SOUTH DAKOTA STATEWIDE FOREST RESOURCE STRATEGY

June 2010

RESPEC CONSULTING & SERVICES

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE

SOUTH DAKOTA STATEWIDE FOREST RESOURCE STRATEGY

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Cover Photos: Diversity of forest types across South Dakota.

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EXECUTIVE SUMMARY

This report is a general forest resources strategy for the entire state of South Dakota. This forest resource strategy is a compilation of threats and strategies as presented in the South Dakota *Statewide Assessment of Forest Resources*.[1] This strategy details threats, strategies, existing resources, needs, partners, monitoring, and interstate collaboration.

[1] **Hocking, C. M., E. L. Krantz, and G. J. Josten, 2010.** *South Dakota Statewide Assessment of Forest Resources*, prepared by RESPEC, Rapid City, SD, and South Dakota Department of Agriculture, Rapid City, SD, for South Dakota Department of Agriculture, Pierre, SD.

TABLE OF CONTENTS

INTRODUCTION 1

SOUTH DAKOTA STATEWIDE FOREST RESOURCE STRATEGY 2

THREAT: FRAGMENTATION 5

THREAT: FOREST HEALTH 7

THREAT: WILDFIRE 8

THREAT: WEEDS AND INVASIVE SPECIES 10

THREAT: WATER QUANTITY AND QUALITY 12

THREAT: CLIMATE CHANGE 14

THREAT: LACK OF SPECIES DIVERSITY 16

THREAT: OVER MATURE AND DYING TREES 16

THREAT: POOR SURVIVAL AND MAINTENANCE OF PLANTED TREES 17

THREAT: LOSS OF URBAN TREES TO DEVELOPMENT 17

THREAT: LIVESTOCK GRAZING 19

THREAT: INADEQUATE FOREST INVENTORY INFORMATION 20

THREAT: UNDERUTILIZATION OF WOODY BIOMASS 22

THREAT: LOSS OR DEGRADATION OF WILDLIFE HABITAT 24

MONITORING 26

INTERSTATE COLLABORATION 27

REFERENCES 30

APPENDIX A A-1

LIST OF ACRONYMS

BMPs	Best Management Practices
CWPP	Community Wildfire Protection Plans
EAB	Emerald ash borer
EQIP	Environmental Quality Incentives Program
FIA	Forest Inventory and Analysis
GFP	Game, Fish, and Parks
GPI	Great Plains Tree and Forest Invasives Initiative
NISMP	National Invasive Species Management Plan
NRCS	Natural Resource Conservation Service
NRI	National Resources Inventory
RC&F	Resource Conservation and Forestry Division
SAFR	Statewide Assessment of Forest Resources
SDDA	South Dakota Department of Agriculture
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WFS	Wildland Fire Suppression Division
WUI	Wildlife Urban Interface

INTRODUCTION

South Dakota's forest resource strategy provides a long-term, comprehensive, coordinated strategy for investing state, federal, and partner resources. The purpose of this strategy is to provide a comprehensive management plan for priority areas identified in the assessment. The resource strategy details threats, strategies, existing resources, needs, and partners. The threats and strategies described here were assembled with input from the South Dakota Forest Stewardship Coordinating Committee and the Community Forestry Advisory Council. That input was obtained through a questionnaire that is described in the *South Dakota Statewide Assessment of Forest Resources* (SAFR) [Hocking et al., 2010].

The SAFR is a compilation of existing forest management documentation, U.S. Department of Agriculture (USDA) Forest Inventory and Analysis (FIA) data, and a state priority area analysis conducted by the South Dakota Department of Agriculture (SDDA). The SAFR provides a summary of the extent and condition, values, threats, ownership, needs, problems, and opportunities for each major forest type in the state. The major forest types include coniferous, upland hardwood, bottomland, shelterbelts, and community forests.

These assessment and strategy documents are intended to satisfy the requirements of the 2008 Farm Bill; this bill requires that each state prepare a statewide forest resource assessment and strategy to qualify for funding through USDA Forest Service state and private forestry grants. In South Dakota, these grants are administered by the SDDA Resource Conservation and Forestry Division (RC&F) and Wildland Fire Suppression Division (WFS).

SOUTH DAKOTA STATEWIDE FOREST RESOURCE STRATEGY

PRIORITY LANDSCAPES

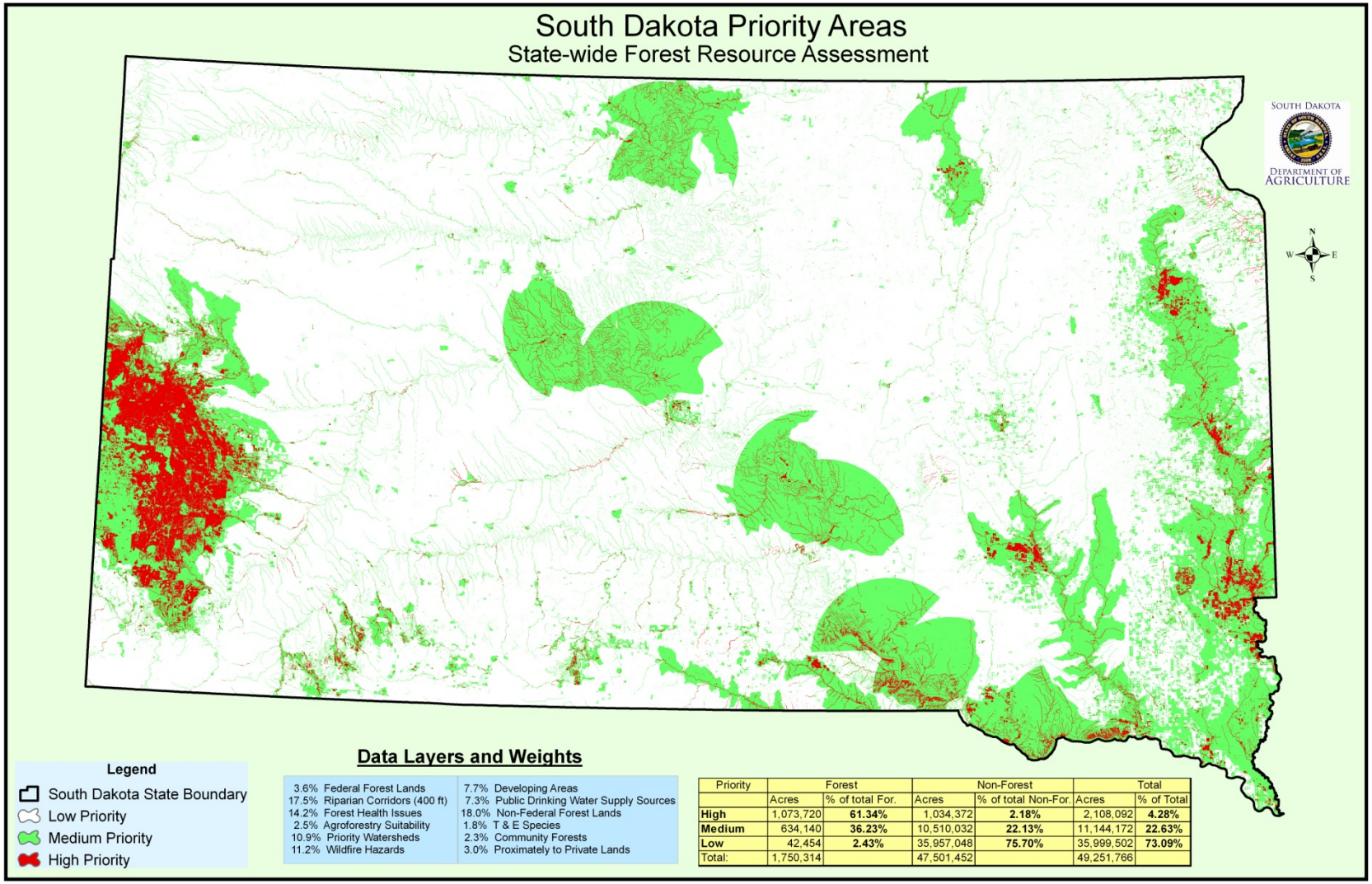
The *South Dakota Statewide Forest Resource Strategy* (Resource Strategy) is intended to address the threats faced by South Dakota's forest and move priority landscapes toward preferred conditions. The SAFR identified a number of threats and priority areas related to forest management in South Dakota. Analysis for determining priority areas in the state was developed from 11 geospatial data layers; these layers and analysis weighting are fully described in the SAFR. For ease of reference, the priority area map is presented again in this document (Figure 1).

The priority map shows areas that have a high or moderate need for risk management and mitigation. The high priority areas (red) and medium priority areas (green) emphasize areas that are either in need of immediate protection or areas that are simply important resources that need protection. Approximately 61 percent of forested land is classified as high priority, and approximately 36 percent of forested land is classified as medium priority (see Table B-3 in the SAFR). Compared to the total land area in the state, only 4 percent of the total area is of high priority. High and moderate priority areas are primarily located within the Black Hills and along the Missouri River, Big Sioux River, and James River valleys.

The priority map and the SAFR are intended to serve as tools to direct forest management. The statewide map is not applicable for use at smaller scales or to identify specific management areas. The SAFR does not give site-specific directives or details of local threats; instead, specific detailed planning is left to local landowners and managers. Additionally, strategies in the Resource Strategy are meant to provide a "big picture" or general guidance rather than specific timelines and accomplishment milestones.

THREATS AND STRATEGIES

Threats are described for each of the major forest types in the SAFR. Table 1 presents the primary threats to each forest community type in South Dakota. The priority map illustrated in Figure 1 provides focus areas for forest management, but similar threats face lands outside the priority areas. Also, some threats do not apply to all priority areas. For example, poor survival and maintenance of planted trees would not apply to the native forests, such as priority areas in the Black Hills, because these forests rely on natural regeneration to sustain them. A direct correlation between threats and priority areas would be difficult because most of the threats do not have spatial datasets on a statewide basis. We know the threats exist within these forest types as a result of management experience, observation, landowner concerns, landowner assistance, and responses to the Problems, Solutions, and Strategies Survey, the results of which are presented in the SAFR, Appendix G.



Priority	Forest		Non-Forest		Total	
	Acres	% of total For.	Acres	% of total Non-For.	Acres	% of Total
High	1,073,720	**61.34%**	1,034,372	**2.18%**	2,108,092	**4.28%**
Medium	634,140	**36.23%**	10,510,032	**22.13%**	11,144,172	**22.63%**
Low	42,454	**2.43%**	35,957,048	**75.70%**	35,999,502	**73.09%**
Total:	1,750,314		47,501,452		49,251,766	

Figure 1. South Dakota Priority Areas.

Table 1. Statewide Threats by Forest Community Type Listed in No Particular Order (Gray Blocks Indicate Applicability of a Threat to a Forest Type)

Threat	National Theme[a]	Forest Type				
		Conifer	Upland	Bottomland	Windbreak	Community
Fragmentation	CRF, PFH	■	■	■		
Forest Health	PFH	■	■	■	■	■
Wildfire	PFH	■				■
Weeds and Invasive Species	PFH, EPB	■	■	■	■	■
Water Quantity and Quality	EPB	■	■	■	■	■
Climate Change	PFH, EPB	■	■	■	■	■
Lack of Species Diversity	PFH, EPB	■		■	■	■
Over Mature and Dying Trees	PFH, EPB			■	■	■
Poor Survival and Maintenance of Planted Trees	PFH, EPB				■	■
Loss of Urban Trees to Development	PFH, EPB					■
Livestock Grazing	PFH, EPB		■	■	■	
Inadequate Forest Inventory Information	CRF, PFH, EPB		■	■	■	■
Underutilization of Woody Biomass	CRF, PFH, EPB	■	■	■	■	■
Loss or Degradation of Wildlife Habitat	CRF, EPB	■	■	■	■	

(a) National themes: Conserve Rural Forests (CFR), Protect Forests from Harm (PFH), Enhance Public Benefits from Trees and Forests (EPB).

The Resource Strategy will allow various federal, state, and local agencies to effectively address threats while managing resources, staff, and budgets. A matrix of strategies, programs, needs, and performance measures is presented in Appendix A. The threats and strategies described below are not necessarily listed in order of importance. Four of the threats are addressed as one issue because of similarities in strategies, resources, and partners. These combined threats are lack of species diversity, over mature and dying trees, poor survival and maintenance of planted trees, and loss of urban trees to development.

THREAT: FRAGMENTATION

Working farms, ranches, and privately owned forest land are being subdivided into smaller parcels for home sites and "ranchettes." The smaller parcels increase tax revenues to the counties because they do not qualify for agricultural property tax classification. However, these smaller parcels are difficult to manage. High-density tree stands and fuel accumulations make the forest unhealthy and susceptible to insects and wildfire. The parcels are too small to individually support timber sales but large enough to make thinning or fuels treatment very expensive. Landscape-scale management becomes problematic because there are many different owners with different management goals and objectives and the ability to implement practices.

Strategy

- Maintain productive forest land in agricultural property tax classification
- Create a property tax structure that classifies unproductive forest land into a tax classification that is similar to unproductive agriculture land
- Provide forest management technical assistance to private forest landowners, including development of forest stewardship plans
- Educate private forest landowners about the importance of forests, forest management, planning, programs, availability of assistance, and how to implement plan recommendations
- Create public awareness and educate the public about forests, fragmentation, and the benefits of forest management
- Help counties address forest fragmentation as requested
- Work with other federal, state, and local agencies to coordinate programs and incentives that discourage fragmentation of forest lands
- Support federal tax laws that are friendly to Nonindustrial Private Forest landowners

Existing Resources

- Forest Legacy Program and other conservation easement programs
- Technical assistance programs
- Regular meetings with federal, state, and local partners to coordinate forest management efforts and opportunities

Resource Needs

- A property tax classification system that will not encourage fragmentation or conversion of forest lands to other uses
- A forest landowner education program that encourages coordination and management of entire subdivisions
- An expanded forest products industry outside the Black Hills area
- An expanded technical assistance capability
- City ordinances to have tree protection guidelines in place for new developments

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Municipalities
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Land trust organizations
- Private professional foresters
- General contractors/development companies
- Certified arborists
- Certified landscape architects
- Nongovernmental organizations

THREAT: FOREST HEALTH

Forest health is a broad term that varies on both a spatial and temporal scale. It may be reflected by a single homeowner with a sick tree or a mountain pine beetle epidemic that affects thousands of acres of forest land. It may involve annual direct suppression of a mountain pine beetle epidemic or planning for the arrival of the emerald ash borer (EAB).

Strategy

- Monitor forest insect and disease outbreaks
- Provide forest management technical assistance to private forest landowners
- Educate private forest landowners and business and community leaders about the importance of forest management, planning, programs, availability of assistance, and how to implement plan recommendations
- Prepare forest stewardship plans for private forest landowners
- Promote utilization of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry
- Collaborate with other federal, state, and local agencies to coordinate programs and incentives that encourage and implement healthy forest restoration practices
- Provide financial incentives to help private forest landowners implement healthy forest restoration practices
- Collaborate with and engage federal, state, and local land managers to improve forest health and implement policies that sustain forest health management practices
- Promote natural species diversity within native forest lands
- Encourage the planting of a diverse mix of tree species within windbreaks, woodlots, and communities
- Determine the economic impact of forest health problems to South Dakota
- Develop direct suppression and preventive management options to suppress forest insect and disease outbreaks
- Encourage communities to develop tree-planting plans
- Introduce prescribed fire across ownerships to maintain forest health

Existing Resources

- Established technical assistance and suppression programs
- Viable forest products industrial infrastructure in the Black Hills area; some forest products industry in south-central and eastern South Dakota

- Regular meetings with federal, state, and local agencies to coordinate forest management efforts and opportunities
- Ongoing consultation with arborists and private professional foresters
- South Dakota Master Gardeners program

Resource Needs

- An expanded forest products industry outside the Black Hills area
- An expanded technical assistance capability
- Encourage work and obtain funding for cross-boundary projects that address forest health issues
- A network of private professional foresters, certified arborists, landscape architects, and nurserymen to use their professional skills
- Public awareness of forest health issues

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Municipalities
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Certified arborists
- Certified landscape architects
- Nongovernmental organizations

THREAT: WILDFIRE

Forest fires are a large threat to the conifer forest type in South Dakota and the development that has occurred in the wildland urban interface. The Black Hills is home to 1.2 million acres

of National Forest land interlaced with a patchwork of private land where development continues to take place. Fire suppression is necessary to protect homeowners because the Black Hills are highly developed.

Strategy

- Mitigate the potential for catastrophic fires
  - Reduce fuels by providing financial incentives to landowners
  - Complete, update, and implement Community Wildfire Protection Plans (CWPPs)
  - Increase public awareness of the need for fire prevention and fuels mitigation
- Increase the training and capacity of the state's local fire suppression resources
- Provide basic and advanced wildland fire training to state, local, and federal fire suppression agencies to sustain efficient suppression activities and maintain healthy forests
- Manage suitable lands to achieve structurally diverse, healthy forests to develop more resilient forest landscapes
- Reduce fuels by prescribed burning
- Provide prescribed burning assistance to private land owners and governmental land management agencies
- Increase fire management capacity in eastern South Dakota by establishing an East River field office
- Increase fire management capacity in the southern Black Hills by the establishment of a Custer field office
- Increase fire management capacity in the northern Black Hills and Harding County by the addition of a full-time assistant fire management officer in Lead
- Increase fire prevention capacity by establishing a fire prevention officer for statewide activities
- Develop and promote a statewide fire prevention program to safeguard forest health
- Provide direct fire suppression on all state and private forest lands and provide technical assistance on other wildland fires in the state
- Provide wildfire assistance and support to other agencies
- Statewide private landowner treatments, assistance to communities, and landowners for implementation of hazardous fuels mitigation plans
- Develop a wood utilization project to reduce fire hazards around housing areas

Existing Resources

- Federal and state land management agencies and local fire entities have existing staff dedicated to fire management
- Several counties have completed CWPPs

Resource Needs

- An increase in budgets and training for prescribed fire
- Incentives for fuel management treatments adjacent to communities and dwellings
- Cooperation among agencies
- Adequate budget
- Technical assistance capability
- Information networking

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local fire management organizations
- Private businesses
- Private landowners
- Insurance companies
- Homeowner's associations
- Extension

THREAT: WEEDS AND INVASIVE SPECIES

According to the National Invasive Species Management Plan (NISMP), the term "invasive species" is defined by Executive Order 13112 as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." Examples of invasive species include EAB, Dutch elm disease, gypsy moth, salt cedar, common buckthorn, leafy spurge, and Canada thistle. Not all weeds are invasive species.

Strategy

- Track insect, disease, and invasive species outbreaks within the state, as well as neighboring states, as they occur

- Develop rehabilitation and restoration strategies for using native or desired nonnative species for restoration and rehabilitation
- Implement the NISMP strategies of prevention, early detection rapid response, control and management, restoration, and organizational collaboration
- Provide forest management technical assistance to private forest landowners
- Educate private landowners, the public, schoolchildren, conservation districts, and business/community leaders about the importance of forest management, planning, programs, availability of assistance, and how to implement recommendations
- Explore utilization and marketing opportunities to control invasives
- Work with other federal, state, and local agencies to coordinate programs and incentives that encourage control of weeds and invasive species
- Develop best management practices (BMPs) for treating weeds and other invasive species
- Support policies that prevent exotics from entering the country
- Support and encourage research for viable control options

Existing Resources

- Established technical assistance and suppression programs
- Viable forest products industrial infrastructure in the Black Hills area; some forest products industry in south-central and eastern South Dakota
- Regular meetings with federal, state, and local agencies to coordinate forest management efforts and opportunities
- Ongoing consultation with arborists and private professional foresters
- South Dakota Master Gardeners program
- Established weed and invasive species control professionals

Resource Needs

- An expanded technical assistance capability
- Encourage work and obtain funding for cross-boundary projects that address weeds and invasive species
- Public awareness of problems and costs associated with weeds and invasive species
- Funding to maintain a level of preparedness to adequately address outbreaks when and where they occur
- Establishment of a first detector program

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Certified arborists
- Certified landscape architects
- Nongovernmental organizations
- Fire management organizations
- Weed and pest agencies
- Private businesses
- Campground owners
- Forest products industry
- Colleges and universities
- Nursery associations

THREAT: WATER QUANTITY AND QUALITY

Trees and forest cover contribute to water quality in all forest types. The loss of trees can contribute to water-quality degradation. BMPs were developed for the protection of water quality during silvicultural operations, and monitoring audits have shown them to be successful when properly implemented.

Strategy

- Educate forest landowners and forest workers about BMPs for protecting water quality during forestry operations and provide resources to implement BMPs and establish BMPs for riparian areas

- Monitor existing BMPs through audits for proper implementation and effectiveness; implement recommendations that develop from periodic audits
- Educate the general public on the values and benefits of managing for water quantity and water quality
- Prepare forest stewardship plans for private forest landowners
- Identify where riparian forests occur, where they occurred in the past, and where they are most likely to be successfully reestablished
- Promote establishment of trees and shrubs for riparian buffers to protect and improve watersheds
- Work with other federal, state, and local agencies and boards to coordinate programs, initiatives, and incentives that encourage protection of water quality
- Develop and implement management plans based on watersheds
- Promote the management of forested areas to increase water quantity and quality

Existing Resources

- Established technical assistance programs
- Regular meetings with federal, state, and local agencies to coordinate forest management efforts and opportunities
- Established, approved, and proven BMPs for protecting water quality during silvicultural operations
- Established training program for forestry workers
- Established auditing procedure for monitoring BMP implementation and effectiveness
- Established watershed partnerships
- Established water-quality cost-share and grant programs

Resource Needs

- BMPs for riparian areas
- An inventory of where riparian forests occur, where they occurred in the past, and where they are most likely to be successfully reestablished
- Programs to educate landowners to understand and accept the value of riparian forest buffers, what BMPs are, and how to implement them to protect water quality on their land
- Programs to assist with reforestation on sites where trees have been removed

- Funding
- Encouragement of cost-share programs that promote appropriate grazing practices
- An expanded technical assistance capability

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Nongovernmental organizations
- Fire management organizations
- Private businesses
- Forest products industry
- Colleges and universities

THREAT: CLIMATE CHANGE

The biggest challenge to managing forests for climate change is predicting what the climate will be in the future. Climate-induced disturbance may have dramatic affects on forests in a short time duration relative to the life span of a forest type—fire in a few hours or insects in a few years. Climate affects tree establishment and survival of all forest types.

Strategy

- Provide guidance to help forest landowners implement forest climate adaptation and mitigation management practices based on the best available science and proven best practices

- Coordinate Forest Stewardship Plan preparation with Natural Resources Conservation Service (NRCS) conservation plans to facilitate delivery of Environmental Quality Incentives Program (EQIP) funding for plan implementation
- Support energy-saving programs that take advantage of state foresters' experience in delivering tree planting programs that help reduce home heating and energy costs
- Promote and support practices that improve resilience of forested landscapes and restore impacted landscapes to maintain ecological functions and critical ecosystem services
- Support a consistent definition of renewable biomass for the federal Renewable Energy Standard and Renewable Fuels Standard that includes woody biomass from federal lands
- Explore the carbon sequestration potential of natural forest lands, woodlots, and windbreaks
- Support FIA program for monitoring changes to South Dakota forests
- Promote utilization of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry
- Track and participate in developing federal legislation and policies to ensure South Dakota's forestry interests are represented

Existing Resources

- Established cost-share programs
- Regular meetings with federal, state, and local agencies to coordinate federal forest management policies and opportunities

Resource Needs

- Consistent federal climate change policy
- Monitoring to determine the amount and effects of climate change
- A program to educate landowners, policy makers, and the public to understand the importance of forests in a changing climate
- Help private landowners manage for climate change
- Adopt **WinDET** and/or **WebDET** for Forest Stewardship Plan preparation to position the state for compatibility with NRCS conservation plans and facilitate delivery of EQIP funding for plan implementation
- Ensure FIA has a statistically sound sample size and incorporate metrics into the program that allow tracking of trends for biomass volume and carbon stocks

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Nongovernmental organizations
- Fire management organizations
- Private businesses
- Forest products industry
- Colleges and universities

The following four threats (lack of species diversity, over mature and dying trees, poor survival and maintanence of planted trees, and loss of urban trees to development) are addressed as one issue because of similarities in strategies, resources, and partners.

THREAT: LACK OF SPECIES DIVERSITY

Many of South Dakota's planted forests lack species diversity. Following the arrival of Dutch elm disease, many communities replaced their elms with green ash, which is now threatened by the EAB. Windbreaks tend to be planted with few species planted in long lines with no species variability within a line. Diversity will reduce the chances of a single insect/pathogen destroying the effectiveness of a windbreak or a community forest.

THREAT: OVER MATURE AND DYING TREES

Many of the communities in South Dakota have a mature tree population, and many of these trees are starting to decline in health. These communities need assistance in establishing community forestry programs to better manage their city trees and have a healthy community forest. The majority of windbreaks in South Dakota are over mature and have lost their effectiveness. These windbreaks are in need of renovation.

THREAT: POOR SURVIVAL AND MAINTENANCE OF PLANTED TREES

The mortality rate of new tree plantings is excessively high and costly. This occurs in conservation plantings as well as ornamental plantings of expensive, large-caliper trees. A common error is to plant trees too deep. Other problems occur depending on whether the planting stock is bare root, potted, or ball and burlap. Improper site preparation and lack of care after planting lead to stress, mortality, and susceptibility to insects and diseases.

THREAT: LOSS OF URBAN TREES TO DEVELOPMENT

Development and land-use changes pose one of the largest risks to urban forests. Forests along the edge of developing communities are especially susceptible to removal. Trees in vacant lots are also threatened by development. Trees may also become damaged or stressed from other sources such as nearby construction, vandalism, chemical pollution, improper planting and/or pruning, and over/underwatering.

Strategy

- Provide technical assistance to conservation districts, landowners, and communities
- Promote natural species diversity within native forest lands, and encourage the planting of a diverse mix of tree species in windbreaks, woodlots, and within communities using suitable native and nonnative species
- Promote research into new cultivars and species that are adapted to South Dakota
- Work with communities to develop tree planting plans and species lists
- Promote renovation of windbreaks that are becoming ineffective
- Assist communities with the development of tree ordinances that require developers to replace trees lost to construction
- Promote development of community tree banks
- Work with other federal, state, and local agencies to coordinate programs and incentives that encourage windbreak renovation and tree planting
- Encourage and promote markets for utilization of woody biomass across the state
- Educate landowners, the public, schoolchildren, tree boards, city workers, developers, and business and community leaders about the importance of species and age-class diversity protecting and retaining trees during development, the need to renovate windbreaks, and the proper planting and maintenance of trees in our communities and forests through workshops, literature, and Internet-based social networking
- Replace dead and dying trees and expand tree plantings in open areas within communities

Existing Resources

- Technical assistance to private landowners
- Information and education materials about tree planting and care
- Completed community forest inventories
- Community forestry challenge grant program and other cost-share programs
- Geospatial inventory techniques
- Community recognition program
- Existing species lists with soil compatibility data
- Master Gardener network
- Tree City USA recognition

Resource Needs

- Information and education workshops, literature, and Internet-based social networking sites about the importance of species and age-class diversity protecting and retaining trees during development, the need to renovate windbreaks, and the proper planting and maintenance of trees in our communities and forests
- Research into new cultivars and species
- An expansion of the Community Forestry Inventory program
- Management strategies to promote natural regeneration
- Incentives for communities and private landowners to protect trees, renovate windbreaks, and regenerate hardwoods
- Model city ordinances to address hazard tree and removals on private land,and protect trees during construction
- Community workers educated in hazard tree identification
- Expansion of the Master Gardeners network
- Markets for wood products

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments

- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Nongovernmental organizations
- Fire management organizations
- Private businesses
- Forest products industry
- Colleges and universities
- Community tree boards
- Arborists and tree care professionals
- Nurseries and retail outlets
- Insurance industry
- Certified landscape architects
- National Arbor Day Foundation

THREAT: LIVESTOCK GRAZING

Livestock production that includes grazing is part of South Dakota's heritage and still a vital portion of many local economies. While unrestricted grazing is a threat to riparian and upland forests, limited and rotational grazing is beneficial to native plant communities.

Strategy

- Promote grazing management techniques and BMPs that are not detrimental to riparian areas, bottomland forests, and upland hardwood forests
- Educate private landowners, the public, schoolchildren, and conservation districts about the importance of forest management, planning, programs, availability of assistance, and how to implement recommendations
- Work with other federal, state, and local agencies to coordinate programs and incentives that encourage grazing management
- Restore forested areas degraded by grazing activities

Existing Resources

- Existing incentives and cost-share programs are available from federal, state, and private sources
- Several conservation districts administer grants to promote grazing systems
- Landowner education programs such as “Bootstraps”

Resource Needs

- An expansion of information and education for livestock producers
- Development of an information and education program for small-acreage owners with horses and other livestock
- Increase technical assistance to private landowners for grazing systems that protect or improve native and planted trees
- Increase grant opportunities for conservation districts to provide grazing systems that protect or improve native and planted trees

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts
- Private forest landowners
- Livestock producer groups
- Nongovernmental organizations
- Private businesses
- Colleges and universities

THREAT: INADEQUATE FOREST INVENTORY INFORMATION

Federal forest inventories do not accurately characterize forests in the Great Plains. These inventories exclude narrow wooded strips along streams, windbreaks, and communities because they are not large enough or continuous enough to be classified as forest land. These lands are classified as nonforest land with trees. Therefore, little is known about the resources that are referred to as windbreak forests, community forests, and wooded draws.

Strategy

- Intensify forest inventory and analysis sampling of the prairie portion of South Dakota to gather more information about upland, bottomland, windbreak, community forests, and other nonforest land with trees
- Continue the street tree inventories of communities using a geospatially based data retrieval system
- Identify locations of riparian and bottomland forests and areas that could support these forest types across the state
- Promote development of new techniques to inventory forest land that are more efficient and more accurate

Existing Resources

- Network of completed street tree inventories
- Data from the Great Plains Inventory project
- Watershed partnerships
- Information from FIA and National Resources Inventory (NRI) inventories

Resource Needs

- Forest inventories that accurately characterize forests in the Great Plains
- A biomass inventory for the entire state
- Better inventory techniques to capture information efficiently
- Expanded community tree inventories
- Develop markets for wood products
- An inventory of where riparian forests occur, where they occurred in the past, and where they are most likely to be successfully reestablished
- An inventory of where windbreak and woodlot forests occur

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts

- Private forest landowners
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Arborists and tree care professionals
- Master Gardeners
- Nongovernmental organizations
- Private businesses
- Forest products industry
- Colleges and universities
- Community tree boards

THREAT: Underutilization of Woody Biomass

Industrial infrastructure is important to all forest types to manage the resource. There is an established infrastructure in the Black Hills; however, annual changes to the Black Hills National Forest budget threaten the vitality of industry. There are opportunities for expanded infrastructure to use small-diameter woody biomass. With a few exceptions, other areas of the state lack industrial infrastructure because of the scattered resource.

Strategy

- Promote a predictable, dependable supply of raw material (woody biomass) from all ownerships to help sustain a viable forest products industry
- Take an active role in the federal forest land management planning process
- Encourage development of forest products markets, including those generally described as woody biomass
- Provide information about the size and distribution of forest resources in South Dakota to interested parties
- Identify and promote improvement to laws, regulations, and policies that will make it easier and more economical to use woody biomass from forest lands regardless of ownership
- Provide incentives to public government building projects to convert to biomass boilers
- Showcase success of existing biomass utilization efforts
- Encourage the proper management and use of forest resources

- Promote tax incentives using small-diameter forest products
- Promote use of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry

Existing Resources

- State and local economic development programs
- Forest industry directory
- Partial biomass assessments
- Viable forest products industrial infrastructure in the Black Hills and some industry in the southern and eastern portions of the state
- USDA Forest Service FIA Forest and Timber Product Output inventories
- Limited technical assistance

Resource Needs

- Stabilization of allowable cuts from federal lands
- Small-scale and mobile harvesting capabilities to use the scattered forest resources outside of the Black Hills
- Development of market for unused forest products
- Development of a state of South Dakota position on the renewable biomass definition and advocate for the position; work with congressional delegations to get a beneficial definition that should be compatible with forest plans
- Review Forest Service policies and advocate for changes that will reduce biomass costs

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- USDA Forest Products Laboratory
- Forest products industry
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)

- Private professional foresters
- Nongovernmental organizations
- Private businesses
- Colleges and universities
- Arborists and tree care professionals

THREAT: LOSS OR DEGRADATION OF WILDLIFE HABITAT

Forests in South Dakota provide habitat for a number of wildlife species. Forested areas, such as riparian areas, often have some of the highest wildlife species diversity of any habitats in the state. Lack of management, insects, disruption of historic disturbance events, and fragmentation by real estate development have resulted in overstocked, diseased, or fragmented stands that have reduced habitat value for some wildlife species.

Strategy

- Develop a geospatial map of past, present, and potential bottomland forest types and forested habitats important to species of greatest conservation needed as identified in South Dakota's State Wildlife Action Plan
- Use silviculture and prescribed burning to manage plant communities to improve wildlife habitat
- Work with Game, Fish and Parks (GFP) Department to help implement strategies found in the South Dakota State Wildlife Action Plan for forested areas
- Educate landowners on the value of forest management and benefits to wildlife habitat
- Develop and implement management plans based on watershed or other local ecologically based boundary

Existing Resources

- GFP's State Wildlife Action Plan and other wildlife habitat plans
- Federal, state, and nongovernmental organization cost-share programs
- Large-scale geospatial data, such as USDA aerial photographs and U.S. Geological Survey (USGS) maps
- BMPs for water quality
- Technical assistance from foresters, wildlife biologists, and USDA

Resource Needs

- Stable allowable cut from federal lands
- Fine-scale geospatial data relating to forests and forest wildlife species distribution maps and habitat availability
- Additional information regarding forest habitat use by some wildlife species
- A landowner education program on wildlife habitat management on forested lands
- Research of habitat needs for forest wildlife species where little habitat use information is available

Partners/Stakeholders

- Federal agencies
- State agencies
- County and local governments
- Tribal governments
- Conservation districts
- Private forest landowners
- Landowner associations
- South Dakota Family Forests Association (Tree Farm Program)
- Private professional foresters
- Nongovernmental organizations
- Colleges and universities
- Local fire organizations

MONITORING

The RC&F will continually evaluate the effectiveness of forest management programs and strive to adapt these programs to address changes to threats and priorities. The feat of monitoring progress toward addressing threats will be a continuous, long-term process.

Monitoring requirements of federal programs will be followed according to established procedures. Forest Stewardship Program monitoring will continue as required by program standards and guidelines. Many forest health issues, including age-class diversity, will continue to be monitored annually as part of the FIA and other programs. Monitoring to satisfy other program and project funding through special grants or competitive grants will be defined on a project-by-project or program-by-program basis, although annual or periodic monitoring of all strategies would be difficult. For example, measuring changes in water quality and climate change requires years of study, yet for other issues, there are no existing reporting mechanisms.

Efforts will be made to establish monitoring procedures to determine the effectiveness of strategies. Effective strategies will be continued; ineffective strategies will be modified or dropped.

INTERSTATE COLLABORATION

The similarities between threats and strategies provide an opportunity for various agencies to collaborate in accomplishing their goals and reducing threats to South Dakota forests. There is a need for county, state, and federal agencies to work collaboratively to tackle major threats within the state. Opportunities for intrastate collaboration are detailed in the assessment.

Many other states in the midwest face similar issues as South Dakota. Invasive species and other threats have no political boundaries and have the potential to spread from state to state throughout the country. For this reason, it is critical to continue to work with other states on monitoring, educating the public, and addressing these problems. There are several specific areas within the state that may provide opportunities for multistate cooperation. These localities include:

- Black Hills (South Dakota and Wyoming)
- Pine Ridge (South Dakota and Nebraska)
- Missouri River corridor and riparian areas (most midwest states).

Cooperation among agencies and states can help address interstate threats and bring greater support for issues that often take a backseat to others. For example, in an effort to prepare for the arrival of invasive species in the Great Plains region, the Great Plains Tree and Forest Invasives Initiative (GPI) was formed as collaboration between state forestry agencies of North Dakota, Nebraska, Kansas, and South Dakota. Also, a partnership has developed between Nebraska, South Dakota, and Wyoming to develop a forest landowner education program focusing on ponderosa pine forests. Agroforestry and windbreaks have currently taken a backseat to other issues; foresters in the central part of the country need to work together to develop a multistate agroforestry initiative. South Dakota will work collaboratively with five other states to address the following priority issues identified by each state's assessment.

North Dakota

- Forest health concerns
- Invasive species
- Wildfire
- Viable forest products industry
- Management guidance for private lands' EAB planning
- Forest riparian area enhancement
- Cottonwood restoration
- Windbreak renovation

Nebraska

- Forest health concerns
- Low elevation riparian forests
- Invasive species
- Water quality and water quantity
- Management guidance for private lands' EAB planning
- Forest riparian area enhancement
- Cottonwood restoration
- Windbreak renovation

Kansas

- Management guidance for private lands' EAB planning
- Riparian area enhancement
- Cottonwood restoration
- Windbreak renovation

Wyoming

- Forest health concerns
- Viable forest products industry
- Wildland Urban Interface (WUI)
- Wildfire
- Low elevation riparian forests
- Aspen
- Water quality and water quantity
- Management guidance for private lands
- Invasive species

Montana

- Forest health concerns
- Wildfire
- WUI

- Viable forest products industry
- Aspen
- Forest conversion
- Water quality and water quantity
- Invasive species
- Low elevation riparian forests

REFERENCES

Hocking, C. M., E. L. Krantz, and G. J. Josten, 2010. *South Dakota Statewide Assessment of Forest Resources*, RSI-2117, prepared by RESPEC, Rapid City, SD, and South Dakota Department of Agriculture, Rapid City, SD, for South Dakota Department of Agriculture, Pierre, SD.

APPENDIX A

STRATEGY MATRIX

Table A-1. Strategy Matrix (Page 1 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Maintain productive forest land in agricultural property tax classification	CRF	State, FSP	Technical assistance, capability to write and implement management plans	Plans written and implemented
Create a property tax structure that classifies unproductive forest land into a tax classification that is similar to unproductive agriculture land	CRF	State	A property tax classification system that will not encourage fragmentation or conversion of forest lands to other uses	Tax classification system
Provide forest management technical assistance to private forest landowners	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire, Fuels Reduction, EQIP, WHIP, CSP	Technical assistance capability	Number of assists
Educate private forest landowners	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire, Extension	Forest landowner education program	Number of landowners educated, number of contact hours
Prepare and implement forest stewardship plans for private forest landowners	CRF, PFH, EPB	State, FSP	Technical assistance capability	Number of plans written and implemented
Create public awareness and educate the public about forests, fragmentation, and the benefits of forest management	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire, Extension	Public relations, social networking	Social networking sites created, public service announcements (PSAs), presentations, website development and maintenance

Table A-1. Strategy Matrix (Page 2 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Promote use of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry	CRF, PFH, EPB	State, FSP, EAP, UCF, Forest Health, Coop Fire, FIA-TPO	Viable, expanded forest products industry; woody biomass inventory for entire state	Maintain or expand the number of facilities using woody biomass
Help counties address forest fragmentation as requested	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire	Technical assistance capability	Number of ordinances adopted
Work with other federal, state, and local agencies to coordinate programs and incentives that discourage fragmentation of forest lands	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire, Extension, EQIP, WHIP, CSP	Cooperation among agencies	
Support federal tax laws that are friendly to Nonindustrial Private Forest landowners	CRF, PFH, EPB	State, WFLC, CWSF, NASF	Access to congressional delegation, information networking	Forest landowner friendly federal tax policies
Provide financial incentives to help private forest landowners implement healthy forest restoration practices	CRF, PFH, EPB	State, FSP, UCF, Forest Health, Coop Fire, Fuels Reduction, EQIP, WHIP, CSP	Technical assistance capability	Landowners assisted
Collaborate with and engage federal, state, and local land managers to improve forest health and implement policies that sustain forest health management practices	CRF, PFH, EPB	State	Cooperating agency status for National Environmental Policy Act (NEPA) documents, strong working relationships	

Table A-1. Strategy Matrix (Page 3 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Promote natural species diversity within native forest lands	PFH, EPB	State, FSP, Forest Health, FIA, Coop Fire, Fuels Reduction, EQIP, WHIP, CSP, Extension	Technical assistance capability, expanded forest inventory	Inventories show increasing species diversity
Encourage the planting of a diverse mix of tree species in windbreaks, woodlots, and within communities	PFH, EPB	State, FSP, UCF, Forest Health, EQIP, WHIP, CSP, Extension, FIA	Technical assistance capability, expanded inventory of nonforest land with trees	Planting records and inventories show increasing species diversity
Determine the economic impact of forest health problems to South Dakota	PFH, EPB	State, FSP, Forest Health, Coop Fire	Resources and funding to gather the information needed to determine the impact. IMPLAN may be a useful tool.	Reliable and statistically sound information on the economic impact of forest health problems.
Monitor forest insect, disease, and invasive species outbreaks	PFH	State, FSP, Forest Health, Extension	Technical assistance capability, first detectors, network with other states	Knowledge of new outbreaks, up-to-date information on existing outbreaks
Work with communities to develop tree planting plans and species lists	PFH, EPB	State, UCF	Technical assistance capability	Number of community tree planting plans written
Develop direct suppression and preventive management options to suppress forest insect and disease outbreaks	PFH	State, Forest Health, Extension	Technical assistance capability, research, networking	Options developed

Table A-1. Strategy Matrix (Page 4 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Introduce prescribed fire across ownerships to maintain forest health	PFH	State, Coop Fire, VFDs, Federal Fire Agencies	Technical assistance capability	Acres burned under prescription
Mitigate the potential for catastrophic fires	PFH	State, Coop Fire, Local VFDs, FHM,	Cooperation among agencies, adequate budget	Acres burned, percent of fires contained under initial attack
Provide direct fire suppression on all state and private forest lands and provide technical assistance on other wildland fires in the state	CRF, PFH, EPB	State, Coop Fire, Local VFDs, Federal Fire Agencies	Cooperation among agencies, adequate budget	49 million acres protected
Provide basic and advanced wildland fire training to state, local, and federal fire suppression agencies to sustain efficient suppression activities and maintain healthy forests	CRF, PFH, EPB	State, Coop Fire, Local VFDs, Federal Fire Agencies	Technical assistance capability, adequate budget	Number of training sessions, number of people trained
Increase fire management capacity in eastern South Dakota by establishing an East River field office	PFH	State, Coop Fire, Local VFDs	Technical assistance capability, adequate budget	Fire management field office in eastern South Dakota

Table A-1. Strategy Matrix (Page 5 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Increase fire management capacity in the southern Black Hills by the establishment of a Custer field office	PFH	State, Coop Fire, Local VFDs	Technical assistance capability, adequate budget	Fire management field office in Custer
Increase fire management capacity in the northern Black Hills and Harding County by the addition of a full-time assistant fire management officer in Lead	PFH	State, Coop Fire, Local VFDs	Technical assistance capability, adequate budget	Assistant fire management officer in Lead
Increase fire prevention capacity by establishing a fire prevention officer for statewide activities	PFH, EPB	State, Coop Fire, Local VFDs, Extension	Technical assistance capability, adequate budget	Establishment of a statewide fire prevention position
Provide prescribed burning assistance to private land owners and governmental land management agencies	CRF, PFH, EPB	State, Coop Fire, Local VFDs	Technical assistance capability, adequate budget	Prescribed burning assists and acres completed
Develop and promote a statewide fire prevention program to safeguard forest health	CRF, PFH, EPB	State, Coop Fire, Extension	Information networking, adequate budget	Number of presentations, articles, contacts
Provide wildfire assistance and support to other agencies	CRF, PFH, EPB	State, Coop fire, local VFDs	Cooperation among agencies, adequate budget	Assists to other fire suppression agencies
Statewide private landowner treatments, assistance to communities and landowners for implementation of hazardous fuels mitigation plans	CRF, PFH, EPB	State, Coop Fire, Extension, Local VFDs	Technical assistance capability, information networking, adequate budget and personnel	Communities assisted, acres treated, landowners assisted

Table A-1. Strategy Matrix (Page 6 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Develop a wood utilization project to reduce fire hazards around housing areas	CRF, PFH, EPB	State, Coop fire, Extension, Local VFDs	Technical assistance capability, information networking, private contractors	Acres treated, landowners assisted, volume of wood used
Develop rehabilitation and restoration strategies for using native or desired nonnative species for restoration and rehabilitation	PFH, EPB	State, FSP, CCG, Forest Health, UCF, Coop Fire, Extension, EQIP, WHIP, EWP	Technical assistance capability, coordination with federal agencies	Number of successful rehabilitation projects
Track insect, disease, and invasive species outbreaks within the state, as well as neighboring states as they occur	PFH	State, Forest Health	Technical assistance capability, monitoring capability, networking	List of outbreaks
Implement the national Invasive Species management Plan (NISMP) strategies of prevention, early detection rapid response, control and management, restoration, and organizational collaboration	PFH, EPB	State, FSP, Forest Health, UCF, Coop Fire, county weed programs	Technical assistance capability, cross-boundary projects, improved public awareness, first detector program, public awareness	Early detection
Explore opportunities for using invasives to accomplish control	PFH, EPB	State, FSP, Forest Health, UCF, Coop Fire	Technical assistance capability, knowledge of species and markets	Usage success
Develop best management practices (BMPs) for treating weeds and other invasive species	PFH, EPB	State, FSP, Forest Health, UCF, Coop Fire, weed programs	Coordination with weed boards, early detectors	Develop BMPs for weeds and invasive species

Table A-1. Strategy Matrix (Page 7 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Support policies that prevent exotics from entering the country	PFH	State, FSP, Forest Health, UCF, Coop Fire	Improved national legislation to address the issues of exotic introductions to North America	Strong legislation and the resources to stop the importation of exotic plants, insects, and diseases into North America
Support and encourage research for viable control options	PFH	State, FSP, Forest Health, UCF, Coop Fire	Coordination with research agencies	Invasive control research
Monitor existing BMPs through audits for proper implementation and effectiveness; implement recommendations that develop from audits	PFH, EPB	State, CCG, FSP, 319	Funding, coordination among agencies and private sector	Periodic audit reports
Identify where riparian forests occur, where they occurred in the past, and where they are most likely to be successfully reestablished	EPB	State, FSP, Forest Health, FIA	Inventory of bottomland ecosystems	Established inventory of bottomland forests and potential forest areas
Promote establishment of trees and shrubs for riparian buffers	PFH, EPB	State, CCG, FSP, Forest Health, EQIP	Public relations efforts, including public service announcements, Web-based information, social networking	Number of riparian plantings established
Establish BMPs for forest riparian areas	PFH, EPB	State, FSP, Forest Health	Funding	Developed BMPs

Table A-1. Strategy Matrix (Page 8 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Develop and implement management plans based on watersheds	CRF, PFH, EPB	State, FSP, Forest Health, Coop fire, UCF	Funding, technical assistance capability	Plans written
Promote the management of forested areas to increase water quantity and quality	PFH, EPB	State, FSP, Forest Health, Coop Fire, UCF, CCG	Technical assistance capability, public information, social networking	Media releases, social networking articles
Coordinate Forest Stewardship Plan preparation with Natural Resources Conservation Service (NRCS) conservation plans to facilitate delivery of Environmental Quality Incentives Program (EQIP) funding for plan implementation	CRF, PFH, EPB	State, FSP, Forest Health	WinDET or WebDET	Working WinDET or WebDET in all field offices
Support energy saving programs that take advantage of state forester's experience in delivering tree planting programs that help reduce home heating and energy costs	EPB	State, FSP, EQIP, UCF, DOT LSF	Incentives, cost-share funding, technical assistance capability, information sharing	Number of farmstead windbreaks and living snow fences established or restored
Support and promote practices that improve resilience of forested landscapes and restore impacted landscapes to maintain ecological functions and critical ecosystem services	CRF, PFH, EPB	State, CCG, FSP, Forest Health, Coop Fire, EQIP, WHIP, CSP	Technical assistance capability, funding to monitor climate change influences	Number of forest restoration projects; number of technical assists

Table A-1. Strategy Matrix (Page 9 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Support a consistent definition of renewable biomass for the Federal Renewable Energy Standard that includes woody biomass from federal, state, and all private forest lands	CRF, PFH, EPB	State	Consistent federal climate change policy	A renewable biomass definition that is conducive to South Dakota forests
Explore the carbon sequestration potential of natural forest lands, woodlots, and windbreaks	CRF, PFH, EPB	State, FSP, FIA	Expanded Inventory and Analysis (FIA) to include biomass volume and carbon stock	Ability to implement carbon sequestration management opportunities
Support FIA program for monitoring changes to South Dakota forests	CRF, PFH, EPB	State, FSP, FIA	Funding for expanded program	Intensify sample to include nonforest land with trees and carbon stock information
Promote grazing management techniques and BMPs that are not detrimental to riparian areas, bottomland forests, and upland hardwood forests	CRF, PFH, EPB	State, CCG, FSP, Forest Health	Funding for research to develop best grazing practices	Set of best grazing practices for forests, and nonforest land with trees
Restore forested areas degraded by grazing activities	PFH, EPB	State, CCG, EQIP, FSP	Technical assistance capability	Number of modified grazing systems
Promote research into new cultivars and species that are adapted to South Dakota	EPB	State, Universities, Coop Forestry, NAFC, Extension	Research into new cultivars and species	Species availability
Promote renovation of windbreaks that are becoming ineffective	PFH, EPB	State, CCG, FSP, Forest Health, EQIP	Funding for windbreak renovation, information and education	Number of renovated windbreaks

Table A-1. Strategy Matrix (Page 10 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Replace dead and dying trees and trees lost to development and expand tree plantings in open areas within communities	PFH, EPB	State, UCF, Forest Health	City tree ordinances, training for city tree workers	Hazard trees removed
Promote development of community tree banks	EPB	State, UCF	Technical assistance capability	Number of tree banks created
Intensify FIA sampling of the South Dakota prairie focusing on upland, bottomland, windbreak, community forest, and other nonforest land with trees	PFH, EPB	State, FIA, UCF	Funding for intensification of FIA	Expanded inventory
Continue the street tree inventories of communities using a geospatially based data retrieval system	PFH, EPB	State, UCF, Extension, Master Gardeners	Technical assistance capability	Number of community inventories completed
Promote development of new techniques to inventory forest land that are more efficient and more accurate	CRF, PFH, EPB	State, FIA	New inventory techniques	Availability of new inventory techniques
Promote a predictable, dependable supply of raw material from all ownerships to help sustain a viable forest products industry	CRF, PFH, EPB	State, FIA	Accurate forest inventory information, stabilized allowable cuts from federal lands	Sustained viable forest products industry
Take an active role in the federal forest land management process	PFH, EPB	State	Adequate staffing to engage in federal land management planning	Input into planning process
Encourage development of forest products markets	CRF, PFH, EPB	State, EAP, FSP, UCF, Forest Health	Accurate inventory information	Markets developed

Table A-1. Strategy Matrix (Page 11 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Provide information about the size and distribution of forest resources in South Dakota to interested parties	CRF, PFH, EPB	State, FIA	Accurate inventory information	Number of requests serviced
Promote improvement to laws, regulations, and policies that will make it easier and more economical to use woody biomass from forest lands	CRF, PFH, EPB	State	Knowledge of laws, regulations, and policies	Efficient woody biomass use
Provide incentives to public buildings to convert to woody biomass boilers	CRF, PFH, EPB	State, Federal	Funding	Number of public facilities converted to biomass
Showcase success of existing biomass use efforts	CRF, PFH, EPB	State, EAP	Web-based stories, social networking sites	Number of projects showcased
Promote tax incentives to use small diameter forest products	CRF, PFH, EPB	State, ATF	New tax incentives	Incentives established
Geospatially map past, present, and potential bottomland forest types, and forested habitats important to species of greatest conservation needed identified in the South Dakota's State Wildlife Action Plan	CRF, EPB	State, FSP, forest health	Geospatial dataset	Completed statewide bottomland forest type map
Work with Game, Fish and Parks (GFP) to help implement strategies found in the South Dakota State Wildlife Action Plan for forested areas	CRF, EPB	State, FSP	Coordination with GFP	Wildlife action plan strategies implemented

Table A-1. Strategy Matrix (Page 12 of 12)

Strategy	National Theme[a]	Programs[b]	Resources Required	Performance Measure
Use silviculture and prescribed burning techniques to manage plant communities	CRF, EPB	State, FSP, Forest Health, Coop Fire	Improve the knowledge and capability of technical assistance providers	Acres of projects completed to managing plant communities

(a) National Themes:
CRF–Conserve Rural Forests
PFH–Protect Forests from Harm
EPB–Enhance Public Benefits from Trees and Forests

(b) Programs:
ATF–American Tree Farm System
CCG–Conservation Commission Grants
Coop Fire–Cooperative Fire Program
CSP–Conservation Stewardship Program
CWSF–Council of Western State Foresters
DOT LSF–Department of Transportation Living Snow Fence Program
EAP–Economic Action Program
EQIP–Environmental Quality Incentive Program
EWP–Emergency Watershed Protection Program
FHM–Fuel Hazard Mitigation
FIA–Forest Inventory Analysis Program
FIA-TPO–Forest Inventory Analysis Timber Product Output
FSP–Forest Stewardship Program
NAFC–National Agro-Forestry Center
NASF–National Association of State Foresters
UCF–Urban Community Forestry Program
VFD–Volunteer Fire Department
WFLC–Western Forestry Leadership Coalition
WHIP–Wildlife Habitat Incentive Program