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# Major Uses of Land in the United States, 2002

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## Abstract

This publication presents the results of the latest (2002) inventory of U.S. major land uses, drawing on data from the Census, public land management and conservation agencies, and other sources. The data are synthesized by State to calculate the use of several broad classes and subclasses of agricultural and nonagricultural land over time. The United States has a total land area of nearly 2.3 billion acres. Major uses in 2002 were forest-use land, 651 million acres (28.8 percent); grassland pasture and range land, 587 million acres (25.9 percent); cropland, 442 million acres (19.5 percent); special uses (primarily parks and wildlife areas), 297 million acres (13.1 percent); miscellaneous other uses, 228 million acres (10.1 percent); and urban land, 60 million acres (2.6 percent). National and regional trends in land use are discussed in comparison with earlier major land-use estimates.

**Keywords:** Land use, land-use change, agricultural land, nonagricultural land, cropland, forest-use land, forestland, pasture, rangeland, rural residential land, special uses, urban land

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Historical data are available online as part of the ERS Major Land Uses data series at <http://www.ers.usda.gov/data/majorlanduses/>. Included are major land-use estimates by State (1945-2002), and the annual national-level series of cropland used for crops and its components (1910-2005).

Summary tables for 2002 are available online at <http://www.ers.usda.gov/data/majorlanduses/>. These include data by region and State for major uses of land, major uses of cropland, pasture and range, special-use areas by category, forest land by major class, urban area, and irrigated land in farms.

## Preface

The U.S. Department of Agriculture's Economic Research Service (ERS) has served as a source of major land-use estimates in the United States for over 50 years. The major land-use series is the only consistent accounting of all major uses of land in the United States, public and private. Francis Marschner made some of the earliest contributions by reporting land use from 1922 through 1940 in the Atlas of American Agriculture when he was with ERS's predecessor agency, the Bureau of Agricultural Economics. A consistent series was started in 1945, and has since been published at intervals coinciding with the Census of Agriculture. Marschner was also involved in the 1945 inventory (Reuss et al., 1948). The annual cropland portion of the series has been consistently maintained since 1910.

To ensure comparability with earlier estimates in the series, a standardized set of procedures is used (Barnard and Hexem, 1988). Even so, comparability was sometimes hindered by changes in the characteristics of data available over time. This is inevitable because the estimates are not drawn from a single survey but derived by reconciliation of several data sources.

Economic analyses often require consistent acreage estimates of land use. Prior to 1945, area estimates of major land uses were not consistently available for all States and all major uses of land. Various agencies had data on land use that differed widely in definition, collection criteria, and acreage. No single agency provided all land uses that would sum to the total land in the United States. For example, the Forest Service had data on forestland while the Bureau of Land Management provided public grazing land acreage. The Census of Agriculture collected information on cropland and rangeland, but only if it was included in "land in farms," missing agricultural land not in farms. Various other Federal and State agencies provided data on parks, fish and wildlife areas, roads, railroads, defense installations, and other categories.

Data availability has continued to improve due to new data collection efforts and advances in technology, such as satellite imaging and Geographic Information Systems. The U.S. Geological Survey produced a satellite-based National Land Cover Database (NLCD), which covers the 48 contiguous States for 1992, and is compiling an update for 2001, including all 50 States and Puerto Rico. These data offer comprehensive coverage and unparalleled detail on the distribution and pattern of land uses, as well as aggregate acreage statistics. Satellite data, however, are limited in their ability to provide information on certain land uses as opposed to land covers. For example, NLCD cannot distinguish between grazed or ungrazed forests.

USDA's Natural Resources Conservation Service also publishes the National Resources Inventory (NRI), a successor to the Conservation Needs Inventory. The NRI includes agricultural land not covered by the Census of Agriculture. However, the NRI does not cover Federal land, which accounts for about 28 percent of total U.S. land area. Also, the NRI concentrates on the 48 contiguous States and Hawaii, omitting Alaska's 365 million acres (16 percent of the total U.S. area). ERS remains the only source of consistent major land-use estimates for all 50 States.

## Summary

The ERS Major Land Uses (MLU) series is the only accounting of all major uses of land, both public and private, in all 50 States. A consistent series of estimates by State was started in 1945, and has since been published at roughly 5-year intervals coinciding with the Censuses of Agriculture. National-level cropland estimates have been reported annually since 1910.

### What Is the Issue?

Land-use changes have important economic and environmental implications for commodity production and trade, open space, soil and water conservation, and other policy issues. A first step in the study of land-use change is developing statistics on land use over time. This publication presents the results of the latest inventory (2002) of U.S. major land uses.

### What Did the Study Find?

The most consistent trends in major uses of land (1945-2002) have been a growth in special-use and urban areas and a decline in total grazing lands. Forest-use land has generally declined since the 1940s, but increased 2 percent from 1997 to 2002. Total cropland area dipped about 2 percent from 1945 to 2002, but has cycled upwards and downwards twice over this period. Between 1997 and 2002, total cropland area reached a new 57-year low, continuing a downward trend since 1978.

**Land area.** The United States' land area totals nearly 2.3 billion acres. Land used for all agricultural purposes accounted for 52 percent of total U.S. land, while total grazing area (grassland pasture and range, cropland pasture, and grazed forests) comprised 35 percent of the total and two-thirds of all agricultural land. Major land uses in 2002 were forest-use land, 651 million acres (28.8 percent of the total); grassland pasture and range, 587 million acres (25.9 percent); cropland, 442 million acres (19.5 percent); special uses, 297 million acres (13.1 percent); miscellaneous other uses, 228 million acres (10.1 percent); and urban land, 60 million (2.6 percent). Within the nonurban land-use categories, about 94 million acres (4.2 percent of total U.S. land) were estimated to be rural residential area.

**Cropland.** Total cropland includes land planted for crops, cropland used for pasture, and cropland idled, including acreage removed from production under government programs such as the Conservation Reserve Program. Total cropland increased in the late 1940s, declined from 1949 to 1964, increased from 1964 to 1978, and decreased again (about 6 percent) from 1978 to 2002. Between 1997 and 2002, total cropland decreased by 14 million acres (3 percent) to its lowest level since 1945.

**Grassland pasture and range.** Estimated acreage of grassland pasture and range increased by almost 7 million acres (1 percent) from 1997 to 2002. However, total grazing land acreage (grassland pasture and range, cropland pasture, and grazed forests) decreased from 1997 to 2002, continuing a decline since the 1940s.

**Forest-use land.** Forest-use land includes 134 million acres of grazed forests, but excludes 98 million forest acres that were estimated to be in parks, wildlife areas, and other special uses in 2002. Forest-use land increased 10 million acres (2 percent) from 1997 to 2002, reversing a downward trend since the 1940s. The 14-percent decline in forest-use land between 1949 and 2002 was largely due to reclassification of forested land from forest-use to special-use areas.

**Urban and rural residential areas.** Urban land area quadrupled from 1945 to 2002, increasing at about twice the rate of population growth over this period. After adjusting earlier estimates for new criteria used in the 2000 Census, urban area increased by 13 percent between 1990 and 2002. Census estimates based on the previous criteria indicate that urban area increased 9 million acres (18 percent) over the 1980s, 13 million acres (37 percent) over the 1970s, and 9 million acres (36 percent) over the 1960s. Estimated acreage of rural land used for residential purposes increased by 21 million acres (29 percent) from 1997 to 2002, and by 17 million acres (30 percent) from 1980 to 1997.

**Special uses.** Special-use areas (rural transportation uses, national and State parks, wilderness and wildlife areas, national defense and industrial areas, and farmsteads and farm roads) increased 11 million acres (4 percent) from 1997 to 2002. Special-use land has more than doubled in the 48 contiguous States from 100 million acres in 1945 to 212 million acres in 2002. Some of the estimated rise in special-use areas from 1997 to 2002 was driven by improved data, leading to a reclassification of miscellaneous and other land, which declined by 7 million acres (3 percent) over this period.

**Regional patterns.** Regional land-use patterns vary with differences in soil, climate, topography, and population. Stable patterns of land use at the national level can obscure larger changes in land use at regional and State levels. While cropland used for crops increased just 5 million acres (1 percent) nationally from 1964 to 2002, cropland used for crops in the Northeast, Southeast, Northern and Southern Plains, Mountain, and Pacific regions declined by 12 million acres (6 percent). It increased 17 million acres (13 percent) in the remaining regions.

**Ownership.** Over 60 percent (1,378 million acres) of U.S. land is privately owned. The Federal Government owns nearly 28 percent (635 million acres), over a third of which is in Alaska. State and local governments own about 9 percent (195 million acres). Over 2 percent (56 million acres) is in trust by the Bureau of Indian Affairs. There were no major changes in these aggregate ownership patterns from 1997 to 2002.

## How Was the Study Conducted?

Data from the U.S. Census Bureau, public land management agencies, and other sources were assembled and synthesized by State to calculate the use of several broad classes and subclasses of agricultural and nonagricultural land in 2002. A standardized set of procedures was used to maintain comparability with earlier estimates.