

# The State of the Nation's Ecosystems: Annual Update 2003

## Summary of Changes in Data Availability and Ecosystem Use and Condition

*Annual Update 2003* is a Web-only revision to *The State of the Nation's Ecosystems*, which was originally published in 2002. *Update 2003* provides updated or new data for 26 indicators, as summarized in the table below.

For each indicator, this table:

- describes how and from where the new data were obtained;
- summarizes the changes in reported ecosystem condition and use;
- provides the page number for the original indicator in the 2002 *State of the Nation's Ecosystems* report.

This table can be accessed via the following link: [www.heinzctr.org/ecosystems/intro/updates.shtml](http://www.heinzctr.org/ecosystems/intro/updates.shtml), which also provides access to the updated indicator pages in the *State of the Nation's Ecosystems* web site.

CORE NATIONAL INDICATORS	
<p>Ecosystem Extent (p. 40)</p> <p><i>see also</i> Forest Area and Ownership</p>	<p>The <i>USDA Forest Service</i> provided draft data on forest area and ownership for 2002 from its ongoing <i>Forest Inventory and Analysis</i> program.</p> <p>The area of forests, which cover about one-third of the total land area of the United States, has been nearly stable since the 1950s. The new data show little change from 1997 to 2002: an increase of about 2 million acres (about 0.5%). All of the increase in forested area occurred in the continental Western United States, and most of the increase was on public lands.</p>
<p>Movement of Nitrogen (p. 46)</p>	<p>The <i>U.S. Geological Survey</i> provided several years of new data for the Mississippi and Columbia rivers as well as revised estimates for earlier years that were presented in the 2002 report. Some of these revised estimates differ considerably from the previous estimates.</p> <p>The amount of nitrate carried by most major U.S. rivers is much higher than it was in the 1950s. This increase is most striking for the Mississippi, which drains more than 40% of the land area of the lower 48 states, and which carries about twice as much nitrate today as it did in the 1950s. The amount of nitrate carried by the Mississippi peaked in 1983 and has fluctuated substantially through 2003. The primary difference between the old and new data is that the new data show that the 1983 peak for the Mississippi River was higher than previously reported.</p>

CORE NATIONAL INDICATORS (continued)	
<p>Chemical Contaminants (p. 48)</p> <p><i>see also</i> Contamination in Coastal Sediments</p>	<p>The <i>Environmental Protection Agency</i> provided new data on sediment contamination in estuaries for 1999–2000. This included data for several major regions of the country that were not available previously, making it possible to report for the first time on all estuaries in the continental United States.</p> <p>During 1999–2000, more than 98% of estuary sediments in the continental United States had detectable levels of five or more contaminants. Forty-two percent of estuary sediments had contaminant levels that exceeded the guideline for “possible adverse effects” on aquatic life for one or more contaminants, and about 7% had levels that exceeded the guideline for “probable adverse effects.”</p>
<p>Plant Growth Index (p. 56)</p>	<p>The <i>U.S. Geological Survey</i> provided new data for 2001 and 2002 and revised data, reflecting improved methods for interpreting satellite data, for the 1989–2000.</p> <p>During 2002, the plant growth index nationwide was lower than the 13-year average. The index was somewhat above the 13-year average in the Northeast/ Midwest, about average in the Pacific states and the Southeast, and below average in all other regions. Since 1989, year-to-year variability in the plant growth index has been high nationally, within all six regions of the United States, and for all six ecosystem types described in <i>The State of the Nation's Ecosystems</i>. Thus, the values for 2002 are consistent with year-to-year fluctuation rather than a trend in the 13-year data series.</p>
<p>Production of Food and Fiber and Water Withdrawals (p. 58)</p>	<p>The <i>USDA Economic Research Service</i> provided new data on total agricultural output for 1997–1999 (see “Agricultural Inputs and Outputs”); the <i>National Marine Fisheries Service</i> provided new fish landings data for 2000–2002 (see “Commercial Fish and Shellfish Landings”); the <i>USDA Forest Service</i> provided new data on timber harvest for 2001 (see “Timber Harvest”), and the <i>U.S. Census Bureau</i> released new data on the U.S. population.</p> <p>These new data sets, in general, have not altered existing trends: U.S. population continues to grow; timber harvest continued its decline from the mid-1980s peak, agricultural production continued to grow, and fish landings were stable at a level below the mid-1990s peak.</p>
<p>Outdoor Recreation (p. 60)</p> <p><i>See also</i> Recreation in Forests</p>	<p>The <i>USDA Forest Service</i> released first-time data on recreation in forest settings in 2001 as part of the National Report on Sustainable Forests. New data for 2001 for a wide range of outdoor recreational activities for the nation as a whole were also provided. Data are not available to report on recreation in ecosystem settings other than forests.</p>

Outdoor Recreation ( <i>continued</i> )	Walking and nature viewing are the most popular outdoor recreational activities for which data are available, accounting for about two-thirds of all outdoor activities in 1995 and 2001. New forest data for 2001 conform to this pattern. In 2001, Americans walked outdoors or went bird-watching or took part in other nature-viewing activities nearly 30 billion times—13 billion of which were in forest settings. Hiking, climbing, outdoor picnics, and fishing continue to be quite popular.
<b>COASTS AND OCEANS</b>	
Contamination in Coastal Sediments (p. 72)	See the entry above for Chemical Contaminants (Core National Indicator).
Condition of Bottom-Dwelling Animals In Estuaries (p. 79)	<p>The <i>Environmental Protection Agency</i> provided new data for 1999–2000 for those regions covered in the 2002 report and expanded the area for which data are provided to cover all estuaries in the lower 48 states and Puerto Rico.</p> <p>During 1999–2000, about three-fourths of the area of estuaries on the Atlantic and Pacific coasts had bottom-dwelling animal communities that were <i>undegraded</i> (compared to a relatively undisturbed reference site), as did about half of the estuary area on the Gulf Coast and one-third of the estuary area of Puerto Rico. <i>Degraded</i> conditions were found in about a quarter of the North and Mid-Atlantic estuary area and a third of estuary area in Puerto Rico; the percentage of degraded area was lower than this in all other regions. For regions where conditions are known for both the earlier and more recent periods, changes were not dramatic.</p>
Commercial Fish and Shellfish Landings (p. 81)	<p>The <i>National Marine Fisheries Service</i> has provided new data for 2000–2002 from their ongoing fisheries statistics program.</p> <p>The amount of fish and shellfish taken from U.S. waters has averaged nearly 5 million tons each year since the late 1970s; landings since 1994 have been lower, with the most recent figures ranging from 4.5 to 4.7 million tons per year, about the same as in the early 1980s.</p>
<b>FARMLANDS</b>	
Total Cropland (p. 91)	<p>In 2003, the <i>USDA Natural Resources Conservation Service</i> released its 2001 National Resources Inventory (NRI), which provides new data on cropland area.</p> <p>According to several major monitoring efforts, the area of croplands, which cover about one quarter of the land area of the lower 48 states, has been declining since the late 1970s or early 1980s. The new NRI data indicate that this downward trend continued from 1997 through 2001, with a further loss of about 9 million acres (or about 2%). Of the three programs reporting cropland trends, the NRI program has consistently estimated the highest acreage of cropland as well as the fastest rate of decline in recent years.</p>

<b>FARMLANDS, <i>continued</i></b>	
Major Crop Yields (p. 106)	<p>The <i>USDA National Agricultural Statistics Service</i> released new yield data for 2001 and 2002 from their ongoing data collection program.</p> <p>Yields of major crops (quantities grown per acre) have increased dramatically over the past 50 years. Yields of corn, wheat, and cotton more than doubled, with corn increasing nearly fourfold. Soybean and hay yields nearly doubled. New data for 2001 and 2002 appear consistent with these trends.</p>
Agricultural Inputs and Outputs (p. 107)	<p>The <i>USDA Economic Research Service</i> provided new data for 1997–1999 and a slightly revised data set for years prior to 1997.</p> <p>The output of U.S. agriculture has been increasing steadily since 1950, with total output growing by more than 60% since 1975. At the same time, farmers have used fewer inputs of energy, labor, durable goods (tractors, etc.), fertilizer, and land; since 1975, these inputs have declined by between 40 and 60%. The amount of pesticides used has increased since the 1950s, but it has remained at about the same level—about 40% over 1975 levels—since 1978. Newly released data show a continuation of these trends.</p>
Monetary Value of Agricultural Production (p. 108)	<p>The <i>USDA Economic Research Service</i> released new data on the dollar value of crops and livestock for 2001–2002 and the <i>Bureau of Economic Analysis (Department of Commerce)</i> released new county-level data on agricultural sales in 2001. In addition, the 2002 report’s incorrect identification of the years and amounts of lowest and highest production was corrected.</p> <p>Since the 1950s, the money received by farmers for their goods has fluctuated—with a low of about \$150 billion in 1957 and a high of about \$280 billion in 1973. (These data are in constant dollars and do not include agricultural income support or other government payments.) Amounts received by farmers overall were between 5% and 10% lower in 1999–2002 (about \$190–\$199 billion) than the average for the previous 20 years.</p>
<b>FORESTS</b>	
Forest Area and Ownership (p. 117)	See the entry above for Ecosystem Extent (Core National Indicator).
Forest Types (p. 118)	The <i>USDA Forest Service</i> has provided draft 2002 data on the area occupied by various forest types from its ongoing <i>Forest Inventory and Analysis</i> program. An improved method was also used to analyze trends.

<p>Forest Types (continued)</p>	<p>Several forest types described in the 2002 report as <i>increasing</i> or <i>decreasing</i> in area in fact showed no significant trend from 1963 to 2002; these include loblolly-shortleaf pine in the East and Douglas fir in the West. Of eastern forest types with significant trends, maple-beech-birch increased by an average of nearly 2% per year since 1963, and longleaf-slash pine declined by about 1% per year. In the West, the fir-spruce type increased an average of about 1% per year and hemlock-sitka spruce declined by about 1% per year.</p>
<p>Forest Management Categories (p. 119)</p>	<p>The USDA Forest Service has provided draft 2002 data on forest management from its ongoing <i>Forest Inventory and Analysis</i> program.</p> <p>In 2002, 18% of western and 3% of eastern forests were in federal wilderness areas and national parks (<i>reserved</i> forests), while 4% of western and 11% of eastern timberlands were replanted with seedlings in anticipation of future harvests (planted timberland). Nationwide, planted timberlands increased more than tenfold since 1953 (to about 46 million acres); acreage continued to increase in 1997–2002 but at a slower rate than in previous periods. In the U.S. outside Alaska, reserved lands have nearly doubled since 1953 (to about 44 million acres), and this growth continued in 1997–2002. Both planted and reserved lands grew at an average of about 1% per year in 1997–2002. Data for Alaska are difficult to interpret because of changes in classification methods.</p>
<p>Carbon Storage in Forests (p. 123)</p>	<p>The <i>USDA Forest Service</i> provided new data on carbon storage for 1997 and revised data for earlier years.</p> <p>The total amount of carbon stored in living trees and larger roots in the nation’s forests increased by over 90% from 1953 to 1997, with most of the increase in eastern forests. The most recent data show a continuation of past trends. Differences between the new estimates and those presented in the 2002 report are quite small.</p>
<p>Forest Age (p. 126)</p>	<p>The USDA Forest Service provided draft 2002 data on forest age from its ongoing <i>Forest Inventory and Analysis</i> program.</p> <p>In 2002, about two-thirds of eastern timberlands, where most of the nation’s timber products are produced, were less than 60 years old, and about 90% were less than 100 years old. Most of the nation’s older tree stands were in the West, where just over one-third of timberlands were more than 100 years old, with the remainder split roughly evenly between stands between 60 and 100 years old and those less than 60 years old. These data have changed very little since 1997, the first year such data were available. (Note that these data are limited to <i>timberlands</i>, a Forest Service classification that relies on both legal and biological criteria.)</p>

<b>FORESTS (continued)</b>	
Forest Disturbance: Fire, Insects, and Disease (p. 127)	<p>The USDA Forest Service has provided draft 2002 data on acreage affected by insects, diseases, and fire from its ongoing <i>Forest Health Protection</i> program.</p> <p>Over the past 20 years, an average of less than 5 million acres per year were burned by wildfire; this is far less than in the first half of the 20th century, when fires regularly burned more than 20 million acres, and in several years damage exceeded 50 million acres. Fire acreage in 2001 was about 4 million acres and in 2002, about 7 million acres. Over the past several decades, the area of forests damaged by insects has declined from a peak of over 40 million acres in 1986, with dramatic year-to-year variations. Current levels of damage are less than half this amount, but the 15-16 million acres affected in 2000–2002 was about twice the amount affected in the three preceding years. The amount of forest land affected by diseases has held roughly constant, ranging between 42 and 44 million acres since 1997.</p>
Timber Harvest (p. 130)	<p>The <i>USDA Forest Service</i> provided draft data on timber harvest for 2001 from its ongoing <i>Forest Inventory and Analysis</i> program.</p> <p>From a peak in 1986, timber harvest nationwide continued an apparent decline through 2001. Reductions in harvest occurred in both eastern and western forests, although there appeared to be a slowing of the rate of decline in western forests.</p>
Timber Growth and Harvest (p. 131)	<p>The <i>USDA Forest Service</i> provided draft data on timber growth and harvest for 2001 from its ongoing <i>Forest Inventory and Analysis</i> program.</p> <p>In recent years, growth has been higher on public and private forests in the East and West than it was in the 1950s, although growth has more or less leveled off since the mid-1970s. Harvest levels nationally are lower than the peak in 1986; in the East, harvests continued to rise through 1996, then leveled off. Harvests in the West declined from 1986 to 1996, and have leveled off as well.</p>
Recreation in Forests (p. 132)	See the entry above for Outdoor Recreation (Core National Indicator)

<b>FRESH WATERS</b>	
Waterborne Human Disease Outbreaks (p. 152)	<p>The <i>Centers for Disease Control and Prevention</i> released new data for 1999–2000 as part of its ongoing data collection program. In addition, slightly revised data were obtained for 1997–1998.</p> <p>Waterborne disease outbreaks vary from year to year. Overall, outbreaks associated with drinking water have declined since the 1970s and early 1980s, when it was common to have more than 20 reported outbreaks per year. Recent levels have been lower, although figures for 1999 and 2000 were higher than for any year since 1992. Outbreaks associated with recreational contact, which were historically less common than those associated with drinking water have continued to increase since the 1980s; in recent years both types have been about equally common.</p>
<b>GRASSLANDS AND SHRUBLANDS</b>	
Grassland and Shrubland Land Use (p. 162)	<p>The <i>USDA Farm Service Agency</i> provided new data for 2002 on the acreage of grasslands and shrublands (excluding pastures) enrolled in the Conservation Reserve Program (CRP).</p> <p>CRP acreage has fluctuated between about 33 million acres in 1994 and 1995 and 26 million acres in 1999. During 2002, 29.5 million acres were enrolled—an amount that is essentially unchanged from 2001.</p>
Production of Cattle on Grasslands and Shrublands (p. 173)	<p>The <i>USDA National Agricultural Statistics Service</i> provided new data for the number of cattle on grasslands and shrublands for 2002 and a slightly revised value for 2001.</p> <p>The number of cattle grazed on grasslands and shrublands has declined from 100 million in 1994 to about 93 million in 2002, essentially unchanged from 2001. This decline may be part of a cycle of fluctuations that has been observed since the 1880s.</p>
<b>URBAN AND SUBURBAN AREAS</b>	
Urban and Suburban Air Quality (p. 118)	<p>The <i>Environmental Protection Agency</i> provided new data on urban air quality for 2000–2002 and slightly revised data for some earlier years.</p> <p>In 2002, 54% of monitoring stations in urban/suburban areas recorded high ozone levels on 4 or more days. Since 1990, this value has fluctuated around an average of about 45%. The percentage of stations recording 25 or more days with high levels has decreased since 1990, a trend that has continued with the addition of recent data showing that there were about 5% of such stations in 2002.</p>