2012

Nebraska's Forest Resources, 2012

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Northern Research Station

Nebraska's Forest Resources, 2012

Research Note NRS-176

This publication provides an overview of forest resource attributes for Nebraska based on an annual inventory conducted by the Forest Inventory and Analysis (FIA) program at the Northern Research Station of the U.S. Forest Service. These estimates, along with web-posted core tables, will be updated annually. For more information please refer to page 5 of this report.

Table 1.—Annual estimates and uncertainty for Nebraska, 2012

	Estimate 2012	Sampling error (%)
Forest Land Estimates		
Area (1,000 acres)	1,569	4.2
Number of live trees 1-inch diameter or larger (million trees)	414	6.6
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	46,056	6
Net volume of live trees (million cubic feet)	2,091	6.6
Annual net growth of live trees (1,000 cubic feet per year)	47,799	19.5
Annual mortality of live trees (1,000 cubic feet per year)	41,187	17.3
Annual removals of live trees (1,000 cubic feet per year)	13,728	48.6
Timberland Estimates		
Area (1,000 acres)	1,461	4.3
Number of live trees 1-inch diameter or larger (million trees)	383	6.9
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	44,041	6.2
Net volume of live trees (million cubic feet)	2,015	6.9
Net volume of growing-stock trees (million cubic feet)	1,050	10.5
Annual net growth of growing-stock trees (1,000 cubic feet per year)	11,938	58.3
Annual mortality of growing-stock trees (1,000 cubic feet per year)	21,713	27
Annual removals of growing-stock trees (1,000 cubic feet per year)	7,582	81.2

Note: Sampling errors in Tables 1 and 2 in this report represent 68% confidence intervals for the estimated values.

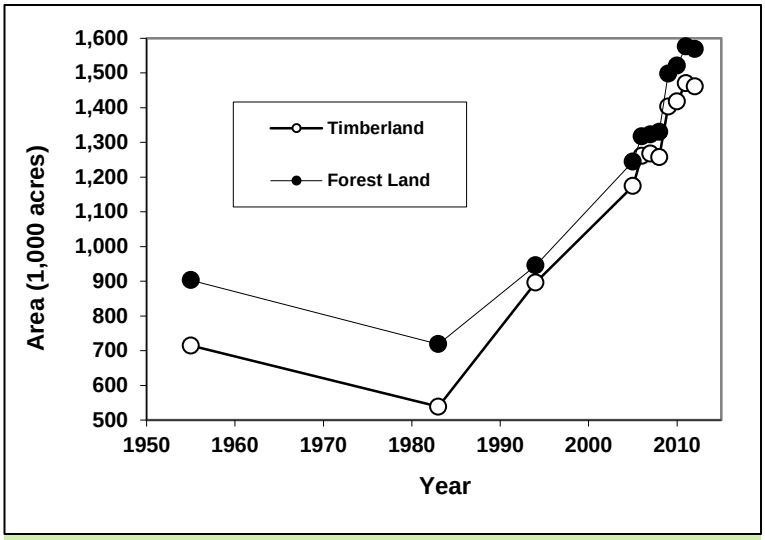


Figure 1.—Area of timberland and forest land by year.

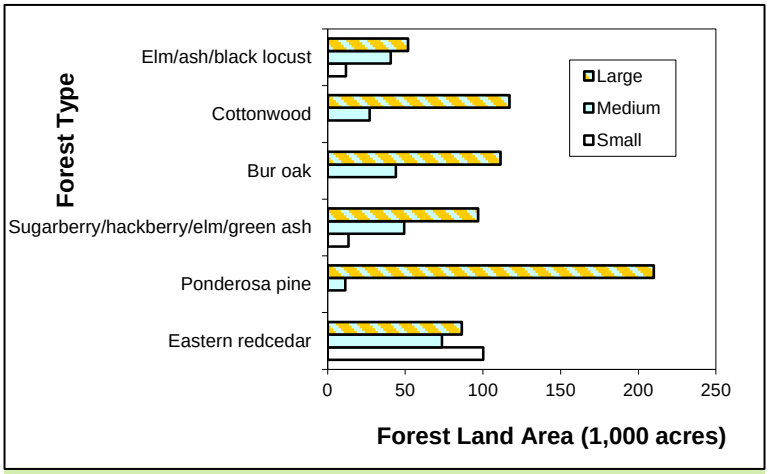


Figure 2.—Area of forest land by top six forest types and stand-size class, Nebraska, 2012.

NOTE: Large diameter trees are ≥ 11.0 d.b.h. for hardwoods and ≥ 9.0 d.b.h. for softwoods. Medium diameter trees are ≥ 5.0 d.b.h. but not as large as large diameter trees. Small diameter trees are < 5.0 d.b.h.

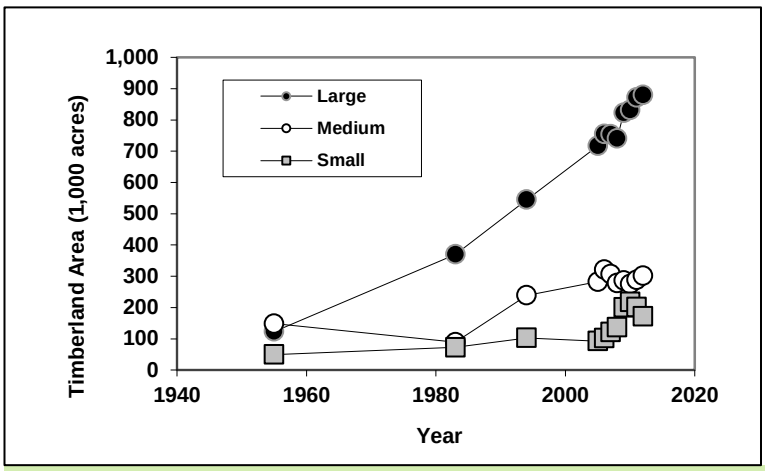
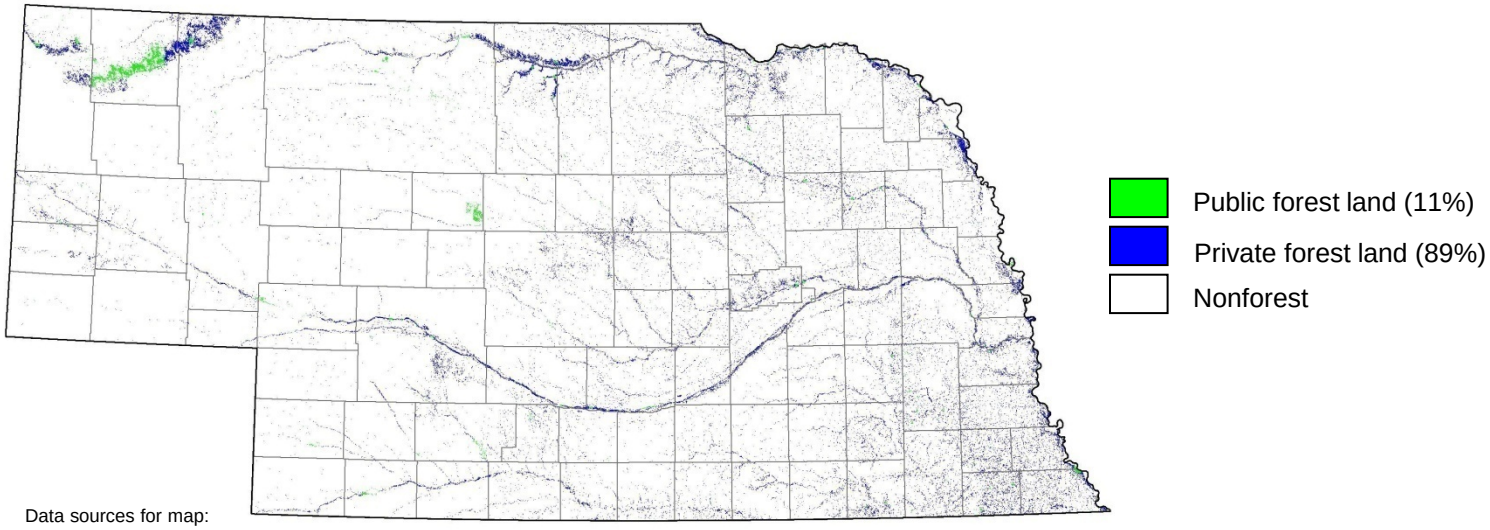


Figure 3.—Area of timberland by stand-size class and year.

Table 2.—Top 10 tree species by statewide volume estimates, Nebraska, 2012

Rank	Species	Volume of live trees on forest land (million cubic feet)	Sampling error (%)	Volume of sawtimber trees on timberland (million board feet)	Sampling error (%)
1	Cottonwood	609.0	18.4	2,055.2	23.1
2	Bur oak	310.7	14.2	398.7	25.8
3	Ponderosa pine	300.3	15.5	927.1	18.1
4	Eastern redcedar	197.4	11.8	37.8	45.2
5	Green ash	131.2	14.0	182.8	26.2
6	American basswood	81.6	30.2	253.4	32.9
7	Red mulberry	81.5	18.6	9.5	51.2
8	Hackberry	72.7	18.5	115.8	33.5
9	American elm	61.6	14.8	39.8	34.9
10	Siberian elm	45.6	26.4	37.5	42.7
	Other softwoods	21.0	35.8	12.7	108.5
	Other hardwoods	177.9	12.0	279.8	20.2
	All Species	**2,090.5**	**6.6**	**4,350.1**	**11.9**

Forest Land Ownership



Data sources for map:
USDA Forest Service, Conservation Biology Institute Protected Areas Database, National Land Cover Database 2001. Geographic base data from the National Atlas of the USA.

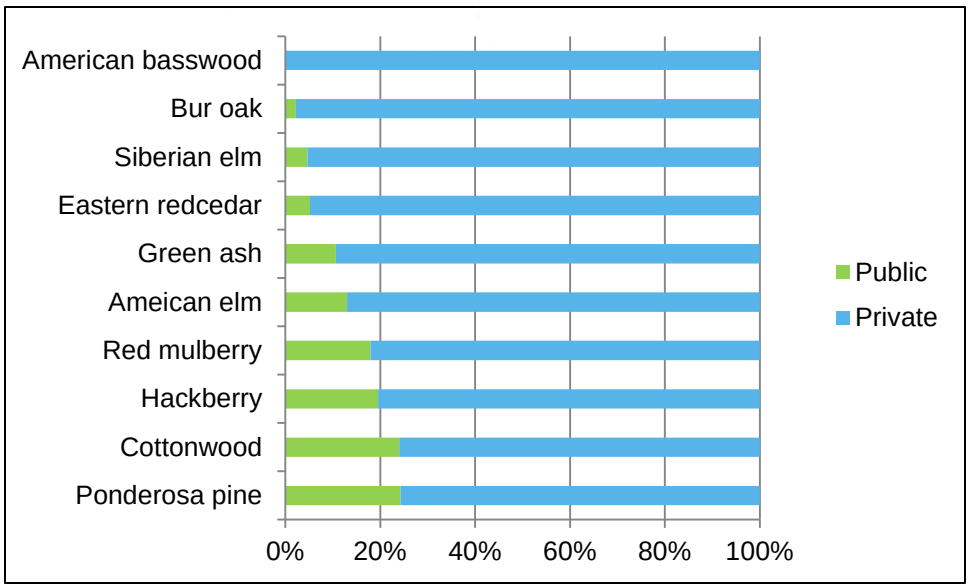


Figure 4.—Distribution of live volume of top 10 tree species on forest land by owner category, Nebraska, 2012.

Commercial Hardwoods Update

Hardwood forest types in Nebraska occupy just over 924,000 acres, or 59 percent, of all forest land, and more than 870,000 acres, or 60 percent, of timberland. The seven major hardwood species in terms of volume of growing-stock trees (at least 5-inches d.b.h.) on timberland include bur oak, green ash, cottonwood, American basswood, hackberry, American elm, and black walnut. These species comprise 62 percent of the total volume of live trees at least 5-inches d.b.h. on timberland; the distribution of this volume by species is shown in Fig. 5.

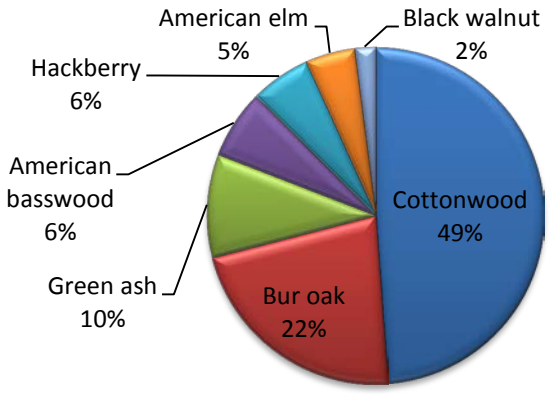


Figure 5.—Distribution of the net volume of live trees (≥ 5-inches d.b.h.) on timberland for the top seven commercial hardwood species, Nebraska, 2012.

Since 2005, there have been some changes in forest land composition (Fig. 6). For example, cottonwood was the most common hardwood forest type in 2005 but has been surpassed by bur oak and the sugarberry/hackberry/elm/green ash (SHEGA) forest types. Figures 7A and 7B show the distribution of forest land for selected hardwood forest types by stand-size class. While cottonwood used to dominate the large stand-size class, bur oak and SHEGA are gaining area while cottonwood showed a loss of forest land area in this size class. Furthermore, there was no reported forest land area in the small stand-size class for cottonwood in 2012.

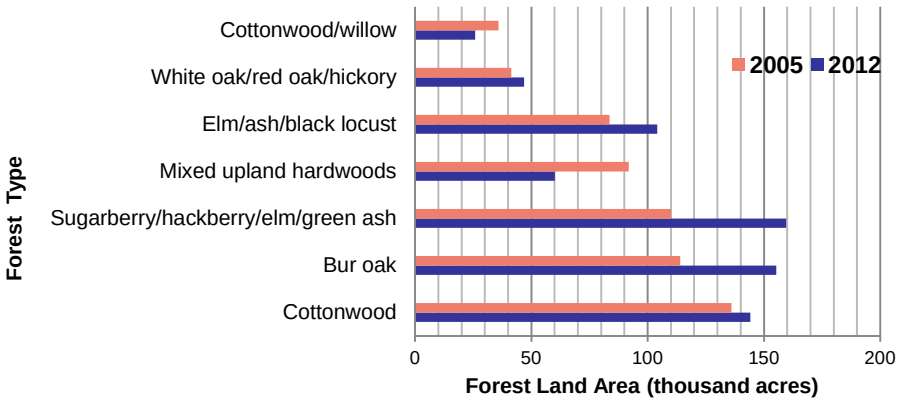
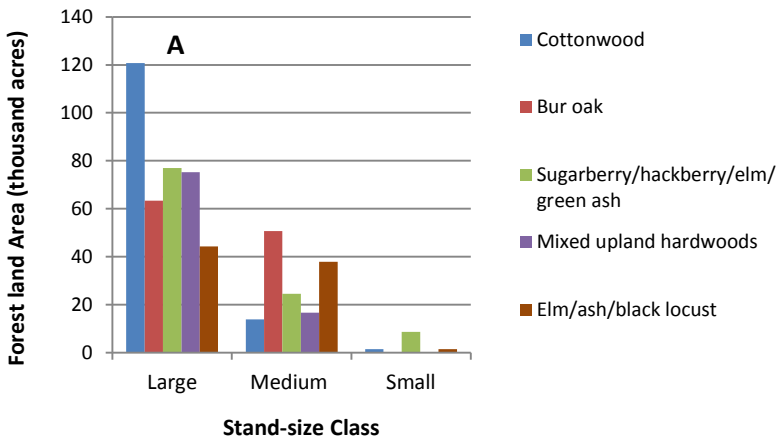


Figure 6.—Distribution of forest land area by selected hardwood forest types, Nebraska, 2005 and 2012.



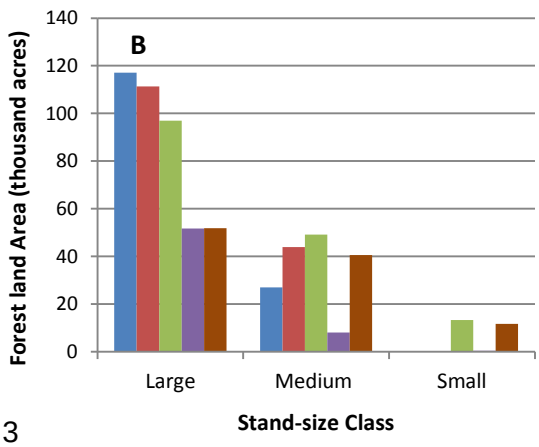


Figure 7.– Distribution of forest land area by selected hardwood forest types and stand-size class, Nebraska, 2005 (A) and 2012 (B).

Commercial Hardwoods Update

Live volume in Nebraska has increased steadily since 1983 with a current estimate of more than 2 billion cubic feet (Fig. 8). Three hardwood species account for half of all live volume: cottonwood (607 million cubic feet), followed by bur oak (275 million cubic feet) and green ash (123 million cubic feet) (Fig. 9).

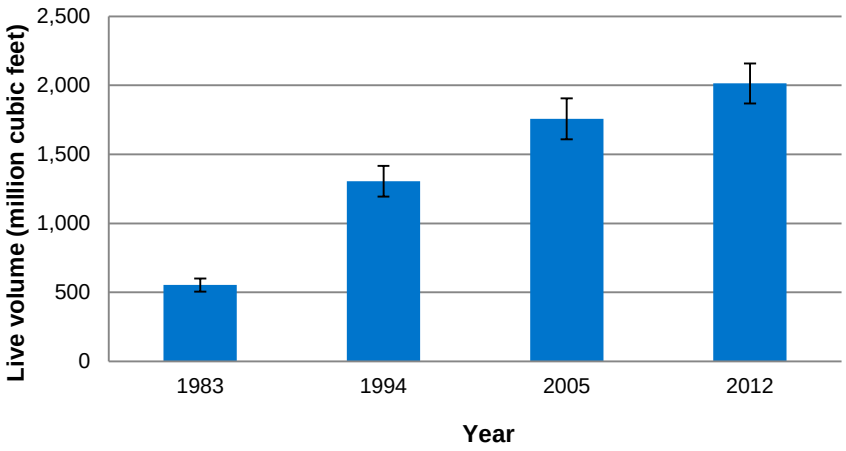


Figure 8.—Total live volume on timberland, Nebraska, 1983-2012. Error bars represent 68-percent confidence intervals around the estimate.

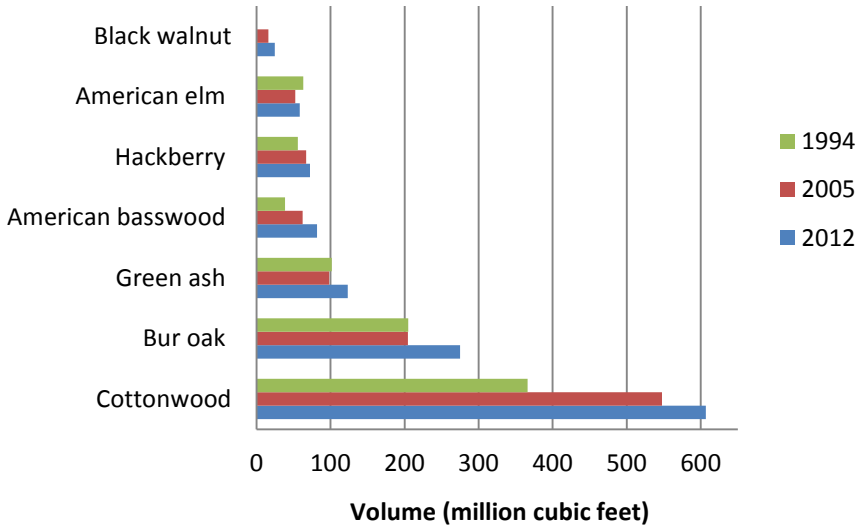


Figure 9.—Total volume of live trees (≥ 5.0 inches d.b.h.) on timberland for selected hardwood species, Nebraska, 1994-2012.

For additional information regarding commercial tree species, such as growing-stock volume, sawtimber quantity and quality, and timber product output and use, the reader is referred to the 2010 comprehensive inventory report on Nebraska's forests by Meneguzzo et al. (2012)[1] and the 2009 report on Nebraska's timber industry by Walters et al. (2012).[2]

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[1] Meneguzzo, D.M.; Crocker, S.J.; Nelson, M.D.; Barnett, C.J.; Butler, B.J.; Domke, G.M.; Hansen, M.H.; Hatfield, M.A.; Liknes, G.C.; Lister, A.J.; Lister, T.W.; Piva, R.J.; Wilson, B.T.; Woodall, C.W. 2012. **Nebraska's Forests 2010**. Resour. Bull. NRS-68. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 47 p. [DVD included].

[2] Walters, B.F.; Adams, D.M.; Piva, R.J. 2012. **Nebraska timber industry: an assessment of timber product output and use, 2009**. Resour. Bull. NRS-69. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 54 p.

Citation for this Publication

Meneguzzo, D.M. 2013. **Nebraska's forest resources, 2012**. Res. Note NRS-176. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 5 p.

FIA Program Information

Bechtold, W.A.; Patterson, P.L., eds. 2005. **The enhanced Forest Inventory and Analysis Program: national sampling design and estimation procedures.** Gen. Tech. Rep. SRS-80. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 85 p.

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USDA Forest Service. 2007. **Forest inventory and analysis national core field guide, Vol. 1, field data collection procedures for phase 2 plots, ver. 4.0.** Washington, DC: U.S. Department of Agriculture, Forest Service. Available at http://www.fia.fs.fed.us/library/field-guides-methods-proc/ (verified 24 Nov 2009).

Additional Nebraska Inventory Information

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Meneguzzo, D.M.; Butler, B.J.; Crocker, S.J.; Haugen, D.E.; Moser, W.K.; Perry, C.H.; Wilson, B.T.; Woodall, C.W. 2008. **Nebraska's forests, 2005.** Resour. Bull. NRS-27. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 94 p.

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Raile, G.K. 1986. **Nebraska's second forest inventory.** Resour. Bull. NC-96. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 87 p.

Schmidt, T.L.; Wardle, T.D. 1998. **The forest resources of Nebraska.** Res. Pap. NC-332. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 114 p.

Definitions

Forest land - Land at least 10 percent stocked by forest trees of any size, or land formerly having such tree cover and not currently developed for a nonforest use. The minimum area for classification as forest land is 1 acre. Roadside, stream-side, and shelterbelt strips of timber must be at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams and other bodies of water, or natural clearings in forested areas are classified as forest, if less than 120 feet in width or 1 acre in size. Grazed woodlands, reverting fields, and pastures that are not actively maintained are included if the above qualifications are satisfied. Forest land includes three subcategories: timberland, reserved forest land, and other forest land.

Timberland - Forest land that is producing or is capable of producing wood at a rate of 20 cubic feet/acre/year and is not withdrawn from timber utilization by statute or administrative regulation.

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Estimates, tabular data, and maps from this report may be generated at: http://fiatools.fs.fed.us
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Information published in this report and in related tables is based on the Forest Inventory and Analysis Database (FIADB) processed using National Information Management System (NIMS) version 4.0, November 2010. Due to periodic changes to FIADB and NIMS, trend analyses should be made using FIA's online estimation tools, not by comparing published reports or tables. FIA estimates, tabular data, and maps may be generated at http://www.fia.fs.fed.us/tools-data/.