



Indicator 6.43

Percent of forests managed primarily to protect social, cultural, and spiritual needs and values, 2010–2024

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What is this indicator and why is it important?

This indicator measures the area and percentage of protected forested land that could be used to fulfill social, cultural, and spiritual needs and values. Cultural connectedness to forests can be tangible or intangible. For example, hunting, chopping firewood, hiking, or other tangible acts embody forest-related cultural practices. On the other hand, simply the existence of forests—whether or not an individual has physically been there—can shape personal and community values (Halla et al. 2023). People can attribute meaning to natural phenomena of forests but can also be connected to forests via cultural knowledge, shared experiences, or worldviews (Halla et al. 2023).

People can ascribe social, cultural, and spiritual values to forests, all of which may depend on physical environment attributes and how the forest is managed (Creighton et al. 2008). Some forests in the United States are managed for a sole purpose, such as to provide a wilderness experience. The Wilderness Act of 1964 defines wilderness as, “an area where the earth and its

community of life are untrammelled by man, where man himself is a visitor who does not remain” (Wilderness Act 1964). Research has found that wilderness provides opportunities for individuals to connect with spiritual values through reflection and solitude, making some forested land important to protect from conversion to non-forest (Heintzman 2003; Behan et al. 2001; Brayley and Fox 1998). Wilderness is unique in that it has full protection from development and natural resource extraction.

Forest management and the values ascribed by individuals may conflict with one another, particularly when forests are managed for multiple use (Clement and Cheng 2011). Multiple use forest management, as outlined in the Multiple-Use Sustained Yield Act of 1960, refers to a forested landscape that is managed for many purposes, including recreation, wildlife habitat, and timber production. Forests that permit resource extraction may align with certain needs and values for some individuals, but not others. For example, some hunters may prefer thinned forests over clearcuts (Mingie et al. 2017), forest managers may place emphasis on ecosystem functioning, and recreation visitors may be more concerned with visual appearances of forest stands (van Rensberg et al. 2002).

Social, cultural, and spiritual needs and values vary by region and sociodemographic characteristics as well as personal and group interests (Clement and Cheng 2011; Steel et al. 1994). These sources of variability make it difficult to generalize and assign certain needs and values to the Nation's forests as a whole. The previous 6.43 indicator report suggested that people with unique needs for cultural, social, or spiritual values may be only able to meet those needs in unique places, which places a premium on protection and management of those forests (Robertson et al. 2011). Therefore, this report provides varying percentages of forested lands that are protected under a range of non-extractive and extractive uses. One limitation of this analysis is that forests without protection can also satisfy social, cultural, and spiritual needs and values.

For this indicator report, the authors quantified the area and percentage of protected forests by summarizing the 2020 Resource Planning Act (RPA) Assessment (Riitters et al. 2023) of protected forest cover in the conterminous United States as of 2016. An analysis using the U.S. Geological Survey Gap Analysis Project's Protected Area Database (PAD-US; U.S. Geological Survey 2024a) accompanies this report.

What does the indicator show?

Protected Forests

In the 2020 RPA Assessment, protected forest area was estimated for the conterminous United States in 2016 using the National Land Cover Database (NLCD) forest cover data and Forest Inventory and Analysis (FIA) forest land-use data. The International Union for Conservation of Nature (IUCN) has defined seven distinct protection categories (table 43-1) that range from areas designated as nature reserves with limited human impact to areas where certain resource use compatible with conservation may occur. Because most public lands satisfy the IUCN definition of the sustainable use (VI) category and approximate the habitat management (IV) category for some threats, a “de facto” protection category was created to include land owned by Federal and State Government that had not yet been assigned an IUCN category. The 2020 RPA Assessment analysis compares the areas of protected forest cover and protected forest land use. The first analysis combines the map of protected areas, including all IUCN categories, with the NLCD map to estimate protected forest cover area.

Table 43-1—International Union for Conservation of Nature (IUCN) protection status classifications and definitions.

Category	Name	Definition
Ia	Strict nature reserve	Areas that are strictly protected for biodiversity and possibly geological or geomorphological features; human visitation, use, and impacts are controlled and limited to ensure protection of the conservation values.
Ib	Wilderness area	Large unmodified or slightly modified areas that retain their natural character and influence without permanent or significant human habitation; areas are protected and managed to preserve their natural condition.
II	National park	Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.
III	Natural monument or feature	Areas set aside to protect a specific natural monument, which can be a landform, sea mount, marine cavern, geological feature such as a cave, or a living feature such as an ancient grove.
IV	Habitat or species management	Areas intended to protect specific species or habitats, where management reflects this priority; though not a requirement of the category, these areas require regular, active interventions to meet the needs of species or habitats.
V	Protected landscape	Areas where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value; safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.
VI	Sustainable use	Areas that conserve ecosystems in collaboration with associated cultural values and traditional natural resource management systems; generally comprises large areas in a natural condition, with a proportion under sustainable natural resource management and where low-level non-industrial natural resource use compatible with nature conservation is seen as one of the main aims.

Sources: Dudley (2013); IUCN (2025).

The second analysis, which combines a representative sample of FIA forest plots and the protected area map, uses FIA statistical procedures to estimate the area of protected forest land use.

The U.S. Geological Survey Gap Analysis Project’s (GAP) Protected Areas Database (PAD) (PAD-US; U.S. Geological Survey 2024a), which is the official inventory of public open space and private protected areas in the United States, provides another method of categorizing protection status. The lands included in PAD-US are assigned conservation status codes that denote the level of biodiversity preservation as well as other natural, recreational, extractive, and cultural uses (table 43-2).

Table 43-2—U.S. Geological Survey Gap Analysis Project’s Protected Area Database (PAD-GAP) status and definitions.

PAD-GAP status	Definitions
GAP 1	An area with permanent protection from conversion of natural land cover and a mandated management plan to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.
GAP 2	An area with permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.
GAP 3	An area with permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging, OHV recreation) or localized intense type (e.g., mining). Protection extends to Federally listed endangered and threatened species throughout the area.
GAP 4	An area in which there are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout, or management intent is unknown.

Source: U.S. Geological Survey (2024a).

The GAP 3 protection status includes public lands that would fall under the “de facto” category defined in the 2020 RPA Assessment. To assess protected areas using PAD-GAP definitions, NLCD forest cover data from 2024 was overlaid, similar to methods used in the 2020 RPA Assessment analysis (U.S. Geological Survey 2024b).

The GAP protection statuses include areas that have permanent protection from conversion of natural land cover mandated via a management plan, lands that are protected from conversion but allow certain extractive activities, and lands that have no known public or private institutional mandates preventing conversion to anthropogenic habitat types.

Protected Public Forests: Comparison of Analyses

According to the 2020 RPA Assessment analysis, the wilderness area (Ib) category contains the largest share of protected forest area in the United States: 25 (NLCD) and 33 (FIA) million acres (10.1 and 13.4 million hectares). The strict nature reserve and natural monument or feature categories contain the smallest share of publicly owned protected forest area. Forest lands under all IUCN protection categories equate to 79 million acres (32 million hectares) according to NLCD data and 96 million acres (38.9 million hectares) according to FIA data. Lands in the de facto category equal 14 million acres (5.7 million hectares) according to NLCD data and 106 million acres (42.9 million hectares) according to FIA data.

The PAD-GAP status analysis reveals that approximately 29 million acres (11.7 million hectares) of forest land are under permanent protection (GAP 1). In total, lands under some protection, or multiple use, (all GAP-PAD protection categories) equal approximately 190 million acres (76.9 million hectares).

According to the analysis using PAD-GAP and NLCD data, an estimated 571 million acres (231.1 million hectares) are protected—about 4 million acres (1.6 million hectares) less than the RPA Assessment estimate that used only NLCD data. A combination of real loss of forest land and updated NLCD mapping protocols likely contributed to those findings (table 43-3).

The categories from the RPA Assessment most directly comparable to the PAD-GAP protection (NLCD) are the IUCN protection and de facto protection (NLCD) categories. According to the PAD-GAP analysis, 33.3 percent of forest cover in the United States is protected and the IUCN protection and de facto protection (NLCD) combined equal 32.2 percent of forest cover protected—a difference of approximately 1 percent (fig. 43-1).

Table 43-3—Results comparison of protected forest area based on International Union for Conservation of Nature (IUCN) categories and U.S. Geological Survey Gap Analysis Project's Protected Area Database (PAD-GAP) status.

Analysis	Protection category	Forest cover (million acres) ^a	Forest land use (million acres) ^b
Resource Planning Act Assessment analysis using IUCN categories (2016)	Ia Strict Nature Reserve	1	1
	Ib Wilderness area	25	33
	II National Park	7	8
	III Natural Monument or Feature	1	2
	IV Habitat/Species Management	15	16
	V Protected Landscape	14	18
	VI Sustainable Use	16	17
	No protection	390	449
	<i>All IUCN protection categories</i>	79	96
	<i>De facto protection</i>	106	14
	Total forest area	575	685
Analysis using PAD-GAP status (2024)	<i>Percent with IUCN protection</i>	13.70	14.00
	<i>Percent with de facto protection</i>	18.50	20.40
	GAP 1: Permanent protection	29	-
	GAP 2: Protected with suppression allowance	30	-
	GAP 3: Protected with low intensity extractive use allowance	131	-
	GAP 4: No protection	380	-
	<i>All PAD-GAP 1–3 protection categories</i>	190	-
	Total forest area	571	-
	<i>Percent with PAD-GAP 1–3 protection</i>	33.27	-

Sources: U.S. Geological Survey (2024b); Riitters et al. (2023).

^a based on National Land Cover Database (NLCD) data.

^b based on Forest Inventory and Analysis (FIA) data.

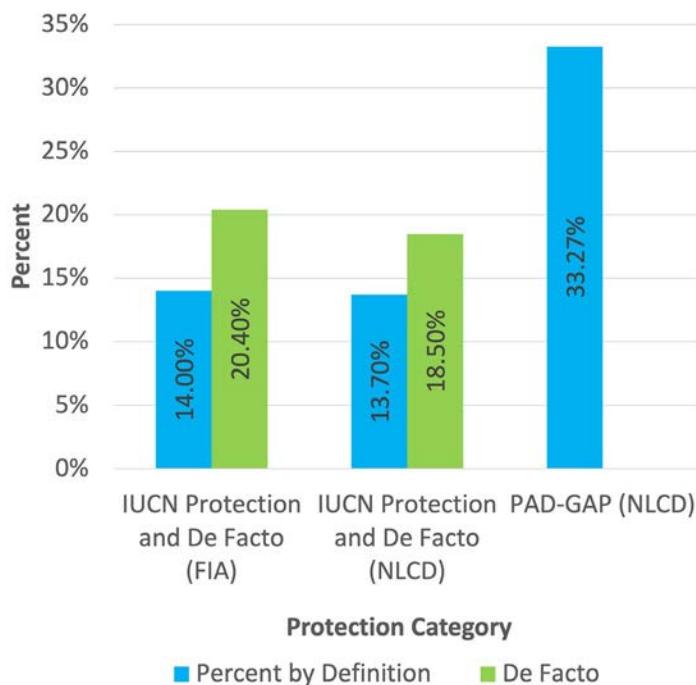


Figure 43-1—Percentage of forest land and forest cover in the conterminous United States that is protected under various definitions.

Sources: Riitters et al. (2023); U.S. Geological Survey (2024b).

In summary, the area of protected forest depends on several factors: the definition of forest as land cover (NLCD) or land use (FIA), how the forest-level data were collected and processed, and potentially, how land cover has changed. Findings indicate that between 32 and 33 percent of forest land has some level of protection, which includes areas with broad, low-intensity, and localized intense extractive uses. This suggests that social, cultural, and spiritual needs and values that can occur simultaneously with low-level extractive allowance are possible on about one-third of forest-covered lands in the United States. This finding is consistent across years with data available. About 5 percent of forest cover, or between 26 and 29 million acres (10.5 and 11.7 million hectares) (IUCN and PAD-GAP, respectively), is available across the United States for those whose cultural, social, and spiritual needs and values can only be fulfilled from forests with no extraction or management (IUCN categories Ia and Ib, and GAP 1). Slightly more acreage—34 million acres (13.8 million hectares)—falls under IUCN Ia and Ib as calculated from FIA data. Still, this constitutes about 5 percent of total forest land available for social, cultural, and spiritual use with non-extractive protections.

What has changed since 2010?

The Antiquities Act of 1906 was the first U.S. law to provide legal protection of cultural and natural resources of historic or scientific interest on Federal lands. Using their authority under the Antiquities Act, U.S. presidents can designate places of historic, scientific, or cultural interest on Federal lands and waters as national monuments (Antiquities Act 1906). Since 2010, the amount of protected public land has fluctuated with changes in national monument designations, and the size of national monuments has also fluctuated during the same time period. Overall, the declarations added an estimated 537,555 acres (217,541 hectares) of protected forests (U.S. Geological Survey 2024b). Not all national monuments and surrounding lands are forested.

Private Forest Ownerships

The National Land Trust Census (Land Trust Alliance 2020), which is the Nation's longest-running survey of private land conservation, provides information on the protection of private forest land. The census tracks the amount of land that is conserved through State and local land trusts as well as land held by national land conservation groups. This includes land acquired by the land trust, in fee or under easement, in addition to land that is not owned but protected through the land trust (e.g., preparing for acquisition by other agencies). In the 2020 National Land Trust Census, a reported 61 million acres (35 million hectares) of private land was conserved by land trusts in the United States (fig. 43-2; Land Trust Alliance 2020). All regions had an increase in protected private land, with the largest increases occurring in the North (increase of 4.1 million acres or 1.7 million hectares) and Rocky Mountain (4.6 million acres or 1.9 million hectares) regions. These estimates include all protected land, not forested areas specifically. Future analyses could tease out forested land cover from the total acreage in conservation.

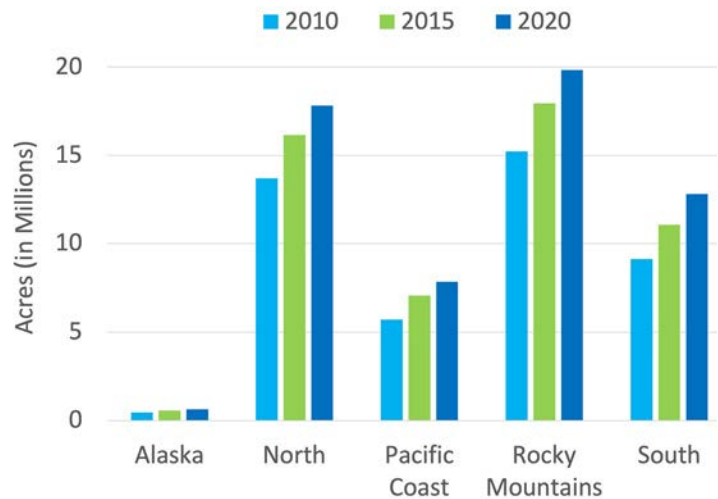


Figure 43-2—The amount of private land protected by local and State land trusts in the United States by region (regions based on the USDA Forest Service's Resources Planning Act Assessment; see fig. 43-A1), 2010-2020.
Source: Land Trust Alliance (2020).

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

This indicator reports on area and percentage of forests that are managed primarily to protect cultural, social, and spiritual needs and values, which is challenging to measure since these values are subjective. The species diversity, location, and management of forests that would meet these needs differ from person to person (Creighton et al. 2008). Accordingly, it is important to highlight that some forest areas may not be able to satisfy needs and values for all people (Ward 1992). This report aims to provide a variety of protected lands that can fulfill certain social, cultural, and spiritual needs and values on lands that allow a range of extractive uses. Future research could assess certain social, cultural, and spiritual practices and identify the forest characteristics necessary to fulfill those needs and values. Once identified, researchers could quantify the area and percentage of forests available for certain social, cultural, and spiritual experiences.

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Appendix 1: Additional Figures

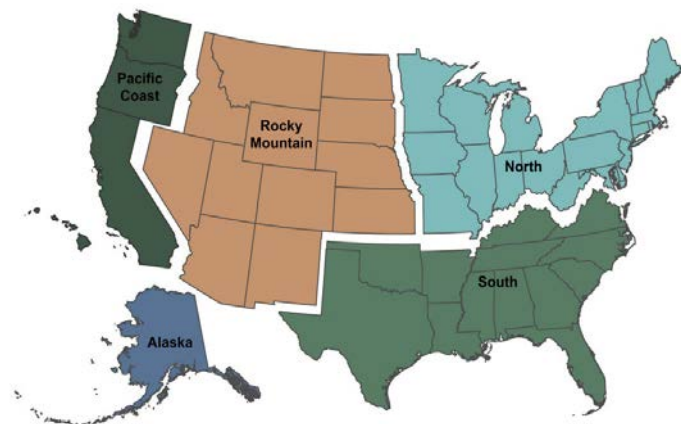


Figure 43-A1—Regions used in this indicator report, which are the same as those in the 2020 Resources Planning Act Assessment. Source: USDA Forest Service 2023.

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