



Indicator 6.31

Import and Export Value of Nonwood Forest Products, 2003–2022

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What is this indicator and why is it important?

This indicator evaluates the import and export value of nonwood forest products (NWFPs) in the United States. The United Nations has defined NWFPs as “forest products [that] consist of goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests” (FAO 1999). NWFPs constitute a subset of nonconvertible products (i.e., products that are not convertible to units of measure relative to timber) grown in forests. The U.S. Department of Agriculture, Forest Service categorizes NWFPs in the following groups, consistent with the United Nations definition: nursery and landscape; arts, crafts, and floral; regeneration and silviculture; edible fruits, nuts, berries, and sap; grass, hay, alfalfa, and forages; and herbs and medicinals (Chamberlain 2024). While there is a definitive categorical list defining NWFPs from U.S. forests, there

is not a conclusive and encompassing list of specific products. As such, some products grown outside of forests may accidentally be categorized as an NWFP. For example, pecans (*Carya illinoensis*) are typically grown and sold from monocultural orchards but can also be collected from U.S. forests, since the pecan is native to North America.

Exported NWFPs can support the local and national economy, while imported NWFPs can supplement the domestic supply. The trade of NWFPs can demonstrate their cultural and social importance (Chamberlain et al. 2018). Accurate estimates of the value of NWFPs can inform forest management and support sustainable harvest. Specifically, the trade value of NWFPs helps to demonstrate the value of forests more completely (that is, in addition to timber value), although the entire trade value cannot be represented due to data-related challenges such as a lack of information regarding product origin (i.e., grown in a forest or not) and changes in categorization of import and export goods.

What does the indicator show?

The U.S. International Trade Commission (USITC) tracks imports and exports. Goods that are traded internationally are classified by a Harmonized Tariff Schedule (HTS) code, which was used here to estimate the value of NWFPs. Two separate analyses were conducted due to changes in USITC HTS codes that were implemented since the 2010 National Report on Sustainable Forests (Robertson et al. 2011). The updated USITC HTS codes allow reporting with a more accurate assessment of “true” NWFPs that better match the United Nations definition.

For the first analysis, 14 NWFPs were selected for comparison to the 2010 report on indicator 6.31: [1] foliage; [2] mushrooms/truffles; [3] wild blueberries; [4] vanilla; [5] wild ginseng; [6] maple sugar/syrup; [7] gum, wood, or sulfate turpentine oils; [8] essential oils of cedarwood, clove, and nutmeg; [9] cultivated ginseng; [10] pine oil; [11] pecans; [12] cranberries and genus *Vaccinium*; [13] mosses/lichens; and [14] pine nuts. The second analysis excluded some previously included products, which are almost entirely cultivated on farms

and not grown in forests such as pecans and certain mushroom species (e.g., agaricus and shiitake). Products with significant missing data were also excluded in the second analysis (e.g., mosses/lichen and pine nuts). As such, for the second analysis, NWFPs were reclassified using new codes yielding eight NWFPs (table 31-1).

The USITC DataWeb database was used for data collection, with “general import” used for import values and “total export” for export values (see app. 1 for HTS codes). USITC defines general import as “the total physical arrivals of merchandise from foreign countries” and total export as “the total physical movement of goods out of the United States to foreign countries” (USITC 2024). Periodic comparative analyses were conducted for 2003 to 2022, using the updated codes. Data were collected for the years 2003, 2007, 2012, 2017, and 2022 (fig. 31-1). The USITC DataWeb database reports in actual U.S. dollars; therefore, values were adjusted for inflation and reported in 2023 U.S. dollars. The observed difference between general import values for the 14-product and 8-product analyses was largely driven by the exclusion of cranberries and genus *Vaccinium*, which were valued at \$1.8 billion in 2022.

Table 31-1—U.S. International Trade Commission product categories included in the 2010 and 2023 analyses (14 and 8 nonwood forest products, respectively)

	Product categories in 2010 analysis	Product categories in 2023 analysis
(1)	Foliage	Foliage
(2)	Mushrooms/truffles	Mushrooms/truffles
(3)	Wild blueberries	Wild blueberries
(4)	Vanilla	Vanilla
(5)	Wild ginseng	Wild ginseng
(6)	Maple sugar/syrup	Maple sugar/syrup
(7)	Gum, wood, or sulfate turpentine oils	Gum, wood, or sulfate turpentine oils
(8)	Essential oils of cedarwood, clove, and nutmeg	Essential oils of cedarwood, clove, and nutmeg
(9)	Cultivated ginseng	
(10)	Pine oil	
(11)	Pecans	
(12)	Cranberries and genus <i>Vaccinium</i>	
(13)	Mosses/lichen	
(14)	Pine nuts	

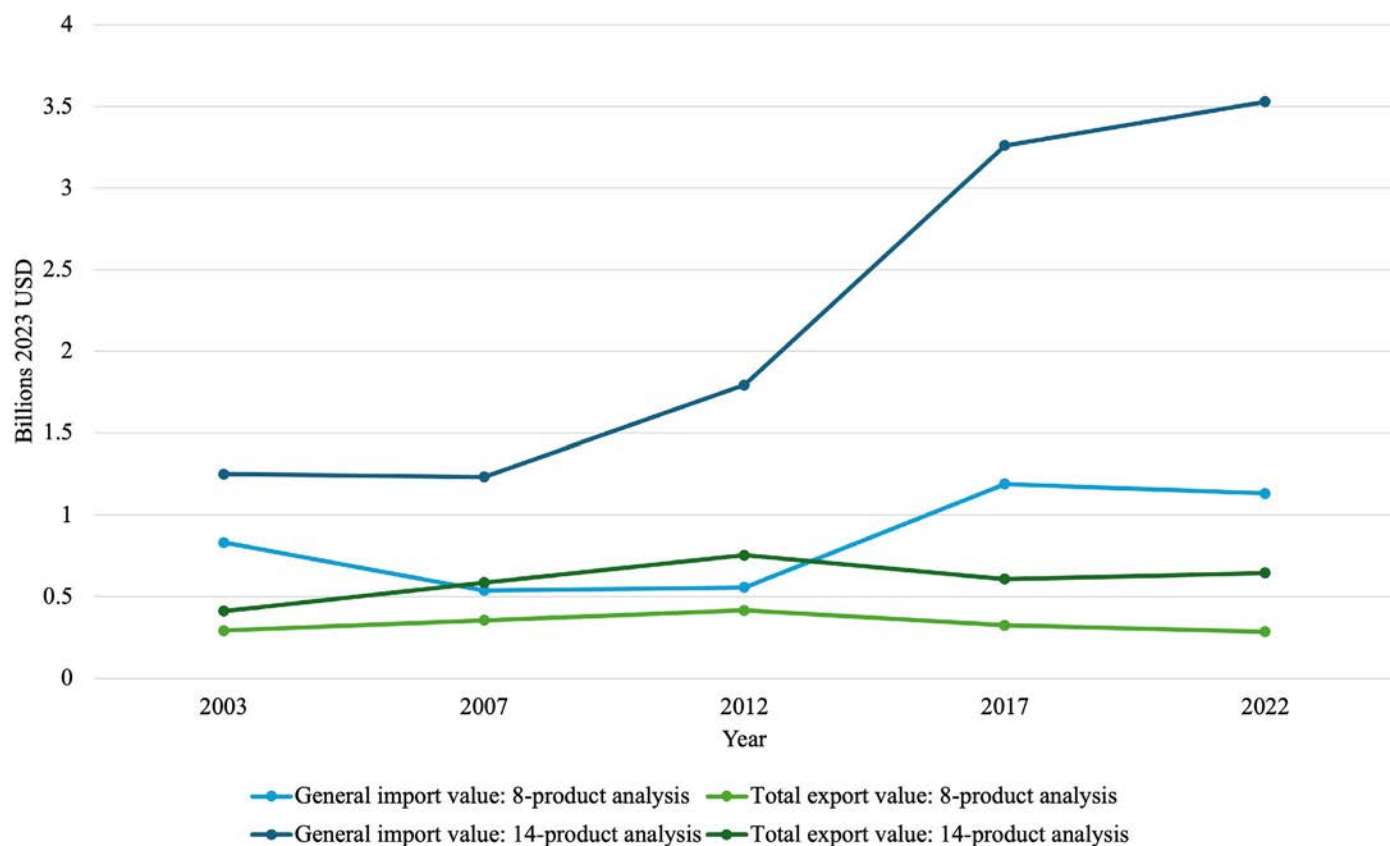


Figure 31-1—General import and total export values in billions of 2023 U.S. dollars (USD) for analyses of 14 and 8 nonwood forest products (NWFPs) from 2003 to 2022. The 14-product analyses align with product categories used in the 2010 National Report on Sustainable Forests (Robertson et al. 2011). The 8-product analyses exclude product categories not grown in forests and with missing data. General import values have increased for both the 8-product and 14-product analyses and total export values have remained fairly constant for both the 8-product and 14-product analyses. The 14-product analyses had greater general import and total export values due to the greater number of products included in the analysis, some of which are not technically NWFPs. Source: USITC (2024).

What has changed since 2010?

The largest difference between the 14-product and 8-product analyses is that the general import and total export values for the 14-product analysis are much greater than those of the 8-product analysis. This is due to profitable farm-cultivated products being excluded from the 8-product analysis. Nevertheless, across both the 14-product and 8-product analyses, general import values generally increased from 2003 to 2022. The 8-product total export value slightly increased through 2012 and then returned to approximately the same value in 2022 as 2003. The 14-product total export value monotonically increased from 2003 to 2012, decreased slightly in 2017, and then remained relatively stable through 2022. The 14-product general import value

increased by approximately 180 percent from 2003 to 2022, whereas the 8-product general import value increased by approximately 36 percent for the same period. Throughout that period, general import value for the 8 products decreased from 2003 to 2007, stayed relatively stable through 2012, and then increased from 2012 to 2017.

The most valuable total export categories for the 14-product analysis were cranberries and genus *Vaccinium*, followed by foliage. Cranberries and genus *Vaccinium* and vanilla were the most valuable general import categories for the 14-product analysis. For the 8-product analysis, foliage was the most valuable total export in 2003 and 2022 (fig. 31-2), in addition to the other years featured in the dataset. Meanwhile, vanilla was the most valuable general import for years 2003, 2017, and 2022 (fig. 31-3). Maple sugar/syrup was the most valuable general import in 2007 and 2012.

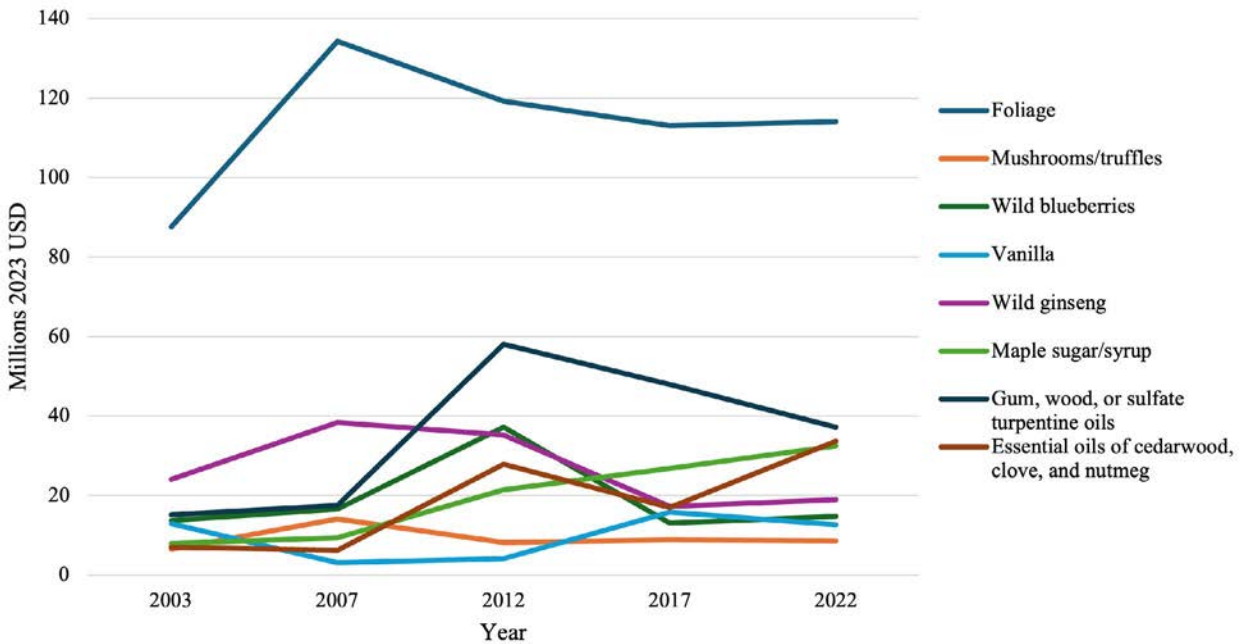


Figure 31-2—The total export value in millions of 2023 U.S. dollars (USD) from the analysis of eight nonwood forest products (NWFPs) for years 2003 to 2022. Foliage; mushrooms/truffles; wild blueberries; maple sugar/syrup; gum, wood, or sulfate turpentine oils; and essential oils of cedarwood, clove, and nutmeg increased in value, while vanilla and wild ginseng decreased in value from 2003 to 2022. As of 2022, the products in descending order of value were: foliage; gum, wood, or sulfate turpentine; essential oils of cedarwood, clove, and nutmeg; maple sugar/syrup; wild ginseng; wild blueberries; vanilla; and mushrooms/truffles. Product categories are from the 2010 National Report on Sustainable Forests (Robertson et al. 2011) with cultivated products and products lacking data removed. Source: USITC (2024).

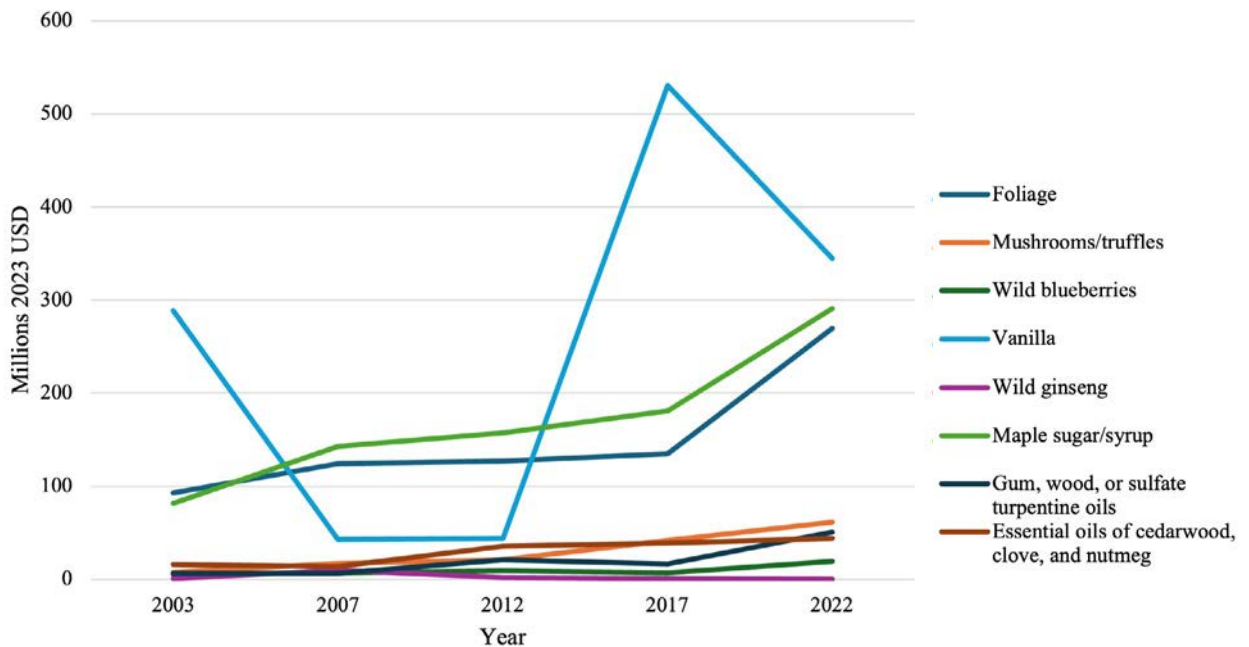


Figure 31-3—The general import value in millions of 2023 U.S. dollars (USD) from the analysis of eight nonwood forest products (NWFPs) for years 2003 to 2022. All products except wild ginseng increased in value. The value of wild ginseng decreased from \$880,000 to \$170,000. As of 2022, the products in descending order of value were: vanilla; maple sugar/syrup; foliage; mushrooms/truffles; gum, wood, or sulfate turpentine; essential oils; wild blueberries; and wild ginseng. Product categories are from the 2010 National Report on Sustainable Forests (Robertson et al. 2011) with cultivated products and products lacking data removed. Source: USITC (2024).

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

Import and export data provide useful information on the trade of NWFPs, especially because other national data are lacking. However, the USITC system was not designed to track products from production to consumption, and there is no way to determine which products were grown in forests. Some HTS codes provide a distinction between wild and cultivated species (i.e., wild ginseng and cultivated ginseng), but this was not widespread in the HTS code system. Therefore, it was impossible to determine what amount of the import or export value exclusively came from forests. Without precise data, any estimation of the value of NWFPs could be either an overestimation or underestimation. Concise classifications that denote NWFPs in the HTS system could allow for more robust analyses and comparisons over time. More generally, reporting on this indicator could be substantially improved if agencies (e.g., the U.S. Department of Agriculture, Foreign Agricultural Service and the U.S. International Trade Commission) and their stakeholders (e.g., State governments, policymakers, and analysts) could define a national list of NWFPs and their corresponding HTS codes.

Literature Cited

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Appendix A: Harmonized Tariff Schedule Product Categories, Descriptions, and Codes

Table A31-1—U.S. International Trade Commission DataWeb product categories that were selected for comparison to the 2010 National Report on Sustainable Forests (Robertson et al. 2011), along with descriptions and Harmonized Tariff Schedule (HTS) codes for the 14 product groups used in the 2010 analysis

Product category	Description	HTS code
Foliage	Foliage, branches, etc. without flowers or flower buds, and grasses, mosses, and lichens, fresh, suitable for bouquets or for ornamental purposes	60420
	Foliage, branches, etc. without flowers or buds, and grasses, mosses, etc., dried, dyed, bleached, impregnated, or otherwise prepared, for bouquets/ornamental	60490
	Foliage, branches, and other parts of plants, without flowers or buds, and grasses suitable for bouquets or for ornamental purposes, fresh	60491
	Foliage, branches, and parts of plants (no flowers or buds) NESOI, for bouquets or ornamental purposes, dried, dyed, bleached, or otherwise prepared	60499
Mushrooms/truffles	Mushrooms of the genus <i>Agaricus</i> , fresh or chilled	70951
	Mushrooms of the genus <i>Boletus</i> , fresh or chilled	70952
	Mushrooms of the genus <i>Cantharellus</i> , fresh or chilled	70953
	Shiitake (<i>Lentinus edodes</i>), fresh or chilled	70954
	Matsutake (<i>Tricholoma matsutake</i> , <i>Tricholoma magnivelare</i> , <i>Tricholoma anatolicum</i> , <i>Tricholoma dulciolens</i> , <i>Tricholoma caligatum</i>), fresh or chilled	70955
	Truffles (<i>Tuber</i> spp.), fresh or chilled	70956
	Mushroom, fresh or chilled, NESOI	70959
	Other truffles, fresh or chilled	7095911
	Other mushrooms, NESOI, fresh or chilled	7095991
Wild blueberries	Blueberries, wild, fresh	810400024
Vanilla	Vanilla	905
Wild ginseng	Ginseng roots, fresh or dried, whether or not cut, crushed, or powdered	1211201090
Maple sugar/syrup	Maple sugar and maple syrup	170220
Gum, wood, or sulfate turpentine oils	Gum, wood, or sulfate turpentine, etc. from coniferous woods; crude dipentene; sulfite turpentine, etc.; pine oil with alpha-terpineol predominating	38051000
Essential oils of cedarwood, clove, and nutmeg	Essential oils of cedarwood	3301295109
	Essential oils of clove	3301295113
	Essential oils of nutmeg	3301295125
Cultivated ginseng	Ginseng roots, cultivated, fresh or dried, whether or not cut, crushed, or powdered	1211200020
Pine oil	Pine oil	38059050
Pecans	Pecans, fresh or dried, in shell	8029010
	Pecans, fresh or dried, shelled	8029015
Cranberries and genus <i>Vaccinium</i>	Cranberries, blueberries, and other fruits of the genus <i>Vaccinium</i>	8104000
Mosses/lichen	Mosses and lichens suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated, or otherwise prepared	60410
Pine nuts	Pine nuts, in shell, fresh or dried	80291
	Pine nuts, shelled, fresh or dried	80292

NESOI = not elsewhere specified or indicated.

Source: USITC (2024).

Table A31-2—U.S. International Trade Commission DataWeb product categories that were selected for comparison to the 2010 National Report on Sustainable Forests (Robertson et al. 2011), along with descriptions and Harmonized Tariff Schedule (HTS) codes for the eight product groups used in the 2023 analysis

Product category	Description	HTS code
Foliage	Foliage, branches, etc. without flowers or flower buds, and grasses, mosses, and lichens, fresh, suitable for bouquets or for ornamental purposes	060420
	Foliage, branches, etc. without flowers or buds, and grasses, mosses, etc., dried, dyed, bleached, impregnated, or otherwise prepared, for bouquets/ornamental	060490
	Foliage, branches, and other parts of plants, without flowers or buds, and grasses suitable for bouquets or for ornamental purposes, fresh	060491
	Foliage, branches, and parts of plants (no flowers or buds) NESOI, for bouquets or ornamental purposes, dried, dyed, bleached, or otherwise prepared	060499
Mushrooms/truffles	Mushrooms of the genus <i>Boletus</i> , fresh or chilled	070952
	Mushrooms of the genus <i>Cantharellus</i> , fresh or chilled	070953
	Matsutake (<i>Tricholoma matsutake</i> , <i>Tricholoma magnivelare</i> , <i>Tricholoma anatolicum</i> , <i>Tricholoma dulciolens</i> , <i>Tricholoma caligatum</i>), fresh or chilled	070955
	Truffles (<i>Tuber</i> spp.), fresh or chilled	070956
	Mushroom, fresh or chilled, NESOI	070959
	Other truffles, fresh or chilled	07095911
	Other mushrooms, NESOI, fresh or chilled	07095991
Wild blueberries	Blueberries, wild, fresh	0810400024
Vanilla	Vanilla	0905
Wild ginseng	Ginseng roots, fresh or dried, whether or not cut, crushed, or powdered	1211201090
Maple sugar/syrup	Maple sugar and maple syrup	170220
Gum, wood, or sulfate turpentine oils	Gum, wood, or sulfate turpentine, etc. from coniferous woods; crude dipentene; sulfite turpentine, etc.; pine oil with alpha-terpineol predominating	3805
Essential oils of cedarwood, clove, and nutmeg	Essential oils of cedarwood	3301295109
	Essential oils of clove	3301295113
	Essential oils of nutmeg	3301295125

NESOI = not elsewhere specified or indicated.
Source: USITC (2024).

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