

Appendix A. Forest Legacy Program Assessment of Need

The Cooperative Forestry Assistance Act of 1978 provides authority for the U.S. Secretary of Agriculture to provide financial, technical, educational, and related assistance to states, communities, and private forestland owners. Section 1217 of Title XII of the Food, Agriculture, Conservation and Trade Act of 1990 (P.L. 101-624:104 stat.3359), referred to as the 1990 Farm Bill, amended the Cooperative Forestry Assistance Act to allow the Secretary to establish the Forest Legacy Program (FLP) to protect environmentally important forest areas that are threatened by conversion to non-forest uses. The goal of the legislation was to protect scenic, cultural, fish, wildlife, water quality, and recreational resources. This authority continues indefinitely, and permitted the outright purchase of threatened forestland (or development rights via conservation easements) by federal agencies. This legislation was further amended in 1996 to allow state agencies to hold the title or easement on properties in the program. Through the 1996 Farm Bill (federal Agriculture Improvement and Reform Act of 1996; Public Law 104-127); Title III – Conservation; Subtitle G – Forestry; Section 374, Optional State Grant for FLP), the Secretary is authorized, at the request of a participating State, to make a grant to the state to carry out the FLP in the state, including the acquisition by the state of lands and interest in lands. For Nebraska to participate in the FLP, the NFS was identified by the Governor of Nebraska on April 10, 2000, to be the state agency to lead the Forest Legacy Program.

The overall goals are the basis for implementing the FLP in Nebraska. Each goal serves as a critical direction for the program. The general goal is to protect ecologically important forest systems in Nebraska. Priorities for protection include:

Protection of flora/fauna diversity	<ul style="list-style-type: none"> a. Promote diversity of Nebraska's forests and sustained productivity b. Link working forests to the plant and animal diversity c. Protect rare and important ecological systems
Protection of ecologically unique forest environs to include the eastern most extension of ponderosa pine forests in the United States	<ul style="list-style-type: none"> a. Protect seed source b. Maintain landscape-scale blocks of ponderosa pine
Protection of significant riparian forest	<ul style="list-style-type: none"> a. Protect threatened riparian forest in urban areas b. Protect biologically unique landscape found around Nebraska's rivers and streams
Connectivity of other conservation lands	<ul style="list-style-type: none"> a. Link protected forests both private and public b. Build connectivity to conservation lands c. Protection of wildlife, wildlife habitat and threatened and endangered species d. Protect rare species both flora and fauna e. Promote forest management that provides quality wildlife habitat enhancement f. Promote wildlife corridors especially around communities and critical habitat
Protection of forested parcels in danger of conversion or parcelization	<ul style="list-style-type: none"> a. Protect forests in and around communities to help connect people with trees b. Provide outdoor classroom opportunities in forest environments
Protection of unique geologic areas including minerals and fossil beds	<ul style="list-style-type: none"> a. Provide protection for unique geologic sites for education, recreation and outreach
Protection of cultural resources including historic sites	<ul style="list-style-type: none"> a. Protect historic sites and cultural sites b. Provide access to important sites when appropriate c. Protection of forest-based recreation d. Provide public access when possible e. Increase public awareness through forest education and use of these sites
Protection of water resources	<ul style="list-style-type: none"> a. Protect riparian forest function
Protection of soil productivity	<ul style="list-style-type: none"> a. Protect highly erodible soils
Forest Products and timber production	<ul style="list-style-type: none"> a. Promote economic value of the forest resources b. Protect working forest economic value c. Link working forest areas

Nebraska's Forest Legacy Assessment of Need may be viewed in its entirety at the following website: <https://nfs.unl.edu/documents/ForestLegacyAssessmentofNeed2017.pdf>

Appendix B. Eastern Redcedar in Nebraska Issue Paper

Taking a collaborative approach, in 2013 the members of the Nebraska Conservation Roundtable came together to develop a vision for addressing the rapidly expanding population of cedar in Nebraska, define the extent of the problems, determine the opportunities cedar presents, and identify specific actions to achieve this vision. Roundtable partners envision a future where:

- ▶ Grasslands and pastures are managed in ways that reduce cedar populations to improve grass health, vigor and resilience, enhance and conserve native wildlife habitat in grasslands, and protect species diversity at the landscape scale;
- ▶ forests containing cedar are managed to enhance timber quality and economic value of all species, increase plant and wildlife diversity within forests, enhance forest ecological resilience and function, and reduce the risk of catastrophic wildfire; and
- ▶ cedar is a valuable tree species on the Nebraska landscape, with multiple and profitable markets for its wood, contributing to landowner income, job creation and economic development.

The Conservation Roundtable's Issue Paper No. 1 can be viewed in its entirety at the following website: <https://nfs.unl.edu/documents/EasternRedcedarNebraska-2016.pdf>

Appendix C. Further Reading

Forestry Best Management Practices for Nebraska

The NFS encourages landowners to prepare forest management plans for their woodland areas. Preparing a management plan is a good way to clarify goals, provide direction, and schedule management activities for the woodland. Guidelines must be applied to specific sites with common sense and flexibility.

Sometimes field situations will need to be interpreted, and on-the-ground activities need to be designed by a forester or other natural resources professional. Flexibility and the ability to modify guidelines to suit local conditions are also needed to effectively apply these practices.

Most activities involving the actual management of forestland are included within these best management practices. Other actions such as land clearing, land leveling, and construction, which might take place in or around forested areas are not included. These activities are considered land-use conversion rather than woodland management.

Nebraska's Forestry best management practices can be found at the following web address:

<https://nfs.unl.edu/documents/ruralforestry/NebraskaBMP.pdf>

Nebraska Community Wildfire Protection Plans

A Community Wildfire Protection Plan gathers together a community's resources to enhance wildfire mitigation and preparedness. The document identifies the steps a community can take to reduce its risk of damage from wildfires. Every CWPP has two key steps: It identifies and prioritizes wildfire risk areas within and adjacent to the community; It identifies measures needed to mitigate those risks, and it creates a plan of action to implement these measures.

To review the current and proposed plans in Nebraska, please visit the following web address: <https://nfs.unl.edu/community-wildfire-protection-plan>

Nebraska Natural Legacy Project: Revision of the Tier 1 and Tier 2 Lists of Species of Greatest Conservation Need

Nebraska's current State Wildlife Action Plan (Schneider et al. 2011) was approved by the U.S. Fish and Wildlife Service (USFWS) in 2011. One of the federal requirements for a State Wildlife Action Plan (SWAP) is that it identifies Species of Greatest Conservation Need (SGCN) within the state. In Nebraska, the SGCN list is divided into two tiers. Tier 1 species are those that are globally or nationally most at risk of extinction and which occur in Nebraska. Tier 2 species are typically those that are not at risk from a global or national perspective but are rare or imperiled within Nebraska. Tier 1 species are a higher priority and more research and conservation efforts are focused on these species. These lists are used to help prioritize conservation planning and actions and do not have legal or regulatory ramifications. By focusing conservation efforts on Tier 1 and 2 species, Nebraska can help prevent future state/federal listing as threatened or endangered, help recover currently listed species, and ensure that these species remain a part of the flora and fauna of Nebraska.

More information can be obtained by contacting the Nebraska Game and Parks Commission or visiting this web address: http://outdoornebraska.gov/wp-content/uploads/2018/11/NE-SWAP-SGCN-Revision-Supplemental-Documents-2018-Final_edited-1.pdf

References

- Anderson, M. (2003). *Juniperus virginiana*. In Fire Effects Information System [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Retrieved from <https://www.fs.fed.us/database/feis/plants/tree/junvir/all.html>
- Bathke, D., Oglesby, R., Rowe, C., Wilhite, D. (2014) Understanding And Assessing Climate Change, Implications for Nebraska. University of Nebraska. Lincoln, NE. <http://snr.unl.edu/download/research/projects/climateimpacts/2014ClimateChange.pdf>
- Bonner, F., Karrfalt, R. (Eds). (2008). *The woody plant seed manual*. Washington, DC: Retrieved from U.S. Department of Agriculture, Forest Service: <https://www.fs.usda.gov/treearch/pubs/32626>
- Frankson, R., Kunkel, K., Stevens, L., & Shulski, M. (2017). *Nebraska State Climate Summary*. (Technical Report NESDIS 149-NE, 4 pp.). Retrieved from NOAA National Centers for Environmental Information website: <https://statesummaries.ncics.org/chapter/ne/>
- Gaarder, N. (2020, January 15). 'An unprecedented event': Nebraska's losses from 2019 flooding, blizzard exceed \$3.4 billion. *Omaha World-Herald*. Retrieved from https://omaha.com/news/plus/an-unprecedented-event-nebraskas-losses-from-2019-flooding-blizzard-exceed-3-4-billion/article_1b-be1c5c-17de-53f2-a18f-459a1b5a1cdd.html
- Haugen, D., Piva, R., Smith, A., (2018). *Nebraska Timber Industry, 2014*. (FS-RU-173). Newtown Square, PA: Retrieved from U.S. Department of Agriculture, Forest Service <https://www.nrs.fs.fed.us/pubs/57235>
- Karl, T., Melillo, J., & Peterson, T. (Eds.). (2009). *Global Climate Change Impacts in the United States*, Cambridge University Press.
- Lane, R. (2008). Nebraska Forest Service Wood Waste Supply & Utilization Assessment. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1053&context=nebforestpubs>
- Lawson, E. (1990). Eastern Redcedar. Retrieved from U.S. Department of Agriculture, Forest Service: https://www.srs.fs.usda.gov/pubs/misc/ag_654/volume_1/juniperus/virginiana.htm
- Link, A., Turnblacer, T., Snyder, C., Daugherty, S., & Utz, R. (2018). Low Recruitment of Native Trees in a Deciduous Forest Associated with Japanese Barberry (*Berberis thunbergii*) Invasion. *Invasive Plant Science and Management*, 11(1), 20-26. doi:10.1017/inp.2018.1
- McPherson, G., Simpson, J., Peper, P., Maco, S., & Xiao, Q. (2005). Municipal Forest Benefits and Costs in Five US cities. *Journal of Forestry*, 103(8): 411-416. Retrieved from: <https://www.fs.usda.gov/tree-search/pubs/45956>
- Meneguzzo, D., Butler, B., Crocker, S., Haugen, D., Moser, K., Perry, C., Wilson, B., & Woodall, C. (2008). *Nebraska's forests, 2005* (NRS-27). Newtown Square, PA: Retrieved from U.S. Department of Agriculture, Forest Service: <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1001&context=neb-forestpubs>
- Meneguzzo, D., Lister, A., Sullivan, C. (2018). *Summary of findings from the Great Plains Tree and Forest Invasives Initiative*. (Rep. NRS-GTR-177). Newtown Square, PA: Retrieved from U.S. Department of Agriculture, Forest Service: <https://www.fs.usda.gov/treearch/pubs/56053>

Meneguzzo, D., Nelson, M. (2018). *Forests of Nebraska, 2017* (Resource Update FS-155). Retrieved from <https://www.nrs.fs.fed.us/pubs/56218>

Monitoring Trends in Burn Severity (2020). *Nebraska Wildfires 2012 [Interactive data viewer]*. Retrieved from <https://www.mtbs.gov/viewer/index.html>

Nebraska Association of Resource Districts. (2019). [Conservation tree sales]. Unpublished raw data.

National Association of State Foresters (2018, September 24). Annual Meeting of State Foresters: Forest Action Plans and Forest Stewardship Program Priority Areas. Washington D.C.

National Association of State Foresters (2019a). State Forestry Statistics Report. Retrieved from <https://www.stateforesters.org/wp-content/uploads/2019/11/2018-State-Foresters-by-the-Numbers-Final.pdf>.

National Wildfire Coordinating Group. (2020). *National Fire and Aviation Management [Web application and data file]*. Retrieved from <https://fam.nwcg.gov/fam-web/>

Nebraska Conservation Roundtable (2016, July). *Eastern Redcedar in Nebraska: Problems and Opportunities* (Issue Brief No. 1). Retrieved from <https://nfs.unl.edu/documents/EasternRedcedarNebraska-2016.pdf>

Nebraska Department of Revenue. (2019). *Certified Municipal Population* [data file]. Retrieved from <https://revenue.nebraska.gov/research/statistics/local-government-data>

Nebraska Forest Service: Mission; core programs; duties, Neb. Revised Stat. § 85-161 (2004).

Nebraska Forest Service. (2007). [Nebraska Community Tree Inventories]. Unpublished raw data.

Nebraska Forest Service. (2012). [Community Threat Assessment Protocol]. Unpublished raw data.

Nebraska Forest Service. (2018a). [Community forestry acreage information]. Unpublished raw data.

Nebraska Forest Service. (2018b). [Total acres burned by wildfires by year]. Unpublished raw data.

Nebraska Forest Service. (2019). [Fuels treatment projects: Total projects and average size]. Unpublished raw data.

Nebraska Game and Parks Commission (n.d.). *Conservation: Biodiversity*. Retrieved from <http://outdoornebraska.gov/conservation/>

Nebraska Game and Parks Commission. (2020). Public Lands Atlas [map]. Retrieved from <https://maps.outdoornebraska.gov/PublicAccessAtlas/>.

Nebraska Legislature. (2018). *2018-2019 Nebraska blue book*. Retrieved from: <https://nebraskalegislature.gov/about/blue-book.php>

Nebraska Nongame Endangered Species Conservation Act, Neb. Rev. Stat. § 37-801-811 (1975).

Nowak, D., & Greenfield, E. (2010). *Urban and community forests of the North Central West region: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota* (Gen. Tech. Rep. NRS-56). Newtown Square, PA: Retrieved from U.S. Department of Agriculture, Forest Service <https://www.fs.usda.gov/treesearch/pubs/34757>

Nowak, D., Hoehn, R., Crane, D., & Bodine, A. (2012). *Assessing urban forest effects and values of the Great Plains: Kansas, Nebraska, North Dakota, South Dakota* (Resour. Bull. NRS-71). Newtown Square, PA: Retrieved from U.S. Department of Agriculture, Forest Service <https://www.fs.usda.gov/treearch/pubs/42366>

Nowak, D., Greenfield, E. (2018). Declining urban and community tree cover in the United States. *Urban Forestry & Urban Greening*, 32:32-55. <https://doi.org/10.1016/j.ufug.2018.03.006>.

Pryor, S., Scavia, D., Downer, C., Gaden, M., Iverson, L., Nordstrom, R., Patz, J., Robertson, G. (2014). Midwest: Climate change impacts in the United States. In Melillo, J., Richmond, T., & Yohe, G. (Eds.), *The third national climate assessment*. U.S. Global Change Research Program, Washington, D.C. Retrieved from US Forest Service website: <https://www.fs.usda.gov/treearch/pubs/47989>

Panella, M., Wilson, S. (2018). *Delisting Proposal for North American River Otter (Lontra canadensis) in Nebraska*. Retrieved from Nebraska Game and Parks Commission website: http://outdoornebraska.gov/wp-content/uploads/2018/04/RiverOtter_DelistingProposal.pdf

Pimentel, D., Zuniga, R., & Morrison, D. (2005) Update on the Environmental and Economic Costs Associated with Alien-Invasive Species in the United States. *Ecological Economics*, 2005, vol. 52, issue 3, 273-288. doi: 10.1016/j.ecolecon.2004.10.002

Piva, R., Adams, D. (2008). Nebraska Timber Industry— An Assessment of Timber Product Output and Use, 2006. Resour. Bull. NRS-28. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 54 p.

Platte River Recovery Implementation Program. (n.d.). Retrieved from <https://platteriverprogram.org/information-platte-river-basin-water-users>

PRISM Climate Group, Oregon State University. (2015). Nebraska Average Annual Precipitation, 1981-2010 [Meteorological map]. Retrieved from <https://prism.oregonstate.edu/normal/>

Robb, J. (2020, March 26). Omaha metro area's population will soon hit 1 million landmark. *Omaha World Herald*. Retrieved from https://omaha.com/news/local/omaha-metro-areas-population-will-soon-hit-1-million-landmark/article_2dc075bb-2b4d-5612-8ddc-12d204665c6e.html

Schneider, R., Fritz, M., Jorgensen, J., Schainost, S., Simpson, R., Steinauer, G., & Rothe-Groleau, C. (2018). Revision of the Tier 1 and 2 Lists of Species of Greatest Conservation Need: A Supplement to the Nebraska Natural Legacy Project State Wildlife Action Plan. The Nebraska Game and Parks Commission, Lincoln, NE

Shulski, M., Williams, T. (2020). *NC3 Nebraska climate summary – an overview of the 4th national climate assessment*. (Vol. II, Impacts, Risks and Adaptation in the United States). Retrieved from North Central Climate Collaborative website: https://northcentralclimate.org/files/2020/01/nc3-Nebraska-Climate-Summary-FINAL_2.12.pdf

U.S. Census Bureau. (2005). *2002 Economic census, geographic area series*. Retrieved from <https://www.census.gov/programs-surveys/economic-census/year.2002.html>

U.S. Census Bureau. (2019). *Nebraska Quick Facts: Population*. Retrieved from <https://www.census.gov/quickfacts/fact/table/NE/PST045219>

U.S. Department of Agriculture, National Agricultural Statistics Service. (2009). *2007 Census of Agriculture - Nebraska County Data* (Vol. 1, Ch. 2). Retrieved from https://www.nass.usda.gov/Publications/AgCensus/2007/Full_Report/Volume_1_Chapter_2_County_Level/Nebraska/st31_2_001_001.pdf

U.S. Department of Agriculture, National Agricultural Statistics Service. (2014). *2012 Census of Agriculture - Nebraska County Data* (Vol. 1, Ch. 2). Retrieved from https://www.nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1_Chapter_2_County_Level/Nebraska/st31_2_001_001.pdf

U.S. Department of Agriculture, National Agricultural Statistics Service. (2019). *2017 Census of Agriculture - Nebraska County Data* (Vol. 1, Ch. 2). Retrieved from https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Nebraska/st31_2_0001_0001.pdf

US Fish and Wildlife Service (2013). Endangered Species Listing: Frequently asked questions. https://www.fws.gov/nebraskaes/ESA%20Landowner%20Fact%20Sheet_080713.pdf

USDA Forest Service (2018). *Forest Inventory and Analysis Program: Forest Inventory EVALIDator web-application Version 1.8.0.01*. Retrieved from <http://apps.fs.usda.gov/Evalidator/evalidator.jsp>

Watkins, S., & Gerrish, E. (2018). The relationship between urban forests and race: A meta-analysis. *Journal of environmental management*, 209, 152–168. <https://doi.org/10.1016/j.jenvman.2017.12.021>

USDA Natural Resources Conservation Service (n.d.). *Native, Invasive, and Other Plant-Related Definitions*. Retrieved from https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ecoscience/invasive/?cid=nrcs142p2_011124

Wildfire Control Act, Neb. Stat. § 81-825-828 (2013).



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