

Indicator 6.27. Revenue From Forest-Based Environmental Services

What is the indicator and why is it important?

Although many studies estimate the value of environmental services to society, this indicator focuses on how much society is actually paying landowners for those services. These payments represent the financial incentives landowners actually face in managing their lands to enhance environmental services. Therefore, tracking the actual payments to landowners is essential for designing effective policies for environmental service production, improving forest policy and management decisionmaking, and for assessing the overall contribution of forests to economies and well-being. Note, however, that the results presented here are simply a measure of the amount of revenues landowners actually receive for producing environmental services rather than a measure of underlying values.

What does the indicator show?

The results presented here reflect incentive payments from Federal and State agencies, payments by developers to private wetland mitigation and conservation banks, sales of carbon offsets produced on U.S. forest lands in the voluntary carbon market, purchases of conservation easements by nongovernmental organizations, and payments for leases and entrance fees to hunt and view wildlife on private forest lands. Data were not available for Federal, State, and local tax incentives; water quality trading and watershed source protection; price premiums paid by consumers for sustainable harvested timber and wood products; and incentive payments by forest industry or forest professional associations. Therefore, these results should be considered a lower bound.

Payments for forest-based ecosystem services to U.S. landowners from all sources for which data are available totaled \$1.9 billion in 2007, with private sources accounting for \$1.5 billion (81 percent) and government agencies providing \$366 million

Table 27-1. Total payments for environmental services by source (in thousands of constant 2005 dollars).

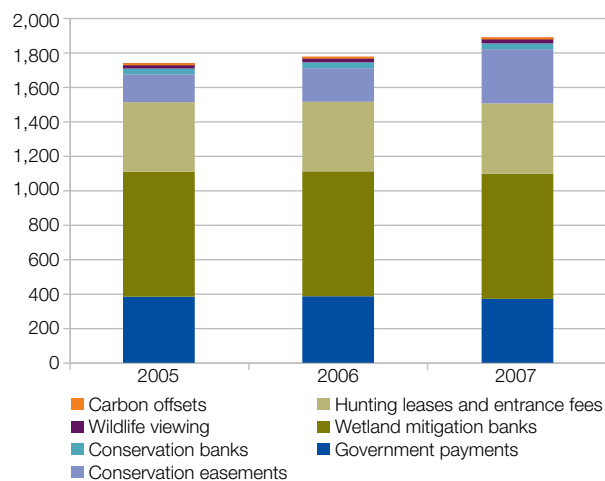
| Payor | 2005 | 2006 | 2007 |
|----------------------------------|-------|-------|-------|
| Government payments | 378 | 381 | 366 |
| Wetland mitigation banks | 727 | 727 | 727 |
| Hunting leases and entrance fees | 405 | 405 | 410 |
| Conservation easements | 162 | 195 | 315 |
| Conservation banks | 34 | 34 | 34 |
| Wildlife viewing | 31 | 32 | 34 |
| Carbon offsets | 0.6 | 1.6 | 1.7 |
| | 1,737 | 1,775 | 1,887 |

(19 percent) (table 27-1). In 2007, sales of forest wetland mitigation credits amounted to \$727 million, conservation bank credits were \$34 million, sales of carbon offsets were \$1.7 million, conservation easements were \$315 million, hunting leases and entrance fees were \$410 million, and wildlife viewing entrance fees were \$34 million. Wetland mitigation accounted for the largest percentage of forest-based ecosystem service payments, with 39 percent of all payments in 2007. These payments were received by only about 173 private forest mitigation banks, however, accounting for only a miniscule proportion of all private forest landowners in the United States. Hunting leases and entrance fees represented about 22 percent of all payments, conservation easements were 17 percent, wildlife viewing and conservation banks each accounted for 1.8 percent, and carbon offsets were 0.001 percent of all forest-based payments for environmental services in 2007.

What has changed since 2003?

This indicator is new for 2008 and, therefore, was not reported in 2003. We, however, report changes in payments for environmental services from 2005 to 2007. Figure 27-1 shows the change in payments made to landowners by category from 2005 to 2007. Available data for wetlands mitigation and conservation banking did not allow calculation of annual changes; average values were used for all 3 years. Government payments increased from \$378 million in 2005 to \$380 million in 2006, but then fell to \$365 million in 2007, resulting in an average annual decline of 1.6 percent. In contrast, payments by nongovernment sources grew from \$1.6 billion in 2005 to \$1.8 billion in 2007. Estimated payments for forest carbon offsets increased by an average of 99 percent annually, conservation easements were 47 percent, and hunting and wildlife viewing revenues were 5 percent, between 2005 and 2007.

Figure 27-1. Total payments by category (carbon offsets, wildlife viewing, and hunting) (thousands of constant 2005 dollars).



Are there important regional differences?

Figure 27-3 shows the distribution of payments between States from all sources in 2007. Payments per State increased from an average of \$34 million (median equals \$19 million) in 2005 to \$38 million (median equals \$18 million) in 2007. Wide variation existed between States, however. In 2007, the States receiving the lowest total payments were Alaska (\$428,000), Hawaii (\$615,000), and North Dakota (\$0.95 million). The highest payments occurred in Georgia (\$173 million), Florida (\$158 million), and Louisiana (\$114 million).

These results differ, however, when accounting for the overall amount of forest land in each State. Figure 27-4 shows the total ecosystem service payments per acre of forest land for each State. Average payment per acre for all sources and all States was \$5.22, with a median of \$3.34 per acre of forest land. These payments were lowest in Alaska (\$0.003 per acre) followed by West Virginia (\$0.16 per acre) and Hawaii (\$0.32 per acre). The States with the highest revenues per acre of forest land were Illinois (\$23 per acre), Colorado (\$18 per acre), and Nebraska (\$19 per acre).

Why can't the entire indicator be reported at this time?

Lack of available data limits our ability for complete accounting. Many payments occur in one-off deals between public and private entities, for example, payments by municipalities and regional water authorities for watershed management and protection. Quantifying these requires a national survey, which is beyond the scope and budget of this effort. Data are not available to track tax incentives landowners receive (e.g., donations of conservation easements and local and State property taxes). In addition, we were not able to allocate payments to specific environmental services, because most of the available data does not specify which service was purchased.

Figure 27-2. Total payments by type of service between 2005–2007 (thousands of constant 2005 dollars).

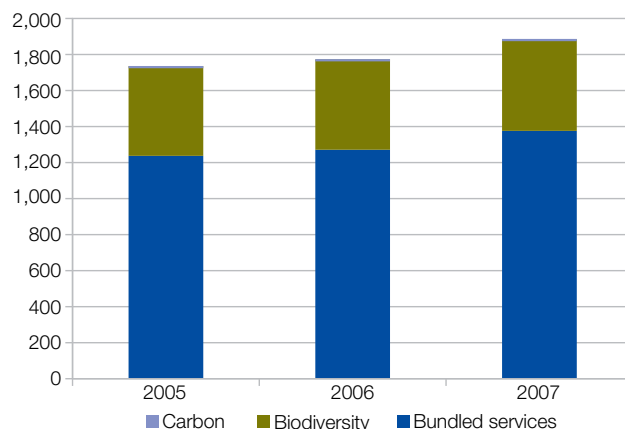


Figure 27-3. Total payments for environmental services in 2007 (thousands of constant 2005 dollars).

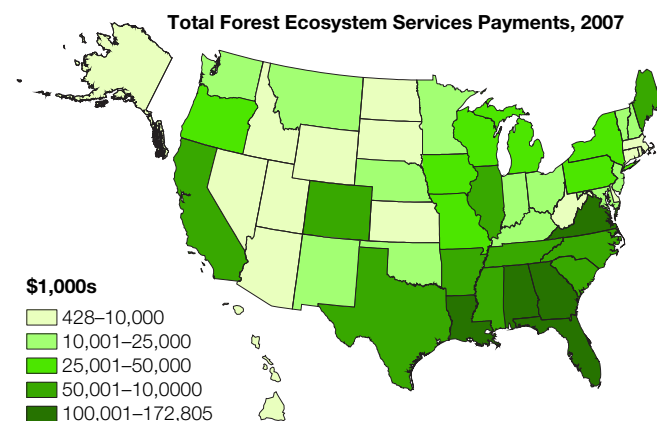


Figure 27-4. Total payments per acre of forested land in 2007 (constant 2005 dollars).

