fine-grained sandstones (Douglas Creek Member) or thinly-laminated marlstones (upper part of Parachute Creek Member). Localities in the Wasatch Formation probably will occur in variegated sequences of clay and shale.

- 3) Fossil localities in the Wasatch Formation probably will be more plentiful toward the eastern side of the study area (Rifle vicinity) than on the western side (de Beque and Grand Valley vicinity).
- 4) Random factors (see discussion above) still render it possible that many more or fewer localities are present in the study area than is indicated by the predictive figures in table 7.

SUMMARY

Scientific Significance

Information gathered by the Class I and Class II surveys of this study provides a comprehensive summary of the paleontologic resources of the study area. All paleontologic locales determined by the field survey have been evaluated with respect to their scientific significance (table 6, Appendix C). With this information it is possible to make specific recommendations for future paleontological work in the study area. It also is possible to recommend action to mitigate possible impacts on paleontologic resources in the area. To do this, we have evaluated the scientific significance of the paleontologic resources in each formation exposed in the study area. Then we have classified exposures of these formations according to the classification scheme for lands within the study area (table 2). This classification and our mitigation and management recommendations follow.

Class Ia Formations (and Localities)

Exposures of the Williams Fork Formation in the study area are classified Ia because the sampled outcrops of Williams Fork Formation yielded diagnostic, abundant and hitherto unknown paleontologic locales, many of which are judged to be highly significant (1) to significant (2). We recommend that the BLM engage a qualified paleontologist(s) as soon as possible to conduct an intensive inventory of all exposures of Williams Fork Formation and that all localities in the Williams Fork identified by us as highly significant (1) be salvaged prior to any land use activities that would impact these localities.

Table 8

Explanation of Numbers used to Indicate Evaluations of Scientific Significance

<u>number</u>	<u>explanation</u>
1*	Highly significant localities that produce complete, well-preserved, and/or diagnostic fossil specimens of fossil vertebrates and/or invertebrates in large quantities and/or are otherwise extremely significant because of their stratigraphic and/or geographic position
2	Significant localities that produce diagnostic specimens of fossil vertebrates and/or invertebrates in small quantities and/or are only moderately significant because of their stratigraphic and/or geographic position
3	Low significance localities that produce fossil vertebrates and/or invertebrates that are only diagnostic at higher taxonomic levels (e.g., order, family) and/or are otherwise better known from other localities
4	Insignificant localities that produce fossil vertebrates and/or invertebrates that are only diagnostic at the highest taxonomic levels (e.g., subclass, class) and/or are poorly preserved, not abundant and better known from other localities
5	Not evaluated localities that only yield fossil plant material (evaluation of the scientific significance of fossil plants does not strictly fall within the scope of this survey, although fossil plant material, when located in the field, was recorded).

- * Even localities with highly significant paleontological resources that have been totally collected retain an evaluation of "1" because of the sedimentological and stratigraphic information still available at the collected locality.

In particular, localities ET 13-3 and 17-12 represent occurrences of fossils not previously recorded in the Piceance Creek Basin. Locality ET 13-3 indicates excellent potential for producing a diverse fauna of Late Cretaceous vertebrates (including small species) from the Williams Fork Formation. This type of locality is not now known on the western slope of Colorado. Locality 17-12 contains a partial skeleton of a dinosaur. This type of specimen is of extreme scientific importance and should be preserved. The fossil materials at these localities should be salvaged by a qualified paleontologist at the earliest possible date. These localities should be protected from any adverse land use activities.

Class Ib Formations

Exposures of the Wasatch, Green River and Uinta Formations in the study area are classified as Class Ib because they have demonstrated high potential for producing scientifically significant paleontologic resources. We recommend that all localities in these formations we have identified as highly significant (1) be re-examined and, if deemed necessary by a qualified paleontologist, be salvaged prior to any land use activities that would impact these localities. We also recommend that the BLM conduct field inventory (similar to that conducted in the sampled portion of the study area) of unsampled exposures of the Wasatch, Green River and Uinta Formations in the study area prior to any land use that could adversely affect paleontological resources.

Class II Formations

Exposures of the Iles Formation and Mancos Shale in the study area are classified as Class II because they contain paleontological resources the significance of which is difficult to establish. We have no specific mitigation

and management recommendations concerning exposures of these formations except that we recommend that the BLM encourage any further paleontological study of the Iles Formation and Mancos Shale in the study area.

Class III Formations

The Sego and Castlegate Sandstones have produced no significant paleontological resources in the study area and thus are classified as Class III. Since there seems to be little likelihood of finding paleontological resources of scientific significance in these formations, we believe no specific mitigation or management recommendations can be made for the Sego and Castlegate Sandstones.

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GLOSSARY

GLOSSARY

- Arch Structurally, a linear uplift that is no longer than wide. Serves to separate areas geographically and structurally.
- Basin A structural bowl formed by either uplift on several sides of an area, or by subsidence of an area. Basin when initially formed tends to accumulate sediments.
- Bed (bedding, bedded) A sedimentary layer, may be very thick (30 m or more), or very thin (less than 1 m). A unit of sediment that has a similar history of deposition.
- Cenozoic Era The major time unit comprising the last 65 million years of Earth's time. It has two Periods, Tertiary and Quaternary.
- Conglomerate A rock layer made up predominately of large (2 mm diameter or greater) particles.
- Continental Referring to those environments which occur on a continent as opposed to marine. Examples are streams, lakes and sand dunes.
- Cretaceous The final (youngest) period of the Mesozoic Era. The Cretaceous Period spans the time from 140 ma to 65 ma. It is generally characterized as a time when a shallow sea covered much of central North America.
- Crocodylia A group of dominant reptiles which includes the modern-day crocodile, alligator and gavial.
- Crossbedded When beds occur at various orientations relative to each other. Indicative of a changing direction of the mode of deposition, i.e., changing water currents in a stream or changing wind direction.
- Dinosaur A term referring to two of the groups of ruling reptiles, the Ornithischia and Saurischia. These two orders originated during the Triassic and were the dominant vertebrate type in the Jurassic and Cretaceous Periods. They became extinct at the end of the Cretaceous.
- Eocene The second epoch of the Tertiary, spanning the time from 53.5 ma to 37 ma. A time when continental deposition occurred in many basins in the Rocky Mountain region.
- Epoch The temporal subunit of a Period. It is defined by its contained fossils. The rocks deposited during an Epoch represent a Series.
- Era One of the major units of geologic time. It is based on the fossils found in rocks of that age and has subordinate

	units called Periods. The rocks deposited in the time represented by an Era are said to represent an Erathen.
Exposure	A bare surface of outcrop, usually denuded of all soil and vegetation.
Fauna	Referring to the group of animals that occurs in an environment. A fossil fauna is that group of animals for which identifiable fossilized remains have been recovered from a particular locality, formation or time span.
Fluvial	Pertaining to river or stream environment; i.e., fluvial sediments.
Formation	A mapping term denoting a sedimentary rock unit that can be traced for a considerable distance. It usually has a distinctive lithology and is readily distinguishable from the units above and below it. It is not related to time units and the boundaries of a formation may cross time boundaries.
Group	A sequence of two or more formations representing a major sedimentary cycle. The upper and lower boundaries of a group may represent major breaks in the rock record.
Lacustrine	Referring to lake deposition.
Lithology	Of or pertaining to the particles constituting a rock or rocks. Typical lithologies are shale, sandstone, limestone, etc.
Ma (Mega annum)	One million (1,000,000) years, equivalent to mybp, million years before present, but less cumbersome.
Mammal	Referring to that group of animals which give birth to the young alive, suckle the young, have hair and are warm-blooded. Man, dogs, horses, bison and bats are a few common types.
Massive	A rock unit with no visible or obvious bedding.
Member	A rock unit term, a subdivision of a formation and usually mappable on a local basis.
Mesozoic	The second of the three eras with abundant fossil remains, bounded by the Paleozoic Era below and the Cenozoic Era above. It lasted from approximately 230 to 65 million years ago. It has three Periods (in ascending order): Triassic, Jurassic and Cretaceous.
Mudstone	A rock unit made up of mud-sized particles; differs from a shale by the lack of thin bedding or platy character.

Order	A level of taxonomy which groups those organisms which share a common ancestry and are easily separable from other orders based on major morphologic characters. Primates, Carnivora and Chiroptera (bats) are three examples of orders.
Outcrop	The interface of rock formation and the surface of the land.
Paleocene	The first (earliest) epoch of the Tertiary, spanning the time from 65 ma to 53,5 ma. This is the time when basins began to develop in the Rocky Mountain region and mammals became the dominant vertebrate type.
Period	A subunit of an Era, and, like the Era, is defined by the fossils contained in rocks of that time unit. Several Periods make up an Era. A Period also has subunits called Epochs. The rocks deposited in a given period represent a System.
Quaternary	The youngest Period of the Cenozoic Era. It dates from approximately 1.8 (or 1.2) ma to the present. It has two Epochs, the Pleistocene (up to 10,000 years before the present) and the Holocene (10,000 YBP to present).
Reptile	That group of animals which reproduces via an amniote egg, the young hatching as more or less miniature adults.
Sandstone	A rock composed of grains of sand-size (2 millimeters to 1/16 millimeter in diameter) cemented or uncemented by another substance. Sandstone is usually composed of quartz, but may also have other minerals and rock fragments as part of its composition.
Shale	A sedimentary rock usually composed of clay minerals (silicate minerals less than 1/256 millimeter in diameter). Common clay minerals are kaolinite, illite and montmorillonite. Shales usually have a tendency to separate more or less parallel to the bedding surface. This tendency is called fissility.
Siltstone	A sedimentary rock similar to sandstone but composed of grains between 1/16th and 1/256th millimeter in size.
Taxon (plural taxa)	A unit of the scientific classification of animals and plants. Depending on usage, it can be as detailed as a species or as general as a class. When used, all taxa referred to should be of equal rank.
Tertiary	The older of the two Periods of the Cenozoic Era. It dates from approximately 65 to approximately 1.8 (or 1.2) ma. It has five Epochs (in ascending order): Paleocene, Eocene, Oligocene, Miocene and Pliocene.

APPENDIX A

Areas Surveyed

SURVEY AREA 1

Name of area North Bank of Ryan Gulch

Legal description of area sections 8, 18 and N 1/2 (approximate) of 17 T2S R98W
and section 13 T2S R99W

Total acreage of area 2200

Topographic map(s) area is on Wolf Ridge, Colorado and Yankee Gulch, Colorado

Geologic map coverage of area Duncan (1976a, 1976f)

Geologic formations exposed in area Green River, Uinta and Qal (46 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>1990</u>
GREEN RIVER FORMATION	<u>164</u>
WASATCH FORMATION	<u> </u>
WILLIAMS FORK FORMATION	<u> </u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCOS SHALE	<u> </u>

Number of paleontological locales in area 1

Scientific significance of locales:

-
-
-
-
-

SURVEY AREA 3

Name of area East Bank of Yellow Creek south

Legal description of area sections 17, 18, 19, 20 T1N R97W; sections 29, 30, 31, 32 T1N R97W; E 1/2, E 1/2 section 13, 24 (approximate), T1N R98W; E 3/4 NE 1/4 & SE 1/4 (approximate) section 25 T1N R98W; E 1/2 & E 1/2 W 1/2 (approximate) section 36 T1N R98W; NE 1/4 section 6 & NW 1/4 section 5 T1S R97W

Total acreage of area 6554

Topographic map(s) area is on Barcus Creek SE, Colorado and Square S Ranch, Colorado

Geologic map coverage of area Duncan (1976b) and Hail (1972)

Geologic formations exposed in area Green River, Uinta, Qal (407 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>5987</u>
GREEN RIVER FORMATION	<u>160</u>
WASATCH FORMATION	<u> </u>
WILLIAMS FORK FORMATION	<u> </u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCOS SHALE	<u> </u>

Number of paleontological locales in area 33

Scientific significance of locales:

- 1 ET 3-2, 3-5, 3-6, 3-13
- E1 3-14
- 3 E1 3-3, 3-4, 3-16, 3-19, 3-20, 3-22, 3-25, 3-26, 3-30
- 4 E1 3-1, 3-2, 3-8, 3-9, 3-10, 3-11, 3-12, 3-15, 3-17, 3-18, 3-21, 3-24, 3-27,
3-28, 3-29, 3-32, 3-33, 3-34
- 5 E1 3-7

SURVEY AREA 4

Name of area Duck Creek and vicinity

Legal description of area sections 8, 17; S 1/2, S 1/2 sections 4, 5; SE 1/4 SE 1/4 section 6; NE 1/4 NE 1/4 section 7; E 1/2 E 1/2 section 18; section 9 (except S 1/2 NE 1/4); section 16 (except S 1/2 SE 1/4 & E 1/2 SE 1/4 & SE 1/4 NE 1/4); W 1/2 SW 1/4 & NW 1/4 SE 1/4 section 10 T1S R98W

Total acreage of area 2700

Topographic map(s) area is on Wolf Ridge, Colorado

Geologic map coverage of area Duncan (1976a)

Geologic formations exposed in area Green River, Uinta, Qal (466 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>1960</u>
GREEN RIVER FORMATION	<u>274</u>
WASATCH FORMATION	<u> </u>
WILLIAMS FORK FORMATION	<u> </u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCUS SHALE	<u> </u>

Number of paleontological locales in area 4

Scientific significance of locales:

-
- ET 4-2, 4-3
-
- ET 4-1
- ET 4-4

SURVEY AREA 6

Name of area Yellow Creek - Barcus Creek confluenceLegal description of area sections 25, 36; E 1/2 E 1/2 sections 26, 35 T2N R48WTotal acreage of area 1600Topographic map(s) area is on Barcus Creek SE, ColoradoGeologic map coverage of area Hail (1972)Geologic formations exposed in area Green River, Uinta, Qal (198 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>631</u>
GREEN RIVER FORMATION	<u>771</u>
WASATCH FORMATION	<u></u>
WILLIAMS FORK FORMATION	<u></u>
ILES FORMATION	<u></u>
SEGO SANDSTONE	<u></u>
MANCUS SHALE	<u></u>

Number of paleontological locales in area 3

Scientific significance of locales:

- 1
- 2 ET 6-2
- 3
- 4 ET 6-1, 6-3
- 5

SURVEY AREA 7

Name of area Barcus Creek tributaries

Legal description of area sections 4, 6, 7, 8, 17, 19 T1N R98W and section 12
T1N R99W

Total acreage of area 4107

Topographic map(s) area is on Barcus Creek, Colorado

Geologic map coverage of area Hail (1974a)

Geologic formations exposed in area Green River, Uinta, Oal (762 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>3002</u>
GREEN RIVER FORMATION	<u>336</u>
WASATCH FORMATION	<u> </u>
WILLIAMS FORK FORMATION	<u> </u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCUS SHALE	<u> </u>

Number of paleontological locales in area 7

Scientific significance of locales:

- 1 ET 7-5
- 2 ET 7-1, 7-4
- 3 ET 7-3, 7-7
- 4 ET 7-2, 7-6
- 5

SURVEY AREA 9

Name of area Collins Gulch

Legal description of area sections 29, 32 and NE 1/2 section 31 T2S R96W

Total acreage of area 1430

Topographic map(s) area is on Jessup Gulch, Colorado

Geologic map coverage of area Duncan (1976d)

Geologic formations exposed in area Green River, Uinta, Gal (194 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>1212</u>
GREEN RIVER FORMATION	<u>24</u>
WASATCH FORMATION	<u></u>
WILLIAMS FORK FORMATION	<u></u>
ILES FORMATION	<u></u>
SEGO SANDSTONE	<u></u>
MANCOS SHALE	<u></u>

Number of paleontological locales in area 1

Scientific significance of locales:

- 1
- 2
- 3
- 4 ET 9.1
- 5

SURVEY AREA 10

Name of area Hatch GulchLegal description of area section 1; N 1/2 section 12; E 3/4 section 2 T2S R97W;
section 7 T2S R96NTotal acreage of area 2000Topographic map(s) area is on Greasewood Gulch, ColoradoGeologic map coverage of area Duncan (1976c)Geologic formations exposed in area Green River, Uinta, Gal (241 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>1584</u>
GREEN RIVER FORMATION	<u>175</u>
WASATCH FORMATION	<u> </u>
WILLIAMS FORK FORMATION	<u> </u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCUS SHALE	<u> </u>

Number of paleontological locales in area 2

Scientific significance of locales:

-
- ET 10-1, 10-2
-
-
-

SURVEY AREA 11

Name of area Pantyhose Creek

Legal description of area E 1/2, SE 1/4 (approximate) & S 1/2 NE 1/4 (approximate) section 7; E 1/2 NE 1/4 (approximate) & NE 1/4 SE 1/4 (approximate) section 18; section 8 (except N 1/2 N 1/2 approximate); section 17 (except S 3/4 S 1/2); NW 1/4 section 16 (approximate)

Total acreage of area 1660

Topographic map(s) area is on Philadelphia Creek, Colorado and Water Canyon, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Williams Fork Formation, Qal (270 acres)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	_____
WASATCH FORMATION	_____
WILLIAMS FORK FORMATION	<u>1390</u>
ILES FORMATION	_____
SEGO SANDSTONE	_____
MANCOS SHALE	_____

Number of paleontological locales in area 19

Scientific significance of locales:

- 1 E1 11-4
- 2 E1 11-1, 11-3, 11-9, 11-19
- 3 E (11-5, 11-7, 11-8, 11-12, 11-18)
- 4 E1 11-2, 11-13, 11-17, 11-18

SURVEY AREA 12

Name of area Mouth of Yellow CreekLegal description of area section 16; E 1/2 NE 1/4 (approximate) section 17; NW 1/4 NW 1/4 (approximate) section 15; section 10 (except E 1/2 SW 1/4 & W 1/4 SE 1/4); NE 1/4 section 9 (approximate); SE 1/4 & S 1/2 NE 1/4 (approximate) section 4; S 1/2 section 3 (approximate) T2N R98WTotal acreage of area 2075Topographic map(s) area is on Rough Gulch, Colorado and Smizer Gulch, ColoradoGeologic map coverage of area Hail (1974b,c)Geologic formations exposed in area Williams Fork, Wasatch, Green River, Uinta, Qal (902 acres)

Exposed acreage of formations in area:

UINTA FORMATION	<u>270</u>
GREEN RIVER FORMATION	<u>443</u>
WASATCH FORMATION	<u>435</u>
WILLIAMS FORK FORMATION	<u>25</u>
ILES FORMATION	<u> </u>
SEGO SANDSTONE	<u> </u>
MANCOS SHALE	<u> </u>

Number of paleontological locales in area 24

Scientific significance of locales:

- ET 12-2
- ET 12-5, 12-8, 12-9, 12-13, 12-15, 12-17, 12-23
- ET 12-6, 12-7, 12-14, 12-16, 12-18, 12-19
- ET 12-1, 12-3, 12-4, 12-20, 12-21, 12-22
- ET 12-10, 12-11, 12-12, 12-24

SURVEY AREA 13

Name of area Philadelphia Creek

Legal description of area SE 1/4 section 4 (approximate); S 1/2 & NE 1/4 section 3 T2S R101W; SW 1/4 section 35 T1S R101W

Total acreage of area 800

Topographic map(s) area is on Philadelphia Creek, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Williams Fork, Qal (120)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	_____
WASATCH FORMATION	_____
WILLIAMS FORK FORMATION	<u>680</u>
ILES FORMATION	_____
SEGO SANDSTONE	_____
MANCOS SHALE	_____

Number of paleontological locales in area 4

Scientific significance of locales:

1 ET 13-3

4 ET 13-2

5 ET 13-1 13-4

SURVEY AREA 14

Name of area Thirteenmile Creek

Legal description of area NW 1/4 & N 1/2 SW 1/4 & W 1/2 NE 1/4 section 25 T2S
R95W

Total acreage of area 320

Topographic map(s) area is on No Name Ridge, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Green River, Qal (80 acres)

Exposed acreage of formations in area:

UINTA FORMATION _____

GREEN RIVER FORMATION 240

WASATCH FORMATION _____

WILLIAMS FORK FORMATION _____

ILES FORMATION _____

SEGO SANDSTONE _____

MANCOS SHALE _____

Number of paleontological locales in area 1

Scientific significance of locales:

1 _____

2 ET 14-1

3 _____

4 _____

5 _____

SURVEY AREA 15

Name of area Cathedral Creek - BluffsLegal description of area section 14 (except NE 1/2 NE 1/4); section 23 (except SW 1/4 & S 1/2 SE 1/4 - approximate); section 24 (except NE 1/2) T3S R100WTotal acreage of area 1300Topographic map(s) area is on Black Cabin Gulch, ColoradoGeologic map coverage of area Cashion (1969)Geologic formations exposed in area Williams Fork, Wasatch, Green River, Qal
(385 acres)

Exposed acreage of formations in area:

UINTA FORMATION

GREEN RIVER FORMATION

675

WASATCH FORMATION

220

WILLIAMS FORK FORMATION

20

ILES FORMATION

SEGO SANDSTONE

MANGOS SHALE

Number of paleontological locales in area 21

Scientific significance of locales:

1

2 ET 15-1, 15-14, 15-18, 15-19, 15-213 ET 15-2, 15-3, 15-6, 15-8, 15-13, 15-15, 15-20, 15-224 ET 15-4, 15-5, 15-7, 15-9, 15-10, 15-11, 15-12, 15-16

5

Name of area Gillam Draw and vicinityLegal description of area section 4; N 1/2 section 9, W 1/2 section 8, S 1/2 section 5 (approximate); N 1/2 section 8 (approximate); SE 1/4 section 6 (approximate) T1N R101WTotal acreage of area 2132Topographic map(s) area is on Gillam Draw, Colorado and Rangely, ColoradoGeologic map coverage of area Cullins (1971) (none for Gillam Draw, Colorado)Geologic formations exposed in area Mancos (including Castlegate Sandstone),
Sego, Gal (90 acres)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	_____
WASATCH FORMATION	_____
WILLIAMS FORK FORMATION	_____
ILES FORMATION	_____
SEGO SANDSTONE	<u>71</u>
MANCOS SHALE	<u>1971 (includes Castlegate Sandstone)</u>

Number of paleontological locales in area 16

Scientific significance of locales:

- 1 _____
- 2 ET 16-1, 16-4, 16-7, 16-14
- 3 ET 16-2, 16-5, 16-6, 16-8, 16-9, 16-12, 16-13
- 4 ET 16-3, 16-10, 16-11, 16-15, 16-16
- 5 _____

SURVEY AREA 17

Name of area Rocky Point - East Red Point Draws

Legal description of area sections 25, 26; N 1/2 section 36; NE 1/4 NE 1/4 Section 35 (approximate) T2S R100W

Total acreage of area 1545

Topographic map(s) area is on White Coyote Draw, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Williams Fork, Qal (155 acres)

Exposed acreage of formations in area:

UINTA FORMATION _____

GREEN RIVER FORMATION _____

WASATCH FORMATION _____

WILLIAMS FORK FORMATION 1390

ILES FORMATION _____

SEGO SANDSTONE _____

MANCOS SHALE _____

Number of paleontological locales in area 18

Scientific significance of locales:

1 ET 17-12, 17-13

2 ET 17-5, 17-7, 17-16

3 EI 17-2

4 ET 17-6, 17-8, 17-9, 17-10, 17-14, 17-15, 17-17, 17-18,

5 EI 17-1, 17-2, 17-4, 17-11

SURVEY AREA 18

Name of area State Bridge DrawLegal description of area sections 27, 28; SE 1/4 & SW 1/4, SW 1/4 section 21 T1S
R101WTotal acreage of area 1440Topographic map(s) area is on Philadelphia Creek, ColoradoGeologic map coverage of area noneGeologic formations exposed in area Williams Fork, Qal (72 acres)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	_____
WASATCH FORMATION	_____
WILLIAMS FORK FORMATION	<u>1368</u>
ILES FORMATION	_____
SEGO SANDSTONE	_____
MANCUS SHALE	_____

Number of paleontological locales in area 13

Scientific significance of locales:

- ET 18-8, 18-12
- _____
- ET 18-4, 18-7, 18-13
- ET 18-2, 18-3, 18-5, 18-6
- ET 18-1, 18-4, 18-9, 18-10, 18-11

SURVEY AREA 21

Name of area New Highway 70

Legal description of area _____

Total acreage of area _____

Topographic map(s) area is on Grand Valley, Colorado and Red Pinnacle, Colorado

Geologic map coverage of area Donnell and Yeend (1968a) (no coverage of Red Pinnacle, Colorado)

Geologic formations exposed in area Wasatch, Green River, Qal (180 acres)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	<u>220</u>
WASATCH FORMATION	<u>1400</u>
WILLIAMS FORK FORMATION	_____
ILES FORMATION	_____
SEGO SANDSTONE	_____
MANCOS SHALE	_____

Number of paleontological locales in area 2

Scientific significance of locales:

1 _____

2 ET 21-1

3 ET 21-2

4 _____

5 _____

SURVEY AREA 22

Name of area Hubbard Mesa

Legal description of area SE 1/4-section 34; section 35 (except E 1/2 NE 1/4); SW 1/4 section 36 (approximate); S 1/2 & S 1/2 NE 1/4 section 20; SW 1/2 section 25 (approximate) T5S R93W; E 1/2 NE 1/4 section 6; N 1/2 section 5 (approximate); NW 1/4 NW 1/4 section 4 (approximate) T6S R93W

Total acreage of area 1973

Topographic map(s) area is on Rifle, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Wasatch, Qal (980 acres)

Exposed acreage of formations in area:

UINTA FORMATION	_____
GREEN RIVER FORMATION	_____
WASATCH FORMATION	<u>993</u>
WILLIAMS FORK FORMATION	_____
ILES FORMATION	_____
SEGO SANDSTONE	_____
MANCOS SHALE	_____

Number of paleontological locales in area 7

Scientific significance of locales:

- 1 _____
- 2 _____
- 3 ET 22-5, 22-6, 22-7
- 4 ET 22-1, 22-2, 22-3, 22-4
- 5 _____

SURVEY AREA 25

Name of area Clear Creek - Long Point

Legal description of area SW 1/4 section 11 (approximate) T7S R98W

Total acreage of area 140

Topographic map(s) area is on Long Point, Colorado

Geologic map coverage of area Johnson (1975)

Geologic formations exposed in area Wasatch, Qal (10 acres)

Exposed acreage of formations in area:

UINTA FORMATION _____

GREEN RIVER FORMATION _____

WASATCH FORMATION 130

WILLIAMS FORK FORMATION _____

ILES FORMATION _____

SEGO SANDSTONE _____

MANCOS SHALE _____

Number of paleontological locales in area 1

Scientific significance of locales:

1 ET 25-1

4

5

SURVEY AREA 26

Name of area Oil Shale Reserve Boundary

Legal description of area S 1/2 SW 1/4 section 28 (approximate) T5S R93W

Total acreage of area 100

Topographic map(s) area is on Rifle, Colorado

Geologic map coverage of area none

Geologic formations exposed in area Wasatch, Qal (10 acres)

Exposed acreage of formations in area:

UINTA FORMATION _____

GREEN RIVER FORMATION _____

WASATCH FORMATION 90

WILLIAMS FORK FORMATION _____

ILES FORMATION _____

SEGO SANDSTONE _____

MANCOS SHALE _____

Number of paleontological locales in area 2

Scientific significance of locales:

1 _____

2 _____

3 ET 26-1, 26-2

4 _____

5 _____

APPENDIX B

Fossil invertebrate taxa (mostly gastropods
and bivalves) collected by the field survey

Phylum Mollusca

Class Gastropoda

Order mesogastropoda

Family Pleuroceridae

Goniobasis tenera (Hall) 1845: ET 6-1, 7-3, 12-6, 12-14,
12-15, 15-3, 15-8, 15-13, 15-17, 15-18, 15-22, 21-3

Family Hydrobiidae

Hydrobia sp.: ET 12-7, 15-23

Family Valvatidae

Clenchiella planospiralis (Yen), 1946: ET 12-17

Valvata? sp.: ET 15-22

Family Viviparidae

Viviparus meeki Wenz 1930: ET 11-1, 15-21, 15-22

Viviparus sp.: ET 18-12, 15-8, 15-18, 15-20, 18-10

Lioplacodes multistriata (M. & H.) 1856 ET 12-17

Order Basommatophora

Family Physidae

Physa pleuromatis White, 1876 ET 15-17, 15-23

Family Planorbidae

Biomphalaria pseudoammonius (Schlottheim) ET 3-7, 3-28

Biomphalaria sp. ET 15-23

Omalodiscus cf. O. cirrus (White), 1877 ET 15-14, 15-19

Family Lymnaeidae

Pleurolimnaea cf. P. tenuicosta (M. & H.) 1856: ET 12-7

Class Bivalvia

Order Unionoidea

Family Unionidae

Plesiellitio priscus (M. & H.) 1856: ET 15-20, 15-23

P. cf. P. silberlingi: ET 12-17

P. sp. ET 12-15, 15-3

Family Pisiidae

Sphaerium sp. ET 15-8

Order Pterioidea

Family Inoceramidae

Inoceramus sp.: ET 16-7, 16-14, 16-15, 16-16

Family Ostrea sp.

Ostrea sp.: ET 16-1, 16-7, 16-8

Class Cephalopoda

Order Ammonoidea

Family Baculitidae

Baculites sp.: ET 16-4, 16-7, 16-12, 16-14

Family Placenticeridae

Placenticeras sp. ET 16-7, 16-16

Phylum Arthropoda

Ostracods, at various localities

APPENDIX C

Fossil localities within the study area
determined by the field survey

The following locality sheets contain all available information on the 218 localities of fossil vertebrates and/or invertebrates (as well as some fossil plant localities) determined by the field survey completed for this report. See Table 8 for explanation of numbers used to indicate evaluations of scientific significance.

SITE FORM

LOCALITY NUMBER: 78132NAME: The Dump

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93WNW 1/4 NE 1/4 SE 1/4, section 5_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER W.F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78066NAME: Harmonica Hollow

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94Wctr 1/4 SE 1/4 SE 1/4, section 2_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment: _____

Fossils Sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78064NAME: Stock Pond

PREVIOUS NUMBER(S): _____

LOCATION:

State: ColoradoCounty: GarfieldTownship: 6SRange: 94WNE 1/4 SW 1/4 SE 1/4, section 16 1/4 1/4 1/4, section USGS Quadrangle Anvil Points1952 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER W. F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era CenozoicSystem TertiaryFormation Wasatch

Member _____

Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78063NAME: Hubbard Gulch

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93WNW 1/4 SW 1/4 NW 1/4, section 5_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ in N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78062NAME: King's Crown

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 SW 1/4 SW 1/4, section 351/4 1/4 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance
and disposition of
material

SITE FORM

LOCALITY NUMBER: 78061NAME: Koper Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93WN 1/2 N 1/2 NE 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER W.F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78030NAME: Kladder Location D

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WNW 1/4 _____ 1/4 _____ 1/4, section 12E 1/2 NE 1/4 _____ 1/4, section 11USGS Quadrangle Rifle1952 _____, 7.5 _____ min.

UTM _____; _____ m E, _____ m N

LANDOWNER W. F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78029NAME: Repasardi

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 9SWSE 1/4 SE 1/4 SE 1/4, section 27 1/4 1/4 1/4, section _____USGS Quadrangle Rulison1960 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER ERDA-Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 98-C-47 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 NE 1/4, section 141/4 1/4 SW 1/4, section 11USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS north of US 6 and 24 via dirt road

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position approximately 610m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Pelycodus, Meniscotherium, Hyracotherium, Homogalax, Diacodexis

Fossils remaining _____

Scientific significance and disposition of material FMNH locality

SITE FORM

LOCALITY NUMBER: 78028NAME: Roan Cliffs Gulch Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WNW 1/4 SE 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78027

NAME: Lostcabinian Lament Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Garfield

Township: 6S Range: 95W

NE 1/4 NW 1/4 NE 1/4, section 26

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Anvil Points

1952 _____, 7.5 _____ min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA- Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material

SITE FORM

LOCALITY NUMBER: 78025NAME: Lizard Level

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WSW 1/4 NW 1/4 NW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Anvil Point1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA- Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78024NAME: Egg Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WSE 1/4 SW 1/4 NW 1/4, section 25 1/4 1/4 1/4, section _____USGS Quadrangle Rulison1960 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserves

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78023NAME: Tapiroid Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WNW 1/4 NW 1/4 NE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78022NAME: Rulison, Low

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WS 1/2 NE 1/4 NW 1/4, section 25_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78021NAME: Rulison, High

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95WN 1/2 SW 1/4 NW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78019NAME: Lenin Level Locality

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WSE 1/4 SW 1/4 1/4, section 17SW 1/4 SE 1/4 1/4, section 17USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position 5700 foot contour and above

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78018NAME: Parahoe

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WNW 1/4 NE 1/4 SW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA- Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78010NAME: Conn Creek

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 97WNW 1/4 1/4 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Red Pinnacle; Long Point1962; 1968, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78008NAME: Langstaff Gulch

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WSW 1/4 NE 1/4 NE 1/4, section 8NE 1/4 SE 1/4 NE 1/4, section 8USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER ERDA

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Upper Unit _____Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78007NAME: Bone Knoll

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WNE 1/4 SW 1/4 SW 1/4, section 9 1/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER ERDA - Navy Oil Shale Reserve

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78006NAME: Eocene Split

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WSE 1/4 NE 1/4 NE 1/4, section 17NW 1/4 NW 1/4 _____ 1/4, section 16USGS Quadrangle Anvil Points1952 _____, 7.5 _____ min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78005NAME: Webster Mesa

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WNE 1/4 SW 1/4 SE 1/4, section 16NW 1/4 SE 1/4 _____ 1/4, section 16USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Clough

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position _____Sediment
description _____Depositional
environment _____Fossils
sampled _____Fossils
remaining _____Scientific significance
and disposition of
material _____

SITE FORM

LOCALITY NUMBER: 78004NAME: Sharrard Park, west

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WSW 1/4 SW 1/4 SW 1/4, section 20NW 1/4 NW 1/4 NW 1/4, section 29USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER W. F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78003NAME: Mule Deer Slide

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94Wctr 1/4 NE 1/4 NW 1/4, section 201/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78002NAME: Sharrard Park, north

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94WNE 1/4 SE 1/4 _____ 1/4, section 17

_____ 1/4 _____ 1/4 _____ 1/4, section _____

USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: 78001NAME: Sharrard Park, northwest

PREVIOUS NUMBER(S): _____

LOCATION:

State: ColoradoCounty: GarfieldTownship: 6SRange: 94WS 1/2 SE 1/4 1/4, section 17N 1/2 NW 1/4 NE 1/4, section 20USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position Below 5600 feet contour

Sediment description _____

Depositional environment _____

Fossils sampled _____

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: _____

NAME: Una, westPREVIOUS NUMBER(S): UCM L. 79054

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 96WNW 1/4 NW 1/4 NW 1/4, section 331/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 320m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: Wilson LocalityPREVIOUS NUMBER(S): UCM L. 79050

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 95WSE 1/4 SW 1/4 NW 1/4, section 6_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description medium-fine sand, thin beddedDepositional environment near shore lacustrineFossils sampled bird, egg shellFossils remaining egg shell, probably more bird materialScientific significance and disposition of material UCM; some material articulated

SITE FORM

LOCALITY NUMBER: _____

NAME: LundgrenPREVIOUS NUMBER(S): UCM L. 79053

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W 1/4 SE 1/4 SE 1/4, section 29 1/4 1/4 1/4, section USGS Quadrangle Grand Valley1962 , 7.5 min.UTM ; m E, m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 230m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Didelphodus, Pelycodus, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: Kelly Gulch, westPREVIOUS NUMBER(S): UCM L. 79055

LOCATION: _____

State: Colorado County: GarfieldTownship: 7S Range: 96W1/4 SE 1/4 NW 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER C. Casteal

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 320m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, miacid

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: ERDAPREVIOUS NUMBER(S): UCM L. 79030

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 SW 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 230 below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Xenicohippus, creodont

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: Balzac GulchPREVIOUS NUMBER(S): UCM L. 79029

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 NW 1/4, section 301/4 1/4 NE 1/4, section 30USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

photograph

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 450m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Pelycodus, miacid

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: NOSRPREVIOUS NUMBER(S): UCM L. 79052

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 NE 1/4 NW 1/4, section 321/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 260m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Paramys, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: Allen PointPREVIOUS NUMBER(S): UCM L. 79051

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 SW 1/4 SE 1/4, section 311/2 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 255m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Coryphodon

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: _____

NAME: C1aw _____PREVIOUS NUMBER(S): UCM L. 79056 _____

LOCATION:

State: Colorado County: GarfieldTownship: 8S Range: _________ 1/4 ____ 1/4 SE 1/4, section 1

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Red Pinnacle____, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 244m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled stylinodont

Fossils remaining _____

Scientific significance and disposition of material UCM

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 61-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 96W 1/4 1/4 NE 1/4, section 27 1/4 1/4 1/4, section USGS Quadrangle Grand Valley1962 , 7.5 min.UTM ; m E, m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 305m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Didymictis

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 51-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 96W1/4 1/4 SE 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 360m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Miacis, Hyopsodus, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 66-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 96W 1/4 1/4 SE 1/4, section 28 1/4 1/4 1/4, section USGS Quadrangle Grand Valley1962 , 7.5 min.UTM ; m E, m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 103m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 62-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 96W1/4 1/4 SE 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 72m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 125-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/2 1/4 NE 1/4, section 291/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 122m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, paramyid rodent,

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 126-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/2 1/4 NE 1/4, section 291/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 115m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Paramys

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 93-41 (FMNH)

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 SE 1/4, section 291/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 225m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium; artiodactyl genus indeterminate

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 90-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 SE 1/4, section 291/4 1/4 1/4, section _____USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 230m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 99-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W 1/4 1/4 SE 1/4, section 29 1/4 1/4 1/4, section USGS Quadrangle Grand Valley1962 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 215m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Didymictis

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 91-41 (FMNH)

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 NW 1/4, section 321/4 1/4 NE 1/4, section 32USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 293-300m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils Sampled Hypopsodus, Hyracotherium, Pelycodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 199-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 NE 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Anvil Points; Rulison1952; 1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 140-145m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Hyracotherium, Pelycodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 155-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 NW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 150m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Paramys, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 149-41 (FMNH)

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)ACCESS north of US 6 and 24, access by foot or bydirt ranch road

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 173-167m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Meniscotherium, Hyopsodus, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: The AmphitheaterPREVIOUS NUMBER(S): 109-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 NW 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Rulison1960, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)ACCESS North of US 6 and 24

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 230m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Pseudotomus, Hyopsodus, Esthonyx, Coryphodon, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 242-41

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 17 1/4 1/4 1/4, section USGS Quadrangle Anvil Points1952 _____, 7.5 _____ min.

UTM _____; _____ m E, _____ m N

LANDOWNER W. F. Clough (in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 375-380m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Pelycodus

Fossils remaining _____

Scientific significance and disposition of material _____

SITE FORM

LOCALITY NUMBER: _____

NAME: Galbreath ShelfPREVIOUS NUMBER(S): 372-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 17 1/2 1/4 1/4, section USGS Quadrangle Anvil Points1952 , 7.5 min.UTM ; m E, m NLANDOWNER W. F. Clough (private - in Rifle)ACCESS north of US 6 and 24 on dirt road toLangstaff Ranch

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit Stratigraphic position 390m below Green River FormationSediment description Depositional environment Fossils sampled Phenacolemur, Paramys, Microsypops, Hyopsodus, HyracotheriumFossils remaining Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 115-C-47

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W____ 1/4 ____ 1/4 SE 1/4, section 18

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Esthonyx

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: Meniscotherium Hollow

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 SE 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER W. F. Clough (in Rifle - private)ACCESS north of US 6 and 24 on dirt road toLangstaff Ranch

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 395-415m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Reithroparamys, Esthonyx, Meniscotherium, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material Type locality, FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 291-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 SE 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS north of US 6 and 24 on dirt road toLangstaff Ranch

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 430m below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Phenacodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 241-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 17 1/4 1/4 1/4, section USGS Quadrangle Anvil Points1952, 7.5 min.UTM ; m E, m NLANDOWNER ACCESS

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit Stratigraphic position 295 meters below Green River FormationSediment description Depositional environment Fossils sampled HyracotheriumFossils remaining Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 401-41

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 NW 1/4 NW 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS south of US 6 and 24

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 515 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled perissodactyl genus indeterminateFossils remaining unknownScientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 118-C-47

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 1/4 SW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER BLM (ERDA) in part; private in part(W. F. Clough in Rifle)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 160-C-47 FMNH

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 NW 1/4 NW 1/4, section 291/4 NE 1/4 NE 1/4, section 30USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS north of US 6 and 24 west of Rifle

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 230 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Hyopsodus, Meniscotherium, Palaeictops

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 113-C-47

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 NE 1/4, section 4 1/4 1/4 1/4, section USGS Quadrangle Anvil Points1952, 7.5 min.UTM ; m E, m NLANDOWNER Bureau of Land Management (Naval OilShale ReserveACCESS

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit Stratigraphic position 122 meters below Green River FormationSediment description Depositional environment Fossils sampled HyracotheriumFossils remaining Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: Kladder Locality C

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 94W1/4 SW 1/4 NW 1/4, section 111/4 1/4 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

photograph

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Coryphodon, Homogalax

Fossils remaining _____

Scientific significance and disposition of material MWC

SITE FORM

LOCALITY NUMBER: _____

NAME: Reservoir HillPREVIOUS NUMBER(S): 34-C-47

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93W1/4 1/4 N 1/2, section 51/4 1/4 SE 1/4, section 5USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Part BLM; part private (W. F. Clough
in Rifle)ACCESS SH 13 in Rifle, west on road to high school,
north on dirt road at "T" intersection

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FHNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 61-C-47 (FMNH)

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 93W1/4 NE 1/4 NE 1/4, section 51/4 SE 1/4 NE 1/4, section 5USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land ManagementACCESS SH 13 in Rifle to road to high school,north at "T" intersection

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Esthonyx

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: Kladder Locality A

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Garfield Township: 6S Range: 93W 1/4 NE 1/4 NE 1/4, section 5 1/4 1/4 1/4, section _____USGS Quadrangle Rifle 1952 , 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch Member Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Coryphodon, Hyracotherium, Haplomyilus, Esthonyx

Fossils remaining _____

Scientific significance and disposition of material MWC

SITE FORM

LOCALITY NUMBER: _____

NAME: Kladder Locality B

-PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93NSE 1/4 SE 1/4 SE 1/4, section 26 1/4 1/4 1/4, section _____USGS Quadrangle Rifle1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land ManagementACCESS SH 13 north of Rifle to JQS Trail, westtwo miles, by foot to exposure

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____

Stratigraphic position _____

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Coryphodon, Hyracotherium, Pelycodus, EsthonyxFossils remaining unknownScientific significance and disposition of material material collected by individual, donated to Western Colorado Museum

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 328-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SW 1/4, section 14 1/4 1/4 1/4, section USGS Quadrangle Rifle1952 , 7.5 min.UTM ; m E, m NLANDOWNER ACCESS north of US 6 and 24

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit Stratigraphic position 610 meters below Green River FormationSediment description Depositional environment Fossils sampled Pelycodus, Paramys, Esthonyx, Hyopsodus, Homogalax, HyracotheriumFossils remaining Scientific significance and disposition of material Field Museum of Natural History

SITE FORM

LOCALITY NUMBER: _____

NAME: Kladder Locality Q

PREVIOUS NUMBER(S): _____

LOCATION:

State: ColoradoCounty: GarfieldTownship: 7SRange: 97W1/4 1/4 SE 1/4, section 281/4 1/4 SW 1/4, section 27USGS Quadrangle Red Pinnacle19627.5

min.

UTM _____

; _____

m E,

m N

LANDOWNER _____

photograph

ACCESS _____

DESCRIPTION

Era CenozoicSystem TertiaryFormation WasatchMember Shire

Unit _____

Stratigraphic

position 50-60 meters below Green River Formation

Sediment

description _____

Depositional
environment _____

Fossils

Sampled Hyopsodus, Phenacodus, Hyracotherium, Heptodon

Fossils

remaining _____

Scientific significance _____

and disposition of

material _____

MWC

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 153-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 SE 1/4 SW 1/4, section 231/4 1/4 SE 1/4, section 23USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 40 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Pelycodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 205-41 (FMNH)

LOCATION: _____

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 NE 1/4, section 131/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 60 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Palaeictops

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 203-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 SE 1/4, section 131/4 1/4 SW 1/4, section 13USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 45 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils Sampled Esthonyx

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 100-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 96W1/4 1/4 SW 1/4, section 271/4 1/4 SE 1/4, section 28USGS Quadrangle Grand Valley1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 30 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Esthonyx

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 63-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 96W 1/4 1/4 SW 1/4, section 27 1/4 1/4 SE 1/4, section 28USGS Quadrangle Grand Valley1962 , 7.5 min.UTM ; m E, m N

LANDOWNER _____

photograph

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 45 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Pelycodus, Hyopsodus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 177-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 SW 1/4 SE 1/4, section 231/4 SE 1/4 SW 1/4, section 23USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval Oil
Shale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic
position 55-65 meters below Green River FormationSediment
description _____Depositional
environment _____Fossils
sampled Paramys, Hyopsodus, Esthonyx, Hyracotherium, LambdotheriumFossils
remaining _____Scientific significance
and disposition of
material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 211-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 5 1/4 1/4 NE 1/4, section 8USGS Quadrangle Anvil Points1952 _____, _____ 7.5 _____ min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 75 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium, Lambdotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 249-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 5 1/4 1/4 NE 1/4, section 8USGS Quadrangle Anvil Points1952 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 90 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Paramys, Hyopsodus, creodont

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 254-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 94W 1/4 1/4 SE 1/4, section 5 1/4 1/4 NE 1/4, section 8USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 105 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 65-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 96W 1/4 1/4 SE 1/4, section 28 1/4 1/4 SW 1/4, section 27USGS Quadrangle Grand Valley1962 , 7.5 min.

UTM _____ ; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 50 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Lambdotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 49-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 8S Range: 97W1/4 NW 1/4 NW 1/4, section 21/4 SE 1/4 NE 1/4, section 3USGS Quadrangle Red Pinnacle1962, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER _____

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 45 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Palaeictops matthewi

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 147-41 (FMNH)

LOCATION:

State: Colorado County: Garfield

Township: _____ Range: _____

____ 1/4 ____ 1/4 NW 1/4, section 26

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 96 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Lambdotherium, Bunophorus

Fossils remaining _____

Scientific significance and disposition of material FMNH

SITE FORM

LOCALITY NUMBER: _____

NAME: _____

PREVIOUS NUMBER(S): 164-41 (FMNH)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 95W1/4 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Anvil Points1952, 7.5 min.

UTM _____; _____ m E, _____ m N

LANDOWNER Bureau of Land Management (Naval OilShale Reserve)

ACCESS _____

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position 105 meters below Green River Formation

Sediment description _____

Depositional environment _____

Fossils sampled Hyopsodus, Hyracotherium

Fossils remaining _____

Scientific significance and disposition of material FMNH

APPENDIX D

Fossil localities within the study area
determined prior to the field survey

The following locality sheets contain all available information on the localities of fossil vertebrates and/or invertebrates determined by other investigations prior to the field survey completed for this report.

SITE FORM

LOCALITY NUMBER: ET 1-1

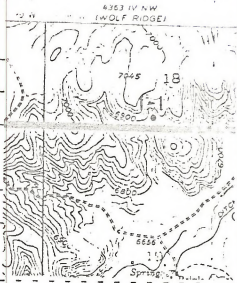
NAME: _____

PREVIOUS NUMBER(S): JUM 8215 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 2S Range: 98WSE 1/4 SE 1/4 SW 1/4, section _____1/4 1/4 1/4, section _____USGS Quadrangle Yankee Gulch, Colorado_____, 7.5 min.UTM 12; 719420 m E, 4416360 m NLANDOWNER Bureau of Land ManagementACCESS via road that runs NE up Ryan Gulch andthen by foot NW

DESCRIPTION _____

Era Cenozoic System Tertiary Formation Green RiverMember Black Sulphur Gulch Unit _____Stratigraphic position approximately 20 feet below top of memberSediment description light-colored, weathered and platy shaleDepositional environment lacustrineFossils sampled plant megafossils (leaves)Fossils remaining numerousScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 2-1

NAME: _____

PREVIOUS NUMBER(S): JUM 8217 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 96WNE 1/4 NW 1/4 NW 1/4, section 301/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 738000 m E, 4434620 m NLANDOWNER Bureau of Land ManagementACCESS East on Dry Fork Road and then by foot tonorth

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position west-facing slope approximately 20 feet from top of ridgeSediment description light grayish-green silty calcareous shale bioturbated with worm burrowsDepositional environment lacustrineFossils sampled abundant insect larvae and several adult insectsFossils remaining insect larvaeScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 2-2

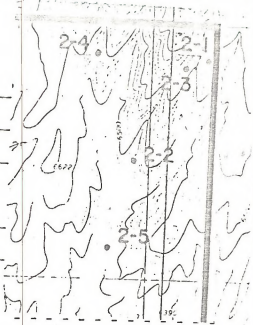
NAME: _____

PREVIOUS NUMBER(S): JUM 8218 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNE 1/4 NE 1/4 SE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 737500 m E, 4434000 m NLANDOWNER Bureau of Land ManagementACCESS East on Dry Fork Road and north on foot

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit (Yellow Creek apparently mapped as Uinta)Stratigraphic
Position At base of west face of gully for approximately 50 feet; approximately 20 feet below UintaSediment
description light gray-green shale (silty) (calcareous?); bioturbation commonDepositional
environment lacustrineFossils
sampled insect larvaeFossils
remaining insect larvaeScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 2-3

NAME: _____

PREVIOUS NUMBER(S): ET-2-A (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 96WSE 1/4 NW 1/4 NW 1/4, section 301/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12 ; 737840 m E, 4434580 m NLANDOWNER Bureau of Land ManagementACCESS East on Dry Fork Road and north on foot

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position 30 feet above arroyo bottom immediately below fine- to medium-grainwell-indurated sand body that is 15 feet thick, on east facing slope; sand is only
sand body exposed on slope and extends about .25 mile - site is 20 feet from northern
end of sandSediment description irregularly bedded and thinly-laminated shaleDepositional environment lacustrineFossils sampled insect and leaf fragmentsFossils remaining several hours of splitting shale would probably produce about three com-
plete specimens per man hourScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 2-4

NAME: _____

PREVIOUS NUMBER(S): _____

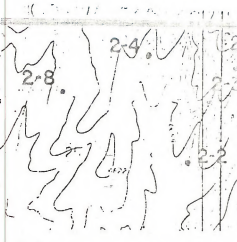
LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNW 1/4 NE 1/4 NE 1/4, section 25 1/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado , 7.5 min.UTM 12; 737270 m E, 4434670 m NLANDOWNER Bureau of Land ManagementACCESS East on Dry Fork Road and north on foot

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member _____ Unit _____

Stratigraphic position East slope, base of gully, unmapped tongue of Green River FormationSediment description platy, gray-green shale - irregular beddingDepositional environment lacustrineFossils sampled insect larvae and plant fragmentsFossils remaining probable - quarrying a possibilityScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 2-5

NAME: _____

PREVIOUS NUMBER(S): ET 2-TL (TRL) (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WSW 1/4 SE 1/4 SE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12 ; 737400 m E, 4433350 m NLANDOWNER Bureau of Land ManagementACCESS East on Dry Fork Road, north on foot up main
gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta (3&4?)

Member _____ Unit _____

Stratigraphic
position Locality beneath a 2 foot-thick, well-cemented sandstone ledge which
underlies a 15 foot-thick section of reddish-brown massive sandstoneSediment
description Conglomerate with sandstone boulders and clay rip-up clasts; light green
tintDepositional
environment fluvial-marginal lacustrineFossils
sampled turtle and crocodilian bone fragments and crocodilian teethFossils
remaining more of the same visible and certainly more withinScientific significance
and disposition of
material 2

SITE FORM

LOCALITY NUMBER: ET 2-6

NAME: _____

PREVIOUS NUMBER(S): TRL-2-3 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1N Range: 97W

SE 1/4 SE 1/4 NE 1/4, section 26

1/4 1/4 1/4, section _____

USGS Quadrangle White River City, Colorado

_____, 7.5 min.

UTM 12 _____; 73600 m E, 4433500 m N

LANDOWNER Bureau of Land Management

ACCESS from Piceance Creek road NE on foot

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member Uinta 3 and 4 (?) Unit _____

Stratigraphic position Uinta 3 and 4 (?)

Sediment description Specimens from float. Probably out of gray claystone exposure which

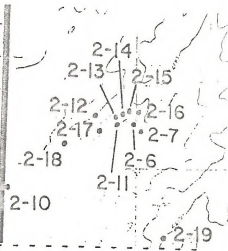
grades up into a medium-grained sandstone of buff color with an orange tint. Exposure about five-feet-thick.

Depositional environment fluvial

Fossils sampled unidentifiable bone fragments and a single fragment of a mammalian tooth

Fossils remaining unknown; no other material found

Scientific significance and disposition of material 4



SITE FORM

LOCALITY NUMBER: ET 2-7

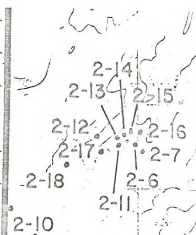
NAME: _____

PREVIOUS NUMBER(S): GWS-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNW 1/4 SW 1/4 SW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12 ; 736050 m E, 4433550 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Uinta 3 and 4 (?) Unit _____Stratigraphic position approximately midway up bluff; Uinta 3 and 4 (consolidated?)Sediment description ledge of red-weathering, medium-grained, moderately-sorted sandstone with numerous clay rip-up clastsDepositional environment fluvial-marginal lacustrineFossils sampled numerous turritellid-like gastropods and plant impressionsFossils remaining several small, unidentifiable bone fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 2-8

NAME: _____

PREVIOUS NUMBER(S): JUM 8210 (Field #)

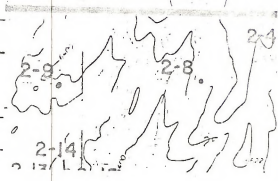
LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNE 1/4 SE 1/4 NW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 736760 m E, 4434430 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position in west-facing slope of gulch about 10 feet below top of ridgeSediment description conglomeratic sandstone lens approximately 5-inches-thick containing pebbles and clay rip-up clastsDepositional environment fluvialFossils sampled turtle shell fragmentsFossils remaining much vertebrate material, mostly turtleScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 2-9

NAME: _____

PREVIOUS NUMBER(S): JUM 8220 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNE 1/4 SE 1/4 NE 1/4, section 26_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 735760 m E, 4434580 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position on SE facing slope in sandstone above "Uinta paper shale"Sediment description in massive, fine-grained, buff-colored sandstone with lenses of indurated dark brown sandstoneDepositional environment fluvialFossils Sampled proximal end of femur of a large mammalFossils remaining unknownScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 2-10

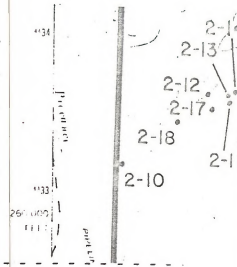
NAME: _____

PREVIOUS NUMBER(S): GWS-4 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNW 1/4 NW 1/4 NE 1/4, section 351/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 735210 m E, 4433300 m NLANDOWNER Bureau of Land ManagementACCESS East on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember (Uinta 3 and 4 consolidated?) Unit _____Stratigraphic position Base of SW-facing vertical face near top of bluffSediment description light tan, fine-grained, well-sorted and massive sandstone(few structures - some horizontal laminae, nodules; very clean)Depositional environment marginal lacustrine (deltaic)Fossils sampled isolated mammalian glenoid fossa of scapula(?)Fossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 2-11

NAME: _____

PREVIOUS NUMBER(S): TRL-4 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 SE 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 735790 m E, 4433530 m NLANDOWNER Bureau of Land ManagementACCESS on foot east from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 3 and 4 (?) Unit _____Stratigraphic position about 1/2-way up slope on SE facing exposure of massive sandstoneSediment description dark-colored, well-cemented conglomerate with pebbles andcommon bone scrap in a fine-grained sandstoneDepositional environment Fluvial-marginal lacustrineFossils sampled unidentifiable bone scrap and fragments of crocodilian teethFossils remaining one large crocodilian tooth visible in matrix; also, more bone scrapScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 2-12

NAME: _____

PREVIOUS NUMBER(S): JUM 8221 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1 N Range: 97 W

NW 1/4 SE 1/4 SE 1/4, section 26

 1/4 1/4 1/4, section

USGS Quadrangle White River City, Colorado

 , 7.5 min.

UTM 12 ; 735790 m E, 4433600 m N

LANDOWNER Bureau of Land Management

ACCESS on foot east from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position above Uinta "paper shale"

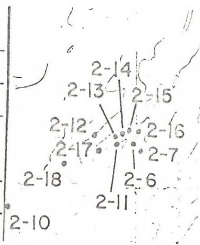
Sediment description soft, friable, buff-colored sandstone

Depositional environment fluvial

Fossils sampled bone fragments

Fossils remaining possible vertebra of a mammal

Scientific significance and disposition of material 3



SITE FORM

LOCALITY NUMBER: ET 2-13

NAME: _____

PREVIOUS NUMBER(S): JUM 8222 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1 N Range: 97 W

NE 1/4 SE 1/4 SE 1/4, section 26

1/4 1/4 1/4, section

USGS Quadrangle White River City, Colorado

_____, 7.5 min.

UTM 12 _____ ; 735900 m E, 4433540 m N

LANDOWNER Bureau of Land Management

ACCESS on foot east from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position just below "paper shale of Uinta"

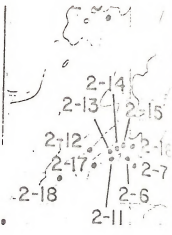
Sediment description chocolate-brown, conglomeratic sandstone

Depositional environment fluvial

Fossils Sampled none

Fossils remaining Turritella-like shells of gastropods

Scientific significance and disposition of material 2



SITE FORM

LOCALITY NUMBER: ET 2-14

2-9

NAME: _____

PREVIOUS NUMBER(S): JUM 8223 (Field #)

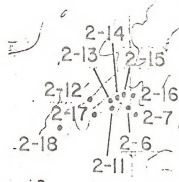
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 SE 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado7.5 min.UTM 12 ; 735950 m E, 4433600 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position just below "paper shales of Uinta"Sediment description soft, brown and massive sandstoneDepositional environment fluvialFossils sampled turtle shell fragmentsFossils remaining turtle shell fragments and boneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 2-15

NAME: _____

PREVIOUS NUMBER(S): JUM 8224 (Field #)

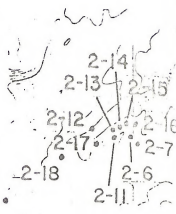
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 SE 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 735960 m E, 4433650 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position just below paper shales in sandstoneSediment description crossbedded sandstone; (there is a conglomerate with pebbles and bone) fragmentsDepositional environment fluvialFossils sampled turtle shellFossils remaining turtle shell and bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 2-16

NAME: _____

PREVIOUS NUMBER(S): E2-2B (Field #)

LOCATION: _____

State: Colorado County: Rio Blanco

Township: 1 N Range: 97 W

NW 1/4 SW 1/4 SW 1/4, section 25

1/4 1/4 1/4, section _____

USGS Quadrangle White River City, Colorado

_____, 7.5 min.

UTM 12 ; 736010 m E, 4433610 m N

LANDOWNER Bureau of Land Management

ACCESS E on foot from Piceance Creek road

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position just below paper shale and just above well-indurated conglomerate;

15 feet above arroyo bottom

Sediment description dark-brown sandstone weathering on gentle slope just above prominent

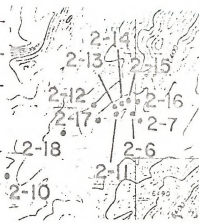
well-indurated conglomerate

Depositional environment marginal lacustrine

Fossils sampled fish, mammal, turtle

Fossils remaining more fish, mammal, and turtle

Scientific significance and disposition of material 2



SITE FORM

LOCALITY NUMBER: ET 2-17

NAME: _____

PREVIOUS NUMBER(S): _____

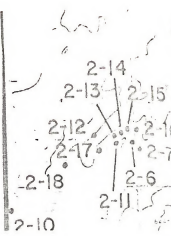
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNW 1/4 SE 1/4 SE 1/4, section 26 1/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12 _____; 735780 m E, 4433480 m NLANDOWNER Bureau of Land ManagementACCESS take Dry Fork road to pipeline road cutoff,go N past small lake and through gate, climb firstvally past gate

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position below "Uinta paper shale", less than 1 meter below ET 2-11Sediment description highly-weathered, friable buff silty sand below highly cemented sand-stone conglomerate ledgeDepositional environment marginal lacustrine to deltaicFossils sampled (?) crocodilian scapulaFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 2-18

NAME: _____

PREVIOUS NUMBER(S): _____

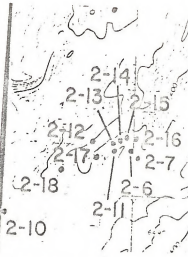
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSE 1/4 SW 1/4 SE 1/4, section 26_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12 ; 735580 m E, 4433400 m NLANDOWNER Bureau of Land ManagementACCESS same as ET 2-17

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position in "Uinta paper shale"Sediment description light-gray paper shale with organic material in lamination intersticesDepositional environment lacustrineFossils sampled insect larvaeFossils remaining more of the sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 2-19

NAME: _____

PREVIOUS NUMBER(S): JUM 8227 (Field #)

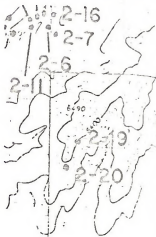
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNW 1/4 SW 1/4 NW 1/4, section 361/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 736180 m E, 4432820 m NLANDOWNER Bureau of Land ManagementACCESS on foot N from road up Dry Fork ofPiceance Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position above Dry Fork ShaleSediment description medium-grained, buff to orange, massive sandstone that forms ledgesDepositional environment fluvialFossils sampled turtle boneFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 2-20

NAME: _____

PREVIOUS NUMBER(S): JJM 8228 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNW 1/4 SW 1/4 NW 1/4, section 361/4 1/4 1/4, section _____USGS Quadrangle White River City, Colorado_____, 7.5 min.UTM 12; 736100 m E, 4432650 m NLANDOWNER Bureau of Land ManagementACCESS on foot N from road up Dry Fork ofPiceance Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position above Dry Fork shaleSediment description buff to orange colored conglomeratic (pebbles, clay-clasts)sandstone that forms ledgesDepositional environment fluvialFossils sampled turtle shell fragments; silicified fossil wood with distinctive growth ringsFossils remaining wood and probably more bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-1

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNW 1/4 NW 1/4 NW 1/4, section 191/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado,
_____, 7.5 min.UTM 12 _____ ; 728000 m E, 4436020 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from dirt road up tributary of
Yellow Creek opposite Pinto Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit 4 (?)Stratigraphic
position lower third of TgemSediment
description dark brown sandstone noduleDepositional
environment fluvialFossils
sampled one turtle shell fragmentFossils
remaining specimen not collected

Scientific significance



SITE FORM

LOCALITY NUMBER: ET 3-2

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1N Range: 97WSE 1/4 NW 1/4 NW 1/4, section 191/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SEColorado, 7.5 min.UTM 12; 728200 m E, 4435970 m NLANDOWNER Bureau of Land ManagementACCESS at north side of dirt road up tributaryof Yellow Creek opposite Pinto Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit 4 (?)Stratigraphic position lower third of TgemSediment description intraformational pebble conglomerateDepositional environment fluvialFossils sampled noneFossils remaining turtle propodial and shell fragmentsScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 3-3

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 NE 1/4 NW 1/4, section 191/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 728650 m E, 4436100 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from dirt road up tributary ofYellow Creek opposite Pinto Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit 4 (?)Stratigraphic position approximately 140 feet below TgemSediment description tan and coarse sandstoneDepositional environment fluvialFossils sampled two crocodylian scute fragmentsFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 3-4

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSW 1/4 NE 1/4 NE 1/4, section 19_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 729200 m E, 4435800 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot form dirt road up tributary ofYellow Creek opposite Pinto Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit 4 (?)Stratigraphic position top of brown sandstone, 3 meters below "Thirteen Mile Creek Member of Green River Formation"Sediment description brown, medium to coarse sandstone (fragments occur throughout sandstone sequence)Depositional environment fluvialFossils sampled turtle bone fragments and one gastropodFossils remaining some turtle bone fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 3-5

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 SW 1/4 NW 1/4, section 201/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 729900 m E, 4435700 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from dirt road in section 20

T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Thirteen Mile Creek Unit _____Stratigraphic position upper third of Thirteen Mile Creek Tongue, 10 meters below stromatolite layerSediment description white-gray sandstoneDepositional environment fluvialFossils sampled turtle shell fragmentsFossils remaining remainder of turtle carapaceScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 3-6

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSE 1/4 SE 1/4 NW 1/4, section 18SW 1/4 SE 1/4 NW 1/4, section 18USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 728600 m E, 4437000 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from unmapped road on ridge inSection 18 TIN R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "upper"Stratigraphic
position 20 meters below TgeuSediment
description brown to tan, medium sandstone with pebble conglomerateDepositional
environment fluvialFossils
sampled possible crocodylian basicranium, turtle shell (trionychid), bone frag-
ments and crocodylian toothFossils
remaining nearly complete turtle and many bone fragmentsScientific significance
and disposition of
material 1

SITE FORM

LOCALITY NUMBER: ET 3-7

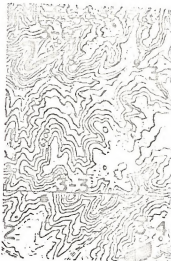
NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 NW 1/4 SE 1/4, section 181/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 729020 m E, 4436900 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from unmapped road on ridge inSection 18 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "upper"Stratigraphic position 15m below TgeuSediment description bedded, medium-grained, well-sorted, gray-white to brown sandstoneDepositional environment fluvialFossils sampled one gastropodFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-8

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNE 1/4 NE 1/4 NE 1/4, section 131/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 727950 m E, 4437620 m NLANDOWNER Bureau of Land ManagementACCESS on foot E from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember _____ Unit "upper"Stratigraphic position 45m below TgeuSediment description yellowish to brown, fine- to medium-grained sandstone with some pebble conglomerateDepositional environment fluvialFossils sampled noneFossils remaining bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-9

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNE 1/4 NE 1/4 NE 1/4, section 131/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado, 7.5 min.UTM 12 ; 727800 m E, 4437700 m NLANDOWNER Bureau of Land ManagementACCESS on foot E from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 25 meters above Tgel; approximately the same level as ET 3-8Sediment description medium-grained gray to tan sandstone just above pebble conglomerateDepositional environment fluvialFossils sampled possible crocodilian vertebraFossils remaining bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-10

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNW 1/4 NE 1/4 NE 1/4, section 131/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 727600 m E, 4437800 m NLANDOWNER Bureau of Land ManagementACCESS on foot E from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic
position just aboe TgelSediment
description tan sandstone just above pebble conglomerateDepositional
environment fluvialFossils
sampled noneFossils
remaining reptile bone fragments and petrified woodScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 3-11

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1N Range: 98WNE 1/4 SE 1/4 NE 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 727750 m E, 4435700 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 10 meters above TgelSediment description dark-red pebble conglomerateDepositional environment fluvialFossils sampled noneFossils remaining miscellaneous reptile bone fragments and petrified woodScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-12

NAME: _____

PREVIOUS NUMBER(S): _____

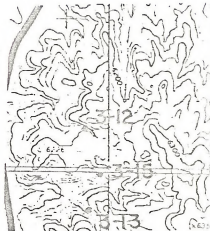
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1N Range: 98WNE 1/4 SE 1/4 SE 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 727800 m E, 4434800 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 10-15 meters above TgelSediment description dark-gray, fine-grained sandstone that weathers redDepositional environment fluvialFossils sampled noneFossils remaining reptile bone fragmentScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-13

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 98WSE 1/4 NE 1/4 NE 1/4, section 25

_____ 1/4 _____ 1/4 _____ 1/4, section _____

USGS Quadrangle Barcus Creek SEColorado, 7.5 min.UTM 12; 727820 m E, 4434300 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 10-15 meters above Tgel; 3 meters above massive sandSediment description dark-brown pebble conglomerateDepositional environment fluvialFossils sampled noneFossils remaining crocodilian tooth, juvenile crocodilian jaw, turtle shell fragment, and miscellaneous bone fragmentsScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 3-14

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WSW 1/4 SE 1/4 SE 1/4, section 201/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 730900 m E, 4434650 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road in section 20 T1NR97W

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 10 meters below TgeuSediment description massive, gray-white sandstone above blocky siltstone (fossiliferous sequence is 5-meters-thick)Depositional environment fluvialFossils sampled noneFossils remaining turtle shell fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 3-15

NAME: _____

PREVIOUS NUMBER(S): _____

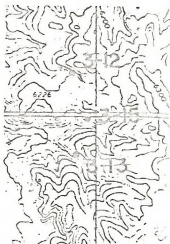
LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 98WNE 1/4 NE 1/4 NE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 727900 m E, 4434500 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position 20 meters above TgelSediment description tan sandstone benchDepositional environment fluvialFossils sampled one fish spineFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-16

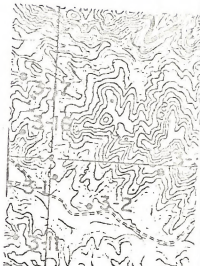
NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 98WSE 1/4 SE 1/4 SE 1/4, section 131/4 1/4 1/4, sectionUSGS Quadrangle Barcus Creek SE, Colorado, 7.5 min.UTM 12 ; 727650 m E, 4436250 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position in massive sandstone, immediately above blocky shaleSediment description massive buff sandstoneDepositional environment fluvialFossils sampled tooth enamel fragment, crocodile scuteFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 3-17

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1N Range: 98WSW 1/4 NE 1/4 SE 1/4, section 131/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 727630 m E, 4436650 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta/Green RiverMember Evacuation Creek Unit "lower"Stratigraphic position 5 meters below massive sandstoneSediment description light-gray shale, very weatheredDepositional environment fluvialFossils sampled insectsFossils remaining insects (larvae)Scientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-18

NAME: _____

PREVIOUS NUMBER(S): SMW TEMP #1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 97WNW 1/4 NW 1/4 SW 1/4, section 30SW 1/4 NW 1/4 SW 1/4, section 30USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 728100 m E, 4433600 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position approximately 80 feet above base of exposureSediment description light-gray paper shaleDepositional environment lacustrineFossils sampled insect larvaeFossils remaining insect larvae and some non-larval forms (?)Scientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-19

NAME: _____

PREVIOUS NUMBER(S): TRL-5 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WNW 1/4 SW 1/4 NE 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 728500 m E, 4430970 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position below slightly darker massive sandstone and above a slightly lighter massive sandstoneSediment description buff-colored, medium-grained sandstone containing clay rip-up clastsDepositional environment marginal lacustrineFossils sampled noneFossils remaining one large complex bone still in rockScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 3-20

NAME: _____

PREVIOUS NUMBER(S): GWS-5 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WNW 1/4 SW 1/4 NE 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 728580 m E, 4430950 m NLANDOWNER Bureau of Land ManagementACCESS on foot NE from road up tributary of Yel-
low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic
position Uinta sandstone of Evacuation Creek MemberSediment
description light tan, medium-grained sandstone with rip-up clast conglomerateDepositional
environment marginal lacustrineFossils
sampled noneFossils
remaining large, flat, isolated and unidentifiable boneScientific significance
and disposition of
material 3

SITE FORM

LOCALITY NUMBER: ET 3-21

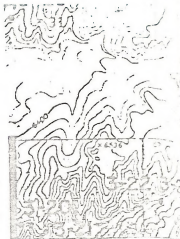
NAME: _____

PREVIOUS NUMBER(S): JUM 8225 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WNW 1/4 SW 1/4 NE 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 728690 m E, 4430900 m NLANDOWNER Bureau of Land ManagementACCESS on foot NE from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position below sandstone ledge capping the bluff locallySediment description gray non-fissile silty shaleDepositional environment marginal lacustrineFossils sampled insect larvae and angiosperm leavesFossils remaining larvae and plantsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-22

NAME: _____

PREVIOUS NUMBER(S): ET3-SMW1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WSW 1/4 NW 1/4 NW 1/4, section 51/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 729280 m E, 4431100 m NLANDOWNER Bureau of Land ManagementACCESS on foot NE from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position just below paper shalesSediment description soft, silty reddish-tan sandstone; bone found in cemented sandstone;
easily weathers and bone easily removableDepositional environment fluvial - lake marginFossils sampled turtle boneFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 3-23

NAME: _____

PREVIOUS NUMBER(S): ET3-SMW2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WSW 1/4 NW 1/4 NW 1/4, section 51/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 729380 m E, 4431120 m NLANDOWNER Bureau of Land ManagementACCESS on foot NE from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position in sandstone circa 3 meters below level of ET 3-22Sediment description tan to slightly reddish-tan silty sandstoneDepositional environment fluvialFossils sampled leaves; Plantus of P. reynoldsii and other speciesFossils remaining more of the sameScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 3-25

NAME: _____

PREVIOUS NUMBER(S): GMS-6 (ET-3) (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 97WSW 1/4 SE 1/4 NE 1/4, section 6 *1/4 1/4 1/4, section _____USGS Quadrangle Square S Ranch, Colorado_____, 7.5 min.UTM 12; 729000 m E, 4430820 m NLANDOWNER Bureau of Land ManagementACCESS on foot E from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 4 Unit _____Stratigraphic position near top of east slope of ridgeSediment description resistant, gray, red-weathering conglomerateDepositional environment marginal lacustrineFossils sampled noneFossils remaining numerous bone fragments including a crocodylian scute; a turtlellid-like gastropodScientific significance and disposition of material 3

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-26

NAME: _____

PREVIOUS NUMBER(S): GWS-7 (Field #)

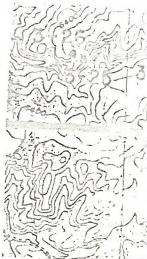
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 97 WSW 1/4 SE 1/4 NE 1/4, section 6*1/4 1/4 1/4, sectionUSGS Quadrangle Square S Ranch, Colorado, 7.5 min.UTM 12 _____; 728900 m E, 4430850 m NLANDOWNER Bureau of Land ManagementACCESS on foot E from road up tributary of Yel-low Creek in sec. 6 T1S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 4 Unit _____Stratigraphic position near top of SE face of ridgeSediment description same lithology as ET 3-25; probably the same horizonDepositional environment marginal lacustrineFossils sampled noneFossils remaining wood fragments, large crocodylian scute and numerous bone fragmentsScientific significance and disposition of material 3

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-27

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNW 1/4 SE 1/4 NE 1/4, section 36*1/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 727530 m E, 4432400 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position in shale near top of ridgeSediment description light-gray paper shaleDepositional environment lacustrineFossils sampled insect larvaeFossils remaining sameScientific significance and disposition of material 4

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-28

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSW 1/4 SE 1/4 NW 1/4, section 31*

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Barcus Creek SE, Colorado____, 7.5 min.UTM 12; 728450 m E, 4432250 m NLANDOWNER Bureau of Land ManagementACCESS west on foot from road in sec. 32 T14N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position 2 meters above contact with massive buff sandSediment description light gray shale/mudstoneDepositional environment fluvialFossils sampled gastropod impressionFossils remaining abundant insect larvaeScientific significance and disposition of material 4

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-29

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSW 1/4 SE 1/4 NW 1/4, section 31*

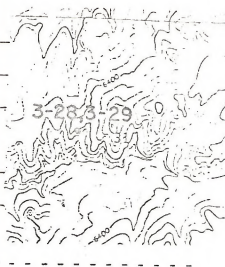
_____ 1/4 _____ 1/4 _____ 1/4, section _____

USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 728450 m E, 4432250 m NLANDOWNER Bureau of Land ManagementACCESS west on foot from road in sec. 32 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position 5 meters below contact with light-gray shaleSediment description massive buff/tan sandstoneDepositional environment fluvialFossils sampled noneFossils remaining turtle bone fragments, pertified wood, and plant fragmentsScientific significance and disposition of material 4

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-30

NAME: _____

PREVIOUS NUMBER(S): ET 3-SMW 3 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNW 1/4 NE 1/4 SE 1/4, section 32*SW 1/4 NE 1/4 SE 1/4, section 32*USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 730820 m E, 4432200 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road in sec. 32 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position on ridge crestSediment description buff and massive sandstoneDepositional environment fluvialFossils sampled gastropod and turtle boneFossils remaining bone fragments, petrified wood and plant fragments aboundScientific significance and disposition of material 3

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 3-31

NAME: _____

PREVIOUS NUMBER(S): ET 3-SMW 4 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 NE 1/4 SE 1/4, section 32* 1/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado , 7.5 min.UTM 12 ; 730950 m E, 4432270 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road in sec. 32 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position below prominent shale underlying bone level of ET 3-30Sediment description buff and massive sandstoneDepositional environment marginal lacustrineFossils sampled turtle shell fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-32

NAME: _____

PREVIOUS NUMBER(S): ET 3-SMW 5 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WSE 1/4 SE 1/4 SE 1/4, section 291/4 1/4 1/4, sectionUSGS Quadrangle Barcus Creek SE, Colorado, 7.5 min.

UTM 12 ; 73180 m E, 4433350 m N

LANDOWNER Bureau of Land ManagementACCESS east on foot from road in sec. 29 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position below white-gray paper shale and above brown paper shaleSediment description buff sandstone, just above a fairly coarse-grained dark gray micaceous sandstoneDepositional environment marginal lacustrine to streambankFossils sampled turtle boneFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 3-33

NAME: _____

PREVIOUS NUMBER(S): ET 3-SMW 6 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 97 WNE 1/4 NW 1/4 NE 1/4, section 32*1/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 730700 m E, 4433070 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road in sec. 32 T1N R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember Evacuation Creek Unit "middle"Stratigraphic position at base of hillSediment description buff sandstone just above a fairly coarse-grained dark gray andmicaceous sandstone; similar to ET 3-32, but sandstone is laminated with mud
clasts (conglomerate)Depositional environment streambank to marginal lacustrineFossils sampled turtle boneFossils remaining sameScientific significance and disposition of material 4

*Based on proportional subdivision. Section is undersized.



SITE FORM

LOCALITY NUMBER: ET 4-1

NAME: _____

PREVIOUS NUMBER(S): JUM 8230 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1S Range: 98WSW 1/4 NW 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Wolf Ridge, Colorado_____, 7.5 min.UTM 12 ; 722720 m E, 4428950 m NLANDOWNER Bureau of Land ManagementACCESS on foot north from road up Duck Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 4 Unit _____Stratigraphic position Approximately 25 feet above creek bottom, in Uinta 4 below Thirteen Mile Creek Member of the Green River FormationSediment description In buff- to orange-colored conglomeratic sandstone with large clay clastsDepositional environment fluvialFossils sampled noneFossils remaining vertebra, probably dorsal, or crocodilianScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 4-2

NAME: _____

PREVIOUS NUMBER(S): TER 82-01 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 98WNW 1/4 NE 1/4 NE 1/4, section 9_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Wolf Ridge, Colorado_____, 7.5 min.UTM 12 _____; 722700 m E, 4429220 m NLANDOWNER Bureau of Land ManagementACCESS on foot north from road up Duck Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 4 Unit _____Stratigraphic position Uinta 4, 100 feet from creek bottomSediment description buff-colored, medium-grained, pebble conglomerate (1-foot-thick); the remainder of this unit is well-sorted, medium, buff sandDepositional environment fluvialFossils sampled crocodilian bone, fish spines and turtle shell fragmentsFossils remaining various long bones and bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 4-3

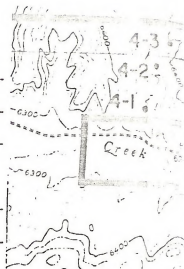
NAME: _____

PREVIOUS NUMBER(S): GWS (ET) - 8 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 98WSW 1/4 SE 1/4 SE 1/4, section 41/4 1/4 1/4, sectionUSGS Quadrangle Wolf Ridge, Colorado, 7.5 min.UTM 12 ; 722900 m E, 4429400 m NLANDOWNER Bureau of Land ManagementACCESS on foot north from road up Duck Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 4 Unit _____Stratigraphic position scattered throughout local section (lower than ET 4-2)Sediment description layers of well-indurated, tan pebble conglomerate (subrounded quartz-arenite grains) and clean, well-sorted, medium- to large-grained quartzareniteDepositional environment freshwater deltaic to marginal lacustrineFossils sampled fish vertebraeFossils remaining fish vertebra, small reptile bones and turtelled gastropodsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 4-4

NAME: _____

PREVIOUS NUMBER(S): JUM 8231 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1S Range: 98WSE 1/4 NW 1/4 NE 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Wolf Ridge, Colorado_____, 7.5 min.UTM 12; 721100 m E, 4427300 m NLANDOWNER Bureau of Land ManagementACCESS on foot west from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 5 Unit _____Stratigraphic position about 20 feet above prominent shale tongueSediment description massive buff- to orange-colored sandstoneDepositional environment fluvialFossils sampled petrified woodFossils remaining large sections of wood, some 3 feet in length and 12 inches in diameterScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 6-1

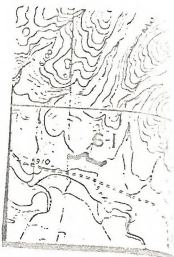
NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSW 1/4 NW 1/4 SW 1/4, section 36SE 1/4 NW 1/4 SW 1/4, section 36USGS Quadrangle Barcus Creek SEColorado, 7.5 min.UTM 12; 726050 m E, 4441500 m NLANDOWNER Bureau of Land ManagementACCESS north on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Evacuation Creek Unit BStratigraphic position directly below buff sandstone at top of gullySediment description light-gray and calcareous conglomerate, approximately 1-2 feet thick, well-cemented and with a fine-grained matrixDepositional environment fluvial-lacustrineFossils sampled gastropodFossils remaining gastropodsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 6-2

NAME: _____

PREVIOUS NUMBER(S): TER82-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: T2N Range: R98WSW 1/4 NE 1/4 NW 1/4, section 25 1/4 1/4 1/4, section USGS Quadrangle Barcus Creek SE, Colorado , 7.5 min.UTM 12 ; 726320 m E, 4444050 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Evacuation Creek Unit AStratigraphic
position 40 feet above Mahogany BenchSediment
description buff-colored, medium-grained pebble conglomerate pocketed withina buff-colored, medium-grained sandstone (finer-grained and light sediments below)Depositional
environment fluvial-lacustrineFossils
sampled noneFossils
remaining turtle scapula (?) and various bone fragmentsScientific significance
and disposition of
material 2

SITE FORM

LOCALITY NUMBER: ET 6-3

NAME: _____

PREVIOUS NUMBER(S): EB0-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WNE 1/4 SW 1/4 SW 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 ; 725870 m E, 444350 m NLANDOWNER Bureau of Land ManagementACCESS east on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Evacuation Creek Unit BStratigraphic
position about 100 feet up hillside talus slope just S of intertonguing Parachute
Creek white shales; occurs within sequence of interbedded coarse and fine sandsSediment
description medium- to coarse-grained and pinkish-tan sandstoneDepositional
environment fluvialFossils
sampled turtle shell fragmentFossils
remaining noneScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 7-1

NAME: _____

PREVIOUS NUMBER(S): SMW 7-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 9R WNW 1/4 NW 1/4 NE 1/4, section 4SE 1/4 NE 1/4 NW 1/4, section 4USGS Quadrangle Barcus Creek SE, Colorado7.5 min.UTM 12 ; 722000 m E, 4440810 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Barcus

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position base of fossiliferous unit is at or within 3 meters of base of Yellow Creek TongueSediment description light-gray dolomitic marlstone and silty marlstoneDepositional environment lacustrineFossils sampled at least three species of gastropods and unidentifiable pelecypodsFossils remaining same as above; wood and other plant fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 7-2

NAME: _____

PREVIOUS NUMBER(S): SMW 7-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WSE 1/4 NE 1/4 NW 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 721800 m E, 4440600 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Barcus

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position seen in float approximately 3 meters above marlstone ledge (see ET 7-1)could not find lamina(e) of originSediment description light brownish-gray siltstone or silty shaleDepositional environment lacustrineFossils sampled insect larvaeFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 7-3

NAME: _____

PREVIOUS NUMBER(S): _____

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNW 1/4 SW 1/4 NW 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 721100 m E, 4440500 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Barcus

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 1 Unit _____Stratigraphic position about 20 meters below Yellow Creek Tongue of Green River Formation inlowest sandstone bench exposedSediment description massive gray sandstone and conglomerate that weathers redDepositional environment fluvialFossils sampled gastropodsFossils remaining gastropodsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 7-4 (a,b,c,d)

NAME: _____

PREVIOUS NUMBER(S): SMW 7-3a,b,c,d (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 9B WE 1/2 SE 1/4 NE 1/4, section 4N 1/2 NE 1/4 SE 1/4, section 4USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 722600 m E, 4440300 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from road up Barcus Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position in snail-pelecypod-bearing unit (see ET 7-1)Sediment description light-gray silty marlstone and possibly dolomitic marlstoneDepositional environment lacustrineFossils sampled indeterminate massive bone (at 4a), turtle (?) limb bone and (?) titan-othere nasals (at 4b), turtle shell fragments (at 4c), scapula or femur (at 4d)Fossils remaining small turtle shell fragment, miscellaneous bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 7-5

NAME: _____

PREVIOUS NUMBER(S): E80-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNW 1/4 NW 1/4 NE 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 718970 m E, 4439350 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Barcus

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember _____ Unit "lower"Stratigraphic position uppermost part of lower Uinta, about 10-15 feet below contact with Green River FormationSediment description thick (15-20 feet) cross-bedded medium- to coarse-grained sandstone that weathers tan and orange-red; contains fine cross-bedding and contorted bedding (soft-sediment deformation); pebbles, mudclasts, and rare bone fragments along laminae; some interbedded white to tan shaley siltstone; uneven/scour contact overlying horizontally-bedded (10-12 inch beds) of white/tan siltstone and silty sandstoneDepositional environment fluvialFossils sampled uintathere skull; includes palatal area, skull roof with horns, caninesFossils remaining noneScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 7-6

NAME: _____

PREVIOUS NUMBER(S): GWS-ETA (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WSW 1/4 SW 1/4 SW 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12; 718000 m E, 4439500 m N.LANDOWNER Bureau of Land ManagementACCESS N on foot from road up Barcus Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 1 Unit _____Stratigraphic position lower Uinta, midway up slopeSediment description structureless sandstone that is a medium-grained, well-sorted quartzarenite and beige in colorDepositional environment marginal lacustrineFossils sampled noneFossils remaining large isolated unidentifiable bone fragment in rockScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 7-7

NAME: _____

PREVIOUS NUMBER(S): GWS-ETA1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 98 WNE 1/4 NE 1/4 NW 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Barcus Creek SE, Colorado_____, 7.5 min.UTM 12 _____; 718750 m E, 4439400 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Barcus Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Yellow Creek Tongue Unit _____Stratigraphic position debris fall from Yellow Creek TongueSediment description well-laminated, light-colored shale/siltstoneDepositional environment lacustrineFossils sampled insect pupaeFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 9-1

NAME: _____

PREVIOUS NUMBER(S): JGW 9-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 96 WNW 1/4 NE 1/4 SE 1/4, section 321/4 1/4 1/4, section _____USGS Quadrangle Jessup Gulch, Colorado_____, 7.5 min.UTM 12 _____; 740700 m E, 4412520 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember 6 Unit _____Stratigraphic position within mudclast conglomerate approximately 1/4-way up from basal contactSediment description mudclast conglomerate with sandstone matrixDepositional environment fluvialFossils sampled noneFossils remaining isolated bone fragmentScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 10-1

NAME: _____

PREVIOUS-NUMBER(S): GUS-ETB (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 97 WSW 1/4 NW 1/4 NE 1/4, section 121/4 1/4 1/4, section _____USGS Quadrangle Greasewood Gulch, Colorado_____, 7.5 min.UTM 12; 737200 m E, 4419650 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road in sec. 12 T2S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation UintaMember _____ Unit "upper"Stratigraphic position lowest vertical exposure midway up wallSediment description base of clean massive sand in rip-up conglomerate above scour contact with mudstoneDepositional environment marginal lacustrine (high energy episode)Fossils sampled large mammalian metapodial element (uintathere lunata)Fossils remaining noneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 10-2

NAME: _____

PREVIOUS NUMBER(S): SL 2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 97 W1/4 SE 1/4 NE 1/4, section 21/4 1/4 1/4, sectionUSGS Quadrangle Greasewood Gulch, Colorado, 7.5 min.UTM 12 ; 736100 m E, 4421000 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road in sec. 12 T2S R97W

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member _____ Unit _____

Stratigraphic position mapped on "TU4" but in a lacustrine tongue between typical TU sandsSediment description gray and buff silty paper shaleDepositional environment lacustrineFossils sampled turtle- trionychid (carapace and plastron)Fossils remaining sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 11-1

NAME: _____

PREVIOUS NUMBER(S): JMP-11-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNW 1/4 NE 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12 _____; 691320 m E, 4426440 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R10W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 40 feet below capping sandstoneSediment description brown, medium-grained, marly sandstone with very abundant invertebrate fossils throughoutDepositional environment fluvio-deltaicFossils sampled bone scraps, gastropods and bivalvesFossils remaining abundant invertebrates and bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 11-2

NAME: _____

PREVIOUS NUMBER(S): -TRL-13 (Field #)

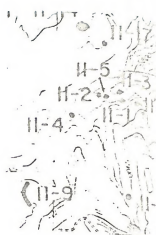
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNE 1/4 NW 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12; 691130 m E, 4426460 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position at base of cap sandstone (nothing found in place, all float)Sediment description probably from medium-grained and massive sandsDepositional environment fluvial-deltaicFossils sampled bone fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 11-3

NAME: _____

PREVIOUS NUMBER(S): TRI-14 (Field #)

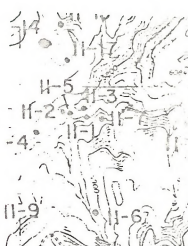
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNW 1/4 NE 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado
_____, 7.5 min.UTM 12; 691300 m E, 4426500 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position 1 meter above base of cap-sandstone cliffSediment description medium-grained, cross-bedded sandstone; buff in colorDepositional environment fluvio-deltaicFossils sampled bone fragmentsFossils remaining many bones visible in matrix including 1 rib (dinosaur)Scientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 11-4

NAME: _____

PREVIOUS NUMBER(S): GWS-ETC (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSW 1/4 NW 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12; 690950 m E, 4426300 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position on valley wall facing S near ridge topSediment description pebble/bone conglomerate within tan, well-sorted medium- to fine-grained quartzose sandstone with multiple small-scale crossbed setsDepositional environment fluvio-deltaicFossils sampled carosaur tooth, dinosaur bone, crocodilian tooth (Brachychamps?)Fossils remaining turtle shell, many dinosaur bones, crocodilian and carosaur teeth, fish scale and fossil woodScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 11-5

NAME: _____

PREVIOUS NUMBER(S): GWS-FTD (Field #)

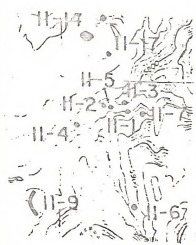
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNE 1/4 NW 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado, 7.5 min.UTM 12 ; 691190 m E, 4426450 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R10W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position between two major exposed sandstone ledgesSediment description gray, calcareous (?) shale/mudstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining large, in situ, isolated dinosaur boneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 11-6

NAME: _____

PREVIOUS NUMBER(S): JM 8233 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSW 1/4 SE 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12; 691370 m E, 4425820 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position Approximately 12 feet above base of drainageSediment description unevenly-bedded, dark-gray shale (lenticular in sequence of alternating sandstone and shales)Depositional environment fluvio-deltaicFossils sampled leaf impressions, probably Araucarites, palm, and dicotsFossils remaining same (shale needs to be split intensively)Scientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 11-7

NAME: _____

PREVIOUS NUMBER(S): JUM 8234 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSW 1/4 NE 1/4 NW 1/4, section 17 1/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado , 7.5 min.UTM 12; 691400 m E, 4426430 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position 10 feet below sandstone cap-rockSediment description light-gray shale about 7-feet-thick with some orange weathering stainsDepositional environment fluvio-deltaicFossils sampled: bone fragments (probably turtle)Fossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 11-8

NAME: _____

PREVIOUS NUMBER(S): JI-11-2 (Field #)

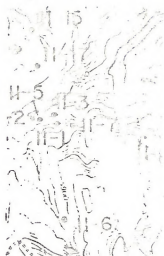
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSW 1/4 NW 1/4 NE 1/4, section 17SE 1/4 NW 1/4 NE 1/4, section 17USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12 ; 691850 m E, 4426420 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position weathered area between two lowest massive sandsSediment description area of weathered sandstone and shale (specimens found as float; bone producing layer extends for about 300 meters between canyons)Depositional environment fluvio-deltaicFossils sampled bone fragments and fossil woodFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 11-9

NAME: _____

PREVIOUS NUMBER(S): SMW 11-1 and 11-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 SE 1/4 NE 1/4, section 18NE 1/4 NE 1/4 SE 1/4, section 18USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12 ; 690750 m E, 4425870 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139 at State Bridge

DESCRIPTION

Era: Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position immediately below massive white siltstoneSediment description weathered white silt covered with blue, black, orange, red, iron-stained tabular to cubic, sharp-edged pebbles, generally no more than 1 cm in greatest diameterDepositional environment fluvio-deltaicFossils sampled turtle scrap and dinosaur boneFossils remaining dinosaur boneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 11-10

NAME: _____

PREVIOUS NUMBER(S): JDM-11-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSW 1/4 SW 1/4 NE 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12; 690250 m E, 4427650 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 1.5 meters above siltstone in massive tan sandstoneSediment description massive tan sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining lens of petrified wood with exposed logScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 11-11

NAME: _____

PREVIOUS NUMBER(S): JDM-11-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 NW 1/4 SE 1/4, section 7_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Water Canyon, ColoradoColorado, 7.5 min.UTM 12 ; 690590 m E, 4427050 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position base of massive tan sandstone at contact with siltstone about 15meters above base of drainageSediment description light-gray siltstone below massive tan sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining petrified wood (log)Scientific significance and disposition of material 5

LOCALITY NUMBER: ET 11-12

NAME: _____

PREVIOUS NUMBER(S): MCM-11-1 A and B (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNW 1/4 NW 1/4 SE 1/4, section 81/4 1/4 1/4, sectionUSGS Quadrangle Water Canyon, Colorado, 7.5 min.UTM 12 ; 691820 m E, 4427200 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from well pad in the SW 1/4NW 1/4 Sec. 17 T1S R10W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 2 meters above base of gullySediment description weathered light gray siltstone, about 1-meter-thick, between massive tan sandstone benchesDepositional environment lacustrineFossils sampled dinosaur bone fragmentsFossils remaining dinosaur bone fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 11-13

NAME: _____

PREVIOUS NUMBER(S): MCM-11-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 SW 1/4 NE 1/4, section 7 1/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado
_____, 7.5 min.UTM 12 _____ ; 690480 m E, 4427470 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position 30 meters above gully floor, about 15 meters above ET 11-18Sediment description massive, tan sandstone (weathered)Depositional environment fluvio-deltaicFossils sampled turtle fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 11-14

NAME: _____

PREVIOUS NUMBER(S): JHM 8239 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNW 1/4 SW 1/4 SW 1/4, section 81/4 1/4 1/4, sectionUSGS Quadrangle Water Canyon, Colorado, 7.5 min.

UTM 12 ; 690990 m E, 4426900 m N

LANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position on low hill in main gulchSediment description float (origin uncertain)Depositional environment fluvio-deltaicFossils sampled dinosaur bone, turtle shell fragmentFossils remaining dinosaur boneScientific significance and disposition of material 4

LOCALITY NUMBER: ET 11-15

NAME: _____

PREVIOUS NUMBER(S): JHM 8240 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNE 1/4 SW 1/4 SW 1/4, section 81/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12 _____; 691130 m E, 4427000 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position at base of slope about 3 feet above base of drainageSediment description float (probably derived from gray mudstone)Depositional environment fluvio-deltaicFossils sampled dinosaur boneFossils remaining dinosaur boneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 11-16

NAME: _____

PREVIOUS NUMBER(S): JUM 8241 (Field #)

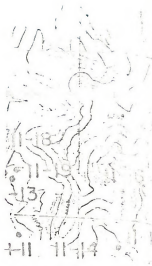
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WNE 1/4, NW 1/4 SW 1/4, section 81/4 1/4 1/4, sectionUSGS Quadrangle Water Canyon, Colorado, 7.5 min.UTM 12 ; 691160 m E, 4427370 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position 70 feet below top of ridgeSediment description well-indurated sandstone (float block)Depositional environment fluvio-deltaicFossils sampled noneFossils remaining palm leaf without hastulaScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 11-17

NAME: _____

PREVIOUS NUMBER(S): JMW 12 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 SW 1/4 SW 1/4, section 81/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado, 7.5 min.UTM 12 ; 691220 m E, 4426800 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position below second prominent sandstone ridgeSediment description blue-gray weathered mudstoneDepositional environment fluvio-deltaicFossils sampled bone fragmentsFossils remaining bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 11-18

NAME: _____

PREVIOUS NUMBER(S): JMW 13 (Field #)

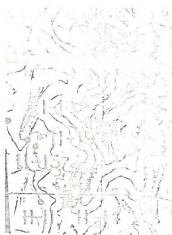
LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 SW 1/4 NE 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.UTM 12 ; 690370 m E, 4427520 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position on south-facing slope of second prominent ridgeSediment description gray and sandy mudstone (weathered)Depositional environment fluvio-deltaicFossils sampled bone fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 11-19

NAME: _____

PREVIOUS NUMBER(S): JMW 14 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 S Range: 101 WSE 1/4 SW 1/4 NE 1/4, section 71/4 1/4 1/4, section _____USGS Quadrangle Water Canyon, Colorado_____, 7.5 min.

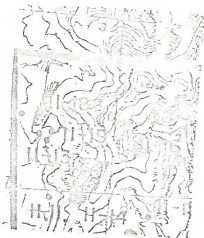
UTM 12 _____; 690520 m E, 4427520 m N

LANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position under sandstone bench 20 feet west of gully headSediment description very sandy and weathered shale; tan and gray and interbedded with fine to medium tan-gray sandstoneDepositional environment fluvio-deltaicFossils sampled large dinosaur boneFossils remaining dinosaur bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-1

NAME: _____

PREVIOUS NUMBER(S): TRL-17 (Field #)

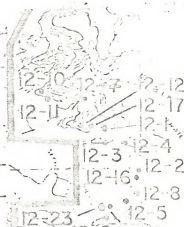
LOCATION: _____

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WNW 1/4 SE 1/4 SE 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12 _____; 722400 m E, 4449300 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position about 60 feet above small valley floorSediment description silty sandstone and conglomerate that weathers red to brownDepositional environment fluvialFossils sampled fish scales and crocodilian, turtle and mammal bone fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 12-2

NAME: _____

PREVIOUS NUMBER(S): TRL-18 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WNE 1/4 NE 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12 ; 722680 m E, 4449050 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION _____

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position _____

underlies yellow-gray variegated mudstone which underlies .5-meter-thick sandstone ledgeSediment description gray mudstoneDepositional environment fluvialFossils sampled bone fragments, fish scale, enamel fragments and two mammalian molarsFossils remaining noneScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 12-3

NAME: _____

PREVIOUS NUMBER(S): JGW 12-1 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSW 1/4 SE 1/4 SE 1/4, section 4 1/4 1/4 1/4, section USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12 ; 722400 m E, 4449200 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 Unit _____Stratigraphic position found in ant hillSediment description unknownDepositional environment ant hillFossils sampled gar scale and lizard scute(?)Fossils remaining noneScientific significance and disposition of material 4

LOCALITY NUMBER: ET 12-4

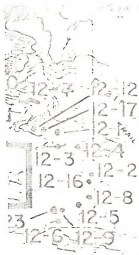
NAME: _____

PREVIOUS NUMBER(S): JGM 12-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSE 1/4 SE 1/4 SE 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado
_____, 7.5 min.UTM 12 _____; 722600 m E, 4449200 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 Unit _____Stratigraphic
position about 50 feet above base of hill, towards base of large sandstone cliff,
about 2 feet above pebble conglomerateSediment
description gray, coarse-grained and well-cemented sandstoneDepositional
environment fluvialFossils
sampled noneFossils
remaining bone, gar scaleScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 12-5

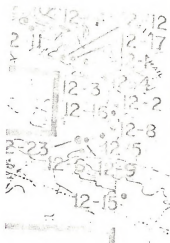
NAME: _____

PREVIOUS NUMBER(S): JGM 12-3 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSE 1/4 NE 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12 _____; 722600 m E, 4448850 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 Unit _____Stratigraphic position in float and in situ above; below within second sandstone outcropSediment description variegated weathered mudstone, interbedded with coarse-grainedand well-cemented sandstoneDepositional environment fluvialFossils sampled crocodilian teeth, crocodilian bone and turtleFossils remaining additional boneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-6

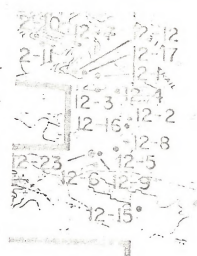
NAME: _____

PREVIOUS NUMBER(S): JGM 12-4 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSW 1/4 NE 1/4 NE 1/4, section 9 1/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12 ; 722480 m E, 4448700 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 (?) Unit _____Stratigraphic position at top of sandstone outcropSediment description gray sandstoneDepositional environment fluvialFossils sampled gastropodsFossils remaining gastropodsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 12-7

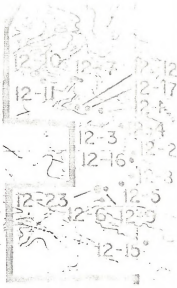
NAME: _____

PREVIOUS NUMBER(S): EBO 3/GWS ETE (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSW 1/4 NE 1/4 SE 1/4, section 4SE 1/4 NW 1/4 SE 1/4, section 4USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 722200 m E, 4449500 m NLANDOWNER Bureau of Land ManagementACCESS SW on foot from jeep trail off Highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation Fort UnionMember "upper" Unit _____Stratigraphic position about 30 feet into stratigraphic section, about 15 feet above flag-stone-forming sandstoneSediment description 4-5 feet of indurated, calcareous, black (weathers orange-tan or sometimes gray) mudstone; overlies black carbonaceous shaley mudstone, overlain by tan sandy silts; at least 2 other shell-bearing horizons occur with next 25-30 foot sectionDepositional environment fluvialFossils sampled variety of mollusks including pelecypods and gastropodsFossils remaining gastropods, pelecypodsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 12-8

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-F (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WNE 1/4 NE 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado, 7.5 min.UTM 12 ; 722680 m E, 4448900 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from jeep trail off Highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position middle of exposed sectionSediment description variegated mudstone (red-gray-brown)Depositional environment fluvial (floodplain overbank)Fossils sampled trionychid turtle, eusuchian crocodilian elements and fragment of mammalian tooth enamelFossils remaining more of sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-9

NAME: _____

PREVIOUS NUMBER(S): TRL-19 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSE 1/4 NE 1/4 NE 1/4, section 9 1/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12 ; 722480 m E, 448780 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position in variegated (gray-yellow-red-brown) mudstone underlying .5-meter-thick sandstone ledgeSediment description variegated mudstone (gray-yellow-red-brown)Depositional environment fluvial (floodplain overbank)Fossils sampled turtle and crocodilian bone fragments, crocodilian tooth, enamel fragment of mammal (Coryphodon)Fossils remaining numerous bone fragmentsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-10

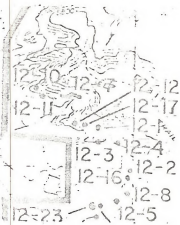
NAME: _____

PREVIOUS NUMBER(S): JMW 1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 N Range: 98 WSW 1/4 NW 1/4 SE 1/4, section 4 1/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12; 722010 m E, 4449600 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from jeep trail off Highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember "lower" Unit _____Stratigraphic position 1/3-way up from valley floor at prominent outcropsSediment description gray, medium-grained, quartzose sandstone with brown weathered stainDepositional environment fluvialFossils sampled fossil leavesFossils remaining more leavesScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 12-11

NAME: _____

PREVIOUS NUMBER(S): JMW 2 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 2N Range: 98W

SW 1/4 NW 1/4 SE 1/4, section 4

1/4 1/4 1/4, section _____

USGS Quadrangle Rough Gulch, Colorado

_____, 7.5 min.

UTM 12; 722030 m E, 4449500 m N

LANDOWNER Bureau of Land Management

ACCESS S on foot from jeep trail off Highway

64

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member "lower" Unit _____

Stratigraphic position same level as ET 12-10

Sediment description gray, medium-grained quartzose sandstone that is weathered brown

Depositional environment fluvial

Fossils sampled fossil leaves

Fossils remaining more leaves

Scientific significance and disposition of material 5



SITE FORM

LOCALITY NUMBER: ET 12-12

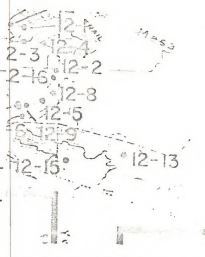
NAME: _____

PREVIOUS NUMBER(S): JMW 3 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNW 1/4 SE 1/4 SE 1/4, section 4 1/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12; 722210 m E, 4449300 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from jeep trail off highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember "lower" Unit _____Stratigraphic position near base of outcropSediment description grayish-tan fine-grained to medium-grained sandstone; fossil wood occurs as float on weathered slopeDepositional environment fluvialFossils sampled fossil woodFossils remaining fossil woodScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 12-13

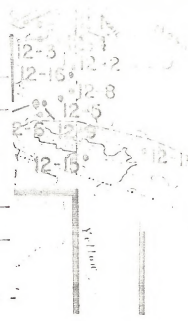
NAME: _____

PREVIOUS NUMBER(S): SMW 12-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNW 1/4 SE 1/4 NW 1/4, section 101/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado, 7.5 min.UTM 12 ; 723070 m E, 4448560 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from jeep trail off highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 Unit _____Stratigraphic position at or very near (within 10 m of) the Tw1-Tw contactSediment description silt-supported mollusc shell-fragment cocquinaDepositional environment fluvialFossils sampled crocodilian vertebra, gar scales, fish vertebra, crocodilian scute, bivalve molluscFossils remaining sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-14

NAME: _____

PREVIOUS NUMBER(S): SMW 12-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNE 1/4 SW 1/4 NE 1/4, section 101/4 1/4 1/4, section _____USGS Quadrangle Smizer Gulch, Colorado, 7.5 min.UTM 12 ; 723700 m E, 4448500 m NLANDOWNER Bureau of Land ManagementACCESS W of jeep trail off

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember 1 Unit _____Stratigraphic position at or very near (within 10 meters of) the Tw1-Tw contactSediment description yellow silty sandstoneDepositional environment fluvialFossils sampled turritellid-like gastropodsFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 12-15

NAME: _____

PREVIOUS NUMBER(S): EBO 4 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNW 1/4 SW 1/4 NW 1/4, section 101/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12 _____; 722700 m E, 4448480 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from jeep trail off of Highway64

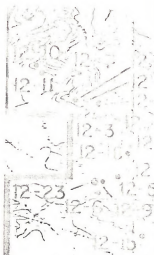
DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position near approximate contact of Tw with Tw1Sediment description 4-foot-thick calcareous sandstone/sandy limestone with much shell and fossil material; weathers tan and dark blue; within thick sequence of interbedded*Depositional environment fluvial (floodplain overbank)Fossils sampled gar scales, turtle carapace fragments, pelecypods, at least 2 kinds of gastropodsFossils remaining more of the sameScientific significance and disposition of material 2

*flagstone-weathering sandstones and sandy silts above distinctive gray tuff; some shell/bone horizons within exposures of locality, including one with distinctive molds of gastropods



SITE FORM

LOCALITY NUMBER: ET 12-16

NAME: _____

PREVIOUS NUMBER(S): TRL-20 (Field #)

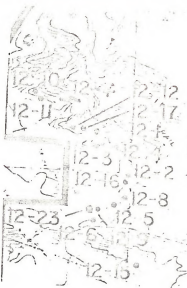
LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNE 1/4 NE 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 722680 m E, 4448980 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from jeep trail off of Highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position underlies 2 meters of light-brown mudstoneSediment description gray and yellow variegated mudstoneDepositional environment fluvial (floodplain overbank)Fossils sampled fish centrum and pelecypod fragmentsFossils remaining noneScientific significance and disposition of material 3

LOCALITY NUMBER: ET 12-17

NAME: _____

PREVIOUS NUMBER(S): TRL-16 (Field #)

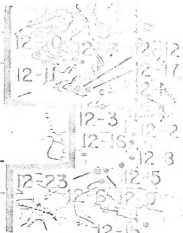
LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNW 1/4 SE 1/4 SE 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 722330 m E, 4449300 m NLANDOWNER Bureau of Land ManagementACCESS SW on foot from jeep trail off Highway64

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position directly overlies a 1-meter-thick sandstone ledgeSediment description siltstone with gastropods and pelecypodsDepositional environment fluvialFossils sampled gastropods and pelecypodsFossils remaining more of sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-18

NAME: _____

PREVIOUS NUMBER(S): TRL-21 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WSE 1/4 SE 1/4 NE 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, ColoradoColorado, 7.5 min.UTM 12 ; 720980 m E, 4446780 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position overlies clay rip-up clast conglomerate (1-meter-thick); underlies cross-bedded massive sandstone (3-meters-thick)Sediment description medium-grained sandstone and conglomerate with shell, bone and iron stone lensDepositional environment fluvialFossils sampled crocodilian tooth and high-spired gastropodsFossils remaining gastropods and bone fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 12-19

NAME: _____

PREVIOUS NUMBER(S): JHM 8238 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNW 1/4 SW 1/4 NW 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 721100 m E, 4446780 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic position about 20 feet above tongue of Green River FormationSediment description massive, cliff-forming, medium-grained sandstone with lenses of conglomerateDepositional environment fluvial - marginal lacustrineFossils sampled gar scales, high-spired gastropodFossils remaining bone fragments, gar scales, leaf fragments (Platanus sp.)Scientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 12-20

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-6 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 98WNW 1/4 SW 1/4 NW 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 721120 m E, 4446880 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member _____ Unit _____

Stratigraphic position low on slopeSediment description shale, well-laminated, rich in organics and kerogenDepositional environment lacustrineFossils sampled 1 leaf, numerous small insect larvaeFossils remaining numerous insect larvae and carbonized leaf fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 12-21

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-H (Field #)

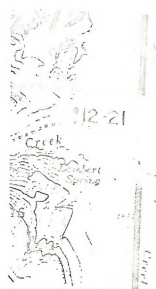
LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNE 1/4 NW 1/4 NE 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 722200 m E, 4447300 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member _____ Unit _____

Stratigraphic
position low on slopeSediment
description paper shale, marly, well-laminatedDepositional
environment lacustrineFossils
sampled 1 peculiar insect larva or pupaFossils
remaining poorly preserved insect larvaeScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 12-22

NAME: _____

PREVIOUS NUMBER(S): EBO-5 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WNE 1/4 NW 1/4 NW 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rough Gulch, Colorado_____, 7.5 min.UTM 12; 721280 m E, 4447200 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member _____ Unit _____

Stratigraphic position Green River Shale about 30 feet below Uinta massive cliff-formingSediment description gray shale sandstoneDepositional environment lacustrineFossils sampled shale pieces containing fossil fruit, gastropod, larvaeFossils remaining more of sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 12-23

NAME: _____

PREVIOUS NUMBER(S): JMW 4, 5, & 6 (Field #'s)

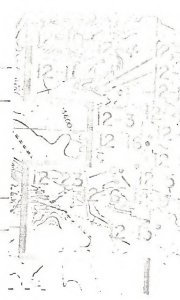
LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WSW 1/4 NE 1/4 NE 1/4, section 9 1/4 1/4 1/4, section USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12 ; 722400 m E, 4448780 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Yellow Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position lower part of Wasatch (lacustrine facies)Sediment description weathered gray to maroon silty sandstoneDepositional environment lacustrineFossils sampled partial mammalian femur, turtle shell and vertebrae, bone fragments, Cervid toothFossils remaining none (?)Scientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 12-24

NAME: _____

PREVIOUS NUMBER(S): JMW 8 (Field #)

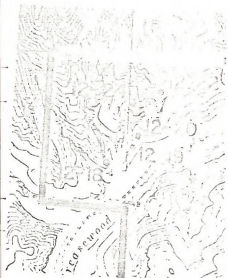
LOCATION:

State: Colorado County: Rio BlancoTownship: 2N Range: 98WSW 1/4 NW 1/4 NW 1/4, section 16 1/4 1/4 1/4, section USGS Quadrangle Rough Gulch, Colorado , 7.5 min.UTM 12 ; 721080 m E, 4447120 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Greasewood Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Uinta

Member _____ Unit _____

Stratigraphic
position 200 feet below hill crestSediment
description light greenish-gray to grayish-tan interbedded sandy shale, fine-grained
sandstone and medium- to coarse-grained arkosic sandstoneDepositional
environment marginal lacustrineFossils
Sampled leaves, fair to excellent preservation, woody materialFossils
remaining more of sameScientific significance
and disposition of
material 5

SITE FORM

LOCALITY NUMBER: ET 13-1

NAME: _____

PREVIOUS NUMBER(S): TER 22-4 (Field #)

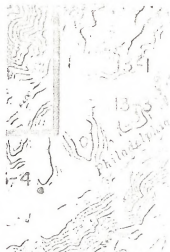
LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNE 1/4 SE 1/4 NE 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 695900 m E, 4419740 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Philadelphia Creek

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic
position just below sandstone at ridge crestSediment
description light green and carbonaceous claystoneDepositional
environment fluvio-deltaicFossils
sampled noneFossils
remaining two fossil logsScientific significance
and disposition of
material 5

SITE FORM

LOCALITY NUMBER: ET 13-2

NAME: _____

PREVIOUS NUMBER(S): JUM 8236 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNE 1/4 SE 1/4 NE 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 _____; 695970 m E, 4419720 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Philadelphia Creek

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork
Member _____ Unit _____Stratigraphic position about 40 feet below massive sandstone capping top of ridgeSediment description float (uncertain)Depositional environment fluvio-deltaicFossils sampled one bivalve found as floatFossils remaining none seenScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 13-3

NAME: _____

PREVIOUS NUMBER(S): SGL-3 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNE 1/4 SE 1/4 NE 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 695880 m E, 4419660 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from unmapped road on ridge crest
in sec. 3 T2S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork
Member _____ Unit _____Stratigraphic position at base of sandstone capping ridge (see fig.)Sediment description bone and shell conglomerate with sandstone matrix (brick-red to brown)Depositional environment fluvio-deltaicFossils sampled numerous vertebrates and invertebratesFossils remaining more of the sameScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 13-4

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WSE 1/4 NE 1/4 SW 1/4, section 3_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 _____ ; 695100 m E, 4419000 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Philadelphia Creek

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position lowest bench in sectionSediment description massive, tan-weathering, well-indurated, well-sorted fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled dicotyledonous leafFossils remaining a dozen or more of the sameScientific significance and disposition of material 5

SITE FROM

LOCALITY NUMBER: ET 14-1

NAME: _____

PREVIOUS NUMBER(S): TRL-15 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 95WNE 1/4 NE 1/4 SW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle No Name Ridge, Colorado_____, 7.5 min.UTM 12; 754580 m E, 4414680 m NLANDOWNER Bureau of Land ManagementACCESS on road-cut where road climbs out of gulchjust east of Rough Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position about 1/2-way up slopeSediment description gray weathering shaleDepositional environment lacustrineFossils sampled leaves, insect larvae and two seedsFossils remaining more of the sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 15-1

NAME: _____

PREVIOUS NUMBER(S): TER82-05 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WSW 1/4 NW 1/4 SW 1/4, section 24 1/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado , 7.5 min.UTM 12 _____; 707760 m E, 4404780 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position low in section; shale and marlsSediment description laminated shale with convoluted bedding and some thin massive bedsDepositional environment marginal lacustrineFossils sampled gar scales, turtle and crocodilian bone, bivalves with original shell, gastropods (planispiral and turritellid-like)Fossils remaining more of the sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 15-2

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-0 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WSW 1/4 NW 1/4 SW 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12 _____; 707820 m E, 4404780 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position low in section, shales and marlsSediment description laminated shale with convoluted bedding and some thin massive bedsDepositional environment marginal lacustrineFossils sampled mammal ribFossils remaining gastropods and bivalvesScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 15-3

NAME: _____

PREVIOUS NUMBER(S): MCM-15-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNE 1/4 SE 1/4 SE 1/4, section 231/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12; 707580 m E, 4404600 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position basal Douglas Creek, immediately above massive tan sandstone (Wasatch?)Sediment description gray, fine-grained sandstone (continuous bed with mollusks and gastropods abundant)Depositional environment lacustrineFossils sampled mollusk, gastropod (mollusks with original shell material)Fossils remaining abundant mollusks and gastropodScientific significance and disposition of material 3

SITE PLAN

LOCALITY NUMBER: ET 15-4

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-N (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 SW 1/4 SW 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12 _____; 707820 m E, 4404460 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position low in section (sandstone)Sediment description green-gray, poorly lithified sandstone (medium- to coarse-grained and moderately sorted)Depositional environment fluvio-lacustrineFossils sampled trionychid-turtle shell fragmentFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 15-5

NAME: _____

PREVIOUS NUMBER(S): GWS-ET M (Field #)

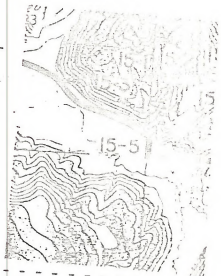
LOCATION:

State: ColoradoCounty: Rio BlancoTownship: 3SRange: 100WSW 1/4 SW 1/4 SW 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado7.5

min.

UTM 12 ; 707820 m E, 4404380 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Ohio Creek Unit _____Stratigraphic position just below main body of WasatchSediment description shell hash with matrix of fine tan sandstoneDepositional environment lacustrineFossils sampled shell hash conglomerateFossils remaining sameScientific significance
Disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 15-6

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-L (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WSE 1/4 NE 1/4 NW 1/4, section 23_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12; 705820 m E, 4405580 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position middle of sectionSediment description sandy conglomerate lens within shaleDepositional environment freshwater deltaicFossils sampled gastropod conglomerateFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 15-7

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-K (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 SE 1/4 NW 1/4, section 231/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, ColoradoColorado, 7.5 min.UTM 12; 706580 m E, 4405360 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position midway up bluffSediment description green, medium-grained sandstone with concretionsDepositional environment fluvialFossils sampled mold and distal end of femur (mammalian?)Fossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 15-8

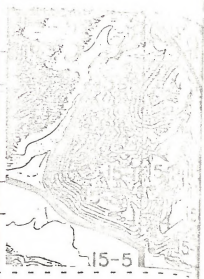
NAME: _____

PREVIOUS NUMBER(S): JUM 8242 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 SE 1/4 NE 1/4, section 231/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12; 707380 m E, 4405420 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position about 5 feet above bottom of gulchSediment description gray limy sandstoneDepositional environment lacustrineFossils sampled bivalves and gastropods with some original shell materialFossils remaining someScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 15-10

NAME: _____

PREVIOUS NUMBER(S): TRL-22 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 NE 1/4 SW 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, ColoradoColorado, 7.5 min.UTM 12; 709220 m E, 4404820 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position 50 feet below top of Douglas Creek memberSediment description bluish-gray limestoneDepositional environment lacustrineFossils sampled three shell fragments and a block of matrix with pelecypodsFossils remaining more of sameScientific significance and disposition of material 4

SITE FORM



LOCALITY NUMBER: ET 15-11

NAME: _____

PREVIOUS NUMBER(S): TRL-22-A (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 3S Range: 100W

NE 1/4 SW 1/4 SW 1/4, section 24
1/4 1/4 1/4, section _____

USGS Quadrangle Black Cabin Gulch, Colorado
 _____, 7.5 min.

UTM 12 _____; 7081110 m E, 4404540 m N

LANDOWNER Bureau of Land Management

ACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member Douglas Creek Unit _____
 Stratigraphic position not certain (float)

Sediment description oil-shale

Depositional environment lacustrine

Fossils sampled two gar scales and a fish plate

Fossils remaining none

Scientific significance and disposition of material 4

S11E FORM

LOCALITY NUMBER: ET 15-12

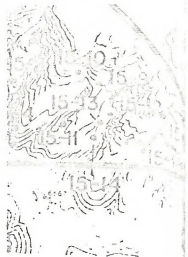
NAME: _____

PREVIOUS NUMBER(S): TRL-23 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNE 1/4 SE 1/4 SW 1/4, section 241/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12 ; 708440 m E, 4404600 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position middle of Douglas Creek memberSediment description marly shale; secondarily gypsiferousDepositional environment marginal lacustrineFossils sampled 1 bone fragmentFossils remaining much fragmentary shell materialScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 15-13

NAME: _____

PREVIOUS NUMBER(S): TRL-24 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 SE 1/4 SW 1/4, section 24_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado
_____, 7.5 min.UTM 12 _____; 708360 m E, 4404580 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position lower 1/3 of Douglas Creek MemberSediment description well-oxidized mollusk-shell conglomerateDepositional environment lacustrineFossils sampled gastropods and pelecypodsFossils remaining more of sameScientific significance
Disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 15-14

NAME: _____

PREVIOUS NUMBER(S): TRL-25 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNW 1/4 SE 1/4 SW 1/4, section 241/4 1/4 1/4, sectionUSGS Quadrangle Black Cabin Gulch, Colorado, 7.5 min.UTM 12 _____ ; 708340 m E, 4404460 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position near base of Douglas Creek MemberSediment description nearly black and limey mudstone that weathers grayDepositional environment lacustrineFossils sampled gastropods and pelecypodsFossils remaining more of sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 15-20

NAME: _____

PREVIOUS NUMBER(S): TRL-29 (Field #)

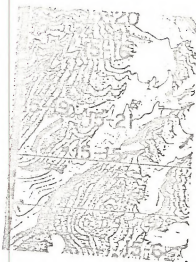
LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WNE 1/4 SE 1/4 NW 1/4, section 141/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12; 706500 m E, 4407040 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position 10 meters (?) above base of Douglas Creek MemberSediment description well-oxidized mollusk-shell conglomerateDepositional environment lacustrineFossils sampled gastropods and pelecypodsFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 15-21

NAME: _____

PREVIOUS NUMBER(S): EBO-9 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WSE 1/4 NW 1/4 SW 1/4, section 14
____ 1/4 ____ 1/4 ____ 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado
_____, 7.5 min.UTM 12 _____; 7065070 m E, 4406460 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River
Member Douglas Creek Unit _____Stratigraphic position about mid-section of Douglas Creek exposuresSediment description 3-inch-thick tan-gray calcareous mudstone conglomerate within chocolate brown shaley mudstoneDepositional environment lacustrineFossils sampled shell and small bones (turtle, fish) and gar scale, crocodilian scute and teeth, gastropods and bivalvesFossils remaining more of sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 15-22

NAME: _____

PREVIOUS-NUMBER(S): EBO 10 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 100WSW 1/4 SW 1/4 NW 1/4, section 141/4 1/4 1/4, section _____USGS Quadrangle Black Cabin Gulch, Colorado_____, 7.5 min.UTM 12; 706140 m E, 4406800 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up Cathedral Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Douglas Creek Unit _____Stratigraphic position mid-section of Douglas CreekSediment description 3-inch-thick red and blue mollusc-bearing calcareous horizonDepositional environment lake marginFossils sampled large bivalvesFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-1

NAME: _____

PREVIOUS NUMBER(S): TER 82-10 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1N Range: 101W

NE 1/4 SE 1/4 SW 1/4, section 4

1/4 1/4 1/4, section _____

USGS Quadrangle Gillam Draw, Colorado

_____, 7.5 min.

UTM 12; 692960 m E, 4438960 m N

LANDOWNER Bureau of Land Management

ACCESS SE on foot from road to drill hole in Sec.

4 T1N R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Mancos

Member Buck Tongue Unit _____

Stratigraphic position just above Castlegate Sandstone

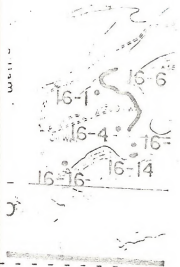
Sediment description light brown to gray mudstone with a sandstone bench 10 meters below

Depositional environment shallow marine

Fossils sampled shark teeth, oyster fragments (sampled from ant hills)

Fossils remaining oyster fragments

Scientific significance and disposition of material 2



SITE FORM

LOCALITY NUMBER: ET 16-2

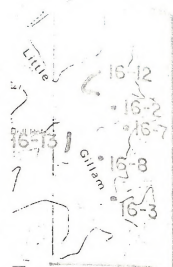
NAME: _____

PREVIOUS NUMBER(S): GWS-ET-Q (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WSE 1/4 SW 1/4 NW 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12; 694220 m E, 4439620 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road to drill hole in Sec.4 T1N R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember main body Unit _____Stratigraphic position below Castlegate SandstoneSediment description gray, calcareous, sandy shaleDepositional environment shallow marineFossils sampled oyster (Ostrea?) and Inoceramus fragmentsFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-3

16-13



NAME: _____

PREVIOUS NUMBER(S): GWS-ET-R (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNE 1/4 NW 1/4 SW 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12; 604260 m E, 4439040 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from road to drill hole in Sec.T1N R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Castlegate Sandstone

Member _____ Unit _____

Stratigraphic position at base of unitSediment description massive, coarsely-bedded sandstoneDepositional environment regressive marine strand-lineFossils sampled noneFossils remaining in-filled vertical burrows (not Ophomorpha)Scientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 16-4

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-S (Field #)

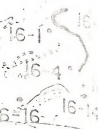
LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WSW 1/4 SW 1/4 SE 1/4, section 41/4 1/4 1/4, section _____USGS Quadrangle Gilliam Draw, Colorado_____, 7.5 min.UTM 12; 693080 m E, 4438700 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from oil well in Sec. 4 T1NR101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Buck Tongue Unit _____Stratigraphic position lower part of Buck TongueSediment description blocky-mudstone (concretionary layer)Depositional environment shallow marineFossils sampled Inoceramus steinkerns, Baculites sp.Fossils remaining sameScientific significance and disposition of material 2

Gilliam



16-10

SITE FORM

LOCALITY NUMBER: ET 16-5

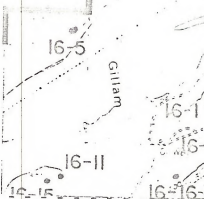
NAME: _____

PREVIOUS NUMBER(S): JGE-8203 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNE 1/4 NE 1/4 SE 1/4, section 51/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12; 692180 m E, 4439340 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Gillam Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember main body Unit _____Stratigraphic position undetermined (specimen found on talus slope)Sediment description brown, moderately-indurated sandstoneDepositional environment shallow marineFossils sampled fish scaleFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-6

NAME: _____

PREVIOUS NUMBER(S): JGE-8204 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNE 1/4 SE 1/4 SW 1/4, section 41/4 SW 1/4 SE 1/4, section 4USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12; 693200 m E, 4438880 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from road to drill hole in Sec.4 T1N R10W

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Buck Tongue Unit _____Stratigraphic position above second resistant sandstone of the Buck Tongue about 50 meters
above valley floorSediment description tan-gray shaleDepositional environment near-shore marineFossils sampled oystersFossils remaining oystersScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-7

NAME: _____

PREVIOUS NUMBER(S): JHW 19 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1N Range: 101W

SW 1/4 SE 1/4 NW 1/4, section 3

1/4 1/4 1/4, section _____

USGS Quadrangle Gillam Draw, Colorado

_____, 7.5 min.

UTM 12; 694320 m E, 4439640 m N

LANDOWNER Bureau of Land Management

ACCESS E on foot from drill hole in Sec. 4 T1N

101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Mancos

Member _____ Unit _____

Stratigraphic position above first ridge on slope

Sediment description weathered gray silty-sand

Depositional environment near-shore marine

Fossils sampled large bivalves, nautiloids, ammonites, smaller pelecypods

Fossils remaining more ammonites and other invertebrates

Scientific significance and disposition of material 2



SITE FORM

LOCALITY NUMBER: ET 15-8

NAME: _____

PREVIOUS NUMBER(S): JHW 18 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNE 1/4 NW 1/4 SW 1/4, section 31/4 1/4 1/4, section _____USGS Quadrangle Gilliam Draw, Colorado_____, 7.5 min.UTM 12; 594200 m E, 4439280 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from drill hole in Sec. 4 T1NR101W

DESCRIPTION

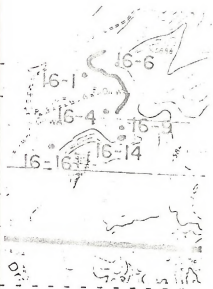
Era Mesozoic System Cretaceous Formation Mancos

Member _____ Unit _____

Stratigraphic position 60 feet below first sandstone ledgeSediment description weathered gray silty sandstoneDepositional environment near-shore marineFossils sampled large bivalve and shell fragmentsFossils remaining noneScientific significance and disposition of material 3

16-12
16-2
16-7
16-8
16-3
Gilliam

SITE FORM

LOCALITY NUMBER: ET 16-9

NAME: _____

PREVIOUS NUMBER(S): JMW 20 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNE 1/4 NW 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado, 7.5 min.UTM 12; 693280 m E, 4438580 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from oil well in Sec. 4 T1NR101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Mancos

Member _____ Unit _____

Stratigraphic position 30 feet up slopeSediment description weathered gray and silty sandstoneDepositional environment near-shore marineFossils sampled ammonite and pelecypod fragmentsFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-10

NAME: _____

PREVIOUS NUMBER(S): JUM 8249 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 1N Range: 101W

NE 1/4 SE 1/4 NE 1/4, section 8

1/4 1/4 1/4, section

USGS Quadrangle Gillam Draw, Colorado

, 7.5 min.

UTM 12 ; 692180 m E, 4438200 m N

LANDOWNER Bureau of Land Management

ACCESS W on foot from road up Gillam Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Mancos

Member Buck Tongue Unit _____

Stratigraphic position approximately 25 feet above Castlegate Sandstone

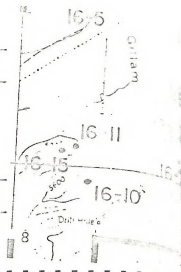
Sediment description float, probably derived from gray shale

Depositional environment shallow marine

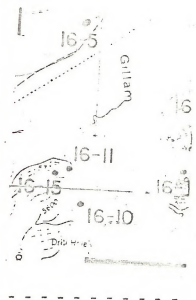
Fossils sampled oyster fragment

Fossils remaining none

Scientific significance and disposition of material 4



SITE FORM

LOCALITY NUMBER: ET 16-11

NAME: _____

PREVIOUS NUMBER(S): SL 6 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WNW 1/4 NE 1/4 NE 1/4, section 81/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12; 692100 m E, 4438420 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Gillam Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Buck Tongue Unit _____Stratigraphic position upper part of Buck TongueSediment description brown, ledge-forming sandstone near top of ridgeDepositional environment nearshore marineFossils sampled OphiomorphaFossils remaining sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 16-12

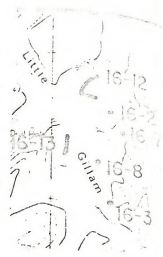
NAME: _____

PREVIOUS NUMBER(S): EBD 15 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WNW 1/4 SW 1/4 NW 1/4, section 3NE 1/4 SW 1/4 NW 1/4, section 3USGS Quadrangle Gillam Draw, Colorado7.5 min.UTM 12; 694100 m E, 4439800 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from drill hole in Sec. 4 T1NR101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Main body Unit _____Stratigraphic position about 200 feet below Castlegate SandstoneSediment description tan-gray silty clays with orange (black unweathered) concretionary materialDepositional environment marineFossils sampled BaculitesFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-13

NAME: _____

PREVIOUS NUMBER(S): EBD 16 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WSW 1/4 SW 1/4 NW 1/4, section 3NW 1/4 NW 1/4 SW 1/4, section 3USGS Quadrangle Gillam Draw, Colorado, 7.5 min.UTM 12 ; 693980 m E, 4439400 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from drill hole in Sec. 4 T1NR101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember main body Unit _____Stratigraphic position about 120 feet below Castlegate SandstoneSediment description orange, concretionary mudstone within tan-gray silty claysDepositional environment marineFossils sampled plant material, small bivalve, fish spinesFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 16-14

NAME: _____

PREVIOUS NUMBER(S): EBO 17 (field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WNE 1/4 NW 1/4 NE 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, Colorado_____, 7.5 min.UTM 12 _____; 693300 m E, 4438500 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from oil well in Sec. 4 T1NR101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Mancos

Member _____ Unit _____

Stratigraphic position about 100 feet below Buck TongueSediment description gray mudstone concretionary layer (weathers orange) within brown silty clays - forms continuous layer for at least 40 feetDepositional environment marineFossils sampled inoceramids, BaculitesFossils remaining noneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 16-15

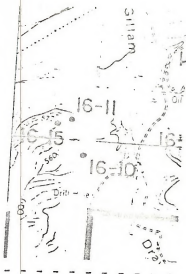
NAME: _____

PREVIOUS NUMBER(S): TRL 31 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WSW 1/4 NE 1/4 NE 1/4, section 8 1/4 1/4 1/4, section USGS Quadrangle Gillam Draw, Colorado , 7.5 min.UTM 12 ; 692020 m E, 4438380 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Gillam Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Buck Tongue Unit Stratigraphic position low in Buck TongueSediment description medium-grained and massive sandstone ledge about 2 meters thickDepositional environment shallow marineFossils sampled one pelecypod moldFossils Describing pelecypod molds and casts and one gastropod castScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 16-16

NAME: _____

PREVIOUS NUMBER(S): TRL 30 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1 N Range: 101 WNW 1/4 NE 1/4 NW 1/4, section 91/4 1/4 1/4, section _____USGS Quadrangle Gillam Draw, ColoradoColorado, 7.5 min.UTM 12 _____; 692860 m E, 4438420 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Gillam Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation MancosMember Buck Tongue Unit _____Stratigraphic position 3 meters above valley floor and 3 meters below light brown, blocky,concretionary mudstone cropping out on ridgesSediment description unknown (probably the light brown, blocky, concretionary mudstone)Depositional environment marineFossils sampled large pelecypods and one coiled ammonoid fragmentFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-1

NAME: _____

PREVIOUS NUMBER(S): JGE 8201 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSE 1/4 SE 1/4 SW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 696740 m E, 4412240 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position first thick sandstone on SW-facing slopeSediment description tan, massive, and friable sandstoneDepositional environment fluvio-deltaicFossils sampled fragments of a tree trunkFossils remaining most of the tree trunkScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 17-2

NAME: _____

PREVIOUS NUMBER(S): TER 82-09 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNW 1/4 NE 1/4 NE 1/4, section 351/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 697340 m E, 4412080 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up East Douglas Creek

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic
position high on ridgeSediment
description uncertain (in float)Depositional
environment fluvio-deltaicFossils
sampled dinosaur bone and gastropodsFossils
remaining gastropodsScientific significance
and disposition of
material 3

SITE FORM

LOCALITY NUMBER: ET 17-3

NAME: _____

PREVIOUS NUMBER(S): JUM 8243 (Field #)

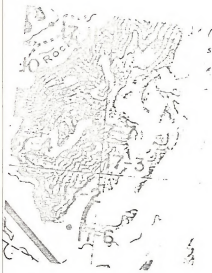
LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSE 1/4 SE 1/4 SE 1/4, section 26 1/4 1/4 1/4, section USGS Quadrangle White Coyote Draw, Colorado , 7.5 min.UTM 12; 697600 m E, 4412340 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position float (probably derived from sandstone just above top of red sandstone)Sediment description buff, well-indurated fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining palm frondScientific significance
Disposition of material 5

LOCALITY NUMBER: ET 17-4

NAME: _____

PREVIOUS NUMBER(S): JUM B244 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 2 S Range: 101 W

SW 1/4 SW 1/4 SE 1/4, section 26

1/4 1/4 1/4, section _____

USGS Quadrangle White Coyote Draw, Colorado

_____, 7.5 min.

UTM 12 _____; 697060 m E, 4412240 m N

LANDOWNER Bureau of Land Management

ACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position highest lignitic shale on the slope

Sediment description gray carbonaceous shale

Depositional environment fluvio-deltaic

Fossils sampled possible flower or fruit capsules

Fossils remaining plant fragments

Scientific significance and disposition of material 5



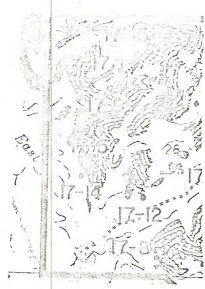
SITE FORM

LOCALITY NUMBER: ET 17-5PREVIOUS NUMBER(S): JUM 8245 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSW 1/4 SE 1/4 NW 1/4, section 26 1/4 1/4 1/4, section USGS Quadrangle White Coyote Draw, Colorado , 7.5 min.UTM 12 ; 696480 m E, 4413020 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams ForkMember Unit Stratigraphic position about 200 feet below top of ridgeSediment description gray fine-grained sandstone that weathers orangeDepositional environment fluvio-deltaicFossils Sampled probable dinosaur scapula and piece of ribFossils Remaining fossil woodScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 17-6

NAME: _____

PREVIOUS NUMBER(S): MCM 1-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSE 1/4 NE 1/4 NE 1/4, section 35 1/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12 _____; 697460 m E, 4411800 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up East Douglas Creek

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 15 meters above base of valley, directly above red fine-grained sandstoneSediment description red mudclast in massive buff sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining fragment of dinosaur limb (?) boneScientific significance and disposition of material 4

SITE FORM



LOCALITY NUMBER: ET 17-7

NAME: _____

PREVIOUS NUMBER(S): JDM-17-1 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 2 S Range: 101 W

SE 1/4 SE 1/4 SE 1/4, section 26

1/4 1/4 1/4, section _____

USGS Quadrangle White Coyote Draw, Colorado

_____, 7.5 min.

UTM 12; 697600 m E, 4412300 m N

LANDOWNER Bureau of Land Management

ACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 10 meters below top of ridge at base of 2-meter-thick sandstone

Sediment description base of tan sandstone (cross-bedded) at contact with light gray mud-stone about 1.5-2-meters-thick with tan sandstone underneath

Depositional environment fluvio-deltaic

Fossils sampled fragmentary dinosaur bone (?) in float and dinosaur bone

Fossils containing petrified wood

Scientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 17-8

NAME: _____

PREVIOUS NUMBER(S): JDM-17-2 (Field #)

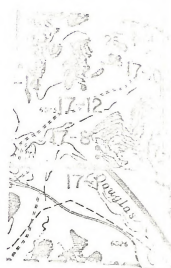
LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNE 1/4 SE 1/4 SW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 696740 m E, 4412300 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 30 meters above arroyo baseSediment description light gray mudstoneDepositional environment fluvio-deltaicFossils sampled single bone fragment (dinosaur?) in floatFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-9

NAME: _____

PREVIOUS NUMBER(S): JDM-17-3 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNW 1/4 SW 1/4 NW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12 _____; 696240 m E, 4413260 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork
Member _____ Unit _____Stratigraphic position about 30 meters above arroyo bottomSediment description light gray mudstoneDepositional environment fluvio-deltaicFossils sampled single dinosaur bone fragment (in float)Fossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-10

NAME: _____

PREVIOUS NUMBER(S): JMW 15 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNW 1/4 NW 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 696820 m E, 4412820 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position low on slopeSediment description gray-weathered sandy siltstoneDepositional environment fluvio-deltaicFossils sampled bone fragments (dinosaur)Fossils remaining bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-11

NAME: _____

PREVIOUS NUMBER(S): JUM 8246 (Field #)

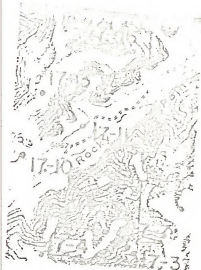
LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSW 1/4 SE 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 697280 m E, 4413060 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position at base of massive cliff-forming sandstoneSediment description well-indurated buff-colored fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled one piece of fossil logFossils remaining most of the fossil logScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 17-12

NAME: _____

PREVIOUS NUMBER(S): JUM 8247 (Field #)

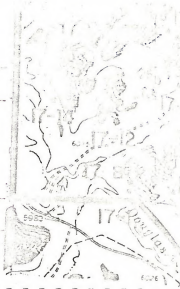
LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WSE 1/4 NE 1/4 SW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 696240 m E, 4412640 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 30 feet above main drainageSediment description buff-colored fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled several foot and leg bones of a dinosaur (hadrosaur)Fossils remaining most of the dinosaurScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 17-13

NAME: _____

PREVIOUS NUMBER(S): EBO 12 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNW 1/4 SW 1/4 NE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado7.5 min.UTM 12 ; 696980 m E, 4413220 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic

position very high in Williams Fork Formation; upper 1/3 of formation

Sediment

description 1-foot-thick yellow-orange pebbly microconglomerate - scour andlensing within series of sandstone beds below massive sandstone

Depositional

environment fluvio-deltaic

Fossils

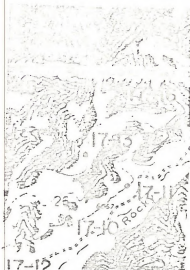
sampled teeth, limbs/vertebrae, scutes - turtle, gar, crocodylian, hadrosaur,carnosaur, plant material, shell hash

Fossils

remaining very productive - lens continues for at least 30 feet

Scientific significance _____

and disposition of _____

material 1

SITE FORM

LOCALITY NUMBER: ET 17-14

NAME: _____

PREVIOUS NUMBER(S): EBO 11 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2 S Range: 101 WNE 1/4 NW 1/4 SW 1/4, section 26_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 696240 m E, 4412800 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position lower part of Williams Fork Formation locallySediment description massive tan-orange sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining wood fragments, logs (some about 20 inches across), and large dinosaur bone (poorly preserved)Scientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-15PREVIOUS NUMBER(S): EBO 13 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNE 1/4 NE 1/4 NW 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado; 7.5 min.UTM 12; 696720 m E, 4413680 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up Rocky Point Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 100 feet below fossil-bearing pebble conglomerate of locality 17-13Sediment description 1-foot-thick red-brown sandstone and 5-foot-thick tan and red-browncalcareous sandstone with large tan mud clasts and shell hashDepositional environment fluvial deltaicFossils sampled shell-bearing sandstonesFossils remaining more of sameScientific significance and disposition of material 4

LOCALITY NUMBER: ET 17-16

NAME: _____

PREVIOUS NUMBER(S): J6E-8207 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WSW 1/4 NE 1/4 SE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12 _____; 698940 m E, 4412680 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road up East RedPoint Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic
position mesa-capping sandstoneSediment
description organic rich sandy-shale capped by thick sandstone and overlying gray
carbonaceous shaleDepositional
environment fluvio-deltaicFossils
sampled turtle, dinosaur, indeterminate tooth and woodFossils
remaining more of sameScientific significance
and disposition of
material 2

SITE FORM

LOCALITY NUMBER: ET 17-17

NAME: _____

PREVIOUS NUMBER(S): JGE-8208 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNE 1/4 NE 1/4 SE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado7.5

min.

UTM 12; 699140 m E, 4412820 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road up East RedPoint Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position unknown (float)Sediment description unknown (float)Depositional environment fluvio-deltaicFossils sampled pelecypod steinkern in floatFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 17-18

NAME: _____

PREVIOUS NUMBER(S): JMW 21 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WSE 1/4 NW 1/4 SE 1/4, section 251/4 1/4 1/4, section _____USGS Quadrangle White Coyote Draw, Colorado_____, 7.5 min.UTM 12; 698720 m E, 4412680 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from unmapped road up East RedPoint Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position third sandstone ledge about 40 feet below highest ledgeSediment description weathered and reddish-tan fine-grained sanstone and siltstoneDepositional environment fluvio-deltaicFossils sampled woody material impresson and shell fragmentsFossils remaining more of sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 18-1

NAME: _____

PREVIOUS NUMBER(S): JUM 8248 (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1S Range: 101WSE 1/4 SE 1/4 SW 1/4, section 211/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 693480 m E, 4423460 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from unmapped road to well padin the SW 1/4 SE 1/4 Sec. 21 T1S R101W

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position near top of ridgeSediment description dark gray shale with limonite stains that is 6-7-feet-thick andlaterally extensiveDepositional environment fluvio-deltaicFossils sampled plant impressions (Araucarites)Fossils remaining more of sameScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 18-2

NAME: _____

PREVIOUS NUMBER(S): MCM 18-1 a, b, c and JDM-1 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WSE 1/4 SW 1/4 NW 1/4, section 28NW 1/4 NW 1/4 SW 1/4, section 28USGS Quadrangle Philadelphia Creek, Colorado, 7.5 min.UTM 12; 693040 m E, 4422680 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 13 meters above gully floor at base of sandstone bench; about 20 cm above gray siltstone, and in floatSediment description red mudclast conglomerate in massive tan fluvial sandstone-conglomerate lens about 10-20-cm-thickDepositional environment fluvio-deltaicFossils sampled dinosaur bone fragments and petrified woodFossils remaining dinosaur bone fragments and petrified woodScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: EF 18-3

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-P (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WSW 1/4 SE 1/4 NW 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 ; 693200 m E, 4422700 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position bottom of valleySediment description contorted, wavy-laminated and fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining bone fragments (turtle?)Scientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 18-4

NAME: _____

PREVIOUS NUMBER(S): EBO 14 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WSE 1/4 NW 1/4 SW 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 693140 m E, 4422320 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about mid-section of Williams Fork in Douglas Pass areaSediment description tan sandstone-microconglomerate scour within top of lower, large sequence (10-15 benches) of multi-storied sandsDepositional environment fluvio-deltaicFossils sampled turtle (portion of shell)Fossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 18-5

NAME: _____

PREVIOUS NUMBER(S): JMW 17 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WSW 1/4 SW 1/4 SW 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 _____; 693000 m E, 421860 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position below second sandstone ledgeSediment description fine- to medium-grained tan sandstone interbedded with grayish siltstoneDepositional environment fluvio-deltaicFossils sampled bone impression and bone fragmentsFossils remaining bone fragmentsScientific significance and disposition of material 4

LOCALITY NUMBER: ET 18 6

NAME: _____

PREVIOUS NUMBER(S): COWS-ET-T (Field #)

LOCATION: _____

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNW 1/4 SE 1/4 NE 1/4, section 27_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 695620 m E, 4422940 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position very high in sectionSediment description sandstone: tan and medium-grainedDepositional environment fluvio-deltaicFossils sampled noneFossils remaining dinosaur bone fragmentsScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 18-7

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-U (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNE 1/4 SW 1/4 NE 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado
_____, 7.5 min.UTM 12 _____ ; 695560 m E, 4422900 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic
position very high in sectionSediment
description sandstone with wavy laminations and ferruginous concretions only a
few inches thick; below a massive sandstone and a bedded siltstoneDepositional
environment fluvio-deltaicFossils
sampled noneFossils
remaining bone bed: turtle and dinosaurScientific significance
and disposition of
material 3

LOCALITY NUMBER: ET 18-8

NAME: _____

PREVIOUS NUMBER(S): TER 82-11 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNE 1/4 NW 1/4 NE 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12; 695150 m E, 4423400 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from unmapped road on ridge topin Secs. 22 and 27 T1S R101W

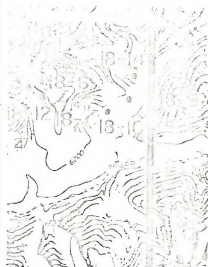
DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position very high in the Williams Fork (second bench from top of ridge)Sediment description buff medium-grained sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining dinosaur bone, dinosaur claw, small vertebrate bone, Myledaphus teeth, mammalian rib, numerous other bonesScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 18-9

NAME: _____

PREVIOUS NUMBER(S): JUM 8250 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNE 1/4 SE 1/4 NE 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 _____; 695880 m E, 4422940 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 30 feet above roadSediment description orange very fine-grained sandstoneDepositional environment fluvio-deltaicFossils sampled noneFossils remaining plant stemsScientific significance and disposition of material 5

LOCALITY NUMBER: ET 18-10

NAME: _____

PREVIOUS NUMBER(S): JUM 8251 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNW 1/4 SE 1/4 NE 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 ; 695800 m E, 4422860 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position just below prominent sandstone ledge and above carbonaceous shale
(about 7-feet-thick)Sediment description gray, very fine-grained sandstone; well-indurated and weathering
orangeDepositional environment fluvio-deltaicFossils sampled gastropods with original shell materialFossils remaining gastropodsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 18-11

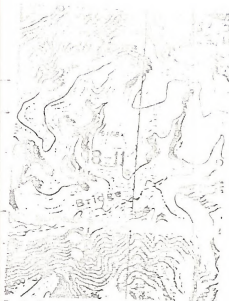
NAME: _____

PREVIOUS NUMBER(S): JUM 8252 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNE 1/4 SE 1/4 SE 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado_____, 7.5 min.UTM 12 _____ ; 694360 m E, 4422100 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork
Member _____ Unit _____Stratigraphic position above prominent white sandstone ledge and a dark gray shale; below
another prominent sandstone ledgeSediment description clinkerDepositional environment fluvio-deltaicFossils sampled several leaf impressions (Debeys and Ficus?)Fossils remaining noneScientific significance and disposition of material 5

LOCALITY NUMBER: ET 18-12

NAME: _____

PREVIOUS NUMBER(S): TER82-12 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 2S Range: 101WNW 1/4 SW 1/4 NE 1/4, section 271/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado, 7.5 min.UTM 12 ; 695360 m E, 4422940 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position middle to high in the Williams Fork (ridge top)Sediment description float (weathered light-brown siltstone with numerous concretionary fragments)Depositional environment fluvio-deltaicFossils sampled turtle shell and bone; dinosaur teeth; crocodilian; gar scale; tooth fragmentsFossils remaining sameScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 1R-13

NAME: _____

PREVIOUS NUMBER(S): MCM 18-2 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1S Range: 101WNW 1/4 SW 1/4 NE 1/4, section 27 1/4 1/4 1/4, section _____USGS Quadrangle Philadelphia Creek, Colorado , 7.5 min.UTM 12; 695260 m E, 4422980 m NLANDOWNER Bureau of Land ManagementACCESS NW on foot from road up State Bridge Draw

DESCRIPTION

Era Mesozoic System Cretaceous Formation Williams Fork

Member _____ Unit _____

Stratigraphic position about 15 meters above base of gully; bed appears to crop out discontinuously at same level throughout east part of study areaSediment description gray limestone - weathers orange, with abundant carbonaceous material, plant fragments, mollusks and gastropod fragmentsDepositional environment fluvio-deltaic (pond)Fossils sampled fragments of gastropods, mollusks and plant materialFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 19-1

NAME: _____

PREVIOUS NUMBER(S): GMS-ET-V (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WNE 1/4 NE 1/4 NW 1/4, section 221/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 258100 m E, 4387760 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in sec. 22T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position mouth of valley, low in local sectionSediment description brown, silty mudstoneDepositional environment fluvialFossils sampled lower jaw fragments (perissodactyl)Fossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 19-2

NAME: _____

PREVIOUS NUMBER(S): TRL-32 (Field #)

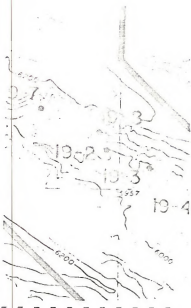
LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: R3WNE 1/4 SE 1/4 SE 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13; 257360 m E, 4388120 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 1615S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position 5 meters above dipping sandstone exposed up the main slope to northSediment description gray-yellow-brown variegated mudstone overlying purple-yellow-gray-white variegated mudstoneDepositional environment fluvial (overbank)Fossils sampled Coryphodon teeth and fragments, jaw (Coryphodon) fragments, other bone fragmentsFossils remaining noneScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 19-3

NAME: _____

PREVIOUS NUMBER(S): TRL-34 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSW 1/4 SW 1/4 SW 1/4, section 15_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13; 257650 m E, 4388000 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 15TSS R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position overlies yellow-purple-brown variegated mudstone which slopes to the floor of the drawSediment description light-brown mudstoneDepositional environment fluvial (overbank)Fossils sampled Coryphodon tooth fragments, bone scrap and two jaw fragments with teeth (perissodactyl)Fossils remaining noneScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 19-4

NAME: _____

PREVIOUS NUMBER(S): TRL-35 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WNW 1/4 NE 1/4 NW 1/4, section 221/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____ ; 257980 m E, 4387780 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 22T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position 2 meters above east-running arroyo; 4 meters below sandstone ledgeSediment description light brown mudstoneDepositional environment fluvial (overbank)Fossils sampled one jaw fragment with lower second and third molarsFossils remaining noneScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 19-5

NAME: _____

PREVIOUS NUMBER(S): EBO 18 (Field #)

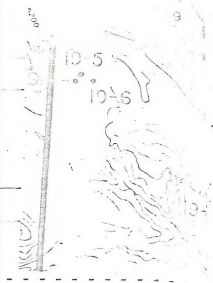
LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WNW 1/4 NW 1/4 NW 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13; 256000 m E, 4389300 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 16T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position middle-high in local sectionSediment description cross-bedded conglomeratic sandstone - within sequence of red-white-purple-tan sandy claysDepositional environment fluvialFossils sampled turtle scrap, wood fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 19 6

NAME: _____

PREVIOUS NUMBER(S): EBO 19 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 NW 1/4 NW 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 256080 m E, 4389260 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 16T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position mid-section locallySediment description thin, pebbly sand lens within white and pink sandy claysDepositional environment fluvialFossils sampled turtle, Coryphodon limb and jaw fragments and hyracothere (?) jaw fragmentFossils remaining noneScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 19-7

NAME: _____

PREVIOUS NUMBER(S): EBO 20 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 NW 1/4 SE 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13; 256940 m E, 4388350 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 16T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position mid-section locallySediment description sandstone conglomerate lens within mid-section set of 3 white-pink/ maroon-tan sandy clays overlain by tan sandstonesDepositional environment fluvialFossils sampled Coryphodon bones, teeth (fragmented)Fossils remaining sameScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 19-8

NAME: _____

PREVIOUS NUMBER(S): E80 21 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 NE 1/4 SE 1/4, section 161/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 257300 m E, 4398250 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 16T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position low-mid-section locallySediment description about 10 feet below massive sandstone layer - within gray-tan sandy claysDepositional environment fluvialFossils sampled large mammal bone fragmentsFossils remaining sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 19-9

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-X (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSW 1/4 NW 1/4 NW 1/4, section 16 1/4 1/4 1/4, section USGS Quadrangle Rifle, Colorado , 7.5 min.UTM 13 ; 255950 m E, 4389260 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from unmapped road in Sec. 16T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Unit Stratigraphic
position base of hillSediment
description purple, silty mudstoneDepositional
environment fluvialFossils
sampled Coryphodon bone scrap and tooth enamelFossils
remaining sameScientific significance
and disposition of
material 2

SITE FORM

LOCALITY NUMBER: ET 20-1

NAME: _____

PREVIOUS NUMBER(S): JUM 8253 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 97WNE 1/4 SW 1/4 NW 1/4, section 81/4 1/4 1/4, section _____USGS Quadrangle Red Pinnacle, Colorado_____, 7.5 min.UTM 12; 736460 m E, 4371500 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Conn Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Anvil Points Unit _____Stratigraphic position about 20 feet above Wasatch FormationSediment description light-gray fissile shaleDepositional environment lacustrineFossils sampled insert scrap, eggs (?) and wingFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 20-2

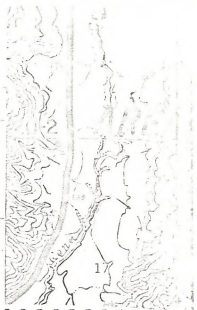
NAME: _____

PREVIOUS NUMBER(S): JUM 8254 (Field #)

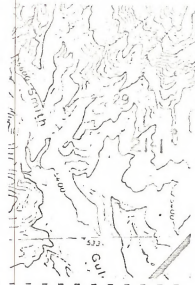
LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 97WNW 1/4 NE 1/4 NW 1/4, section 171/4 1/4 1/4, section _____USGS Quadrangle Red Pinnacle, Colorado7.5 min.UTM 12 ; 736820 m E, 4370440 m NLANDOWNER Bureau of Land ManagementACCESS W on foot from road up Conn Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position about 30 feet above Anvil Points Member of Green River FormationSediment description fissile, light-gray paper shaleDepositional environment lacustrineFossils sampled insect fragments and a fish toothFossils remaining insect fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 21-1

NAME: _____

PREVIOUS NUMBER(S): WCH 21-1 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 96WNE 1/4 NW 1/4 SE 1/4, section 29 1/4 1/4 1/4, section _____USGS Quadrangle Red Pinnacle, Colorado , 7.5 min.UTM 13 ; 747540 m E, 4365660 m NLANDOWNER Bureau of Land ManagementACCESS N on foot from new interstate road in Sec.32 T7S R96W

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember Shire Unit _____Stratigraphic position about 100 meters below Parachute Creek Member of Green River FormationSediment description gray, fine-grained sandstone that weathers redDepositional environment fluvial (channel)Fossils sampled fragment of crocodylian toothFossils remaining shark teeth and crocodylian teethScientific significance and disposition of material 2

LOCALITY NUMBER: ET 21-2

NAME: _____

PREVIOUS NUMBER(S): GWS-ET-Z (Field #) _____

LOCATION:

State: Colorado County: Garfield

Township: 7S Range: 96W

NE 1/4 NW 1/4 NW 1/4, section 32

____ 1/4 ____ 1/4 ____ 1/4, section _____

USGS Quadrangle Red Pinnacle, Colorado

____, 7.5 min.

UTM 12 ; 746520 m E, 4364820 m N

LANDOWNER Bureau of Land Management

ACCESS NW on foot from road in Sec. 32 T7S R96W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member Shire Unit _____

Stratigraphic position about 20 feet below Anvil Points Member of Green River Formation

Sediment description red siltstone

Depositional environment fluvial

Fossils sampled high spired gastropods and trail casts

Fossils remaining more of same and turtle scrap

Scientific significance and disposition of material 3



SITE FORM

LOCALITY NUMBER: ET 22-1

NAME: _____

PREVIOUS NUMBER(S): JMW 24 (Field #)

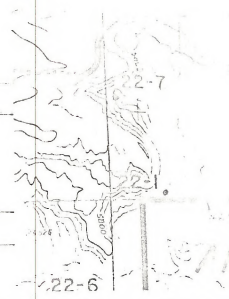
LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 SE 1/4 SE 1/4, section 261/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13; 260560 m E, 4384420 m NLANDOWNER Bureau of Land ManagementACCESS SE on foot from road in sec. 26 T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position half-way down slopeSediment description light brown to yellow mudstoneDepositional environment fluvialFossils sampled turtle shell fragmentFossils remaining sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 22-2

NAME: _____

PREVIOUS NUMBER(S): JUN 8255 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93WSE 1/4 NW 1/4 NW 1/4, section 51/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 259160 m E, 4382420 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Hubbard Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position about 70 feet below mesa topSediment description float (probably derived from variegated red and gray mudstone)Depositional environment fluvialFossils sampled crocodilian tooth, turtle bone, other bone fragmentsFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 22-3

NAME: _____

PREVIOUS NUMBER(S): TER 82-18 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 6S Range: 93WSW 1/4 SE 1/4 NW 1/4, section 5 1/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado , 7.5 min.UTM 13 ; 259140 m E, 4382060 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Hubbard Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position low on outcrop (base of draw)Sediment description found as float in variegated purple and brown mudstone with a 1-foot-thick burrowed (bioturbated) brown sandstone benchDepositional environment fluvialFossils sampled gar scaleFossils remaining noneScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 22-4

NAME: _____

PREVIOUS NUMBER(S): JUM 8255 (Field #)

LOCATION:

State: Colorado County: Garfield

Township: 5S Range: 93W

SE 1/4 SW 1/4 NE 1/4, section 35

1/4 1/4 1/4, section _____

USGS Quadrangle Rifle, Colorado

_____, 7.5 min.

UTM 13 ; 260200 m E, 4383640 m N

LANDOWNER Bureau of Land Management

ACCESS SE on foot from road in sec. 26 T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position 15 feet below mesa topSediment
description float (probably derived from variegated maroon and gray mudstone

beneath sandstone capping mesa)

Depositional
environment fluvialFossils
sampled Coryphodon tooth fragmentsFossils
remaining noneScientific significance
and disposition of
material 4

SITE FORM

LOCALITY NUMBER: ET 22-5

NAME: _____

PREVIOUS NUMBER(S): TRL-41 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 SW 1/4 SE 1/4, section 341/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 258660 m E, 4382920 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Hubbard Gulch

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position 2 meters beneath .5-meter-thick sandstone ledgeSediment description yellow and brown variegated mudstoneDepositional environment fluvialFossils sampled gar scales, a bivalve, woodFossils remaining more of sameScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 22-6

NAME: _____

PREVIOUS NUMBER(S): TRL-40 (Field #)

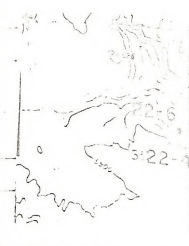
LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WSE 1/4 SW 1/4 NE 1/4, section 35_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 ; 260080 m E, 4383700 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from road in sec. 26 T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position about 120 feet below cap sandstoneSediment description purple and gray silty mudstoneDepositional environment fluvialFossils sampled turtle scrap, Coryphodon premolar and canineFossils remaining turtle bone fragmentsScientific significance and disposition of material 3

SITE FORM

LOCALITY NUMBER: ET 22-7

NAME: _____

PREVIOUS NUMBER(S): SL9 (Field #)

LOCATION: _____

State: Colorado County: GarfieldTownship: 5S Range: 93WNE 1/4 NW 1/4 SE 1/4, section 26_____ 1/4 _____ 1/4 _____ 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 ; 260140 in E, 4385000 in NLANDOWNER Bureau of Land ManagementACCESS SE on foot from road in Sec. 26 T5S R93W

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position pan at base of slope of red-purple mottled mudstoneSediment
description red mudstoneDepositional
environment fluvialFossils
sampled Hyracotherium jaw fragmentFossils
remaining bone fragmentsScientific significance
and disposition of
material 3

FIELD FORM

LOCALITY NUMBER: ET 23-1

NAME: _____

PREVIOUS NUMBER(S): JMW 28 (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 4S Range: 94W

NE 1/4 NW 1/4 SE 1/4, section 6

 1/4 1/4 1/4, section _____

USGS Quadrangle Rio Blanco, Colorado

 , 7.5 min.

UTM 13 ; 244580 m E, 4401880 m N

LANDOWNER Bureau of Land Management

ACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member Parachute Creek Unit _____

Stratigraphic position below mahogany bench

Sediment description greenish-gray shale

Depositional environment lacustrine

Fossils sampled fossil leaves

Fossils remaining leaves

Scientific significance and disposition of material 3



SITE FORM

LOCALITY NUMBER: ET 23-2

NAME: _____

PREVIOUS NUMBER(S): JMW 27 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 3S Range: 95WSE 1/4 SW 1/4 NW 1/4, section 361/4 1/4 1/4, section _____USGS Quadrangle McCarthy Gulch, Colorado_____, 7.5 min.UTM 12 _____; 756240 m E, 4403840 m NLANDOWNER Bureau of Land ManagementACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position upper part of Parachute Creek MemberSediment description gray shaleDepositional environment lacustrineFossils sampled fossil leavesFossils remaining leavesScientific significance and disposition of material 5

LOCALITY NUMBER: ET 23-3

NAME: _____

PREVIOUS NUMBER(S): GWS ET AA (Field #)

LOCATION:

State: Colorado County: Rio Blanco

Township: 4S Range: 94W

NW 1/4 NE 1/4 SE 1/4, section 6

1/4 1/4 1/4, section _____

USGS Quadrangle Rio Blanco, Colorado

_____, 7.5 min.

UTM 13; 244840 m E, 4401866 m N

LANDOWNER Bureau of Land Management

ACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green River

Member Parachute Creek Unit Mahogany Bench

Stratigraphic position lower few feet of Mahogany Bench

Sediment description gray and calcareous paper shale

Depositional environment lacustrine

Fossils sampled adult insects

Fossils remaining same

Scientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: LT 23-4

NAME: _____

PREVIOUS NUMBER(S): TRL-42 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 4S Range: 94WNE 1/4 NE 1/4 SE 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Rio Blanco, Colorado_____, 7.5 min.UTM 13; 244950 m E, 4401800 m NLANDOWNER Bureau of Land ManagementACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position about 10 feet above roadSediment description gray-weathered and well-bedded shaleDepositional environment lacustrineFossils sampled 3 adult insectsFossils remaining none?Scientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 23 5

NAME: _____

PREVIOUS NUMBER(S): EBO 22 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 4S Range: 94WNE 1/4 NE 1/4 SE 1/4, section 61/4 1/4 1/4, section _____USGS Quadrangle Rio Blanco, Colorado_____, 7.5 min.UTM 13 _____; 244940 m E, 4401880 m NLANDOWNER Bureau of Land ManagementACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position within mahogany zoneSediment description gray-tan shalesDepositional environment lacustrineFossils sampled winged insects (mosquito-like) and spiderFossils remaining sameScientific significance and disposition of material 2

SITE F041

LOCALITY NUMBER: FE 23-6

NAME: _____

PREVIOUS NUMBER(S): JUM 8257 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 4S Range: 95WNE 1/4 NW 1/4 NE 1/4, section 121/4 1/4 1/4, section _____USGS Quadrangle McCarthy Gulch, Colorado_____, 7.5 min.UTM 12; 756920 m E, 4401200 m NLANDOWNER Bureau of Land ManagementACCESS on road-cut of Piceance Creek Road

DESCRIPTION

Era Cenozoic System Tertiary Formation Green RiverMember Parachute Creek Unit _____Stratigraphic position upper part of Parachute Creek MemberSediment description light gray shaleDepositional environment lacustrineFossils sampled ferns, dicot leaves, EquisetumFossils remaining more of sameScientific significance and disposition of material 5

SITE FORM

LOCALITY NUMBER: ET 24-1

NAME: _____

PREVIOUS NUMBER(S): TRL-43 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WSW 1/4 SW 1/4 SW 1/4, section 81/4 1/4 1/4, section _____USGS Quadrangle Rangely, Colorado_____, 7.5 min.UTM 12; 691100 m E, 4437000 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Iles

Member _____ Unit _____

Stratigraphic position third major sandstone ledge below top of Iles FormationSediment description pebble-clay-plant conglomerate that has a fine- to medium-grainedsandstone matrix and some boneDepositional environment fluvio-deltaicFossils sampled wood fragments, bone fragments and one gar scaleFossils remaining more of sameScientific significance and disposition of material 4

SITE FORM

LOCALITY NUMBER: ET 24-2

NAME: _____

PREVIOUS NUMBER(S): ERO 23 (Field #)

LOCATION:

State: Colorado County: Rio BlancoTownship: 1N Range: 101WNW 1/4 SW 1/4 SW 1/4, section 8 1/4 1/4 1/4, section USGS Quadrangle Rangely, ColoradoColorado, 7.5 min.UTM 12; 691100 m E, 4437300 m NLANDOWNER Bureau of Land ManagementACCESS E on foot from highway 139

DESCRIPTION

Era Mesozoic System Cretaceous Formation Iles

Member _____ Unit _____

Stratigraphic position at least 120 feet above white Segó Sandstone - within third series of orange sandstones overlying clays and carbonaceous claysSediment description base of tan-orange sandstone within a 6-inch-thick concretionary zone at baseDepositional environment fluvio-deltaicFossils sampled poorly preserved large bones (dinosaur?), some smaller boneFossils remaining other bone, wood fragments and plant impressionsScientific significance and disposition of material 2

SITE FORM

LOCALITY NUMBER: ET 25-1

NAME: _____

PREVIOUS NUMBER(S): SL 11 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 7S Range: 98WSE,
NW, SW 1/4 NW 1/4 SW 1/4, section 11NE 1/4 SW 1/4 SW 1/4, section 11USGS Quadrangle Long Point, Colorado_____, 7.5 min.UTM 12; 732000 m E, 4371000 m NLANDOWNER Bureau of Land ManagementACCESS NE on foot from road up Roan Creek

DESCRIPTION

Era Cenozoic System Tertiary Formation WasatchMember middle Unit _____Stratigraphic position lower part of middle memberSediment description green to brown sandy siltstone and silty marlstoneDepositional environment lacustrineFossils sampled bird long bone and eggshell fragmentsFossils remaining more of sameScientific significance and disposition of material 1

SITE FORM

LOCALITY NUMBER: ET 25-1

NAME: _____

PREVIOUS NUMBER(S): TER-82-14 (Field #)

LOCATION:

State: Colorado County: Garfield

Township: 5S Range: 93W

NE 1/4 SW 1/4 SW 1/4, section 28

 1/4 1/4 1/4, section

USGS Quadrangle Rifle, Colorado

 , 7.5 min.

UTM 13; 256010 m E, 4384980 m N

LANDOWNER Bureau of Land Management

ACCESS S on foot from JQS trail

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic position upper part of Wasatch

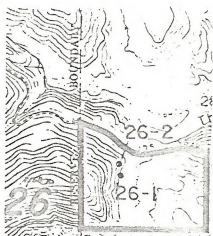
Sediment description sandstone bench

Depositional environment fluvial

Fossils sampled tooth fragment (hypoconulid); gar scales and bone fragments

Fossils remaining bone fragments

Scientific significance and disposition of material 3



SITE FORM

LOCALITY NUMBER: ET 26-2

NAME: _____

PREVIOUS NUMBER(S): JUM 8256 (Field #)

LOCATION:

State: Colorado County: GarfieldTownship: 5S Range: 93WNE 1/4 SW 1/4 SW 1/4, section 281/4 1/4 1/4, section _____USGS Quadrangle Rifle, Colorado_____, 7.5 min.UTM 13 _____; 256000 m E, 4385020 m NLANDOWNER Bureau of Land ManagementACCESS S on foot from JQS trail

DESCRIPTION

Era Cenozoic System Tertiary Formation Wasatch

Member _____ Unit _____

Stratigraphic
position about 40 feet above roadSediment
description variegated red and white siltstoneDepositional
environment fluvialFossils
sampled hyracothere premolar, bone fragments and gar scaleFossils
remaining noneScientific significance
and disposition of
material 3

APPENDIX E

Advertisement in Society of Vertebrate Paleontology News Bulletin
(number 124, February 1982, page 27) by James Mellett and Spencer
Lucas requesting information on fossil vertebrates in the Piceance
Creek Basin

(facsimile of original advertisement)

Jim Mellet, currently enjoying his sabbatical leave from NYU, delivered a paper at the II Symposium on Mesozoic Terrestrial Ecosystems in Jadwisin, Poland, and spent some time looking at Cretaceous mammals at the Paleozoological Institute in Warsaw. He also lectured (auf Deutsch!) at Martin-Luther University in Halle and saw Bernard Krebs' spectacular Portugese Jurassic mammal collection at the Free University in Berlin. This summer he will be doing a paleontological resource inventory for the BLM in the Book Cliffs and Grand Hogback areas in Colorado. He, Spencer Lucas, and Allen Kihm would appreciate hearing from anyone with information on vertebrate fossil localities in these areas.