

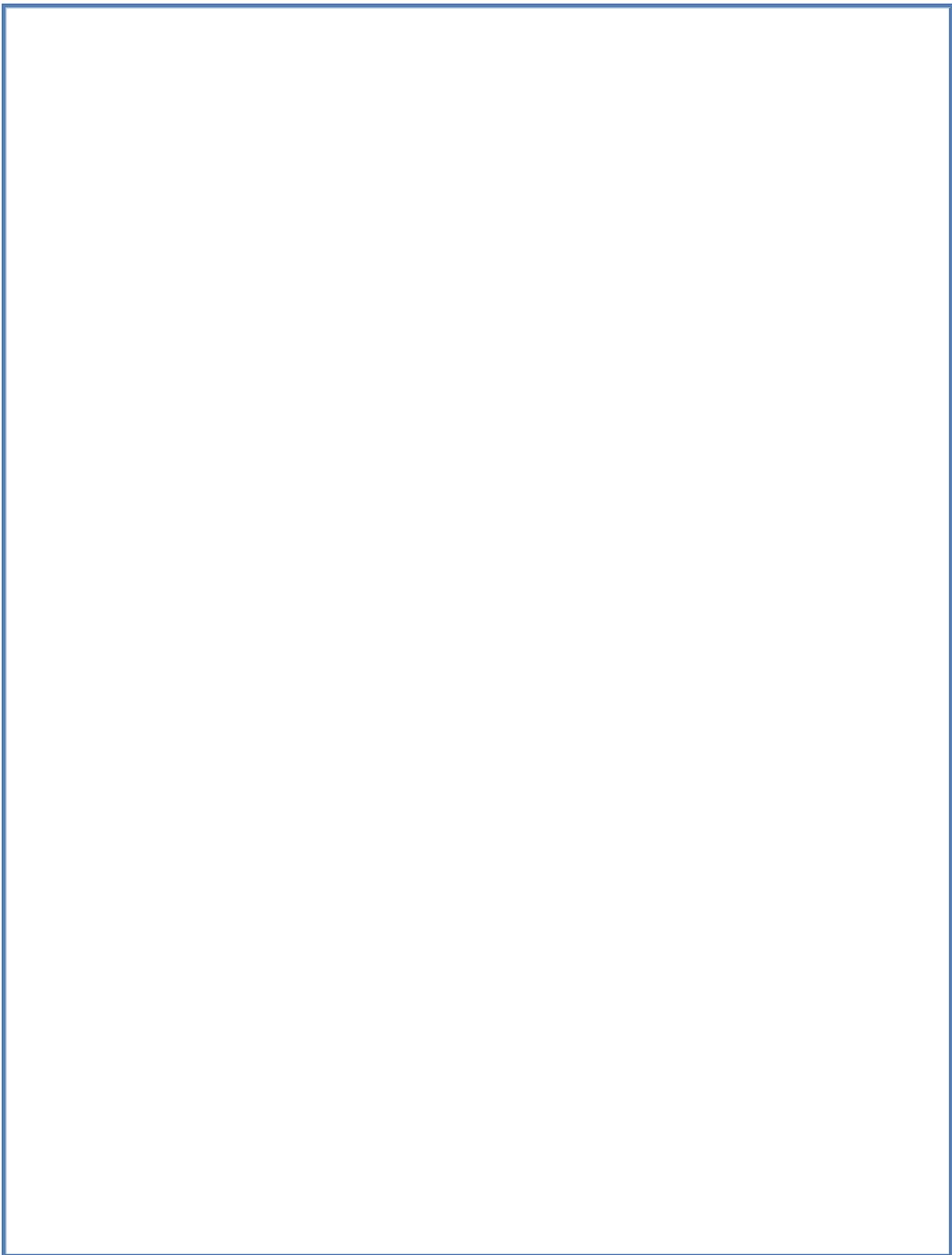
# Wyoming Statewide Forest Resource Strategy

Providing Long-Term Strategies to  
Manage Priority Landscapes

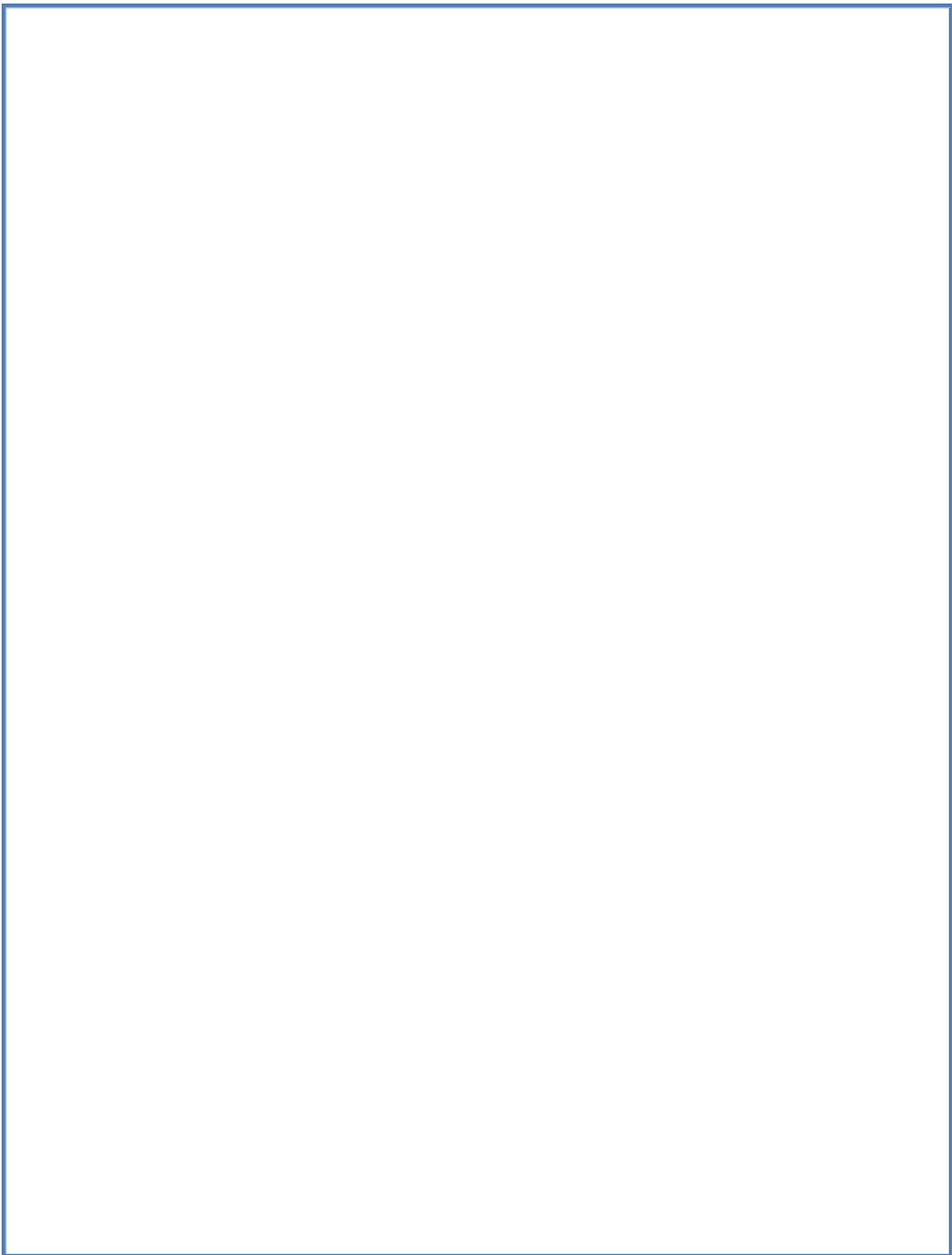


Wyoming State Forestry Division  
Office of State Lands and Investments

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Collaboration with WSFD external and internal partners was important to the development of both the Wyoming Statewide Assessment of Forest Resources and the Wyoming Statewide Forest Resource Strategy Documents. A list of contributors and supporters for this document can be found in the Wyoming Statewide Assessment of Forest Resources.



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## Background

### Statewide Forest Resource Strategy Requirements:

Following completion of the statewide assessment, states are to complete a statewide forest resource strategy to detail how priority forest landscapes will be addressed and how State and Private Forestry (S&PF) funds can contribute to that effort. A state's forest resource strategy will provide a long-term, comprehensive, coordinated strategy for investing state, federal, and leveraged partner resources to address the management and landscape priorities identified in its assessment. The resource strategy should incorporate existing statewide forest and resource management plans and provide the basis for future program, agency, and partner coordination. Direction for the Statewide Forest Resource Strategy was provided by the 2008 Farm Bill, which states:

#### ***“SEC. 2A. STATE-WIDE ASSESSMENT AND STRATEGIES FOR FOREST RESOURCES.***

“(a) ASSESSMENT AND STRATEGIES FOR FOREST RESOURCES.— For a State to be eligible to receive funds under the authorities of this Act, the State forester of that State or equivalent State official shall develop and submit to the Secretary, not later than two years after the date of enactment of the Food, Conservation, and Energy Act of 2008, the following:

- ❖ “(1) A State-wide assessment of forest resource conditions, including—
  - “(A) the conditions and trends of forest resources in that State;
  - “(B) the threats to forest lands and resources in that State consistent with the national priorities specified in section 2(c);
  - “(C) any areas or regions of that State that are a priority; and
  - “(D) any multi-State areas that are a regional priority.
- ❖ “(2) A long-term State-wide forest resource strategy, including—
  - “(A) strategies for addressing threats to forest resources in the State outlined in the assessment required by paragraph (1); and
  - “(B) a description of the resources necessary for the State forester or equivalent State official from all sources to address the State-wide strategy.

The 2008 Farm Bill is can be reviewed in its entirety at the link below:

[http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110\\_cong\\_public\\_laws&docid=f:publ246.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ246.pdf)

## Wyoming's Statewide Resource Strategy

### Addressing Priority Landscapes and National Objectives:

Assessment data layers were developed to depict national objectives, which are representative of the three national themes which provide the basis for the S&PF redesign – Conserve, Protect, and Enhance. Analysis of the data layers produced priority landscapes and threats to those landscapes. The Resource Strategy is intended to address the threats, while moving the priority landscapes towards the desired conditions as described by the three national themes.



Analysis of the Statewide Assessment of Forest Resources identified a number of threats and/or priorities related to forest management in Wyoming. Information to briefly explain the Assessment and caution the reader concerning interpretation of the Assessment is given below.

First, it is important to understand how the Assessment delineates priority landscapes and how the Assessment should and should not be interpreted. The Assessment is a continuum of pixel values without distinct boundaries that would result in particular areas being “in” or “out” of priority areas. Most resource management threats/priorities do not follow distinct boundaries. The Assessment is intended to depict generalized areas where a greater number of forest resource values/threats/priorities exist. Forest managers can interpret the data to help them make decisions about management practices in any given area.

While the Assessment was done at the 30 meter pixel size, some of the data layers were originally developed with larger pixels. Those data layers then had to be processed to 30 meter pixel size. Any time GIS data is manipulated there is the potential to introduce errors and/or skew the data. As with any GIS analysis, caution should be utilized when making management decisions based solely on the value of one pixel versus another.

The Assessment was completed at the statewide level across all ownerships. Caution should be utilized when “zooming in” on a statewide analysis and making any management decisions for any particular place on the ground. The Assessment is a high level analysis not intended for detailed project planning purposes.

The Assessment does not delineate specific, named places as priority landscapes. It would be inappropriate to use a statewide analysis for that purpose. For example, it would be proper to say that the ponderosa pine forests in the Black Hills area are a priority landscape for certain reasons. It would not be appropriate to use a statewide analysis to say that Blacktail Creek in the Bearlodge Mountains portion of the Black Hills is delineated as a priority landscape, although that particular place may be within a priority landscape. To achieve a more detailed analysis would require an individual analysis for each of the various regions of the state. If that path had been chosen, then the different parts of the state could not be compared to one another in any meaningful way.

The Assessment is not a prescriptive document- it does not direct specific actions based on values on the map. It would not be suitable for a statewide analysis to prescribe specific activities intended to meet specific progress targets in any priority landscape. That is best left to detailed project planning by local resource managers using site specific data.

Areas shown in red on the final analysis map in the Assessment might indicate priority areas needing immediate action, or they could indicate areas of high importance based on resource values without the need for intensive management actions. Local resource managers must evaluate what the assessment indicates for any particular part of a priority landscape.

The priority areas identified by the Statewide Assessment differ from priority areas identified by other Analyses such as the Forest Stewardship Important Resource Areas. Statewide Assessment priority areas may include other priority areas which in turn informed the analysis for the Statewide Assessment. Use of priority areas for program delivery and accomplishment reporting will be determined at the national level.

The Assessment, and the data layers included, when interpreted by WSFD and our cooperators, show certain threats to the priority landscapes. Those threats are broad and strategic in nature, such as Wyoming’s unprecedented forest health issues. The threats are not detailed and local, such as mortality caused by Douglas-fir beetle in the Canyon Creek area of the Bighorn Mountains. Often the data layers from which the Assessment was developed are broader by design, making it difficult to use them to identify specific local threats/priorities.

The data layers used in the Assessment had different levels of influence in various parts of the state. In the traditional forest areas (conifer dominated landscapes), the layers that had the greatest impact on the location of the priority landscapes were wildfire risk, forest health risk, fish and wildlife habitat, water quality & supply, economic potential, and stewardship potential.

In community forest areas, the layers that were most important to the location of priority landscapes were community forestry, economic potential, wildfire risk, development risk, and fish & wildlife habitat.

In riparian forest areas, the most important layers to the location of priority landscapes were agroforestry, stewardship potential, fish & wildlife habitat, water quality & supply, economic potential, and development risk.

In the non-forested parts of the state, the layers having the most impact on the location of priority landscapes were development risk, wildfire risk, fish & wildlife habitat, and agroforestry.

The strategies identified in the Resource Strategy are typically “big picture” ideas regarding how to address the threats/priorities identified by the Assessment. The strategies generally avoid specific on-the-ground recommendations which are better left to local resource managers. The strategies also usually avoid assigning time or accomplishment targets because different land owners/managers operate under different timelines, priorities, and rules. Specific management recommendations, targets, and timelines belong in management plans developed by local resource managers. The Resource Strategy provides strategic guidance, not site-specific management recommendations. In some cases the strategies may not be within the scope of some land management agencies, though the strategies may still be desirable goals for the state as a whole.

### **Threats and Opportunities:**

The Wyoming Statewide Forest Resource Assessment described specific threats to the state’s forest resources. Included in the Assessment was a detailed map depicting priority areas throughout the state. Forest management should generally focus on the priority areas while recognizing that similar issues will occur outside of priority areas and those other areas may also require attention.

The design of the Resource Strategy will allow state, federal, and other entities the flexibility to manage the resources in ways that best suit budget and staff limitations while still effectively addressing the threats and opportunities described below. The resource strategy document will not pinpoint specific locations throughout the state, but rather will focus on trends and issues common to certain regions or vegetation types. Some specific examples may be provided in order to more effectively identify particular threats that the state is facing.

Each of the threats described in this document are intertwined to some degree, but several of the threats are so intertwined that it would be incorrect to address them as single issues. After analysis, Wyoming State Forestry Division decided to address Threats 1, 2 and 3 together. Threats 4 and 5, both relating to wildland fire, as well as threats 11 and 12 are also addressed as one issue.

***Threat 1:*** Wyoming is facing forest health issues that are probably unprecedented. Entomologists have stated that it is an anomaly for all of the major bark beetles to be at epidemic levels at the same time. In some areas mortality in mature trees of a species is likely to approach 100 percent. Additionally, whitebark pine and limber pine stands are experiencing significant mortality from a combination of white pine blister rust and mountain pine beetle. There are a number of factors involved, including forest stand conditions, too little active forest management plus effective fire suppression, and climatic factors such as drought and possible climate change. In many areas, age class diversity is lacking, leaving large parts of forests susceptible to a particular damaging agent at the same time. Increased age class diversity and species diversity, where practical, would result in a more resilient, sustainable forest.

***Threat 2:*** A viable forest products industry is essential to enable effective forest management on a meaningful scale. The forest products industry is a partner in forest management, and without it, proposed management projects become quite expensive. The forest products industry in Wyoming has been shrinking for some time in terms of number of mills. Mill capacity was significantly reduced with the closure of the Saratoga mill in 2003. More recently, mills in Sheridan, Cody, and Laramie were closed permanently. The

current historically low lumber market is a threat to remaining mills. The announced re-opening of the Saratoga mill in 2009 is an encouraging development. A predictable, dependable supply of forest products is critical to retaining the forest products industry infrastructure in the state. The development of non-traditional markets, such as those for biomass, could become important to the state, particularly when located with existing mills to minimize biomass transportation costs.

***Threat 3:*** In many areas, older forests are being converted to young forests on a large scale due to bark beetle epidemics. The result will be a new generation of even-aged stands at the landscape scale. Ultimately the cycle will repeat in the future. There must be an increased focus on density management in young stands in the future. Mature, overmature, and old-growth stands will occupy much less area on the landscape. In many cases management may be needed in order to keep remaining older stands healthy. Management may also be needed to accelerate the growth of younger stands into stands with some late-successional or old-growth characteristics.

***Strategy:***

- ❖ Increase age class, structural, and species diversity on lands suitable for forest management. Management should be directed towards achieving desired future conditions (DFC).
  - Promote active forest management on suitable lands across all ownerships to achieve an appropriate age class and structural stage distribution following established silvicultural science.
  - Promote salvage operations on suitable lands across all ownerships to recover merchantable products and accelerate recovery and regeneration of forest stands.
  - Promote species diversity on lands capable of growing multiple tree species.
  - As sites regenerate after the beetle epidemic, evaluate them to determine appropriate long-term species composition. Maintain productive conifer sites in coniferous forest types to ensure long-term growth and yield of forest products.
  - Evaluate future management of regenerated stands post beetle epidemic to determine management strategies to avoid the development of another generation of large-scale, old, even-aged stands.
  - Management of the residual stands of larger trees should be carefully planned to keep those stands healthy. Active management may be needed to achieve overall forest health objectives in those stands.
  - Monitor lack of regeneration and loss of productive forested acres to insects, disease or fire. Where practical, use artificial regeneration where natural regeneration has failed.
- ❖ Use fire as a tool on non-harvestable or administratively withdrawn lands to achieve species and age class diversity goals.
  - Apply prescribed fire to maintain or restore fire adapted lands.
  - In consultation with appropriate fire authorities and with a fire use plan approved by all affected landowners/managers, utilize natural fires when within approved burning conditions to accomplish resource objectives.

- Agencies and landowners must work collaboratively to facilitate cross-boundary implementation of prescribed fire, including the use of “Good Neighbor” or similar Authority.
- ❖ Ensure a predictable, dependable supply of forest products to help sustain a viable forest products industry.
  - Actively manage suitable lands to achieve structurally diverse, healthy forests capable of maximizing growth and yield of forest products while meeting long-term habitat goals at the landscape level.
  - Advocate management plans and budgets that result in a consistent supply of forest products.
  - Provide management planning assistance to private landowners to encourage active forest management to enhance long-term productivity of forest resources.
  - Provide a consistent flow of projects to maintain a stable contractor and consultant infrastructure to augment private forestry assistance and carry out on the ground management activities.
  - Encourage training and development opportunities for loggers and natural resource service providers.
  - Examine policies and regulations that inhibit active forest management.
  - Ensure definitions of “renewable biomass” include all ownerships.
- ❖ Encourage development of additional forest products markets, including those generally described as “biomass.”
  - Ensure a predictable, dependable supply of forest products to aid in the development of these non-traditional markets.
  - Provide technical assistance to potential biomass industries, communities, and local entities.
  - Adjust slash disposal requirements, utilization standards, and harvest design to accommodate any developing biomass utilization opportunities.
  - Ensure proper valuation of “biomass” products that reflects final product values and transportation costs.
- ❖ Strive to retain whitebark and limber pine forest types.
  - Collect seed from limber and whitebark pine trees showing resistance to white pine blister rust.
  - Manage adjacent stands being impacted by bark beetles through timber harvest and prescribed or natural fire to reduce the impacts from beetles on whitebark and limber pine stands.
  - Seek ways to manage existing stands to improve health and resilience.
  - Implement artificial regeneration of important limber and whitebark pine stands.

- Better dissemination of information on the status and distribution of whitebark pine.
- ❖ Mitigate the threat of falling trees in campgrounds, roads, trails, administrative sites, ski areas, and near power lines.
  - Prioritize areas based on hazard and public safety concerns.
  - Utilize commercial sale opportunities wherever possible.
- ❖ Track on the ground management activities, insect and disease outbreaks, and wildfires as they occur.
  - Use Geographic Information Systems (GIS) technology to track management actions and predict future forest management activities.

*Existing Resources/Resource Needs:*

❖ **Resources:**

- Federal and State land management agencies have existing staff dedicated to the management of our forest resources.
- Assistance to private landowners and other entities is provided by Wyoming State Forestry Division (WSFD) staff and consulting foresters.
- Other resources such as Conservation Districts also provide assistance.
- Forest Products Industry

❖ **Needs:**

- Budget constraints often limit the ability of federal agencies to meet management targets.
- Increased forest products industry is essential to achieve forest management objectives.
- Direction for biomass industries – ethanol vs. pellets vs. direct power generation vs. cogeneration, etc – where will future policies, incentives, and regulations impact the industries and/or promote biomass utilization?
- Better information and education on the costs and benefits of prescribed and natural fires.
- Improved private forest resource inventory. Federal and state land inventories exist, but no private land inventories exist. A private lands forest inventory will allow resource managers to more accurately assess potential management options.
- Continued consistent funding for forest management and state and private forestry programs.
- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Develop assessment tools, guidelines, benchmarks for determining what constitutes healthy or desirable condition.

### *Partners/Stakeholders:*

- Federal Agencies
- Conservation Districts
- Forest Products Industry
- Fire Management Organizations
- University of Wyoming
- Private Businesses
- Private Landowners
- Nurseries
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 4:*** The threat of fire in the Wildland Urban Interface (WUI) is significant and expanding. This impacts fire suppression strategies, tactics, and costs, and also impacts firefighter and public safety. Private property rights are important in Wyoming, and regulations to address building in the WUI are often not practical. Lands in the WUI are often desirable for housing development, often due to the presence of forests, which in turn present a hazard to the housing development.

***Threat 5:*** Wildfires in areas outside of the WUI are also a threat. Conditions on some landscapes are no longer within normal fire regimes or fire return intervals, the result of effective fire suppression, limited forest management, and climatic factors. For example, ponderosa pine stands often burn in an intense, stand replacing manner, rather than the lower intensity fires of the past. With more intense fires there is the risk of the loss of ecosystem components, such as large trees, plus risk of damage to other resources, such as water quality. For some landscapes, before fire can safely be returned, if desired, mechanical treatment would be necessary to reduce fuels to help control fire intensity.

### *Strategy:*

- ❖ Mitigate risk of catastrophic fires in WUI areas.
  - Reduce fuels by coordinating defensible space and fuel break projects across all land ownerships for maximum landscape effect and resource benefit.
  - Complete, update and implement Community Wildfire Protection Plans (CWPP).
  - Expand local capabilities and programs of communities (I.E., FIREWISE, Fire safe councils).
  - Increase public awareness of wildfire prevention and risks in the WUI through information and education through the utilization of prevention teams, Public Service Announcements (PSA) and non-traditional media outlets.
  - Increase wildfire awareness in non-WUI areas such as prairie/grasslands.
  - Engage/re-engage the insurance industry.
- ❖ Increase the training and capacity of the state's local fire resources.

- Continue the use of Federal Excess Personal Property (FEPP) equipment. Acquire and utilize equipment through the Firefighter (FFP) program.
- Increased advanced level National Wildfire Coordinating Group (NWCG) S- course (300 level and above) training for firefighters, as well as continued support for basic (100 and 200 level) firefighter training.
- Expand local capabilities for managing emerging incidents and assist in Type III incident management team development.
- Continue to seek other opportunities for wildland equipment and training such as grants or exchange programs.
- ❖ Actively manage suitable lands to achieve structurally diverse, healthy forests to develop more resilient forest landscapes.
- ❖ Utilize prescribed fire where practical while focusing on lands that cannot be managed using other means.
  - Utilize mechanical pretreatment in preparation for prescribed fire.
  - Develop Prescribed Fire Council largely run by non-governmental organizations (NGO).
  - Acquire funding for more contract prescribed burns on state and private lands.
  - Agencies should work cooperatively to utilize prescribed fires to accomplish landscape management goals.
  - Increase qualifications to develop prescribed burn programs.
  - Utilize fire departments and other cooperators for prescribed burns as training opportunities.
  - Explore options of utilization of Southwest Fire Use Academy (FUTA) for prescribed burn assistance.
  - Explore options for addressing liability issues that have hampered prescribed fire programs.
- ❖ Utilize natural fires to accomplish resource objectives and minimize the risk of catastrophic wildfires where practical while focusing on lands that cannot be managed using other means.
  - Develop or identify areas where naturally caused fires are allowed to burn to achieve management objectives and coordinate with land owners, managers and local governments.
  - Develop control/confine/monitor strategies for suppression actions based on expected fire behavior, values at risk and resource management goals.
  - Implement a large scale education program to provide information to the public, media and elected officials regarding the use of natural fires to accomplish objectives.
- ❖ Enhance and continue cooperation between agencies to increase capacity throughout the state.
  - Encourage Incident Management Team participation to the extent that agency staffing and budgets allow.

- Encourage Interagency training opportunities.
- Continue CWPP development and revisions/updates.
- ❖ Track wildfires, prescribed fires, and fire use as incidents and projects occur.
  - Use GIS technology to track management actions and predict future forest management activities.

***Existing Resources/Resource Needs:***

❖ **Resources:**

- Federal and state land management agencies and local fire entities have existing staff dedicated to fire management.
- Assistance to private landowners and other entities is provided by WSFD staff, consulting foresters, local fire districts, and mitigation project coordinators.

❖ **Needs:**

- Budget constraints often limit the ability of federal agencies to meet management targets.
- Increased forest products industry is essential to achieve forest management objectives.
- Better information and education on the costs/benefits/hazards/risks of prescribed and natural fires.
- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Increased budgets and training for prescribed fire.
- Statewide coordination of fire prevention education, information and training.
- Increase partnerships and exchanges between natural resource agencies.
- Continued consistent funding for forest management and state and private forestry programs.

***Partners/Stakeholders:***

❖ **Partners/Stakeholders**

- Federal Agencies
- County and local fire entities/Emergency Management Agencies
- Forest Products Industry
- University of Wyoming
- Private Businesses
- Private Landowners
- Non-governmental Organizations

- State agencies such as Game and Fish Department, State Parks, Fire Marshal's Office, Office of Homeland Security, and Department of Environmental Quality (DEQ).
- Neighboring states
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

**Threat 6:** Wyoming's low elevation riparian forests are in decline. Aging tree populations combined with a general lack of successful regeneration has resulted in the rapid decline of riparian forests in recent years. Invasive non-native species such as Russian olive and saltcedar have extensively invaded some riparian areas, outcompeting native species, significantly reducing the quality of wildlife habitat, and contributing to diminishing stream flows.

**Strategy:**

- ❖ Increase stream flow rates in riparian areas.
  - Remove Russian olive and saltcedar and increase the public awareness of the threats associated with these species.
  - Remove noxious weeds in or around riparian areas.
  - Reintroduce native vegetation or introduce desired non-native species for riparian rehabilitation based on local management expertise.
  - Monitor and re-treat/re-seed/re-plant treated areas as needed.
- ❖ Manage ungulate populations to control herbivory.
  - Manage domestic and wildlife ungulate numbers at herd objectives.
  - Encourage and provide cost-share for water development projects that lessen pressure on riparian areas.
- ❖ Manage upstream forests to increase runoff.
  - Actively manage suitable lands using established silvicultural science to achieve structurally diverse, healthy forests while following Best Management Practices (BMP). Encourage coordination/cooperation between ownerships.
  - Manage forest composition and densities to maintain desirable levels given the forest management direction for the area.
  - Promote healthy aspen stands on true aspen sites by removing conifers/sagebrush and invigorating clones by cutting/prescribed fire.
- ❖ Conduct forest management activities in riparian areas to increase forest health, improve species diversity, and increase residual tree vigor.
  - Conduct demonstration projects to provide examples and evaluate results of different restoration tactics.

- Promote partnerships with Weed and Pest, research (G&F, UW, chemical companies), sportsman's groups, NGO's, natural resource agencies, communities, private landowners.
- Conduct research to determine the best techniques to regenerate native riparian forests.
- Where necessary, conduct streambank stabilization and in-stream engineering projects to reduce erosion/sloughing.
- ❖ Increase the public's understanding of the decline in our low elevation riparian forests and why it's important.
  - Form a statewide committee to devise a promotional/educational campaign.
  - Create a clearinghouse (website) for all projects, research, and contacts statewide.
  - Coordinate this effort with a wide range of partners.

***Existing Resources/Resource Needs:***

❖ **Resources:**

- Federal and state land management agencies have existing staff dedicated to the management of our forest resources.
- State and federal wildlife agencies provide direction, funding, and expertise regarding statewide habitat needs to land management agencies and landowners.
- Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
- Other resources such as Conservation Districts also provide assistance.

❖ **Needs:**

- Better information on the benefits of riparian forests.
- Improved private forest resource inventory. Federal and state land inventories exist, but no private land inventories.
- Coordination between state and federal agencies, private landowners, and conservation districts.
- Develop assessment tools, guidelines, benchmarks for determining what constitutes healthy or desirable condition.
- Continued consistent funding for forest management and state and private forestry programs.

***Partners/Stakeholders:***

❖ **Partners/Stakeholders**

- Conservation Districts
- Weed and Pest
- Civic Groups

- Non-governmental Organizations
- State and Federal Agencies
- University of Wyoming
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 7:*** Aspen is a growing focus of concern within the Rocky Mountain region. Stands are showing significant decline through diminished reproduction, succession to conifers, and browsing pressure from wildlife and domestic livestock. Because aspen is generally a disturbance dependent species, the combination of fire suppression plus a reduction in forest management - including less harvest of more shade tolerant conifers – has contributed significantly to the decline of aspen populations.

***Strategy:***

- ❖ Increase regeneration of aspen stands through the use of forest management activities.
  - Use prescribed and natural fires to increase disturbance on aspen sites.
  - Promote active forest management, including aspen harvest and the removal of conifers on true aspen sites, to encourage healthier aspen clones and multiple age classes.
  - Where practical, conduct aspen regeneration projects on a large scale to reduce impacts of overbrowsing and increase chances of project success.
- ❖ Carefully analyze current and potential aspen sites for suitability and probability of success.
  - Monitor regeneration of beetle-killed forests and where practical direct stand development towards the appropriate species for the site. As the beetle-killed forests begin to regenerate, many acres that are not traditionally aspen sites will begin to regenerate in aspen. Some of these stands should be maintained as aspen, but many of them should return to coniferous forest types to maintain long term yield of forest products.
  - Analyze historic vegetation, site productivity and management goals to determine the best sites to focus aspen restoration/retention efforts.
- ❖ Manage ungulate populations to control herbivory.
  - Manage domestic and wildlife ungulate numbers at herd objectives.
- ❖ Track aspen management activities as they occur.
  - Use GIS technology to track management actions and predict future forest management activities.

***Existing Resources/Resource Needs:***

- ❖ **Resources:**
  - Federal and state land management agencies have existing staff dedicated to the management of our forest resources.

- State and federal wildlife agencies provide direction, funding, and expertise regarding statewide habitat needs to land management agencies and landowners.
- Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
- Other resources such as Conservation Districts also provide assistance.
- Rocky Mountain Elk Foundation (RME) and other sportsmen/conservation groups.

❖ **Needs:**

- Budget constraints often limit the ability of federal agencies to meet management targets.
- Better information and education on the costs and benefits of prescribed and natural fires.
- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Continued consistent funding for forest management and state and private forestry programs.
- Better dissemination of information on the status and distribution of aspen.
- Development of markets for aspen would offset costs of treatment.
- Develop assessment tools, guidelines, benchmarks for determining what constitutes healthy or desirable condition and desirable sites for aspen.
- A better understanding of Sudden Aspen Decline (SAD) and its causes, effects and relevance in Wyoming.
- A synthesis of information and expertise to provide technical guidance to land managers.

***Partners/Stakeholders:***

- State and Federal Wildlife Agencies
- Conservation Districts
- Non-governmental Organizations
- Forest Products Industry
- Federal Agencies
- University of Wyoming
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 8:*** There are numerous challenges to maintaining healthy community forests in Wyoming. Community forests often lack age class diversity with most of the mature trees planted early in a particular community’s history and having originated from planting stock available nearby. Community forests also often lack species diversity. In small communities, a lack of community forestry expertise is sometimes a

problem. Limited funding for maintenance, planting, and removals can impact the development of community forestry programs.

**Strategy:**

- ❖ Enhance species and age diversity.
  - Provide technical expertise.
  - Provide information to communities on appropriate spacing, planting sites, and suitable species.
  - Encourage the proper care of young and middle-aged trees.
  - Encourage the development of local tree species guides.
  - Assist with developing local arboretums.
  - Emphasize the need for tree inventories to gauge the composition and health of the community forest.
  - Assist in devising management plans to address needs found in the inventory.
  - Utilize GIS technology to track and manage community forests in conjunction with tree inventories and management plans.
- ❖ Increase local community forestry expertise.
  - Provide local training opportunities such as arboriculture, municipal forestry and forest health workshops.
  - Encourage ISA Certified Arborist Certification.
  - Improve the knowledge and diversity of tree board membership.
  - Encourage the involvement of natural resource professionals such as United States Forest Service (USFS) employees, Weed and Pest managers and Natural Resources Conservation Service (NRCS) staff.
  - Provide scholarships to attend municipal forestry workshops.
  - Provide modern training tools and resources to support local workshops.
- ❖ Enhance funding and build capacity within the communities.
  - Provide funding to communities through WSFD Community Forestry grants and evaluate the potential for competitive grants for specific needs.
  - Make funding contingent on long-term plans for planting and maintenance.
  - Encourage communities to increase their own funding sources.
  - Help communities to realize the value of trees and the cost of not funding the community forest.
  - Encourage communities to think of innovative ways to find/create new funding sources.

- Encourage communities to build partnerships with local businesses, non-profits, and other governmental organizations.
- Explore the carbon sequestration and marketing potential of community forests.
- Convince communities to build their capacity by increasing staffing.
- Become less reliant on federal funds by building support for greater state funding to WSFD.
- ❖ Measure progress within communities.
  - Tree City USA provides a baseline indicator of success and community commitment
  - Develop performance measures for different sized communities For example, a large city should have at least a City Forestry Division, medium-sized cities should employ city park staff with arborist certification, and small towns should have an active tree board.
  - Emphasize the use of tree inventories and provide support for updating and maintaining the inventory.
- ❖ Build green infrastructure.
  - Encourage communities to adopt landscape ordinances for commercial and residential development.
  - Encourage communities to adopt tree preservation ordinances.
  - Highlight the benefits of including tree plantings in streetscape projects.
  - Provide training for engineers, public works directors, city planners, etc.
  - Show the economic and social benefits of building with trees.

*Existing Resources/Resource Needs:*

- ❖ **Resources:**
  - Utilizing state and federal funds, WSFD provides technical assistance through a staff that includes a Community Forester and Community Resource Forester, as well as district foresters and assistant district foresters.
  - Portions of the federal funds received for community forestry are passed through to the communities in the form of community forestry grants. Grant funds can be used to increase the capacity and education level within the community as well as to provide planting and maintenance of the community's trees.
  - Guidance is provided by the Community Forestry Council which is currently being integrated with the Forest Stewardship Steering Committee to form a joint Assistance Forestry Committee.
  - 6 communities have city foresters, 13 communities have maintenance and park staff trained in community forestry, and 39 communities utilize tree boards to manage the community forestry resource.

- Wyoming has 41 Tree City USA communities, which is the second highest percentage of incorporated communities in the United States.
- High Plains Arboretum provides living examples of trees adapted to Wyoming's harsh climate.

❖ **Needs:**

- Federal funding has declined which has decreased the amount passed through to the communities. Increased federal funds will increase the money leveraged from the communities. On average each dollar granted leverages two dollars within the community.
- Continued consistent funding for forest management and state and private forestry programs.
- Build partnerships with private entities to supplement existing funding.
- Better information explaining the benefits of community forests to the public and elected officials.
- Continued emphasis on a "Train the Trainer" approach.
- Better promotion of species at the High Plains Arboretum.

*Partners/Stakeholders:*

- Community Forestry Council
- Tree boards
- City Councils
- County Commissioners
- City Foresters
- City Planners/ Landscape Architects
- Parks and Recreation Departments
- University of Wyoming
- County Extension/UW Extension
- Conservation Districts
- County Weed and Pest Managers
- Civic Groups
- Public Works Departments
- Non-governmental Organizations
- Federal Agencies
- Nurseries and retail outlets
- Arborists and tree care professionals

- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

**Threat 9:** In an arid state like Wyoming, water quality and quantity will always be important issues. Forest management activities, or the lack thereof, can have a positive or negative impact on water resources. Compliance with Wyoming's Silviculture BMP's is critical to protecting water quality during forest management activities. In areas of ample precipitation, forest management can increase water yield. The ongoing bark beetle epidemics are likely to produce significant increases in water yield from many forested watersheds due to major reduction in live trees on the landscape. However, the resulting increased fuel loading and the potential for large, intense wildfires in the future poses a significant risk to water quality.

**Strategy:**

- ❖ Continue compliance with Wyoming's Silviculture BMP's during forest management and road building and maintenance activities.
  - Continue BMP audits across all ownerships using an interdisciplinary committee.
  - Encourage and provide BMP training to loggers and landowners.
- ❖ Look for opportunities to conduct forest management activities to increase water quality and quantity where practical.
  - Design management activities, including potential demonstration projects, according to best available science to maximize benefit.
  - Quantify the cost of no action such as the impacts of large wildfires on streams, reservoirs, and public water systems.
- ❖ Emphasize riparian forest restoration and improvement of riparian habitats.
  - In beetle-killed areas, manage the fuel loading in Streamside Management Zones (SMZ) to minimize the effects of future fires on soils and water.
  - Reduce fuels using salvage timber harvesting operations when possible while following Best Management Practices.
  - Utilize contracts for services, stewardship contracts, and stewardship agreements as needed to reduce fuels mechanically.
  - Utilize prescribed fire during approved burning conditions to treat fuels in remote areas.
  - Following any fire that may have affected soils, utilize erosion control methods to limit sediment delivery to water.
  - Where practical replant trees and other vegetation in order to accelerate soil stabilization and decrease sedimentation.
  - Monitor stream flow rates to measure actual increases in water yield following the beetle epidemic.
- ❖ Reduce runoff from urban areas into watersheds.
  - Educate community leaders about the benefits of trees for reducing stormwater runoff.

- Encourage communities to view trees as capital assets.
- Encourage tree plantings to break-up non pervious surfaces such as in medians, parking lots and along streets.
- ❖ Utilize aerial photography to evaluate community tree canopies to determine where tree plantings should be focused.
- ❖ Track on the ground management activities, insect and disease outbreaks, and wildfires as they occur.
  - Use GIS technology to track management actions and predict future forest management activities.

***Existing Resources/Resource Needs:***

❖ **Resources:**

- Federal and State land management agencies have existing staff dedicated to the management of our forest resources.
- Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
- Other resources such as Conservation Districts also provide assistance.

❖ **Needs:**

- Better information and education on the costs and benefits of prescribed and natural fires.
- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Budget constraints often limit the ability of federal agencies to meet management targets.
- Continued consistent funding for forest management and state and private forestry programs.
- Increased funding for BMP education and monitoring.
- Continued participation in BMP planning and compliance from land management agencies, academia, and the forest products industry.
- Increased forest products industry is essential to achieve forest management objectives.
- Accumulate local water yield data.

***Partners/Stakeholders:***

- State Engineer’s Office
- Department of Environmental Quality
- Conservation Districts
- University of Wyoming
- Non-governmental Organizations

- Federal Agencies
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 10:*** Terrestrial habitat is under pressure in Wyoming. There are numerous resource demands on public, state, and private lands, including energy development, housing development, agricultural uses, resource management, recreational uses, and wildlife habitat. The other resource demands have the potential to negatively impact wildlife habitat in some circumstances. In addition, natural processes such as bark beetles and wildfires can impact wildlife habitat, either positively or negatively. Other forestry issues, such as aspen decline and riparian forest decline, can be detrimental to wildlife habitat.

***Strategy:***

- ❖ Encourage land managers to undertake landscape level planning to maintain or enhance forest and woodland communities (Adapted from the State Wildlife Action Plan).
  - Broaden the scale and integration of management planning and treatments. Move from “spot treatments” to larger scale, connected activities.
  - Pursue conservation easements and other land stewardship agreements to conserve migration corridors, functioning diverse ecosystems, open spaces and other crucial habitats.
- ❖ Increase capacity for providing management information to landowners, resource managers and industry.
  - Provide direct access to or links to literature, studies and resource guides.
  - Develop informational resources when unavailable.
  - Develop websites as an educational tool.
- ❖ Maintain continuity across ownerships and programs and integrate programs to provide holistic management tools to all landowners.
- ❖ While considering the silvicultural requirements of the forest resource, mimic natural disturbance regimes using fire or mechanical treatments to provide an ecological balance and vegetative landscape mosaic to enhance fire dependent vegetation and wildlife (Adapted from the State Wildlife Action Plan).
- ❖ Track on the ground management activities, insect and disease outbreaks, and wildfires as they occur.
  - Use GIS technology to track management actions and predict future forest management activities.

***Existing Resources/Resource Needs:***

- ❖ **Resources:**
  - Federal and State land management agencies have existing staff dedicated to the management of our forest resources.

- Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
- Other resources such as Conservation Districts also provide assistance.

❖ **Needs:**

- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Budget constraints often limit the ability of federal agencies to meet management targets.
- Continued consistent funding for forest management and state and private forestry programs.

*Partners/Stakeholders:*

- State and Federal Agencies
- University of Wyoming
- County Extension/UW Extension
- Conservation Districts
- Weed and Pest
- Non-governmental Organizations
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

**Threat 11:** Fragmentation of land ownership is likely to adversely affect natural resource management in Wyoming. Large blocks of private land have historically been important for issues such as open space, commodity production, agriculture, and wildlife habitat. As large blocks of private land are subdivided resource management becomes more difficult. Forest health issues are more difficult to address and fire management becomes more complex. Small parcels can be difficult to manage for agriculture and/or commodity production. There is economy of scale in forest management, and management of small parcels can become economically unfeasible.

**Threat 12:** Access for management is becoming more complicated. More small parcels owned by more landowners can make parcels to be managed more isolated. Easements for use of roads across multiple landowners or for construction of roads can be difficult to obtain. Statutes and rules related to easements can make obtaining an easement expensive and difficult.

*Strategy:*

- ❖ Cross boundary collaboration such as the “Good Neighbor Authority” will be essential for forest, wildlife and wildland fire management.
- ❖ Attempt to manage subdivisions as one land unit.
  - Encourage landowners to work together instead of working as single entities.
  - Develop subdivision level management plans rather than for individual entities.

- Develop management plans as part of subdivision development.
- ❖ Complete comprehensive landscape-level travel management plans.
  - Maintain road infrastructure sufficient to actively manage forest resources and provide adequate access.
  - Close unnecessary roads to reduce maintenance costs, and relocate roads to reduce long-term maintenance needs.
- ❖ Provide incentives to conserve working forest lands.
  - Forest Legacy per direction provided by the Forest Legacy Assessment of Need (<http://slf-web.state.wy.us/forestry/adobe/legacy09.pdf>)
  - Conservation easements
  - Develop means to acquire and hold easements.
- ❖ Keep forestry practices financially viable.
  - Strive to develop and maintain a forest products industry infrastructure to provide consistent markets for forest products.
  - Strive to develop alternative forest products markets, such as biomass.
  - Encourage predictable, sustainable harvest levels on public lands to help sustain the infrastructure necessary to manage private lands.
- ❖ Track accomplishments as they occur.
  - Use GIS technology to track management actions and predict future forest management activities.

*Existing Resources/Resource Needs:*

❖ **Resources:**

- Forest Legacy and other conservation easement programs.
- Non-governmental Organizations
- Federal and State land management agencies have existing staff dedicated to the management of our forest resources.

❖ **Needs:**

- Streamlined process for working across boundaries/ownerships, such as the “Good Neighbor Authority.”
- Revised guidelines for cost share programs to discourage single landowner treatments.
- Target homeowner associations and subdivisions as a whole to conduct workshops and other informative events.
- Continued consistent funding for forest management and state and private forestry programs.

- Maintaining working forest lands requires sustainable forest and agricultural products markets.
- Streamline the process of obtaining road easements and road use agreements.

***Partners/Stakeholders:***

- County Extension/UW Extension
- Conservation Districts
- Non-governmental Organizations
- State and Federal Agencies
- Forest Products Industry
- University of Wyoming
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 13:*** Management guidance for private lands is increasingly important. Private lands are providing a large portion of the commodities available for harvest despite being a small portion of the commercially productive forest lands. Private lands provide numerous non-commodity resource values. Science-based management recommendations would help to ensure that management of private lands is done in a sustainable manner.

***Strategy:***

- ❖ Emphasize stewardship plan development.
  - Begin utilizing WEBDET/WINDET to capture and track the progress of forest stewardship plans.
  - Require development and implementation of stewardship plans in order to be eligible for cost share programs.
- ❖ Provide information and education to private landowners on the benefits of forest management.
  - Reach out to absentee landowners.
  - Develop assessment tools for landowners.
  - Train landowners on basic data collection techniques and basic forest management strategies.
  - Provide landowners with information about the responsibilities of forest ownership.
  - Use local media to reach out to landowners.
- ❖ Obtain better inventory information on private lands.
  - Encourage implementation of Forest Inventory and Analysis (FIA) in Wyoming to capture information about private forest lands.
- ❖ Establish/maintain local contractor base and provide landowner education.

- Ensure stable funding for forest management and road maintenance projects to provide a consistent flow of projects.
- Empower private landowners to safely and effectively conduct forest management activities.
- ❖ Provide financial incentives for management through the use of cost share programs.
- ❖ Develop and implement certification programs for landowners.
  - American Tree Farm System
  - Stewardship Forest

***Existing Resources/Resource Needs:***

❖ **Resources:**

- Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
- The Forest Products industry, Conservation Districts, Weed and Pest, and UW/County extension have professionals to provide assistance to private landowners.
- The American Tree Farm System, the Forest Stewardship Program (FSP).

❖ **Needs:**

- Continued WSFD Staff availability to provide current level of service.
- Continued consistent funding for forest management and state and private forestry programs.
- Establish a Tree Farm committee.
- Collect private land inventory information and distribute in a useful format.
- Launch and provide training for WEBDET/WINDET.

***Partners/Stakeholders:***

- County Extension/UW Extension
- Conservation Districts
- Weed and Pest
- University of Wyoming
- Civic Groups
- Non-governmental Organizations
- State and Federal Agencies
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 14:*** Wyoming will be on the leading edge of the impacts of global climate change. Wyoming is considered highly sensitive to climate change due to several factors, including a naturally dry climate and

dependence on mountain snow for surface water. There may be impacts on the amount and timing of water runoff and on the length and severity of fire seasons. Under a long term reduced precipitation scenario forest health would be negatively impacted.

### *Strategy:*

- ❖ Explore the carbon sequestration potential of forests.
  - Carbon markets may provide a financial incentive for sound forest management.
  - Encourage private landowners to manage their forests and keep them informed of how they may benefit from the carbon market.
  - Forest carbon storage may be used to offset impacts of other activities.
- ❖ Forest management under a changing climate.
  - Focus on management for current healthy diverse forests which are naturally resilient to many threats including climate change.
  - Adapt forest management tactics to mitigate impacts resulting from changes in the climate.
  - Use adaptive management strategies to account for species adaptation, changes in length and severity of fire seasons, increase/decrease in insect and disease outbreaks, etc.
- ❖ Adapt water management to accommodate changes in flow and timing as a result of climate change.
  - Manage to increase snow capture and retention as well as to reduce the risk of flooding and excessive runoff.
  - Manage canopy closure to influence snow accumulation.
  - In created openings, maintain sufficient surface roughness to allow snow capture and retention.
  - On current drier sites, manage for species with the greatest tolerance for dry conditions.
  - Adjust residual stocking levels to promote healthy forest conditions and promote water yield.
  - Adjust slash disposal requirements, utilization standards, and harvest design to accommodate any developing biomass utilization opportunities.

### *Existing Resources/Resource Needs:*

- ❖ **Resources:**
  - Federal and State land management agencies have existing staff dedicated to the management of our forest resources.
  - Assistance to private landowners and other entities is provided by WSFD staff and consulting foresters.
  - Other resources such as Conservation Districts also provide assistance.
- ❖ **Needs:**
  - Research the effects of climate change on our forests.

- The potential effects of a long term warming trend on forest structure, composition, growth and yield, and threats such as fire and insects.
  - The potential effects of a short or long term cooling trend on forest structure, composition, growth and yield, and threats such as fire and insects.
- Develop management strategies under changing climate scenarios.
- Continued consistent funding for forest management and state and private forestry programs.

***Partners/Stakeholders:***

- County Extension/UW Extension
- Weed and Pest
- Civic Groups
- University of Wyoming
- Non-governmental Organizations
- Federal Agencies
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

***Threat 15: Invasive species, both insects and plants, pose a threat to forested lands.*** Exotic insects can be very destructive in forest systems that did not evolve with the insects. Invasive plants can supplant native vegetation and can alter fire regimes within and around forested lands.

***Strategy:***

- ❖ Monitor invasive insects, pathogens, and plants within the state as well as in neighboring states.
  - Use GIS technology to track the detection and infestation of invasive species.
- ❖ Continue to develop Early Detection and Rapid Response (EDRR) guidelines.
  - Develop maps of priority ecosystems and habitats placed at risk by invasive species.
  - Working with partners, develop rapid response incident teams that cross jurisdictional lines and respond quickly to any invasive species outbreak.
- ❖ Build awareness of invasive species and their threat at all levels and jurisdictions.
  - Educate the public about the dangers of transporting exotic or invasive species into the state on forest products such as firewood and Christmas trees.
- ❖ Focus efforts on the control and management of invasive species.
  - Focus resources on priority species control in priority areas as identified through risk assessments.
  - Monitor long-term invasive species population trends and the effectiveness of treatments. Make this information readily available to all stakeholders, public and private.

- ❖ Develop rehabilitation and restoration strategies for using native or desired nonnative species for restoration and rehabilitation.
  - Prioritize and develop native plant stock that is resistant to invasive insects and pathogens.
- ❖ Encourage forest and fire management techniques that do not promote the spread of invasive species.
  - Cleaning forestry equipment prior to moving into new management areas.
  - Careful prescribed fire planning to avoid increasing invasive species such as cheatgrass.
  - Increase public education about the risks of interstate and intrastate transport of firewood.
- ❖ Manage forests and rangelands to promote a healthy landscape more resistant to invasive populations.
  - Promote active forest management on suitable lands across all ownerships to achieve an appropriate age class and structural stage distribution by species.

#### *Existing Resources/Resource Needs:*

- ❖ **Resources:**
  - State and federal agencies, Weed and Pest, Conservation Districts, and private landowners.
  - GIS technology can be used in the detection, rate of spread, and predicted outcomes of invasive species outbreaks.
- ❖ **Needs:**
  - Improve the capacity of federal and state agencies to identify and control invasive species.
  - Continued consistent funding for forest management and state and private forestry programs.

#### *Partners/Stakeholders:*

- County Extension/UW Extension
- Weed and Pest
- University of Wyoming
- Civic Groups
- Federal Agencies
- All residents of the State of Wyoming including the 99 incorporated cities and towns, 23 counties, cooperating agencies, related businesses, and private landowners.

#### **Monitoring/Revision:**

The factors that occur on priority landscapes are ongoing, long term issues, such as wildfire risk, economic potential, water quality & supply, and fish & wildlife habitat, for example. It will be difficult to measure progress in those areas and others over a short term reporting period. For example, measuring changes in

water quantity or quality as a result of management actions would require many years of scientifically valid measurements.

Measuring the impacts of forest and fire management practices on age class diversity and stand structure is similarly complex. Annual progress could be measured in this case, but a goal or target in the Assessment or Resource Strategy is not binding upon all landowners/managers, making measurement of real progress difficult.

Annual or periodic “monitoring” of the high level strategies and tactics described in the Resource Strategy and intended to address the threats/priorities identified by the Assessment would be difficult. The Assessment and Resource Strategy were developed for all lands within the state. However, not all lands are subject to the same ownership, management priorities, regulations, or management processes. In some cases, such as private forest land management, no regulatory or reporting mechanism exists in Wyoming, meaning the only available information is anecdotal. Management practices can usually be applied more quickly on private and state lands than on federally managed lands. To accomplish “monitoring” in the sense that it currently exists for some land managers would be problematic without uniform standards and uniform data collection.

Except where otherwise noted, the process of monitoring our progress with addressing each of the threats will be a continuous process. Our approach for addressing each of the threats above will be subject to Federal program review, Federal reporting processes, legislative oversight, and internal review.

- ❖ Report into required federal reporting systems
- ❖ Internally, Wyoming State Forestry Division will continually evaluate programs for effectiveness as the Division strives to implement an adaptive approach to addressing threats and priorities on Wyoming’s priority forest landscapes. Efforts that are working will receive increased emphasis, while less effective efforts will be de-emphasized, with the understanding that it will take time to evaluate effectiveness. As new information becomes available, the Division will work to improve program tactics and delivery to better meet the needs of our constituents and the resources.

### **Inter-State Collaboration:**

Many of the states in the west are facing the same issues as Wyoming. Each state will address its threats and priorities in the State Assessment and Resource Strategy documents. In order to be most effective, however, bordering states must work collaboratively to tackle similar issues. Wyoming is unique in that it shares a border with 6 other western and Midwestern states. Many of the threats that Wyoming faces are cross-boundary issues that other states share as well. As part of the implementation and monitoring of the Resource Strategy document, Wyoming will work collaboratively with its 6 neighbor states to address the following issues on priority landscapes as indentified by each state’s Statewide Assessment of Forest Resources:

#### **Colorado**

- ❖ Forest health concerns
- ❖ Wildfire
- ❖ WUI
- ❖ Viable forest products industry
- ❖ Aspen
- ❖ Forest conversion
- ❖ Water quality and quantity

- ❖ Invasive species
- ❖ Low elevation riparian forests

### *Montana*

- ❖ Forest health concerns
- ❖ Wildfire
- ❖ WUI
- ❖ Viable forest products industry
- ❖ Aspen
- ❖ Forest conversion
- ❖ Water quality and quantity
- ❖ Invasive species
- ❖ Low elevation riparian forests

### *Nebraska*

- ❖ Forest health concerns
- ❖ Low elevation riparian forests
- ❖ Invasive species
- ❖ Water quality and quantity
- ❖ Management guidance for private lands

### *South Dakota*

- ❖ Forest health concerns
- ❖ Wildfire
- ❖ WUI
- ❖ Viable forest products industry
- ❖ Water quality and quantity
- ❖ Invasive species
- ❖ Low elevation riparian forests
- ❖ Management guidance for private lands

### *Utah*

- ❖ Forest health concerns
- ❖ Wildfire

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

### *Idaho*

- ❖ Forest health concerns
- ❖ Wildfire
- ❖ Viable forest products industry
- ❖ Aspen
- ❖ Forest conversion
- ❖ Water quality and quantity
- ❖ Invasive species
- ❖ Low elevation riparian forests
- ❖ Management guidance for private lands