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Economic Indicator Maps for Rural Development in the East

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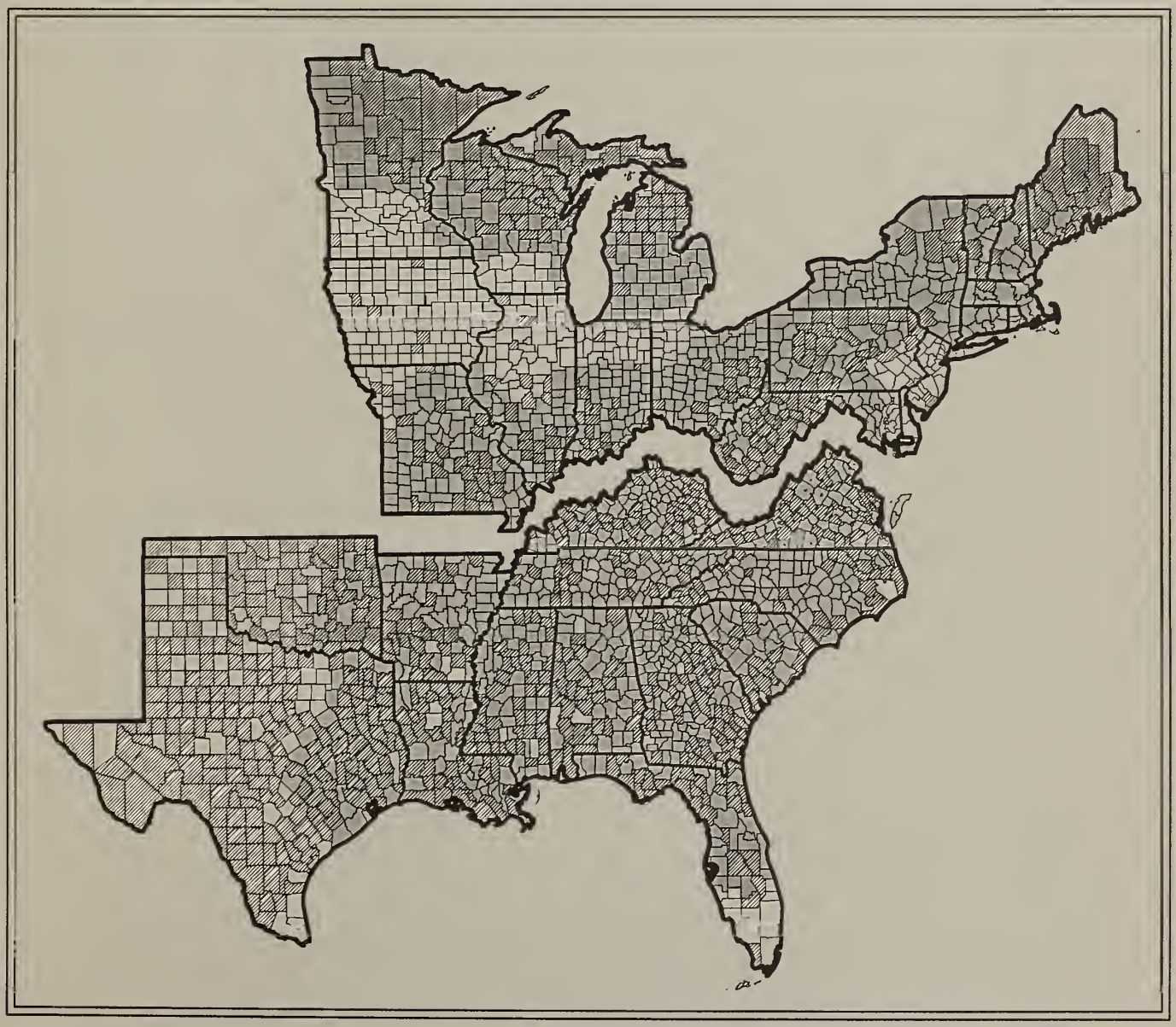

The Authors

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Research Summary

Legislation and policy require the U.S. Department of Agriculture, Forest Service to help diversify the economies and improve the well-being of rural America. This document provides county-level information on 12 economic indicators, including economic diversity and recreation dependency, from both national and regional perspectives for States in the East, including all States east of Texas, Oklahoma, Missouri, Iowa, and Minnesota.

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Introduction

The U.S. Department of Agriculture, Forest Service has been linked to rural communities since its beginnings. Timber supply and other local considerations were included in the original rationale for setting aside public domain as forest reserves (16 U.S.C. 475). Early concern was also reflected by passage of revenue-sharing legislation in 1908; 25 percent of Forest Service receipts were returned to States for use by the counties (16 U.S.C. 500). For most of this century, however, the primary Forest Service tie to local economies has been through attempting to provide a stable timber supply.

Recently, the Forest Service has adopted an expanded role in rural development. In 1990, Congress passed the National Forest-Dependent Rural Communities Economic Diversification Act. Its purpose includes assisting rural communities located in or near National Forests, which are economically dependent on forest resources or are likely to be economically disadvantaged by land-management practices (7 U.S.C.A. 6601-6617). Also, in 1990, Chief Dale Robertson accepted a strategic plan for rural America, stating, that rural development has a "high priority" in the Forest Service and is a "highly relevant" part of its mission (Robertson 1990).

Forest Service research intends to be "full participants in providing the scientific and technological support for the overall Forest Service effort" through the national research program, Enhancing Rural America (Sesco 1991). Part of the technological support is information on community proximity to National Forests, economic dependency, economic disadvantage, and similar matters. This document provides that information from a spatial perspective. Our approach focuses less on specific levels of economic indicators than on the geographical proximity and juxtaposition of indicators. Our interest is less in identifying the county with the highest or lowest indicator value than in displaying "pockets" or "clusters" of counties with similar characteristics. This is done through 11 sets of maps, each providing a visual display of county-level information for an important economic indicator, from both the national and regional perspectives. Each national map displays 3,094 county-like governmental units (including parishes in Louisiana and boroughs or census areas in Alaska). A national map showing the location of Forest Service Regions is shown below. The East region consists of Forest Service Regions 8 and 9.

Economic Dependency and Proximity to National Forests

The National Forest-Dependent Rural Communities Economic Diversification Act of 1990 has a substantial effect on the Forest Service's rural development program. It provides for assistance to rural communities in or near National Forests, that are economically dependent on forest and other wildland resources, or that are likely to be economically disadvantaged by land management practices. Rural communities include towns and counties (or similar units of general purpose local government) that meet the following criteria.

- Towns must have populations of 10,000 or less.
- Counties must not be within a Metropolitan Statistical Area.
- Counties containing the community must derive at least 15 percent of their total (direct plus indirect) income from wildland-related industries.
- A town or county must be within 100 miles of a National Forest boundary.

Information on National Forest proximity were compiled by Forest Service rural development specialists. Wildland-related industries include the timber, grazing, mining, and recreation industries, along with related Federal employment. Direct wildland-related earnings information was developed for 1990 by the U.S. Bureau of Economic Analysis (USDC-BEA 1992) and the U.S. Office of Personnel Management (OPM 1992). Indirect earnings were estimated with multipliers produced by the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS).

Figure 1a shows the distribution of counties that meet both the 100-mile and economic-dependency criteria. Nearly all of the counties in the West and the upper Lake States meet both criteria; most of the counties in the Nation's agricultural heartland meet neither.

Of the 3,094 counties mapped, 76 percent are in Forest Service's Southern and Eastern Regions (R-8 and R-9); of the 2,238 counties meeting the 100-mile criterion, 78 percent are in the Southern and Eastern Regions; and of the 1,150 counties meeting both the 100-mile and 15 percent dependency criteria, about 66 percent are in the Southern and Eastern Regions.

USFS Region	Total counties	Within 100 miles	...and 15 percent dependency
1	122	99	85
2	345	118	110
3	48	48	38
4	88	88	73
5	63	50	22
6	75	75	62
8	1,300	1,047	499
9	1,037	706	255
10	23	12	11
Total	3,094	2,238	1,150

Figure 1b shows a more detailed presentation of the distribution of counties within the region, in terms of the 100-mile and the 15-percent dependency criteria. Unlike figure 1a, each criterion is displayed separately. Counties meeting both the 100-mile (shading) and the 15-percent dependency (crosshatched) are shown with the darkest shading pattern; counties meeting neither criterion are shown in white.

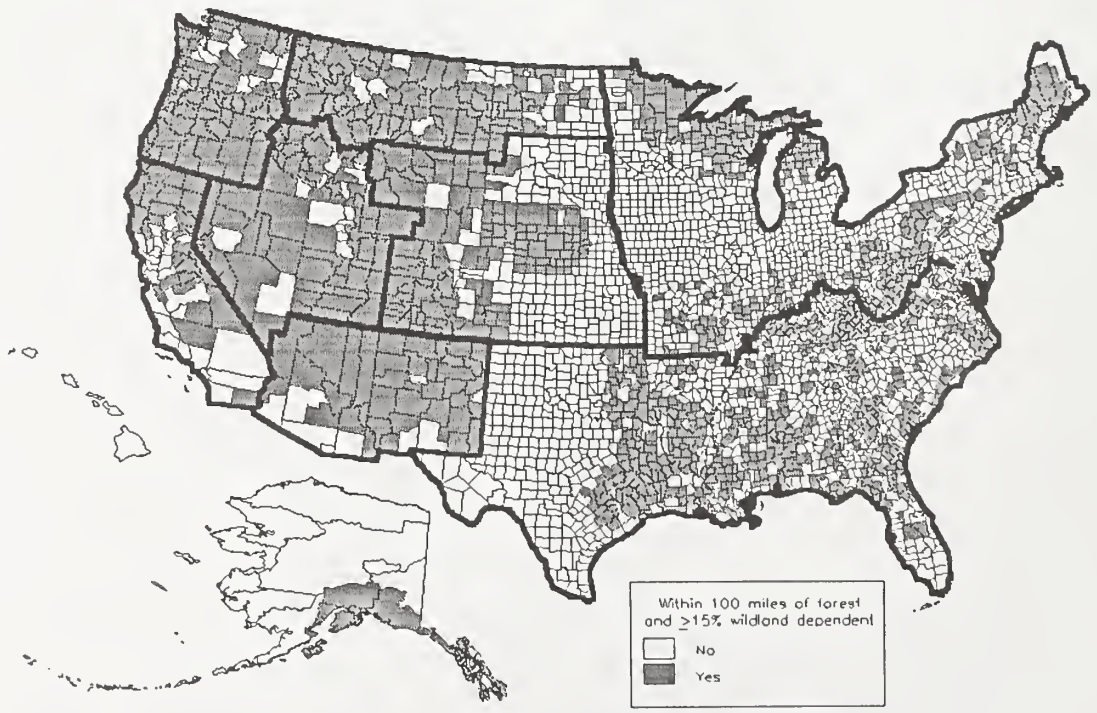

Figure 1a—Proximity to National Forest lands and 1990 total wildland dependency.

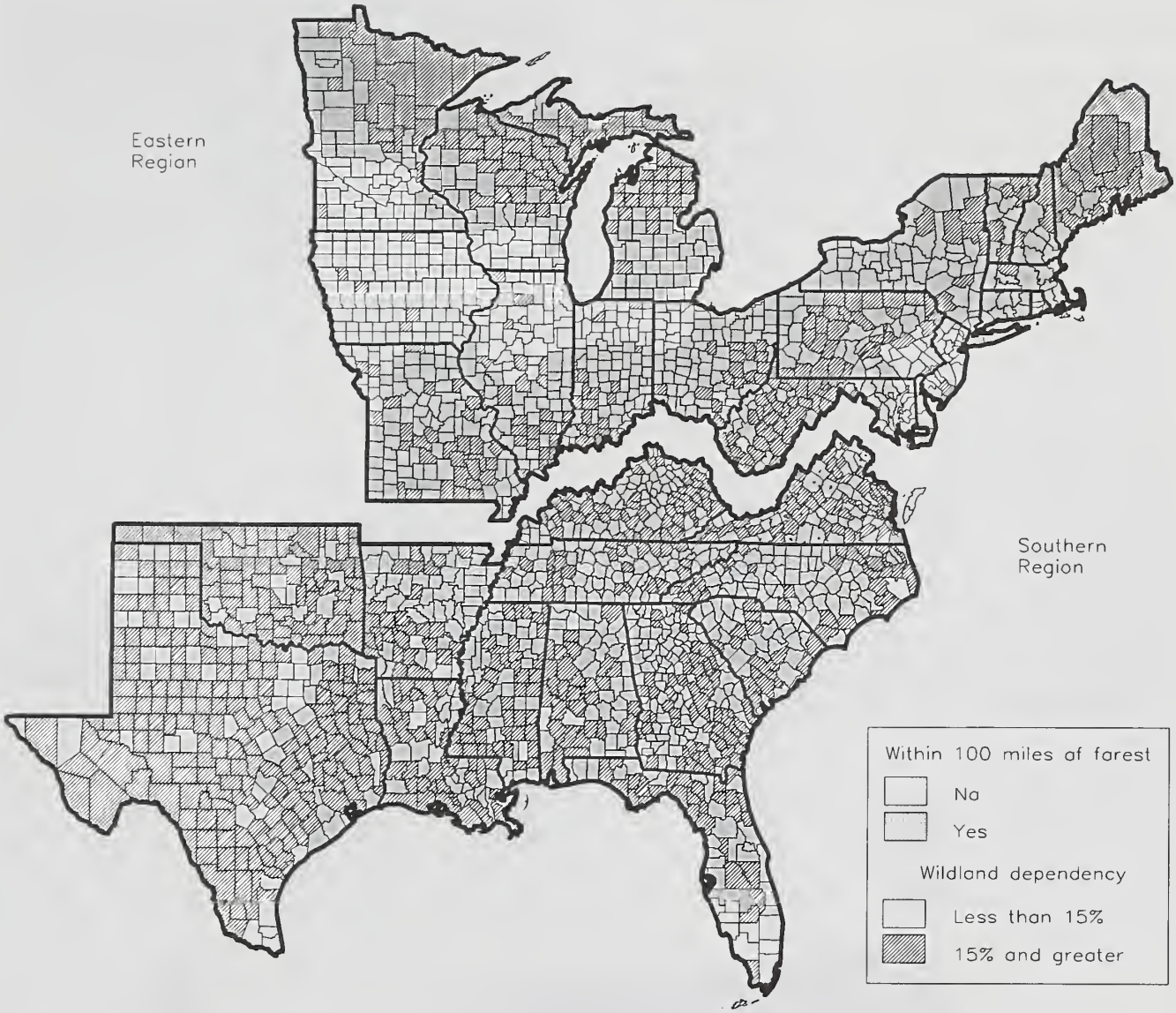

Figure 1b—County proximity to National Forest lands and 1990 total wildland dependency.

Rural Population

Rural areas share several characteristics distinguishing them from urban places—lower population density, greater distances to trade centers and transportation corridors, higher probability of specialization in natural resource industries, and different social structures. These characteristics can be both challenges and assets for rural development. Rural areas can be identified on the basis of the percentage of its population that corresponds to rural residents as defined by the USDC Bureau of the Census:

> Urban residents are persons living in urbanized areas (central cities and surrounding densely settled territory with a combined population of at least 50,000) and persons living in places with populations of 2,500 or more outside urbanized areas; everyone else is a rural resident.

Rural population rates were based on the 1990 Decennial Census (USDC-BOC 1993c).

Figure 2a displays the 2,127 counties (69 percent) where 50 percent or more of the population is rural. Overall, 25 percent of the U.S. population is rural. The 75 percent of the population living in urban areas occupy only about 3 percent of the land area. The urban population is concentrated in a small number of counties, such as Cook County, IL (Chicago), and Los Angeles County, CA (Los Angeles). Most counties have more than 50 percent rural population. All of the population in many counties is rural. The Census Bureau definition of rural may be too restrictive for some purposes; for example, a county where 90 percent of the population lives in a town of 3,000 would be considered 90 percent urban. The definition helps distinguish the most rural counties. It also reveals that some counties with large population centers, particularly large western counties, also have a substantial number of people living in less densely settled areas or smaller communities.

The listing below shows that the Northern Region (R-1) of the Forest Service has the highest percentage of rural population, nearly 50 percent, and the Pacific Southwest Region (R-5) has the smallest proportion, less than 8 percent.

USFS Region	Percent rural population
1	48.3
2	28.0
3	16.8
4	19.3
5	7.5
6	25.8
8	31.7
9	24.8
10	32.5
Total	24.9

Figure 2b shows the percentage of rural population for counties in the region. The shading ranges from none (less than 25 percent rural population) to the darkest shading (75 percent or more rural population).

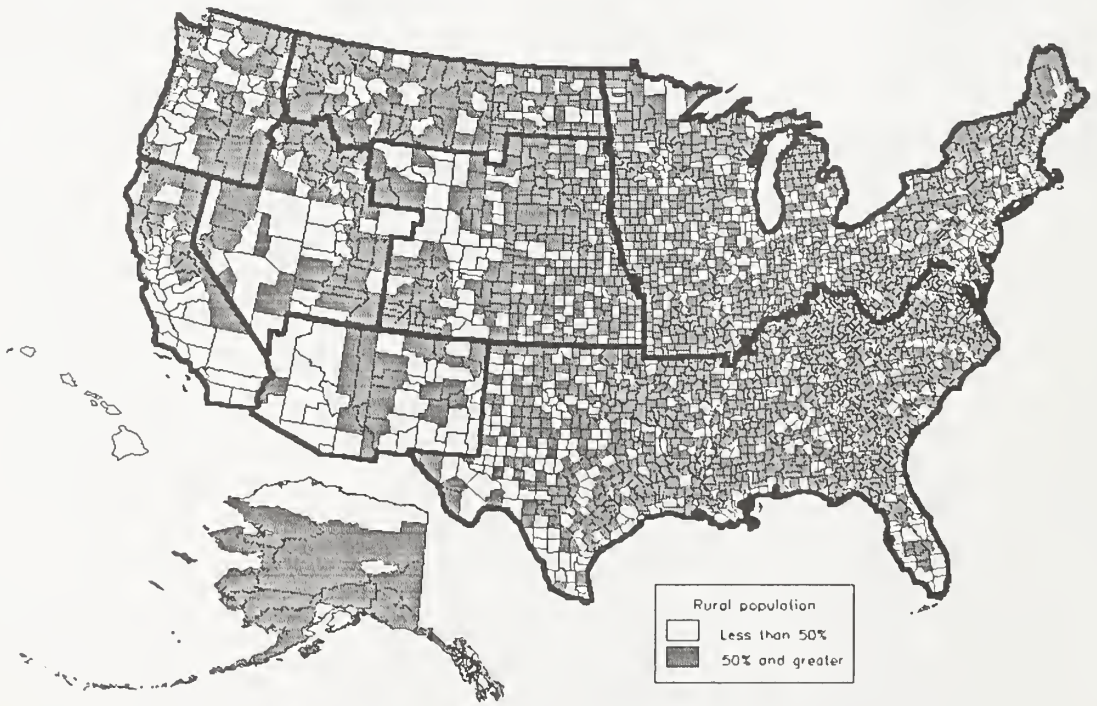

Figure 2a—Rural population rate, 1990.

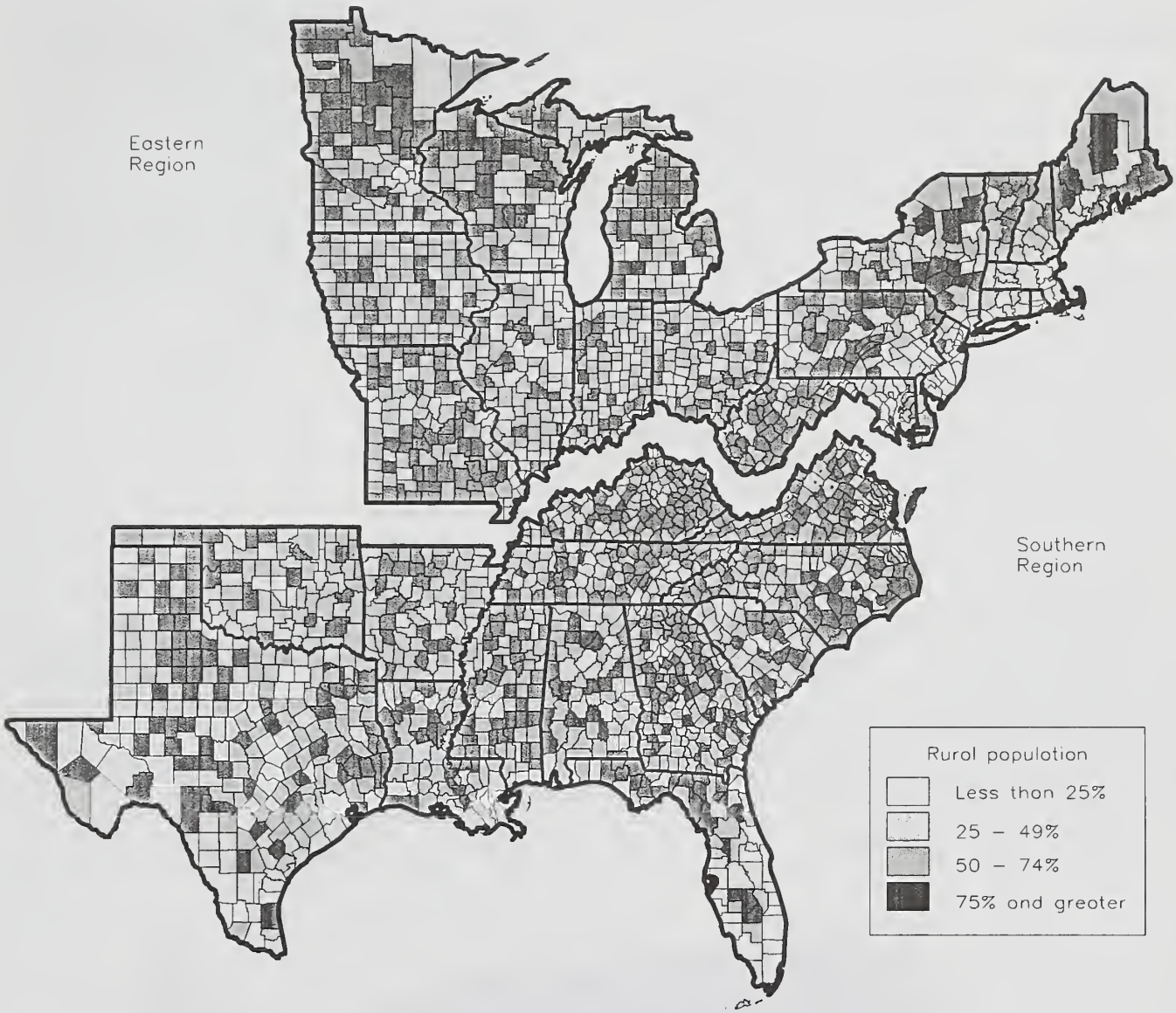

Figure 2b—Percent county rural population, 1990.

Net Migration

Net migration is the difference between in-migration (people moving into an area) and out-migration (people moving out of an area). If there are more out-migrants than in-migrants during a specified time period, the area has net out-migration; if there are more in-migrants, the area has net in-migration. Areas lose population through out-migration because of a lack of jobs. The number of jobs may actually decline, or the rate or kinds of new jobs created may not accommodate everyone seeking work. People also migrate seeking quality-of-life attributes—favorable climate, amenities, and lower cost-of-living; most migrants seeking these attributes have traditionally been retirees.

Because direct counts of in- and out-migrants are generally not available, net migration is calculated from other data: beginning and ending populations, total births, and total deaths. If beginning population plus births minus deaths is greater than the ending population, there is net out-migration; if less, there is net in-migration. Net in-migration does not necessarily imply an increasing population, and net out-migration does not necessarily imply a decreasing population. Our 1980 to 1990 net migration rates were based on the U.S. Bureau of the Census net migration estimates for the period (USDC-BOC 1993a). The 1980 to 1990 net migration rate depicts net migration as a percentage of the 1980 population.

Figure 3a displays 1980 to 1990 net migration rates relative to the 1980 population, showing that most counties (64 percent) experienced net out-migration. Flagler County, FL, had the highest net in-migration (+163.2 percent) and Lake County, CO, had the highest net out-migration (–43.5 percent). Net in-migration is strongly associated with metropolitan areas (such as Portland and Dallas) and adjacent counties, amenity-producing areas (such as the Coeur d'Alene area of Idaho and the Brainerd area of Minnesota), and retirement areas (such as Arizona and Florida).

The listing below shows that the Northern (R-1), Rocky Mountain (R-2), and Eastern Regions (R-9) experienced net out-migration between 1980 and 1990, with the Northern Region displaying the highest out-migration rate. Other regions showed net in-migration, with the Southwest Region (R-3) displaying the highest rate:

USFS Region	Percent net migration
1	–8.0
2	–2.4
3	12.5
4	5.8
5	10.9
6	5.3
8	5.4
9	–3.0
10	9.4

Figure 3b provides a more detailed, regional breakdown of net migration, dividing out-migration into categories of greater and less than 10 percent. Unshaded areas represent counties with net in-migration during the 1980's. The darkest areas depict counties where net out-migration totaled at least 10 percent of the county's 1980 population.

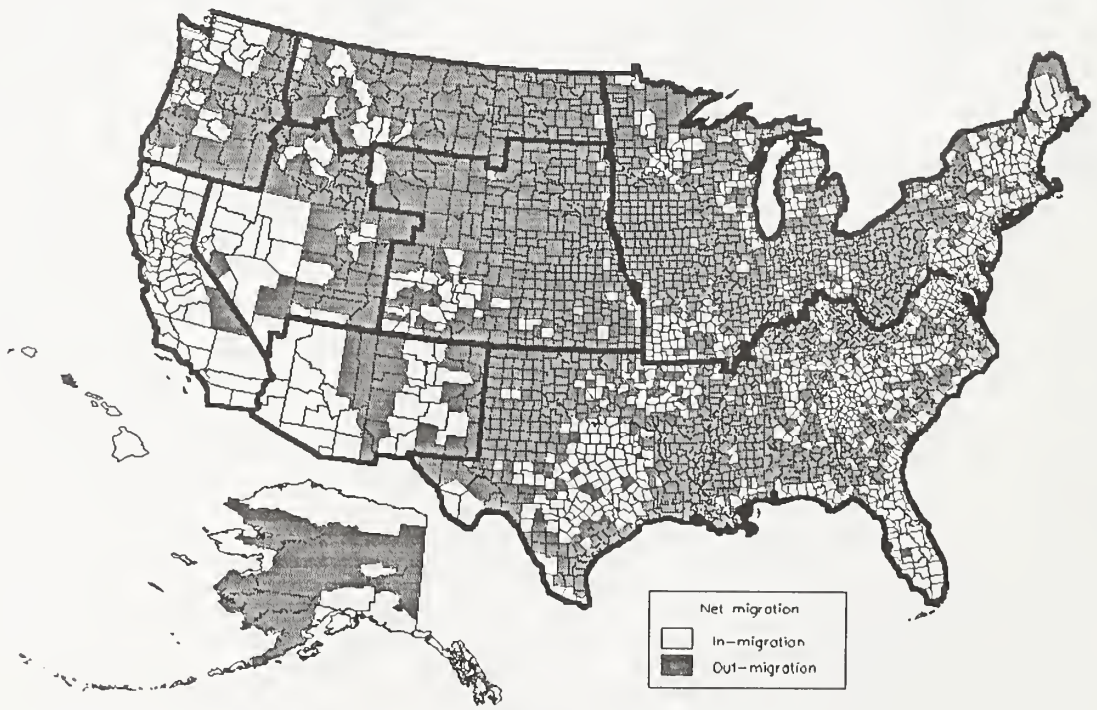

Figure 3a—Net migration rate from 1980 to 1989.

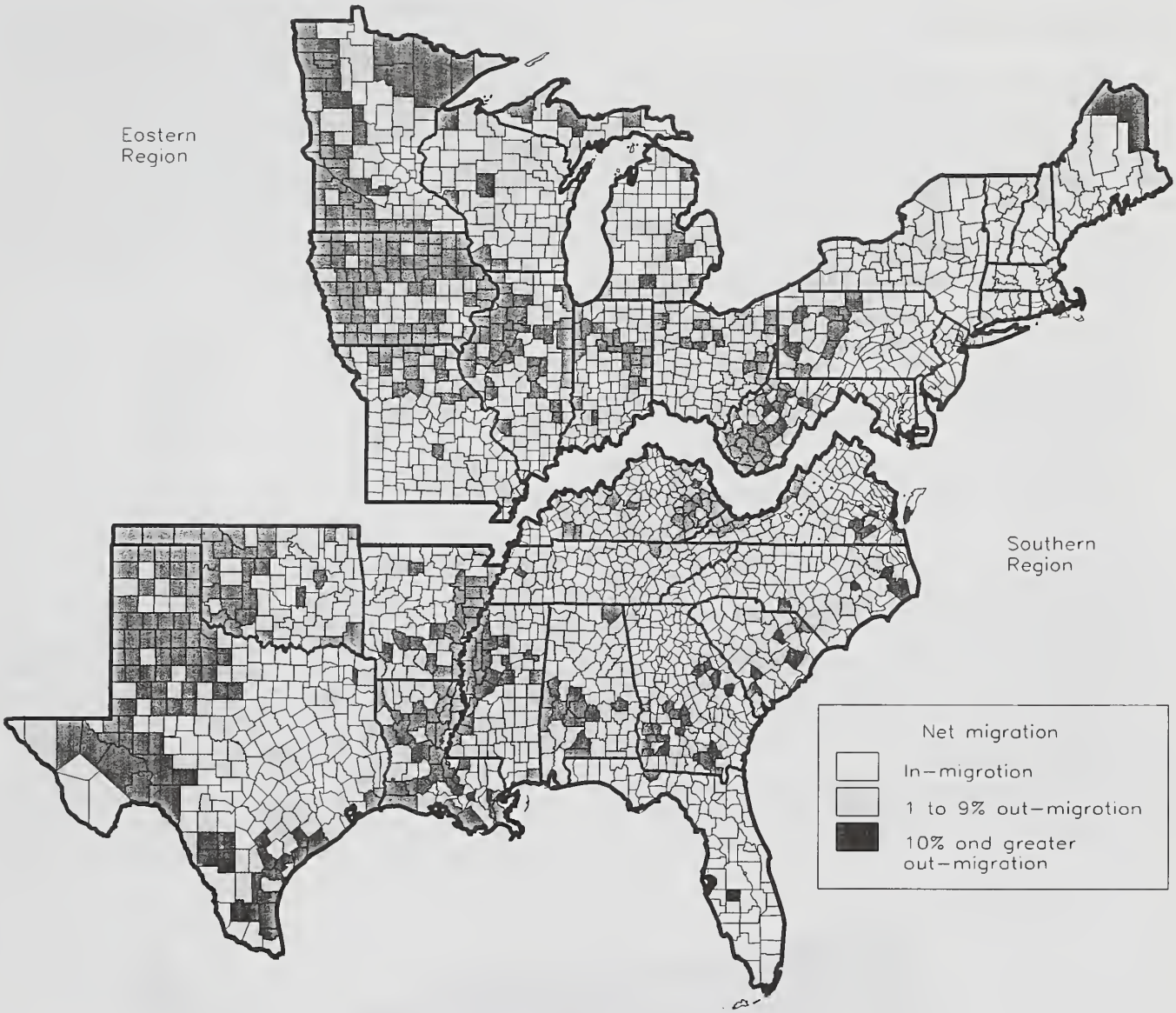

Figure 3b—Percent county net migration from 1980 to 1989.

Per Capita Income

Per capita income, computed by the U.S. Bureau of Economic Analysis, is a good indicator of economic well-being. It is a comprehensive measure of income available at the county level, including estimates of income from earnings, assets, and transfer payments such as Social Security. Per capita income is also an indicator of fiscal capacity, because locations with higher per capita incomes likely have a larger tax base (Reeder 1990). The disadvantages to using per capita income as an indicator of well-being include:

- Per capita income shows little variation between rural areas, with most variation occurring between rural and urban areas.
- Per capita income fluctuates annually because of unusual, temporary conditions (labor disputes or natural disasters).
- Per capita income can be affected by an uneven income distribution or a large institutional population (such as, a prison).

Per capita income is calculated by dividing total income in an area by the area's population (USDC-BEA 1993). National comparisons may be somewhat ambiguous because the cost of living varies from place to place. There are no comprehensive data to adjust per capita income for cost-of-living differences throughout the United States. However, adjustments were made for Alaska and Hawaii as suggested by the Alaska (ADL 1993) and Hawaii Departments of Labor (HDL 1993).

Figure 4a displays the distribution of counties above and below the national median 1990 per capita income outside metropolitan areas of $14,325. Outside of metropolitan areas, per capita incomes ranged from $5,559 in Starr County, TX, to $35,937 in Wheeler County, NE. The Desert Southwest and parts of the South are broad areas of low per capita income, while other parts of the country have isolated pockets of low income counties (the upper Lake States and northern New England, for instance).

The average per capita income nationwide in 1990 was $18,683. Per capita income differs substantially among Forest Service Regions. The Alaska Region (R-10) has the highest income (even after the cost-of-living adjustment), about 42 percent greater than the region with the lowest income, the Northern Region (R-1):

USFS Region	Per capita income
1	$15,202
2	18,032
3	15,493
4	15,944
5	20,677
6	18,190
8	16,579
9	19,951
10	21,653
Total	$18,683

Figure 4b shows how the regions' counties compared to the 1990 median per capita income of $14,325 for counties outside metropolitan areas. The unshaded pattern shows counties above the median, the darkest shading pattern shows counties with the lowest incomes. The figure also identifies counties with persistently low incomes (cross-hatched). A county's per capita income was persistently low if it was in the bottom quartile (the lowest 25 percent) of all counties nationally for the years 1970, 1980, and 1990.

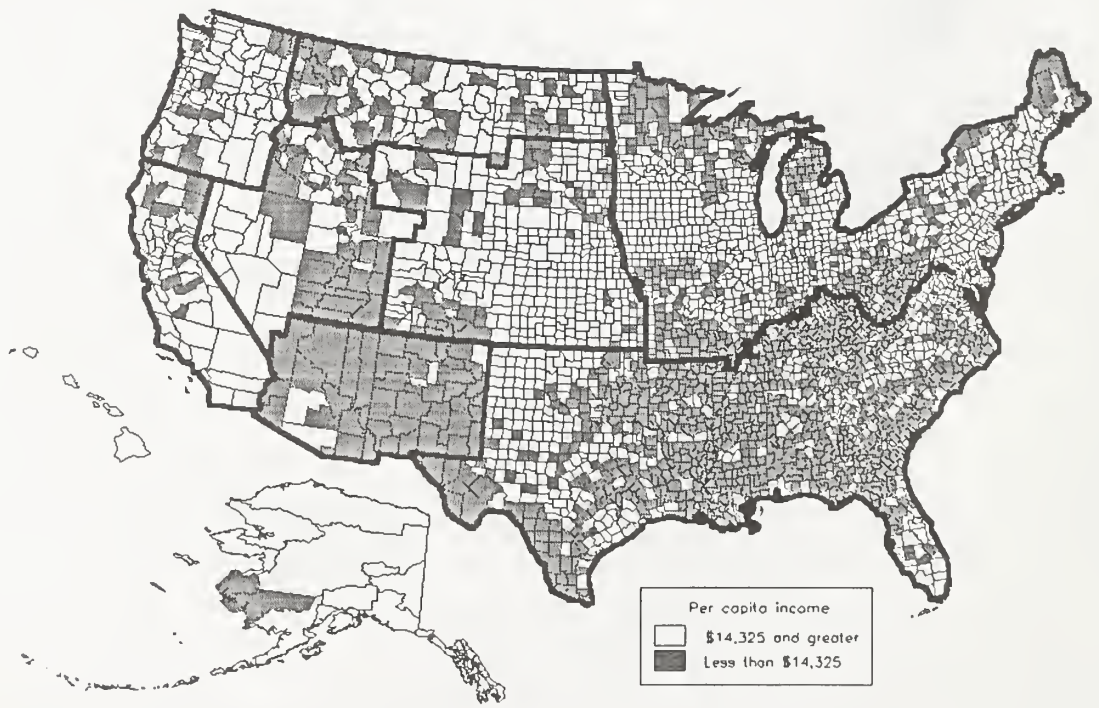

Figure 4a—Per capita income, 1990.

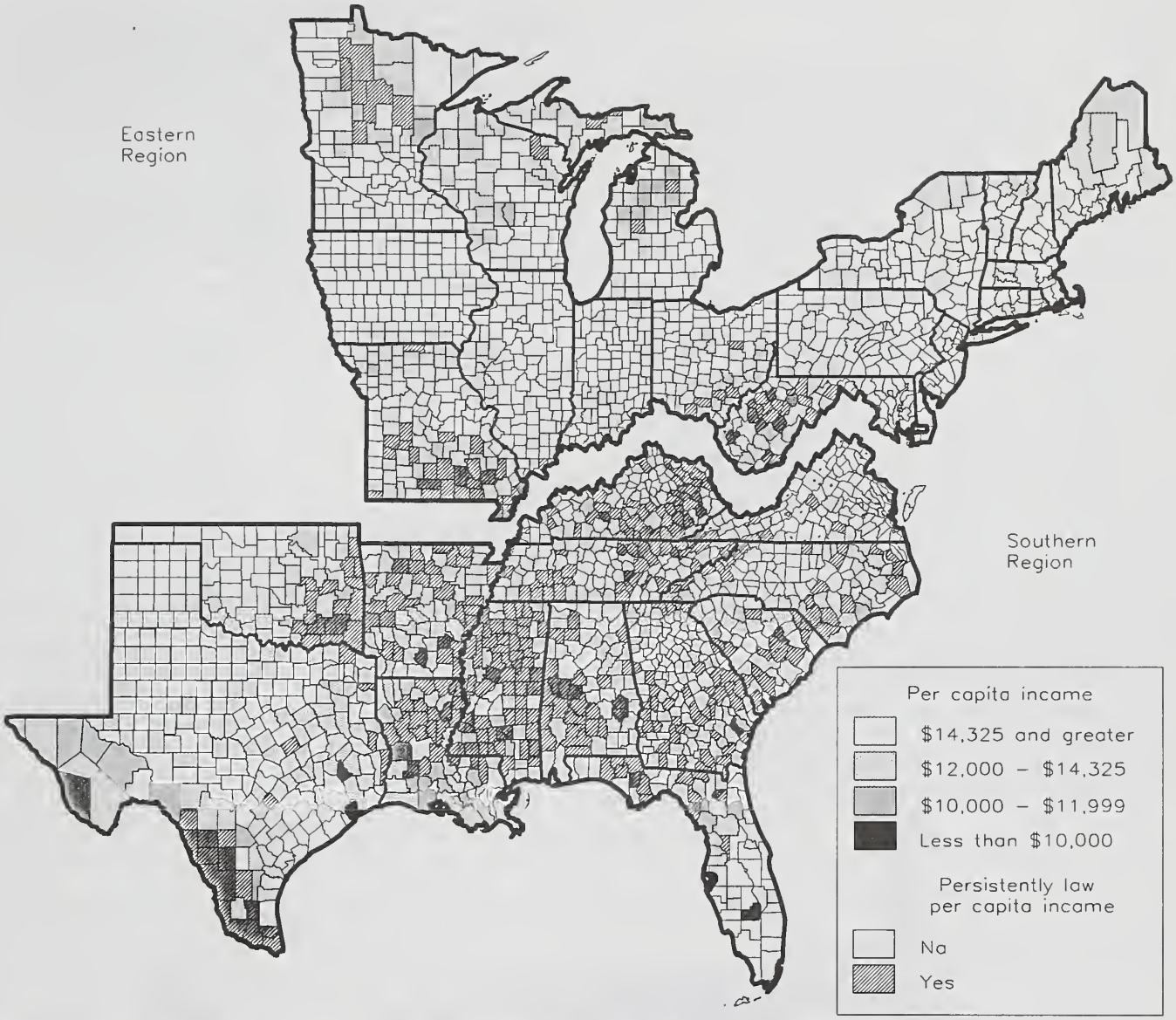

Figure 4b—County per capita income, 1990, and persistently low per capita income (PCI).

Poverty

Poverty rates are an indicator of economic distress. Unlike per capita income, they reflect the distribution of income. Poverty thresholds, established by the U.S. Office of Management and Budget (OMB 1993), are based on income for a specific family size, age of the head of the household, and the number of related children under age 18 in the household. Poverty status is determined for families rather than individuals. All family members are classified as being below the poverty level if the family's total income is below the threshold for their family size. Poverty status for persons who do not live in families is determined by their income in relation to the appropriate threshold. Inmates of institutions, persons in military group quarters or college dormitories, and unrelated individuals less than 15 years old are not included in poverty statistics. Poverty thresholds in 1989 ranged from $5,947 for a family of one person 65 years old or older, to $25,480 for a family of nine or more. The average family size in 1989 was 2.6 persons; the associated poverty level was $9,885.

Poverty-rate data were developed by the U.S. Bureau of the Census (USDC-BOC 1993b). The poverty rate for an area is based on the number of persons in poverty status relative to the area's overall population.

Figure 5a shows the national distribution of counties above and below the 1990 median poverty rate of 16.5 percent for counties outside metropolitan areas. A substantial band of high poverty rates exists throughout the Southeast, Appalachian Mountains, South, and into the Southwest. Pockets of poverty are scattered throughout the Upper Plains and Western Mountain States. The agricultural heartland ranging to New England generally does not have large areas of poverty; neither does the Pacific Northwest. The highest county poverty rate outside metropolitan areas was 63.1 percent in Shannon County, SD, location of the Pine Ridge Reservation; the lowest rate was 0.0 percent in Loving County, TX.

The average poverty rate for 1990 was 12.8 percent. The listing below shows that poverty rates varied greatly among Forest Service Regions. The poverty rate for the Southwestern Region (R-3), 16.8 percent, was almost double that of the Alaska Region (R-10), 8.7 percent:

USFS Region	Percent population in poverty
1	14.7
2	11.5
3	16.8
4	11.1
5	12.0
6	11.2
8	15.7
9	11.0
10	8.7
Total	12.8

Figure 5b provides a more detailed breakdown of county poverty rates for the region. Counties with poverty rates below the 16.5-percent median are shown without shading, while those above the median are divided into four classes, ranging to counties with poverty rates of 45 percent or more (crosshatched).

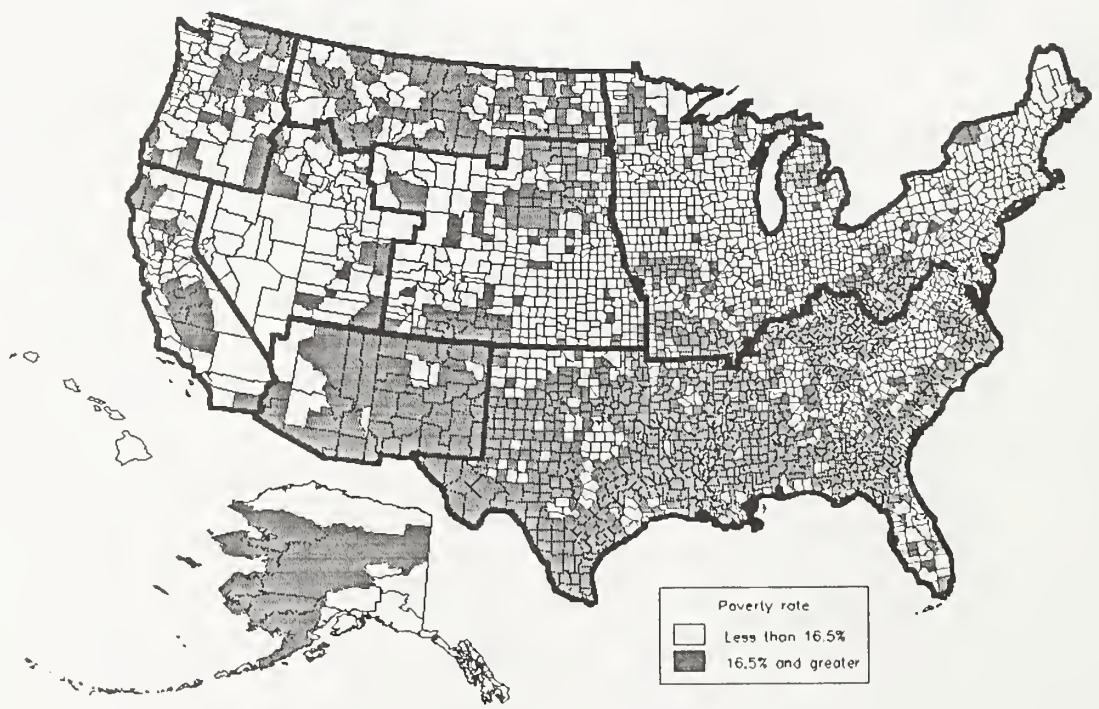

Figure 5a—Poverty rate, 1990.

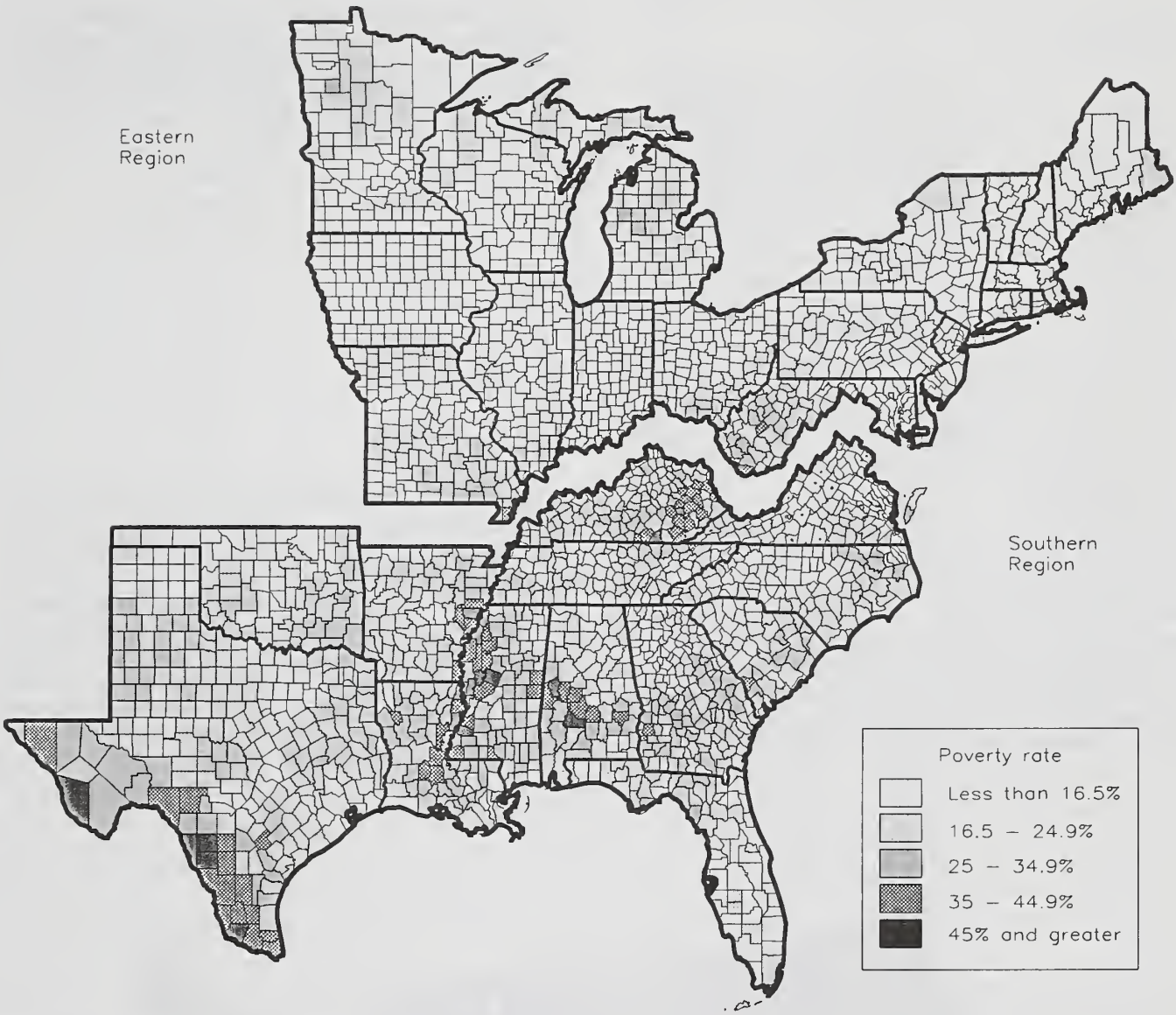

Figure 5b—Percent county population in poverty, 1990.

Unemployment

The county annual unemployment rate is a commonly used measure of economic distress. The unemployment rate is calculated by dividing the number of persons looking for work by the total labor force. In general, the lower the rate the better. There are several disadvantages to using the county unemployment rate as an indicator of economic distress: county-level data may mask community-level distress or prosperity; unemployment estimates do not reflect discouraged workers who have dropped out of the labor force, involuntary part-time workers, or underemployed workers; and the unemployment rate may not reflect past distress in areas after unemployed persons have moved away (as in the Plains States).

Unemployment rates were computed by the U.S. Bureau of Labor Statistics (USDC-BLS 1993). Annual averages were used to increase reliability and help reduce difficulties with seasonality.

Figure 6a highlights counties with a 1991 unemployment rate above the median rate of 6.9 percent for counties outside metropolitan areas. Rates ranged from a low of 0.3 percent in Kenedy County, TX, to 32.7 percent in Starr County, TX. Long-term trends of high unemployment in the lower Mississippi basin, Rio Grande Valley, and parts of the Southwest are reflected (Swaim 1992), as are effects of the 1990 to 1991 recession, the coal mining slump in Appalachia, and recent economic events in Alaska, California, and the Pacific Northwest.

The average unemployment rate for all counties for 1991 was 6.7 percent. The listing below shows that unemployment rates varied greatly among Forest Service Regions. Unemployment in the Alaska Region (R-10), 8.5 percent, was more than double the 4.2 percent unemployment in the Rocky Mountain Region (R-2):

USFS Region	Percent unemployment
1	6.0
2	4.2
3	6.0
4	5.3
5	7.4
6	6.2
8	6.6
9	6.9
10	8.5
Average	6.7

Figure 6b provides more detail, stratifying counties with 1991 unemployment rates above the 6.9-percent median into three classes. The darkest shading depicts counties with an unemployment rate of at least 15 percent. The figure also identifies counties with persistently high unemployment rates (crosshatched). Those counties had unemployment rates in the highest quartile (the top 25 percent) nationally in 1977, 1984, and 1991. Persistent unemployment was not calculated for urban counties, those with metropolitan areas with populations greater than 1 million; those high unemployment rates relate to urban decay, not to rural distress.

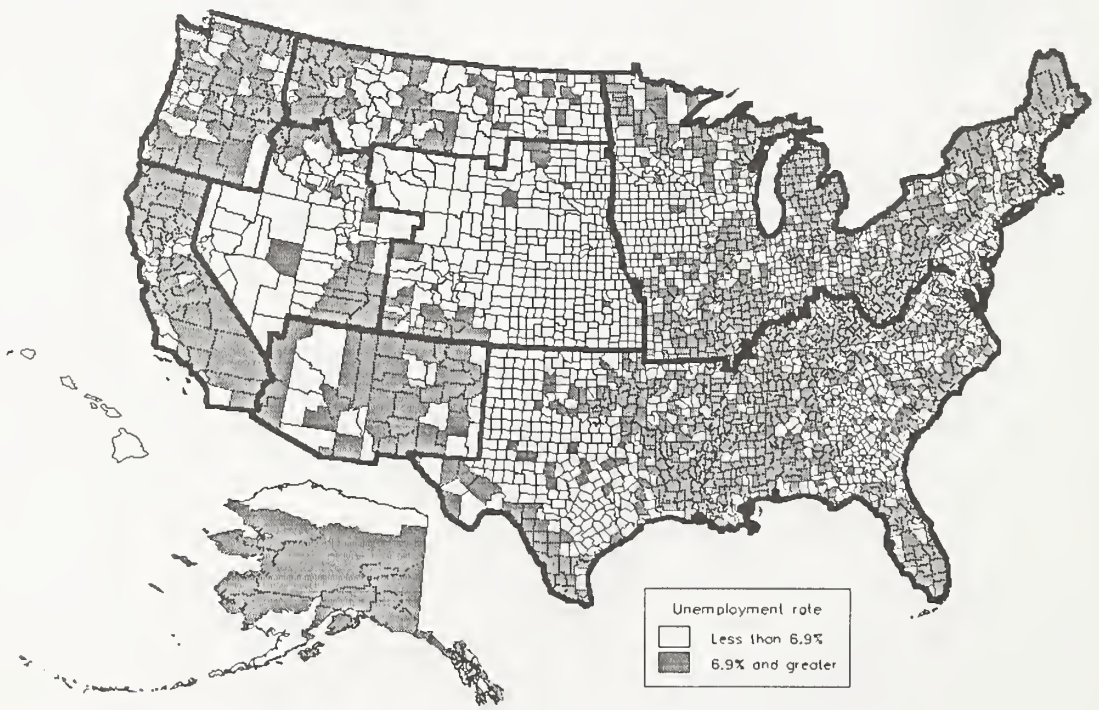

Figure 6a—Unemployment rate, 1991.

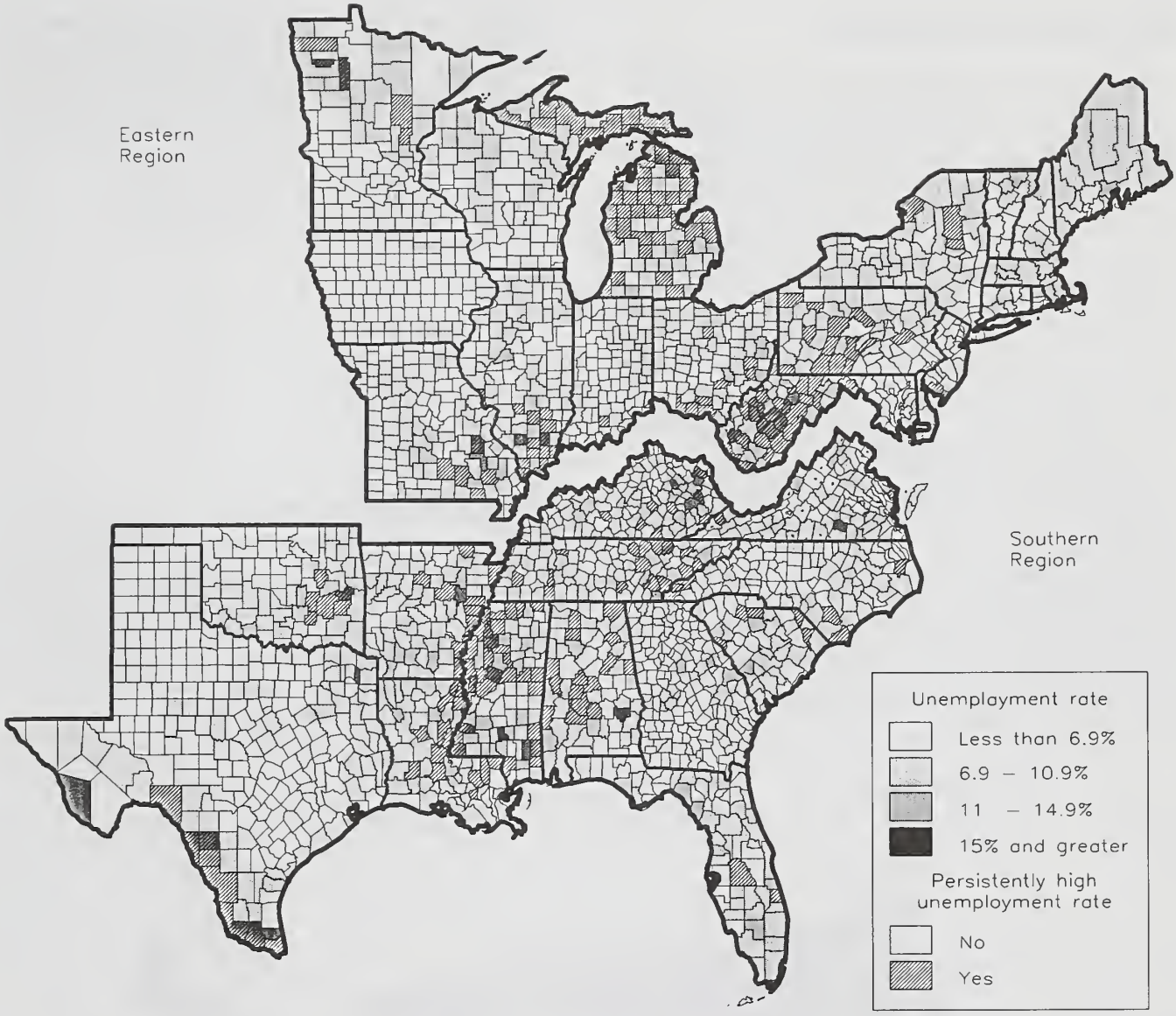

Figure 6b—County percent unemployment, 1991, and persistently high percent unemployment rate (UER).

Direct Wildland Dependency

Some rural development specialists are uncomfortable with the total wildland dependency criterion displayed in figures 1a and 1b. "Multipliers" are used to estimate total (direct plus indirect) dependency from direct dependency. Industry-specific, county-level multipliers are difficult to derive and their proxies are often too large. But direct wildland dependency is also a common measure of the extent to which a local economy is dominated by wildland industries—forestry, mining, grazing, and recreation. Areas highly dependent on wildland industries are often perceived as having poor economic well-being, and little economic diversification. They are directly affected by Federal resource management programs. Special analyses needed to make dependency calculations were conducted by the U.S. Bureau of Economic Analysis (USDC-BEA 1992).

Figure 7a shows the distribution of counties that are at least 15 percent directly dependent on wildland industries. The 15 percent level was selected to correspond with the level used in figure 1a. Many counties had no dependency on wildlands. Eureka County, NV, was the most dependent, with a direct dependency rate of 92.8 percent. Of 3,094 counties, 824 (27 percent) are at least 15 percent directly dependent on wildland industries. Large, contiguous areas of wildland dependent counties characterize the West and the upper Lake States, northern New England, and the Appalachians in the East.

The average, direct earnings, wildland-dependency rate for 1990 was 3.7 percent. The rates varied greatly among Forest Service Regions. The Alaska Region (R-10) was far more dependent (17.2 percent) than the Eastern Region (R-9, 2.4 percent), or the Pacific Southwest Region (R-5, 2.8 percent):

USFS Region	Percent wildland dependency
1	11.3
2	6.5
3	5.4
4	13.6
5	2.8
6	7.1
8	5.0
9	2.4
10	17.2
Total	3.7

Figure 7b shows a more detailed breakdown of direct dependency. The 15 percent and greater category is divided into five subcategories. Rural development specialists should pay particular attention to contiguous areas of dark shading patterns. Areas characterized by counties with any of the three darkest patterns (45 percent and greater direct dependence) have economies overwhelmingly dominated by wildland industries.

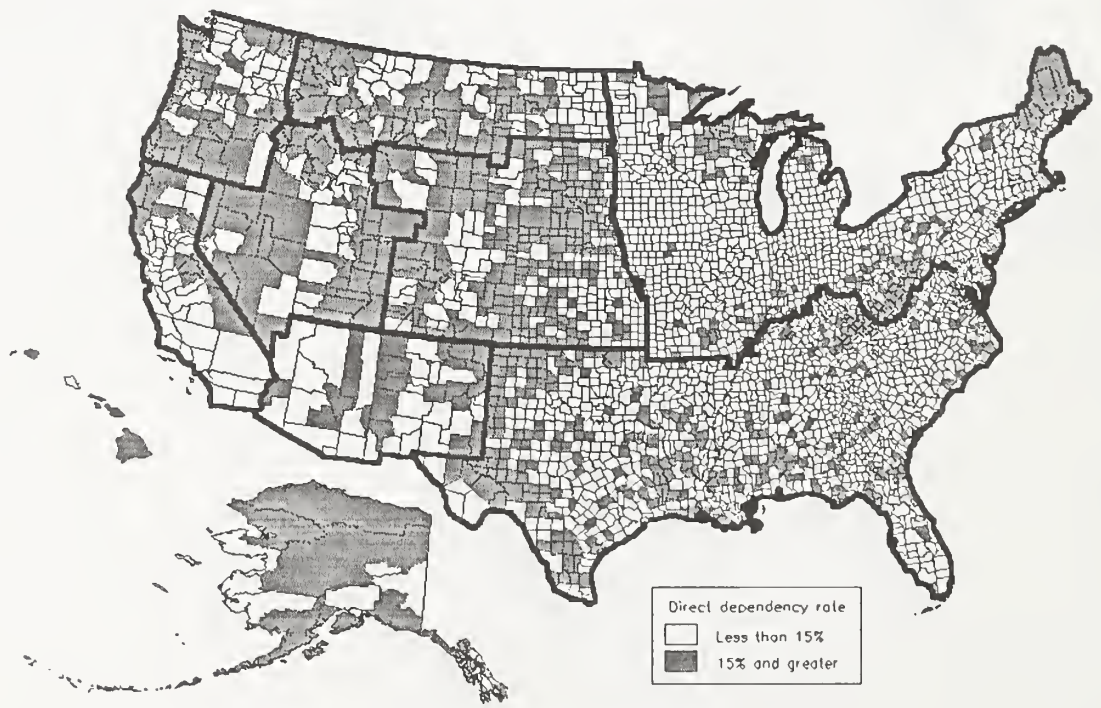

Figure 7a—Earnings directly dependent on wildland industries, 1990.

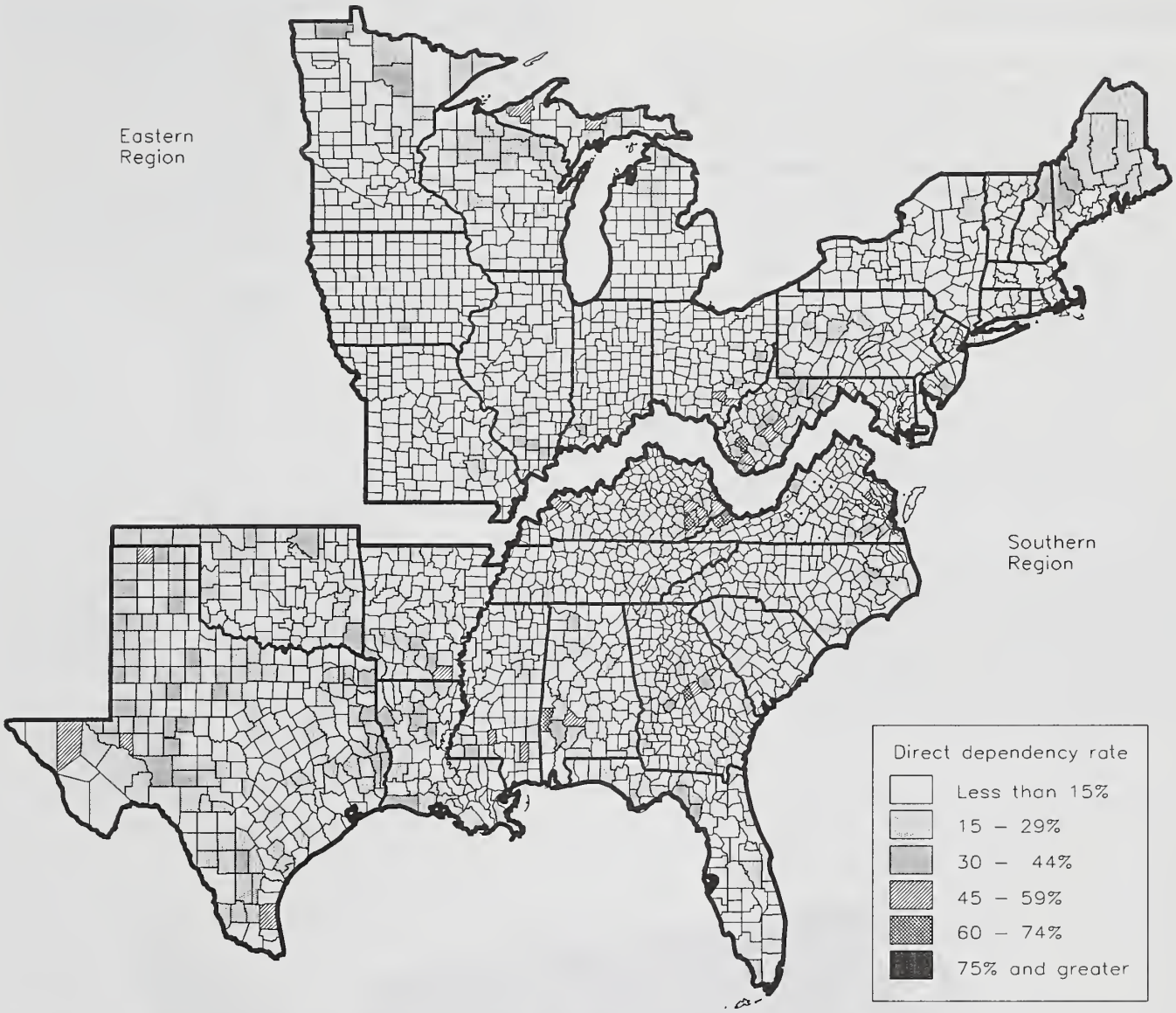

Figure 7b—Percent county earnings directly dependent on wildland industries, 1990.

Economic Diversity

Economic diversification is widely believed to be a key ingredient in economic development of rural communities. Indeed, one of the purposes of the National Forest-Dependent Rural Communities Economic Diversification Act of 1990 is to help counties diversify their economic bases. Economically diversified communities are thought to be both more economically stable (able to withstand industrial disruptions) and prosperous (associated with higher levels of economic well-being). Economies are least diversified when all economic activity is concentrated in just a few industrial sectors. Economies are most diversified when they have numerous industrial sectors, all relatively equal in strength.

Economic diversity can be based on industrial employment or earnings. We calculated diversity by applying the Shannon-Weaver entropy index procedure (Attaran 1986) to employment data in the 1990 IMPLAN database maintained by the USDA Forest Service (Taylor and others 1993).

Figure 8a shows the distribution of counties relative to the 0.80579 median diversity index in 1990 for counties outside metropolitan areas. The diversity index ranged from 0.18948 in Chattahoochee County, GA, to 0.99483 in York County, PA. Counties above the median index (unshaded) are the most diversified. Counties in the eastern regions (R-8 and R-9) and along the West Coast (R-5 and R-6) are relatively more diverse. Counties with diversity below the median index are shown in dark shading. About 35 percent of the counties below the median index are in western regions (Regions 1 to 6 and 10). The figure shows that counties with diversity below the median index cover the vast majority of the western land area.

The percentage of counties below the median diversity index varies widely among Forest Service Regions. In the Alaska Region (R-10) 89 percent of the boroughs were below the median diversity index, compared to only 16 percent of the counties in the Pacific Southwest Region (R-5):

USFS Region	Percent counties below median
1	68
2	65
3	58
4	58
5	16
6	29
8	49
9	20
10	89

Figure 8b shows greater detail for counties falling below the national median of 0.80579. Counties above the national median are displayed without shading, while counties with a diversity index less than 0.6 are shown with the darkest shading.

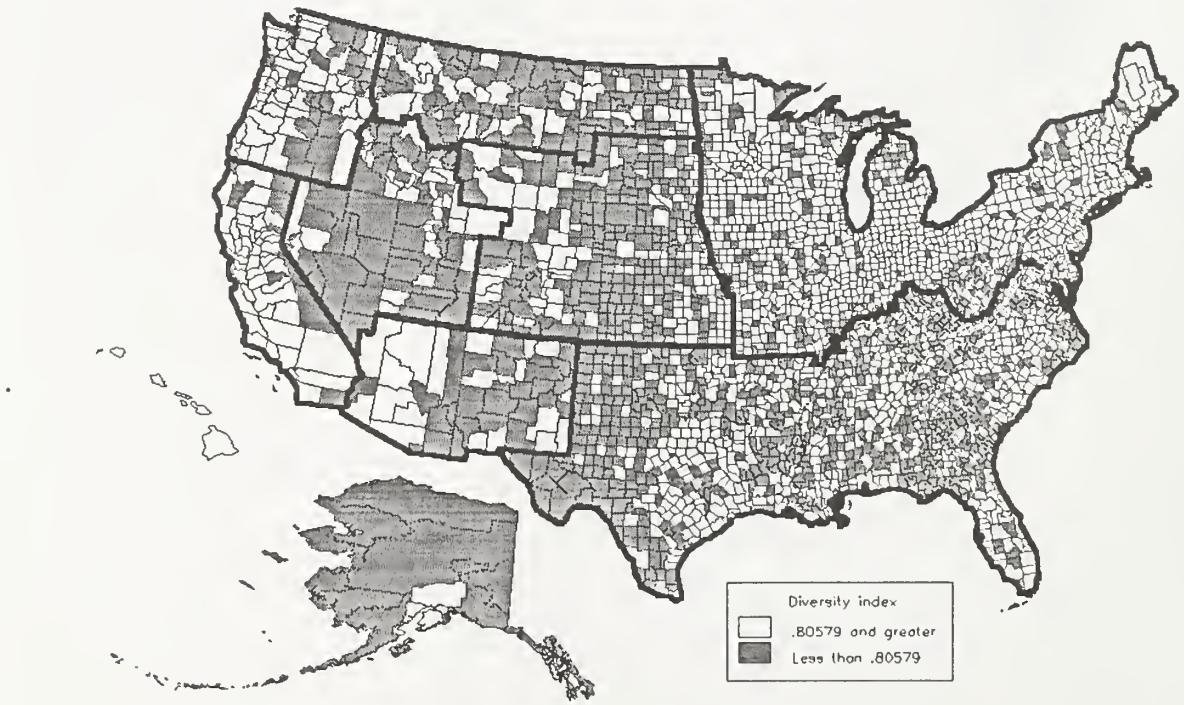

Figure 8a—Employment diversity index, 1990 (0.80579 was the median in 1990 for counties outside metropolitan areas).

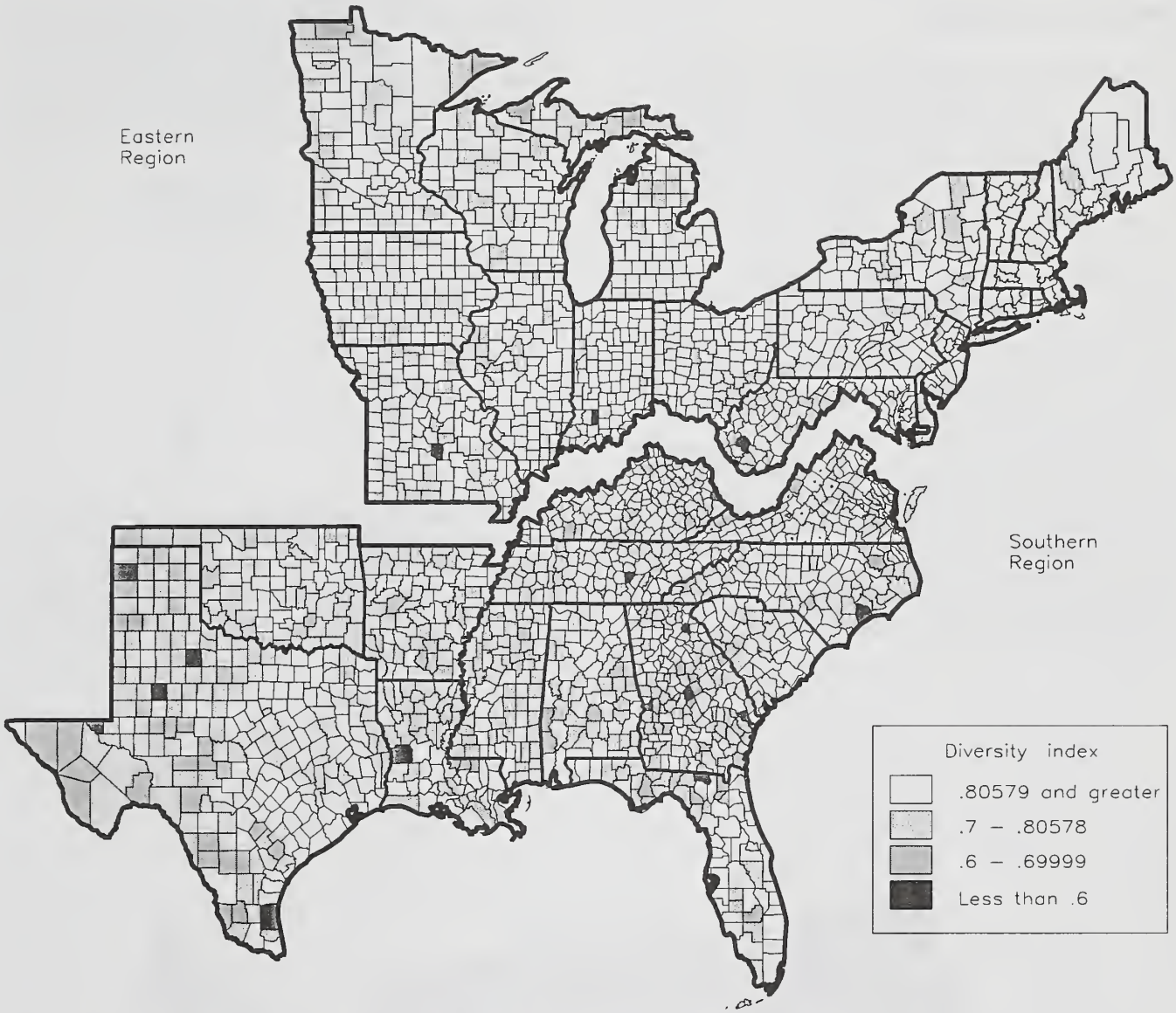

Figure 8b—County employment diversity index, 1990 (0.80579 was the median in 1990 for counties outside metropolitan areas).

Timber Dependency

Timber dependency is probably the oldest and most widely used indicator of a community's economic link to the wildland base. The Society of American Foresters (SAF 1989) uses the criterion of 10 percent of local employment in the forest products industry as part of its definition of a "dependent community." In situations where one in ten workers is employed in the wood products industry, another worker is probably employed in other industries that support wood-products workers. Our definition of the timber industry includes firms that process timber (such as sawmills and planing mills), but excludes secondary timber processors (such as furniture plants and home builders). Timber-dependency data were developed through special analyses conducted by the U.S. Bureau of Economic Analysis (USDC-BEA 1992).

Figure 9a displays counties in which 10 percent or more of the direct 1990 county earnings are derived from the timber industry. Timber dependency ranged from 0.0 percent in many counties to 62.9 percent in Choctaw County, AL. Of the 3,094 counties, only 273 (9 percent) met the 10-percent dependency standard. Although numerous timber-dependent counties are scattered throughout the South and the Appalachians, significant concentrations of these counties are found in the Pacific Northwest, the northern Rockies, the upper Lake States, and northern New England.

In 1990 the average rate of timber dependency was 1.0 percent. Timber dependency varied greatly among Forest Service Regions. The Northern Region (R-1) was 4.5-percent dependent, compared to just 0.4 percent for the Southwest Region (R-3):

USFS Region	Percent timber dependency
1	4.5
2	0.5
3	0.4
4	0.8
5	0.5
6	4.3
8	1.2
9	0.9
10	2.0
Total	1.0

Figure 9b provides more detail. Counties with less than 10-percent dependency are shown without shading; counties with at least 10-percent dependency are divided into four classes with progressively darker shading. Contiguous counties with dark shading patterns constitute pockets or broad areas of dependency on the timber industry.

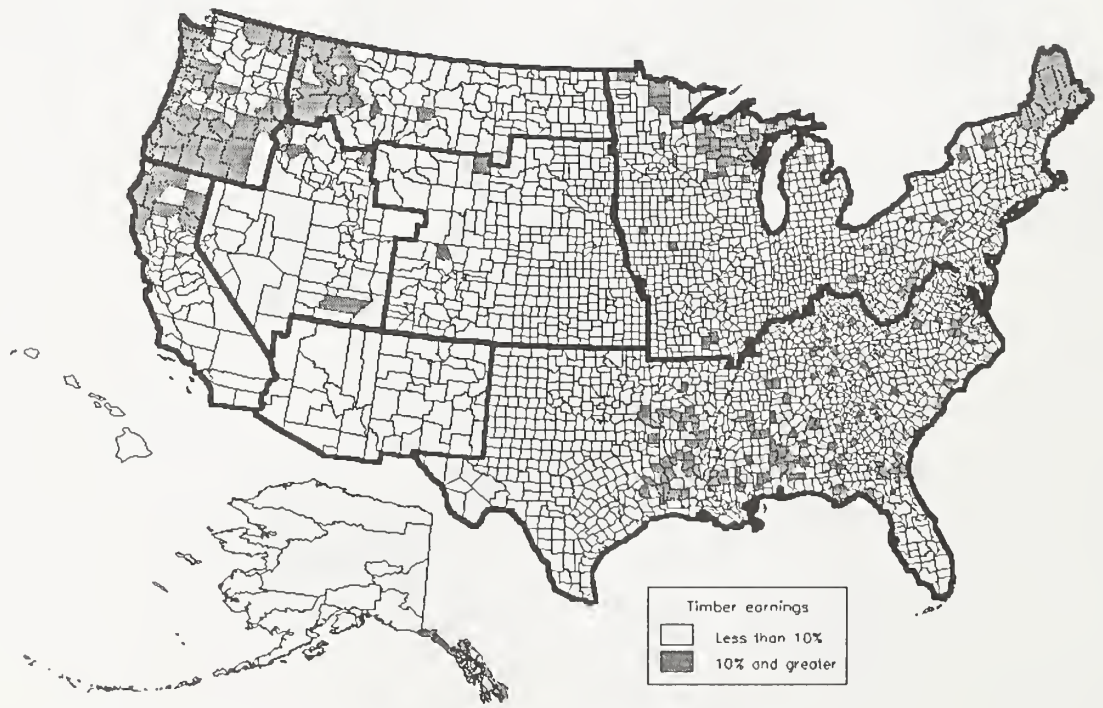

Figure 9a—Percentage of direct earnings from the timber industry, 1990.

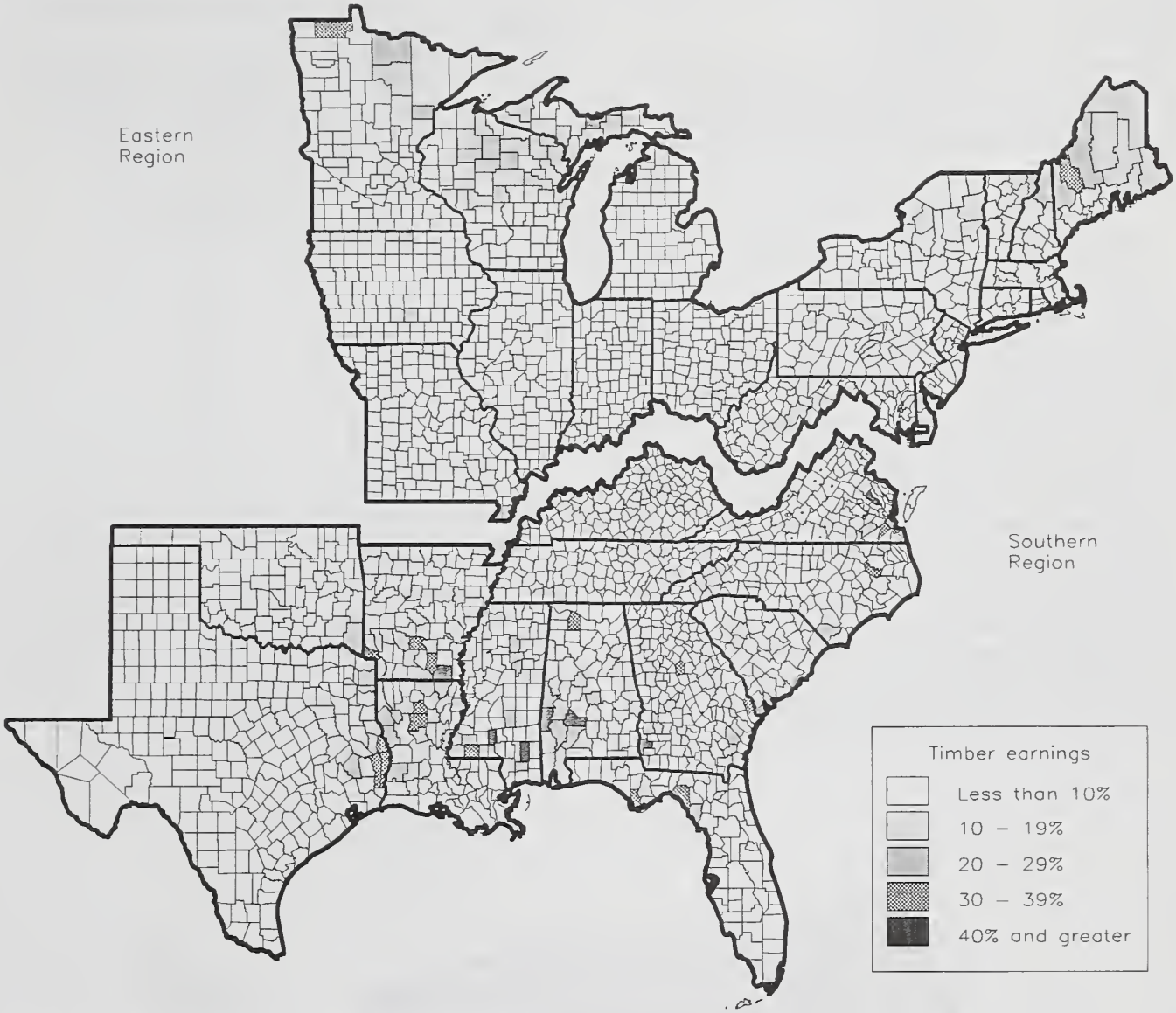

Figure 9b—Percentage of the counties' direct earnings from the timber industry, 1990.

Recreation Dependency

The wildland recreation industry is often promoted as an economic alternative to the timber industry in rural areas. In some areas, this strategy has provided major payoffs. In other cases, important questions have been raised, including:

- Can large numbers of communities become destination-quality recreation areas?
- Will the wage and job structure in the recreation industry provide employment that supports families?

The recreation industry includes several specific industrial sectors. For example, it includes all of the Fish Hatcheries and Preserves sector, but only part of the Hotels and Motels sector. Recreation dependency data were developed through special analyses conducted by the U.S. Bureau of Economic Analysis (USDC-BEA 1992).

Figure 10a is comparable to figure 10a, except it refers to the wildland recreation industry rather than the timber industry. While many counties had no dependency on the wildland recreation industry, the Aleutians East Borough of Alaska was 72.7 percent dependent. In 1990, 98 of the 3,094 counties (3 percent) were 10 percent dependent. However, the procedure used to identify the wildland recreation industry could not distinguish it from the recreation industry that does not depend on wildlands. Our procedures did identify the non-wildland recreation industries of Reno and Las Vegas, NV, Atlantic City, NJ, and Miami, FL. Hence, our procedures probably overestimate dependence on the wildland recreation industry.

The average recreation-dependency rate for 1991 was 1.4 percent. Recreation dependency varied greatly among Forest Service Regions. The Intermountain Region (R-4), was 8.6 percent dependent, compared to the Eastern Region (R-9) which was just 1.0 percent dependent:

USFS Region	Percent recreation dependency
1	1.9
2	1.4
3	2.1
4	8.6
5	1.4
6	1.9
8	1.5
9	1.0
10	7.7
Total	1.4

Because so few counties were more than 10 percent dependent, figure 10b provides a detailed, regional breakdown for earning levels below 10 percent. Counties with less than 1 percent of earnings in the recreation industry are shown without shading; counties with larger proportions of recreation industry earnings are shown with increasingly darker shading. Figure 11b displays relative concentrations of the recreation industry, even though counties' dependency on the wildland recreation industry is generally quite small.

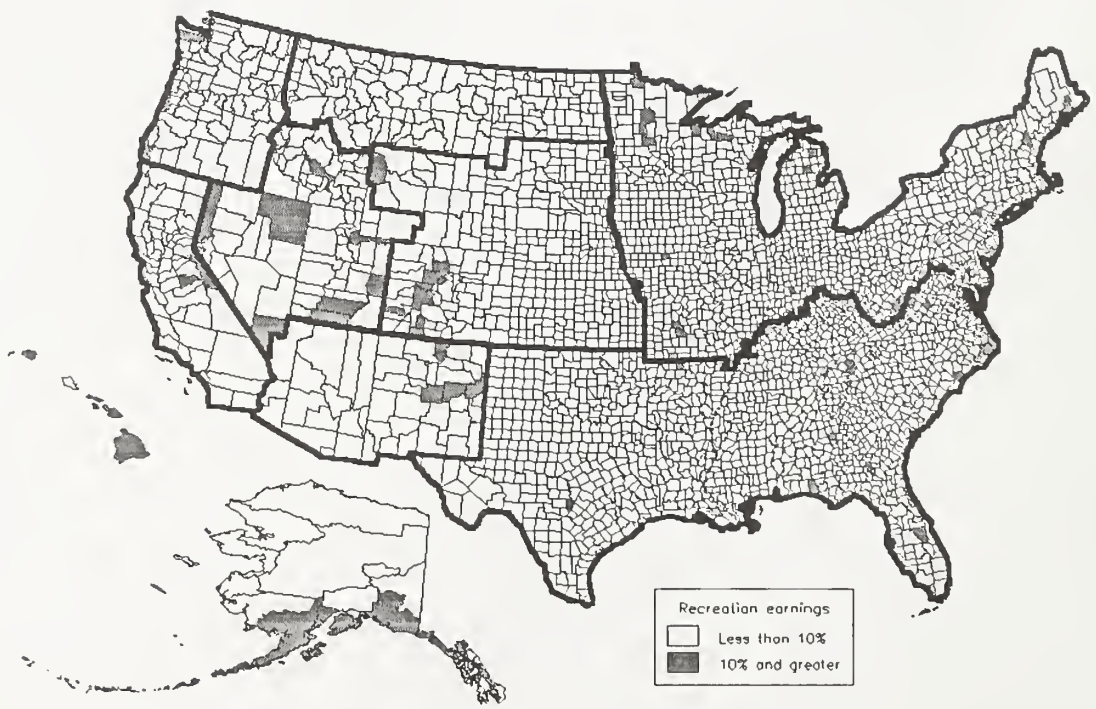

Figure 10a—Percentage of the direct earnings from the recreation industry, 1990.

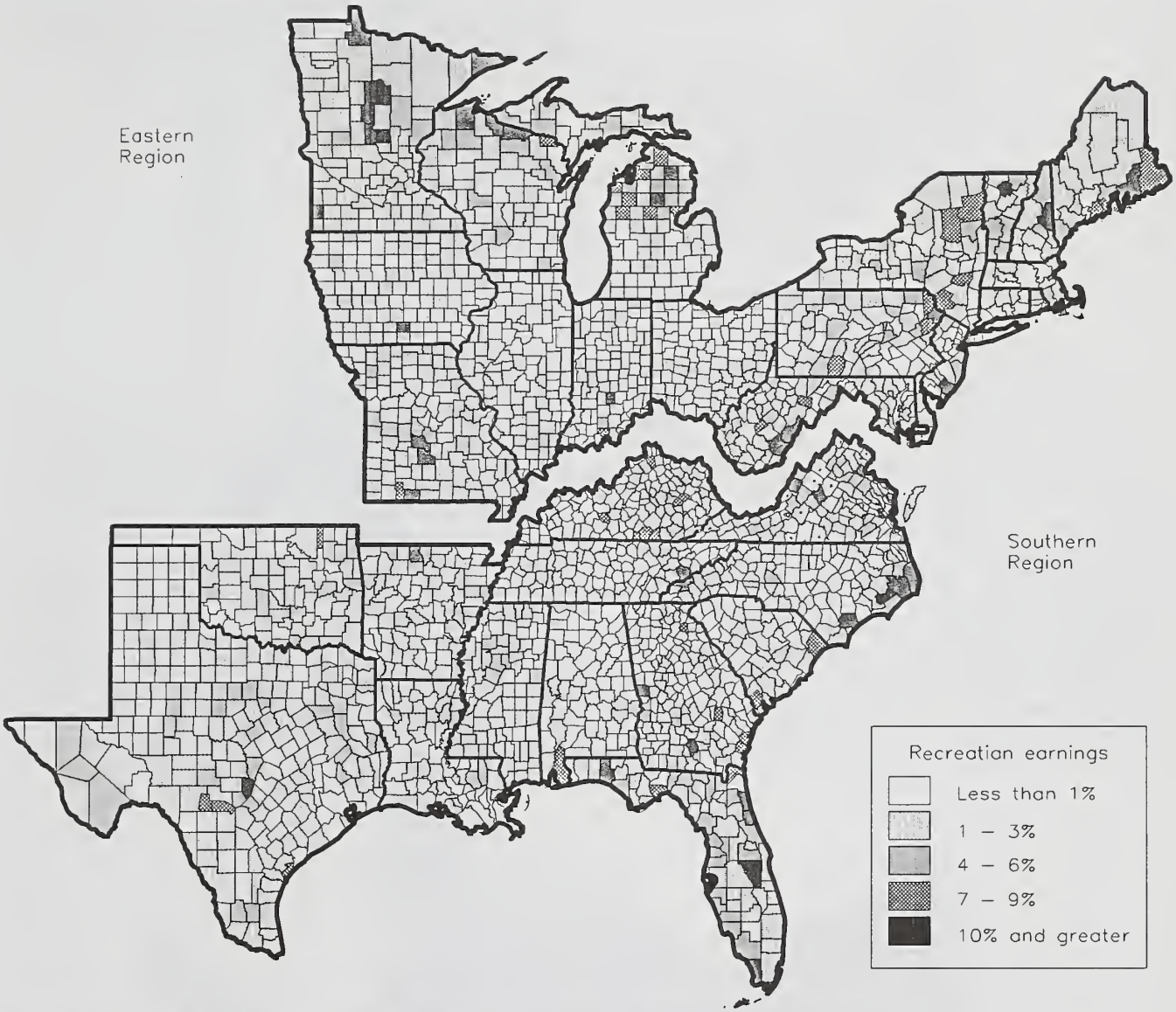

Figure 10b—Percentage of the counties' direct earnings from the recreation industry, 1990.

Wildland Earnings Change

A drop in earnings is a key indicator of economic distress in a county. In particular, many rural development specialists are concerned about a drop in earnings associated with wildland industries, which faced serious market and environmental challenges over the past decade. The timber industry encountered the spotted owl and old growth issues, the mining industry faced mining law and regulation reform, and the grazing industry faced efforts to increase grazing fees and restrict grazing on public lands. Data on changes in wildland industry earnings were developed through special analyses conducted by the U.S. Bureau of Economic Analysis (USDC-BEA 1992).

Figure 11a displays counties (shaded) that experienced an aggregate loss in wildland industry earnings between 1985 and 1990, measured in constant dollars. Nationally, the change in wildland earnings ranged from –98 percent in Baker County, GA, to about 860 percent in Bradley County, TN. Of 3,094 counties, 1,149 (37 percent) experienced a decline in wildland industry earnings. Changes in aggregate earnings involve the interaction of all wildland industries. They can be affected by a dominant industry. The aggregate decline in west Texas is probably tied to oil. In Wyoming the aggregate decline is likely tied to mining, and in northern California it is probably tied to timber.

The average change in wildland earnings between 1985 and 1990 was positive, 21.0 percent, adjusted for inflation. The change in wildland earnings varied greatly among Forest Service Regions. The Intermountain (R-4) and the Alaska (R-10) Regions had the largest increases, 49 percent, while the Rocky Mountain (R-2) and Southern (R-8) Regions had the smallest increases, about 15 percent:

USFS Region	Percent change wildland earnings
1	27.4
2	15.5
3	23.0
4	53.1
5	33.8
6	27.6
8	14.0
9	19.9
10	49.0
Total	21.0

Figure 11b provides a more detailed breakdown of the change in real wildland earnings. Three shading patterns show earnings increases; three show earnings declines. Contiguous groups of counties shaded to reflect earnings declines indicate areas where wildland industries are in serious economic distress.

Figure 11c displays information identifying the wildland industry sectors that lost real earnings between 1985 and 1990. Some counties experienced no loss in any wildland sector (unshaded), while other counties experienced losses in more than one sector (crosshatched). Figures 11b and 11c should be used together, figure 11c identifies the sectors experiencing a loss in earnings, while figure 11b displays the aggregate effect of individual losses on overall earnings.

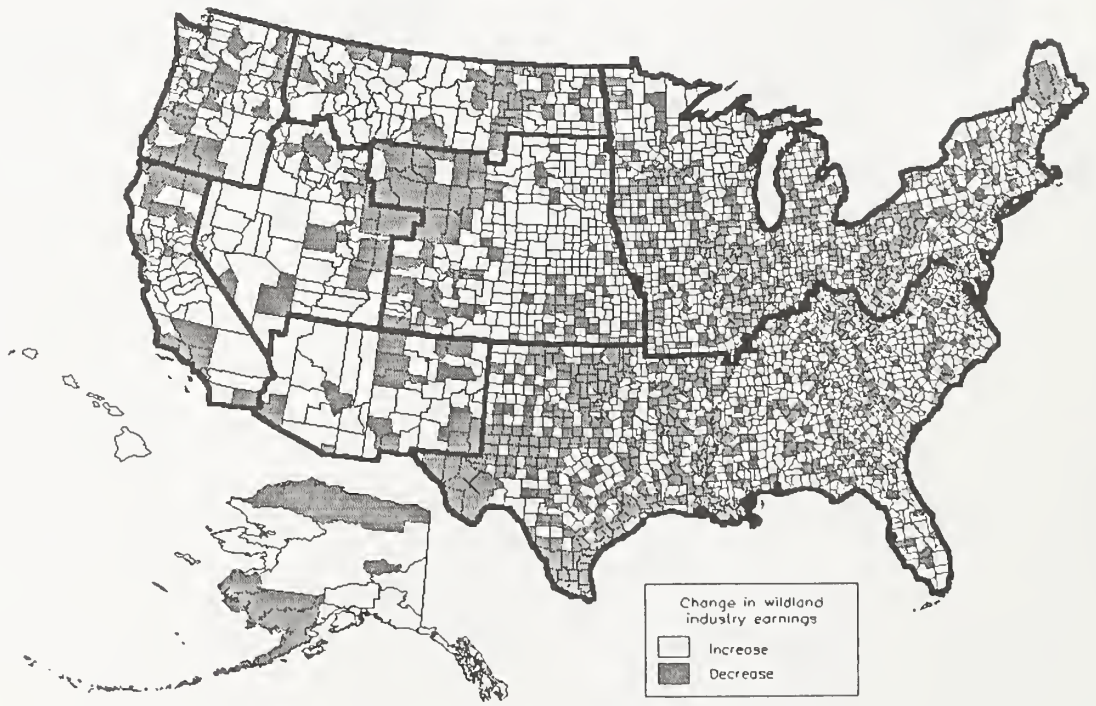

Figure 11a—Change in real, direct wildland industry earnings from 1985 to 1990.

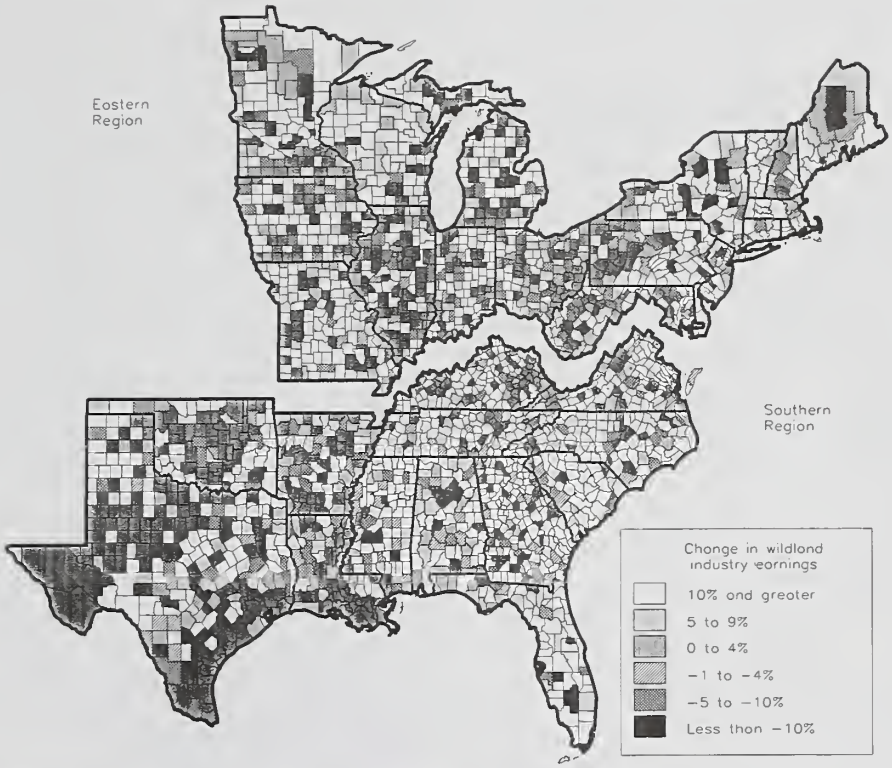

Figure 11b—Percent change in real, direct wildland industry earnings for counties from 1985 to 1990.

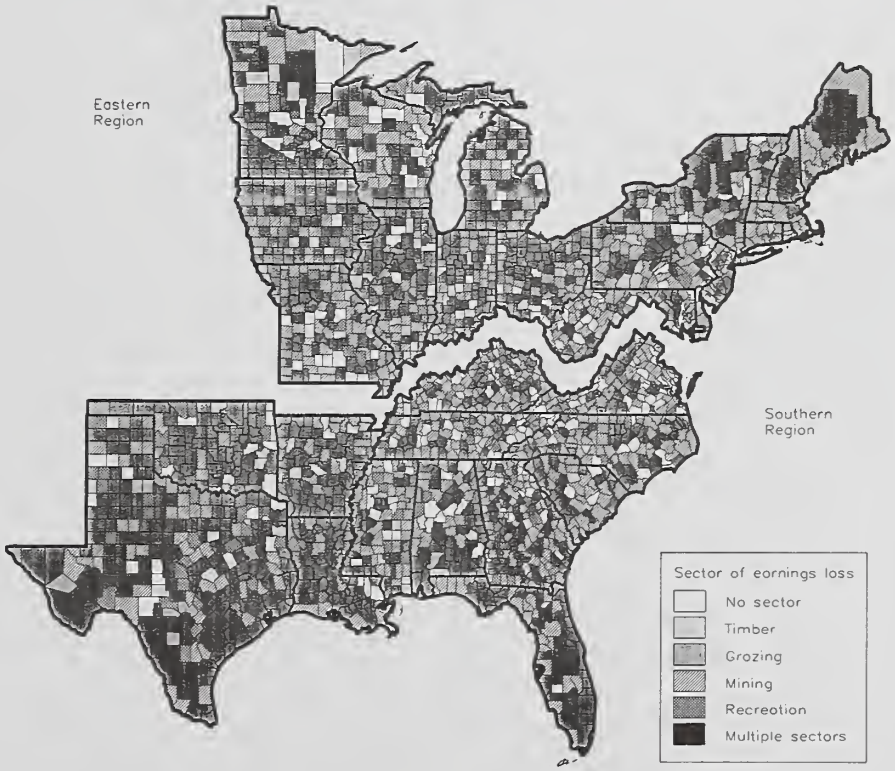

Figure 11c—Loss of real wildland industry earnings for counties from 1985 to 1990.

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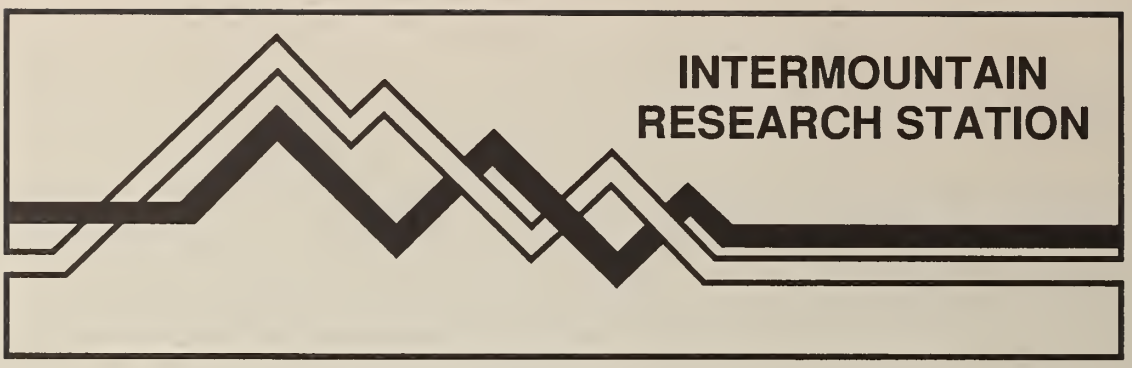

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