Indicator 1.06:

Status of onsite and offsite efforts focused on conservation of species diversity

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What is this indicator and why is it important?

Indicator 1.06 provides information that describes onsite and offsite efforts to conserve species diversity. Onsite conservation efforts are those implemented within the forest. Offsite conservation efforts are usually measures of last resort that may move a species from its natural habitat or range to specially protected areas or into captivity as part of a breeding program or collection. Offsite conservation efforts for both species- and genetic-level diversity are carried out by zoos, botanical gardens, seed banks, and related institutions that house, breed, or propagate species. These are further described in Indicator 1.09.

Some forest species and habitats may have declined to such an extent that intervention is required to safeguard them for the future. Different sectors of society (governments, nongovernmental organizations, and individual citizens) are increasingly involved in actions to conserve biological diversity. These conservation initiatives include scientific studies about species at risk, keystone species assessments, laws, and projects that reinforce conservation of biological diversity, forest restoration, and connectivity.

It is difficult to directly measure conservation impacts on biological diversity, but we can tabulate expenditures associated with these conservation efforts. Expenditures by public agencies directed at conservation of biological diversity fall into four broad categories: (1) research associated with biological diversity, including among others, knowledge about keystone species, threatened species, functional groups, and spatial distribution; (2) environmental education and information about the importance of biological diversity; (3) conservation projects related to habitat restoration and biological diversity management; and (4) the proportion of forest area managed for biological diversity conservation, outside of protected areas, relative to total forest area. This indicator is closely related to Indicators 1.02 and 1.09.

What does the indicator show?

Federal expenditures for research, education, and management associated with conservation of forest biological diversity are concentrated in five Federal agencies: Forest Service, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Geological Survey. Specific to endangered and threatened species conservation, Federal and State governments expended $1.35 billion in fiscal year 2017 (FY: 1 October 2016 – 30 September 2017), of which $1.29 billion was reported by Federal agencies and $0.58 billion was reported by the States (http://www.fws.gov/endangered/esa-library/index.html). State natural resource agencies and hundreds of nongovernmental organizations (NGOs) make additional expenditures associated with research, education, and management for conservation of species diversity.

Management of most public forest land includes objectives for conservation of species diversity pursued as an integral part of a multi-objective management strategy. Of the 765 million acres of forest land in the United States, 42 percent are in public ownership (fig. 6-1) (also see Indicator 1.01). Nationally, about 81 million acres of predominantly public forest and woodland are classified as “restricted-use” or “reserved” (see Indicator 1.02), designations supporting coarse filter conservation strategies that address most species (Hunter 2005). Privately owned lands in conservation easements provide additional acres of protection.

Voter initiatives in 2020 resulted in passing 51 initiatives totaling $1.85 billion in State and local government funding for land conservation projects that are assumed to provide habitat benefits to many species (fig. 6-2).

Protected areas are integral parts of a national and global strategy to conserve biological diversity, but management of some species of concern requires management prescriptions that are incompatible with protected-area regulations. Consequently, forest land outside of protected areas is also essential to conservation of species diversity.

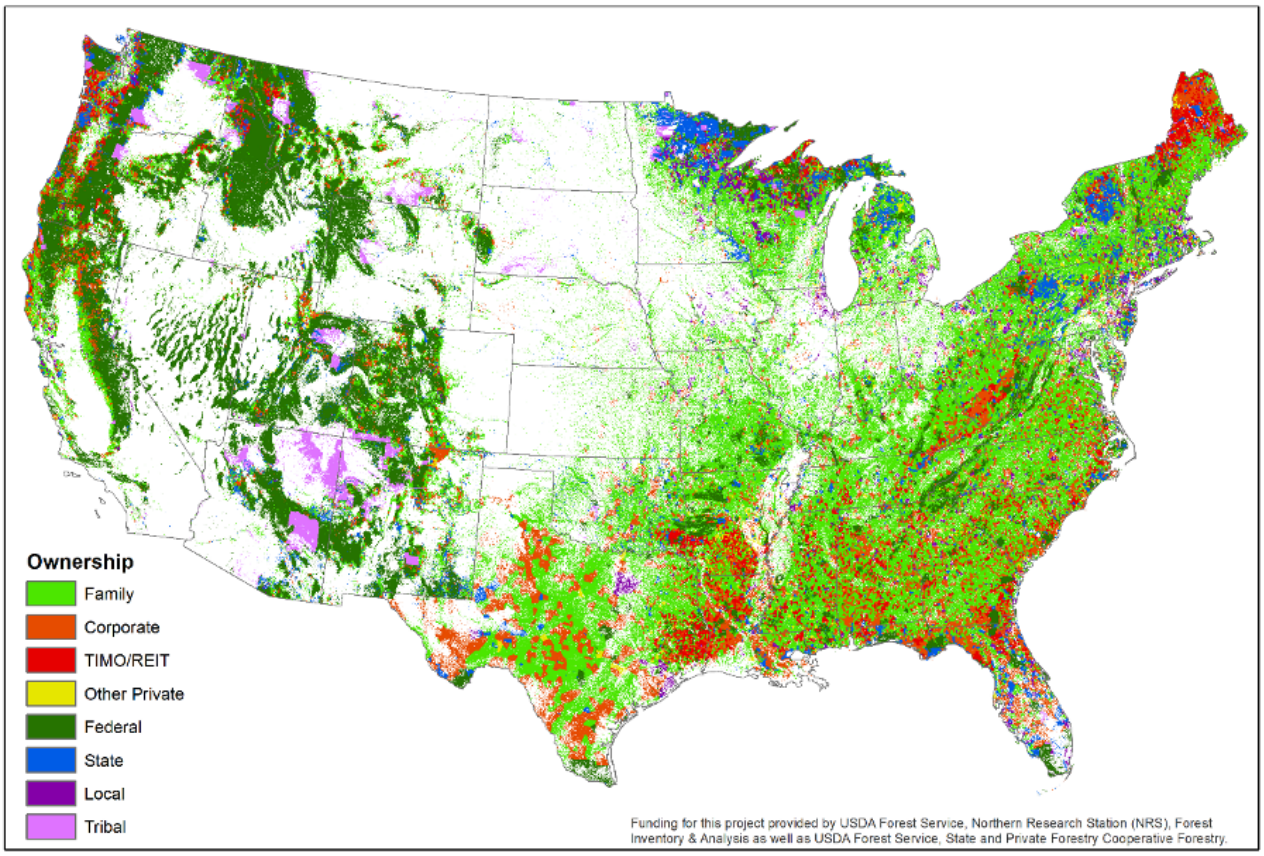

Figure 6-1—Distribution of eight forest ownership types in the conterminous United States. Source: Sass et al. 2020.

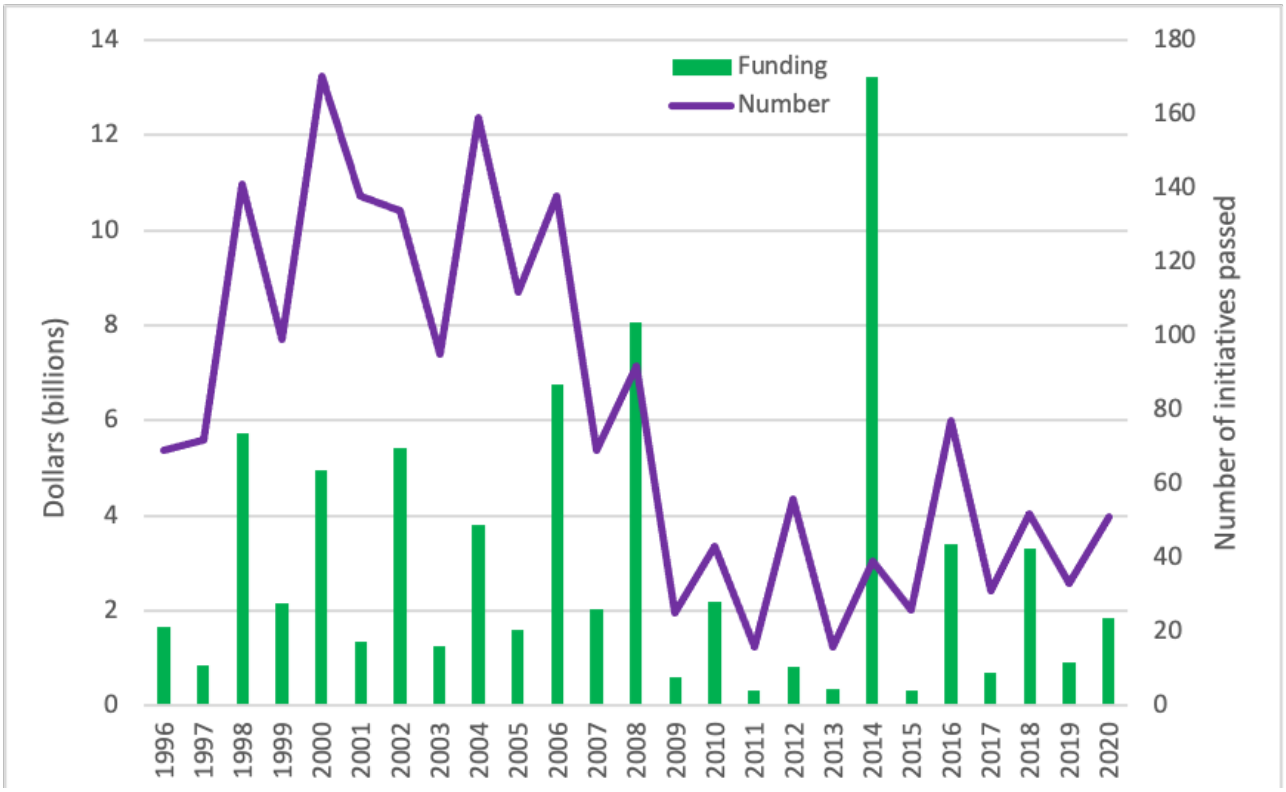

Figure 6-2—Number of State and local government measures passed, and public dollars approved by voter initiatives that support land conservation.
Source: Data from the Trust for Public Land, LandVote Database (https://tpl.quickbase.com/db/bbqna2qct?a=dbpage&pageID=8), accessed 18 March 2021.

What has changed?

Federal and State government expenditures on threatened and endangered species amounted to $1.45 billion in fiscal year 2010 and a similar amount of $1.48 billion in fiscal year 2016. Year-to-year differences also include changes in the number of Federal and State agencies reporting data, changes in how expenditures are calculated, changes in the agencies' abilities to track expenditures, and changes in the number of listed species. Therefore, real dollar increases or decreases in Threatened and Endangered expenditures cannot accurately be calculated or inferred from the overall or individual totals.

Numbers of voter initiatives and dollars approved vary considerably from year-to-year (fig. 6-2). More than 1,950 initiatives and $73 billion dollars have been approved in the past 25 years.

Are there important regional differences?

Most of U.S. public forest land is in the West, where much of that public forest is managed for conservation of species diversity as part of a multi-objective management strategy (fig. 6-1). Conservation of species diversity and habitat restoration are priorities for much of the public forest land in the East, but 81 percent of eastern forest land is privately owned (73 percent of North, 86 percent of South). Consequently, the East has relatively higher importance of private forests in large-scale efforts to conserve species diversity.

Why can't the entire indicator be reported?

Conservation of species diversity is often linked with other management objectives, and associated Federal expenditures are intertwined other objectives. Moreover, States, school districts, NGOs, and private landowners play a large role in many aspects of species diversity conservation research, education, and management. Consequently, this indicator underestimates the full magnitude of efforts directed at conservation of species diversity.

References

Hunter Jr., M.L. 2005. A mesofilter conservation strategy to complement fine and coarse filters. Conservation Biology. 19(4):1025–1029.

Supporting Data for Indicator 1.06

Sass, E.M.; Butler, B.J.; Markowski-Lindsay, M.A. 2020. Forest ownership in the conterminous United States circa 2017: distribution of eight ownership types – geospatial dataset. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2020-0044.

U.S. Fish and Wildlife Service. Federal and State endangered and threatened species expenditures, fiscal year 2016. https://www.fws.gov/sites/default/files/documents/endangered-species-expenditures-report-fiscal-year-2016.pdf.