



North Dakota

National Priorities Section

for the

Forest Action Plan



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Background

The 2008 Farm Bill, under Title VIII – Forestry, amended the Cooperative Forestry Assistance Act of 1978 to include the requirement that each state develop a long-term, statewide assessment and strategies for forest resources. These assessments and strategies focused on three national priorities:

- Conserve and Manage Working Forest Landscapes for Multiple Values and Uses,
- Protect Forests from Threats, and
- Enhance Public Benefits from Trees and Forests.



This document serves as a record of activities taken by stakeholders to develop strategies addressing priority landscapes in the North Dakota *Forest Action Plan*, and will be updated every ten years. It was developed with a comprehensive team of stakeholders to address landscape-scale actions that would be the most efficient activities to address issues of concern developed for the assessment phase of the *Forest Action Plan*. Section 1 outlines the National Priorities and the corresponding State Priorities. Section 2 describes the strategic actions being taken to address the National and State Priorities.

Section 1

National Priorities

1. Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

North Dakota Priority Issue 1.1: Reducing forest over maturity and promoting natural regeneration.

Strategy 1.1a: Identify, conserve, and actively manage high priority native forestlands.

Strategy 1.1b: Development of incentives and cost-effective measures for management (harvesting, Rx burn, thinning).

North Dakota Priority Issue 1.2: Maintaining historic vegetation type.

Strategy 1.2a: Mitigate forestland lost due to urban sprawl, agricultural clearing, and utility development.

Strategy 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.

North Dakota Priority Issue 1.3: Enhancing wood utilization opportunities.

Strategy 1.3a: Identify wood utilization and biomass opportunities.

Strategy 1.3b: Actively and sustainably manage trees and forests.



2. Protect Forests from Threats

North Dakota Priority Issue 2.1: Mitigating invasive tree pests.

Strategy 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.

Strategy 2.1b: Restore native forests impacted by invasive tree pests (EAB, gypsy moth, DED) and invasive weeds (buckthorn, Russian olive, saltcedar, etc.).

Strategy 2.1c: Reduce the risk of introduction in areas where risk of introduction is greatest.

Strategy 2.1d: Development of a first detectors' program.



North Dakota Priority Issue 2.2: Increasing species diversity and reducing vulnerability to damaging agents.

Strategy 2.2a: Identify seed sources and species adapted to biotic and abiotic conditions of the state.

Strategy 2.2b: Promote species diversity and forest health practices in communities.



North Dakota Priority Issue 2.3: Preventing and responding to wildland fires.

Strategy 2.3a: Assist communities in planning for and reducing wildfire risks.

Strategy 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.

Strategy 2.3c: Wildland restoration and fuels reduction.



3. Enhance Public Benefits from Trees and Forests

North Dakota Priority Issue 3.1: Strengthening educational outreach.

Strategy 3.1a: Increase awareness (educational sessions and distance learning) of the benefits and threats to forest resources.

Strategy 3.1b: Connect people to trees and forests and engage them in environmental stewardship activities.

North Dakota Priority Issue 3.2: Adapting to climate changes.

Strategy 3.2a: Manage existing forests to improve health.

Strategy 3.2b: Reduce forest conversion.

Strategy 3.2c: Plant new trees to increase carbon sequestration.



Section 2

Strategic Actions Taken by ND Stakeholders to Address National and State Priorities

Arbor Day Tree Plantings

Arbor Day is a holiday in which individuals and groups are encouraged to plant and care for trees. It also provides an opportunity to teach people about the importance of trees and how to properly plant and care for them. Trees planted today will improve water quality and protect drinking water; slow and reduce stormwater runoff; reduce silt and sediment in our streams, rivers and lakes; restore damaged forests and rebuild healthy ecosystems; provide food and animal shelters; shade our homes; lower energy bills; clean air and reduce air pollution; beautify homes, parks, streets, and schools; and make the quality of life better in our neighborhoods.



Strategies Addressed:

- 2.2b: Promote species diversity and forest health practices in communities.
- 3.1b: Connect people to trees and forests and engage them in environmental stewardship activities.

Biomass Boiler - Bismarck Aquatic Center

The Bismarck Parks and Recreation District (BPRD) completed a feasibility study and determined utilizing wood chips to heat the BPRD Indoor Aquatic Wellness Center building and pool was economically viable. Construction of the Indoor Aquatic Wellness Center included utilization of wood chips as a heating fuel source resulting in significant annual savings in the cost of heating the complex. The wood-fired hot water heating system utilizes proven existing technology and serves as a demonstration site and enhancement to the National Energy Center of Excellence at Bismarck State College.

Strategies Addressed:

- 1.3a: Identify wood utilization and biomass opportunities.

Biomass Boiler – Bismarck Public Works Landfill Buildings

The community of Bismarck and the ND Forest Service developed a pilot project using wood chips to heat the Public Works landfill building. The conversion resulted in significant annual savings in the cost of heating the complex. The wood-fired hot water heating system utilizes proven existing technology. Construction consisted of a centrally-housed biomass fired hot water boiler with hot water piping to connect the buildings at the Public Works landfill and modernization of the existing distribution system to provide maximum heating efficiency. Two wood waste biomass projects have been implemented in the community of Bismarck to date.

Strategies Addressed:

- 1.3a: Identify wood utilization and biomass opportunities.

Biomass Feasibility Studies



The Energy and Environment Research Center (EERC) at the University of North Dakota in Grand Forks, ND, developed feasibility studies that covered equipment options, specifications, and economics to implement the use of biomass energy. A resource assessment was conducted for availability of biomass in the area, and energy profiles were conducted to size equipment options and to determine potential savings relative to firing biomass. Various quotations were collected to determine capital costs for equipment, and economics

were estimated based on the quotations, operational costs, and potential savings. A feasibility study was completed statewide and individual studies by the EERC and private consultants specifically for the communities of Bottineau, Bismarck, Minot, and Dickinson.

Strategies Addressed:

1.3a: Identify wood utilization and biomass opportunities.

Biomass Utilization of Flood Affected Trees

The ND Forest Service (NDFS) awarded a grant to the North Dakota State University (NDSU) Agricultural and Biosystems Engineering Department. The project served to assess the technical feasibility of wood biomass utilization, determine market opportunities, and develop educational materials to local managers and users following the historic floods of 2011. Products of the project include: (1) recommendation of best management practices of handling the affected woody biomass, (2) engineering quality analysis of affected woody biomass, (3) market potential estimates of the products, (4) scenario analysis and mapping as well as estimation of flood affected and insect damaged wood resources, (5) a study of the available technologies of ND organizations handling forestry biomass and the feasibility of these technologies, (6) local demand and supply assessment for the damaged woody biomass, (7) plan of small-scale local industries to handle such materials to ND Forest Service, and (8) educational outreach to local resource managers and users. A “Flood-Affected Woody Biomass Utilization Technical Workshop and Demonstration” was held in May 2015 at the Northern Great Plains Research Laboratory, USDA-ARS in Mandan, ND. The session considered both flood affected and biomass that would be generated from emerald ash borer killed trees if this invasive tree pest became established in the state. The project also resulted in “Flood Affected Woody Biomass Utilization Opportunities in North Dakota” by Md. Abdul Momin, Agricultural and Biosystems Engineering Department, NDSU.

Strategies Addressed:

1.3a: Identify wood utilization and biomass opportunities.

3.2a: Manage existing forests to improve health.

Community Forestry Grants – North Dakota Forest Service

The North Dakota Forest Service provides a variety of Community Forestry grants to stimulate the development of innovative and effective community forestry program development projects or community forestry tree planting projects that increase the diversity of trees in the community. These include America the Beautiful Program Development (ATB PD) and Tree Planting (ATB TP) grants. Community Family Forest (CFF) grants were developed to honor families in the state by planting trees in ND communities and to strengthen the tradition of annual tree planting. The state also established the North Dakota Disaster Recovery Task Force, a long term recovery team intended to assist local leaders dealing with disaster recovery planning for green infrastructure. The project included: damage inventory of community forest and tree resources, an assessment of biomass utilization opportunities, a disaster recovery guide for communities, and assistance to communities for tree removal and replanting. The 2011 North Dakota Legislature provided \$250,000 in one-time general funds for the North Dakota Forest Service (NDFS) to help North Dakota communities eradicate emerald ash borer (EAB) when it arrives. The NDFS, in association with the North Dakota Community Forestry Council, established a framework to administer the grants in the event emerald ash borer is discovered in North Dakota. The funding is available through the agency's Community Forestry Grant Program to assist communities with tree removal and replacement on a 1:1 match.



Strategies Addressed:

- 1.3b: Actively and sustainably manage trees and forests.
- 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.
- 2.1c: Reduce risk of introduction in areas where risk of introduction is greatest.
- 2.2b: Promote species diversity and forest health practices in communities.
- 3.2a: Manage existing forests to improve health.
- 3.2c: Plant new trees to increase carbon sequestration.

Community Threat Assessment Protocol

The Community Threat Assessment Protocol (CTAP) is an urban forest survey and assessment approach developed under the first project phases of the Great Plains Initiative (GPI). Rapid street tree inventories are conducted in selected communities across the state by ND Forest Service Community Forestry Program staff. These inventories provide detailed and specific assessments of the environmental and economic impacts of selected invasive pests on these communities at the community level. In addition, the use of iTree and Forest Health Risk Assessment protocols provide a means of data analyses, spatial mapping, and reporting. Emerald ash borer is one of the primary potential threats facing North Dakota's community forests. Preliminary summaries of CTAP street tree data reveal populations of green ash ranging from 16

to nearly 80 percent, with an average street tree population consisting of 46 percent green ash. In 2012-2014, North Dakota Forest Service Community Forestry staff completed 63 CTAP assessments in communities.

Strategies Addressed:

- 1.3b: Actively and sustainably manage trees and forests.
- 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.
- 2.2b: Promote species diversity and forest health practices in communities.
- 3.2a: Manage existing forests to improve health.

Community Wildfire Protection Plans

The Healthy Forests Restoration Act (HFRA) in 2003 included the first meaningful statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In North Dakota, 17 communities prepared Community Wildfire Protection Plans (CWPP). CWPP address issues such as wildfire response, hazard mitigation, community preparedness, and structure protection - or all of the above.

Strategies Addressed:

- 2.3a: Assist communities in planning for and reducing wildfire risks.

Conservation Forestry Initiative

The FY09 North Dakota Conservation Forestry Initiative State & Private Forestry competitive grant helped local, state, federal, tribal and private conservation leaders on North Dakota's State Technical Committee to advance a forestry initiative to create more opportunities for working lands as intended by Congress in the 2008 Farm Bill. The State Conservationist has designated 3.5 percent of Environmental Quality Incentives Program (EQIP) funding for windbreak renovation, woodland improvement and Firewise projects. EQIP stewardship activities have been expanded to include forest management on nonindustrial private forestlands, as well as lands on which forest-related products are



produced. The Natural Resource Conservation Service administers the EQIP forestry initiative through the network of county USDA Service Centers with assistance from Soil Conservation Districts and the North Dakota Forest Service. This initiative strengthened coordinated interagency delivery of forestry-related conservation assistance as outlined in a new national Memorandum of Understanding signed by conservation leaders.

Strategies Addressed:

- 3.2c: Plant new trees to increase carbon sequestration.

Cooperative Conservation Assistance

The FY 11 Cooperative Conservation Assistance (CCA) State & Private Forestry competitive grant was a capacity building effort focused on protecting and managing priority forest landscapes. The project increased landowner participation in two EQIP projects involving riparian forest restoration and windbreak renovation. CCA supported education and outreach efforts, increased soil conservation district capacity to assist landowners with comprehensive management planning, and targeted high priority windbreak renovation and riparian forest restoration needs.

Strategies Addressed:

3.2c: Plant new trees to increase carbon sequestration.

Cooperative Conservation Partnership Initiative

The South Dakota Department of Agriculture, Division of Resource Conservation and Forestry; North Dakota Forest Service; Nebraska Forest Service; and Kansas Forest Service partnered on a Cooperative Conservation Partnership Initiative (CCPI) entitled “Central Great Plains Shelterbelt Renovation for Water Quality, Reduced Soil Erosion and Wildlife Habitat.” The goal is to rejuvenate shelterbelts that are no longer functioning properly and renovation treatments include weed control, interplanting, supplemental planting, thinning, pruning, and/or coppicing. The state forestry agencies have a long history of working with producers to address natural resource conservation issues on private lands. Partnerships with local conservation districts and state and private wildlife groups provide technical assistance. The CCPI project provides needed incentives for landowners to implement shelterbelt renovation practices. In North Dakota, 135 projects have been initiated and \$1,320,024 obligated for cost-share.

Strategies Addressed:

1.1b: Development of incentives and cost-effective measures for management.

3.2b: Reduce forest conversion.

3.2c: Plant new trees to increase carbon sequestration.

Eco-Ed

The Barnes County Soil Conservation District (SCD) in North Dakota began a program using an EPA section 319 grant as the basis for improving the format of the county's conservation tour. Five topics of study were identified. There are 34 SCDs that sponsor Eco-Ed (ecology education) and each event addresses: prairie/grasslands, soils, woodlands, and water quality. All of the subjects are covered in relation to water and its importance.

Strategies Addressed:

3.1a: Increase awareness of the benefits and threats to forest resources.

3.1b: Connect people to trees and forests and engage them in environmental stewardship activities.



Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) has been designed through a locally-led process. The North Dakota State Technical Committee, consisting of conservation stakeholders across the State, provides the Natural Resources Conservation Service with invaluable recommendations for localizing the program to meet the natural resource needs in North Dakota. The State Technical Committee helps determine statewide resource concerns, develop application grant ranking criteria, identify eligible conservation practices, recommend practice payment rates, and suggest funding allocations. To accomplish the natural resource goals developed by local work groups, 62 percent of North Dakota's EQIP allocation is allocated to the counties. The remaining allocation is prioritized to address statewide priorities recommended by the State Technical Committee, including the statewide priority of Forestry and Energy that aids in enhancing forestry and energy conservation resources.

Strategies Addressed:

3.2c: Plant new trees to increase carbon sequestration.

Envirothon

The North Dakota Envirothon is a hands-on, problem-solving environmental education program open to high school students throughout the state. The goal of the ND Envirothon is to promote a desire to learn more about North Dakota's natural environment, and to equip students with the knowledge and skills needed to apply the basic principles and practices of resource management and ecology to complex environmental issues. Teams are associated with a sponsoring school and usually train the entire school year with their advisor or "coach" in preparation for the annual state-wide competition. Study resources in the fields of soils, aquatics, wildlife, prairie (forestry and rangeland) and a current environmental issue are assembled by natural resource professionals and provided to the teams. Using these resources, students learn the skills of thinking and working as a team to assess natural resource issues affecting the environment. In late spring, each team has the option to select five members and one alternate to compete at the North Dakota State Envirothon competition.



Strategies Addressed:

3.1a: Increase awareness of the benefits and threats to forest resources.

3.1b: Connect people to trees and forests and engage them in environmental stewardship activities.

Emerald Ash Borer Awareness Week

Emerald Ash Borer (EAB) Awareness Week is an opportunity for state and local agencies, environmental groups, community organizations, schools, businesses, industry, tourists, and citizens to take action against the introduction and spread of EAB. In 2013, there were over a

dozen communities that participated in EAB Awareness Week, the number grew to 31 in 2014, and 49 in 2015.

Strategies Addressed:

- 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.
- 2.1c: Reduce risk of introduction in areas where risk of introduction is greatest.

Emerald Ash Borer Joint Survey

The North Dakota Emerald Ash Borer (EAB) survey initiative is a collaborative effort between USDA’s Animal and Plant Health Inspection Service (APHIS), the ND Department of Agriculture, ND Forest Service and Tribal cooperators. EAB surveys employed the manufactured detection tool, or “trap,” to locate potential beetle populations in North Dakota.

Strategies Addressed:

- 2.1c: Reduce risk of introduction in areas where risk of introduction is greatest.

Emerald Ash Borer Response Plan

The North Dakota Urban and Community Forestry Association (NDUCFA) developed an Emerald Ash Borer (EAB) Preparedness and Response Plan template for communities to utilize. Guidelines provide additional background, information, and resources for each element of a community plan. Preparedness and response assist communities in managing the threat posed by EAB.

Strategies Addressed:

- 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.
- 2.1c: Reduce risk of introduction in areas where risk of introduction is greatest.

First Detector Program

The ND First Detector Program trains volunteers to help diagnose and report possible infestations of invasive species to the North Dakota Department of Agriculture. First detectors are part of the National Plant Diagnostic Network (NPDN) First Detector Program, which promotes the early detection of invasive plant pathogens, arthropods, nematodes and weeds. This component centers on enhancing educational outreach and building capacity to detect and respond to invasive pests and pathogens that threaten the state’s forest resources. There have been over 300 First Detectors trained since the program was initiated.

Strategies Addressed:

- 2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.
- 2.1d: Development of a First Detector Program.



Forest Restoration Initiative



The North Dakota Forest Restoration Initiative (FRI) conserves, protects and enhances priority forest landscapes through an innovative collaborative project initiated by the ND Forest Service. The FRI assists city foresters, park districts, and community tree boards in restoring community forests through damage assessments, effective green infrastructure planning, implementation of disaster response strategies, and forest health monitoring. Funds are used for contracting assessments, disaster response planning, community forest monitoring, and the implementation of community forest restoration projects. In rural areas, the initiative assists landowners and natural resource professionals with restoring upland and riparian forests, as well as rural plantings. Forest conditions,

including tree mortality, natural regeneration and invasive species establishment, are monitored. Forest health surveys are conducted, forest stewardship plans prepared, hazardous fuels removed to mitigate wildfire risks, and forest restoration practices are implemented.

Strategies Addressed:

- 1.1a: Identify, conserve, and actively manage high priority native forestlands.
- 1.1b: Development of incentives and cost-effective measures for management.
- 1.3b: Actively and sustainably manage trees and forests.
- 2.1b: Restore native forests impacted by invasive tree pests and invasive weeds.
- 3.2b: Reduce forest conversion.

Forest Resource Mapping and Reporting System

The North Dakota State University GeoScience Department and the North Dakota Forest Service partnered to implement the “Forest Resource Mapping and Reporting System,” which developed a web-based system to inventory forest species, map resource threats, and identify priority forest landscapes.

Strategies Addressed:

- 1.1a: Identify, conserve, and actively manage high priority native forestlands.

Forest Stewardship Program

The Forest Stewardship Program (FSP) provides technical assistance to nonindustrial, private forest landowners to encourage and enable active, long-term forest management. The FSP offers a written Forest Stewardship Plan to private landowners. These ten-year plans are designed to help the landowner better understand their forest and manage the forest to meet their individual goals, for the benefit of the landowner and the resource.

Strategies Addressed:

- 1.1b: Development of incentives and cost-effective measures for management.
- 1.3b: Actively and sustainably manage trees and forests.
- 3.2a: Manage existing forests to improve health.
- 3.2c: Plant new trees to increase carbon sequestration.

Forest Stewardship Tax Law

Over 41,000 acres are enrolled in the Forest Stewardship Tax Law (FSTL), which is authorized by North Dakota Century Code Chapter 57-57 and administered by the State Forester. The FSTL offers tax incentives to landowners for preserving and protecting forest resources. The program reduces value-based property taxes to 50 cents per acre per year on eligible lands.

Strategies Addressed:

- 1.1a: Identify, conserve, and actively manage high priority native forestlands.
- 1.1b: Development of incentives and cost-effective measures for management.
- 3.2b: Reduce forest conversion.

Forestry Best Management Practices

The North Dakota Forest Service (NDFS) developed Best Management Practices (BMPs) to help ensure productivity of forestland during tree planting, timber harvesting, thinning, and other forest management activities. BMPs serve as a basis for sound management decisions and can often be applied directly by the landowner. The NDFS provides assistance to landowners to develop a Forest Stewardship Plan for their forestland and planting areas.

Strategies Addressed:

- 1.1b: Development of incentives and cost-effective measures for management.

Geographically FIT (*Forestry Institute for Teachers*)

The North Dakota Forest Service and North Dakota Geographic Alliance partner to deliver Geographically FIT annually to K-12 teachers. Over the last eight years, participants have toured a different portion of the state each year. This professional development opportunity enables educators an opportunity to expand their content knowledge of North Dakota's badlands, forests, geography, geology and grasslands, and provides them resources for curriculum planning and development.



Strategies Addressed:

- 3.1a: Increase awareness of the benefits and threats to forest resources.

Habitat Improvement

The North Dakota Game and Fish Department has identified Russian olive as a non-native, exotic, woody invader that out-competes native vegetation such as cottonwoods and willows; degrades wildlife habitat; and reduces recreational values. Russian olives have contributed to a change in the riverine habitat by shading riverbanks, reducing available water resources, and displacing native plant species, both herbaceous and woody. The department's habitat improvement projects address habitat fragmentation by removing non-native, invasive tree species (Russian olive) from native ecosystems, including riparian forests. The project serves to

restore riverine systems to a more historical state and directly benefits species identified as Species of Conservation Priority in the North Dakota “Comprehensive Wildlife Conservation Strategy.” The restoration efforts target Wildlife Management Areas around the Missouri-Yellowstone River confluence.

Strategies Addressed:

- 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.
- 2.1b: Restore native forests impacted by invasive tree pests and invasive weeds.
- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.
- 2.3c: Wildland restoration and fuels reduction.

Hazardous Fuels Reduction



The North Dakota Forest Service Hazardous Fuel Reduction Projects are targeted at nonfederal lands adjacent to National Forest System (NFS) lands. These lands are targeted due to the USDA-Forest Service prescribed fire program in areas of concern and provide risk mitigation by removing hazardous fuels and offering a higher degree of protection to communities and homes that may be at risk. The hazardous fuels reduction efforts are centered in the southwest portion of North Dakota, west of Amidon, ND. The Ponderosa Pine Hazardous Fuels Reduction Prescription is outlined within the landowner’s Forest

Stewardship Management Plan. This multi-year effort is taking place on private land treating overstocked, deteriorating ponderosa pine stands adjacent to the Dakota Prairie Grasslands.

Strategies Addressed:

- 1.1b: Development of incentives and cost-effective measures for management.
- 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.
- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.

Memorandum to Manage Prescribed Fires

The US Forest Service (USFS) - Dakota Prairie Grasslands and The Nature Conservancy entered into a Memorandum of Understanding to cooperate in managing prescribed fire activities on the Sheyenne National Grassland and adjacent Conservancy lands. This agreement provides capability for the Dakota Prairie Grasslands and The Nature Conservancy to coordinate and assist one another with the use of prescribed fire for restoring, maintaining and conserving the tall grass prairie. Fire is a key disturbance factor in restoring and maintaining the tall grass

prairie ecosystem. The two entities continue sharing of personnel and equipment, and implementation of cross boundary prescribed burns that benefit both the USFS and Conservancy lands.

Strategies Addressed:

- 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.
- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.
- 2.3c: Wildland restoration and fuels reduction.

Mitigation Tree Planting Partnerships

Mitigation criteria established by the North Dakota Public Service Commission (PSC) ensures that trees and shrubs lost or destroyed during construction projects are replaced at a 2:1 ratio. A minimum of 75 percent of these replacement trees and shrubs must be living at the end of three growing seasons in order to meet the mitigation requirements. The PSC is also responsible for authorizing mitigation tree planting partnerships. The North Dakota Forest Service has facilitated multiple Tree Mitigation Partnerships, including the Keystone Pipeline (Case # PU-06-421) 158 projects with 85,316 trees and shrubs planted; Bridger Pipeline, LLC (Case # PU-09-750) 246 projects with 106,656 trees and shrubs planted; and Enbridge (Case #s PU-10-612, PU-10-613, PU-11-232, and PU-11-606) 11 projects with 1,869 trees and shrubs planted.

Strategies Addressed:

- 1.2a: Mitigate forestland lost due to urban sprawl, agricultural clearing, and utility development.
- 3.2c: Plant new trees to increase carbon sequestration.

Nature Preserves Act



In 1975, the North Dakota Legislature passed the Nature Preserves Act (NDCC 55-11), which gives the North Dakota Parks and Recreation Department the responsibility to set aside a system of natural areas and nature preserves for the benefit of North Dakota citizens. There are three related programs that are managed by the North Dakota Parks and Recreation Department. The Natural Area designation means any area of land and/or water, whether in public or private ownership, which has unique natural features. Five areas have been enrolled in the Natural Areas Program.

Public or private landowners may also enter into a non-binding agreement to protect their land through the Natural Areas Registry Program. Approximately 50 sites have been successfully registered to date. The Natural Heritage Inventory identifies North Dakota's natural features and establishes priorities for their protection. Since the inventory's inception in 1981, over 5,000 records of important species and habitats have been identified and catalogued.

Strategies Addressed:

- 1.1a: Identify, conserve, and actively manage high priority native forestlands.
- 3.2a: Manage existing forests to improve health.

Plant Materials Research

The Plant Materials Center in Bismarck is devoted to promoting and providing plant materials for conservation. Other Federal and State agencies, universities, and nonprofit organizations are important partners in the process, which includes assembling plants or seed collections from representative areas; evaluating initial performance; determining potential for release; documenting production procedures; evaluating cultural and management techniques; testing under actual use conditions; and releasing new plants with cooperators. Their goal is to produce high quality, pedigreed seed/plants and make them available to commercial growers and nurseries.

Strategies Addressed:

2.2a: Identify seed sources and species adapted to biotic and abiotic conditions of the state.

Ponderosa Pine Restoration

In September 2004, the Deep Creek Fire burned across private land and USDA Dakota Prairie Grasslands, forcing evacuation of ranches and threatening the community of Amidon, ND. Many acres of ponderosa pine forest on public and private land were impacted. Due the intensity of the fire, there are extensive areas that are not regenerating due to a lack of adjacent surviving trees to serve as a seed source. North Dakota Forest Service staff have collected ponderosa pine cones from trees in the area and containerized seedlings are being grown at the Towner State Nursery for the restoration project. A multi-year reforestation program that reintroduces a local ponderosa pine seed source back to the Deep Creek burn area will begin in 2016.

Strategies Addressed:

2.2a: Identify seed sources and species adapted to biotic and abiotic conditions of the state.

Prairie Forester

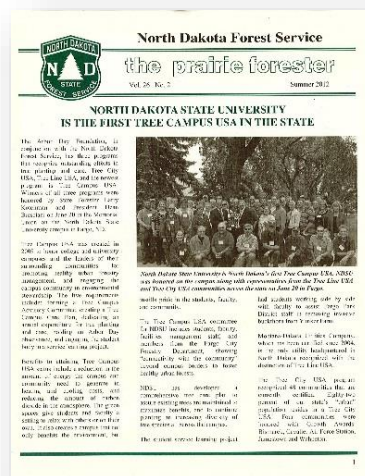
“The Prairie Forester” newsletter is circulated in the spring, summer, and fall/winter to 4,000 people via hard copy, emailed to many others, and posted on the North Dakota Forest Service website. This free publication is devoted to news articles, ideas, and information related to forestry and other issues that impact North Dakotans.

Strategies Addressed:

3.1a: Increase awareness of the benefits and threats to forest resources.

Prairie Restoration

The North Dakota Parks and Recreation Department partnered with the North Dakota Game and Fish Department to restore native prairies at state parks. Many of the sites at the parks are small, non-native or degraded grasslands dominated by crested wheatgrass, smooth brome and



Kentucky bluegrass. Prairie restoration is accomplished through the use of prescribed fire and mowing.

Strategies Addressed:

- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.
- 3.2a: Manage existing forests to improve health.

Prescribed Fire Program



Theodore Roosevelt National Park's prescribed fire program addresses three interrelated goals. Resource benefit burning is intended to impact specific species and is performed to the benefit or the detriment of a certain species. Examples include promoting grass growth by reducing woody plants, or controlling invasive plants like leafy spurge. Hazardous fuel reduction removes woody plants that contribute to uncontrollable wildfires. Hazardous fuel buildup leads to the destructive wildfires that destroy homes and lives. Wildland-urban interface fires remove fuels adjacent to populated areas to protect lives and property. The goal is to lower the chance of an uncontrollable wildfire. Hazardous fuel reduction and

wildland-urban interface management goals are also achieved by mechanical means like cutting and haying.

Strategies Addressed:

- 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.
- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.
- 2.3c: Wildland restoration and fuels reduction.

Prescribed Burning Management

The US Fish and Wildlife Service uses prescribed fire on refuges and waterfowl production areas in North Dakota to manage grasslands. Historically, natural fires caused by lightning burned the Refuges' grasslands and marshes, recycling nutrients, cleaning out old growth and promoting new vegetation. Refuge staff incorporate prescribed burning to manage grasslands the way natural fires once did. The benefits of burning include: improving native habitats and controlling noxious weeds; reducing thatch and promoting seed germination; increasing nesting and escape cover for birds; and stimulating the growth of sprouts that are food for deer and other wildlife.

Strategies Addressed:

- 1.2b: Incorporate management techniques and/or disturbances that promote/sustain terrestrial ecosystems. Develop, learn, and teach methods to remove nuisance woody plants.
- 2.3b: Restore fire-adapted lands and reduce the risk of wildfire impacts.
- 2.3c: Wildland restoration and fuels reduction.

Project Learning Tree

Project Learning Tree (PLT) is a national award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from preschool through grade 12. At PLT, the goal is to teach students how to think, not what to think, about complex environmental issues. Recognized as a leader in environmental education for more than 35 years, PLT enhances critical thinking, problem solving, and effective decision-making skills. PLT materials are multi-disciplinary and aligned with state and national education standards. The PLT program is coordinated by the North Dakota Forest Service.

Strategies Addressed:

3.1a: Increase awareness of the benefits and threats to forest resources.

Riparian Forest Restoration

River Keepers has identified riparian forests as the most important of all forests in the Great Plains. These forests face tremendous pressures such as invasive pests, noxious weed encroachment, and summer flooding that has impacted existing trees and forests. The loss of riparian forests has increased bank slumping, which adds sediment to the river and threatens water quality. River Keepers helps restore riparian forests by establishing local riparian demonstration sites, educating and connecting our urban residents and youth groups, and restoring the natural, social and esthetic values once associated with our riparian forests. Using professionals and volunteers, noxious weeds are removed, new trees planted, and interpretive signs installed along recreational trails in the riparian forests of North Dakota.

Strategies Addressed:

2.1b: Restore native forests impacted by invasive tree pests and invasive weeds.

State Forest Benefits

State Forests provide wildlife habitat, clean air and water, recreational opportunities, forest products, scenic beauty, and other conservation benefits. The North Dakota Forest Service owns five state forests comprising approximately 13,290-acres that are managed to promote sound forestry practices. State Forests play an important role in the economic well-being of several rural communities by attracting hunters, hikers, campers, skiers, snowmobilers, tourists, and other outdoor enthusiasts.



Strategies Addressed:

3.2a: Manage existing forests to improve health.

State Wildlife Action Plan

The 2015 North Dakota State Wildlife Action Plan (SWAP) replaces the 2005 North Dakota Comprehensive Wildlife Conservation Strategy as the principle document for safeguarding rare and declining fish and wildlife species in North Dakota. The SWAP is a habitat-based rather than species-based approach. The landscape classification system includes grasslands; wetlands and lakes; rivers, streams, and riparian; badlands; and upland forests, which identifies forested focus areas for each classification.

Strategies Addressed:

1.1a: Identify, conserve, and actively manage high priority native forestlands.

Tree Campus USA

The Tree Campus USA program is designed to award national recognition to college campuses promoting healthy urban forest management and engaging the campus community in environmental stewardship. It is a program of the Arbor Day Foundation and administered by the North Dakota Forest Service. North Dakota State University is recognized as North Dakota's only Tree Campus USA and has been certified since 2012.

Strategies Addressed:

2.2b: Promote species diversity and forest health practices in communities.

Tree City USA

At the annual Tree City, Tree Line, and Tree Campus USA recognition ceremonies, the North Dakota Forest Service (administrator of all three programs) encourages proper tree planting, care and maintenance, and promotes species diversity and healthy trees in communities. In 2014, there were 51 Tree City USA communities certified in North Dakota for their outstanding accomplishments in forestry. Today, 67 percent of North Dakota's residents live in a Tree City USA community. A healthy urban forest is the result of proper planning, management and community investment. Key messages include: benefits depend on healthy trees, healthy trees require quality care, and quality care depends on tree advocates and decision makers.

Strategies Addressed:

2.2b: Promote species diversity and forest health practices in communities.



Tree Line USA

Tree Line USA recognizes public and private utilities across the nation that demonstrate practices that protect and enhance America's urban forests. This Arbor Day program is administered by the North Dakota Forest Service. Best practices in utility arboriculture result in healthier and more abundant community forests, and increased reliability of service because properly pruned and maintained trees result in fewer downed lines during storms. Montana-

Dakota Utilities (MDU) company is the only utility based in North Dakota with this distinction and certified since 2004. MDU provides electric and gas utility service to nearly 320,000 households.

Strategies Addressed:

2.2b: Promote species diversity and forest health practices in communities.

Tree Conference

The North Dakota Urban and Community Forestry Association (NDUCFA) along with the North Dakota Nursery and Greenhouse Association (NDNGA) host a jointly planned annual conference. The event includes speakers, a trade show, and social events. NDUCFA has hosted this conference for 27 years and topics range from proper tree planting, tree pruning, hazardous tree identification, to a variety of emerald ash borer related topics. Many sessions are geared to assist communities in planning to mitigate potential damage caused by invasive tree pests.

Strategies Addressed:

2.1a: Assist communities in planning to mitigate potential damage caused by invasive tree pests.

2.2b: Promote species diversity and forest health practices in communities.

Tree and Windbreak Planting Assistance

The North Dakota Conservation District Employees Association, in partnership with the North Dakota Forest Service and North Dakota Association of Soil Conservation Districts, were successful in securing a \$1.878 million Outdoor Heritage Fund - Tree Planting Assistance grant from the Industrial Commission. The effort engages stewards to embrace conservation practices that promote the ecological services trees provide. The initiative focuses on encouraging and providing financial assistance to implement agroforestry practices in North Dakota, including farmstead, feedlot and field windbreaks; forestry, wildlife and riparian plantings, buffers, and living snow fences.



Strategies Addressed:

1.1b: Development of incentives and cost-effective measures for management.

1.2a: Mitigate forestland lost due to urban sprawl, agricultural clearing, and utility development.

3.2a: Manage existing forests to improve health.

3.2b: Reduce forest conversion.

3.2c: Plant new trees to increase carbon sequestration.

Tree Production and Research

The Towner State Nursery annually produces one million conifer (evergreen) seedlings in over thirty different species and stock types for distribution to landowners. The trees are used for farmstead, living snow fence, field windbreak, wildlife, forestry and other conservation

plantings. The nursery is a self-supporting operation of the North Dakota Forest Service, and since 1927 has sold over 81 million trees. The nursery also provides tree improvement services, such as testing, evaluation, selection and development of improved nursery stock for forestry and conservation plantings.

Strategies Addressed:

2.2a: Identify seed sources and species adapted to biotic and abiotic conditions of the state.

Trees Bowl and Trees Awards

The Trees Awards recognize individuals, organizations and agencies who contribute in an outstanding way to forestry activities.

Forestry activities can include: fire mitigation, protection and suppression; tree planting, preservation or maintenance; community forestry efforts; forest management practices;

forest recreation; or environmental education. Award winners are recognized on the field at half-time during the Trees Bowl football game at North Dakota State University in Fargo. The North Dakota Forest Service celebrated the 25th Trees Bowl anniversary in 2015. Looking back 25 years, 353 Trees Awards have been presented to award winners, nearly 350,000 fans have attended the football Trees Bowl games, and 66,200 trees have been handed out to fans for fall planting.

Strategies Addressed:

3.1b: Connect people to trees and forests and engage them in environmental stewardship activities.



Tree Promotion Meetings

For the past 15 years, the North Dakota Forest Service has partnered with Soil Conservation Districts to host an annual Tree Promotion Meeting. The meeting serves to promote, expand, and improve conservation tree planting in North Dakota and promote new concepts, including climate change, design and planting specifications, tree species selection, and other programs.

Strategies Addressed:

3.2a: Manage existing forests to improve health.

3.2b: Reduce forest conversion.

3.2c: Plant new trees to increase carbon sequestration.

Wildland Urban Interface Program

The North Dakota Forest Service awarded a wildland urban interface three-year grant to the Barnes County Soil Conservation District for a “Barnes County Wildfire Protection Project” (BCWPP). The award is to implement a priority project identified within the Barnes County Community Wildfire Protection Plan developed in 2006 identifying issues of high priority. These priorities include: reducing fuel loads, improving fire prevention in the wildland urban interface, prevention education, and direct outreach to rural landowners at risk. The BCWPP award is for use to provide cost-share opportunities to landowners for creating defensible space around homes and structures, providing Firewise assessments, developing Forest Resource Management Plans focusing on guiding the successful establishment of young fuelbreaks, and updating the Barnes County CWPP. The project also involves coordinating with the communities of Hastings, Kathryn, Litchville, Sanborn, Valley City and areas surrounding Lake Ashtabula and Bald Hill Dam Recreation Areas in meeting their fuel reduction priorities, and providing education materials to county residents by mailings, radio spots, newsletter/newspaper articles, information on the district website, and one-on-one contacts with the overall goal of reaching 5,000 residents.

Strategies Addressed:

2.3a: Assist communities in planning for and reducing wildfire risks.

Woody Plant Improvement



The North Dakota State University (NDSU) Woody Plant Improvement research program involves the breeding, selection, evaluation and introduction of hardy, woody plants for the Northern Plains. This program has introduced over 50 superior woody plants for production and sale with increased disease tolerance and winter hardiness for landscapes throughout the Northern Plains. NDSU woody plant introductions are currently

being propagated for sale by commercial wholesale firms in three countries – Australia, Canada, and the United States (14 states, including 35 nurseries).

Strategies Addressed:

2.2a: Identify seed sources and species adapted to biotic and abiotic conditions of the state.

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