Forest Service
U.S. DEPARTMENT OF AGRICULTURE

November 2025 | FS-Indicator-6.34-2030

Indicator 6.34

Value of Capital Investment and Annual Expenditure in Forest Management, Wood and Nonwood Product Industries, Forest-Based Environmental Services, Recreation, and Tourism, 2020

Jaana Korhonen and Gregory Frey

What is the indicator and why is it important?

This indicator reports value of capital investment and annual expenditure in forest management, wood and nonwood product industries, forest-based environmental services, recreation, and tourism.

Investment in the forest sector, both in long-term capital projects and annual operating costs, is essential to sustain and improve the many ecosystem services that are derived from forests. The evaluation of capital investment indicators provides insights into the long-term and yearly expenses aimed at improving forest management, forest-related businesses, and the skills and knowledge of those working in the forest industry.

What does the indicator show?

The following is based on findings by Korhonen and Frey (2023) quantifying total annual expenditures in protecting and managing forests that provide multiple ecosystem services. The study considered both public (e.g., Federal, provincial/State agencies, and local governments) and private (e.g., forest product industrial firms, concessionaires, forest-based recreation and tourism firms, and other nongovernmental organizations) entities that play a role in forest protection, management, and utilization. However, the data of this study only cover a subset of public and private entities and activities.

The three components to the evaluation of this indicator include:

- **Public sector capital investment**—The public sector capital investment section covers how much the

U.S. Department of Agriculture, Forest Service invests in capital improvement and maintenance of facilities, roads, and trails. It also covers Forest Service investment in National Forest System appropriations to recreation, heritage, and wilderness.

- **Public sector annual expenditures**—The public sector annual expenditures cover Forest Service annual operating expenses for Forest and Rangeland Research, State, Private, and Tribal Forestry, National Forest System and Wildland Fire Management (USDA Forest Service 2006–2021). Public annual expense data also include annual program costs of State forestry agencies.
- **Private sector capital investment and annual expenditure**—The private sector capital investment data, including new and total capital investment and annual expenditure such as payroll and materials, were obtained from the U.S. Census Bureau (U.S. Census Bureau 2023a, 2023b, 2023c, 2023d). Some of these data are geographically disaggregated. Data were supplemented with Forisk Consulting (2022) data and public announcements of investment values.[1]

What has changed since 2010?

Because of the uncertainty in the total compatibility of data in the previous indicator report due to the changes in the reporting systems (Skog et al. 2010), the reference year for this report is 2012, which is the earliest year for which all the data are available.

The public capital investment in the forest sector in 2020 amounted to a total of $535 million, up by 36 percent since 2012. Additionally, the public annual expenses for the same year amounted to $7.8 billion. This is up by 43 percent since 2012.

Regarding recreation expenditures, public entities allocated a total of $263 million in 2020. This is up by 20 percent from 2012. The National Forest System allocated $262 million in annual expenditures on recreation, heritage, and wilderness programs, which is also included in the public annual expenses.

The private capital investment in the forest sector totaled $13 billion in 2020 and private annual expenses for the same year amounted to $220 billion.

All investment and expenditure levels have seen an increase since 2012, with the most significant growth being a 62-percent increase in private capital investment. For a yearly breakdown, please refer to table 34-1.

Table 34-1—Total private and public capital investment and annual expenditure, 2012–2020

Year	Public sector capital investment	Public sector annual expenditure	Private sector capital investment	Private sector annual expenditure	Total
	million 2020$				
2012	394	5,451	8,229	149,180	163,253
2013	328	—	8,716	164,004	173,048
2014	331	6,136	11,133	175,606	193,206
2015	355	—	11,043	183,815	195,214
2016	384	6,930	11,078	188,619	207,011
2017	391	—	10,920	205,051	216,362
2018	505	7,672	10,415	224,289	242,881
2019	531	—	13,544	229,272	243,347
2020	535	7,806	13,329	220,749	242,419
% change, 2012 to 2020	36	43	62	48	48

— = Data not available.
Source: reproduced from Korhonen and Frey (2023), table 2.

Public Sector Capital Investment

In 2020, the Forest Service allocated $535 million in capital investment towards managing and protecting forests, which represents a 70-percent increase since 2006. Between 2012 and 2013, the funding dropped by 17 percent from $394 million to $328 million. Subsequently, there was a 29-percent increase from $391 million to $505 million between 2017 and 2018 (fig. 34-1).

These funds are allocated toward a range of activities, including the development, maintenance, and improvement of facilities, roads, and trails. Additionally, funds support the acquisition and donation of lands, waters, and related interests within the National Forest System.

Public Sector Annual Expenditures

In 2020, the Forest Service allocated a total of $4.96 billion towards programs listed in table 34-2. The Wildland Fire Management program accounted for 47 percent of the total reported program costs in 2020 (table 34-2).

1 Unless otherwise noted, all monetary values are provided in constant 2020 U.S. dollars.

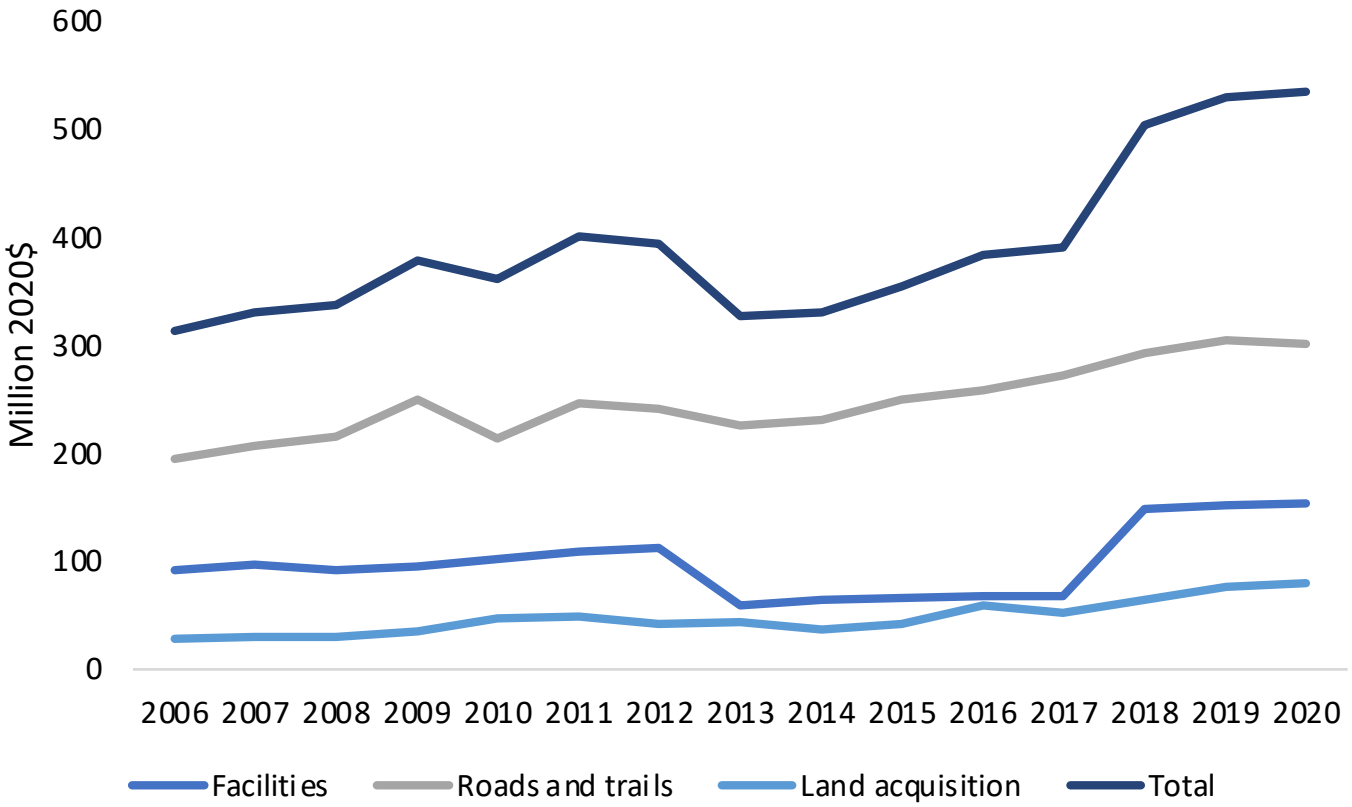

Figure 34-1—U.S. Department of Agriculture, Forest Service capital investments for improvement, maintenance, and land acquisition, 2006–2020 (million 2020$). Source: reproduced from Korhonen and Frey (2023), table 3.

Table 34-2—U.S. Department of Agriculture, Forest Service annual expenditure program costs by segment, 2008–2020

Year	Forest and Rangeland Research	State, Private, and Tribal Forestry[a]	National Forest System	Wildland Fire Management	Total
	- - - - - - - - - - - - - - - - million 2020$ - - - - - - - - - - - - -
2008	202	186	345	2,301	3,035
2009	205	184	342	1,616	2,347
2010	225	222	1,117	1,515	3,079
2011	233	230	1,158	1,571	3,192
2012	230	197	1,209	1,536	3,172
2013	240	205	1,261	1,589	3,294
2014	246	193	1,257	1,816	3,512
2015	258	203	1,302	2,033	3,796
2016	260	212	1,351	2,135	3,958
2017	269	213	1,411	2,642	4,535
2018	292	330	1,890	2,784	5,295
2019	307	345	1,968	2,562	5,182
2020	305	347	1,958	2,351	4,960

Source: reproduced form Korhonen and Frey (2023), table 4.
[a] Previously known as State and Private Forestry.

In 2020, the annual expenditures for State forestry agency programs was $2.9 billion, representing a 22-percent increase from 2018. However, this was still 7 percent lower than the expenditures in 2016 (fig. 34-2). It is worth noting that compared to 1998, the investment in State forestry programs in 2020 had risen by 201 percent.

Over time, State forestry programs have experienced significant growth, particularly in the North and South regions. While there has been annual variation in expenditures along the Pacific Coast, the investments in the Rocky Mountain region have remained relatively stable over the past decade (fig. 34-2).

The annual expenditure to recreation, heritage, and wilderness programs by the National Forest System has increased steadily from $171 million in 2006 to $262 million in 2020.

Private Sector Capital Investment

Total private capital investment in the wood product industry grew from $1.4 billion in 1997 to $3.5 billion in 2020, with some fluctuation over the years (fig. 34-3). During the Great Recession of 2008–2009, total capital investment in the wood product industry declined by

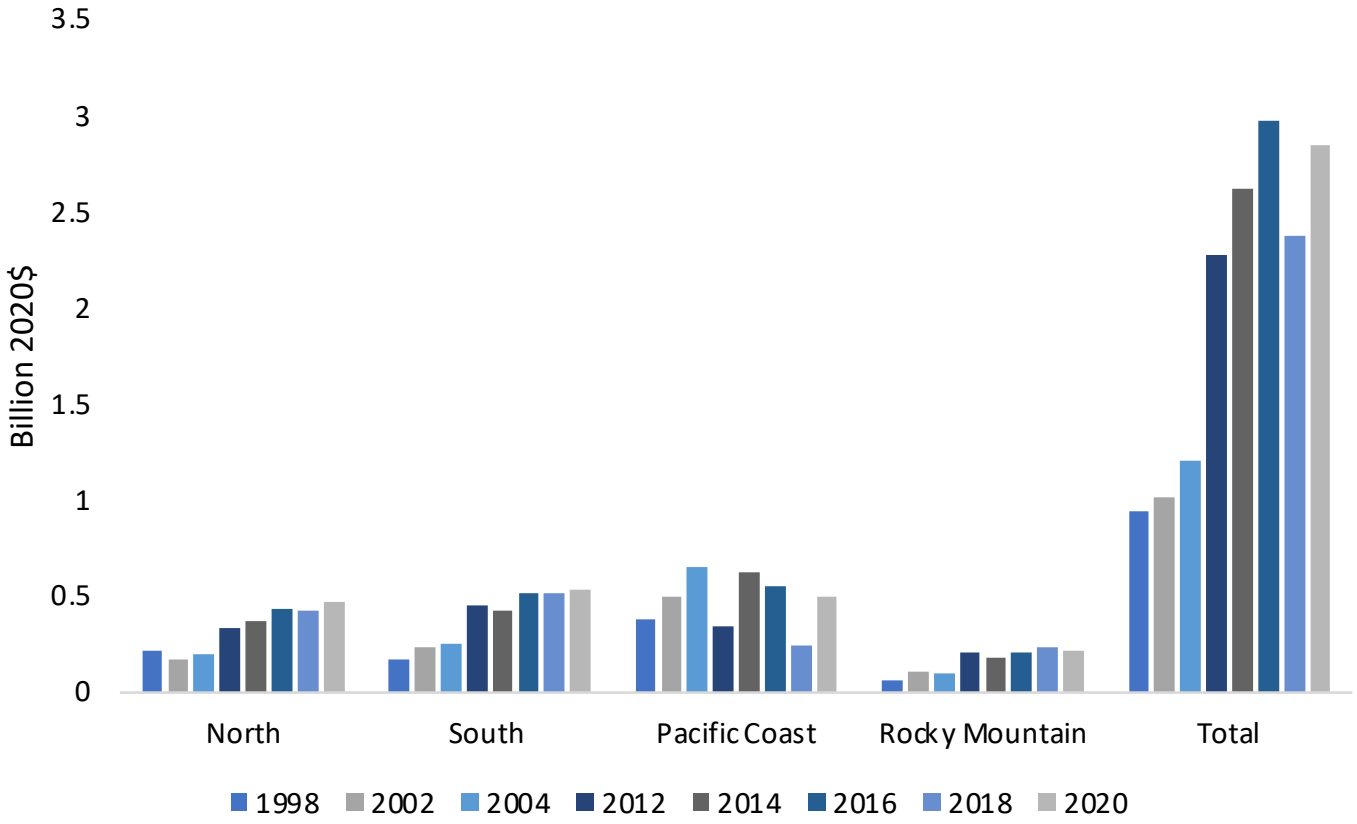

Figure 34-2—Annual State forestry program expenditures by region, 1998, 2002, 2004, 2012, 2014, 2016, 2018, and 2020 (billion 2020$).
Source: National Association of State Foresters (2022).

Figure 34-3—Private sector capital investments in wood product (North American Industry Classification System [NAICS] 321), paper product (NAICS 322), and wood furniture industries (NAICS 337211, 337212, 337110, 337112) (billion 2020$), 1997–2020.
Source: reproduced from Korhonen and Frey (2023), figure 1.

62 percent, from $3 billion in 2007 to $1.1 billion in 2009. After 2009, total capital investments increased to a peak of $4 billion in 2018 and declined 11 percent, to $3.5 billion in 2020.

Capital investment in the paper product industry grew by 109 percent from $4.2 billion in 1997 to $8.7 billion in 2020. There has been an overall upward trend since 2009 (fig. 34-3). From 2018 to 2020, capital investment in the paper product industry increased from $5.6 billion to $8.7 billion, peaking at $9.0 billion in 2019.

Additionally, the capital investment for wood furniture has consistently increased from $0.4 billion in 2012 to $1.1 billion in 2020.

According to data from Forisk Consulting (2022) for the third quarter of 2022, there were seven new pellet mill announcements within the United States (under North American Industry Classification System [NAICS] 321). These could result in a demand for 7 million tons of wood at capacity. Investment announcements for five of these projects totaled $760 million based on public data.

Private Sector Annual Expenditures

In 2020, the wood product industry spent $81 billion on payroll and materials, while the paper industry spent $120 billion (fig. 34-4). Additionally, the combined payroll and material expenditure for various segments of the wood furniture industry amounted to $19.56 billion in 2020.

The annual expenditure in the private sector has increased steadily over time. Between 2012 and 2020, the private sector total annual expenditure increased 47 percent, from $145 billion in 2012 to $213 billion in 2020. During these years, expenditures grew by 76 percent for the wood product industry, from $46 billion to $81 billion; by 32 percent for the paper product industry, from $91 billion to $120 billion; and by 67 percent for the wood furniture industry, from $12 billion to $20 billion.

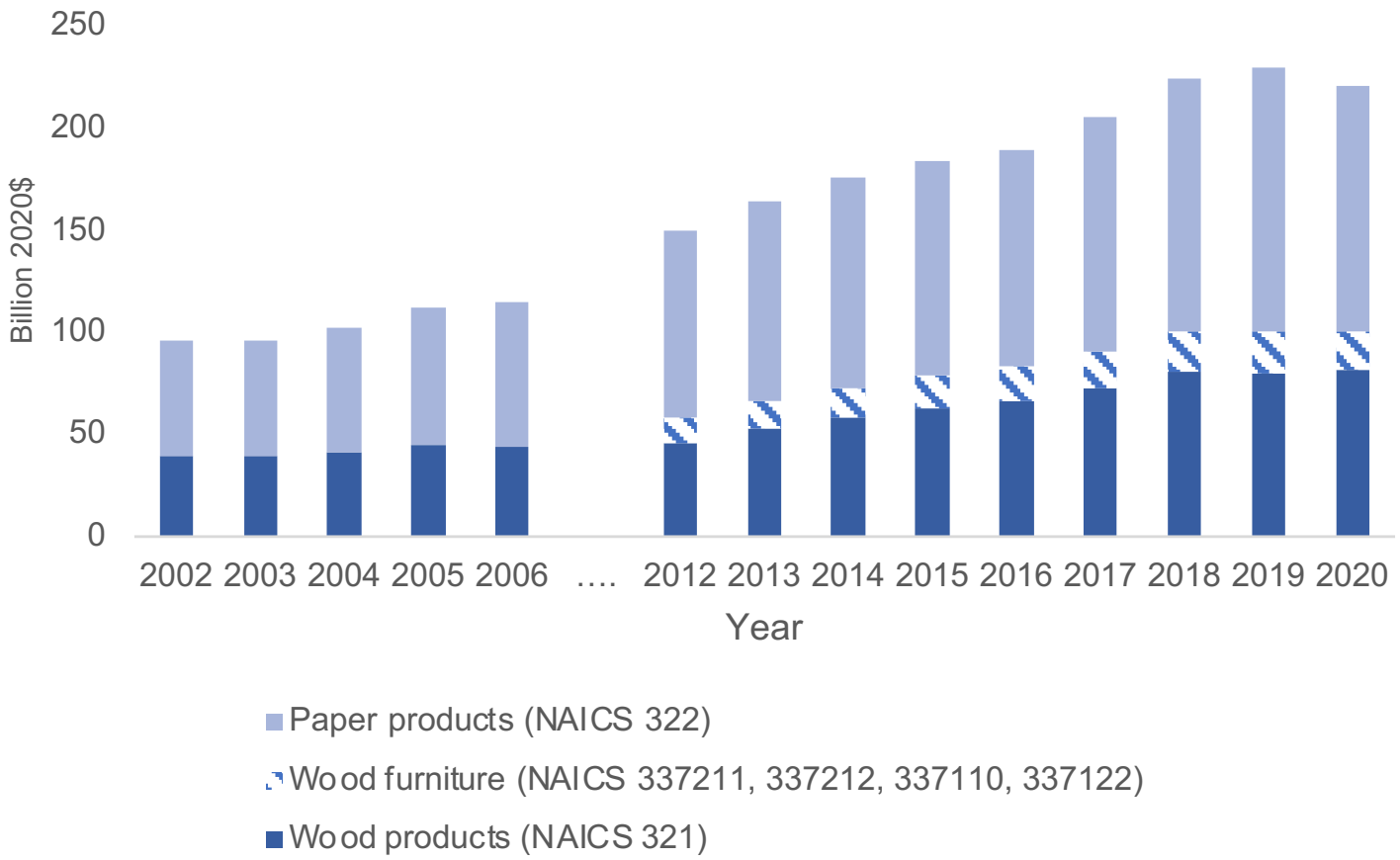

Figure 34-4—Private sector annual expenditures including payroll and materials expenditure in wood product (North American Industry Classification System [NAICS] 321), paper product (NAICS 322), and wood furniture (NAICS 337211, 337212, 337110, 337112) industries (billion 2020$), 2002–2020. Source: reproduced from Korhonen and Frey (2023), figure 2.

Are there important regional differences?

Between 1997 and 2020, State program expenditures within forestry agencies increased in the North, South, and Rocky Mountains regions, while the Pacific Coast region (including Alaska) showed variability in expenditures. In 2020, the North, South, Pacific Coast, and Rocky Mountain regions had annual expenditures of $468 billion, $531 billion, $1.7 billion, and $217 billion, respectively. State-level expenditures for forestry agency programs varied widely across the States and years, ranging from $2 million in Delaware and Rhode Island to $1.2 billion in California in 2020.

Among the private sector capital investment (fig. 34-5), the South region claimed the largest share with $7 billion, representing 55 percent of the total in 2020. The North region followed with $4 billion (34 percent), the Pacific Coast region with $1 billion (9 percent), and the Rocky Mountain region with $0.3 billion (2.2 percent) in 2020.

All regions experienced growth in capital investment since 1997. In the South, investment surged by 148 percent in 2020 compared to the $3 billion invested in 1997. Similarly, the North witnessed growth of 97 percent from its $2 billion investment in 1997. The Pacific Coast and Rocky Mountain regions also experienced considerable growth during this period, with an over 80-percent increase from the $0.6 billion and $0.1 billion investment levels observed, respectively.

Among the private sector annual expenditures by region in 2020, the North accounted for $80 billion (40 percent of the total), the South was $78 billion (39 percent), the Pacific Coast was $26 billion (13 percent), and the Rocky Mountain region was $8 billion (4 percent).

Between 2002 and 2020, the total annual expenditures grew by 110 percent (fig. 34-6). During this period, the South region experienced the highest growth at 166 percent, followed by the Pacific Coast region at 139 percent, and the North region at 85 percent. The Rocky Mountain region had a decrease of 40 percent. However, note that regions were "not specified" for about $10 billion of expenditures, which may notably affect these trends.

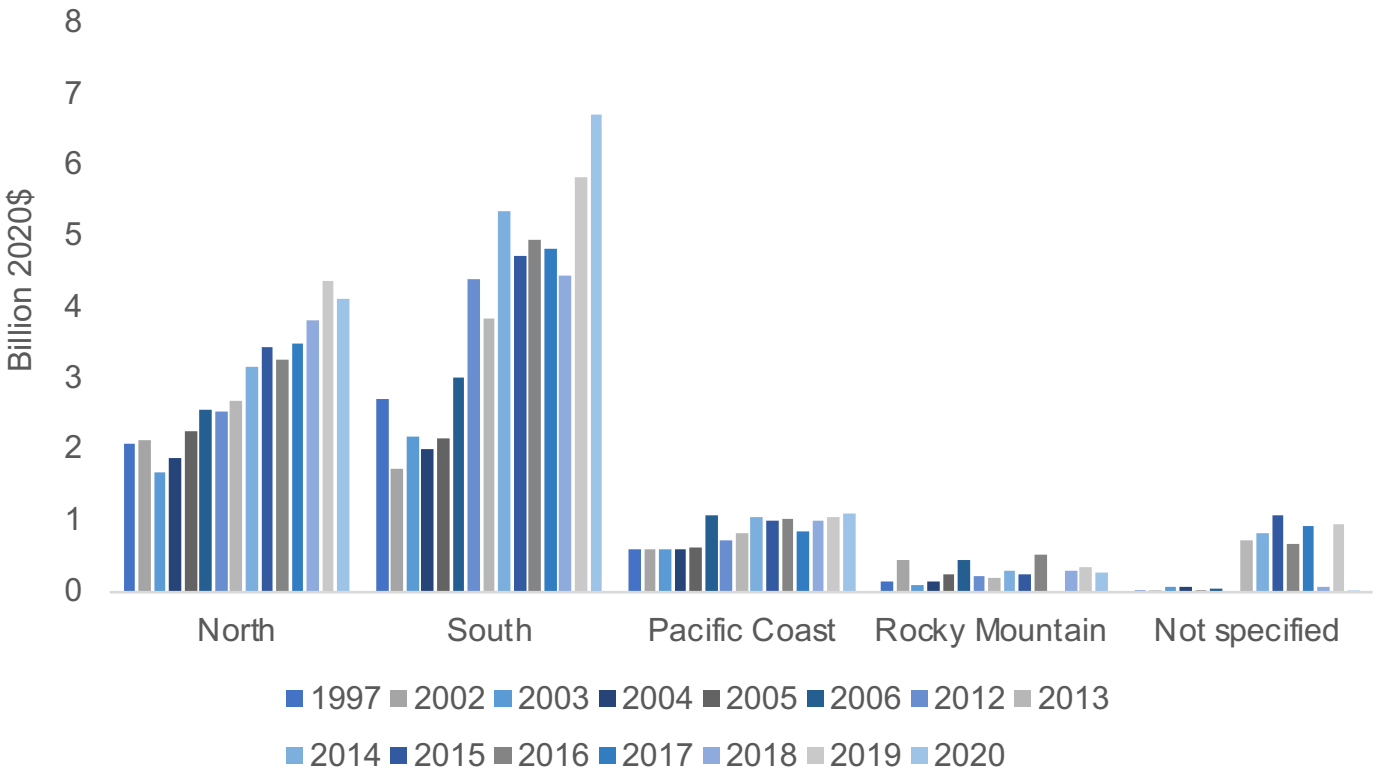

Figure 34-5—Private sector capital investment in wood product (North American Industry Classification System [NAICS] 321) and paper product industries (NAICS 322) by region (billion 2020$), 1997–2020. Source: reproduced from Korhonen and Frey (2023), figure 3.

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

Capital expenditure and annual expense data for forest protection and management entities, such as county/local governments, conservation organizations, family forest owners, and some corporate landowners (e.g., timber management organizations [TIMOs], real estate investment trusts [REITs]), are usually not publicly shared. Additionally, regional data on forest-based recreation, tourism, and private sector tourism investment are often unavailable. Census data on forestry are often aggregated with agricultural and environmental services, potentially biasing findings in this report. For example, data on finance expansion or capital improvement are only available for agriculture, forestry, fishing, and hunting (NAICS code 11). Furthermore, the U.S. Census Bureau withholds some data to avoid disclosing data of individual companies. Additionally, the withholding of data by the U.S. Census Bureau to protect the confidentiality of individual companies may also limit the availability and reliability of regional data. Data that cannot be disclosed at the regional level are included in higher level totals.

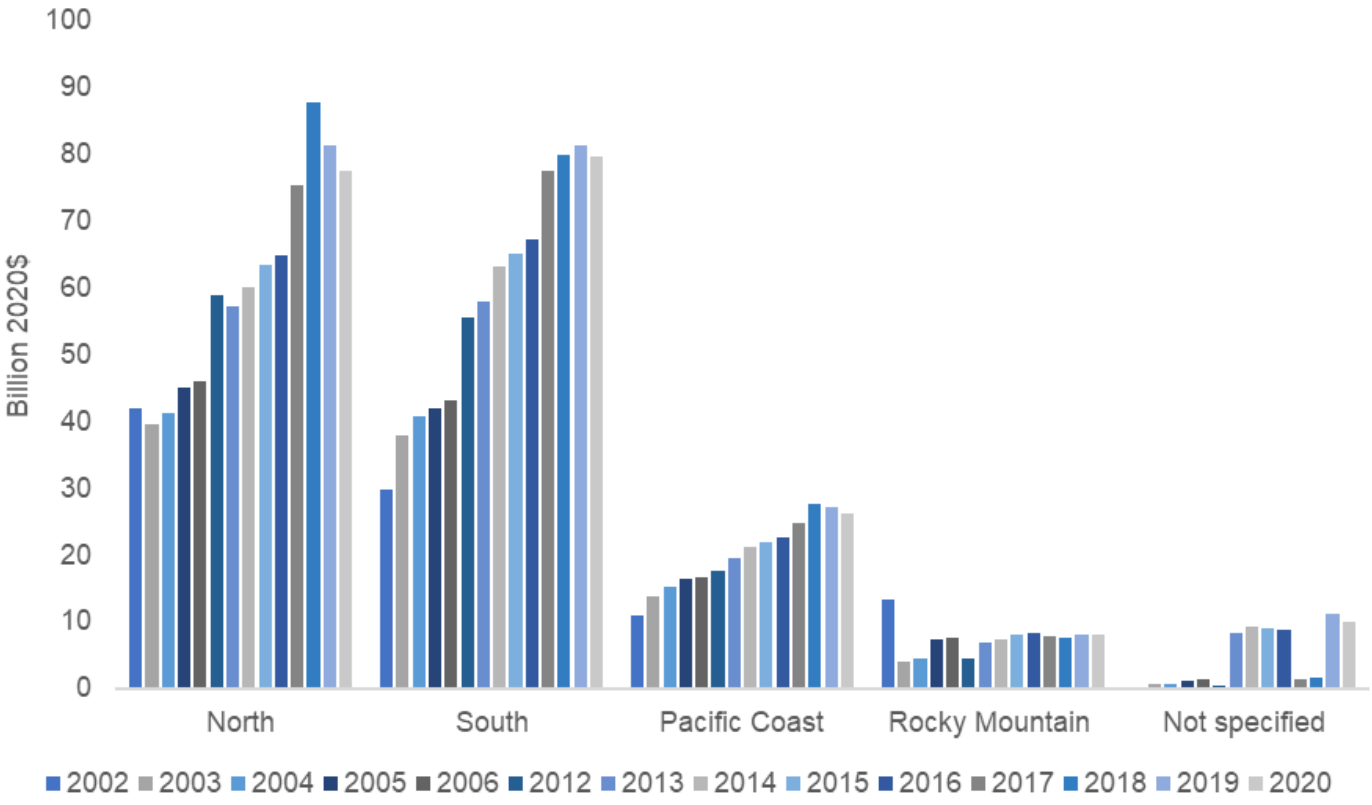

Figure 34-6—Private sector annual expenditure in wood product (North American Industry Classification System [NAICS] 321) and paper product industries (NAICS 322) by region 2002–2020 (billion 2020$). Source: reproduced from Korhonen and Frey (2023), figure 4.

References

Forisk Consulting. 2022. Wood Bioenergy US Project Database. https://forisk.com/product/wood-bioenergy-us/. [Date accessed: 23 December 2024].

Korhonen, J.; Frey, G. 2023. Forest sector investment in United States - trends and implications of capital investment and annual expenditure. Journal of Forest Business Research. 2(2): 114–145. https://www.srs.fs.usda.gov/pubs/ja/2024/ja_2024_frey_002.pdf. [Date accessed: 23 December 2024].

National Association of State Foresters. 2022. State forests in numbers. Data acquired through personal communication.

Skog, K.; Bergstrom, J.; Hill, E.; Cordell, K. 2010. Criterion 6, indicator 34: value of capital investment and annual expenditure in forest management, wood and non-wood product industries, forest-based environmental services, recreation, and tourism. Res. Note FPL-0320. Madison, WI : U.S. Dept. of Agriculture, Forest Service, Forest Products Laboratory. 12 p. https://doi.org/10.2737/FPL-RN-320.

U.S. Department of Agriculture [USDA], Forest Service. 2006–2021. Fiscal years 2006–2022: President's budget, budget justification. Washington, DC. Different years available at https://www.fs.usda.gov/about-agency/budget-performance. [Last accessed: February 2023].

U.S. Census Bureau. 2023a. Annual capital expenditure survey (ACES) (1996–2021). https://www.census.gov/programs-surveys/aces/data/tables.html. [Last accessed: February 2023].

U.S. Census Bureau. 2023b. Annual survey of manufactures: geographic area statistics: statistics for all manufacturing by state 2013–2016. https://www.census.gov/data/tables/time-series/econ/asm/2013-2016-asm.html. [Last accessed: February 2023].

U.S. Census Bureau. 2023c. Annual survey of manufactures: summary statistics for industry groups and industries in the U.S.: 2018–2020. https://www.census.gov/data/developers/data-sets/Annual-Survey-of-Manufactures.html. [Last accessed: February 2023].

U.S. Census Bureau. 2023d. Economic Census statistics 2012 and 2017. https://www.census.gov/data/developers/data-sets/economic-census.2012.html. [Last accessed: February 2023].

Suggested Citation:

Korhonen, Jaana; Frey, Gregory. 2025. Indicator 6.34: value of capital investment and annual expenditure in forest management, wood and nonwood product industries, forest-based environmental services, recreation, and tourism, 2020. FS-Indicator-6.34-2030. Washington, DC: U.S. Department of Agriculture, Forest Service. 9 p. https://doi.org/10.2737/FS-Indicator-6.34-2030.

U.S. Forest Sustainability Indicators:
https://www.fs.usda.gov/research/inventory/sustainability