

**Table 2.8—Acres of land in farms in the United States by type of agricultural use and RPA region, 2007**

Type of agricultural use	North		South		Rocky Mountains		Pacific Coast		United States
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Total Acres
Cropland	143,851,909	35.4	99,549,664	24.5	140,675,207	34.6	22,348,129	5.5	406,424,909
Woodland	22,606,724	30.1	37,523,483	50.0	9,858,854	13.1	5,109,542	6.8	75,098,603
Permanent pasture and rangeland	17,257,624	4.2	127,498,795	31.2	235,401,232	57.6	28,674,465	7.0	408,832,116
Farmsteads, buildings, livestock, ponds, roads, etc.	9,724,442	30.6	9,199,658	29.0	10,208,203	32.2	2,607,909	8.2	31,740,212
Total land in farms	193,440,699	21.0	273,771,600	29.7	396,143,496	43.0	58,740,045	6.4	922,095,840

RPA = Resources Planning Act.  
 Note: Percentages sum across to 100.0.  
 Source: USDA National Agricultural Statistics Service (2007).

According to the National Resources Inventory by the U.S. Department of Agriculture, cropland acreage has declined from about 420 million acres in 1982 to 357 million acres in 2007. About half of this reduction is the result of enrollments of environmentally sensitive cropland in the Conservation Reserve Program of the U. S. Department of Agriculture.

Total land area in farms, based on the Census of Agriculture, is shown by region in table 2.8. The greatest acreage is in the Rocky Mountains, followed by the South and North regions. The Rocky Mountains region also has the greatest acreage of permanent pasture and rangeland, nearly 58 percent of the U.S. total. The North and Rocky Mountains regions each have about one third of the Nation’s cropland, and the South has about half of the Nation’s farm woodland.

Unlike cropland, virtually all (99 percent) of which is in private ownership, rangeland has a substantial presence on public lands, especially on U.S. Forest Service and Bureau of Land Management lands. Almost 61 percent of “grassland pasture and range” is privately owned, with about one-fourth on Federal lands and the remainder on other public and American Indian lands (Lubowski and others 2006). The following invited paper by Reeves describes range land uses, ownership, ecosystem services, and benefits, among other concerns.

## INVITED PAPER

### Rangelands

**Matt C. Reeves<sup>2</sup>**

Rangelands are found in many ecoregions and are characterized by a diverse suite of vegetation. Shrublands; grasslands; alpine communities; oak, mesquite, and juniper woodlands; and deserts are all examples of rangeland. In general, rangelands are relatively remote areas where potential natural vegetation is comprised principally of grasses, forbs, grass-like plants, and shrubs, which are suitable for browsing or grazing, although the presence of herbivory is not a requisite for rangeland status. Though estimates vary, rangelands occupy approximately 662 million acres in the contiguous United States when defined using the Natural Resources Inventory definition (USDA Natural Resources Conservation Service 2009) (fig. 2.8) (Reeves and Mitchell, in press).

The majority of rangelands lie west of the 95th meridian (fig. 2.8). In the contiguous United States, roughly 662 million acres of rangelands occupy approximately 50 percent of the vegetated area, with 224 million rangeland acres occurring on Federal lands (table 2.9). The Bureau of Land Management administers roughly 139 million acres, the majority of Federal rangelands (fig. 2.9). The majority of U.S. rangelands overall, however, are privately owned (table 2.9). The U.S. rangeland base is currently quite stable, though roughly 33 percent of the historic rangeland extent has been permanently modified by human influence

<sup>2</sup>Matt C. Reeves, Research Ecologist, U.S. Department of Agriculture, Forest Service, Rocky Mountains Research Station, Missoula, MT 59801.

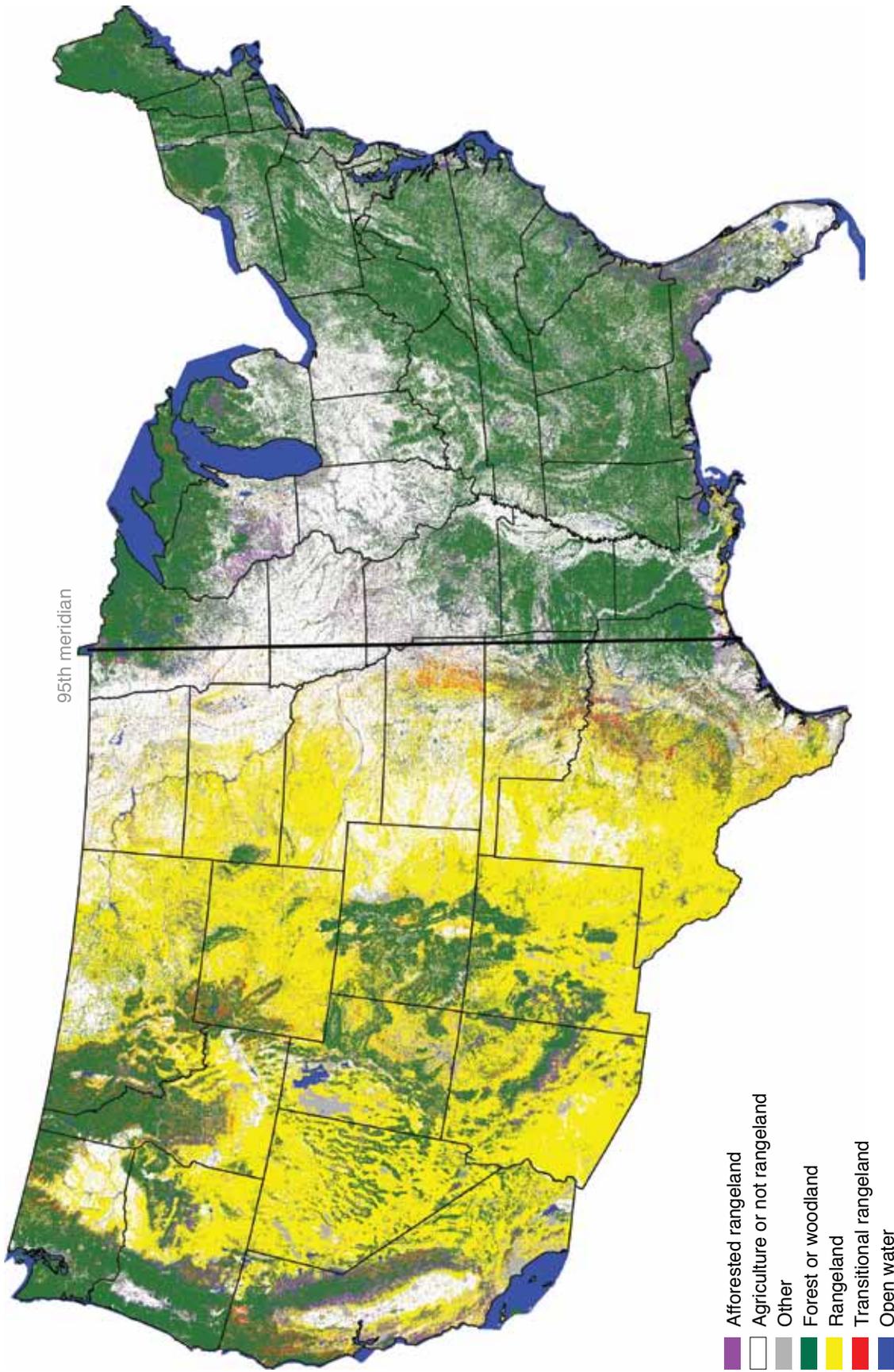


Figure 2.8—Estimated distribution of rangelands occurring in the contiguous United States (Reeves and Mitchell, in press). The estimated distribution is based on the rangeland definition used by the Natural Resources Inventory (USDA Natural Resources Conservation Service 2009).

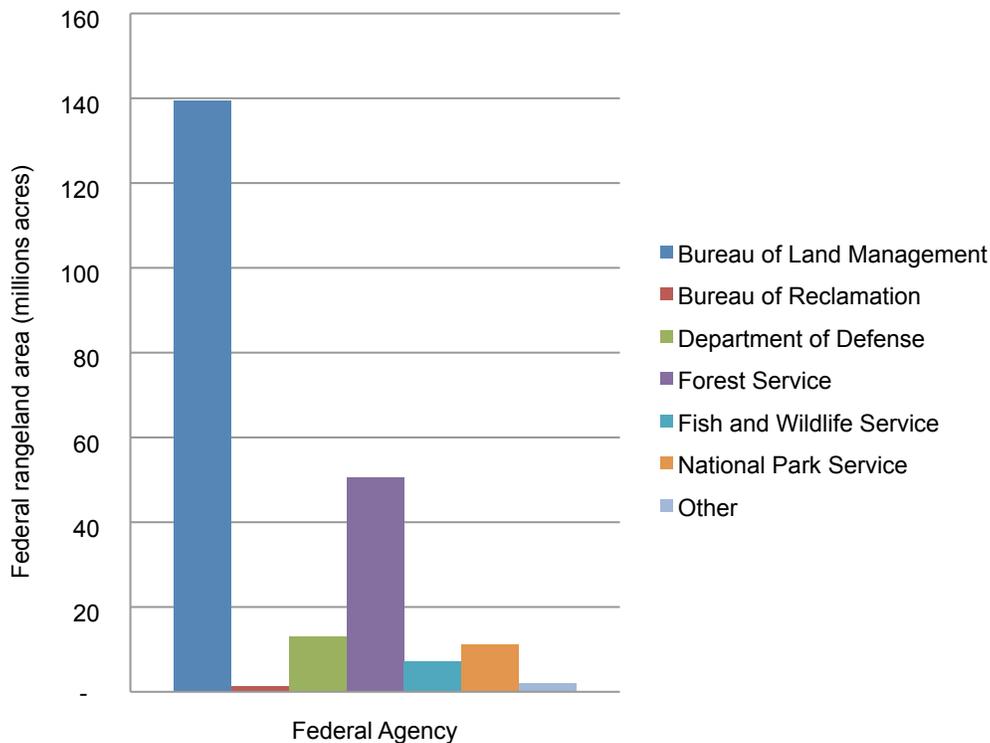


Figure 2.9—Estimated rangeland area managed by Federal agencies (Reeves and Mitchell, in press). The total area managed by Federal agencies is approximately 224 million acres. The estimated area is based on the rangeland definition used by the National Resources Inventory (USDA Natural Resources Conservation Service 2009).

(Reeves and Mitchell, in press) (fig. 2.10). Between 1982 and 2007, nearly 430,000 acres of non-Federal rangelands were lost annually to various land use changes, though the rate of loss over the last decade is less than in previous decades (USDA Natural Resources Conservation Service 2009).

Though estimates vary, rangelands occupy approximately 47 percent of the global land base, excluding Antarctica (Reeves and Mitchell, in press). These lands provide livelihood to millions of people (Papanastasis 2009) and provide a multitude of biological and social benefits. Cattle alone provide tens of billions of dollars to the world economy. In 2009 the United States generated roughly \$32 billion worth of beef cattle production. Since many beef cattle raised in the contiguous United States spend all or part of their grazing cycle on rangelands (i.e., where cattle are not dependent on feedlots or crop residues to provide sufficient daily forage intake), much of the revenue generated through sales of cattle is attributable to forage from rangelands. Though forage production is perhaps the most visible and ubiquitous rangeland resource, it is not, by any means, the only one.

Public perception and associated issues with rangelands have undergone transformation in the last decade. Chief among these changes is an increased focus on ecosystem goods and services other than those associated with the production of red meat. The recent focus on ecosystems should help

communicate the importance of not only extractable goods, but also tangible and intangible benefits from rangelands and their unique contributions to the Nation’s well-being. A comprehensive evaluation of goods and services derived from rangelands is beyond the scope of this paper. Here, only selected sets are mentioned as examples, though more complete works exist (e.g., Maczko and Hidingier 2008).

Rangelands offer significant prospects for the development of renewable energy (such as power generated from wind and solar sources) in addition to recreational opportunities, seeds and plant materials, and carbon sequestration. The juxtaposition and aridity of many rangelands enable reasonably consistent power generation potential. In addition, the remoteness, abundance of open space, and natural beauty of rangelands make them prime candidates for recreational activities such as hiking, bird watching, and hunting. A more recently recognized service is the ability of rangelands to sequester carbon. Even though rangelands store and process far less carbon than forests (Negra and others 2008), nonetheless, they cumulatively have the potential to sequester a significant quantity of carbon because of their broad expanse. In addition, rangelands contain approximately 10 percent of terrestrial biomass and 10 to 30 percent of soil organic carbon (Schlesinger 1997, Scurlock and Hall 1998). Finally, the value of all goods and services derived from rangelands is not easily quantified. Despite this fact,

**Table 2.9—Estimated area of rangelands in the contiguous United States under Federal and non-Federal jurisdictions**

State and RPA Assessment Region	Rangeland area	Vegetated area <sup>a</sup>	Federal rangeland area	Proportion of vegetated land that is rangeland
	----- acres -----			percent
California	52,133,586	82,224,879	28,693,031	63
Oregon	27,374,132	54,309,410	16,152,613	50
Washington	9,620,070	32,447,736	1,966,833	30
Pacific Northwest total	89,127,788	168,982,025	46,812,477	53
Nevada	58,515,548	67,016,472	19,357,393	87
Arizona	57,110,317	69,509,330	24,435,602	82
New Mexico	55,754,605	74,455,901	48,364,457	75
Montana	47,850,531	74,044,430	9,902,821	65
Wyoming	46,267,568	59,056,765	20,727,210	78
Colorado	31,223,942	53,140,886	8,610,193	59
Nebraska	28,506,430	28,922,685	18,942,567	99
Utah	27,971,126	44,062,149	655,626	63
South Dakota	26,547,944	28,282,097	2,574,907	94
Idaho	23,414,143	44,713,552	16,116,770	52
Kansas	18,605,013	22,400,674	278,596	83
North Dakota	14,623,902	15,166,814	2,164,985	96
Rocky Mountains total	436,391,069	580,771,755	172,131,127	75
Minnesota	3,491,414	24,782,883	78,043	14
Wisconsin	3,431,506	19,063,093	207,035	18
Missouri	3,177,941	18,410,205	80,054	17
Iowa	1,602,247	3,952,303	11,454	41
Illinois	1,264,260	6,332,458	32,286	20
North total	12,967,368	72,540,942	408,872	18
Texas	90,805,931	125,375,997	1,930,404	72
Oklahoma	15,601,518	28,030,408	531,361	56
Florida	6,707,664	22,890,659	1,001,674	29
Louisiana	3,172,729	18,567,372	204,482	17
Georgia	1,348,008	26,579,024	130,189	5
South Carolina	1,321,778	14,112,990	162,904	9
North Carolina	1,317,001	20,690,943	161,548	6
South total	120,274,629	256,247,393	4,122,562	51
U.S. total	662,337,819	1,318,358,448	224,115,815	50

RPA = Resources Planning Act.

<sup>a</sup>Vegetated estimates include all land cover types except agriculture. Some States are missing, especially in the North and South Assessment regions, because they contain < 1 million acres of rangeland. U.S. totals given represent all area in all States, and is not limited to those States listed here.

Note: Rangeland area is expressed as a proportion of vegetated land that is classified as rangeland (Reeves and Mitchell, in press).

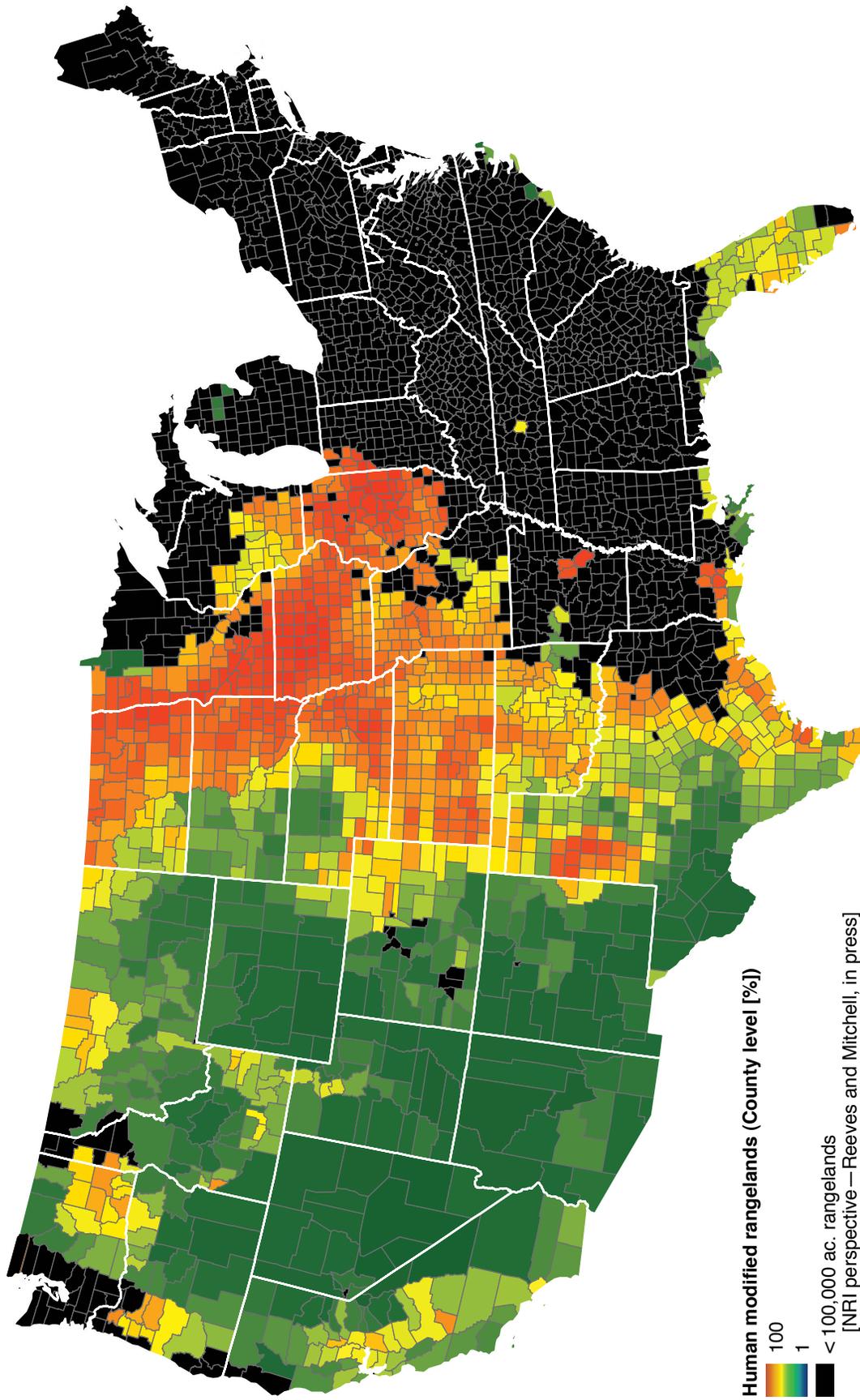


Figure 2.10—Estimated area of human modified rangeland expressed as a percent of historic rangeland area for the conterminous United States. This analysis is based on unpublished data.

rangelands are a unique and valuable land type critical for the maintenance of ecological function and economic sustainability of the United States.

**End Invited Paper**

**Forest Lands**

The Forest Inventory and Analysis (FIA) Program of the Forest Service, U.S. Department of Agriculture, defines forest land as "...land at least 120 feet wide and 1 acre in size with at least 10 percent cover by live trees of any size" (Smith and others 2009). According to FIA program estimates, just over 33 percent of the Nation's land area, about 751 million acres, is in forest cover meeting this definition. While about 300 million acres less than it was before European settlement in the early 1600s, the size of the Nation's forest cover has been relatively stable for the last 100 years. The proportion of land in forest cover is for about the same among the North (42 percent), South (40 percent), and Pacific Coast regions (without Alaska) (42 percent). With Alaska included, forest cover in the Pacific Coast region is somewhat less than the other regions, at 37 percent. The Rocky Mountains (20 percent) has about half as much forest land cover as the other three regions. The four Great Plains States of Kansas, Nebraska,

South Dakota, and North Dakota have just under 3 percent of total land area in forest.

Almost 44 percent of the current U.S. forest land area is publicly owned (Federal, State, local), over 18 percent is owned by private corporations, and almost 38 percent is privately owned by non-corporate entities (fig. 2.11) (Smith and others 2009). Of the non-corporate private forest land, over 92 percent is family or individually owned.

The national distribution of forest lands shows that eastern forests are predominantly in private ownership, while western forests are predominantly public (fig. 2.12). Industrial forests are concentrated in Maine, the Lake States, the lower South, and the Pacific Northwest regions.

Private forest lands include forest-industry lands, other corporation forest lands, individual and family lands, and other non-corporation private lands. Over half of the forest industry forests are in the South. Large portions of corporation lands not owned by the forest industry are located in the Pacific Coast and South regions. Almost half of the family and individually owned private forest land is in the South region; nearly 36 percent is in the North region. The National Woodland Ownership Survey estimated that about 54 percent of family forest land was open only to family or friends for recreational uses (Butler 2008).

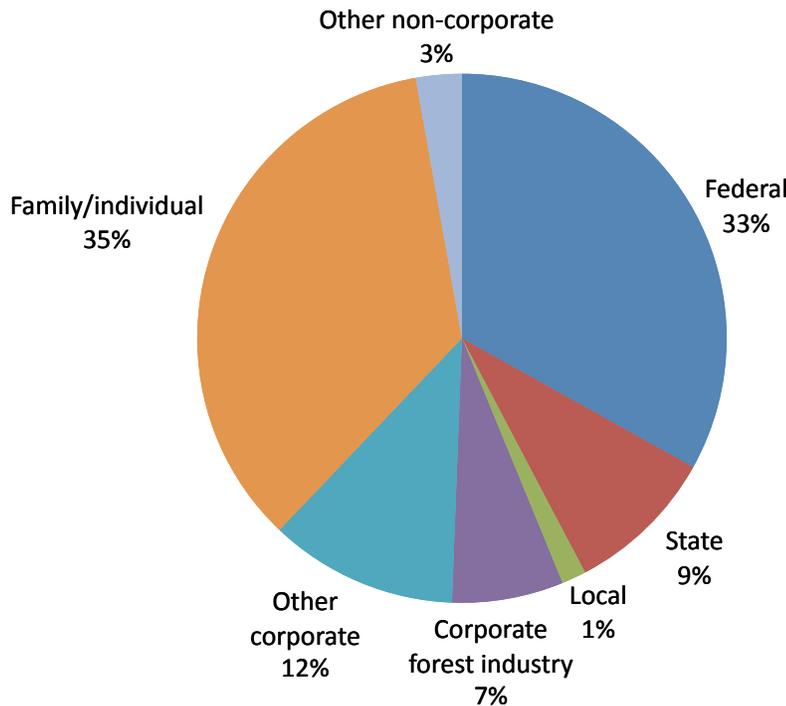


Figure 2.11—Percent of forest land in the United States by ownership, 2007 (1000s of acres, percentages sum to 100s). (Reproduced from 2010 United States Sustainable Forest Management Report.)