

Owyhee County, Idaho
Wildland-Urban Interface
Wildfire Mitigation Plan

Main Document

March 10, 2005

Vision: *Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Owyhee County.*



This plan was developed by the Owyhee County Wildland-Urban Interface Wildfire Mitigation Plan Committee in cooperation with Northwest Management, Inc., 233 E. Palouse River Drive, P.O. Box 9748, Moscow, Idaho 83843, Phone: (208) 883-4488, Fax: (208) 883-1098, www.Consulting-Foresters.com

Acknowledgments

This Wildland-Urban Interface Wildfire Mitigation Plan represents the commitment, efforts and cooperation of a number of organizations and agencies working together to improve suppression capabilities while the potential for destructive wildland fire.



Owyhee County Commissioners
and the employees of Owyhee County



Southwest Idaho Resource Conservation and
Development Council, Inc.



USDI Bureau of Land Management



USDA Forest Service



Idaho Department of Homeland Security



Federal Emergency Management Agency



Idaho Department of Lands

Homedale Rural Fire Department
Marsing Rural Fire Department
Murphy-Reynolds-Wilson Rural Fire
Department
Shoshone-Paiute Tribes Fire Management
Grand View Rural Fire Department
Bruneau Rural Fire Department
Mountain Home Air Force Base Fire
Department
&
Citizens of Owyhee County

To obtain copies of this plan contact:

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Chapter I: Overview of this Plan and its Development

1 Introduction

This Wildland-Urban Interface Wildland Fire Mitigation Plan for Owyhee County, Idaho, is the result of analyses, professional cooperation and collaboration, assessments of wildfire risks and other factors considered with the intent to reduce the potential for wildfires to threaten people, structures, infrastructure, and unique ecosystems in Owyhee County, Idaho. The planning team responsible for implementing this project was led by the Owyhee County Commissioners. Agencies and organizations that participated in the planning process included:

- USDI Bureau of Land Management
- Idaho Department of Lands
- Southwest Idaho Resource Conservation and Development Council
- Shoshone-Paiute Tribes
- Homedale Rural Fire Department
- Marsing Rural Fire Department
- Murphy-Reynolds-Wilson Rural Fire Department
- Grand View Rural Fire Department
- Bruneau Rural Fire Department
- Mountain Home Air Force Base Fire Department
- Owyhee County Assessors Office
- Owyhee County Natural Resource Committee
- Owyhee County Sheriffs Office
- Northwest Management, Inc.

The Owyhee County Commissioners selected Northwest Management, Inc., to provide the service of leading the assessment and writing the **Owyhee County Wildland-Urban Interface Wildland Fire Mitigation Plan**. Northwest Management, Inc., is a professional natural resources consulting firm located in Moscow, Idaho. Established in 1984 NMI provides natural resource management services across the USA. The Project Manager from Northwest Management, Inc. was Dr. William E. Schlosser, a professional forester and regional planner.

1.1 Goals and Guiding Principles

1.1.1 Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a Local Hazard Mitigation Plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM program provides funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The new local hazard mitigation plan requirements for HMGP and PDM eligibility are based on the Disaster Mitigation Act of 2000, which amended the Stafford Disaster Relief Act to promote and integrated, cost effective approach to mitigation. Local hazard mitigation plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria cover the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA will only review a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local hazard mitigation plans will not be reviewed by FEMA. FEMA will review the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will be unable to approve it prior to adoption. In Idaho the SHMO is:

Idaho Department of Homeland Security
4040 Guard Street, Bldg 600
Boise, ID 83705
Jonathan Perry, 208-334-2336 Ext. 271

A FEMA designed plan will be evaluated on its adherence to a variety of criteria.

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-Jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-Jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

1.1.2 Additional State and Federal Guidelines Adopted

The Wildland-Urban Interface Wildfire Mitigation Plan component of this All Hazards Mitigation Plan will include compatibility with FEMA requirements while also adhering to the guidelines proposed in the National Fire Plan, the Idaho Statewide Implementation Plan, and the Healthy Forests Restoration Act (2004). This Wildland-Urban Interface Wildland Fire Mitigation Plan has been prepared in compliance with:

- The National Fire Plan; A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan—May 2002.
- The Idaho Statewide Implementation Strategy for the National Fire Plan—July 2002.
- Healthy Forests Restoration Act (2004)

- The Federal Emergency Management Agency’s Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Natural Hazards Mitigation Plan.

“When implemented, the 10-Year Comprehensive Strategy will contribute to reducing the risks of wildfire to communities and the environment by building collaboration at all levels of government.”
- The NFP 10-Year Comprehensive Strategy August 2001

The objective of combining these four complimentary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Owyhee County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

1.1.2.1 National Fire Plan

The goals of this Wildland-Urban Interface Fire Mitigation Plan include:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Its three guiding principles are:

1. Priority setting that emphasizes the protection of communities and other high-priority watersheds at-risk.
2. Collaboration among governments and broadly representative stakeholders.
3. Accountability through performance measures and monitoring for results.

This Wildland-Urban Interface Fire Mitigation Plan fulfills the National Fire Plan’s 10-Year Comprehensive Strategy and the Idaho Statewide Implementation Strategy for the National Fire Plan. The projects and activities recommended under this plan are in addition to other Federal, state, and private/corporate forest and rangeland management activities. The implementation plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating Federal, State, local, and tribal agencies.

By endorsing this implementation plan, all signed parties agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments.
- A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.

- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organization structure including 1) the local level, 2) state/regional and tribal level, and 3) the national level. This plan adheres to the collaboration and outcomes consistent with a local level plan. Local level collaboration involves participants with direct responsibility for management decisions affecting public and/or private land and resources, fire protection responsibilities, or good working knowledge and interest in local resources. Participants in this planning process include Tribal representatives, local representatives from Federal and State agencies, local governments, landowners and other stakeholders, and community-based groups with a demonstrated commitment to achieving the strategy's four goals. Existing resource advisory committees, watershed councils, or other collaborative entities may serve to achieve coordination at this level. Local involvement, expected to be broadly representative, is a primary source of planning, project prioritization, and resource allocation and coordination at the local level. The role of the private citizen is not to be underestimated, as their input and contribution to all phases of risk assessments, mitigation activities, and project implementation is greatly facilitated by their involvement.

1.1.2.2 Idaho Statewide Implementation Strategy

The Strategy adopted by the State of Idaho is to provide a framework for an organized and coordinated approach to the implementation of the National Fire Plan, specifically the national "10-Year Comprehensive Strategy Implementation Plan".

Emphasis is on a collaborative approach at the following levels:

- County
- State

Within the State of Idaho, the counties, with the assistance of state and federal agencies and local expert advice, will develop a risk assessment and mitigation plan to identify local vulnerabilities to wildland fire. A statewide group will provide oversight and prioritization as needed on a statewide scale.

This strategy is not intended to circumvent any work done to date and individual counties should not delay implementing any National Fire Plan projects to develop this county plan. Rather, Counties are encouraged to identify priority needs quickly and begin whatever actions necessary to mitigate those vulnerabilities.

It is recognized that implementation activities such as; hazardous fuel treatment, equipment purchases, training, home owner education, community wildland fire mitigation planning, and other activities, will be occurring concurrently with this county wide planning effort.

1.1.2.2.1 County Wildland Fire Interagency Group

Each county within the state has been requested to write a Wildland Fire Mitigation Plan. These plans should contain at least the following five elements:

- 1) Documentation of the process used to develop the mitigation plan. How the plan was developed, who was involved and how the public was involved.
- 2) A risk assessment to identify vulnerabilities to wildfire in the wildland-urban interface (WUI).
- 3) A prioritized mitigation strategy that addresses each of the risks. Examples of these strategies could be: training for fire departments, public education, hazardous fuel treatments, equipment, communications, additional planning, new facilities, infrastructure improvements, code and/or ordinance revision, volunteer efforts, evacuation plans, etc.
- 4) A process for maintenance of the plan which will include monitoring and evaluation of mitigation activities
- 5) Documentation that the plan has been formally adopted by the involved agencies. Basically a signature page of all involved officials.

This five-element plan is an abbreviated version of the FEMA mitigation plan and will begin to meet the requirements for that plan. To develop these plans each county should bring together a selection, as appropriate for the specific county, of representatives from the below listed groups to make up the County Wildland Fire Interagency Group. It is important that this group has representation from agencies with wildland fire suppression responsibilities:

- County Commissioners (Lead)
- Local Fire Chiefs
- Idaho Department of Lands representative
- USDA Forest Service representative
- USDI Bureau of Land Management representative
- US Fish and Wildlife representative
- Bureau of Indian Affairs
- Local Tribal leaders
- Bureau of Homeland Security
- LEPC Chairperson
- Resource Conservation and Development representative
- State Fish and Game representative
- Interested citizens and community leaders as appropriate
- Other officials as appropriate

Role of Resource Conservation and Development Councils (RC&D): If requested by the County Commissioners, the local RC&D's may be available to assist the county commissioners in evaluating each county within their council area to determine if there is a wildland fire mitigation plan in place, or if a plan is currently in the development phase. If no plan is in place, the RC&D's, if requested, could be available to assist the commissioners with the formation of the

County Wildland Fire Interagency Group and/or to facilitate the development of wildland fire mitigation plan.

If a plan has been previously completed, the commissioners will determine if the recommended five elements have been addressed. The counties will provide a copy of the completed mitigation plan to the Idaho Department of Lands National Fire Plan Coordinator, which will include a contact list of individuals that developed the plan.

1.1.2.3 National Association of State Foresters

1.1.2.3.1 Identifying and Prioritizing Communities at Risk

This plan is written with the intent to provide the information necessary for decision makers (elected officials) to make informed decisions in order to prioritize projects across the entire county. The decision authority regarding projects rests with the body designated to make such decisions under the Idaho Code. If the proposed project is within the county, then the Board of County Commissioners is the deciding entity, except for those projects within the area controlled by a city council, fire district, or separate road district commissioners. Recommendations made by ad hoc groups with expertise in the subject in question are generally carefully considered; however, the final decision must be made by the entity authorized by the Idaho Code.

It is not necessary to rank projects numerically, although that is one approach, rather it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

The following was prepared by the National Association of State Foresters (NASF), June 27, 2003, and is included here as a reference for the identification of prioritizing treatments between communities.

Purpose: To provide national, uniform guidance for implementing the provisions of the “Collaborative Fuels Treatment” MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

Intent: The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

The National Association of State Foresters (NASF) set forth the following guidelines in the Final Draft Concept Paper; Communities at Risk, December 2, 2002.

Task: Develop a definition for “communities at risk” and a process for prioritizing them, per the Implementation Plan for the 10-Year Comprehensive Strategy (Goal 4.e.). In addition, this definition will form the foundation for the NASF commitment to annually identify priority fuels reduction and ecosystem restoration projects in the proposed MOU with the federal agencies (section C.2 (b)).

1.1.2.3.2 Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nation-wide, regardless of land ownership.
2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication “Wildland/Urban Interface Fire Hazard Assessment Methodology” developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
 - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
 - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
 - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands or rangelands).
 - **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOU “For the Development of a Collaborative Fuels Treatment Program”. Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
 - First, focus on the zone of highest overall risk but consider projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
 - Second, determining the community’s willingness and readiness to actively participate in an identified project.
 - Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.

- Last, set priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.
5. It is important, and necessary, that we be able to demonstrate a level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments), communities are at “*reduced risk*”.

Similarly, scattered, individual homes that complete projects to create defensible space could be “counted” as “households at reduced risk”. This would be a way to report progress in reducing risk to scattered homes in areas of low priority for large-scale fuels treatment projects.

Using the concept described above, the NASF believes it is possible to accurately assess the relative risk that communities face from wildland fire. Recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, assessments and re-assessments must be done on a state-by-state basis, using a process that allows for the integration of local knowledge, conditions, and circumstances, with science-based national guidelines. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all local agencies with fire protection jurisdiction – federal, state, local, and tribal – taking an active role.

1.1.2.4 Healthy Forests Restoration Act

On December 3, 2003, President Bush signed into law the Healthy Forests Restoration Act of 2003 to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes. The legislation is based on sound science and helps further the President's Healthy Forests Initiative pledge to care for America's forests and rangelands, reduce the risk of catastrophic fire to communities, help save the lives of firefighters and citizens, and protect threatened and endangered species.

Among other things the Healthy Forests Restoration Act (HFRA):

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

The Owyhee County Wildland-Urban Interface Wildfire Mitigation Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document which should assist the federal land management agencies (Bureau of Land Management, US Bureau of Reclamation, and US Fish and Wildlife Service) with implementing

wildfire mitigation projects in Owyhee County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

1.1.3 Local Guidelines and Integration with Other Efforts

1.1.3.1 Sage Grouse Management Plan

Adopted in June 2000 and amended and updated in August 2004, the Owyhee County Sage Grouse Management Plan was developed by a local working group with extensive knowledge of the local area and the localized threats to the species. The plan was developed to serve as a long-term collaborative management plan to utilize local input and knowledge to develop a long-term collaborative management plan which would provide the framework for sage grouse management in conjunction with federal, state and Owyhee County land management plans and actions. This plan provides guidance to resource and land management agencies as well as to Owyhee County on dealing with issues that directly or indirectly affects the Local Working Group's goal of conserving and properly managing Sage Grouse within Owyhee County. While the initial version proposed a number of action items, its primary emphasis was to acquire sound scientific data on sage grouse and sage grouse habitat in Owyhee County. Through the August 2004 amendment and update, the local working group modified the plan to ensure it was PECE (Policy for Evaluating Conservation Efforts) compliant as the PECE conditions had not been in existence at the time of development of the original plan. The update was also used to ensure that the emphasis of the plan's action projects was appropriately balanced between conservation projects and the continuation of needed research into sage grouse populations and habitat.

Fire is the greatest single factor responsible for the loss of Sage Grouse habitat in southeastern Owyhee County. Many of the fires occurred in the more arid Wyoming big-sagebrush habitat type, covered large areas and were often followed by increases in annual grasses, especially cheatgrass. There is very limited opportunity to restore these areas to their former state and they essentially represent a stable state that will not change without substantial human intervention. The increase in fine fuel in the form of cheatgrass has made these habitats more prone to fire and increased fire frequencies that result in loss of shrubs, especially sagebrush. Sagebrush seed is wind-dispersed and 95% is deposited within 30 feet of the parent plant, which largely precludes natural reseeding of large complete burns.

At the same time, areas that have not had wildfire recurrence for 15 to 20 years typically show substantial sagebrush recruitment, especially at the higher elevation range for Wyoming big-sagebrush and natural Mountain big-sagebrush communities. In addition, Mountain big-sagebrush typically re-established rather rapidly and such habitats may be fully occupied by big-sagebrush in 20 to 30 years.

Action plan activities identified in the Sage Grouse Management plan include:

1. **Grazing Management.** Sage grouse habitat condition will be assessed through quantitative assessments conducted in accordance with the SAGE GROUSE HABITAT INVENTORY ACTION PLAN on state and private land.
2. **Develop maps that identify sage grouse habitat for high priority protection from wildfire.** Using current information, provide maps to the fire management staff of all groups that fight fires in Owyhee County outlining critical sage grouse habitat in the county. Initial maps will be developed for the 2000 fire season and updated annually thereafter. (Lead: BLM). (Initial maps completed in 2001 and updates are ongoing).

3. **Fire Rehabilitation.** The sites of all future wildfires in high priority sage grouse habitat identified in Section C will, regardless of potential for natural recovery, be reseeded with sagebrush and, when needed, grasses and forbs best adapted to the site to hasten recovery of the habitat. This policy should be instituted immediately. (Lead: Appropriate land management agency or private landowner). (The action has been carried out since 2000 and is ongoing).
4. **Sagebrush Restoration.** Implement sagebrush restoration projects in historic sage grouse habitat where historic fires have removed sagebrush cover. A minimum of 1,000 acres of combined federal, state, and private lands shall be targeted for restoration annually with seed mixtures that are best for sage grouse and adapted to the site. (Lead: Appropriate land management agency or private landowner) (One project has been proposed and is being pursued but none completed).
5. **Juniper Encroachment.** Using the maps created by the Habitat Inventory Action Plan, identify existing and potential loss of sage grouse habitat due to juniper encroachment. The areas of greatest benefit to sage grouse will be prioritized so that juniper control activities can be scheduled. Suitable methods of juniper eradication such as prescribed burning, chemical control, woodland harvest, chaining, and other mechanical means should be evaluated and employed where appropriate. Treat and eradicate juniper on a minimum of 500 acres of state land (IDL Plan) and 12,000 acres of federal land (Owyhee RMP) annually to enhance sage grouse habitat by restoring healthy sagebrush-grassland communities. (Lead: Appropriate land management agency/authority). (Two projects have been completed and planning is in progress throughout the Juniper encroachment zone)

The Owyhee County Sage Grouse Management Plan has been adopted by the Sage Grouse Local Work Group and represents the guiding policy for the County in relationship to the management of Sage Grouse and impacted land management activities. This Wildland-Urban Interface Wildfire Mitigation Plan adopts, and will adhere to, the policies and intentions of the Sage Grouse Management Plan during its implementation to insure the listed goals and action plans are consistent and targeted at uniform implementation.

1.1.3.2 Owyhee County Comprehensive Growth and Development Plan

The Owyhee County Comprehensive Growth and Development Plan (February 11, 2002) is a guide that establishes goals and objectives to help the County grow and develop. The Owyhee County Comprehensive Plan includes a forecast of conditions that are anticipated to occur within the next twenty-five-year period, 2000 to 2025. The Plan addresses and includes all 14 comprehensive planning components of the "Idaho Local Planning Act of 1975" as supplemented and amended.

Planning is an ongoing process. Conditions and priorities change; consequently the plan will be reviewed regularly and revised when necessary. The 14 planning components included in the Owyhee County Comprehensive Growth and Development Plan include:

1. Population
2. Private Property Rights
3. School Facilities and Transportation
4. Economic Development
5. Land Use
6. Transportation
7. Public Services, Facilities, and Utilities
8. Housing

9. Recreation and Tourism
10. Natural Resources
11. Hazardous Areas
12. Special Areas or Sites
13. Community Design
14. Implementation

Within each chapter of the comprehensive plan are goals and objectives, which help establish development guidelines and public policy. Goals are defined as statements, which indicate a general aim or purpose to be achieved. Goals reflect countywide values. Objectives are defined as guidelines, which establish a definite course to guide present and future decisions. The Owyhee County Comprehensive Plan is directed toward all land within the county including federal, state, public and private lands.

This Wildland-Urban Interface Wildfire Mitigation Plan will “dove-tail” with the County’s Comprehensive Plan during its development and implementation to insure that the goals and objectives of each are integrated together. In many sections of this document, direct reference will be made to specific recommendations of the county plan that are amplified or enhanced in this document.

1.1.3.3 Owyhee County Code and Zoning Ordinance

The lands within Owyhee County which produce the natural resources vital to the local economy are either managed by federal or state agencies or are critically affected by lands managed by such agencies. All private property and county or municipally owned property lying within the County is effected by federal and/or state management practices. Such practices have the potential to, and often do, adversely impact the continuation of the culture, custom and economic stability of the County. By resolution, the Owyhee County Board of Commissioners has previously established a land use planning committee which has served as an advisory committee to the Board regarding planning for and implementation of plans for the federally and state managed lands lying within Owyhee County. That committee has assisted the Board with the development of a land use plan for the federally and state managed lands, and it has become clear that the planning process for such lands must be a long-term undertaking if the custom, culture and economic stability of Owyhee County is to be preserved. The purpose of the Zoning Ordinance is to provide for the land use committee as a standing advisory committee to continue advising the Board regarding the management of the federally and state managed lands lying within Owyhee County and the relationship of that management to continuation of the custom, culture and economic stability of the County.

This Ordinance is authorized by Article 12, Section 2 of the Idaho Constitution, Idaho Code Section §31-714, 31-828, 31-4408, and 31-4504 and is mandated by Idaho Code Section §67-6511 which provides that each board of county commissioners “shall” establish a land use district or districts within the unincorporated area of the county. This zoning ordinance is designed to, and enacted to, protect the public health, safety and welfare by implementing the Owyhee County Comprehensive Plan, and accomplish the following purposes:

- Protect and conserve the historic customs, traditions and way of life unique to Owyhee County, consistent with a reasonable and orderly rate of growth and development and protection of private property rights;
- Protect and conserve the agricultural and range uses which form the primary base of the County’s economy;

- Provide for reasonable and sound land development, a safe and healthy environment, and a successful economic climate;
- Require the coordination by the Planning and Zoning Commission with the Owyhee County Natural Resources Committee to achieve coordinated planning for the entire County and protection of private property rights which are critical to economic stability of the County and to the maintenance of a healthy environment;
- Protect and enhance private property rights and property values consistent with the County's responsibility to protect public health, safety and welfare;
- Minimize infiltration into agricultural land areas of those elements of urban development which will adversely impact agricultural operations;
- Provide a process for negotiating and developing Areas of City Impact.
- Designate land use districts (zoning districts) appropriate for uses that meet the needs of the County's citizens by providing for growth compatible with protection of soil, water, air, wildlife and other natural environmental and scientific qualities;
- Preserve the recreational, archeological, architectural and cultural history of the County and its historic resources;
- Protect and conserve the natural resources in the County by considering the impact on such resources of proposed land uses;
- Maintain, protect, and enhance the County's transportation system;
- Provide a means for administering the land use planning process in a manner which can assist school districts to maintain, protect and enhance school facilities and school transportation systems;
- Provide a means for administering the land use planning process in a manner that can assist providing public services at reasonable cost and avoid adverse impact of land use growth on the County's taxpayers;
- Provide an administrative process to effectively implement the Comprehensive Plan and this implementing ordinance.

1.1.3.4 Owyhee County Land Use and Management Plan for Federal and State Managed Lands

This Plan provides a positive guide for the Land Use Committee and the Board to coordinate their efforts with federal and state land management agencies in the development and implementation of land use plans and management actions which are compatible with the best interests of Owyhee County and its citizens. The Plan is designed to facilitate continued and revitalized multiple use of federally and state managed lands in the County.

The Land Use Committee, the Board, and the citizens of Owyhee County recognize that federal law mandates multiple use of federally managed lands and they positively support multiple use. Maintenance of such multiple use necessarily includes continued maintenance of the historic and traditional economic uses which have been made of federally managed and state managed lands in the County. It is therefore the policy of Owyhee County that the Land Use Committee and the Board work constantly to assure that federal and state agencies shall inform the Board of all pending or proposed actions affecting local communities and citizens and coordinate with the Board in the planning and implementation of those actions.

Owyhee County has previously developed its Comprehensive Plan related to privately owned lands in the County. This Land Use Plan is now directed toward management of federally and state managed lands. With adoption of this Plan the County puts in place a "Comprehensive Plan" which includes "all land within the jurisdiction of the governing Board" as directed by the legislature. Idaho Code § 67-6528 provides that "the state of Idaho, and all its agencies, Boards, departments, institutions, and local special purpose districts, shall comply with all plans and ordinances adopted under the Local Planning Act." These statements of purpose, of duty to plan, and duties of state agencies to comply with plans adopted under the Local Planning Act certainly contemplate coordination by state agencies of their planning efforts with the local planning efforts of Owyhee County.

Through the land use planning process Owyhee County commits itself to attempting to assure that all natural resource decisions affecting the County shall be guided by the principles of maintaining and revitalizing multiple use of federally managed and state managed lands, protection of private property rights and private property interests including investment backed expectations, protection of local historical custom and culture, protection of the traditional economic structures in the County which form the base for economic stability for the County, the opening of new economic opportunities through reliance on free markets, and protection of the right of the enjoyment of the natural resources of the County by all citizens of the County and those communities utilizing those natural resources within the County. Owyhee County is convinced that resource and land use management decisions made in a coordinated manner by federal management agencies, state management agencies and county officials will not only firmly maintain and revitalize multiple use of federally and state managed lands in Owyhee County but will enhance environmental quality throughout the County.

1.1.3.5 Owyhee Resource Management Plan

The Owyhee Resource Management Plan (RMP) was prepared to provide the Bureau of Land Management, Lower Snake River District with a comprehensive framework for managing public lands administered by the Owyhee Resource Area. The purpose of the RMP is to ensure public land use is planned for and managed on the basis of multiple-use and sustained yield in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA).

The Owyhee Resource Area encompasses 1,779,492 acres. This total includes the following:

- 1,320,032 acres administered by BLM, Idaho
- 136,936 acres administered by the State of Idaho
- 319,777 acres of private lands
- 2,747 acres of water, primarily the Snake River

The area is bounded on the west by Oregon, on the south by Nevada, on the north by the Snake River and on the east by Castle Creek, Deep Creek, the Owyhee River, and the Duck Valley Indian Reservation. Most of the public lands are contiguous with only a few scattered or isolated parcels.

The resource area contains the northern extent of the Owyhee Mountain Range and lies within what is often referred to as the Columbia Plateau. The Columbia Plateau is an elevated plateau with mountains which are separated by canyons draining to the Pacific Ocean via the Snake and Columbia Rivers. This broad regional landform and vegetative classification is known as the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem.

The Sagebrush Steppe Ecosystem is widespread over much of southern Idaho, eastern Oregon and Washington, and portions of northern Nevada, California, and Utah. This ecosystem contains a large diversity in landform and vegetation types ranging from vast expanses of flat

sagebrush covered plateaus to rugged mountains blanketed with juniper woodlands and grasslands.

BLM has three primary levels of land use planning decisions; the RMP level, the activity level and the site specific level. This RMP focuses mostly on broad resource objectives and direction. However, it also provides some activity level guidance and includes some site specific decisions. Several existing activity level plans are referenced in this RMP. They will be updated or modified, as necessary, to include current information and be in conformance with the RMP. These plans include, but are not limited to, the Owyhee Off-Road Vehicle Management Plan, the Wild Horse Herd Management Plan, the Lower Snake River District Fire Management Plan, the Owyhee Juniper Woodland Harvest Management Plan, the Snake River Birds of Prey National Conservation Area Management Plan, the Owyhee River Recreation Management Plan and several livestock grazing allotment management plans. Subsequent activity level and site specific level planning processes will include appropriate public participation opportunities and NEPA compliance.

1.1.3.6 Owyhee County Fire Mitigation Planning Effort and Philosophy

The goals of this planning process include the integration of the National Fire Plan, the Idaho Statewide Implementation Strategy, the Healthy Forests Restoration Act, and the requirements of FEMA for a county-wide Fire Mitigation Plan; a component of the County's All Hazards Mitigation Plan. This effort will utilize the best and most appropriate science from all partners, the integration of local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens, the regional economy, the significance of this region to the rest of Idaho and the Inland West.

1.1.3.6.1 Mission Statement

To make Owyhee County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

1.1.3.6.2 Vision Statement

Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Owyhee County.

1.1.3.6.3 Goals

- To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
- Prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in Owyhee County

- Strategically locate and plan fuel reduction projects
- Provide recommendations for alternative treatment methods, such as modifying forest stand density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated slash
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

Chapter 2: Planning Process

2 Documenting the Planning Process

Documentation of the planning process, including public involvement, is required to meet FEMA's DMA 2000 (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop this plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

2.1.1 Description of the Planning Process

The Owyhee County Wildland-Urban Interface Wildfire Mitigation Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Section 1.0 of this document. The County's local coordinator contacted these organizations directly to invite their participation and schedule meetings of the planning committee. The planning process included 5 distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed though out the process):

1. **Collection of Data** about the extent and periodicity of wildfires in and around Owyhee County. This included an area encompassing Ada, Canyon, Elmore, and Twin Falls to insure a robust dataset for making inferences about fires in Owyhee County specifically; this included a wildfire extent and ignition profile.
2. **Field Observations and Estimations** about wildfire risks including fuels assessments, juxtaposition of structures and infrastructure to wildland fuels, access, and potential treatments by trained wildfire specialists.
3. **Mapping** of data relevant to wildfire control and treatments, structures, resource values, infrastructure, fire prone landscapes, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee, to a public mail survey, news releases, public meetings, public review of draft documents, and acceptance of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, providing ample review and integration of committee and public input, followed by acceptance of the final document.

Planning efforts were led by the Project Director, Dr. William E. Schlosser, of Northwest Management, Inc. Dr. Schlosser holds 4 degrees in natural resource management (A.S. geology; B.S. forest and range management; M.S. natural resource economic & finance; Ph.D. environmental science and regional planning). Project Leader, Mr. Toby R. Brown, holds a B.S. degree in natural resource management. Together, they led a team of resource professionals that included fire mitigation specialists, wildfire control specialists, resource management professionals, and hazard mitigation experts.

They were the point-people for team members to share data and information with during the plan's development. They and the planning team met with many residents of the county during the inspections of communities, infrastructure, and hazard abatement assessments. This methodology, when coupled with the other approaches in this process, worked effectively to integrate a wide spectrum of observations and interpretations about the project.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal and state agencies was integrated

into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between cooperators.

When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

2.2 Public Involvement

Public involvement in this plan was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning process.

2.2.1 News Releases

Under the auspices of the Owyhee County Wildland-Urban Interface Wildfire Mitigation Planning Committee, news releases were submitted to area news papers.

2.2.1.1 Newspaper Articles

Committee and public meeting announcements were published in the local newspaper ahead of each meeting. The following is an example of one of the newspaper announcements that ran in the local newspaper.

Owyhee County Plans to Mitigate Wildfire Risk

The Owyhee County Commissioners have created a Wildfire Mitigation Plan Committee to complete a Wildfire Mitigation Plan for Owyhee County as part of the National Fire Plan authorized by Congress and the Whitehouse. The Owyhee County Wildfire Mitigation Plans will include risk analysis at the community level with predictive models for where fires are likely to ignite and where they are likely to spread rapidly once ignited. Northwest Management, Inc. has been retained by Owyhee County to provide wildfire risk assessments, mapping, field inspections, and interviews, and to collaborate with the committee to prepare the plan. The committee includes rural and wildland fire districts, land managers, elected officials, agency representatives, and others. Northwest Management, Inc. specialists are conducting analyses of fire prone landscapes and making recommendations for potential treatments. Specific activities for homes, structures, infrastructure, and resource capabilities will be proposed as part of the analysis.

One of the most important steps in gathering information about fire risk in Owyhee County is to conduct a homeowner's survey. Northwest Management, Inc., in cooperation with local fire officials, will mail a brief survey to randomly selected homeowners in the county seeking details about home construction materials, proximity to water sources, and other risk factors surrounding homes. This survey is very important to the success of the plan. Those homes that receive a survey are asked to please take the time to complete it, thereby benefiting the community overall.

The planning team will be conducting Public Meetings to discuss preliminary findings and to seek public involvement in the planning process in October. A notice on the date

and location of these meetings will be posted in local newspapers.

For more information on the Fire Mitigation Plan projects in Owyhee County contact your County Commissioner, or William Schlosser at the Northwest Management, Inc. office in Moscow, Idaho at 208-883-4488.

2.2.2 Public Mail Survey

In order to collect a broad base of perceptions about wildland fire and individual risk factors to homeowners in Owyhee County, a mail survey was conducted. Using a state and county database of landowners in Owyhee County, homeowners from the Wildland-Urban Interface surrounding each community were identified. In order to be included in the database, individuals were selected that own property and have a dwelling in Owyhee County, as well as a mailing address in Owyhee County. This database created a list of 1,874 unique names to which were affixed a random number that contributed to the probability of being selected for the public mail survey. A total of 244 residents meeting the above criteria were selected.

The public mail survey developed for this project has been used in the past by Northwest Management, Inc., during the execution of other WUI Wildfire Mitigation Plans. The survey used The Total Design Method (Dillman 1978) as a model to schedule the timing and content of letters sent to the selected recipients. Copies of each cover letter, mail survey, and communication are included in Appendix IV.

The first in the series of mailing was sent September 21, 2004, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Owyhee County if they would complete and return the survey. The free map incentive was tied into assisting their community and helping their interests by participating in this process. Each letter also informed residents about the planning process. A return self-addressed enveloped was included in each packet. A postcard reminder was sent to the non-respondents on October 2, 2004, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on October 19, 2004.

Surveys were returned during the months of September, October, and November. A total of 71 residents responded to the survey out of 244. No surveys were returned as undeliverable. The effective response rate for this survey was 34%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 95% confidence level. This data will be updated until the final plan.

2.2.2.1 Survey Results

A summary of the survey's results will be presented here and then referred back to during the ensuing discussions on the need for various treatments, education, and other information.

All of the respondents to the survey have a home in Owyhee County, and 97% consider this their primary residence. About 33% of the respondents were from the Homedale area, 32% were from the Marsing area, 14% were from the Bruneau area, 6% from Murphy, 4% from Oreana, 1% from Eagle View with the remainder from other areas in the County.

Only 91% of the respondents identified that they have emergency telephone 911 services in their area. The entire county is covered with 911 service so almost 1 in 10 residents did not know they had 911 service. Their ability to correctly identify if they are covered by a rural fire district was 94%. Of the respondents, 98% correctly identified they live in an area protected by a rural or city fire district. Only 2% responded they do not have a fire district covering their home,

when in fact they do. Approximately 4% of the respondents indicated that they were inside of a fire protection district when in reality they are outside of a protection district.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 63% of respondents indicated their homes were covered with a composite material (asphalt shingles). About 21% indicated their home were covered with a metal (eg., aluminum, tin) roofing material. Roughly 16% of the respondents indicated they have a wooden roofing material such as shakes or shingles. The remaining 5% of respondents had a variety of combustible and non-combustible materials indicated.

Residents were asked to evaluate the height of vegetation within certain distances of their homes. Often, the height and type of vegetation around a home is an indicator of increased fire risk. The results are presented in Table 2.1

Height of Vegetation	Within 75 feet of your home
None	16%
0-2 feet	36%
2-5 feet	16%
Greater than 5 feet	33%

Approximately 83% of those returning the survey indicated they have a lawn surrounding their home. Of these individual homesites, 98% indicated they keep this lawn green through the fire season. 42% of respondents indicated that they had brush within 75 feet of their homes and 59% had some kind of tree or trees within 75 feet of their home.

The average driveway length of the respondents was approximately 974 feet long (.18 mile), from their main road to their parking area. The longest reported driveway was 3 miles long. Only 39% of the driveways had turnouts allowing two vehicles to pass each other in the case of an emergency. 14% of the driveways were of native dirt, 77% were graveled or rocked and 9% paved. Respondents were asked if they had an alternative vehicle escape route from their property, 67% indicated that they did, with 37% having no alternative escape route.

Roughly 14% of the respondents in Owyhee County indicated they have someone in their household trained in wildland fire fighting. Approximately 19% indicated someone in the household had been trained in structural fire fighting. Roughly 18% had Emergency Medical Technician training and 71 % basic CPR/First Aid training. However, it is important to note that these questions did not specify a standard nor did it refer to how long ago the training was received.

A series of questions was asked regarding the availability of a variety of fire fighting resources that were around the respondents property; 97% had hand tools appropriate for fighting wildfire, 12% had a portable water tank and 9% had a stationary water tank, while 39% had a pond, lake or stream on their property. The ability to pump water was on 13% of the properties and 33% had some type of mechanical equipment that could be used to fight wildland fires.

Respondents were asked to complete a fuel hazard rating worksheet to assess their home’s fire risk rating. An additional column titled “results” has been added to the table, showing the percent of respondents circling each rating (Table 2.2).

Circle the ratings in each category that best describes your home.

Table 2.2. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	86%
	Medium size fuels (brush, large shrubs, small trees)	2	13%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	1%
Slope Hazard	Mild slopes (0-5%)	1	83%
	Moderate slope (6-20%)	2	13%
	Steep Slopes (21-40%)	3	4%
	Extreme slopes (41% and greater)	4	0%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	23%
	Noncombustible roof and combustible siding material	3	20%
	Combustible roof and noncombustible siding material	7	17%
	Combustible roof and combustible siding materials	10	40%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -2.3 pts
	Areas having history of higher than average fire occurrence	+3	
	Areas exposed to severe fire weather and strong winds	+4	
	Areas with existing fuel modifications or usable fire breaks	-3	
	Areas with local facilities (water systems, rural fire districts, dozers)	-3	

Calculating your risk

Values below are the average response value to each question.

Fuel hazard	1.6	x	Slope Hazard	1.2	=	2.11
Structural hazard		+		6.3		
Additional factors		(+ or -)		-2.3		
Total Hazard Points		=		6.11		

Table 2.3. Percent of respondents in each risk category as determined by the survey respondents.

- 00% – Extreme Risk = 26 + points
- 03% – High Risk = 16–25 points
- 35% – Moderate Risk = 6–15 points
- 62% – Low Risk = 6 or less points

Maximum household rating score was 17 points, as assessed by the homeowners. These numbers were compared to observations made by field crews trained in wildland fire fighting. These results indicate that for the most part, these indications are only slightly lower than the risk rating assigned by the “professionals”. Anecdotal evidence would indicate that Owyhee County landowners involved in this survey have a more realistic view of wildfire risk than the landowners in other Idaho counties where these questions have been asked.

Finally, respondents were asked “if offered in your area, would members of your household attend a free, or low cost, one-day training seminar designed to teach homeowners in the wildland–urban interface how to improve the defensible space surrounding your home and

adjacent outbuildings?” 42% of the respondents indicated a desire to participate in this type of training.

Homeowners were also asked, “How do you feel Wildland-Urban Interface Fire Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?” Responses are summarized in Table 2.5.

Table 2.4. Public Opinion of Wildfire Mitigation Funding Preferences.

	Mark the box that best applies to your preference		
	100% Public Funding	Cost-Share (Public & Private)	Privately Funded (Owner or Company)
Home Defensibility Projects	26%	21%	53%
Community Defensibility Projects	45%	45%	10%
Infrastructure Projects Roads, Bridges, Power Lines, Etc.	62%	21%	16%

2.2.3 Committee Meetings

The following list of people who participated in the planning committee meetings, volunteered time, or responded to elements of the Owyhee County Wildland-Urban Interface Wildfire Mitigation Plan’s preparation.

- Jim Desmond Owyhee County Natural Resources Committee Director
- Andy Ogden Idaho Dept Fish and Game
- Brett Endicott Owyhee County Assessor
- Richard Freund Owyhee County Sheriffs office
- Kay Kelly Owyhee County Planning and Zoning
- Kevin Staebler Mountain Home AFB Fire Chief
- Carrie Bilbao BLM Fire Investigation
- Joe-Riley Epps BLM Fire Management Officer
- Toby R. Brown Northwest Management Inc.
- William Schlosser Northwest Management Inc.
- Brent Hunter Sho-Pai Fire Management
- Jerry Hoagland Owyhee County Natural Resource Committee
- Larry Howard County Emergency Management Coordinator
- Shirley Fuchs Owyhee County Assessors Office
- Rosey Thomas Bureau of Land Management
- Tom Benson Fire District Commissioner MRW

Committee Meetings were scheduled and held on the following dates:

September 21, 2004

Bill Schlosser began by giving the committee an introductory presentation of what was expected of each party and what materials they would need to provide in order to make a successful plan. He went over each of the major points of the final document to make sure the committee understood the scope of the project. He also provided some background information on NMI and the history of the fire mitigation program. Several preliminary maps were displayed showing some of the fire-related characteristics in the county.

After the presentation, the committee had a general discussion about some of the major issues in the county including the Silver City area, the sage grouse, juniper encroachment, current treatments, and past fires.

Bill discussed the draft document of the community assessments and asked the committee if there were any additional communities they would like included. Dynamac Corporation has already completed an assessment and mitigation plan for the Silver City area and the committee would like this document used in addition to NMI's assessments.

The committee discussed the different fire districts within the county at length including the Jordan Valley Department, which crosses the county border. A fire department has also been proposed in Silver City.

A tentative schedule was discussed. The committee would like the public meetings on November 3rd and 4th in Marsing, Grandview, and Murphy.

October 13, 2004

The committee began the meeting by reviewing the maps provided by Northwest Management, Inc. Toby handed out the draft version of the community assessments for the committee members to review and provide comments to at the next meeting or via email. Toby also went over the information needed to complete the assessments for the final document. Public meeting dates were set for November 3rd, 4th, and 5th.

The committee also discussed potential mitigation activities for the Silver City area, which is one of the county's higher risk areas. Suggestions included: water storage tanks at the town site, bigger waterlines, and a helipad.

November 29, 2004

A short committee meeting was held to go deliver the draft document and go over any changes. Members were asked to review the draft and email or fax any changes to NMI.

2.2.4 Public Meetings

Public meetings were an integral component to the planning process. It was the desire of the planning committee, and the Owyhee County Commissioners to integrate the public's input to the development of the fire mitigation plan.

Formal public meetings were scheduled on November 3 & 4, 2004, in Grandview, Marsing, and Murphy, Idaho. The purpose of the meetings was to share information on the planning process with a broadly representative cross section of Owyhee County landowners. The meetings had wall maps posted in the meeting rooms with many of the analysis results summarized specifically for the risk assessments, location of structures, fire protection, and related information. The formal portion of the presentations included a PowerPoint presentation made by Project Co-Leader, Toby R. Brown. During his presentation, comments from committee members, fire chiefs, and others were encouraged in an effort to engage the audience in a discussion.

It was made clear to all in attendance that their input was welcome and encouraged, as specific treatments had not yet been decided, nor had the risk assessment been completed. Attendees were told that they could provide oral comment during the meetings, they could provide written comments, or they could request more information in person to discuss the plan. In addition, attendees were told they would have an opportunity to review the draft plan prior to its completion to further facilitate their comments and input.

The formal presentations lasted approximately 1 hour and included many questions and comments from the audience. Following the meeting, many discussions continued with the committee members and the general public discussing specific areas, potential treatments, the risk analysis, and other topics.

Committee meetings were scheduled and held on the following dates:

November 3, 2004 – Marsing

Toby Brown of Northwest Management, Inc. made the presentation and then opened the floor for discussion. Topics discussed included:

- There are some additional areas within the county that need to be covered by a rural fire district.
- Need wildfire training to come to the firefighters during their regular training times.
- Need more wildfire education throughout the county.
- Need minimum road specifications for private roads and driveways. Also need a method of enforcement.
- There needs to be a way for the BLM to notify fire districts when fires enter their jurisdiction.
- Need to incorporate islands of non-coverage into local fire districts.

November 4, 2004 – Murphy

Toby Brown of Northwest Management, Inc. made the presentation and then opened the floor for discussion. Topics discussed included:

- Silver City would be trapped in the event of a wildfire; thus, the back road out of the area needs improvement.
- Grazing in the valley and along roads has been beneficial.
- Need to address the juniper encroachment issue.
- Need to improve communication capabilities, structures, and training for fire districts.
- Need to fill in gaps between fire districts.
- Need to upgrade to narrow band radios and alleviate communication dead spots throughout the county.
- BLM field stations to place fire crews throughout the county would improve response.
- Create new district for the Pleasant Valley and Cliffs area.
- Need to map and locate water sources including drafting sites.
- Need to rock roads in WUI due to dust problems.
- Develop a safety zone near Silver City.

November 3, 2004 – Grandview

There was no presentation in Grandview because no one attended.

2.2.4.1 Meeting Notices

Public notices of these meetings were printed in the **Idaho Press and Owyhee Avalanche** the week of October 24, 2004.



Owyhee County, Idaho Wildland-Urban Interface Wildfire Mitigation Plan

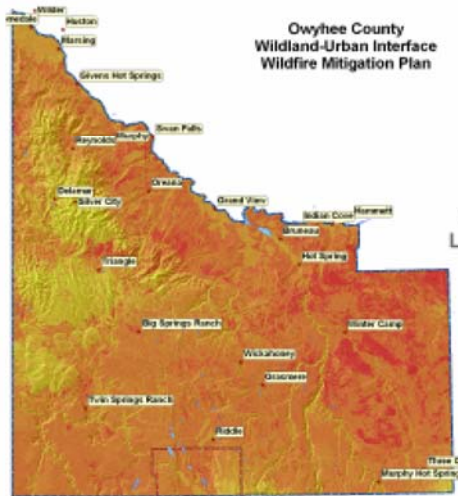


Southwest
Idaho RC&D

Public Meetings!

- **Marsing:** November 3rd, at 12:00 noon at the Marsing Community Center, 126 N. Bruneau Hwy
- **Grandview:** November 3rd, at 7:00 PM at the Eastern Owyhee County Library, 520 Boise Ave
- **Murphy:** November 4th, at 7:00 pm at the Courthouse, Highway 78

Public meetings are scheduled in Marsing, Grandview, and Murphy, November 3 & 4, to address Wildfire risks around our communities. These meetings are open to the public and will include presentations from wildfire mitigation specialists working on the Owyhee County Wildfire Mitigation Plan. Public input is being sought in order to better frame the County's efforts of fuels treatments, fire fighting resource enhancements, and public land management.



Learn about the assessments of risk (Fire Prone Landscapes - above, left) and the Wildland-Urban Interface of Owyhee County (above, right). Discuss YOUR priorities for how Owyhee County can best mitigate wildland fire risks around your community. **JOIN US!**

Each meeting will last for approximately 1.5 hours and include refreshments, a slideshow, information on the planning process, and schedules for completion.

For more information on Wildfire Mitigation Plan projects in Owyhee County, contact your County Commissioners, Bill Moore with the Southwest Idaho RC&D office at 208-888-1890 ext. 4, or Dr. William Schlosser at the Northwest Management, Inc. office in Moscow, Idaho at 208-883-4488.

2.3 Review of the WUI Wildfire Mitigation Plan

Review of sections of this document was conducted by the planning committee during the planning process as maps, summaries, and written assessments were completed. These planning committee members included fire mitigation specialists, fire fighters, planners, elected officials, and others involved in the coordination process. Preliminary findings were discussed at the public meetings, where comments were collected and facilitated.

The results of these formal and informal reviews were integrated into a DRAFT Wildland-Urban Interface Wildfire Mitigation Plan. This plan was given to members of the planning committee on November 29, 2004. The committee review process lasted from November 29 through December 31, 2004. Once changes were made, a public review version of the plan was posted at local libraries, the county courthouse, and other locations (accompanied by a press release detailing the public review process and plan availability). The public review period was open from January 15, 2005, through February 25, 2005.

Comments from the public review process were integrated into the final plan and submitted to the County Commissioners for a final review. Adoption of the plan by the county and local municipalities was completed in March 2005.

Chapter 3: County Characteristics & Risk Assessment

3 Background and Area Description

3.1 Demographics

Owyhee County experienced a total population increase from 8,392 in 1990 to 10,644 in 2000 with approximately 4,452 housing units. Owyhee County has three incorporated communities, Grand View (pop. 461), Marsing (pop. 915), and Homedale (pop. 2,552). The total land area of the county is roughly 7,696.71 square miles (4,925,894.4 acres).

Table 3.1 summarizes some relevant demographic statistics for Owyhee County.

Table 3.1 Selected demographic statistics for Owyhee County, Idaho from Census 2000.		
Subject	Number	Percent
Total population	10,644	100.0
SEX AND AGE		
Male	5,588	52.5
Female	5,056	47.5
Under 5 years	816	7.7
5 to 9 years	934	8.8
10 to 14 years	1,013	9.5
15 to 19 years	874	8.2
20 to 24 years	635	6.0
25 to 34 years	1,276	12.0
35 to 44 years	1,557	14.6
45 to 54 years	1,285	12.1
55 to 59 years	476	4.5
60 to 64 years	466	4.4
65 to 74 years	718	6.7
75 to 84 years	455	4.3
85 years and over	139	1.3
Median age (years)	33.5	(X)
18 years and over	7,309	68.7
Male	3,817	35.9
Female	3,492	32.8
21 years and over	6,904	64.9
62 years and over	1,549	14.6
65 years and over	1,312	12.3
Male	608	5.7
Female	704	6.6
RELATIONSHIP		

Table 3.1 Selected demographic statistics for Owyhee County, Idaho from Census 2000.

Subject	Number	Percent
Population	10,644	100.0
In households	10,575	99.4
Householder	3,736	35.1
Spouse	2,346	22.0
Child	3,630	34.1
Own child under 18 years	3,065	28.8
Other relatives	547	5.1
Under 18 years	232	2.2
Nonrelatives	316	3.0
Unmarried partner	117	1.1
In group quarters	69	0.6
Institutionalized population	61	0.6
Noninstitutionalized population	8	0.1
HOUSEHOLDS BY TYPE		
Households	3,736	100.0
Family households (families)	2,789	74.7
With own children under 18 years	1,426	38.2
Married-couple family	2,367	63.4
With own children under 18 years	1,163	31.1
Female householder, no husband present	281	7.5
With own children under 18 years	184	4.9
Nonfamily households	947	25.3
Householder living alone	818	21.9
Householder 65 years and over	361	9.7
Households with individuals under 18 years	1,551	41.5
Households with individuals 65 years and over	1,273	34.1
Average household size	2.83	(X)
Average family size	3.34	(X)
HOUSING TENURE		
Occupied housing units	3,710	100.0
Owner-occupied housing units	2,585	69.7
Renter-occupied housing units	1,125	30.3
Average household size of owner-occupied unit	2.85	(X)
Average household size of renter-occupied unit	2.84	(X)

(X) Not applicable

¹ Other Asian alone, or two or more Asian categories.

² Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

³ In combination with one or more other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P1, P3, P4, P8, P9, P12, P13, P,17, P18, P19, P20, P23, P27, P28, P33, PCT5, PCT8, PCT11, PCT15, H1, H3, H4, H5, H11, and H12.

3.2 Socioeconomics

Owyhee County had a total of 4,452 housing units (3,710 occupied) and a population density of 1.4 persons per square mile reported in the 2000 Census. Ethnicity in Owyhee County is distributed: white 76.9%, black or African American 0.2%, American Indian or Alaskan Native 3.2 %, Asian 0.5%, Hispanic or Latino 23.1%, and some other race 16.5%.

Specific economic data for individual communities is collected by the US Census; in Owyhee County this includes Grand View, Marsing, and Homedale. Grand View households earn a median income of \$21,417 annually, Marsing has a median income of \$27,639, and Homedale reported a median income of \$24,196, all of which compares to the Owyhee County median income during the same period of \$28,339. Table 3.2 shows the dispersal of households in various income categories in Owyhee County.

Table 3.2 Income in 1999.	Owyhee County	
	Number	Percent
Households	3,736	100.0
Less than \$10,000	435	11.6
\$10,000 to \$14,999	406	10.9
\$15,000 to \$24,999	771	20.6
\$25,000 to \$34,999	632	16.9
\$35,000 to \$49,999	665	17.8
\$50,000 to \$74,999	471	12.6
\$75,000 to \$99,999	181	4.8
\$100,000 to \$149,999	115	3.1
\$150,000 to \$199,999	30	0.8
\$200,000 or more	30	0.8
Median household income (dollars)	28,339	(X)

(Census 2000)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its projects on minority or low-income populations. In Owyhee County, a significant number, 14.2%, of families are at or below the poverty level (Table 3.3).

Table 3.3 Poverty status in 1999 (below poverty level).	Owyhee County	
	Number	Percent
Families	395	(X)
Percent below poverty level	(X)	14.2
With related children under 18 years	296	(X)
Percent below poverty level	(X)	19.3
With related children under 5 years	151	(X)
Percent below poverty level	(X)	25.2
Families with female householder, no husband present	106	(X)
Percent below poverty level	(X)	37.7
With related children under 18 years	77	(X)
Percent below poverty level	(X)	35.0
With related children under 5 years	33	(X)
Percent below poverty level	(X)	54.1

Table 3.3 Poverty status in 1999 (below poverty level).	Owyhee County	
	Number	Percent
Individuals	1,781	(X)
Percent below poverty level	(X)	16.9
18 years and over	1,083	(X)
Percent below poverty level	(X)	14.9
65 years and over	154	(X)
Percent below poverty level	(X)	12.1
Related children under 18 years	687	(X)
Percent below poverty level	(X)	20.8
Related children 5 to 17 years	473	(X)
Percent below poverty level	(X)	19.0
Unrelated individuals 15 years and over	331	(X)
Percent below poverty level	(X)	26.4

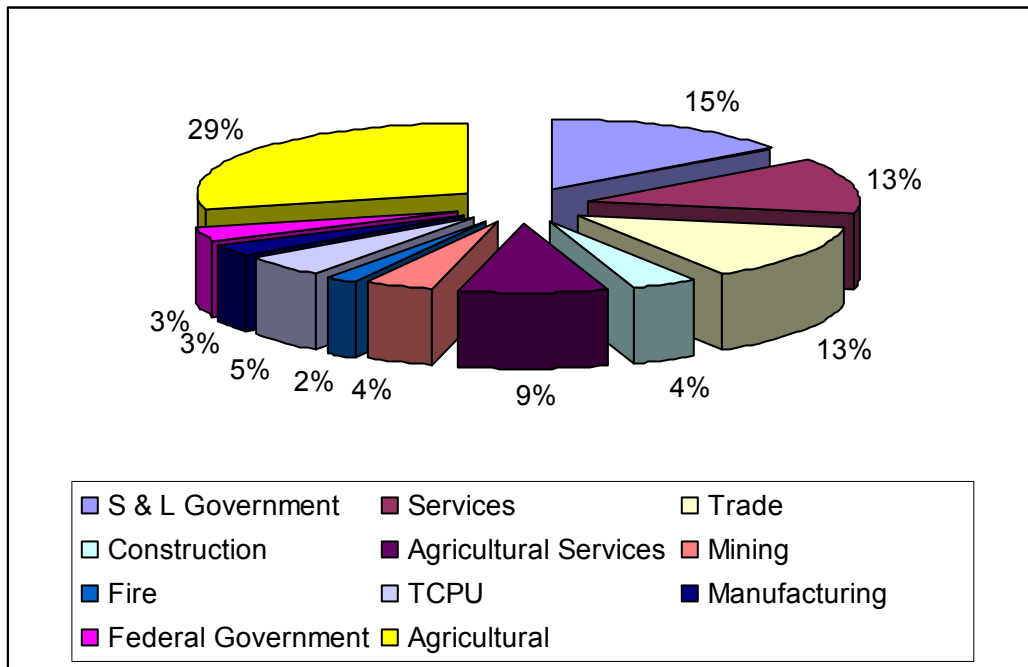
(Census 2000)

The unemployment rate was 4.2% in Owyhee County in 1999, compared to 4.4% nationally during the same period. Approximately 25.5% of the Owyhee County employed population worked in natural resources, with much of the indirect employment relying on the employment created through these natural resource occupations; Table 3.4 (Regional Economic Impact Model of Owyhee County, Idaho and the Four County Area Including Ada, Canyon, Elmore, and Owyhee Counties 2003).

Table 3.4 Output, Employment, and Personal Income in 2000.

Sector	Employment	Output	Personal Income
1 Dairy Farm Products	76	\$23,194,383	\$4,010,796
2 Misc. Livestock	28	\$2,784,633	\$458,498
3 Range Cattle	235	\$23,308,481	\$5,429,547
4 Cattle Feedlots	20	\$7,715,005	\$2,210,728
5 Grains	51	\$5,964,599	\$984,891
6 Forage Crops	494	\$26,895,789	\$4,572,562
7 Misc. Crops	151	\$17,511,735	\$5,250,088
8 Sugar Beets	63	\$7,167,485	\$1,250,225
9 Ag Services	227	\$6,501,637	\$2,836,301
10 Mining	4	\$479,972	\$82,029
11 Construction	251	\$28,547,230	\$12,293,300
12 Manufacturing	156	\$45,730,615	\$6,626,364
13 Transportation and Communication	120	\$12,261,124	\$2,277,678
14 Gas and Electric Services	15	\$10,485,643	\$1,381,683
15 Irrigation, Sanitation, and Water Serv.	72	\$18,896,515	\$3,466,995
16 Wholesale Trade	48	\$3,080,621	\$1,257,856
17 Retail Trade	76	\$1,667,722	\$741,160
18 Food Stores	156	\$7,324,724	\$3,937,894
19 Automotive Dealers & Service Stations	69	\$2,877,000	\$1,160,671

Figure 3.1. Employment by Sector, 1995.



Source: 1998 Bureau of Economic Analysis, U.S. Department of Commerce

Approximately 70.7% of Owyhee County's employed persons are private wage and salary workers, while around 14.5% are government workers (Table 3.5).

Table 3.5 Class of worker.	Owyhee County	
	Number	Percent
Private wage and salary workers	3,101	70.7
Government workers	637	14.5
Self-employed workers in own not incorporated business	612	13.9
Unpaid family workers	39	0.9

(Census 2000)

3.2.1 European Settlement of Owyhee County

Information summarized from <http://owyheecounty.net/profile/>.

On December 31, 1863, Owyhee became the first county created by the newly-formed Idaho territorial legislature. Owyhee is the second largest county in Idaho.

The name, Owyhee, comes from early fur trappers. In 1819, three natives from Hawaii, part of Donald McKenzie's fur-trapping expedition, were sent to trap a large stream that emptied into the Snake River. When they did not return, McKenzie investigated and found one man murdered in camp and no sign of the others. The stream was named in their honor. "Owyhee" is an early spelling for the word Hawaii.

The Oregon Trail, the earliest road in the area, was used by emigrants for over 30 years on their long trip to the Oregon country. The part of the Trail in Owyhee County was known as the South Alternate Route or "dry route". The Owyhee road was shorter but much harder than the main trail.

Gold was discovered in rich placer deposits in the Owyhee Mountains in May, 1863. A search for the source of the gold led to quartz ledges on War Eagle Mountain. Before the fall of 1863 several hard-rock mines were being developed. Three towns grew to supply the miner's needs.

Booneville, Ruby City and Silver City were the first three settlements in the county. Only Silver City still stands, its well-preserved buildings a silent testimonial to the lively mining days. The beautiful ruby silver ore and the wealth of gold taken from the mountains made the mining district world famous.

While Ruby City was named the first county seat, its population and businesses soon moved to a better location two miles upstream on February 1, 1867. Silver City was closer to most of the mining operations and had a better winter location. In 1934, after the decline of mining, the county government was moved to Murphy, more central to the livestock and agricultural sections of the country. The first large cattle drive into Idaho came into the Bruneau Valley in Owyhee County in the fall of 1869. It took almost a year for several Owyhee County men to bring 1,400 head of Texas cattle up from the Brazos. These Durham cattle along with a few Texas Longhorns formed the nucleus of the County's beef industry. At one time 100,000 head roamed the Owyhee hills.

About the first day of May, 1863, a party of 29 men led by Michael Jordan left Placerville on a prospecting tour of the tributaries of the Owyhee and Snake Rivers. They crossed the Snake River at the mouth of the Boise River. A stream near their first camp was named Reynolds Creek to honor the party's "laziest man." While camped at Reynolds Creek, two of the men climbed the divide southwest of camp on a tour of observation. On the other side they discovered a large stream surrounded by timber-covered hills.

The next morning the entire group headed in the direction of the reported stream. They reached it late in the afternoon of May 18th, at a point they named Discovery Bar about ten miles below the later site of Dewey.

Dr. Rudd, not waiting to unpack his mule, took his shovel and scooped some loose gravel from the creek bank. He "panned it out," recovering about a hundred "colors." Each man followed suit, finding prospects of 25¢ to 50¢ to a pan. The excitement that followed can be better imagined than described.

3.3 Description of Owyhee County

Owyhee County lies in the southwestern corner of Idaho and is the second largest county in the state. It is bounded on the north by Canyon, Ada, and Elmore Counties, on the west by Oregon State, on the south by Nevada State, and on the east by Twin Falls County.

Owyhee is a large county covering approximately 7,700 square miles. Eighty-four percent of that land is federally owned with the majority managed by the BLM. There are currently 190,500 total acres (4% of the total area of the County) used for agricultural production.

The topography generally slopes from the southwest to the Snake River in the northeast. The greatest elevations occur in the Owyhee Mountains with Hayden Peak at 8,401 feet being the highest point. The lowest elevations are found along the Snake with Homedale at 2,210 feet and Marsing 2,230 feet. The geographic center of Owyhee County averages about 5,000 feet with Grasmere and Triangle at 5,126 feet and 5,280 feet, respectively.

Owyhee County has a semi-arid, mild climate; rainfall varies from four to eighteen inches a year. Farming is almost exclusively through irrigation. Approximately 80,000 acres receive one or more irrigations per year. The climate and soil conditions are suitable for the production of a

variety of crops, including alfalfa seed, hay, sugar beets, potatoes, onions, corn and mixed grain.

The core of the Owyhee County economy is the cattle industry. The majority of the crops grown in Owyhee County are located near the river systems due to the xeric climate and include sugar beets, alfalfa seed, grains, hay, onions, and a few orchard crops. There are several feedlots operating in the county and three large dairies that have recently moved into the area.

3.3.1 Highways

The main highways weaving through the county are U.S. 95 and State Routes 51 and 78. U.S. Highway 95 bisects the northwestern corner Owyhee County near Homedale and Marsing. U.S. 95 is the sole route connecting northern and southern Idaho. State highways serve to connect the more rural areas to main transportation routes in neighboring counties. Highways 78 and 55 are also the only paved routes connecting the small rural communities in the eastern and southern portions of the county to more populated areas to the northwest. Heavy recreational and large truck traffic is particularly intense during the summer and fall and the harvest season.

3.3.2 Rivers

The three major rivers in the county are the Snake River, the Bruneau River, and the Owyhee River. These waterways were historically, and are still today, important aspects of the farming and ranching operations which are the most significant elements in the County economy. Other important bodies of water of importance to agriculture and ranching in the county are C.J. Strike Reservoir and numerous canals and ditches, all of which provide water for agricultural purposes. In addition to the agricultural value of the waters in C.J. Strike, the waters there also serve in the production of electric power via a generating plant operated by Idaho Power.

3.3.3 Recreation

The federally and state managed lands within the county allow for a wide variety of recreational activities ranging from jet boating to remote area camping to off-highway vehicle activities. Hunting and fishing are also popular on the lands and waters of the county. The Silver City Historic District is popular for both recreational activities as well as for the historical experience of visiting the preserved townsite. While recreational activity in Owyhee County is producing some economic benefits to the state economy, it is, unfortunately, not benefiting the economy of Owyhee County.

The lands and waters in Owyhee County are dangerous and unforgiving of the unprepared or careless. Because of the large land area and sparse population, help is not nearly as readily available as it would be in many other southern Idaho counties. Caution should be exercised by anyone recreating and adventuring in Owyhee County.

3.3.3.1 Boating

Rafting and kayaking are popular activities on the Bruneau River and Owyhee River drainages. Jet boating is also enjoyed, particularly on the Snake River. There are several boat ramps or put-in areas along both waterways; however, some of these sites present difficult or hazardous conditions. Tight corners, swift water, and lack of immediately accessible tie-up locations could lead to a potentially unsafe situation.

3.3.3.2 Camping

Camping is another popular activity enjoyed by the residents of Owyhee County. There are several developed sites along the Snake River as well as one near Silver City. The North Fork Owyhee River Crossing campground is also very popular recreation destination. There are also many undeveloped sites suited primarily for tent or small trailer camping.

3.3.3.3 Fishing and Hunting

Fishing and hunting is important to Owyhee County both from a recreational standpoint and as an economic resource. There are several sportsman access sites along the Snake River that allow for fishing, hunting, and wildlife viewing access. Wild birds, such as pheasant, quail, partridge, chukar, grouse, wild duck, geese, and doves, are found in abundance. Fishing on both the Snake River and the Bruneau River has become a very popular pastime for residents and tourists alike. Big game hunting is also popular across Owyhee County, particularly the Owyhee Mountains. The C.J. Strike Wildlife Management Area near Bruneau also allows regulated hunting.

3.3.4 Resource Dependency

Owyhee County's economy depends mainly on agriculture and grazing. Low commodity and cattle prices coupled with increased costs of production have placed a strain on the economic conditions of the producers and of the county. When these conditions will improve is entirely speculative. The closure of the Kinross Delamar Mine has affected employment and tax revenues in the county. Environmental regulations, particularly water quality regulations, may have an impact on irrigated agriculture and dairy operations. More CAFO's may seek to locate in Owyhee County but there may be problems associated with sufficient quality and quantity of water, waste disposal and conflict with residential uses. County Planning and Zoning rules and regulations currently in place adequately address these issues.

There will be continued interest in rural residential development as people who work in Ada and Canyon Counties seek a rural lifestyle. Property values on land suitable for residential development will probably gradually increase. Changing commodity prices and increases in development pressures will place additional pressure on farmers to consider subdividing their farms.

The new Middle School at Homedale may also tend to draw more people to the area from Canyon County. Retail opportunities may increase in Homedale and Marsing. Homedale will have a new retail building products store associated with the lumber products mill.

The communities of Owyhee County have been evaluated by the University of Idaho College of Natural Resources Policy Analysis Group (PAG) for the degree of natural resource dependency each community experiences.

Idaho communities with more than 10% employment in resource-based sectors (wood products, travel & tourism, agriculture, and mining) were evaluated by Harris *et al.* (2003). Their findings indicate the following results (Harris *et al.* 2000):

- Grand ViewAgriculture Only
- MarsingAgriculture Only
- HomedaleAgriculture and Mining

Harris *et al.* (2003) further evaluated Idaho communities based on their level of direct employment in several industrial sectors. Their findings for communities in Owyhee County are summarized in Table 3.6.

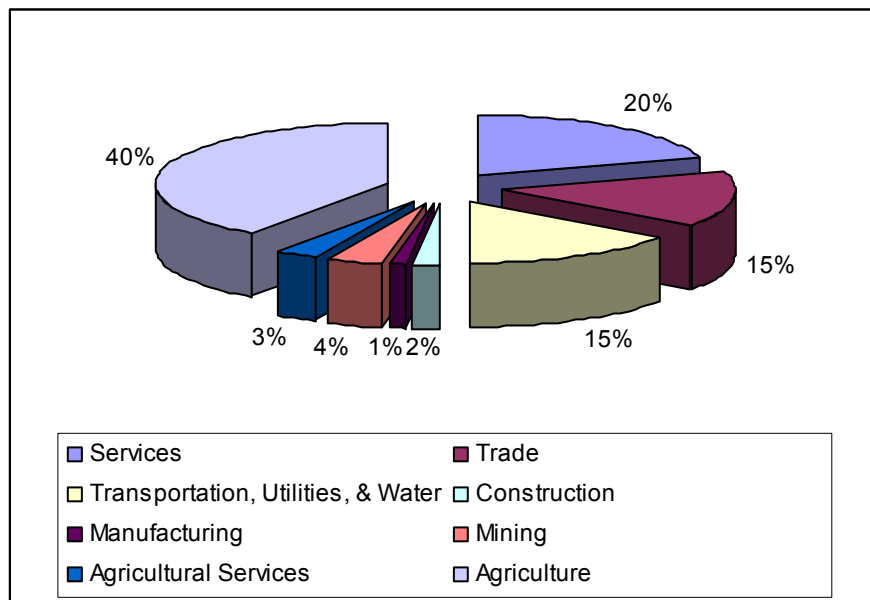
Table 3.6. Levels of direct employment by industrial sector

Community	Economic Diversity Index	Agriculture	Timber	Travel and Tourism	State / Local Gov.	Federal Gov.	Mining and Minerals
Grand View	Med. Low	High	Low	Med. Low	Med. High	Med. Low	Low
Marsing	Med. High	High	Low	Low	Med. High	Med. Low	Low
Homedale	High	Med. High	Low	Low	Med. High	Low	Med. High

A “low” level of direct employment represents 5% or less of total employment in a given sector; “med. low,” 6 to 10%; “med. high” 11 to 19%; and “high” 20% or more of total employment in a given sector.

Source: Harris *et al.* 2000

Figure 3.2. Owyhee County Economy Value Added 1995.



Source: UI Owyhee County Economic Model

3.4 Cultural Resources

Cultural resource impacts were qualitatively assessed through a presence/absence determination of significant cultural resources and mitigation measures to be employed during potential fire mitigation activities such as thinning and prescribed fire.

The United States has a unique legal relationship with Indian tribal governments defined in history, the U.S. Constitution, treaties, statutes, Executive Orders, and court decisions. Since the formation of the union, the United States has recognized Indian tribes as domestic dependant nations under its protection. The Federal Government has enacted numerous regulations that establish and define a trust relationship with Indian tribes.

The relationship between Federal agencies and sovereign tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native

American groups or otherwise consider their interests when planning and implementing Federal undertakings, among these are:

- **EO 13175, November 6, 2000**, Consultation and Coordination with Indian Tribal Governments.
- **Presidential Memorandum, April, 1994**. Government-Government relations with Tribal Governments (Supplements EO 13175). Agencies must consult with federally recognized tribes in the development of federal policies that have tribal implications.
- **EO 13007, Sacred sites, May 24, 1996**. Requires that in managing Federal lands, agencies must accommodate access and ceremonial use of sacred sites and must avoid adversely affecting the physical integrity of these sites.
- **EO 12875, Enhancing Intergovernmental Partnerships, October 26, 1993**. Mainly concerned with unfunded mandates caused by agency regulations. Also states the intention of establishing “regular and meaningful consultation and collaboration with state, local and tribal governments on matters that significantly or uniquely affect their communities.”
- **Native American Graves Protection and Repatriation Act (NAGPRA) of 1989**. Specifies that an agency must take reasonable steps to determine whether a planned activity may result in the excavation of human remains, funerary objects, sacred objects and items of cultural patrimony from Federal lands. NAGPRA also has specified requirements for notifying and consulting tribes.
- **Archaeological Resources Protection Act (ARPA), 1979**. Requires that Federal permits be obtained before cultural resource investigations begin on Federal land. It also requires that investigators consult with the appropriate Native American tribe prior to initiating archaeological studies on sites of Native American origin.
- **American Indian Religious Freedom Act (AIRFA), 1978**. Sets the policy of the US to protect and preserve for Native Americans their inherent rights of freedom to believe, express, and exercise the traditional religions of the American Indian . . . including, but not limited to access to sacred sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.
- **National Environmental Policy Act (NEPA), 1969**. Lead agency shall invite participation of affected Federal, State, and local agencies and any affected Indian Tribe(s).
- **National Historic Preservation Act (NHPA), 1966**. Requires agencies to consult with Native American tribes if a proposed Federal action may affect properties to which they attach religious and cultural significance. (Bulletin 38 of the act, identification of TCPs, this can only be done by tribes.)
- Treaties (supreme law of the land) in which tribes were reserved certain rights for hunting, fishing and gathering and other stipulations of the treaty.
- Unsettled aboriginal title to the land, un-extinguished rights of tribes.

The Duck Valley Indian Reservation is home to the Shoshone and Paiute Tribes. The Duck Valley Indian Reservation is partially located in Owyhee County, and partially in Nevada. The Duck Valley Reservation Wildland-Urban Interface Wildfire Management Plan was completed in 2004 and provides guidance for fire management activities on the Reservation.

3.4.1 National Register of Historic Places

The National Park Service maintains the National Register of Historical Places as a repository of information on significant cultural locale. These may be buildings, roads or trails, places where historical events took place, or other noteworthy sites. The NPS has recorded sites in its database. These sites are summarized in Tables 3.8.

Item	Resource Name	Address	City	Listed	Architect or Builder
1	Bernard's Ferry	N of Murphy off ID 78	Murphy	1978	
2	Bruneau Episcopal Church	Off ID 51	Bruneau	1982	Tourtellotte & Hummel
3	Camas and Pole Creeks Archeological District		Wagon Box Basin	1986	
4	Camp Lyon Site	1 mi. E of U.S. 95	Jordan Valley	1972	
5	Camp Three Forks	S of Jordan Valley	Silver City	1972	
6	Delamar Historic District	6 mi. W of Silver City	Silver City	1976	
7	Guffey Butte--Black Butte Archeological District			1978	
8	Gusman, James E., and Emma, Ranch	South Mountain Rd	Jordan Valley	1999	
9	Noble Horse Barn	Reynolds Cr. 12 mi. SW of Murphy	Murphy	1991	
10	Our Lady, Queen of Heaven Church		Oreana	1980	Pierson, John, Kelly, Jim
11	Owyhee County Courthouse	ID 78	Murphy	1982	Tourtellotte & Hummel
12	Poison Creek Stage Station	S of Homedale off Jump Creek Rd	Homedale	1978	Proud, Matt C.
13	Silver City Historic District	Silver City and its environs	Silver City	1972	
14	Wickahoney Post Office and Stage Station	Wickahoney Creek	Wickahoney	1982	Dunning, Dow

(NRHP 2003)

Fire mitigation activities in and around these sites has the potential to affect historic places. In all cases, the fire mitigation work will be intended to reduce the potential of damaging the site due to wildfire. Areas where ground disturbance will occur will need to be inventoried depending on the location. Such actions may include, but are not limited to, constructed firelines (handline, mechanical line, etc.), new roads to creeks to fill water tankers, mechanical treatments, etc. Only those burn acres that may impact cultural resources that are sensitive to burning (i.e., buildings, peeled bark trees, etc.) would be examined. Burns over lithic sites are not expected to have an impact on those sites, as long as the fire is of low intensity and short duration. Some areas with heavy vegetation may need to be examined after the burn to locate and record any cultural resources although this is expected to be minimal. Traditional Cultural Properties (TCPs) will also need to be identified. Potential impact to TCPs will depend on what values make the property important and will be assessed on an individual basis.

3.5 Transportation

The primary access route connecting rural communities in Owyhee County is State Route 78. This is a two lane highway that enters the county near Indian Cove on the eastern side, travels through the communities of Indian Cove, Bruneau, Grand View, Murphy, Guffy, Wilson, Givens Hot Springs, and Marsing. US Highway 95, a two-lane route, bisects the northwestern corner of the county before crossing into Oregon. This access is the only primary route connecting north and south Idaho. State Highway 51 serves as a connection route between Mountain Home in neighboring Elmore County and Nevada. All major roadways in Owyhee County are relatively level and well-maintained with good width and access and exit points.

Smaller roads maintained by the County and the BLM, or private entities provide access to the adjoining areas within the county, including recreational areas and rural agricultural hubs. A variety of unimproved roads are found throughout the publicly owned BLM lands.

Almost all of the roads in the county were originally built to facilitate farming and ranching activities. As such, these roads can support harvesting equipment, trucks, and fire fighting equipment referenced in this document. However, many of the new roads have been built for homesite access, especially for new sub-divisions. In most cases, these roads are adequate to facilitate firefighting equipment as they adhere to County Building Codes. County building codes for new developments should be adhered to closely to insure this tendency continues.

The Land Use Planning Act located in Title 67, requires Idaho Counties to address transportation in the individual Comprehensive Plans. It requires an analysis, prepared in coordination with the local jurisdiction(s) having authority over the public highways and streets, showing the general locations and traffic ways, and of streets and the recommended treatment thereof. This component may also make recommendations on building line setbacks, control or access, street naming and numbering, and proposes a system of public and other transit lines and related facilities including rights-of-ways, terminals, future corridors, viaducts and grade separations. The component may also include port, harbor, aviation and other related transportation facilities.

3.6 Vegetation & Climate

Vegetation in Owyhee County is a mix of rangeland, agriculture, and forestland ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the vegetation of the area. The full extent of the county was evaluated for cover type as determined from Landsat 7 ETM+ imagery in tabular format, Table 3.9.

The most represented vegetated cover type is a Basin & Wyoming Big Sagebrush type at approximately 48% of the County's total area (2.3 million acres). The next most common vegetation cover type represented is Perennial Grassland, at 11% of the total area. Low Sagebrush is the third most common plant cover type at just under 11% of the total area (Table 3.8).

	Acres	Percent of County's Total Area
Basin & Wyoming Big Sagebrush	2,373,941	48.2%
Perennial Grassland	547,044	11.1%
Low Sagebrush	533,170	10.8%
Western Juniper	408,399	8.3%
Salt-desert Shrub	290,419	5.9%

	Acres	Percent of County's Total Area
Shrub/Steppe Annual Grass-Forb	221,488	4.5%
Agricultural Land	190,500	3.9%
Bitterbrush	71,335	1.4%
Mountain Big Sagebrush	67,236	1.4%
Warm Mesic Shrubs	48,172	1.0%
Curleaf Mountain Mahogany	46,617	0.9%
Douglas-fir	23,595	0.5%
Shrub Dominated Riparian	22,375	0.5%
Rabbitbrush	19,552	0.4%
Water	10,003	0.2%
Perennial Grass Slope	8,970	0.2%
Aspen	6,910	0.1%
Foothills Grassland	5,988	0.1%
Broadleaf Dominated Riparian	4,579	0.1%
Exposed Rock	3,780	0.1%
Vegetated Sand Dune	3,721	0.1%
Shallow Marsh	2,879	0.1%
Mixed Barren Land	1,853	0.0%
Graminoid or Forb Dominated Riparian	1,616	0.0%
Deep Marsh	1,296	0.0%
Subalpine Fir	1,168	0.0%
High Intensity Urban	1,054	0.0%
Sand Dune	656	0.0%
Disturbed, Low	640	0.0%
Low Intensity Urban	470	0.0%
Mountain Low Sagebrush	401	0.0%
Needleleaf Dominated Riparian	279	0.0%
Disturbed, High	115	0.0%
Total Area	4,920,220	

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Limited precipitation and soil conditions result in a relatively arid environment.

3.6.1 Monthly Climate Summaries In or Near Owyhee County

3.6.1.1 Reynolds, Idaho

Period of Record Monthly Climate Summary

Period of Record : 12/1/1961 to 6/30/2004

Table 3.9 Climate records for Reynolds, Owyhee County, Idaho.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	38.7	43.7	51.0	58.3	67.6	76.5	86.1	85.4	75.4	63.6	48.6	39.6	61.2
Average Min.	20.2	23.6	27.8	32.5	39.6	46.2	52.3	51.2	42.4	33.0	25.9	19.9	34.6

Table 3.9 Climate records for Reynolds, Owyhee County, Idaho.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Temperature (F)													
Average Total Precipitation (in.)	1.20	0.78	0.96	0.99	1.21	1.12	0.34	0.51	0.52	0.74	1.10	1.12	10.59
Average Total SnowFall (in.)	2.6	2.3	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.9	2.5	10.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 98.6% Min. Temp.: 98.6% Precipitation: 98.9% Snowfall: 90.6% Snow Depth: 88.3%

3.6.1.2 Silver City, Idaho

Period of Record Monthly Climate Summary

Period of Record : 11/1/1978 to 6/30/2004

Table 3.10 Climate records for Silver City, Owyhee County, Idaho.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	35.7	37.8	45.0	52.1	61.0	70.2	80.3	80.1	70.6	58.3	41.7	35.6	55.7
Average Min. Temperature (F)	20.3	20.8	26.9	31.4	40.3	46.6	55.1	54.8	46.2	37.0	25.3	20.2	35.4
Average Total Precipitation (in.)	3.04	2.19	2.24	2.33	2.28	1.32	0.63	0.55	0.83	1.33	2.18	2.02	20.93
Average Total SnowFall (in.)	21.1	12.9	10.3	5.7	2.1	0.1	0.0	0.0	0.2	2.1	11.1	15.4	80.9
Average Snow Depth (in.)	22	27	20	6	0	0	0	0	0	0	3	13	7

Percent of possible observations for period of record. Max. Temp.: 86.8% Min. Temp.: 86.3% Precipitation: 89.6% Snowfall: 90.3% Snow Depth: 82%

3.6.1.3 Grand View, Idaho

Period of Record Monthly Climate Summary

Period of Record : 4/ 1/1933 to 6/30/2004

Table 3.11 Climate records for Grand View, Owyhee County, Idaho.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	39.7	48.1	58.4	67.6	76.5	84.6	94.2	92.4	81.8	68.6	51.7	41.3	67.1
Average Min. Temperature (F)	20.4	25.0	29.6	36.5	44.2	51.3	56.4	53.6	44.1	34.9	26.8	21.7	37.0
Average Total Precipitation (in.)	0.71	0.53	0.70	0.67	0.89	0.78	0.20	0.20	0.42	0.45	0.70	0.61	6.86
Average Total SnowFall (in.)	2.6	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	5.6
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 95.4% Min. Temp.: 95% Precipitation: 93.6% Snowfall: 92.8% Snow Depth: 86.6%

3.6.1.4 Bruneau, Idaho

Period of Record Monthly Climate Summary

Period of Record : 6/ 1/1962 to 6/30/2004

Table 3.12 Climate records for Bruneau, Owyhee County, Idaho.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	40.5	48.3	58.2	66.1	75.5	84.6	93.3	91.8	81.6	68.7	51.6	40.5	66.7
Average Min. Temperature (F)	23.2	26.6	31.1	36.5	44.3	51.5	56.8	55.1	45.9	36.7	29.5	22.9	38.3
Average Total Precipitation (in.)	0.87	0.53	0.68	0.73	0.72	0.78	0.17	0.26	0.46	0.47	0.96	0.73	7.37
Average Total SnowFall (in.)	1.6	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.3	4.3
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 97% Min. Temp.: 95.8% Precipitation: 96.2% Snowfall: 92.5% Snow Depth: 88.2%

3.7 Wildfire Hazard Profiles

3.7.1 Wildfire Ignition & Extent Profile

In Mountain big-sagebrush habitats, normal fire frequency is estimated to have been estimated to be 15 to 25 years in southwest Idaho (in some instances as short as 3 to 7 years), and 12 to 15 years in south central Oregon. In Wyoming big-sagebrush habitats fire return intervals have been estimated at 50 to 120 years. Because of increased fine fuel from exotic annual grasses and more human-caused wildfires, fire frequencies are now as little as 5 years in some low-elevation habitats. Management strategies to decrease wildfire in these areas include increased fire suppression efforts, focused protection of key habitat areas during a wildfire, aggressive reseeding of sagebrush and where needed perennial grasses in burned areas, and developing greenstrips (strips of fire-resistant vegetation planted to slow wildfires) and other fuel breaks.

Detailed records of fire ignition and extent have been compiled by the USDI Bureau of Land Management. Using this data on past fire extents and fire ignition data, the occurrence of wildland fires in the region of Owyhee County has been evaluated. Many fires have burned in the region of Owyhee County. Figure 3.3 summarizes wildfire ignitions and acres burned each year from 1957 through 2002 with projections for the 1950s and the remainder of the 2000 decade based on current trends. Approximately 38,800 acres burn annually in Owyhee County based on this data, Figure 3.3. Each decade approximately 350,000 acres burn in wildfire events in Owyhee County. The most acres burned in any one decade was the 1980's when approximately 622,000 acres burned (Figure 3.3).

Unfortunately, detailed records on fire cause have not been maintained for wildfires in Owyhee County. In other counties of Idaho, wildfire occurrence is recorded by a variety of sources, including the Idaho Department of Lands. The IDL database of wildfire ignitions lacks the GIS association allowing analysts to map their ignition data, but it does contain detailed information on fire cause, costs, and other relevant information. The database analyzed for this planning effort contained detailed information on fire extent and included a GIS element allowing mapping of this data. It is strongly recommended that the BLM and Owyhee County cooperate on collecting additional data on ignition cause as well as current extent mapping as time goes on.

Figure 3.3. Owyhee County Wildfire Extent Profile

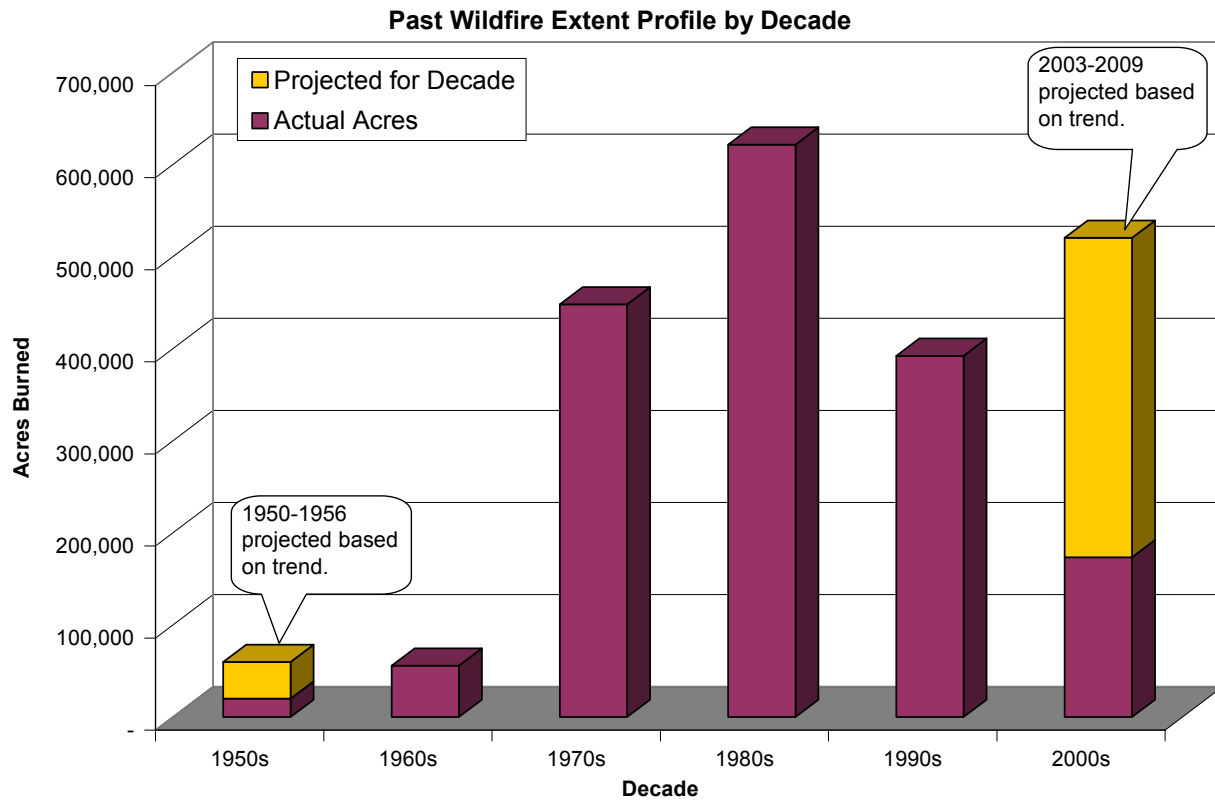


Table 3.13. Wildfire Extent Profile in Owyhee County.

Decade	Acres burned each decade
1950s	59,938
1960s	55,808
1970s	448,218
1980s	621,712
1990s	392,286
2000s	520,464

3.7.2 Wildfire Extent on the Saylor Creek Range

The Mountain Home Air Force Base manages the Saylor Creek Range located within the Northeast corner of Owyhee County. The Air Force uses the range as a training area, primarily as a bombing range. The detonation of explosives and use of various training aids are often the source points for fire ignitions. The Air Force provided records going back to 1996 regarding the number, cause and extent of fires on the Saylor Creek Range. Table 3.14 summarize the information provided.

Table 3.14. Wildfire Extents on the Saylor Creek Firing Range.

Month and Year	Size (ac)	Cause	Month and Year	Size(ac)	Cause
6-96	75	Bomb	6-96	300	Controlled Burn
6-96	50	Not Listed	6-96	50	Smokey SAM
8-96	1	Smokey SAM	10-96	2	Smokey SAM
10-96	.5	Smokey SAM	6-97	1	Not Listed
6-97	1	Not Listed	6-97	1	Not Listed
6-97	50	Controlled Burn	6-97	3	Not Listed
6-97	10	Not Listed	6-97	1	Smokey SAM
6-97	1	Smokey SAM	6-97	20	Controlled Burn
6-97	50	Controlled Burn	6-97	10	Not Listed
6-97	50	Controlled Burn	6-97	15	Not Listed
7-97	1	Smokey SAM	7-97	1	Smokey SAM
7-97	2	Not Listed	8-97	1	Smokey SAM
8-97	1	Smokey SAM	8-97	2	Smokey SAM
8-97	1	Smokey SAM	8-97	1	Smokey SAM
8-97	1	Smokey SAM	8-97	.5	Smokey SAM
8-97	.5	Smokey SAM	8-97	1	Smokey SAM
8-97	.5	Smokey SAM	8-97	.5	Smokey SAM
8-97	1	Smokey SAM	6-98	.5	BDU-33
6-98	.5	BDU-33	6-98	.5	BDU-33
6-98	6	BDU-33	6-98	1	BDU-33
6-98	.5	BDU-33	6-98	.25	BDU-33
6-98	.25	BDU-33	6-98	1	BDU-33
6-98	4	BDU-33	6-98	3	BDU-33
7-98	1	BDU-33	7-98	5	BDU-33
7-98	10	BDU-33	7-98	25	BDU-33
7-98	2	BDU-33	7-98	.5	BDU-33
7-98	20	Smokey SAM	7-98	2	BDU-33
7-98	.25	Smokey SAM	7-98	.5	Smokey SAM
7-98	1	Smokey SAM	9-98	1	Smokey SAM
9-98	2	Smokey SAM	5-99	5	Bomb
5-99	4	Bomb	5-99	9	Bomb
5-99	1	Bomb	5-99	1	Bomb
6-99	5	Bomb	6-99	2	Bomb
6-99	1	Bomb	6-99	2	Bomb
6-99	75	Controlled Burn	6-99	50	Controlled Burn
6-99	1	Controlled Burn	6-99	1	Controlled Burn
7-99	4	Smokey SAM	7-99	5	Bomb
7-99	10	Bomb	7-99	2	Smokey SAM
8-99	15	Bomb	9-99	3	Smokey SAM
10-99	2	Bomb	10-99	2	Bomb
10-99	4	Bomb	10-99	2	Bomb
5-00	.15	BDU-33	5-00	.15	BDU-33
5-00	20	BDU-33	5-00	.5	BDU-33
5-00	250	BDU-33	5-00	.15	BDU-33

Table 3.14. Wildfire Extents on the Saylor Creek Firing Range.

Month and Year	Size (ac)	Cause	Month and Year	Size(ac)	Cause
5-00	1	BDU-33	5-00	10	BDU-33
5-00	.15	BDU-33	5-00	.25	BDU-33
5-00	20	BDU-33	5-00	5	BDU-33
6-00	250	BDU-33	6-00	150	BDU-33
6-00	225	BDU-33	6-00	15	BDU-33
6-00	25	BDU-33	6-00	300	BDU-33
6-00	300	BDU-33	6-00	5	BDU-33
6-00	5	BDU-33	6-00	20	BDU-33
6-00	2	BDU-33	6-00	2	BDU-33
6-00	150	BDU-33	7-00	2	BDU-33
7-00	.25	Smokey SAM	7-00	.25	Smokey SAM
9-00	25	BDU-33	9-00	2	BDU-33
9-00	2	Smokey SAM	9-00	4	BDU-33
9-00	1	Smokey SAM	9-00	20	BDU-33
5-01	.15	Smokey Sam	5-01	3	Bomb
5-01	.07	Smokey SAM	5-01	1	Bomb
5-01	.25	Smokey SAM	5-01	.25	Bomb
5-01	5	Bomb	5-01	.07	Bomb
5-01	500	Unknown	6-01	100	Bomb
6-01	250	Smokey SAM	6-01	175	Bomb
6-01	100	Bomb	6-01	5	Bomb
6-01	400	Bomb	6-01	100	Bomb/Flare
6-01	150	Bomb	6-01	20	Flare
6-01	.25	Smokey SAM	6-01	1000	Bomb
6-01	500	Bomb	6-01	200	Bomb
7-01	20	Bomb	7-01	150	Bomb
7-01	50	Bomb	7-01	3	Smokey SAM
7-01	1	Smokey Gun	7-01	1	Smokey Gun
8-01	.5	Smokey Gun	8-01	1000	Smokey Gun
9-01	.07	Smokey Gun	10-01	1	Bomb
10-01	1	Bomb	10-01	1	Bomb
2-02	.5	Smokey SAM	4-02	.5	Smokey SAM
6-02	1	BDU-33	6-02	2	BDU-33
7-02	3	Smokey SAM	8-02	2	BDU-33
9-02	1	BDU-33	9-02	1	BDU-33
9-02	2	BDU-33	10-02	1	BDU-33
5-03	.5	Bomb	5-03	.25	Smokey Gun
5-03	4	Bomb	5-03	2	Bomb
6-03	7	Bomb	6-03	.5	Smokey Gun
6-03	.5	Bomb	6-03	.5	Bomb
6-03	.5	Smokey Gun	6-03	.5	Bomb
6-03	.5	Bomb	6-03	.5	Bomb
6-03	1	Bomb	6-03	.5	Bomb
6-03	3	Bomb	6-03	4	Bomb

Table 3.14. Wildfire Extents on the Saylor Creek Firing Range.

Month and Year	Size (ac)	Cause	Month and Year	Size(ac)	Cause
6-03	1	Bomb	6-03	3	Bomb
6-03	4	Bomb	7-03	2	Bomb
9-03	.5	Bomb	9-03	.5	Bomb
9-03	1	Bomb	9-03	1	Bomb
10-03	1	Bomb	10-03	.5	Bomb
10-03	.5	Bomb	10-03	.5	Bomb
10-03	.5	Bomb	6-04	2	Bomb
6-04	2	Bomb	6-04	.5	Bomb
6-04	.5	Bomb	6-04	.07	Bomb
6-04	.07	Smokey SAM	7-04	10	EOD
7-04	150	Bomb	7-04	250	Bomb
7-04	.25	Bomb	7-04	.25	Bomb

3.7.3 Regional and National Wildfire Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2003) reports nearly 88,500 wildfires in 2002 burned a total of nearly 7 million acres and cost \$1.6 billion (Table 3.15). By most informed accounts, the 2003 totals will be significantly higher in terms of acres burned and cost.

Table 3.15. National Fire Season 2002 Summary

Number of Fires (2002 final)	88,458
10-year Average (1992-2001)	103,112
Acres Burned (2002 final)	* 6,937,584
10-year Average (1992-2001)	4,215,089
Structures Burned (835 primary residences, 46 Commercial buildings, 1500 outbuildings)	2,381
Estimated Cost of Fire Suppression (Federal agencies only)	\$ 1.6 billion

- *This figure differs from the 7,184,712 acres burned estimate provided by the National Interagency Coordination Center (NICC). The NICC estimate is based on information contained in geographic area and incident situation reports prepared at the time fires occurred. The 6,937,584 estimate is based on agency end-of-year reports.*

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 3.16 and 3.17 summarize some of the relevant wildland fire data for the nation, and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained in areas like Owyhee County.

Table 3.16. Total Fires and Acres 1960 - 2002 Nationally.

Year	Fires	Acres	Year	Fires	Acres
2002	88,458	* 6,937,584	1980	234,892	5,260,825
2001	84,079	3,555,138	1979	163,196	2,986,826
2000	122,827	8,422,237	1978	218,842	3,910,913
1999	93,702	5,661,976	1977	173,998	3,152,644
1998	81,043	2,329,709	1976	241,699	5,109,926

Table 3.16. Total Fires and Acres 1960 - 2002 Nationally.

Year	Fires	Acres	Year	Fires	Acres
1997	89,517	3,672,616	1975	134,872	1,791,327
1996	115,025	6,701,390	1974	145,868	2,879,095
1995	130,019	2,315,730	1973	117,957	1,915,273
1994	114,049	4,724,014	1972	124,554	2,641,166
1993	97,031	2,310,420	1971	108,398	4,278,472
1992	103,830	2,457,665	1970	121,736	3,278,565
1991	116,953	2,237,714	1969	113,351	6,689,081
1990	122,763	5,452,874	1968	125,371	4,231,996
1989	121,714	3,261,732	1967	125,025	4,658,586
1988	154,573	7,398,889	1966	122,500	4,574,389
1987	143,877	4,152,575	1965	113,684	2,652,112
1986	139,980	3,308,133	1964	116,358	4,197,309
1985	133,840	4,434,748	1963	164,183	7,120,768
1984	118,636	2,266,134	1962	115,345	4,078,894
1983	161,649	5,080,553	1961	98,517	3,036,219
1982	174,755	2,382,036	1960	103,387	4,478,188
1981	249,370	4,814,206			

(National Interagency Fire Center 2003)

Table 3.17. Suppression Costs for Federal Agencies Nationally.

Year	Bureau of Land Management	Bureau of Indian Affairs	Fish and Wildlife Service	National Park Service	USDA Forest Service	Totals
1994	\$98,417,000	\$49,202,000	\$3,281,000	\$16,362,000	\$678,000,000	\$845,262,000
1995	\$56,600,000	\$36,219,000	\$1,675,000	\$21,256,000	\$224,300,000	\$340,050,000
1996	\$96,854,000	\$40,779,000	\$2,600	\$19,832,000	\$521,700,000	\$679,167,600
1997	\$62,470,000	\$30,916,000	\$2,000	\$6,844,000	\$155,768,000	\$256,000,000
1998	\$63,177,000	\$27,366,000	\$3,800,000	\$19,183,000	\$215,000,000	\$328,526,000
1999	\$85,724,000	\$42,183,000	\$4,500,000	\$30,061,000	\$361,000,000	\$523,468,000
2000	\$180,567,000	\$93,042,000	\$9,417,000	\$53,341,000	\$1,026,000,000	\$1,362,367,000
2001	\$192,115,000	\$63,200,000	\$7,160,000	\$48,092,000	\$607,233,000	\$917,800,000
2002	\$204,666,000	\$109,035,000	\$15,245,000	\$66,094,000	\$1,266,274,000	\$1,661,314,000

(National Interagency Fire Center 2003)

Although many very large fires, growing to over 250,000 acres have burned in the Southwest Idaho Region, which Owyhee County is a part, actual fires in this county have usually been controlled at smaller extents. This is not to imply that wildfires are not a concern in this county, but to point to the aggressive and professional manner to which the wildland and rural fire districts cooperate in controlling these blazes. The Bureau of Land Management provides primary wildfire protection in Owyhee County. Rural and city fire districts augment these services with home protection and related services.

3.8 Analysis Tools and Techniques to Assess Fire Risk

Owyhee County and the adjacent counties of Ada, Canyon and Elmore, were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 8.2). Physical features of the region were represented by data layers including roads, streams, soils, elevation, and remotely sensed images from the Landsat 7 ETM+ satellite. Field visits were conducted by specialists from Northwest Management, Inc., and others. Discussions with area residents and fire control specialists augmented field visits and provided insights to rangeland and forest health issues and treatment options.

This information was analyzed and combined to develop an assessment of wildland fire risk in the region.

3.8.1 Fire Prone Landscapes

Schlosser *et al.* 2002, developed a methodology to assess the location of fire prone landscapes on forested and non-forested ecosystems in the western US. Working under an agreement with the Clearwater Resource Conservation and Development Council, Inc., (RC&D), Northwest Management, Inc., completed a similar assessment for five counties in the north central Idaho area including Clearwater County, Idaho County, Latah County, Lewis County, and Nez Perce County. In a separate project, also funded by the Bureau of Land Management working in cooperation with Ada, Canyon, and Elmore Counties, through the Southwest Idaho RC&D Area, Northwest Management, Inc., completed a Fire Prone Landscapes assessments on those listed areas. Additional assessments of Fire Prone Landscapes were completed for approximately 20 additional counties in Montana and Idaho.

The goal of developing the Fire Prone Landscapes analysis is to make inferences about the relative risk factors across large geographical regions (multiple counties) for wildfire spread. This analysis uses the extent and occurrence of past fires as an indicator of characteristics for a specific area and their propensity to burn in the future. Concisely, if a certain combination of vegetation cover type, canopy closure, aspect, slope, stream and road density have burned with a high occurrence and frequently in the past, then it is reasonable to extrapolate that they will have the same tendency in the future, unless mitigation activities are conducted to reduce this potential.

The analysis for determining those landscapes prone to wildfire utilized a variety of sources.

Digital Elevation: Digital elevation models (DEM) for the project used USGS 10 meter DEM data provided at quarter-quadrangle extents. These were merged together to create a continuous elevation model of the analysis area.

The merged DEM file was used to create two derivative data layers; aspect and slope. Both were created using the spatial analyst extension in ArcGIS 8.2. Aspect data values retained one decimal point accuracy representing the cardinal direction of direct solar radiation, represented in degrees. Slope was recorded in percent and also retained one decimal point accuracy.

Remotely Sensed Images: Landsat 7 Enhanced Thematic Mapper (ETM+) images were used to assess plant cover information and percent of canopy cover. The Landsat ETM+ instrument is an eight-band multi-spectral scanning radiometer capable of providing high-resolution image information of the Earth's surface. It detects spectrally-filtered radiation at visible, near-infrared, short-wave, and thermal infrared frequency bands from the sun-lit Earth. Nominal ground sample distances or "pixel" sizes are 15 meters in the panchromatic band; 30 meters in the 6 visible, near and short-wave infrared bands; and 60 meters in the thermal infrared band.

The satellite orbits the Earth at an altitude of approximately 705 kilometers with a sun-synchronous 98-degree inclination and a descending equatorial crossing time of 10 a.m. daily.

Image spectrometry has great application for monitoring vegetation and biophysical characteristics. Vegetation reflectance often contains information on the vegetation chlorophyll absorption bands in the visible region and the near infrared region. Plant water absorption is easily identified in the middle infrared bands. In addition, exposed soil, rock, and non-vegetative surfaces are easily separated from vegetation through standard hyper-spectral analysis procedures.

Two Landsat 7 ETM images were obtained to conduct hyper-spectral analysis for this project. The first was obtained in 1998 and the second in 2002. Hyper-spectral analysis procedures followed the conventions used by the Idaho Vegetation and Land Cover Classification System, modified from Redmond (1997) and Homer (1998).

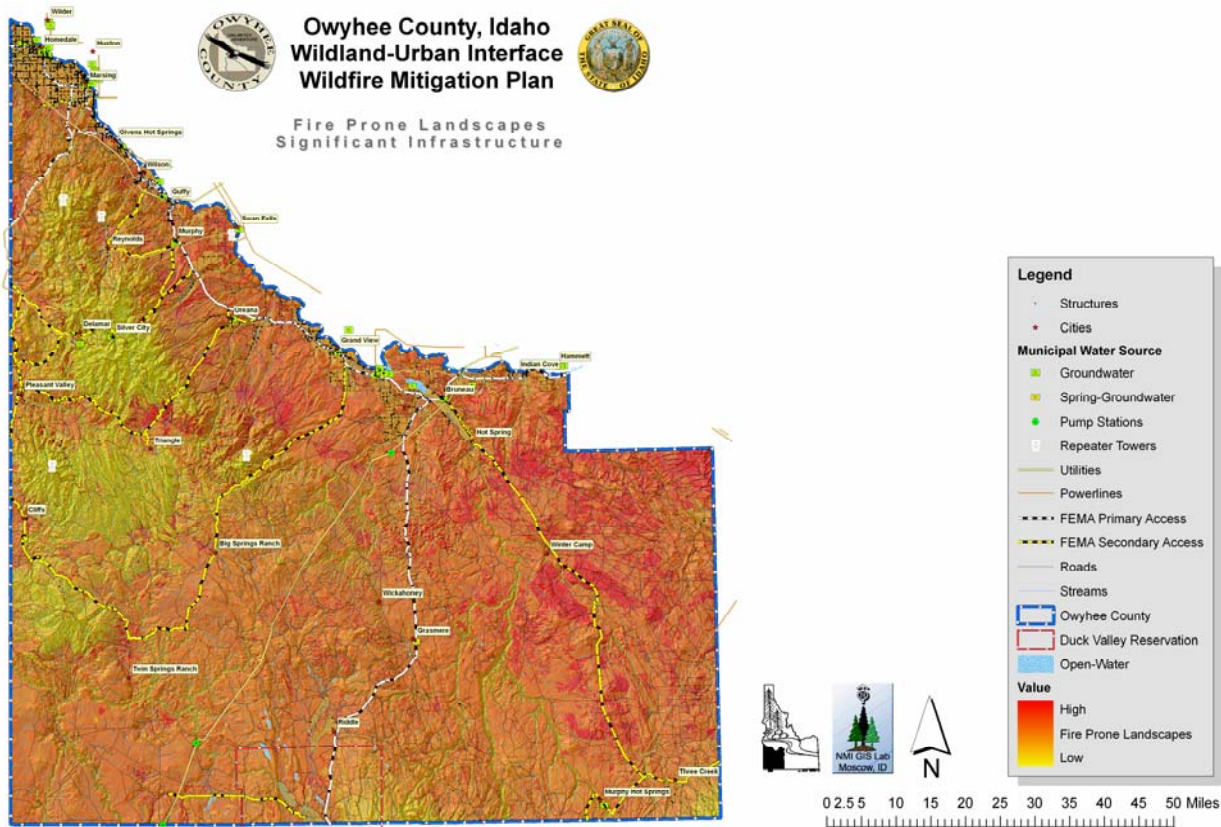
Riparian Zones: Riparian zones were derived from stream layers created during the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

Wind Direction: Wind direction and speed data detailed by monthly averages was used in this project to better ascertain certain fire behavior characteristics common to large fire events. These data are spatially gridded Average Monthly Wind Directions in Idaho. The coverage was created from data summarized from the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

Past Fires: Past fire extents represent those locations on the landscape that have previously burned during a wildfire. Past fire extent maps were obtained from a variety of sources for the south west Idaho area including the Bureau of Land Management.

Fire Prone Landscapes: Using the methodology developed by Schlosser *et al.* (2002), and refined for this project, the factors detailed above were used to assess the potential for the landscape to burn during the fire season in the case of fire ignition. Specifically, the entire region was evaluated at a resolution of 10 meters (meaning each pixel on the screen represented a 10 meter square on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression analysis within the GIS program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence. In fact, the maximum rating score for Owyhee County was 90 with a low of 8.

Figure 3.4. Fire Prone Landscapes in Owyhee County.



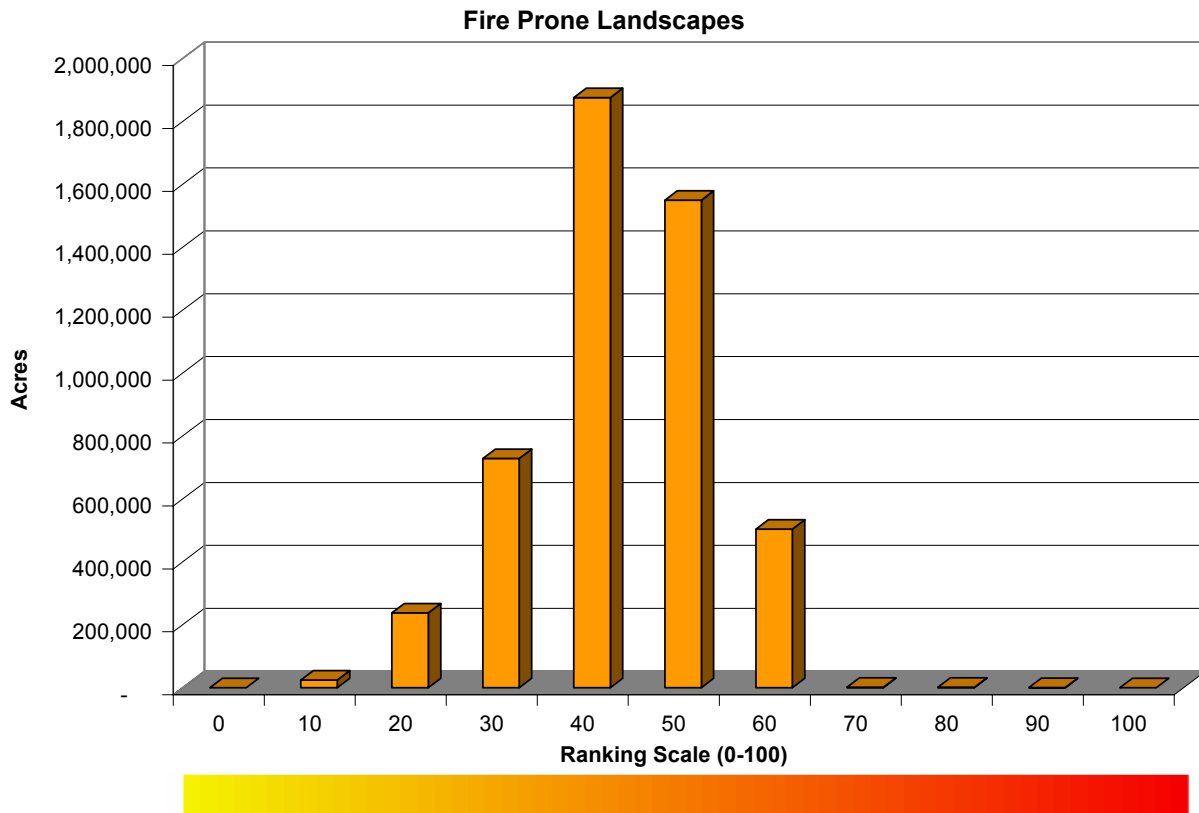
This map is presented for reference in this section of the plan. This map, and additional maps are detailed in Appendix I.

The maps depicting these risk categories display yellow as the lowest risk and red as the highest with values between a constant gradient from yellow to orange to red (Table 3.18). While large maps (12 square feet) have been provided as part of this analysis, smaller size maps are presented in Appendix I.

Table 3.18. Fire Prone Landscape rankings and associated acres in each category for Owyhee County.

Color Code	Value	Total	Percent of Total Area
	0	7	0%
	10	24,083	0%
	20	237,515	5%
	30	728,263	15%
	40	1,875,965	38%
	50	1,549,590	31%
	60	503,764	10%
	70	1,093	0%
	80	986	0%
	90	392	0%
100	-	0%	

Figure 3.5. Distribution of area by Fire Prone Landscape Class.



The risk category values developed in this analysis should be considered **ordinal data**, that is, while the values presented have a meaningful ranking, they neither have a true zero point nor scale between numbers. Rating in the “40” range is not necessarily twice as “risky” as rating in the “20” range. These category values also do not correspond to a rate of fire spread, a fuel loading indicator, or measurable potential fire intensity. Each of those scales is greatly influenced by weather, seasonal and daily variations in moisture (relative humidity), solar radiation, and other factors. The risk rating presented here serves to identify where certain constant variables are present, aiding in identifying where fires typically spread into the largest fires across the landscape.

3.8.2 Historic Fire Regime

In the fire-adapted ecosystems of Idaho, fire is undoubtedly the dominant process in terrestrial systems that constrains vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes (that is, fire frequency and fire severity prior to settlement by Euro-Americans) to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Obviously, historical fire regimes are a critical component for characterizing the historical range of variability in the fire-adapted

ecosystems of Idaho. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

A database of fire history studies in the region was used to develop modeling rules for predicting historical fire regimes (HFRs). Tabular fire-history data and spatial data was stratified into ecoregions, potential natural vegetation types (PNVs), slope classes, and aspect classes to derive rule sets which were then modeled spatially. Expert opinion was substituted for a stratum when empirical data was not available.

Fire is the dominant disturbance process that manipulates vegetation patterns in Idaho. The HFR data were prepared to supplement other data necessary to assess integrated risks and opportunities at regional and subregional scales. The HFR theme was derived specifically to estimate an index of the relative change of a disturbance process, and the subsequent patterns of vegetation composition and structure.

3.8.2.1 General Limitations

These data were derived using fire history data from a variety of different sources. These data were designed to characterize broad scale patterns of historical fire regimes for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Although the resolution of the HFR theme is 30 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Figure 3.6. Natural Historic Fire Regimes in Owyhee County, Idaho.

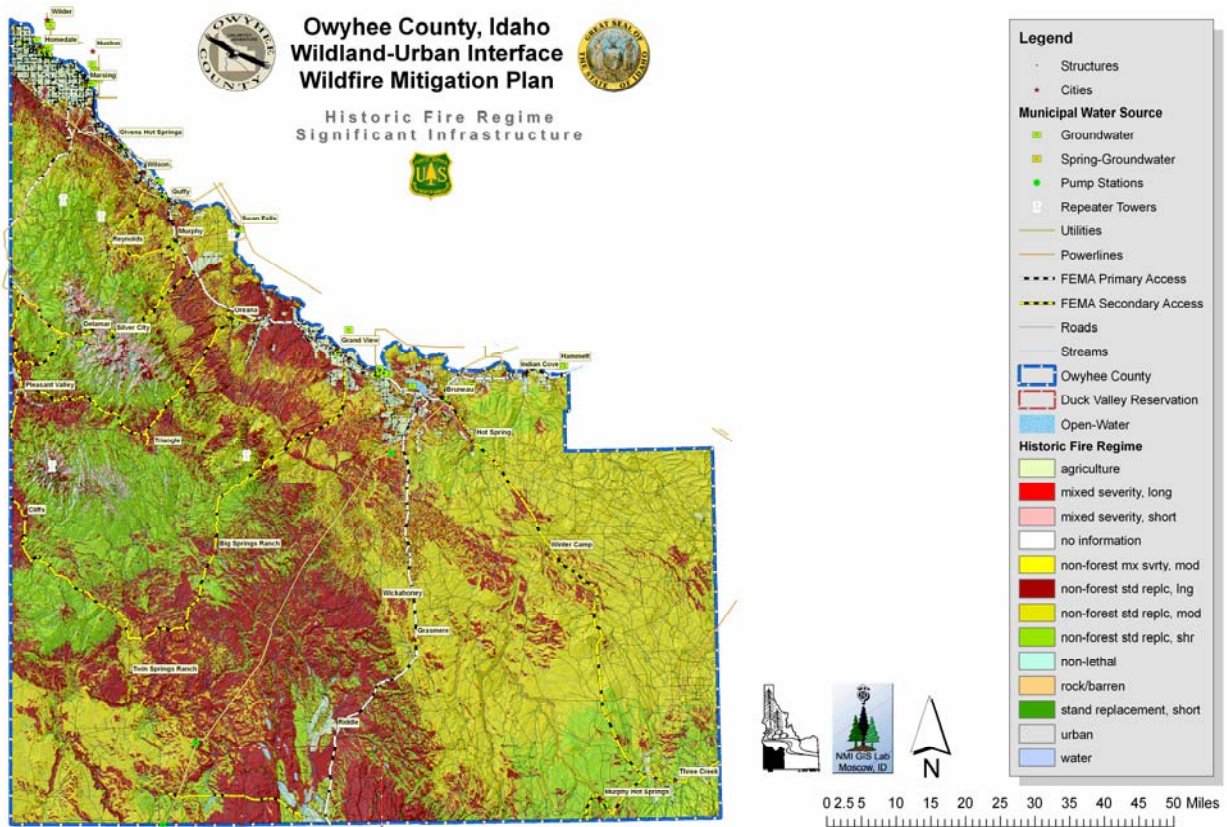


Table 3.19. Natural Historic Fire Regimes in Owyhee County, Idaho.

Natural Historic Fire Regime	Acres	Percent of Area
Non-lethal Fires	36,941	1%
Mixed severity, short return interval	53,231	1%
Mixed severity, long return interval	11,717	0%
Stand replacement, short return interval	8,893	0%
Non-forest stand replacement, short return interval	1,171,533	24%
Non-forest mixed severity, moderate return interval	34,159	1%
Non-forest stand replacement, moderate return interval	1,946,605	40%
Non-forest stand replacement, long return interval	1,463,458	30%
Agriculture	158,625	3%
Rock / barren	10,985	0%
Urban	1,095	0%
Water	10,388	0%
No Information	11,529	0%

3.8.3 Fire Regime Condition Class

The US Forest Service has provided their assessment of Fire Regime Condition Class for the lands of Owyhee County to this WUI Fire Mitigation Plan analysis. These measures of vegetative conditions are the standard method of analysis for the USDA Forest Service.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for natural (historical) fire regimes have been developed by Hardy *et al.* (2001) and Schmidt *et al.* (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

V – 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy *et al.* (2001) and Schmidt *et al.* (2001). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of the amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the

fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks are presented in Table 3.20. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

Table 3.20. Fire Regime Condition Class Definitions.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

An analysis of Fire Regime Condition Class in Owyhee County shows that approximately 81% of the County is in Condition Class 2 (moderate departure), just about 9% is in Condition Class 3 (high departure), with the remaining area in Condition Class 1-low departure (Table 3.21).

Table 3.21. Fire Regime Condition Class by area in Owyhee County.

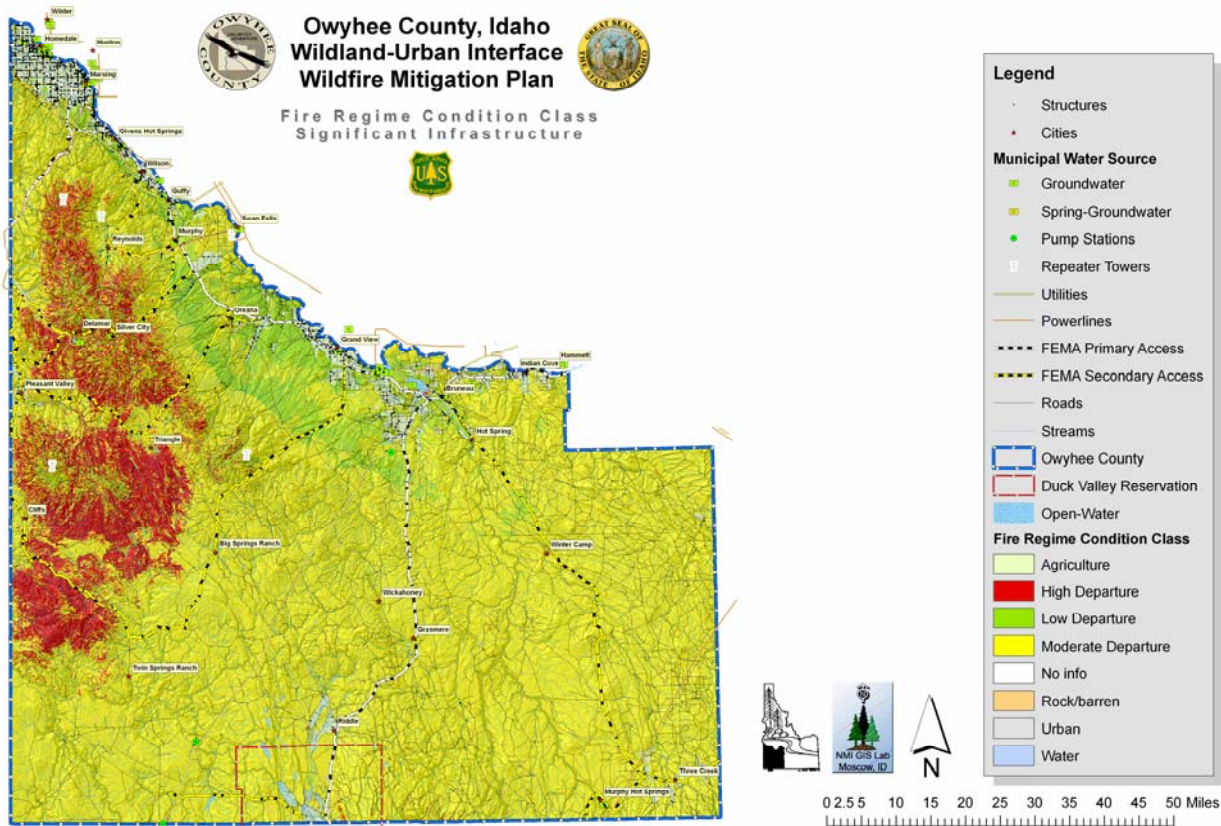
	Condition Class	Acres	Percent of Area
1	Low departure	335,805	7%
2	Moderate departure	3,965,170	81%
3	High departure	425,562	9%
4	Agriculture	158,625	3%
5	Rock / barren	10,985	0%

Table 3.21. Fire Regime Condition Class by area in Owyhee County.

	Condition Class	Acres	Percent of Area
7	Urban	1,095	0%
8	Water	10,388	0%
9	No info	11,529	0%

See Appendix I for maps of Fire Regime and Condition Class.

Figure 3.7. Fire Regime Condition Class in Owyhee County, Idaho.



3.8.4 Predicted Fire Severity

Current fire severity (CFS) is an estimate of the relative fire severity if a fire were to burn a site under its current state of vegetation. In other words, how much of the overstory would be removed if a fire were to burn today. The US Forest Service (Flathead National Forest) did not attempt to model absolute values of fire severity, as there are too many variables that influence fire effects at any given time (for example, temperature, humidity, fuel moisture, slope, wind speed, wind direction).

The characterization of likely fire severity was based upon historic fire regimes, potential natural vegetation, cover type, size class, and canopy cover with respect to slope and aspect. Each cover type was assigned a qualitative rating of fire tolerance based upon likely species composition and the relative resistance of each species to fire. The US Forest Service researchers defined 3 broad classes of fire tolerance: high tolerance (<20 percent post-fire mortality); moderate tolerance (20 to 80 percent mortality); and low tolerance (>80 percent

mortality). We would expect that fires would be less severe within cover types comprised by species that have a high tolerance to fire. Conversely, fires would likely burn more severely within cover types comprised by species having a low tolerance to fire. Data assignments were based upon collective experience in the field, as well as stand structure characteristics reported in the fire-history literature. For example, if they estimated that a fire would remove less than 20 percent of the overstory, the current fire severity would be assigned to the non-lethal class (that is, NL). However, if they expected fire to remove more than 80 percent of the overstory, the current fire severity was assigned to a stand replacement class (that is, SR or SR3).

3.8.4.1 Purpose

Fire is a dominant disturbance process in the Southwest Idaho. The likely effect of fire upon vegetation (i.e., current fire severity) is critical information for understanding the subsequent fire effects upon wildlife habitats, water quality, and the timing of runoff. There have been many reports of how fire suppression and timber harvest has affected vegetation patterns, fuels, and fire behavior. The US Forest Service researchers from the Flathead National Forest, derived the current fire severity theme explicitly to compare with the historical fire regime theme to evaluate how fire severity has changed since Euro-American settlement (that is, to derive fire-regime condition class).

3.8.4.2 General Limitations

These data were designed to characterize broad scale patterns of estimated fire severity for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Although the resolution of the CFS theme is 90 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

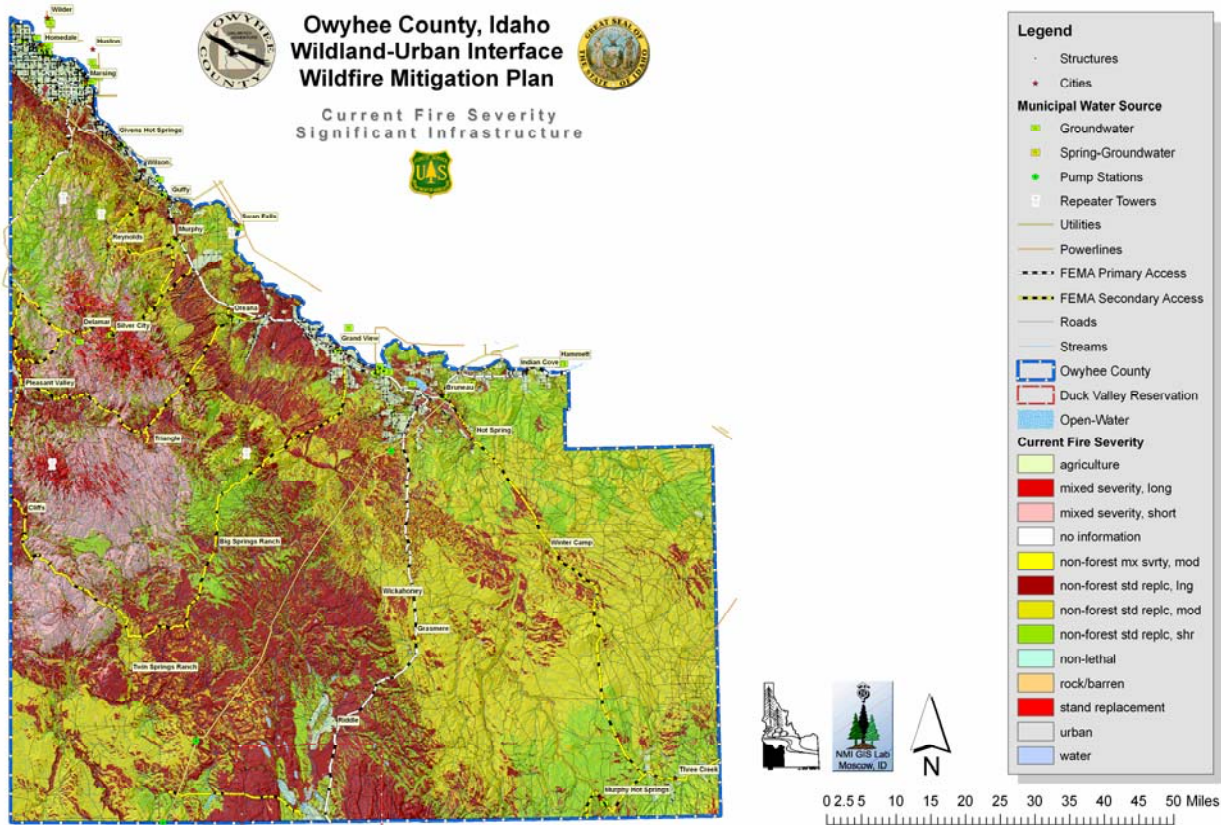
Current fire severity rule-set was developed for an "average burn day" for the specific vegetation types in our area. Any user of these data should familiarize themselves with the rule sets to better understand our estimate of current fire severity.

Table 3.22. Predicted Fire Severity by area in Owyhee County.

	Predicted Fire Severity	Acres	Percent of Area
1	Non-lethal	12,910	0%
2	Mixed severity, short return interval	401,758	8%
3	Mixed severity, long return interval	56,524	1%
5	Stand replacement fire	23,792	0%
6	Non-forest stand replacement, short return interval	1,005,260	20%
7	Non-forest mixed severity, moderate return interval	34,159	1%
8	Non-forest stand replacement, moderate return interval	1,731,980	35%
9	Non-forest stand replacement, long return interval	1,460,153	30%
10	Agriculture	158,625	3%
11	Rock / barren	10,985	0%
13	Urban	1,095	0%
14	Water	10,388	0%
15	No information	11,529	0%

See Appendix I for a map of Predicted Fire Severity.

Figure 3.8. Current Fire Severity in Owyhee County, Idaho.



3.8.5 On-Site Evaluations

Fire control and evaluation specialists as well as hazard mitigation consultants evaluated the communities of Owyhee County to determine, first-hand, the extent of risk and characteristics of hazardous fuels in the Wildland-Urban Interface. The on-site evaluations have been summarized in written narratives and are accompanied by photographs taken during the site visits. These evaluations included the estimation of fuel models as established by Anderson (1982). These fuel models are described in the following section of this document.

In addition, field personnel completed FEMA’s Fire Hazard Severity Forms and Fire Hazard Rating Criteria Worksheets. These worksheets and standardized rating criteria allow comparisons to be made between all of the counties in the country using the same benchmarks. The FEMA rating forms are summarized for each community in Appendix II.

3.8.6 Fuel Model Descriptions

Anderson (1982) developed a categorical guide for determining fuel models to facilitate the linkage between fuels and fire behavior. These 13 fuel models, grouped into 4 basic groups: grass, chaparral and shrub, timber, and slash, provide the basis for communicating fuel conditions and evaluating fire risk. There are a number of ways to estimate fuel models in forest and rangeland conditions. The field personnel from Northwest Management, Inc., that evaluated communities and other areas of Owyhee County have all been intricately involved in wildland fire fighting and the incident command system. They made ocular estimates of fuel models they observed. In an intense evaluation, actual sampling would have been employed to determine

fuel models and fuel loading. The estimations presented in this document (Chapter 3) are estimates based on observations to better understand the conditions observed.

Fuel Model 0- This type consists of non-flammable sites, such as exposed mineral soil and rock outcrops. Other lands are also identified in this type.

3.8.6.1 Grass Group

3.8.6.1.1 Fire Behavior Fuel Model 1

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area.

Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that met the above area constraint. Annual and perennial grasses are included in this fuel model.

This fuel model correlates to 1978 NFDRS fuel models A, L, and S.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre	0.74
Dead fuel load, ¼-inch, tons/acre	0.74
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	1.0

3.8.6.1.2 Fire Behavior Fuel Model 2

Fire is spread primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this model; such stands may include clumps of fuels that generate higher intensities than that may produce firebrands. Some pinyon-juniper may be in this model.

This fuel model correlates to 1978 NFDRS fuel models C and T.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre	4.0
Dead fuel load, ¼-inch, tons/acre	2.0
Live fuel load, foliage, tons/acre	0.5
Fuel bed depth, feet	1.0

3.8.6.1.3 Fire Behavior Fuel Model 3

Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Stands are tall, averaging about 3 feet (1 m), but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire. Wild or cultivated grains that have not been harvested can be considered similar to tall prairie and marshland grasses.

This fuel correlates to 1978 NFDRS fuel model N.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	3.0
Dead fuel load, ¼-inch, tons/acre	3.0
Live fuel load, foliage tons/acre	0
Fuel bed depth, feet.....	2.5

3.8.6.2 Shrub Group

3.8.6.2.1 Fire Behavior Fuel Model 4

Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, 6 or more feet tall, such as California mixed chaparral, the high pocosin along the east coast, the pinebarrens of New Jersey, or the closed jack pine stands of the north-central States are typical candidates. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity. Height of stand qualifying for this model depends on local conditions. A deep litter layer may also hamper suppression efforts.

This fuel model represents 1978 NFDRS fuel models B and O; fire behavior estimates are more severe than obtained by Models B or O.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre	13.0
Dead fuel load, ¼-inch, tons/acre	5.0
Live fuel load, foliage, tons/acre	5.0
Fuel bed depth, feet.....	6.0

3.8.6.2.2 Fire Behavior Fuel Model 5

Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.

No 1978 NFDRS fuel model is represented, but model 5 can be considered as second choice for NFDRS model D or as third choice for NFDRS model T. Young green stands may be up to 6 feet (2m) high but have poor burning properties because of live vegetation.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre	3.5
Dead fuel load, ¼-inch, tons/acre	1.0
Live fuel load, foliage, tons/acre	2.0
Fuel bed depth, feet.....	2.0

3.8.6.2.3 Fire Behavior Fuel Model 6

Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but this requires moderate winds, greater than 8 mi/h (13 km/h) at mid-flame height. Fire will drop to

the ground at low wind speeds or at openings in the stand. The shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as model 4. A broad range of shrub conditions is covered by this model. Fuel situations to be considered include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Even hardwood slash that has cured can be considered. Pinyon-juniper shrublands may be represented but may over-predict rate of spread except at high winds, like 20 mi/h (32 km/h) at the 20-foot level.

The 1978 NFDRS fuel models F and Q are represented by this fuel model. It can be considered a second choice for models T and D and a third choice for model S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acres.....	6.0
Dead fuel load, 1/4 –inch, tons/acre	1.5
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet.....	2.5

3.8.6.2.4 Fire Behavior Fuel Model 7

Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel moisture contents because of the flammability of live foliage and other live material. Stands of shrubs are generally between 2 and 6 feet (0.6 and 1.8 m) high. Palmetto-gallberry understory-pine overstory sites are typical and low pocosins may be represented. Black spruce-shrub combinations in Alaska may also be represented.

This fuel model correlates with 1978 NFDRS model D and can be a second choice for model Q.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre	4.9
Dead fuel load, 1/4-inch, tons/acre	1.1
Live fuel load, foliage, tons/acre	0.4
Fuel bed depth, feet.....	2.5

3.8.6.3 Timber Group

3.8.6.3.1 Fire Behavior Fuel Model 8

Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional “jackpot” or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose fire hazards. Closed canopy stands of short-needle conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Representative conifer types are white pine, and lodgepole pine, spruce, fir and larch

This model can be used for 1978 NFDRS fuel models H and R.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch, dead and live, tons/acre	5.0
Dead fuel load, 1/4-inch, tons/acre	1.5
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet.....	0.2

3.8.6.3.2 Fire Behavior Fuel Model 9

Fires run through the surface litter faster than model 8 and have longer flame height. Both long-needle conifer stands and hardwood stands, especially the oak-hickory types, are typical. Fall fires in hardwoods are predictable, but high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves. Closed stands of long-needled pine like ponderosa, Jeffrey, and red pines, or southern pine plantations are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

NFDRS fuel models E, P, and U are represented by this model. It is also a second choice for models C and S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre	3.5
Dead fuel load, ¼-inch, tons/acre	2.9
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	0.2

3.8.6.3.3 Fire Behavior Fuel Model 10

The fires burn in the surface and ground fuels with greater fire intensity than the other timber litter models. Dead-down fuels include greater quantities of 3-inch (7.6 cm) or larger limbwood, resulting from overmaturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind-thrown stands, overmature situations with dead fall, and aged light thinning or partial-cut slash.

The 1978 NFDRS fuel model G is represented.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	12.0
Dead fuel load, ¼-inch, tons/acre	3.0
Live fuel load, foliage, tons/acre	2.0
Fuel bed depth, feet	1.0

The fire intensities and spread rates of these timber litter fuel models are indicated by the following values when the dead fuel moisture content is 8 percent, live fuel moisture is 100 percent, and the effective windspeed at mid-flame height is 5 mi/h (8 km/h):

Table 3.23. Comparative Fire Intensities and Rates of Spread in Timber Fuel Models.

Fuel Model	Rate of Spread	Flame length
	Chains/hour	Feet
8	1.6	1.0
9	7.5	2.6
10	7.9	4.8

Fires such as above in model 10 are at the upper limit of control by direct attack. More wind or drier conditions could lead to an escaped fire.

3.8.6.4 Logging Slash Group

3.8.6.4.1 Fire Behavior Fuel Model 11

Fires are fairly active in the slash and herbaceous material intermixed with the slash. The spacing of the rather light fuel load, shading from overstory, or the aging of the fine fuels can contribute to limiting the fire potential. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands, and southern pine harvests are considered. Clearcut operations generally produce more slash than represented here. The less-than-3-inch (7.6-cm) material load is less than 12 tons per acre (5.4 t/ha). The greater-than-3-inch (7.6-cm) is represented by not more than 10 pieces, 4 inches (10.2 cm) in diameter, along a 50-foot (15 m) transect.

The 1978 NFDRS fuel model K is represented by this model.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre	11.5
Dead fuel load, ¼-inch, tons/acre	1.5
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	1.0

3.8.6.4.2 Fire Behavior Fuel Model 12

Rapidly spreading fires with high intensities capable of generating firebrands can occur. When fire starts, it is generally sustained until a fuel break or change in fuels is encountered. The visual impression is dominated by slash and much of it is less than 3 inches (7.6 cm) in diameter. The fuels total less than 35 tons per acres (15.6 t/ha) and seem well distributed. Heavily thinned conifer stands, clearcuts, and medium or heavy partial cuts are represented. The material larger than 3 inches (7.6 cm) is represented by encountering 11 pieces, 6 inches (15.3 cm) in diameter, along a 50-foot (15-m) transect.

This model depicts 1978 NFDRS model J and may overrate slash areas when the needles have dropped and the limbwood has settled. However, in areas where limbwood breakup and general weathering have started, the fire potential can increase.

Fuel model values fore estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre	34.6
Dead fuel load, ¼-inch, tons/acre	4.0
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	2.3

3.8.6.4.3 Fire Behavior Fuel Model 13

Fire is generally carried across the area by a continuous layer of slash. Large quantities of material larger than 3 inches (7.6 cm) are present. Fires spread quickly through the fine fuels and intensity builds up more slowly as the large fuels start burning. Active flaming is sustained for long periods and a wide variety of firebrands can be generated. These contribute to spotting problems as the weather conditions become more severe. Clearcuts and heavy partial-cuts in mature and overmature stands are depicted where the slash load is dominated by the greater-than-3-inch (7.6-cm) diameter material. The total load may exceed 200 tons per acre (89.2 t/ha) but fuel less than 3 inches (7.6 cm) is generally only 10 percent of the total load. Situations where the slash still has “red” needles attached but the total load is lighter, more like model 12, can be represented because of the earlier high intensity and quicker area involvement.

The 1978 NFDRS fuel model 1 is represented. Areas most commonly fitting his model are old-growth stands west of the Cascade and Sierra Nevada Mountains. More efficient utilization standards are decreasing the amount of large material left in the field.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 58.1
 Dead fuel load, ¼-inch, tons/acre 7.0
 Live fuel load, foliage, tons/acre 0
 Fuel bed depth, feet 3.0

For other slash situations:

Hardwood slashModel 6
 Heavy “red” slash.....Model 4
 Overgrown slash.....Model 10
 Southern pine clearcut slash.....Model 12

The comparative rates of spread and flame lengths for the slash models at 8 percent dead fuel moisture content and a 5 mi/h (8 km/h) mid-flame wind are presented in Table 3.24.

Table 3.24. Comparative Fire Intensities and Rates of Spread in Slash Fuel Models.

Fuel Model	Rate of Spread	Flame length
	Chains/hour	Feet
11	6.0	3.5
12	13.0	8.0
13	13.5	10.5

3.9 Wildland-Urban Interface

3.9.1 People and Structures

A key component in meeting the underlying need is the protection and treatment of fire hazard in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where forest fuels meet urban fuels (such as houses). These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes and fuels that lead directly to a risk to urban developments. Reducing the fire hazard in the wildland urban interface requires the efforts of federal, state, local agencies, and private individuals (Norton 2002). “The role of [most] federal agencies in the wildland urban interface includes wildland fire fighting, hazard fuels reduction, cooperative prevention and education and technical experience. Structural fire protection [during a wildfire] in the wildland urban interface is [largely] the responsibility of tribal, state, federal, and local governments” (USFS 2001). Property owners share a responsibility to protect their residences and businesses and minimize fire danger by creating defensible areas around them and taking other measures to minimize the fire risks to their structures (USFS 2001). With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities. In addition, a wildland urban interface that is properly thinned will be less likely to sustain a crown fire that enters or originates within it (Norton 2002).

By reducing hazardous fuel loads and creating new and reinforcing defensible space, landowners would protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-intensity fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior (McCoy *et al.* 2001 as cited in Norton 2002);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Four wildland/urban conditions have been identified for use in the wildland urban interface (Norton 2002). These include the Interface Condition, Intermix Condition, Occluded Condition, and Rural Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres;
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size; and
- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

The location of structures in Owyhee County has been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining two sets of remotely sensed images. The more detailed information was garnered from digital ortho-photos at a resolution of 1 meter (from 1998). For those areas not covered by the 1 meter DOQQ images, SPOT satellite imagery at a resolution of 10 meters was used (from 2002). These records were augmented with data collected on hand-held GPS receivers to record the location of structures, especially in areas where new housing developments were seen.

All structures are represented by a “dot” on the map. No differentiation is made between a garage and a home, or a business and a storage building. The density of structures and their specific locations in this management area are critical in defining where the potential exists for casualty loss in the event of a wildfire in the region.

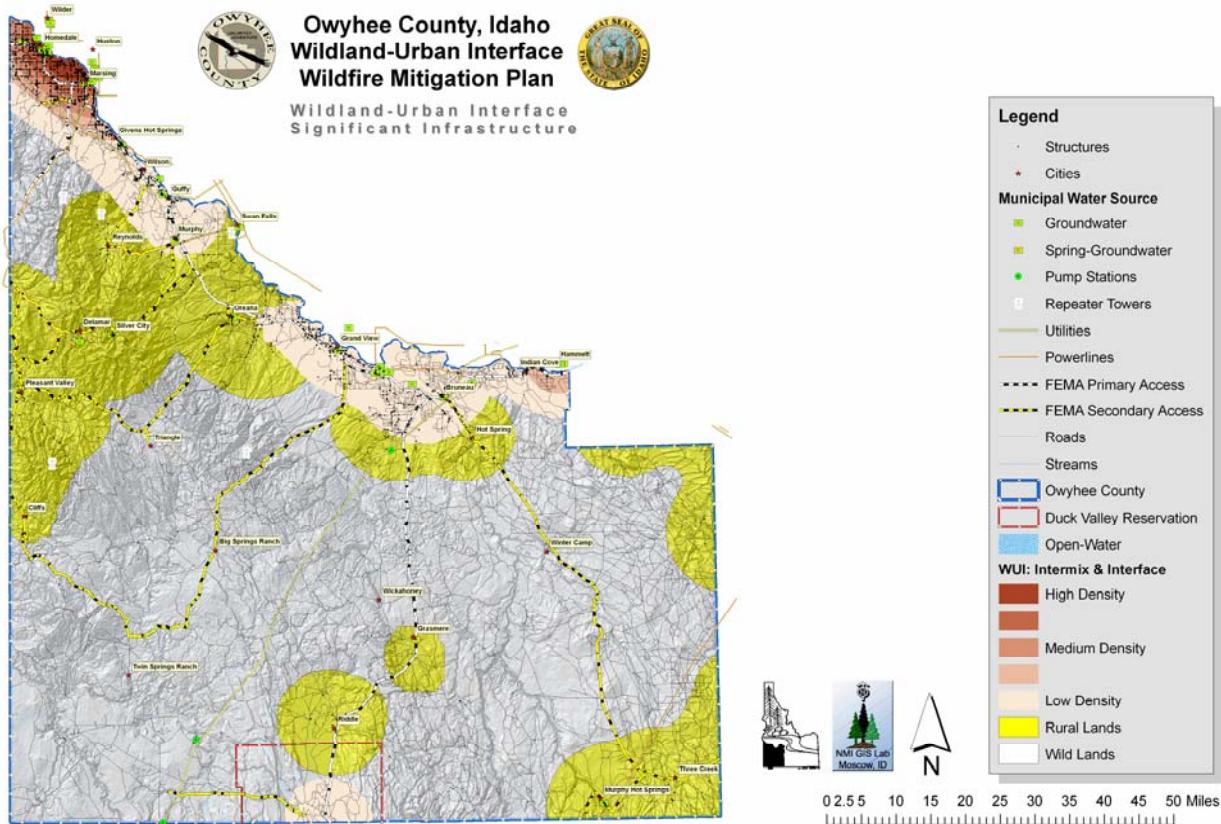
By evaluating this structure density, we can define WUI areas on maps by using mathematical formulae and population density indexes to define the WUI based on where structures are located. The resulting population density indexes create concentric circles showing high density

areas of Interface and Intermix WUI, as well as Rural WUI. This portion of the analysis allows us to “see” where the highest concentrations of structures are located in reference to high risk landscapes, limiting infrastructure, and other points of concern.

It is critical to understand that in the protection of people, structures, infrastructure, and unique ecosystems, this portion of the analysis only serves to identify structures and by some extension the people that inhabit them. It does not define the location of infrastructure and unique ecosystems. Other analysis tools will be used for those items.

The WUI interface areas as defined here are presented in map form in Appendix I.

Figure 3.9. Wildland-Urban Interface of Owyhee County.



This map is presented for reference in this section of the plan. This map and additional maps are detailed in Appendix I.

3.9.2 Infrastructure

Owyhee County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this WUI Fire Mitigation Plan is the existence of highway routes (eg., State Highways 51 and 78 and U.S. 95), and the presence of high tension power lines and pipe lines supplying surrounding counties. These resources will be considered in the protection of infrastructural resources for Owyhee County and to the larger extent of this region, and the rest of Idaho.

High Tension Power Lines have been mapped and are presented in Appendix I. Protection of these lines from loss during a wildfire is paramount in as much as the electrical power they provide serves not only the communities of Owyhee County but of surrounding counties and nearby communities in Oregon. The protection of these lines allows for community

sustainability, support of the economic viability of Owyhee County, and the protection of people who rely on that power. Fuels mitigation under power lines has received considerable attention in forested ecosystems as timber is thinned and heavy accumulations of brush are managed. This practice should be mandated into the future. However, the importance of management of rangeland ecosystems under high tension power lines should not be overlooked. Brush intermixed with grasses and other species, during extreme fire weather events, coupled with steep slopes can produce considerable heat and particulate matter. When this occurs under power lines, the result can be arching between lines and even failure of the electrical media itself. Fuel mitigation treatments in high risk areas, especially where multiple lines are co-located, will be recommended.

3.9.3 Ecosystems

Owyhee County contains many diverse ecosystems with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. A century of wildland fire suppression coupled with past land-use practices (primarily agriculture and livestock grazing) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. In some cases this has resulted in lower fuel loads, grazing/agriculture, and in others an increase in fuel loads, juniper encroachment. As a result of juniper encroachment, rangelands in Owyhee County have become more susceptible to large-scale, high intensity fires posing a threat to life, property, and natural resources including wildlife and special status plant populations. High-intensity fires have the potential to seriously damage soils and native vegetation. In addition, an increase in the number of large high intensity fires throughout the nation's rangelands, has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Juniper invasion of the shrub-steppe and aspen ecosystems in Owyhee County has become a major concern. Fire exclusion in these areas has led to widespread expansion of western juniper, and subsequent loss of shrub-steppe and aspen communities. Active management of the encroaching juniper through prescribed burning and other treatments will increase the shrub and herbaceous plant communities, which will help maintain watershed function and stability, and reduce erosion potential. In addition, re-establishment of the native ecosystem will improve habitat for sagegrouse, pygmy rabbits, elk, mule deer, antelope, migratory birds, small mammals, amphibians, and reptiles by creating and maintaining vegetative mosaics.

The creation of the Reynolds Creek Experimental Watershed by the Reynolds Creek USDA_ARS Unit has allowed researchers to conduct prescribed fire studies in order to learn more about the effects of fire on the ecosystem. Reintroducing low intensity fires to rangeland ecosystems typically helps reduce the occurrence and expansion of invasive species and maintain the healthy growth of native species. If projects on the Reynolds Creek Experimental Watershed show positive results, controlled burning may be reintroduced elsewhere in Owyhee County.

3.10 Soils

Our soil resource is an extremely important component for maintaining a healthy ecosystem and economy. Fire can play an intricate role in this process, if it occurs under normal conditions of light fuels associated with low intensity underburns. However, the buildup of fuels and consequently high severity fires can cause soils to become water repellent (hydrophobic), and thus greatly increases the potential for overland flow during intense rains. Soils in degraded conditions does not function normally, and will not be able to sustain water quality, water yield,

or plant communities that have normal structure, composition, and function. Fire is also strongly correlated with the carbon-nutrient cycles and the hydrologic cycle. Fire frequency, extent, and severity are controlled to a large degree by the availability of carbon, as well as the moisture regime (Quigley & Arbelbide 1997).

Soils were evaluated for their propensity to become hydrophobic during and after a fire as evidenced by the presence of clay and clay derivatives (e.g., clay loam, cobbly clay) in the upper soil layers. In addition, their permeability and tendency to allow runoff to infiltrate the soil rapidly was evaluated.

The Owyhee soils tend to be calcareous and alkaline, well drained and have salt and water problems in the lower valleys. However, some areas adjacent to the Snake River are very sandy with a high level of permeability and without layers of clay or other substrata which would protect the aquifer from agricultural or animal nutrients.

The Snake River soils are generally silty and clayey with somewhat restricted subsoil and substrata permeability formed in stratified sediments on terraces, basins and hilly uplands.

The Owyhee Mountains, Owyhee Range and highland area of the County have soils which are generally silty, formed in materials mired with rocky residuum-colluvium from basic rock types on plateaus, canyons and mountains.

Low to moderate intensity fires would be not be expected to damage soil characteristics in the region, especially if the hotter fires in this range were limited to small extents associated with jackpots of cured fuels. Hot fires providing heat to the Bt horizon substrate depth have the potential to create hydrophobic characteristics in that layer. This can result in increased overland flow during heavy rains, following wildfire events, potentially leading to mass wasting. Rocky and gravelly characteristics in the A horizon layer would be expected to be displaced, while the sandy and loamy fines in these soils may experience an erosion and displacement potential. These soils will experience the greatest potential impacts resulting from hot fires that burn for prolonged periods (especially on steep slopes).

The National Resource Conservation Service (NRCS) has mapped a large portion of Owyhee County in detail. Please refer the Owyhee County NRCS Soil Survey Report to view each soil unit in the County and the associated characteristics relating to the effects of wildland fire.

3.10.1 Fire Mitigation Practices to Maintain Soil Processes

Firelines constructed by hand or with the use of machinery will have varying impacts, depending upon construction techniques. If only the surface litter is removed in the fireline construction, minor increases to soil erosion may occur. If trenches are dug which channelize runoff down steep slopes, heavy rilling or gullying could occur depending upon rock content of surface layers exposed. Jackpot burning and, to a greater extent, pile burning would result in greater soil heating and localized impacts. Loss of soil carbon, nitrogen, sulphur, phosphorus, potassium, and soil organisms would be high in the soil surface layer. Soil physical structure could be altered thereby creating hydrophobic soils, especially where clay content is moderate or high.

Indirect effects of prescribed burning to slope stability are highly variable in the soil types found in Owyhee County. Vegetation structure, including root strength after burning, is maintained from three to fifteen years following low to moderate intensity burns and therefore soil saturation potential is not greatly altered. Re-vegetation of burned areas within this time frame will be a critical component to maintaining soil resources and pre-empting noxious weeds and invasive species from occupying the site. Locale experiencing high intensity burns will need to be evaluated immediately for mechanical erosion control followed by re-vegetation efforts. Holding

soils in place will be a difficult challenge in many locations, especially on moderate to steep slopes.

Where heavy grazing has occurred in the past, there is also a possibility that soil productivity has been reduced. This is especially true in riparian areas where animal concentrations have historically been the greatest. These areas generally have easily compacted soils, and are where cattle tend to linger if not managed well. Grazing across Owyhee County was observed to be maintained in a sustainable manner without the overgrazing found in other areas of the region.

Severe fires in the past have consumed surface organics and volatilized nitrogen into the air. On some sites, however, these severe burns are a natural process, and therefore the inherent soil productivity may not be reduced. On other sites, however, where low intensity underburns typically occurred, high intensity wildland fires have consumed amounts of soil organics in excess of the historic patterns. Furthermore, excessive soil heating in these intense fires likely resulted in creation of water repellent soils, and therefore increased overland flow and soil erosion. In these cases, it can be assumed that wildland fires have reduced long-term soil productivity. Soil compaction damage typically is persistent in the area; several decades of rest from further compactive forces are needed until adequate soil recovery occurs. Loss of organics due to displacement and severe fire also requires decades to recuperate. This slow recovery from soil damage makes cumulative effects to soil productivity and soil hydrologic function a major concern.

To avoid potential impacts, wherever possible firelines should be located outside of highly erosive areas, steep slopes, intermittent streams, and riparian and other sensitive areas. Following prescribed fire or fire suppression activities, firelines should be rehabilitated.

3.11 Hydrology

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive State Water Plan. Included in the State Water Plan are the statewide water policy plan, and component basin and water body plans which cover specific geographic areas of the state (IDEQ 2003). The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho.

The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards (WQS). These uses include:

- **Aquatic Life Support:** cold water biota, seasonal cold water biota, warm water biota, and salmonid spawning;
- **Contact Recreation:** primary (swimming) and secondary (boating);
- **Water Supply:** domestic, agricultural, and industrial; and
- **Wildlife Habitat and Aesthetics.**

While there may be competing beneficial uses in streams, federal law requires DEQ to protect the most sensitive of these beneficial uses (IDEQ 2003).

The geology and soils of this region lead to rapid to moderate moisture infiltration. Slopes are moderate to steep, however, headwater characteristics of the watersheds in the south end of the county lead to a high degree of infiltration as opposed to a propensity for overland flow. Thus sediment delivery efficiency of first and third order streams is fairly low. The bedrock is typically well fractured and moderately soft. This fracturing allows excessive soil moisture to

rapidly infiltrate into the rock and thus surface runoff is rare. Natural mass stability hazards associated with slides are low. Natural sediment yields are low for these watersheds. However, disrupted vegetation patterns from farming along the Snake River (soil compaction) and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels.

A correlation to mass wasting due to the removal of vegetation caused by high intensity wildland fire has been documented. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

The Owyhee County Comprehensive Plan addresses Streams, Rivers, and Wetland pollution issues specifically. The following is an excerpt from that planning process:

“Safeguards should be considered and implemented to protect against soil, silt, stream, river and ground water pollutions. Pollution could be chemical, biological, sediment or any known substance which could be of risk to health or environment.”

Of critical importance to Owyhee County will be the maintenance of the domestic watershed supplies.

3.11.1 Fire Mitigation Practices to Maintain Hydrologic Processes

The effects of wildland fire and prescribed burning on water quality are variable. The removal of the vegetative canopy will tend to reduce transpiration and increase water yield, especially during the growing season and immediately afterwards (MacDonald *et al.* 1991). Prescribed burning is used to maintain a healthy, dynamic ecosystem while meeting land management objectives. Prescribed burning objectives include reduction of natural fuels, assuring current and future habitat conditions for native plants and animals and enhancement, protection, and maintenance of old growth and riparian areas. In rangeland ecosystems, prescribed fire will have variable impacts dependant on burn intensity and proximity to streams. Stream buffering (low intensity to no burn around streams) has been shown to preserve most if not all normal sediment filtering functions.

In Owyhee County, juniper invasion of the shrub-steppe and aspen ecosystems has become a major concern. Fire exclusion in these areas has led to wide spread expansion of western juniper, and subsequent loss of shrub-steppe and aspen communities. Active management of the encroaching juniper through prescribed burning will increase the shrub and diverse herbaceous plant communities, which will help maintain watershed function and stability, and reduce accelerated erosion. Prescribed burning will also help reduce the severe fire potential by reducing hazardous fuel loads and returning the landscape to a more natural state.

A large, high intensity fire could have negative effects on watershed conditions, thus affecting both fish and habitat in streams. Prescribed burning is not designed to consume all vegetation within project areas. Each treatment will leave a mosaic of burned and unburned areas. Once the target fuels and the risk of fire carrying from one tributary to another have been reduced, hand ignition may be considered on a site-specific basis.

The effects on sediment yield vary according to the intensity of fire; degree of soil disturbance; steepness of the slope and drainage network; the size of the area burned; and the extent to which the vegetation controls the movement and storage of sediment. Fire also increases surface erosion and sediment delivery rates by removing the litter layer and organic debris that traps sediment both on slopes and in the stream channel (MacDonald *et al.* 1991). The

magnitude of these effects will depend on the geomorphic sensitivity of the landscape, which is largely a function of slope steepness and parent material (Swanson 1978).

Fire can greatly increase surface erosion by temporarily creating a hydrophobic soil layer. Soils within the project area are generally at moderate risk for hydrophobic conditions due to their fine-grained textures and clay content. In addition, the relatively low burn intensity of the prescribed fires will also help prevent the formation of hydrophobic soils.

The effects of wildland fire or prescribed fire are generally considered in terms of potential short-term, negative effects and long-term benefits of fuels reduction, which will result in a decreased risk of high intensity, stand-replacing fire. Potential short-term effects to streams and fish include increased risk of landslides, mass movement and debris torrents, increases in surface sediment erosion, possible reduction in streamside vegetation resulting in changes within management areas, and possible increases in water yield depending on the amount and severity of the vegetation burned. Long-term effects include increases in nutrient delivery, possible increases in woody debris in streams, and possible increases in stream temperature if shading is significantly reduced. The design criteria described above minimizes the risk that landslides, mass movement, significant increases in surface sediment yield, and significant changes in water yield will occur.

Reduction of vegetation will mostly be limited to creeping ground fires, which will reduce understory vegetation, but will not affect mature trees or result in significant mortality to the overstory. Spring burning often results in minimal riparian vegetation burned because streamside areas have higher humidity and live plant moisture. Fall burning will more likely result in understory vegetation removal, with a possibility of some tree and large shrub mortality, especially outside of riparian zones where live plant moisture is less.

Riparian buffer strips will be maintained, thereby preserving canopy cover for shading, sediment filtering, and streambank and floodplain stability (PACFISH guidelines). Areas not burned will provide significant protection from adverse water quality impacts associated with wildland fire and prescribed burning. Therefore, effects to fish and habitat in these streams from increased water yield are unlikely. The area has been roaded from past management activities. Therefore, increased road densities from road construction are not expected to be of a magnitude to increase sedimentation to affected drainages, provided adequate planning for new road construction is implemented. Forest practices in the area will be conducted to meet the standards of the Idaho Forest Practices Act. These rules are designed to use best management practices that are adapted to and take account of the specific factors influencing water quality, water quality objectives, on-site conditions, and other factors applicable to the site where a forest practice occurs.

3.12 Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA Forest Service 2000).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in the Southwest Idaho are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. In Owyhee County, winds are predominantly from the southwest but occasionally blow from the west to northwest. Air quality in the area and surrounding airshed is generally good to excellent. However, locally adverse conditions can result from occasional wildland fires in the

summer and fall, and prescribed fire and agricultural burning in the spring and fall. All major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months and would potentially affect all communities in Owyhee County.

Smoke management in Owyhee County is managed by the Idaho/Montana Airshed Group. Much of the county is in Airshed Units 22 and 23. The Boise Impact Zone lies directly north of Owyhee County near the Oregon border (Levinson 2002). An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USDA Forest Service, Bureau of Land Management, and the Idaho Department of Lands are all members of the Montana/Idaho State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. Prescribed burning must be coordinated through the Missoula Monitoring Unit, which coordinates burn information, provides smoke forecasting, and establishes air quality restrictions for the Montana/Idaho Airshed Group. The Monitoring Unit issues daily decisions which may restrict burning when atmospheric conditions are not conducive to good smoke dispersion. Burning restrictions are issued for airsheds, impact zones, and specific projects. The monitoring unit is active March through November. Each Airshed Group member is also responsible for smoke management all year.

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The act established a process for designation of Class I and Class II areas for air quality management. Class I areas receive the highest level of protection and numerical thresholds for pollutants are most restrictive for this Class. The Hell's Canyon, Sawtooth, and Craters of the Moon Class I areas may be affected by burning in Owyhee County.

All of the communities within Owyhee County could be affected by smoke or regional haze from burning activities in the region. Idaho Department of Environmental Quality maintains Air Pollution Monitoring Sites throughout Idaho. The Air Pollution Monitoring program monitors all of the six criteria pollutants. Measurements are taken to assess areas where there may be a problem, and to monitor areas that already have problems. The goal of this program is to control areas where problems exist and to try to keep other areas from becoming problem air pollution areas (Louks 2001). There are no monitoring sites within the county. The nearest monitoring sites are in the Canyon and Ada counties to the north.

The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, OAQPS (Organization for Air Quality Protection Standards) is responsible for setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources (Louks 2001).

3.12.1 Fire Mitigation Practices to Maintain Air Quality

Smoke consists of dispersed airborne solids and liquid particles, called particulates, which can remain suspended in the atmosphere for a few days to several months. Particulates can reduce visibility and contribute to respiratory problems. Very small particulates can travel great distances and add to regional haze problems. Regional haze can sometimes result from multiple burn days and/or multiple owners burning within an airshed over too short a period of time to allow for dispersion.

For prescribed fires, there are three principle strategies to manage smoke and reduce air quality effects. They include:

1. **Avoidance** - This strategy relies on monitoring meteorological conditions when scheduling prescribed fires to prevent smoke from drifting into sensitive receptors, or suspending burning until favorable weather (wind) conditions exist. Sensitive receptors can be human-related (e.g. campgrounds, schools, churches, and retirement homes) or wildlife-related (threatened and endangered species and their critical habitats);
2. **Dilution** – This strategy ensures proper smoke dispersion in smoke sensitive areas by controlling the rate of smoke emissions or scheduling prescribed fires when weather systems are unstable, not under conditions when a stable high-pressure area is forming with an associated subsidence inversion. An inversion would trap smoke near the ground; and
3. **Emission Reduction** – This strategy utilizes techniques to minimize the smoke output per unit area treated. Smoke emission is affected by the number of acres burned at one time, pre-burn fuel loadings, fuel consumption, and the emission factor. Reducing the number of acres burned at one time would reduce the amount of emissions generated by that burn. Reducing the fuel beforehand reduces the amount of fuel available. Prescribed burning when fuel moistures are high can reduce fuel consumption. Emission factors can be reduced by pile burning or by using certain firing techniques such as mass ignition.

If weather conditions changed unexpectedly during a prescribed burn, and there was a potential for violating air quality standards or for adverse smoke impacts on sensitive receptors (schools, churches, hospitals, retirement homes, campgrounds, wilderness areas, and species of threatened or endangered wildlife), the management organization may implement a contingency plan, including the option for immediate suppression. Considering 1) the proposed action would result in prescribed fire on a relatively small number of acres, 2) burning as part of this mitigation plan's implementation in the County will most likely occur over a 5-year or 10-year period at a minimum, and 3) the County will adhere to Montana/Idaho Airshed Group advisories and management strategies to minimize smoke emissions, prescribed fire activities would not violate national or state emission standards and would cause very minor and temporary air quality impacts. The greatest threat to air quality would be smoke impacts on sensitive receptors; however, the relative scarcity of sensitive receptors within the County minimizes this potential air quality impact.

In studies conducted through the Interior Columbia Basin Management Project, smoke emissions were simulated across the Basin to assess relative differences among historical, current, and future management scenarios. In assessing the whole Upper Columbia Basin, there was a 43 percent reduction in smoke emissions between the historical and current periods (Quigley and Arbelbide 1997). The projected smoke emissions varied substantially with the vastly different management scenarios. The consumptive demand and passive management scenarios were projected to substantially increase smoke emissions above current levels. The active management scenarios were projected to result in a decrease of current levels.

Although prescribed fire smoke would occur more frequently than wildland fire smoke, since prescribed fires are scheduled during the year, the effects of wildland fire smoke on visibility are more acute. Prescribed fires produce less smoke than wildland fires for comparatively shorter periods, because they are conducted under weather conditions that provide for better smoke dispersion. In a study conducted by Holsapple and Snell (1996), wildland fire and prescribed fire scenarios for the Columbia Basin were modeled. In conclusion, the prescribed fire scenarios did not exceed the EPA particulate matter (PM 10) standard in a 24-hour period. Similar projections

were observed for a PM 2.5 threshold. Conversely, all wildland fire scenarios exceeded air quality standards. Similar responses were reported by Huff *et al.* (1995) and Ottmar *et al.* (1996) when they compared the effects of wildland fire to prescribed fire on air quality. The impacts of wildland fire and management ignited prescribed fire on air quality vary because of the differences in distribution of acres burned, the amount of fuel consumed per acre (due to fuel moisture differences), and the weather conditions in which typical spring and fall prescribed burns occur. This analysis reveals wildland fire impacts on air quality may be significantly greater in magnitude than emissions from prescribed burns. This may be attributable, in part, to the fact that several states within the project area have smoke management plans requiring favorable weather conditions for smoke dispersion prior to igniting wildland fires (Quigley and Arbelbide 1997).

Chapter 4: Summaries of Risk and Preparedness

4 Overview

4.1 Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment, the fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to determine how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

4.1.1 Weather

Weather conditions are ultimately responsible for determining fire behavior. Moisture, temperature, and relative humidity determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant affect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

4.1.2 Topography

Fires burning in similar fuel conditions burn dramatically different under different topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. The combination of light fuels and dry sites lead to fires that typically display the highest rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Slope also plays a significant roll in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

4.1.3 Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and homesites (the structures) are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content and continuity and arrangement all have an affect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potentially development of crown fire. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, the some of the principles that govern fire behavior have been identified and are recognized.

4.2 Owyhee County Conditions

Owyhee County is characterized by relatively mild winters and hot, dry summers. Although infrequent, fires in the rangeland fuel types present much of the County with the potential of large, intense and damaging fires. Forest type fuels in the Owyhee Mountains also present a significant wildland fire hazard; however, there are fewer structures or permanent residents in these remote mountainous areas.

Owyhee County has been experiencing steady growth, particularly around the communities in the northwestern corner of the county (Owyhee County Comprehensive Plan 2002). At the same time, the number and value of resources at risk is on the increase, as more and more homes are built in the midst of fire prone fuels. Human use is strongly correlated with fire frequency, with increasing numbers of fires as use increases. The combination of frequent ignitions and flammable vegetation has greatly increased the probability that incendiary devices will find a receptive fuel bed, resulting in increased fire frequency. Discarded cigarettes, tire fires, hot catalytic converters, careless use of fireworks, and debris burning have all contributed to the potential ignition sources in the area.

Fire departments within Owyhee County have reported a general increase in the number of fires within the county. Although there have been few homes lost to wildland fires in the recent past, the potential is growing. Fire departments feel as though pure luck has been on the side of many homeowners, as more and more fires seem to be controlled at the doorstep of residents' homes. It is quite probable that homes will eventually be lost to wildland fire. However, there are

a number of actions that can be taken now that can decrease the probability that these events will occur.

4.2.1 County Wide Potential Mitigation Activities

There are four basic opportunities for reducing the loss of homes and lives to fires. There are many single actions that can be taken, but in general they can be lumped into one of the following categories:

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

4.2.1.1 Prevention

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It’s impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Slightly more active prevention techniques may involve mass media, such as radio or the local newspaper. Fire districts in other counties have contributed the reduction in human-caused ignitions by running a weekly “run blotter,” similar to a police blotter, each week in the paper. The blotter briefly describes the runs of the week and is followed by a weekly “tip of the week” to reduce the threat from wildland and structure fires. The federal government has been a champion of prevention, and could provide ideas for such tips. When fire conditions become high, brief public service messages could warn of the hazards of misuse of fire or any other incendiary device. Such a campaign would require coordination and cooperation with local media outlets. However, the effort is likely to be worth the efforts, costs and risks associated with fighting unwanted fires.

Fire Reporting: Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Idaho may provide an effective means for turning the passing motorist into a detection resource.

Burn Permits: The state of Idaho recognizes a closed burning season between May 10 and October 20, during which, anyone wishing to burn slash, stubble, yard waste, or other debris must obtain a burn permit. Idaho Code 38-115 states: *“During the closed season it shall be unlawful for any person to set or cause to be set a fire in any slashing area, or a fire to any stump or stumps, log or logs, down or standing timber or to set or cause to be set, a fire on any forest or range lands (bold emphasis added by me) or dangerously near thereto, or in any field in any forest protective district, without having first procured a permit from the fire warden of the district...”*

The Fire Warden for the Southwest Idaho Supervisory Area, Southwest Idaho Forest Protective District can be reached at: Idaho Department of Lands, 8355 West State Street, Boise, ID 83703, phone: 208 334-3488.

The burning permit specified in Idaho Code 38-115 and the Uniform Fire Code shall be used to protect public health, safety, and welfare. The permit shall be subject to the following conditions:

- a. Permits issued for open fires shall be required from May 10 to October 20, inclusive, of each year and be limited to that period of time needed to accomplish the permitted burning; provided, however, in no event shall such permit be issued to cover a period of more than ten (10) days.
- b. This permit does not relieve permittee from responsibility of fire damage and suppression costs as a result of fire escaping from prepared permit area.”

(From Idaho Code 38-115) “It shall be the duty of the director of the department of lands to prepare the proper form of permit to be used in carrying out the provisions of the section. The fire wardens shall at all times have authority to refuse permits and/or to revoke the same and to postpone their use when issued, when they shall deem it necessary to do in the interest of public safety...”

4.2.1.2 Education

Once a fire has started and is moving toward home or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event.

The majority of the uncultivated vegetation in Owyhee County is comprised of rangelands. These fuels tend to be very flammable and can support very fast moving and intense fires. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE that detail precautions that should be taken in order to reduce the threat to homes, such as clearing timber or cured grass and weeds away from structures and establishing a green zone around the home.

However, knowledge is no good unless acted upon. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home. The survey of the public conducted during the preparation of this WUI Fire Mitigation Plan indicated that approximately 59% of the respondents are interested in participating in this type of an activity.

4.2.1.3 Readiness

Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

In order to assure a quick and efficient response to an event, emergency responders need to know specifically where emergency services are needed. Continued improvement and updating of the rural addressing system is necessary to maximize the effectiveness of a response.

4.2.1.4 Building Codes

The most effective, albeit contentious, solution to some fire problems is the adoption of building codes in order to assure emergency vehicle access and home construction that does not “invite” a fast and intense house fire. Codes that establish minimum road construction standards and access standards for emergency vehicles are an effective means of assuring public and firefighter safety, as well as increasing the potential for home survivability. Some of these issues have already been addressed in the Owyhee County Comprehensive Plan (2002) and Owyhee County Code (2003). Additional codes or changes to the code are periodically considered by the County.

4.3 Owyhee County’s Wildland-Urban Interface

Individual community assessments have been completed for all of the populated places in the county. The following summaries include these descriptions and observations. Local place names identified during this plan’s development include:

Table 4.1. Owyhee County Communities

Community Name	Planning Description	Vegetative Community	National Register Community At Risk? ¹
Bruneau	Community	Rangeland	Yes
Cliffs	Community	Rangeland	No
Givens Hot Springs	Community	Rangeland	Yes
Grand View	Community	Rangeland	Yes
Grasmere	Community	Rangeland	Yes
Guffy	Community	Rangeland	No
Homedale	Community	Rangeland	Yes
Hot Springs	Community	Rangeland	No
Indian Cove	Community	Rangeland	No
Marsing	Community	Rangeland	Yes
Murphy	Community	Rangeland	Yes
Murphy Hot Springs	Community	Rangeland	No
Oreana	Community	Rangeland	Yes
Pleasant Valley	Community	Rangeland	No
Reynolds	Community	Rangeland	Yes
Riddle	Community	Rangeland	Yes
Silver City	Community	Forestland	Yes
Three Creek	Community	Rangeland	Yes
Triangle	Community	Forestland	Yes
Wilson	Community	Rangeland	No

¹Those communities with a “Yes” in the National Register Community at Risk column are included in the Federal Register, Vol. 66, Number 160, Friday, August 17, 2001, as “Urban Wildland Interface Communities within the vicinity of Federal Lands that are at high risk from wildfires”. All of these communities have been evaluated as part of this plan’s assessment.

Site evaluations on these communities are included in subsequent sections. The results of FEMA Hazard Severity Forms for each community are presented in Appendix II.

4.3.1 Mitigation Activities Applicable to all Communities

4.3.1.1 Homesite Evaluations and Creation of Defensible Space

Individual homesite evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Maintaining a lean, clean, green zone within at least 100 feet of structures to reduce the potential loss of life and property is highly recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these environments.

4.3.1.2 Travel Corridor Fire Breaks

Ignition points are likely to continue to be concentrated along the roads and highways that run through the county. These travel routes have historically served as the primary source of human-caused ignitions. In areas with high concentrations of resource values along these corridors, fire lines may be considered in order to provide a fire break in the event of a roadside ignition. Access route mitigation can provide an adequate control line under normal fire conditions. Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the main travel roads to spread into the surrounding lands.

4.3.1.3 Power Line Corridor Fire Breaks

The treatment opportunities specified for travel corridor fire breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element. Protection under the high tension power lines is strongly recommended. This may be an opportunity for intensive livestock grazing practices as a tool for reducing fine fuels around significant infrastructure.

4.4 Communities in Owyhee County

4.4.1 Vegetative Associations

The vast majority of land within the valley bottoms has been converted to irrigated cropland, with few patches of native vegetation remaining. One notable exception is the C.J. Strike Wildlife Management Area, near Bruneau. This area is managed to sustain a native vegetative ecosystem for the preservation of wildlife.

Agricultural practices have created a patchwork of green, lush vegetation and cured rangeland. This patchwork helps to break the continuity of fuels that are available to burn. Damaging fires in agricultural lands are infrequent; however, these fuel types could potentially support a very fast-moving albeit, low intensity, fire. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

In contrast, the Owyhee Mountains in the western portion of the county are characterized by scattered juniper woodlands with patches of Douglas-fir and quaking aspen. These fuels are capable of supporting large and intense wildland fires. The xeric vegetation and hot, dry and windy conditions as well as steeper slopes increase the potential for severe fires.

The last few decades has seen the proliferation of Cheatgrass throughout the county, an exotic grass species that is able to out compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas,

and in recently burned areas. Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

4.4.2 Overall Fuels Assessment

Fuels throughout the upland areas of Owyhee County are quite consistent, dominated by grasslands and sage. Areas dominated by grass with scattered sage can be described as Fuel Models 1 and 2 (FM1 and FM2). Fires in these fuel types tend to be spread rapidly, but burn at relatively low intensity. Where grasses become less consistent, wind is needed to push fires through the bunchgrass. Sage-dominated fuel complexes can be described as FM6. Typically, fires in this fuel type require a moderate wind in order to push the fire through the fuels. Without wind, the fire will drop to the ground. In the absence of fine fuels, fire spread will stop. However, wind driven fires in any of these fuel types can burn significant acreage in a short period of time. During an August day with 20 mile an hour winds, fires in these fuel types can burn over 3,000 acres in a single hour, with flame lengths of over 20 feet.

Fires in juniper/Douglas-fir forest habitat types generally occur very infrequently, but are typically stand replacing. Low branches can act as ladder fuels, which may lead to extensive torching or crown fires. Slow buildup of fuels in the understory is common due to extremely slow rates of decomposition in the arid environment. Due to the patchiness of this fuel type, wildland fire in one stand would not likely result in destruction of the entire forest community. However, they could act as a catalyst for fire spread. Quaking aspen communities are less prone to fire because of their preference for cool, moist draws. Fires in these stands would be very slow burning under normal weather conditions. Nevertheless, aspen communities are dependent on periodic low intensity fires to invigorate new stands.

Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common. Cheatgrass invasion has been prolific throughout many areas within the Great Basin. Cheatgrass is an exotic grass species that is able to out compete native bunchgrasses. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period. The fine structure and its ability to completely dominate disturbed sites provide a dry, consistent fuel bed for fire. Where the exotic has encroached in sagebrush stands, it now provides a consistent bed of fine fuels that actively carries fire without the effect wind. Because of these characteristics, cheatgrass will support fire during times of the year and under conditions which native vegetation would not sustain a wildland fire. After fire disturbance, native species are often replaced by monocultures of cheatgrass. Because of the grasses ability to dominate disturbed sites and its propensity to burn, cheatgrass has the ability to remain dominant once a site is disturbed.

4.4.2.1 Ignition Sources

Natural ignition sources from summertime lightning storms are quite common in Owyhee County. Lightning strikes in light grass fuels such as those in the eastern and southern portions of the county are quickly extinguished if any precipitation accompanies the storm. Natural ignitions are more common in areas with abundant sage, where woody fuels are able to sustain fire during precipitation events, emerging when surface fuels dry. However during dry lightning events, storm cells can ignite dozens of fires throughout wildland areas.

Human caused fires contribute to the probability of fires in this area. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded

cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area. Power line fires resulting from tree contact can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuels type and fuel moisture as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires in any fuel type.

4.4.3 Overall Community Assessments

The majority of homes and structures within Owyhee County are at low risk of loss to wildland fire. The prevalence of irrigated cropland throughout the Snake River and Bruneau River valleys bottom effectively reduce the potential for loss to wildland fire in the majority of areas.

Homes within the light grass and sage fuels are at an increased risk to wildland fire, as fire typically spreads very rapidly, leaving little time to prepare a home in advance of a fire. There are a number of individual homes that are at significant risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Considering the high spread rates typical in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of a grass and range fire.

Homes and other structures surrounded by the forest type fuels in the Owyhee Mountains, have a moderate to high fire risk. Fires in these fuels tend to be much more intense with higher flame lengths increasing the potential for torching or crowning. Home and landowners in these areas should take considerable precautions to protect their property from wildfire. Using fire-resistant building materials and maintaining a defensible space will drastically increase survivability. Access into these more remote areas is also an issue. The lack of a safe alternate escape routes increases the potential for entrapment.

The greatest resources threatened in Owyhee County are the range resources on the private and public lands in the upland areas of the county. Owyhee County supports a significant ranching economy that is dependant on grazing of these arid lands. Large fires can significantly impact grazing resources; thus, having a significant detrimental effect on the local cattle industry.

4.4.3.1 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving a passing fire front is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes survivability can be greatly enhanced by following a few simple guidelines that reduce the ignitability of the home.

“Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Owyhee County should be encouraged to work with local fire departments and fire management

agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

4.4.4 Individual Community Assessments

4.4.4.1 Bruneau and Hot Springs Area

The community of Bruneau is situated between the Bruneau Sand Dunes and the southeastern end of the C. J. Strike Reservoir approximately 4 miles south of the Snake River and Owyhee-Elmore County line. The community center and many Bruneau residents are located in the more fertile flatlands known as the Bruneau Valley. This watershed drains the Bruneau River along with a multitude of smaller tributaries and springs. Near the southern end of the Bruneau Valley is the small population center of Hot Springs. Residents of Hot Springs are primarily farmers and ranchers from the surrounding area. The Bruneau Valley and much of the area on the southeastern end of the C.J. Strike Reservoir has been developed for irrigated pastureland or crops. Extensive irrigation systems have been developed to provide irrigation to the valley and upland areas around Bruneau. These systems are dependent upon a steady electrical power source that is brought to the pumps via overhead power lines. The vegetation along the rim of the valley and beyond consists of sagebrush and other vegetation typical of the xeric climatic conditions.

The southeastern extent of the Bruneau River arm of the C. J. Strike Reservoir lies within 2 miles of Bruneau. The landscape surrounding the Reservoir is highly valued for its excellent fishing, boating, camping, hunting, and other recreational opportunities. Much of the area surrounding the Reservoir is administered by the Bureau of Land Management, Idaho Fish and Game, or Idaho Power.

4.4.4.1.1 Fire Potential

Fuels Assessment

Fuels surrounding Bruneau, the Bruneau Valley, and Hot Springs are primarily dominated by grass and sagebrush plant communities. Agriculture and ranching activities are dominant within the Bruneau Valley resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. In areas dominated by mature sage stands, larger flame lengths and increased intensities would be expected. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing on BLM public lands surrounding the communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the fine, flashy fuel component of sagebrush-steppe ecosystem.

Ignition Profile

Although lightning events are common in Owyhee County, the communities of Bruneau and Hot Springs are more prone to man-caused ignitions than lightning strikes due to the flatter topography and agricultural development. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Stubble fires seldom escape landowner's boundaries; however, there are a few incidents throughout the County each year. These fires are generally easily suppressed by modifying the vegetation and homes are rarely threatened. Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Grain trucks, ATV's, and pick ups are used regularly for recreational purposes and farming operations. Campfires are typically restricted in recreational areas during high fire risk seasons; however, the potential for escape is significant due to the xeric climate and flammability of fuels. High tension power lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.1.2 Ingress-Egress

The primary access into Bruneau is via either State Highway 51 from the north and south or State Highway 78 from the northeast. Both roadways are well-maintained, paved, two lane highways. Hot Springs can be accessed from the north via either Hot Springs Road or Hot Creek Road. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural fields. There are also large areas void of any vegetation where sand and rock abut the roadway. These access routes are not at significant risk of closure due to wildland fire.

Other potential escape routes, including Clover-Three Creek Road, Grasmere Road and the Oregon Trail Road, are located in areas that have low to moderate risk of being threatened by wildfire due to the lack of heavy fuels.

4.4.4.1.3 Infrastructure

Residents of Bruneau and Hot Springs are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

High tension power lines pass within one mile of the Bruneau community center. These and the other public transmission lines strung to homes throughout the Bruneau Valley and Hot Springs area are at low to moderate risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is some potential for ignition.

4.4.4.1.4 Fire Protection

The Bruneau Rural Fire Department provides structural fire protection for the communities of Bruneau and Hot Springs. They also have a mutual aid agreement with the community of Grand View. Additionally, the Bureau of Land Management and the Idaho Fish and Game provide wildland fire protection. Developed access to drafting or dipping sites along the Bruneau River or at the C. J. Strike Reservoir significantly increase the ability of emergency response to effectively control a wildland fire.

4.4.4.1.5 Community Risk Assessment

Residents of Bruneau and Hot Springs have low to moderate risk of experiencing a wildland fire due to the communities' location in a valley bottom and their nearby access to water resources. However, intense recreational activities throughout the area increase the risk of a man-caused

wildfire spreading to the communities. The receptive nature of fuels increases the likelihood of a fire start. In the event of wildfire, the dry fuels would likely support a very fast-moving rangeland fire. Therefore, it is important that homeowners implement fire mitigation measures to protect their structures and families prior to such an event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds. Community defensible space is also maintained by livestock grazing. A planned, integrated grazing system around the community could help enhance the fire reduction benefits derived from grazing.

4.4.4.1.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

For the community as a whole, a reduction in fuel loads and development of fuel breaks and access to water for firefighting would enhance the survivability of the community.

4.4.4.2 Givens Hot Springs

The community of Givens Hot Springs lies on the southern bank of the Snake River between Wilson and Marsing along State Highway 78. Much of this area is relatively flat; however, the foothills of the Owyhee Mountains begin to rise along the southwestern edge of the community. The flatlands between the Owyhees and the Snake River have been heavily developed as irrigated farms and ranches. Native vegetation including sagebrush and sparse grasses dominate the lower slopes of the Owyhee Mountains and non-irrigated areas. The economy in Givens Hot Springs is based primarily on agriculture interspersed with commercial uses and cottage industry.

4.4.4.2.1 Fire Potential

Fuels Assessment

The fuels surrounding the community of Givens Hot Springs are dominated by irrigated crops or pastureland. Native fuels are typically sparse grasses and scattered sagebrush, but this type of vegetation is limited to non-irrigated or undeveloped areas and the open rangelands of the lower Owyhee Mountains. More densely vegetated areas near the Snake River or along other waterways may burn more intensely than rangeland fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk

agricultural land. Grazing on BLM public lands south of the community helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the community of Givens Hot Springs is more prone to man-caused ignitions than lightning strikes due to the gentle topography and irrigated vegetation. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.2.2 Ingress-Egress

The primary access into Givens Hot Springs is State Highway 78. This is a paved, well-maintained, two-lane route. This travel corridor is typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural crops. There are also a few areas void of any vegetation where sand and rock abut the roadway. State Highway 78 near Givens Hot Springs is not at significant risk of closure due to wildland fire.

Most of the secondary roads in the Givens Hot Springs area are privately owned and typically dead end; therefore, there is a limited access to alternate escape routes. Loop roads off Highway 78 or other thru roads should be signed as potential escape routes.

4.4.4.2.3 Infrastructure

Residents of Givens Hot Springs are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.2.4 Fire Protection

The Murphy/Reynolds/Wilson Fire District provides structural fire protection for the community of Givens Hot Springs; however, there is no fire fighting equipment currently located in Givens Hot Springs. The Bureau of Land Management provides wildland fire protection. The availability of drafting or dipping sites along the Snake River or other waterways would be crucial in the event of a fire.

4.4.4.2.5 Community Risk Assessment

Residents of Givens Hot Springs are at low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational and agricultural activities throughout the area, particularly in the nearby Owyhee

Mountains, increase the risk of a man-caused wildfire spreading to the community. Additionally, the lack of readily available alternate escape routes increases the risk to residents in the event of a wildland fire. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.2.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Land has been purchased for the development of a fire house in Givens Hot Springs. In order for the local fire district to save money and become more efficient, a joint ownership of the facility with the Bureau of Land Management is being discussed. Currently, BLM fire resources must travel from Boise to fight incidents occurring in western Owyhee County including the Silver City area. Having both the local structural and wildland fire equipment and resources housed at the same facility saves both entities money and increases the effectiveness of the response.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. It is also important for alternative escape routes to be well signed and maintained for emergency use in the event that Highway 78 becomes compromised.

4.4.4.3 Grand View

The community of Grand View lies on the southern bank of the Snake River near the junction of the State Highway 67 (from Mountain Home) and State Highway 78. This area is characterized by sparse xeric climate vegetation including sagebrush and low growing grasses. Additionally, there is an abundance of both native and non-native trees and shrubs along the riverbank and scattered throughout the community. Soils in this area have a high sand content, which limits water retention and therefore the establishment of larger vegetation or abundant grass. Much of the area has been converted to pasture or agricultural crops as a result of the extensive development of irrigation canals.

4.4.4.3.1 Fire Potential

Fuels Assessment

The fuels surrounding the community of Grand View are typically sparse grasses and scattered sagebrush broken by irrigated pasture or cropland. Due to the sandy soils and discontinuous fuel bed, wind would likely be needed to spread fire throughout the area. More densely vegetated areas near the Snake River or along other waterways may burn more intensely. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk agricultural land. Grazing on BLM public lands surrounding the community helps decrease build up of fine fuel loads and therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the community of Grand View is more prone to man-caused ignitions than lightning strikes due to the gentle topography and irrigated vegetation. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.3.2 Ingress-Egress

The primary access into Grand View is via State Highway 78. This is a paved, well-maintained two-lane route. State Highway 67 from Mountain Home offers an alternative paved escape route. The bridge spanning the Snake River between Grand View and the Chattin Hills area is at low fire risk due to the urban development and lack of wildland fuels. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses. There are also large areas void of any vegetation where sand and rock abut the roadway. These access routes are not at significant risk of closure due to wildland fire.

Other potential escape routes, including River Road and Mud Flat Road, are located in areas that have low to moderate risk of being threatened by wildfire due to the lack of heavy fuels.

4.4.4.3.3 Infrastructure

Residents of Grand View are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.3.4 Fire Protection

The Grand View City Fire Department provides structural fire protection for the community of Grand View. The Grand View Rural Fire Department provides structural fire protection for the greater Grand View area and residents of the Chattin Hills area in Elmore County. The rural department also has mutual aid agreements with the communities of Bruneau and Mountain Home. Additionally, the Bureau of Land Management provides wildland fire protection. The availability of drafting or dipping sites along the Snake River or in other waterways would be crucial in the event of a fire.

4.4.4.3.5 Community Risk Assessment

Residents of Grand View have low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational activities throughout the area increase the risk of a man-caused wildfire spreading to the community. The Grand View area also experiences frequent winds, which generally increase the rate of fire spread and intensity of rangeland fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.3.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.4.4.4 Homedale

The community of Homedale lies on the southern bank of the Snake River at the junction of U.S. Highway 95 and State Highway 19. This area is relatively flat and well irrigated by resources drawn from the Snake River and the Owyhee River. A few rolling hills and gullies are created by the numerous streams and canals crisscrossing the landscape. Native vegetation including sagebrush and sparse grasses can be found in non-irrigated pastures, on untillable hillsides, empty lots, and along roadways. The economy in Homedale is based on agriculture.

4.4.4.4.1 Fire Potential

Fuels Assessment

The fuels surrounding the community of Homedale are dominated by irrigated crops or pastureland. Native fuels are typically sparse grasses and scattered sagebrush, but this type of vegetation is limited to non-irrigated areas and distant rangelands. More densely vegetated areas near the Snake River or along other waterways may burn more intensely than rangeland fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk agricultural land. Grazing on BLM public lands south of the community helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the community of Homedale is more prone to man-caused ignitions than lightning strikes due to the gentle topography and irrigated vegetation. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.4.2 Ingress-Egress

The primary access into Homedale is either State Highway 19 from the west or U.S. Highway 95 from the north or south. These are both paved, well-maintained, two-lane routes. The bridge spanning the Snake River at Homedale is at very little risk of becoming impassable due to a fire on either side of the river due to the agricultural and urban development. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural crops. There are also a few areas void of any vegetation where sand and rock abut the roadway. These access routes are not at significant risk of closure due to wildland fire.

Other potential escape routes, including Homedale Road and Johnstone Road, are also located in areas that have low to moderate risk of being threatened by wildfire due to the lack of heavy fuels.

4.4.4.4.3 Infrastructure

Residents of Homedale are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources would not likely be seriously affected by a rangeland fire.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.4.4 Fire Protection

The Homedale City Fire Department provides structural fire protection for residents within the Homedale city limits. The Homedale Rural Fire District provides structural fire protection for the greater Homedale area. The rural department also has mutual aid agreements with the communities of Caldwell, Wilder, and Marsing. Additionally, the Bureau of Land Management provides wildland fire protection. The availability of drafting or dipping sites along the Snake River or other waterways would be crucial in the event of a fire.

4.4.4.4.5 Community Risk Assessment

Residents of Homedale have a low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational and agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the community. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.4.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.4.4.5 Indian Cove

The small community of Indian Cove lies on the southern bank of the Snake River east of Bruneau along State Highway 78. This area is relatively flat and well irrigated by resources drawn from the Snake River. A few rolling hills and gullies are created by Browns Creek and the numerous other streams crisscrossing the landscape. Native vegetation including sagebrush and sparse grasses can be found in non-irrigated areas and along roadways. The Saylor Creek Air Force Range lies only about 3 miles to the south of the community center.

4.4.4.5.1 Fire Potential

Fuels Assessment

Native fuels in the Indian Cove area are typically very sparse grasses and scattered sagebrush broken by relatively small expanses of irrigated agricultural fields. Due to the sandy soils, discontinuous fuel bed, and primarily gentle topography, strong winds would likely be needed to spread fire throughout the area. Homeowners generally maintain an adequate defensible space around structures.

Ignition Profile

Although lightning events are common in Owyhee County, residents of Indian Cove are more prone to man-caused ignitions than lightning strikes due to the gentle topography and lack of hazardous vegetation. Residential living and agricultural activities present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area. Activities and off-road vehicle use on the Saylor Creek Air Force Range may be a potential cause of an ignition.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.5.2 Ingress-Egress

The primary route through the Indian Cove area is State Highway 78. This is a well-maintained, paved, two-lane road. There are only a few alternate secondary routes throughout the area, most of which travel into the higher risk rangeland areas to the south or access private property. Although the community would benefit from an additional alternate escape route, Highway 78 is at low risk of wildfire due to the lack of fuels bordering the roadway and the abundance of nearby water resources.

4.4.4.5.3 Infrastructure

Residents of Indian Cove have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.5.4 Fire Protection

Currently, there is no formal structural fire protection for residents of Indian Cove. Wildland fire protection is provided by the Bureau of Land Management. The availability of drafting sites or dipping sites on the Snake River may become imperative in the event of a wildland fire.

4.4.4.5.5 Community Risk Assessment

Residents of Indian Cove have a low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational, military, and agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the community. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds. The lack of a safe alternate escape route heightens the risk to residents in the event that a wildfire threatens the community.

4.4.4.5.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. It is also important for alternative escape routes to be developed, maintained, and signed for emergency use in the event that Highway 78 becomes compromised.

4.4.4.6 Marsing

The community of Marsing lies on the southern bank of the Snake River near the junction of State Highway 78 and State Highway 55. This area is relatively flat and well irrigated by resources drawn from the Snake River and the Owyhee River. A few rolling hills and gullies are created by the numerous streams and canals crisscrossing the landscape. Native vegetation including sagebrush and sparse grasses can be found in non-irrigated pastures, on untillable hillsides, empty lots, and along roadways. The economy in Marsing is based on agriculture.

4.4.4.6.1 Fire Potential

Fuels Assessment

The fuels surrounding the community of Marsing are dominated by irrigated crops or pastureland. Native fuels are typically sparse grasses and scattered sagebrush, but this type of vegetation is limited to non-irrigated or undeveloped areas and distant rangelands. More densely vegetated areas near the Snake River or along other waterways may burn more

intensely than rangeland fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk agricultural land. Grazing on BLM public lands south of the community helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the community of Marsing is more prone to man-caused ignitions than lightning strikes due to the gentle topography and irrigated vegetation. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.6.2 Ingress-Egress

The primary access into Marsing is either State Highway 55 or State Highway 78. These are both paved, well-maintained, two-lane routes. The bridge spanning the Snake River at Marsing is at very little risk of becoming impassable due to a fire on either side of the river due to the agricultural and urban development. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural crops. There are also a few areas void of any vegetation where sand and rock abut the roadway. These access routes are not at significant risk of closure due to wildland fire.

Other potential escape routes, including Marsing Road, Edison Road, and Pershall Road, are also located in areas that have low to moderate risk of being threatened by wildfire due to the lack of heavy fuels.

4.4.4.6.3 Infrastructure

Residents of Marsing are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.6.4 Fire Protection

The Marsing City Fire Department provides structural fire protection for residents within the Marsing city limits. The Marsing Rural Fire Department provides structural fire protection for the greater Marsing area. The rural department also has a mutual aid agreement set up with the Murphy/Reynolds/Wilson Fire District and the communities of Caldwell and Homedale. Additionally, the Bureau of Land Management provides wildland fire protection. The availability

of drafting or dipping sites along the Snake River or other waterways would be crucial in the event of a fire.

4.4.4.6.5 Community Risk Assessment

Residents of Marsing have a low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational and agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the community. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.6.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.4.4.7 Murphy

Murphy, the county seat of Owyhee County, is located at the junction of the Reynolds Creek Stage Road and State Highway 78 approximately 6 miles south of the Owyhee-Canyon County border and the Snake River. Much of the area is characterized by gently rolling lowlands defined by what is known as Striker Basin. A low rising plateau extends along the length of the basin to the east of the community. Sagebrush dominates the vegetative community for several miles surrounding the town site. There is very little occurrence of grass or other native species, except in yards or other developed areas. Although there is evidence of past irrigation attempts, current agricultural development is very limited.

4.4.4.7.1 Fire Potential

Fuels Assessment

The native fuels surrounding the community of Murphy are primarily limited to sagebrush with varying densities depending on the availability of soil, topography, and the amount of

development. Due to the high sand content in the soils, fire spread in more sparsely vegetated areas would be limited. In mature, more dense stands of sagebrush larger flame lengths and higher intensity fires would be expected. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Grazing on BLM public lands surrounding the community helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the community of Murphy is more prone to man-caused ignitions than lightning strikes due to the gentle topography and lack of continuous fuel bed. Residential living presents innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.7.2 Ingress-Egress

The primary access to Murphy is via State Highway 78. This is a paved, well-maintained two-lane route. The Rabbit Creek Road from the small community of Reynolds offers an alternative escape route; however, this path is not a direct route out of the high fire risk area. Both of these routes are bordered by sparse desert climate vegetation. There are also large areas void of any vegetation where sand and rock abut the roadway. These access routes can be affected by wildland fire. The Rabbit Creek Fire affected traffic flow between Reynolds and Murphy in 1997.

4.4.4.7.3 Infrastructure

Residents of Murphy are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.7.4 Fire Protection

The Murphy/Reynolds/Wilson Volunteer Fire Department provides structural fire protection for the community of Murphy. Additionally, the Bureau of Land Management provides wildland fire protection. The availability of developed drafting or dipping sites along the Snake River or in other waterways would be crucial in the event of a fire. In areas farther away from the rivers and waterways, local station houses, canals, impoundments and perennial streams are important water sources. The Guffy subdivision several miles northwest of Murphy has several well houses that are capable of replenishing district fire trucks.

4.4.4.7.5 Community Risk Assessment

Residents of Murphy have low risk of experiencing a wildland fire due to the lack of heavy fuels surrounding most structures and their nearby access to water resources. Nevertheless, the Murphy area experiences frequent winds, which generally increase the rate of fire spread and intensity of rangeland fires. Most homeowners maintain an adequate defensible space around structures. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event.

The Eagle View subdivision, located northwest of Murphy off State Route 78, has moderate risk of experiencing a wildfire. Fuels in this area are sparse and would likely need strong winds to carry a fire; however, the subdivision has other problems that may hinder fire fighting capabilities. Wells in the area frequently run dry; thus, immediate access to water resources from hydrants or other sources may be delayed. Access roads were also poorly planned with several dead ends and narrow turn around areas.

4.4.4.7.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

The Eagle View subdivision would benefit from the development of deeper wells to service fire hydrants and other fire-related water resources. Also, continuing construction on access roads to create loops or larger diameter culdesacs would improve the effectiveness and safety of fire response personnel. Implementing county-wide building codes to prevent the development of subdivisions that impede fire response capabilities would reduce the fire risk to residents.

4.4.4.8 Murphy Hot Springs

The primarily seasonal community of Murphy Hot Springs sits at the bottom of the steep sided and narrow canyon created by the East Fork of Jarbridge River. Homes in Murphy Hot Springs are packed fairly tightly into the small floodplain of the river. The canyon walls are very steep and rocky. Sagebrush and sparse grasses are dominant on the slopes and the canyon rim; however, black cottonwood and other hardwoods grow along the river bottom.

4.4.4.8.1 Fire Potential

Fuels Assessment

Native fuels in the Murphy Hot Springs area are typically very sparse grasses and scattered sagebrush broken by rock outcroppings along the canyon slopes. Although possible, it is unlikely that a fire would be able to back down these steep slopes and enter the community from above. However, a fire down canyon would likely funnel hot gases, fumes, and smoke directly towards the community. The increased density of vegetation along the river would support a higher intensity and rapidly moving wildfire that could easily ignite fuels on both sides of the canyon.

Ignition Profile

Although lightning events are common in Owyhee County, residents of Murphy Hot Springs are more prone to man-caused ignitions than lightning strikes due to its location in the canyon and the abundance of recreational activities in the area. Residential living and recreational activities present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry rangeland vegetation or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.8.2 Ingress-Egress

The only route in and out of Murphy Hot Springs is Three Creek Road. This is a one lane dirt and gravel road. Three Creek Road traveling up and out of the canyon to the east involves a short, but steep climb up a narrow grade to the flatter rangelands above. This road continues along the canyon bottom about 15 miles to Jarbridge, Nevada. This route is very narrow and would not facilitate safe emergency travel.

4.4.4.8.3 Infrastructure

Residents of Murphy Hot Springs have drilled domestic wells. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.8.4 Fire Protection

There is no structural fire protection for residents of Murphy Hot Springs. Wildland fire protection is provided by the Bureau of Land Management. The availability of drafting sites or an alternative source of water may become imperative in the event of a wildland fire.

4.4.4.8.5 Community Risk Assessment

Residents of Murphy Hot Springs have a moderate to high risk of wildland fire due its location in the canyon amongst heavier riparian fuels. Additionally, the remoteness of the community will

significantly increase the response times of emergency personnel and fire suppression equipment, which may exacerbate the situation. Access into the community may also create problems not only for evacuation purposes, but it may also be dangerous for firefighters to enter the community. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Currently, there is very little defensible space between homes. The lack of a safe alternate escape route greatly heightens the risk to residents in the event that a wildfire threatens the community. There are also very few places within the town in which a large vehicle could be turned around easily.

4.4.4.8.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. Homes' survivability in Murphy Hot Springs can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning the main road through town and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. It is also important for alternative escape routes to be developed, maintained, and signed for emergency use in the event that Three Creek Road becomes compromised.

4.4.4.9 Oreana

The community of Oreana is located on Oreana Road approximately one mile south of State Highway 78. Although an old church marks the community center, there are currently only a few larger ranches and scattered homes remaining in the area. Much of the area is characterized by very sandy soils and exposed rock and sand plateaus both of which lack viable vegetation. Scattered sagebrush and sparse grasses are found intermittently throughout the area, particularly in shallow drainages. There are several small streams stemming from the foothills of the Silver City Range southwest of Oreana; however, these channels carry very little water during the summer months.

4.4.4.9.1 Fire Potential

Fuels Assessment

Native fuels in the Oreana area are typically very sparse grasses and scattered sagebrush broken by expanses of pure sand and rock. Due to the sandy soils, discontinuous fuel bed, and primarily gentle topography, strong winds would likely be needed to spread fire throughout the area. Under extreme weather conditions, particularly high winds, there is a high potential for a

rapidly advancing rangeland fire. Homeowners in the area generally maintain an adequate defensible space around structures. Grazing is an integral part of the economic basis of Oreana. Livestock grazing results in lower fine fuel loads, which decreases the fire potential throughout the area.

Ignition Profile

Although lightning events are common in Owyhee County, residents of Oreana are more prone to man-caused ignitions than lightning strikes due to the gentle topography and lack of vegetation. Residential living presents innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.9.2 Ingress-Egress

The primary route through the Oreana area is the Short Cut Road and Oreana Loop Road and the Bachman Grade Road, which connects on both ends to State Highway 78. The loop road is a paved, mostly one-lane access route. There are several secondary routes that can also be used to reach Highway 78 in an emergency situation. For the most part, these travel corridors are bordered by low risk xeric climate vegetation or sand and rock; however, there are a few sections along the loop road that exhibit slightly more dense riparian-type vegetation, particularly near the site of Foremans Reservoir, that may elevate the fire risk somewhat.

4.4.4.9.3 Infrastructure

Residents of Oreana are either connected to a municipal well or have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.9.4 Fire Protection

There are only a few permanent residents of Oreana; thus, there is no significant need for an organized fire department; however, many ranchers have water trucks and pumps to combat wildfire in an emergency situation. Wildland fire protection is provided by the Bureau of Land Management. The availability of drafting sites or an alternative source of water may become imperative in the event of a wildland fire.

4.4.4.9.5 Community Risk Assessment

Residents of Oreana have a low risk of experiencing a wildland fire due to the lack of vegetation surrounding most structures. Nevertheless, the Grand View area experiences frequent winds, which generally increase the rate of fire spread and intensity of rangeland fires. Most

homeowners maintain an adequate defensible space around structures. The lack of a readily available water source during the summer fire season may reduce the ability of fire suppression services to effectively fight a wildland fire.

4.4.4.9.6 Mitigation Activities

Oreana residence should remain aware of the potential for wildland fire in this xeric environment. Maintaining a defensible space is imperative to the survival of the structure. Creating drafting sites or an alternative water resource such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.4.4.10 Pleasant Valley and Cliffs

The communities of Pleasant Valley and Cliffs are small agriculturally based population centers. Pleasant Valley refers to the valley created by the Jordan Creek drainage and is located just east of the Idaho-Oregon border near Jordan Valley, Oregon. Irrigated fields and pasture dominate the flatter valley, but native rangeland fuels including sagebrush and grasses are found along the valley rim and beyond. The Owyhee Mountains lie to the east. Cliffs is located along Juniper Mountain Road south of Pleasant Valley between Dougal Reservoir and Forster Reservoir. There are only a few residents in this area, many of which are large ranch and farm owners. Small flatland areas have been irrigated to provide feed for livestock, but much of the landscape is dominated by sagebrush and native grasses. Juniper is rapidly invading the Owyhee Mountains to the east.

4.4.4.10.1 Fire Potential

Fuels Assessment

The fuels surrounding the Pleasant Valley and Cliffs areas are dominated by native rangeland fuels intermixed with irrigated pasture and cropland. Native fuels are typically grasses and scattered sagebrush that would be expected to burn at variable intensities and move very quickly. More densely vegetated areas along creek beds and canals may burn more intensely than rangeland fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk agricultural land. Grazing on BLM public lands surrounding both communities helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Pleasant Valley and Cliffs are at risk from both natural and man-caused fire ignitions. Lightning events are common throughout the Owyhee Mountains. Ignitions due to lightning strikes could occur within or spread to the lower elevations under severe weather conditions; however, it is more likely that fire spread would be predominantly upslope to the east due to the prevailing winds. The communities of Pleasant Valley and Cliffs are also prone to man-caused ignitions due to the relatively high density of recreational and agricultural activity. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential

ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.10.2 Ingress-Egress

The primary access into Pleasant Valley is Pleasant Valley Road. Pleasant Valley Road is partially paved through much of the valley, but turns to a well-maintained two lane gravel route near the south end. Cliffs is reached via Juniper Mountain Road from either the north or the south. This is also a one or two lane gravel route. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural crops. These roads are at moderate fire risk; however, it is unlikely that fuels along these routes would sustain a fire for a significant amount of time.

There are a few other potential escape routes into Jordan Valley from Pleasant Valley. These are typically one-lane, gravel roads that are at low to moderate fire risk. Residents of Cliffs lack an alternative escape route; thus, it is important that either another road be constructed for this purpose or fuel treatments and regular maintenance occur annually along Juniper Mountain Road to insure this escape route is not compromised by wildfire.

4.4.4.10.3 Infrastructure

Residents of Pleasant Valley and Cliffs have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the Pleasant Valley area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition. Cliffs and more remote ranches and farms rely on propane for heat, cooking, and lights.

4.4.4.10.4 Fire Protection

The Jordan Valley Fire Department provides structural fire protection for the communities of Pleasant Valley and Cliffs. Additionally, the Bureau of Land Management provides wildland fire protection. The availability of drafting or dipping sites at Dougal Reservoir or along streams or irrigation canals would be crucial in the event of a fire.

4.4.4.10.5 Community Risk Assessment

Residents of Pleasant Valley and Cliffs have a moderate risk of experiencing a wildland fire. Due to their remote location, response time by emergency and fire suppression vehicles will be greatly extended. Additionally, there is an abundance of native fuels intermixed throughout the patches of irrigated vegetation. Although this breaks up the continuity of wildland fuels and may slow the spread, it also provides a pathway to structures or other valued resources. Nevertheless, the nearby water resources, particularly the Dougal Reservoir and Jordan Creek, will allow more effective and efficient fire suppression operations. Recreational and agricultural activities throughout the area, particularly in the nearby Owyhee Mountains, increase the risk of a man-caused wildfire spreading to the community. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most

homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.10.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

The Jordan Valley Fire Department responds to fire emergencies in the Pleasant Valley and Cliffs area; however, this area is not within their jurisdiction. Additionally, they do not receive compensation for the services they provide to these residents. Due to the small population in this area, constructing a fire department and obtaining the necessary equipment is not fiscally possible. However, legally forming a fire district and contracting the services of the Jordan Valley Fire Department may be more within the residents' means.

4.4.4.11 Reynolds

The small community of Reynolds lies in the Reynolds Creek valley between two major ridges of the Owyhee Mountains. Black Mountain, Rooster Comb Peak, and Whiskey Mountain overlook the basin. The majority of the permanent residents of Reynolds are ranchers and their associated employees or supporting businesses.

Several smaller tributaries drain into Reynolds Creek, which flows directly through the community. Small marshes and ponds have been established in lower areas. A large portion of the valley bottom is dominated by thick grasses, willows, wildflowers, and a multitude of other riparian vegetation. The slopes of the surrounding mountains are primarily administered by the Bureau of Land Management and are typically blanketed by sagebrush. The greater Reynolds area, especially towards Silver City, has a rich mining history, the remains of which attract many curious recreators each year. There are several nearby trails that are open to foot traffic or off-road vehicles.

4.4.4.11.1 Fire Potential

Fuels Assessment

Fuels near Reynolds Creek or one of its tributaries are primarily dominated by medium to tall grasses, brush species, and forbs. Due to the availability of moisture, these fuels are less likely to burn; however, if ignited, flames would spread very rapidly and burn with relatively high intensities and large flame lengths. Many of the structures in this area are surrounded by yards or pastureland, which serves to break the continuity of the fuels and create a defensible space.

The expansive sagebrush stands extending to the north and east from the more fertile basin are more prone to wildland fire. There is very little grass or other understory vegetation; thus, fire spread may be limited to areas with a continuous fuel bed. Under the influence of wind, fires in this type of fuels have the potential to move very rapidly; however actual burn time may be short. Grazing on private lands and BLM public lands surrounding the community helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the sagebrush-steppe ecosystem.

Douglas-fir stands, juniper and mountain mahogany woodlands, aspen, and mountain shrub communities are the more dominant on the higher elevation slopes to the south and west of Reynolds. Western juniper and curleaf mountain mahogany are common on the dryer mid-elevation slopes, with Douglas-fir, subalpine fir and aspen at the higher elevations. Aspen, choke cherry, and other riparian species also occur draws and other more mesic sites. Mountain shrubs, such as mountain big sagebrush, snowbrush ceanothus, and snowberry are also common.

Ignition Profile

The higher ridges defining the Reynolds Creek drainage are of particular concern for lightning caused ignitions near the community of Reynolds. The receptive nature of the desert fuels could easily carry a rapidly advancing rangeland fire to the community. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving on unimproved trails. Campfires are typically restricted in recreational areas during high fire risk seasons; however, the potential for escape is significant due to the xeric climate and flammability of fuels. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.11.2 Ingress-Egress

The primary access into the Reynolds is via either the Rabbit Creek Road from Murphy or the Reynolds Creek Road from the State Highway 78-State Highway 45 junction. The Reynolds Creek Road is primarily a paved, one lane road, while the Rabbit Creek Road is a well-maintained, one-lane, graveled route. Both of these roads are bordered by fairly low risk sagebrush. There are also large sections where sand and rock, void of vegetation, abut the roadway. These access routes are not at significant risk of closure due to wildland fire; however, the windiness and sheer distance to the community may impede the response of additional fire suppression resources.

There are no other direct routes accessing the area; therefore, it is imperative that Rabbit Creek Road and Reynolds Creek Road remain in good condition and clear of hazardous fuels in order to function as safe evacuation routes.

4.4.4.11.3 Infrastructure

Residents of Reynolds have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for irrigation or livestock. These water resources would not likely be seriously affected by a rangeland fire.

Public transmission lines strung to homes throughout the area are at low to moderate risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is some potential for ignition.

4.4.4.11.4 Fire Protection

The Murphy/Reynolds/Wilson Fire District provides structural fire protection for the community and outlying area. A 1,000 gallon, year-around tank is located in the Reynolds fire station. A 10,000 gallon tank is available during the fire season at the local USDA station. The ZX Ranch has installed a 10,000 gallon underground tank that is also available to the fire district. Additionally, the Bureau of Land Management provides wildland fire protection. Developed access to drafting sites along Reynolds Creek would significantly increase the ability of emergency response to effectively control a wildland fire. Reynolds Creek often goes dry in the summer months, thus, drafting sites would have to be of sufficient depth to access the subsurface flow.

4.4.4.11.5 Community Risk Assessment

Residents of Reynolds have moderate risk of experiencing a wildland fire due to the community's location in a valley bottom and their nearby access to water resources. However, intense recreational activities throughout the area increase the risk of a man-caused wildfire spreading to the community. The receptive nature of fuels increases the likelihood of a fire start. In the event of wildfire, the dry fuels would likely support a very fast-moving rangeland fire. Therefore, it is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to such an event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.11.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Creating drafting sites or an alternative water resource in addition to the all season firehouse tank, and available ponds, such as underground tanks near the community, will increase the effectiveness and efficiency of emergency response in a wildfire situation. It may also be advantageous to set up a prearranged mutual aid agreement with the Orendorf Ranch for use of the ponds during an emergency fire situation.

4.4.4.12 Silver City

The community of Silver City is located at the confluence of the Long Gulch stream and Jordan Creek approximately 26 miles southwest of Murphy, Idaho, in Owyhee County. The elevation of the town site is 6,100 feet above sea level and is situated in a scenic mountainous valley. The topography slopes gently upward on the east and west before rising sharply to War Eagle Mountain to the east and Florida Mountain to the west.

Silver City is a historic mining town dating back to the 1860's, when gold was discovered in the Owyhee Mountains of southwestern Idaho. Historic buildings, mine shafts, and mining structures characterize the historical mining district. Silver City is composed of approximately 71 historic structures that include homes, a hotel, a church, cemeteries, and a school. The structures are privately owned and many of the owners reside in Silver City during the summer and fall months. During the winter, Silver City Property Owners, Inc. hires a watch person to care for the town. The Deed Covenants and Owyhee County Silver City Preservation Ordinance requires that all structures be maintained to be as historically authentic as possible.

4.4.4.12.1 Fire Potential

Fuels Assessment

The diverse vegetation types throughout the Silver City area provide valuable wildlife cover and habitat. Currently, Douglas-fir stands, juniper and mountain mahogany woodlands, aspen, and mountain shrub communities are the dominant vegetation types. Western juniper and curleaf mountain mahogany are common on the dryer lower elevation slopes, with Douglas-fir, subalpine fir and aspen at the higher elevations. Aspen, choke cherry, and other riparian species occur along the creeks and on mesic sites. Mountain shrubs, such as mountain big sagebrush, snowbrush ceanothus, and snowberry are also common.

Forest health issues in the Silver City area increase the fire risk. Many of the aspen stands are being invaded with late seral Douglas-fir, which is more prone to higher intensity fires. In addition, Douglas-fir and subalpine fir stands throughout the area are dying from tussock moth and bark beetle infestations. The dying trees are widespread and pose a significant fire hazard by increasing the amount of fuels readily available to burn. Dead or dying debris increases forest fuel loads, which not only can create vertical and horizontal continuity of fuels leading to rapid spread and/or torching and crowning, but it can also result in a much higher intensity fire.

Structures within and around Silver City are almost exclusively constructed with wood products gleaned from the surrounding woodlands; thus, many structures have a very high fire risk. Additionally, most of the in-town structures were built in close proximity to one another making the risk of fire jumping from structure to structure more eminent. The contiguous riparian vegetation in the Jordan Creek drainage, which splits the town site nearly in half, has a higher risk of carrying a fire due to the increased fuel loading in the stream bed. Black cottonwoods and other riparian vegetation will support a higher intensity fire than surrounding vegetation. The risk of a fire threatening the community via the Jordan Creek drainage is considerable.

Particularly under the influence of wind, fires in these fuel types have the potential to move very rapidly; however, intensities may be variable depending on the availability of fuel. Grazing on

private lands and BLM public lands surrounding the community helps decrease the build up of fine fuel loads.

Ignition Profile

The likelihood of lightning caused ignitions near the community of Silver City is great. The receptive nature of the fuels could easily carry a rapidly advancing wildland fire to the community. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Due to the remoteness and availability of unimproved roads and trails, Silver City attracts recreators and off-roaders from all disciplines. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving on unimproved trails. Campfires are typically restricted in recreational areas during high fire risk seasons; however, the potential for escape is significant due to the xeric climate and flammability of fuels.

4.4.4.12.2 Ingress-Egress

The primary access into Silver City is via the Silver City Road from Murphy. The majority of this route is a relatively well-maintained one to two-lane gravel road. The Jordan Creek Road from Jordan Valley, Oregon serves as an alternate escape route; however, the section between Delamar and Silver City is limited to vehicles with high ground clearance (four wheel drive would also be necessary during adverse weather conditions). Both of these roads travel through rangeland and timbered areas that are at higher risk of becoming threatened by wildfire. These access routes are at significant risk of closure due to wildland fire. Additionally, the windiness and sheer distance to the community may impede the response of fire suppression resources.

4.4.4.12.3 Infrastructure

Residents of Silver City rely on a community spring and gravity for their water resources. Residents of Silver City have considered augmenting the town water supply with resources from Florida Mountain or other possible sources. The Silver City Property Owners (SCPO) are currently in negotiations concerning water rights in order to improve the community's water supply. Repairs to the Silver City water storage tank or installation of additional storage tanks would increase the city's water holding capacity.

4.4.4.12.4 Fire Protection

There is currently no organized fire district encompassing Silver City. However, the Bureau of Land Management provides wildland fire protection and also parks a fire truck within the community during the fire season. Developed access to drafting sites along Jordan Creek would significantly increase the ability of emergency response to effectively control a wildland fire and protect the historic structures. Other developed water resources, such as water storage tanks or holding ponds, would also be improve firefighting capabilities.

4.4.4.12.5 Community Risk Assessment

Property owners and seasonal residents of Silver City have moderate to high risk of experiencing a wildland fire due to the community's remote location and lack of safe access routes and surplus water resources. Furthermore, intense recreational activities throughout the area increase the risk of a man-caused wildfire spreading to the community. The receptive

nature of fuels increases the likelihood of a fire start. In the event of wildfire, the dry fuels would likely support a very fast-moving fire. Therefore, it is imperative property homeowners implement fire mitigation measures to protect their structures and families prior to such an event. Few property owners maintain an adequate defensible space around structures, which heightens the fire risk.

4.4.4.12.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate property owners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the community to emergency apparatus. If the town site cannot be protected safely, firefighting resources will not jeopardize lives to protect the structures. Thus, the fate of the community will largely be determined by property owner actions prior to the event. In many cases, structures' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning roadways and creating turnaround areas for large vehicles. Stationing a BLM fire engine and crew in the Silver City area would reduce response rates and address some of the access issues as well as improve fire protection of citizens.

Creating drafting sites or an alternative water resource such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. Feasibility studies and cost analyses for different alternative water resources would help the community get on the right track to developing these sites. Potential solutions include, but are not limited to: installing a generator in Jordan Creek to pump water into the town water system, pumping water contained in old mine shafts to the town site for use during emergencies, repairing the “Ice Pond” reservoir on Jordan Creek, and developing helicopter dipping sites on Jordan Creek.

Addressing the forest health issues abundant in the Owyhee Mountains surrounding Silver City will also decrease the fire risk. Removing the invasive Douglas-fir trees from the native aspen stands will maintain the valuable aspen component and significantly reduce their fire risk. Thinning dead and dying trees in the Douglas-fir and subalpine fir communities will also drastically reduce the fire potential associated with overcrowded and diseased forest stands. The Bureau of Land Management is addressing this issue by planning and implementing (as funding becomes available) several fuels reduction projects aimed at improved forest health and reduced fire risk in the Silver City area.

4.4.4.13 Three Creek

The small, primarily ranching community of Three Creek is located at the junction of Three Creek Road and Three Creek in the southeastern corner of Owyhee County. Three Creek residents are typically larger ranch owners scattered throughout the small, flat valleys created by Three Creek, Big Flat Creek, and a few other drainages. This area is characterized by gently rolling hills dominated by scattered sagebrush and grasses. A few landowners have developed irrigated hayfields and pasture for livestock.

4.4.4.13.1 Fire Potential

Fuels Assessment

Native fuels in the Three Creek area are typically very sparse grasses and scattered sagebrush broken by relatively small expanses of irrigated agricultural fields. Due to the sandy soils, discontinuous fuel bed, and primarily gentle topography, strong winds would likely be needed to spread fire throughout the area. Homeowners generally maintain an adequate defensible space around structures.

Ignition Profile

Although lightning events are common in Owyhee County, residents of Three Creek are more prone to man-caused ignitions than lightning strikes due to the gentle topography and lack of hazardous vegetation. Residential living and agricultural activities present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.13.2 Ingress-Egress

The primary route through the Three Creek area is Three Creek Road. This is a well-maintained, two-lane road from Rogerson in Twin Falls County to the east. Three Creek Road west of Three Creek slowly deteriorates into a one-lane dirt road, which access Murphy Hot Springs and continues on to Jarbridge, Nevada. There are only a few secondary routes throughout the area, most of which loop back to Three Creek Road or access private property. The Clover Three Creek Road about 4 miles west of the Three Creek town site is a relatively well-traveled dirt road traveling north to Bruneau. For the most part, these travel corridors are bordered by low risk xeric climate vegetation, sand and rock, or agriculture fields.

4.4.4.13.3 Infrastructure

Residents of Three Creek have drilled domestic wells. Supplementary wells have been established throughout the greater area to provide additional water for livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.13.4 Fire Protection

There are only a few permanent residents of Three Creek; thus, there is no significant need for an organized fire department. Wildland fire protection is provided by the Bureau of Land Management. The availability of drafting sites or an alternative source of water may become imperative in the event of a wildland fire.

4.4.4.13.5 Community Risk Assessment

Residents of Three Creek have a low risk of experiencing a wildland fire due to the lack of continuous vegetation surrounding most structures. Additionally, most homeowners maintain an adequate defensible space around structures. Due to the remoteness of the community, response time by emergency personnel and fire suppression equipment will be significantly increased, which may exacerbate the situation. The lack of a readily available water source during the summer fire season may reduce the ability of fire suppression services to effectively fight a wildland fire.

4.4.4.13.6 Mitigation Activities

Three Creek residents should remain aware of the potential for wildland fire in this xeric environment. Maintaining a defensible space is imperative to the survival of the structure. Creating drafting sites or an alternative water resource such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.4.4.14 Wilson and Guffy

The communities of Wilson and Guffy are small agriculturally based population centers. Both lie along the southern bank of the Snake River between Givens Hot Springs and Murphy along State Highway 78. Much of this area is relatively flat; however, the foothills of the Owyhee Mountains begin to rise along the southwestern and western edges of the community. The flatlands between the Owyhees and the Snake River have been heavily developed as irrigated farms and ranches. Other than the Snake River, there are also many small streams and canals that provide additional water resources for irrigation purposes. Native vegetation including sagebrush and sparse grasses dominate the lower slopes of the Owyhee Mountains and non-irrigated areas.

4.4.4.14.1 Fire Potential

Fuels Assessment

The fuels surrounding the Wilson and Guffy areas are dominated by irrigated crops or pastureland. Native fuels are typically sparse grasses and scattered sagebrush, but this type of vegetation is limited to non-irrigated or undeveloped areas and the open rangelands of the lower Owyhee Mountains. More densely vegetated areas near the Snake River or along other waterways may burn more intensely than rangeland fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Many homes in the area maintain watered or well-groomed yards or are surrounded by lower risk agricultural land. Grazing on BLM public lands to the south helps decrease build up of fine fuel loads and, therefore, decreases the fire potential in the wildland urban interface.

Ignition Profile

Although lightning events are common in Owyhee County, the communities of Wilson and Guffy are more prone to man-caused ignitions than lightning strikes due to the gentle topography and irrigated vegetation. Residential living and recreational use in the area present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. The Hemmingway Butte Trailhead is a very popular motorized recreation area and; thus, should be of particular concern. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

4.4.4.14.2 Ingress-Egress

The primary access into both Wilson and Guffy is State Highway 78. Both Highways 78 and 45 are paved, well-maintained, two-lane routes. These travel corridors are typically bordered by arid climate vegetation including sagebrush and sparse grasses or agricultural crops. The bridge spanning the Snake River at Walters Ferry is at very little risk of becoming impassable due to a fire on either side of the river due to the agricultural and urban development. There are also a few areas void of any vegetation where sand and rock abut the roadway. State Highways 78 and 45 are not at significant risk of closure due to wildland fire.

Other potential escape routes, including Wilson Creek Road and Reynolds Creek Road, are located in areas that have low to moderate risk of being threatened by wildfire due to the lack of heavy fuels; however, these roads are not direct routes leading out of the area.

4.4.4.14.3 Infrastructure

Residents of Wilson and Guffy have drilled domestic wells. Supplementary wells have also been established throughout the greater area to provide additional water for irrigation or livestock. These water resources could be affected by a rangeland fire if the power lines that serviced the pumps were compromised.

Public transmission lines strung to homes and businesses throughout the area are at fairly low risk of causing a wildfire due to the lack of heavy fuels within the corridor. Nevertheless, under severe wind conditions or in the event of a downed line, there is potential for ignition.

4.4.4.14.4 Fire Protection

The Murphy/Reynolds/Wilson Fire District provides structural fire protection for the communities of Wilson and Guffy. The Wilson Fire Station in Wilson is capable of filling fire trucks and other mobile storage tanks with water. Additionally, the Bureau of Land Management provides wildland fire protection. The availability of drafting or dipping sites along the Snake River or other waterways would be crucial in the event of a fire.

4.4.4.14.5 Community Risk Assessment

Residents of Wilson and Guffy have a low risk of experiencing a wildland fire due to the sparse vegetation surrounding most structures and their nearby access to water resources. However, recreational and agricultural activities throughout the area, particularly in the nearby Owyhee Mountains, increase the risk of a man-caused wildfire spreading to the community. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

4.4.4.14.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Owyhee County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. In Owyhee County, local fire departments give written approval for emergency vehicle access to new construction sites prior to issuance of a building permit.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.5 Fire Fighting Resources and Capabilities

The Fire Fighting Resources and Capabilities information provided in this section is a summary of information provided by the Rural Fire Chiefs or Representatives of the Wildland Fire Fighting Agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. ***In an effort to correctly portray their observations, little editing to their responses has occurred.*** These summaries indicate their perceptions and information summaries.

4.5.1 Wildland Fire Protection

4.5.1.1 Bureau of Land Management

4.5.1.1.1 Twin Falls District

Shoshone	Duty Location	400 West F Street	83352
Bellevue	Duty Location	11053 Highway 75	83313
Carey	Duty Location	20548 North Main	83320

Boundary Description of Twin Falls District:

The east boundary of the District starts at the Utah border and goes north along the Range/Township line dividing Range 28 and Range 29; stair steps around the Sublett Division of the Sawtooth Forest and the Sublett Range to the boundary of Cassia and Power County; goes due west for approximately 8 miles along the county line; turns due north to the Snake River; follows the Snake River to approximately one mile southwest of the city of American Falls; turns due north for three miles along the Township/Range line dividing Range 30 and 31; turns due west on the southern border of Sections 24, 23, 22, 21, 20 and 19 of Township 8S, Range 30E; the southern border of Sections 24, 23, 22, and 21 of Township 8S, Range 29E;

where the line, meeting BLM administered ground turns north and stair steps to Highway 93, approximately 7 miles northeast of the Craters of the Moon National Monument and Preserve.

The north boundary starts at this point and stair steps in a southwest direction to the northwest corner of the Craters of the Moon National Monument and Preserve; turns to a westerly direction and ties to the Blaine County boundary line just east of Blizzard Mountain; follows the Blaine County line north and then west to where the Blaine County line meets the Elmore County line.

The west boundary starts at this point and continues to follow the Elmore County line in a southern direction to the southwest corner of Section 31 of Township 2N, Range 12E; turns east for five miles; stair steps in south west direction to southwest corner of Section 6 of Township 1S, Range 10E; follows the Township/Range line due south to King Hill Creek; follows King Hill Creek to it's confluence with the Snake River; follows the Snake River to the west until it meets the Township/Range line between Range 8E and Range 7E; turns south along the Township/Range line to the border of the Saylor Creek Air Force Range; turns west following the boundary of the Saylor Creek Air Force Range; turns south for two miles along the boundary; turns to the west and ties into the Bruneau River; follows the Bruneau River south across the Nevada border to the boundary of Humboldt National Forest.

The south boundary starts at this point and continues to the east along the Forest boundary until it meets the Idaho state line; follows the Idaho/Nevada and Idaho/Utah state lines until it meets the east boundary of the District.

There is approximately 3.9 million acres of ground administered by the BLM within the defined boundary of the District. Sage grouse and sage grouse habitat is a primary issue for the District. Lepidium is also a major issue but is concentrated in a small area of the Jarbidge resource area.

Personnel: The fire program staff totals 212 individuals, including 29 permanent employees, 35 career-seasonal employees who work up to nine months each year, and 148 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection.

Apparatus List:

Shoshone

Table 4.2. Twin Falls District List: Shoshone.

Identifier	Description	Make	Water Capacity	Pump GPM
E403	Type 4 Engine	International 4070	900	100
E405	Type 4 Engine	International 4070	875	90
E408	Type 4 Engine	International 4070	875	90
E411	Type 4 Engine	Freightliner FL70	875	160
E420	Type 4 Engine	International 4070	850	160
E421	Type 4 Engine	International 4070	850	100
E422	Type 4 Engine	International 4070	850	145
E423	Type 4 Engine	Freightliner FL70	900	100
E682	Type 6 Engine	Ford F-550	290	80
E685	Type 6 Engine	Ford F-550	290	85
E690	Type 6 Engine	Ford F-550	280	80
E692	Type 6 Engine	Ford F-550	290	80
E694	Type 6 Engine	Ford-450 SD	295	80
E695	Type 6 Engine	Ford-450 SD	295	90

Table 4.2. Twin Falls District List: Shoshone.

Identifier	Description	Make	Water Capacity	Pump GPM
W24	Type 2 Tender	Freightliner F9000	3500	750
Contract Dozer	Type 2 Dozer	Varies	N/A	N/A

Bellevue

Table 4.3. Twin Falls District List: Bellevue.

Identifier	Description	Make	Water Capacity	Pump GPM
E415	Type 4 Engine	Freightliner F170	875	90
E418	Type 4 Engine	International 4070	875	100
E684	Type 6 Engine	Ford F-550	290	85
W21	Type 2 Tender	Ford F9000	3000	450

Carey

Table 4.4. Twin Falls District List: Carey.

Identifier	Description	Make	Water Capacity	Pump GPM
E402	Type 4 Engine	International 4070	900	95
E414	Type 4 Engine	Freightliner FL70	875	90
E683	Type 6 Engine	Ford F550	290	85
Contract Dozer	Type 2 Dozer	Varies	N/A	N/A

Burley

Table 4.5. Twin Falls District List: Burley.

Identifier	Description	Make	Water Capacity	Pump GPM
E419	Type 4 Engine	International 4070	900	95
E416	Type 4 Engine	Freightliner FL70	875	90
E678	Type 6 Engine	Ford F550	290	85
W22	Type 2 Tender	Ford F9000	3000	450
E404	Type 4 Engine	International 4070	900	95
E410	Type 4 Engine	Freightliner FL70	875	90
E681	Type 6 Engine	Ford F550	290	85

Malta/Almo

Table 4.6. Twin Falls District List: Almo.

Identifier	Description	Make	Water Capacity	Pump GPM
E417	Type 4 Engine	International 4070	900	95
E412	Type 4 Engine	Freightliner FL70	875	90

Kimama

Table 4.7. Twin Falls District List: Kimima.

Identifier	Description	Make	Water Capacity	Pump GPM
E406	Type 4 Engine	International 4070	900	95
E413	Type 4 Engine	Freightliner FL70	875	90
E688	Type 6 Engine	Ford F550	290	85

Rogerson

Table 4.8. Twin Falls District List: Rogerson.

Identifier	Description	Make	Water Capacity	Pump GPM
E424	Type 4 Engine	International 4070	900	95
E407	Type 4 Engine	Freightliner FL70	875	90
E693	Type 6 Engine	Ford F550	290	85
W23	Water Tender	Ford F9000	3000	450

Air Resources:

Helicopter: The district has an A-Star medium helicopter capable of carrying 130 gallons of water on contract from June to October with a 10 member helitack crew. U.S. Forest Service Helitack crews are stationed at Hailey and are available for assistance if needed. Additionally, there are other helicopter resources equipped for fire missions that are available on a aircraft-rental-agreement (ARA) basis.

Fixed-Wing: The district has an AeroCommander 500S fixed-wing aircraft, staffed by a pilot and the air attack supervisor. The air attack supervisor coordinates aerial firefighting resources and serves as an observation and communications platform for firefighters on the ground.

Tanker Base: The district's Tanker Base consists of 4 contract personnel, 1 Aviation Manager, 1 Tanker Manager, 2 Single Engine Air tanker (SEATS) managers. This base is located in Twin Falls but has the capability of setting up 5 remote bases throughout the district at any time. This base is also capable of serving Type 1 heavy air takers when needed.

Air Tankers: There are typically 2 SEATS (Air Tracker 802F) on contract in Twin Falls capable of carrying 800 gallons of retardant during the fire season. There are also 2 SEATS (Air Tracker 802) located in Boise and Pocatello. Mountain Home Air Force Base Saylor Creek Range

Fire Suppression Capabilities:

Suppression equipment on SCR includes tow grades to cut in fire lines, one CASE 256 HP tractor that tows a 20-foot-wide disc, one 2.5-ton pumper truck with a 1,200-gallon tank, two 1-ton trucks with 250-gallon and 350-gallon slip-on tanks, respectively, one 10,000-gallon stationary water tank, one 3,000-gallon mobile water tank, hand tools, and various smaller backpack water sprayers.

Suppression equipment on JBR consists of one 1,200-gallon pumper truck, two 250-gallon slip-ons, one 3,000-gallon tanker truck, one CASE 200-hp tractor that tows a 20-foot wide disc, and one 50,000-gallon water tank at the maintenance facility.

The Air Forces monitors and responds to all fires on the SCR and JBR. Yearly pre-mitigation work is conducted on the range to reduce the number of fire starts. Pre-mitigation work has included controlled burns, spraying to kill vegetation before reseeding (fire prone weeds), mechanical treatment (disking) of fuels, and creation of fire breaks around the ranges.

The Air Force has a very good record of keeping fires limited to the two ranges and of responding quickly and with sufficient equipment and personnel to handle the fires on the ranges.

4.5.1.1.2 Boise District

- Boise BLM Fire Office, 3948 Development Ave., Boise, 83705; 208-394-3400

- Hammett Guard Station, north of Exit 112 on Interstate 84, 208-366-7722
- Bruneau Guard Station, Hot Creek Road, Bruneau, 208-845-2011
- Wild West Guard Station, Exit 13 off I-84, 208-454-0613

The Department of Interior, BLM, provided funding for this Wildland-Urban Interface Wildfire Mitigation Plan. The Boise District BLM has been involved in Owyhee County through assistance to rural fire districts and national fire prevention programs; however, the only wildland fire resources housed within Owyhee County is at the Bruneau Guard Station in Bruneau. Initial attack response for the Jarbridge Resource Area will be shared with the Twin Falls District through an agreement that will allow IA by closest resources. The rest of Owyhee County, the Bruneau Resource Area and the Owyhee Resource Area, are covered by the crews station in Bruneau, Hammett, Boise, and Wild West.

The Boise District BLM encompasses approximately 3.9 million acres of BLM-managed land in southwest Idaho. Through agreements with the Idaho Department of Land and the National Forest Service, the BLM also provides support on IDL and FS lands in some areas within the district boundary. The border of the district extends north from the Nevada border following the Bruneau River fairly closely before heading east along the Saylor Creek Air Force Range boundary to the Elmore County line. Then, it heads north to the confluence of the Snake River. The border follows the Snake River east to the community of King Hill before turning north again following the King Hill Creek drainage to the Township 1S, Range 10E line, where it heads due north to the southwest corner of Section 6. The border, then, stairsteps in a northeasterly direction just past the Elmore County line to the Township 2N, Range 12E line; then heads five miles due west to the Elmore County line. The eastern boundary follows the Elmore County line to where it meets the Blaine County line. The District boundary, then, follows the foothills west and north across the Boise Front; up Highway 55 and includes some scattered areas into the Crouch area; then jogs in a northwesterly direction to the Oregon border west of New Meadows.

Special features within the district include the 485,000-acre Snake River Birds of Prey National Conservation Area; the Owyhee Canyonlands; portions of the north and south fork Payette River corridors; the Owyhee Mountains, including the historic Silver City area; the Bruneau River canyon; and several popular recreation areas and wildland-urban interface areas.

The district's primary station is located in Boise, where 2 crews, with 2 engines per crew are based, along with both helicopter and fixed-wing aircraft resources. One of the two Boise crews is typically stationed during the day at Boise Fire Station #2 at the base of the foothills. Additional day-use stations are available in Kuna, Hidden Springs, and Eagle.

Additionally, the district has out stations at Bruneau, Hammett, and Wild West (at Exit 13 on Interstate 84). Each facility is staffed by one crew, with two to three engines (depending on fire activity and yearly budget), on a 8-hour day, 5-day per week basis (on call 24/7) from mid June to mid September. Bruneau and Hammett will have different days off to provide 7 day coverage between the two guard stations. A dozer has historically been based at Hammett and will be based there when funding is available.

Wild West Guard Station is going to be demolished this spring with plans to build a new station. In the meantime, Wild West will be stationed at the Middleton Station #1 Fire Department in downtown Middleton.

BLM crews are neither trained nor equipped for structure suppression. Primary protection responsibilities are on public land throughout southwest Idaho and the BLM responds to fires originating on public lands and those on private land that threaten public land. Additionally, through mutual aid agreements with local fire departments, the BLM will provide assistance when requested on wildland fires.

The BLM does not provide formal EMT services. The crews are trained in first-aid, and some staff members have EMT and first-responder training, but this is not a service the BLM provides as part of their organization.

Personnel: The fire program staff totals 110-135 individuals, including 20 permanent employees, 40 career-seasonal employees who work up to nine months each year, and 75 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection.

Mutual Aid Agreements: The BLM has an interagency working relationship with the US Forest Service (Boise National Forest and Payette National Forest) and the Idaho Department of Lands and the crews are dispatched on a closest-forces concept to public lands. Additionally, the BLM has mutual aid agreements with 37 community fire departments.

Top Resource Priorities:

- **Training:** Increasing the amount and level of training for and with partner community fire departments .
- **Communications:** Using the Rural Fire Assistance Program to allow departments to purchase radios to facilitate communication, coordination, and safety at the fire scene.

The district encompasses a broad spectrum of resources at risk, including recreation sites, power lines, wildlife habitat, wilderness study areas, wild horse management areas, historic districts, cultural and archaeological sites, and a range of vegetation types, from rare plant species to sagebrush and timber resources.

Table 4.9 summarizes available equipment.

Assigned Station	Make/ Model	Capacity (gallons)	Pump capacity (GPM)	Type
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
Boise	Ford	Light 300	120 GPM	Wildland

- The Boise District has 3 dozers, one of which is stationed in Hammett (may change in 2005); and two in Boise
- The Boise District also has 3, 3,500 gallon water tenders.
- There are 4 Fire Lookouts, one on Squaw Butte, north of Emmett; one on South Mountain, southeast of Jordan Valley; one on Danskin Peak, north of Mountain Home; and one on Bennett Mountain, northeast of Mountain Home.

Additionally, suppression resources include:

- **Helicopter:** The district has an new compact for 2005 helicopter on contract from June to October and an 11 member helitack crew. U.S. Forest Service helitack crews stationed at Lucky Peak and Garden Valley are available for assistance if needed and if they are not assigned elsewhere. Additionally, there are other helicopter resources equipped for fire missions that are available on a call-when-needed (CWN) basis.
- **Fixed-Wing:** The district has a contract AeroCommander 500S fixed-wing aircraft, staffed by a pilot and the air attack supervisor. The air attack supervisor coordinates aerial firefighting resources and serves as an observation and communications platform for firefighters on the ground.
- **Air Tankers:** There are typically two air tankers (fire retardant planes) on contract in Boise during the fire season. However, these aircraft are considered national resources and are assigned where they're needed at any particular time. These tankers have recently been grounded and may or may not be available for use in the future. Other, nearby, air tankers are located in McCall and various locations in Nevada and Oregon. There are also contract single-engine air tankers (SEATS) located in Oregon and Twin Falls, Idaho.

The primary operational challenges facing the district include:

- Continued development of wildland-urban interface areas across the district.
- Communications and coordination with current, new, and developing community fire departments and working with them to stay abreast of communication and technological developments so that we can continue and improve working together effectively at the fire scene.
- Internally, an operational challenge is to have sufficient and appropriate staff available throughout the year to foster partnerships with local departments and facilitate continued and improved coordination, training, communications, and other joint efforts with our partners across the district.

Our effectiveness in addressing these challenges will largely hinge on funding available for the fire program and its various elements.

4.5.1.2 Mountain Home Air Force Base Saylor Creek Range

Fire Suppression Capabilities. Suppression equipment on SCR includes tow grades to cut in fire lines, one CASE 256 HP tractor that tows a 20-foot-wide disc, one 2.5-ton pumper truck with a 1,200-gallon tank, two 1-ton trucks with 250-gallon and 350-gallon slip-on tanks, respectively, one 10,000-gallon stationary water tank, one 3,000-gallon mobile water tank, hand tools, and various smaller backpack water sprayers.

Suppression equipment on JBR consists of one 1,200-gallon pumper truck, two 250-gallon slip-ons, one 3,000-gallon tanker truck, one CASE 200-hp tractor that tows a 20-foot wide disc, and one 50,000-gallon water tank at the maintenance facility.

The Air Forces monitors and responds to all fires on the SCR and JBR. Yearly pre-mitigation work is conducted on the range to reduce the number of fire starts. Pre-mitigation work has included controlled burns, spraying to kill vegetation before reseeding (fire prone weeds), mechanical treatment (disking) of fuels, and creation of fire breaks around the ranges.

The Air Force has a very good record of keeping fires limited to the two ranges and of responding quickly and with sufficient equipment and personnel to handle the fires on the ranges.

4.5.2 City & Rural Fire Districts

4.5.2.1 Grand View Rural Fire Protection

P.O. Box 54
Grand View ID
Cfireman1@wmconnect.com
208-834-2380

Grand View Rural Fire Protection District encompasses 111 sq. miles, including portions of Owyhee County, Elmore County, and the city of Grand View. The department responds to wildland, structural and agricultural fire. Grand View has mutual aid agreements with the surrounding fire protection districts, as well as with the BLM

Personnel: Grand View has a total of ten volunteer positions, including the chief and assistant.

Fire Station: The fire station is a single level, five bay facility.

Equipment:

Wildland Engines

- 1994 Ford F-350, 300 gallon.
- 1995 GMC 3500, 275 gallon with foam capabilities.
- 1978 Ford F-7000, 1,000 gallon.

Structural Engines

- 1961 Howe International, 500 gallon

Water Tenders

- 1984 Kenworth, 3,000 gallons (will be operational in the summer of 2004).

First Aid: Grand View provides Basic Life Support (BLS)

Resource Concerns within the district: In addition to protection of life and homes, Grandview RFD has significant economic resources that are potentially threatened by fire. The majority of the district within Elmore County is owned by Simplot. Much of this land is cultivated hay. Historically, the ridge above the feed lot has experienced a high number of fires, potentially due to the presence of power transmission lines. The hay resources are seen to be at some risk to loss from fires originating from this or some other ignition source.

4.5.2.2 Bruneau Rural Fire Department

PO Box 276
Bruneau, ID 83604
Dispatch: 208-845-2790
Fax: 208-845-2750
Dick Strickland – Chief
Robert Lemieux – Assistant Chief Phone: 208-845-2150

Equipment/personnel/other:

- 1982 GMC 3500 4X4, 250 gal
- 1978 Ford F-700, 450 gal
- 10 personnel
- assist in approximately 10 Federal fires per year
- no local or interagency prevention program participation
- active in RFA

4.5.2.3 Homedale Rural Fire Department

PO Box 608
Homedale, ID 83628
208-337-3000
Scott Salutrequi – Chief Phone: 208-337-3498
Fax: 208-337-3450

4.5.2.4 Marsing Rural Fire Department

308 Main St
Marsing, ID 83639
Dispatch: 208-896-4444
Roman Usabel – Chief Phone: 208-896-4571

Table 4.10. Fire Apparatus for Marsing Rural Fire Department.

Type	Year	Size	Tank Size (gal)	Pump Flow (gpm)
Pumper	2002	5 ton	1250	1250
Tanker	1996	5 ton	3250	500
Pumper	1963	3 ton	800	1000
Pumper	1974	3 ton	1000	1000
Tanker	1972	2 ton	1350	350
Brush truck	1982	1 ton	300	250
Brush truck	1979	2 ton	500	500

4.5.2.5 Murphy-Reynolds-Wilson Fire District

PO Box 82
Murphy, ID 83650
Owyhee County Sheriff: 208-495-1154
Kenneth Good – Chief Phone: 208-495-1267

Cell: 208-890-1170
Fax: 208-495-9822

Murphy Station

Tanker – 3,400 gallon, 300 GPM transfer pump, 3,000 gallon portable tank, 8” dump valve, self-priming refill pump with suction and transfer hoses

Class A pumper – 1,250 GPM 2-stage pump, 500 gallon tank, 1,500 gallon portable tank, 1,100 foot of 5” supply line, 500’ 1 ¾ “ fire hose, foam inducer and nozzle, 3 - 1 ¾” fire fighting nozzles, 2 - 2 ½” fire fighting nozzles, miscellaneous 2 ½” to 1 ¾” “Y” valves, fire extinguishers, SCBA equipment, spare tanks, booster line with 200’ 1” hard line on rewind reel

Reynolds Station

Tanker-Pumper – 1,200 gallon, 300 GPM pump, 300’ 1 ½” fire hose, 200’ 3” supply line, booster line on rewind reel, 200’ 1” hard line and all other pertinent apparatus to be fully operational

Wilson Station

Pumper-Tanker – 1,300 gallons, 300 GPM pump, booster reel, rewind with 200’ 1” hard line, 500’ 1 ½” fire hose, 200’ 3” transfer hose, and all nozzles and miscellaneous equipment to be fully operational

Forest Service Wildland Truck – 4x4, 200 gallons, rewind reel with 200’ ¾” fire hose, 100 GPM engine driven pump, 100’ 1 ½” fire hose with nozzle (fully equipped)

Givens Hot Springs (Sky Park)

BLM Heavy Pumper-Tanker Wildland Truck – 1,000 gallon tank with 100 GPM pump (fully equipped)

Pumper-Tanker – 1,200 gallon, 300 GPM pump (fully equipped)

Currently the Sky Park residents are housing the BLM truck and a 1,200 gallon pumper-tanker in their personal buildings. The Murphy-Reynolds-Wilson Fire Department would like to build a station in Givens Hot Springs large enough to accommodate a BLM satellite wildland crew and equipment.

The Murphy-Reynolds-Wilson Fire Department has three wildfire tank with pumper trailers with hoses and nozzles and additional miscellaneous pumps, hoses, protective clothing, helmets, etc. We also have another Class A pumper under repair and hope to have it on line by late summer of 2005. The MRW Fire Department would also like to enlarge the 3 existing stations.

4.6 Issues Facing Owyhee County Fire Protection

4.6.1 Lack of protection district in Oreana, Indian Cove, Cliffs and Pleasant Valley

The communities of Oreana, Indian Cove, Cliffs and Pleasant Valley do not currently have formal structural protection. Structural fire protection has been provided to these areas on an ad hoc basis by adjoining fire districts. These communities would be better served if they were incorporated into adjoining fire protection districts or looked at forming their own.

4.6.2 Water Supply in the WUI

As growth continues along the edges of the established communities, water for wildland firefighting and structure protection is increasingly difficult to access. Across the county additional accessible water sources are needed.

4.7 Current Wildfire Mitigation Activities in Owyhee County

4.7.1 Mountain Home Air Force Base Saylor Creek Firing Range and Juniper Butte Firing Range

The US Air Force utilizes the Saylor Creek bombing range located in the Northeast corner of the county. The Air Force through the Mountain Home Air Force Base Fire Department actively monitors and suppresses all fires on the Saylor Creek and Juniper Butte bombing range. The majority of fire starts on the range are caused by the activities of the Air Force. They have been very successful in responding to the fires on the range. They have an active program to control vegetation on the range utilizing a variety of methods, spraying, controlled burns, mechanical treatment to reduce the threat of fires. The Mountain Home Air Force Base Fire Department has been very successful in keeping fires contained to the Saylor Bombing Range . Continued active management and vigilance on the part of the Air Force will aid the county in keeping the fire danger in the vicinity of the Saylor bombing range at a minimum.

4.7.2 Grazing

Livestock Grazing in and around the communities of Owyhee County can reduce fine fuels to various levels and have done so in recent times. Domestic livestock graze on grasses, forbs, and certain shrubs in the area. During grazing related activities, some trampling effects may occur at various levels on certain fine fuels in the area. Ranchers tending their herds, or other resource professional in the field may observe wildfire ignition or potentially risk-related activities in and around the communities of the county. Livestock grazing in this region should be considered into the future as a low-cost, positive tool of wildfire mitigation for the wildland-urban interface in this area.

It is the intention of this planning process to make all of the land resource management tools available to resource managers in the management of wildland fire. Livestock grazing and management, coupled with astute land management have the potential to mitigate wildland fires in Owyhee County, as it has done in the past.

4.7.3 Bureau of Land Management

4.7.3.1 Silver City

The BLM has been working in coordination with Silver City community members on fuels reduction projects around the city since July of 2002. One project known as the Silver City Annual Cleanup Day will continue on a yearly basis to assist the citizens in decreasing the threat of wildfire caused by hazardous fuels within the town. The clean up day is also a great tool used to educate the public about Wildland Urban Interface while creating a Firewise community.

Silver City has a moderate to high risk of experiencing a wildland fire due to the community's remote location, lack of safe access routes, and surplus water resources. The Silver City Town Cutting Treatment began in July 2004 by the Boise District BLM and will continue through 2005.

The idea is to reduce the fire hazard by reducing the amount and continuity of hazardous fuels in and near town; provide safe travel corridors to the public and emergency vehicles in the event of a wildfire; and maintain and restore the historic native sagebrush steppe, mountain mahogany, mountain shrub, and aspen communities which are being lost to conifer expansion.

Future fuels reduction treatments in Silver City are expected to begin in 2005 and are expected to continue for the next ten years. These treatments will reduce the potential of crown fires by thinning crowded stands and removing encroaching conifers out which will, in turn, provide survivable space for residents and improve the long-term health of the forest. This may also provide economic opportunities to the community through timber sales and mechanical treatments.

Additionally, the Ten Year Comprehensive Strategy in Idaho identifies training as a need in Silver City to give local citizens fire suppression experience and the knowledge to use fire suppression equipment.

4.7.3.2 Research – Reynolds Creek Experimental Watershed

The USDA Agricultural Service Northwest Watershed Research Center has been conducting hydraulic and rangeland research at the Reynolds Creek Experimental Watershed (RCEW) since 1960. One of the largest research watersheds in the United States, the Reynolds Creek Experimental Watershed is located approximately 50 miles southwest of Boise in the Owyhee Mountains above the community of Reynolds Creek. Four projects have been identified, two of which have been completed, and that will contribute to a longer-term research and management plan under development by NWRD for assessing prescribed fire impacts in the RCEW.

Information gathered through this research could be used for planning future prescribed fire projects and to add to the knowledge base of using prescribed fire to manage intermountain rangelands. Juniper encroachment has become an issue for resource managers who are looking for ways to improve fire prone landscapes and restore fire adapted ecosystems. Historical studies of the area suggest that the natural role of the fire cycle has been interrupted, facilitating juniper encroachment into these sites. Prescribed fire projects have been identified through 2007 after which future projects could occur.

4.7.3.3 Juniper Mountain

Juniper Mountain is located approximately 45 miles southeast of Jordan Valley, Oregon. The desired sagebrush steppe, mountain mahogany, mountain shrub and aspen communities are gradually being lost to juniper expansion. The Juniper Mountain Restoration Project will begin in 2006 and is expected to continue for ten years to follow with various prescribed fire and mechanical treatments to control seral juniper. The object of this project is to restore the natural fire regime sustaining multiple stages of healthy native plant communities for wildlife habitat, livestock forage, and other values provided by these native communities.

4.7.3.4 General Projects

Education

- As the corridor between Marsing and Murphy (*actually that could apply to all new structures throughout Owyhee County*) becomes more developed, there will be a need for more outreach programs to educate homeowners about Firewise which could include distribution of literature door-to-door, personal home assessments, community presentations, more community clean-up days, etc.

- Propose introducing building codes or suggestions on Firewise building materials to use for new construction of homes located within the identified WUI areas.
- The BLM has been active in posting signs in recreational use areas to promote fire prevention activities such as the spark arrestor requirements for off-road motorized dirt bikes, campfire restrictions, and the general “Prevent Range Fires” signs posted along the main highways and roads.
- Continue to provide Public Service Announcements that support fire prevention.
- Maintain patrols in high use recreational areas and provide prevention information as needed.
- Continue to educate the public about the risk of starting fires by using steel and tracer ammunition in popular target practice sites such as Elephant Butte, south of Marsing, and Hemingway Butte, on the road to Reynolds Creek.

Training

- Continue to work with rural fire departments on wildland fire fighter training and notify members of those departments when training opportunities arise.

Rural Fire Assistance

- Continue to work with rural fire departments to improve their own fire fighting capabilities.
- Encourage and support the formation of new fire departments in communities identified in this plan such as Oreana, Indian Valley, Cliffs, and Pleasant Valley.

Infrastructure

- Work with the county and communities to identify and secure adequate water sources
- Support road improvement projects where needed to provide appropriate access and egress to communities and land owners

The Owyhee and Bruneau field offices current projects and descriptions are listed below.

Table 4.11. Owyhee and Bruneau Field Offices Project Development and Implementation Timeframes.

Project name	Planning Time Frame	Implementation Timeframe
<i>Owyhee Field Office</i>		
ARS Reynolds Cr. Research Rx Burns	EA and Decision Record signed in 2002	The Breaks burned in '02, Whiskey Hill burned in '04, Upper Sheep Cr. scheduled for '05, Johnston Draw scheduled for '07. Other future burns may occur within the Reynolds Cr. Watershed.
West Antelope Juniper Cut & Rx Burns	EA and Decision Record signed in 2003	Cutting began in July 2004. Rx burn Chimney Sp. Pasture in 2006, Rx burn 2N Pasture in 2007
Indian Meadows Rx burns	EA and Decision Record signed in 2003	Noon Cr. Scheduled to Rx burn in 2006 Williams Cr. Scheduled for burning in 2007
Boone Peak Juniper Cut	EA and Decision Record signed in 2004	Cutting will begin in 2005
Hart Cr./Box T Juniper Cut & Burns	EA and Decision Record expected in 2005	Cutting will begin in 2005, Rx burns starting in 2006
Flint juniper cutting treatments	Categorical Exclusion expected in 2005	Implementation expected in 2006
Silver City	Categorical Exclusion signed	Implementation began in July 2004 and will continue in

Table 4.11. Owyhee and Bruneau Field Offices Project Development and Implementation Timeframes.

Project name	Planning Time Frame	Implementation Timeframe
Town Cutting Treatments	2004	2005.
Silver City Annual Cleanup Day	Categorical Exclusion signed 2002	Annual event which first occurred in July 2002.
Silver City Area Fuels Reduction Trts.	EA & ROD expected in early 2005	Begin work in mid 2005. Treatments expected for the next 10 years.
Juniper Mountain Restoration Project	EA & Decision Record signed 2005	Begin Rx and mechanical treatments in 2006. Treatments expected for the next 10 years.
<i>Bruneau Field Office</i>		
Flat Broke Reseeding	EA & Decision Record signed 2000	Reseeded in 2003
Pixley Basin Rx Burn & Juniper Cut	EA & Decision Record signed 2002	Cut and burned in 2003. Complete cutting in 2005
Battle Creek Juniper Cut	EA & Decision Record signed 1999	Implementation began in June 2002. Completion expected in 2005
Long Tom Juniper Cut and Rx Burn	EA or Categorical Exclusion expected in 2005	Begin cutting in 2005, burn in 2006

Table 4.12. Field Office Project Descriptions.

Project	Summary (Purpose and Need)	Benefits to the Community	Location	Description	Acres
<i>Owyhee Field Office Project Descriptions</i>					
ARS Reynolds Creek Research Rx Burns.	Allow ARS to conduct fire related research needed for addressing soil and watershed issues related to juniper expansion and prescribed fire.	Fire and watershed related research beneficial in planning future prescribed fires.	Public and private lands within the Reynolds Creek Experimental Watershed	Conduct four and possibly more prescribed burns within the watershed.	The Breaks 166 ac Whiskey Hill 897 ac U. Sheep Cr. 64 ac Johnston Draw 451 ac
Juniper Mountain Restoration Project		A restored fire regime sustaining multiple seral stages of healthy native plant communities throughout the landscape for wildlife habitat, livestock forage, wildflowers, and other values provided by these native communities.	Juniper Mountain Area	Various prescribed fire and mechanical treatments to control seral juniper over the next 10 years.	Burn up to 12,000 ac per year and mechanically treat up to 2,000 acres per year over the next 10 years within the 280,00 acre project area.
W. Antelope Juniper Cut & Rx Burns	The sagebrush steppe, mt. shrub, mt. mahogany, & aspen communities are gradually being lost to juniper expansion.	Maintained and restored sagebrush steppe, mt. shrub, mt. mahogany, & aspen communities for wildlife habitat, livestock forage, wildflowers, and other values provided by these native plant communities.	Public and private land W. Antelope Allotment	Rx burn the Chimney Sp. Pasture. Cut portions of 2N Pasture followed by Rx burn.	ChimneySp.Past 780 ac 2N Pasture 1,500 ac
Indian Meadows Rx burns		Economic opportunities for using juniper wood products.	Public and state land in the Noon Cr. & Williams Cr. Pastures of the Indian Meadows Allotment. (08S04W33 08S05W03)		Noon Cr. 9,744 ac Williams Cr. 2,442 ac
Boone Peak Juniper Cut			Boone Peak Allotment (05S02W 22)	Thin dense seral juniper stands.	4,212 ac
Hart Cr./Box T Juniper Treatments			Hart Cr. & Box T Allotments (05S01W17)	Various mechanical trts. & Rx burns.	10,000 ac

Table 4.12. Field Office Project Descriptions.

Project	Summary (Purpose and Need)	Benefits to the Community	Location	Description	Acres
Flint juniper cutting treatments	Dense stands of juniper and Douglas fir pose a crown fire threat to the historic mining district of Flint. Additionally, aspen & mountain shrub stands are being replaced by encroaching conifers.	Decreased wild fire threat to life, property and the historic structures, and restoration of aspen and mountain shrub communities in the area.	The historic Flint Mining District (06S04W11)	Mechanically remove seral juniper, <8" DBH fir trees and prune larger trees.	982 ac
Silver City Town Cutting Treatments	Reduce the fire hazard to the Silver City area by reducing the amount and continuity of hazardous fuels in and near the town. Provide safe travel corridors to the public and emergency vehicles in the event of wildfire. Maintain & restore the historic native sagebrush steppe, mt. mahogany, mt. shrub, & aspen communities which are being lost to conifer expansion.	Decreased threat to life, property and the historic mining town.	Public and private lands surrounding the town of Silver City (05S03W06).	Mechanically remove seral juniper, <8" DBH fir trees and prune larger trees.	729 ac
Silver City Annual Cleanup Day	Assist the citizens in decreasing the threat of wildfire caused by hazardous fuels within the town.	Decreased threat of fire originating within the town.	Public and private lands within the town of Silver City (05S03W06).	Remove and haul flammable debris away from town to a burn site.	20 ac

Table 4.12. Field Office Project Descriptions.

Project	Summary (Purpose and Need)	Benefits to the Community	Location	Description	Acres
Silver City Area Fuels Reduction Treatments	<p>Reduce crown fire potential by thinning crowded stands and removing encroaching conifers out of the aspen woodlands.</p> <p>Provide defensible space, safe travel corridors, and safety zones for fire fighters, residents, and visitors.</p> <p>Improve the long-term health of the forest to reduce the risk of catastrophic wildfire.</p> <p>Retain a scenic landscape for the town.</p>	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatments.	Jordan Creek Watershed (05S03W06)	Reduce crown fire potential by reducing the amount and continuity of the hazardous fuels.	1800 ac
<i>Bruneau Field Office Project Descriptions.</i>					
Flat Broke Reseeding	Convert a flammable cheatgrass dominated site to perennial grasses and shrubs in order to restore resource values and reduce the fire frequency.	Stabilized soil, decreased fire frequency, improved wildlife habitat, and more consistent winter forage for livestock and big game.	Flat Broke Located 10 miles SE of Bruneau	Drill seed perennial grasses & shrubs on a failed fire rehab seeding.	850 ac
Pixley Basin Prescribed Burn & Juniper Cut	Sagebrush steppe, mt. shrub, & aspen communities are being lost to juniper expansion.	Maintain & restore these important native shrub communities which provide important wildlife habitat and forage for grazing animals.	Pixley Basin Pasture of the West Castle Creek Allotment located 12 miles SW of Grandview.	Prescribe burn and cut encroaching juniper.	7,000 ac
Long Tom Juniper Cut and Rx Burn			Mahogany pasture of the West Castle Cr. Allotment, located 25 miles SW of Granview.	Cut dense seral juniper to increase fuel loading, then burn. Remove juniper from mahogany stands.	3,507 ac

Table 4.12. Field Office Project Descriptions.

Project	Summary (Purpose and Need)	Benefits to the Community	Location	Description	Acres
Battle Creek Juniper Cut	Scattered juniper is expanding into the scenic mt. mahogany savannas and will eventually out compete the mahogany if left untreated.	Maintenance of scenic mt. mahogany savanna and the important wildlife habitat it provides.	Summer Pasture of the Battle Cr. Allotment located approx. 30 miles SW of Grandview.	Cut the scattered juniper out of the mahogany stands.	30,000 ac

Chapter 5: Treatment Recommendations

5 Overview

Critical to the implementation of this Wildfire Mitigation Plan will be the identification of, and implementation of, an integrated schedule of treatments targeted at achieving an elimination of the lives lost, and reduction in structures destroyed, infrastructure compromised, and unique ecosystems damaged that serve to sustain the way-of-life and economy of Owyhee County and the region. Since there are many land management agencies and hundreds of private landowners in Owyhee County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

Owyhee County encourages the philosophy of instilling disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

The federal land management agencies in Owyhee County, specifically the Bureau of Land Management, the Mountain Home Air Force Base, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, and the state land management agency, the Idaho Department of Lands, are participants in this planning process and have contributed to its development. The Forest Service does not manage any federal property in Owyhee County. The BLM has management responsibility for most federal land in Owyhee County. Where available, their schedule of WUI treatments has been summarized in this chapter to better facilitate a correlation between their identified planning efforts and the efforts of Owyhee County.

All risk assessments were made based on the conditions existing during 2004-05, thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

As part of the Policy of Owyhee County in relation to this planning document, this entire **Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Owyhee County Commissioners, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be prepared (or arranged) by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Idaho Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the Wildfire Mitigation Plan. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

5.1 Annual Prioritization of Activities

The annual prioritization process will include a special emphasis on cost-benefit analysis review. The process will reflect that a key component in funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs. Projects will be administered by local jurisdictions with overall coordination provided by the Owyhee County Emergency Management Coordinator.

Owyhee County Commissioners and the elected officials of all jurisdictions will evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where

existing funds and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal and not tied to a strict benefit-cost model, but rather to a willingness to simply implement hazard mitigation. Often the types of projects that Owyhee County can afford to do on their own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. Owyhee County will consider all pre-disaster mitigation proposals brought before the county commissioners by county department heads, city officials, fire districts and local civic groups.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a predominate criteria in establishing project priorities. The county will understand the basic federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's three grant programs (the post-disaster Hazard Mitigation Grant Program, the pre-disaster Flood Mitigation Assistance and Pre-Disaster Mitigation grant programs) that offer federal mitigation funding to state and local governments all include the benefit-cost and repetitive loss selection criteria.

The prioritization of projects will occur annually and be facilitated by the Owyhee County Emergency Management Coordinator to include the County Commissioner's Office, City Mayors and Councils, Fire District Chiefs and Commissioners, agency representatives (BLM, State Lands, etc.). The prioritization of projects will be based on the selection of projects which create a balanced approach to pre-disaster mitigation which recognizes the hierarchy of treating in order (highest first):

- People and Structures
- Infrastructure
- Local and Regional Economy
- Traditional Way of Life
- Ecosystems

While developing and analyzing projects based this hierarchy, specific projects will be evaluated for their intrinsic benefit/cost analysis results, overall benefit to the public good, opportunities for leveraging results from other projects in the county, and coordinating with multi-county activities resulting in specific risk reduction within Owyhee County. The analysis process will include summaries as appropriate for each project, but will include benefit / cost analysis results, which will be one of the criteria for project selection. Projects with a negative benefit / cost analysis result will only be considered in specific circumstances. As a guideline, the decision will be to further consider investments having a B/C Ratio greater than or equal to 1, and reject projects that have a B/C Ratio less than 1. When multiple projects are considered, decision makers will rank by B/C ratio and give the highest ranking projects priority under these criteria. Other criteria will influence final project ranking.

5.2 Possible Fire Mitigation Activities

As part of the implementation of fire mitigation activities in Owyhee County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Building code changes for structures and infrastructure in the WUI

- Homesite defensible zone through fuels modification
- Community defensible zone fuels alteration
- Access improvements
- Access creation
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts, merging existing districts)
- Regional land management recommendations for private, state, and federal landowners

Maintaining private property rights will continue to be one of the guiding principles of this plan's implementation. Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.

5.3 WUI Safety & Policy

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related in nature and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

As part of the Policy of Owyhee County in relation to this planning document, this entire **Wildland-Urban Interface Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Owyhee County Commissioners, open to the public, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be approved by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Idaho Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the WUI Wildfire Mitigation Plan (signatures by the cooperators would be collected at the Chairman's discretion). Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Prioritization of activities recommended in this plan should be made by the Owyhee County Commissioners consistent with the recommendations made in Chapter 1 of this document. During the annual review of this plan, reprioritization can be justified in response to changing conditions and funding opportunities.

5.3.1 Existing Practices That Should Continue

Owyhee County currently is implementing many projects and activities that, in their absence, could lead to increased wildland fire loss potential. By enumerating some of them here, it is the desire of the authors to point out successful activities.

- Existing rural addressing efforts have aided emergency responses.
- The current 911 service in the county is an excellent service. Activities that build on the rural addressing and current emergency services to develop an Enhanced 911 service would serve the county well.

- Livestock grazing.
- Controlled burning.
- Fire Week Education Program in area schools.

5.3.2 Proposed Activities

Table 5.1. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.a: Continue to adopt and/or amend existing building codes and zoning ordinances as necessary to address wildland fire risks for all construction within the county.	Protection of people and structures by applying a standard of road widths, access, and building regulations suitable to insure new homes can be protected while minimizing risks to firefighters. (defensible space, roads and access management, water systems, building codes, signage, and maintenance of private forest and range lands)	County Commissioners in cooperation with Rural Fire Districts and Planning and Zoning.	<ul style="list-style-type: none"> Year 1 debate and adoption of revised standard (2005). Review adequacy of changes annually, make changes as needed.
5.1.b: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction	Protection of people and structures by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas.	County Commissioners Office in cooperation with Rural Fire Departments and Planning and Zoning Committee.	Year 1 (2005) activity: Consider and develop policy to address construction materials for homes and businesses located in high wildfire risk areas. Specifically, a County policy concerning wooden roofing materials and flammable siding, especially where juxtaposed near heavy wildland fuels.
5.1.c: Develop a formal WUI Advisory Committee to advise County Commissioners on WUI Issues and Treatments	Protection of people and structures by improving the ability of decision makers to make informed decisions about wildfire issues.	County Commissioners Office	Year 1 (2005) activity: Formalize a committee, its membership and service decided on by the County Commissioners, to collaborate on WUI issues within Owyhee County. Members potentially to include land management organizations and companies, private landowners, and fire protection personnel.
5.1.d: Develop a County Commissioner’s Office policy to support the applications for grant monies for projects resulting from recommendations in this plan.	Protection of people and structures by improving the ability of residents and organizations to implement sometimes costly projects.	County Commissioners Office	Ongoing activity: Support grant applications as requested in a manner consistent with applications from residents and organizations in Owyhee County.

5.4 People and Structures

The protection of people and structures will be tied together closely as the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire. The other incident is a fire fighter who suffers the loss of life during the combating of a fire. Many of the recommendations in this section will define a set of criteria for implementation while others will be rather specific in extent and application.

Many of the recommendations in this section involve education and increasing awareness of the residents of Owyhee County. These recommendations stem from a variety of factors including items that became obvious during the analysis of the public surveys, discussions during public meetings, and observations about choices made by residents living in the Wildland-Urban Interface. Over and over, a common theme was present that pointed to a situation of landowners not recognizing risk factors:

- Fire District personnel pointed to numerous examples of inadequate access to homes of people who believe they have adequate ingress.

In addition to those items enumerated in Table 5.1, residents and policy makers of Owyhee County should recognize certain factors that exist today, that in their absence would lead to an increase in the risk factors associated with wildland fires in the WUI of Owyhee County. These items listed below should be encouraged, acknowledged, and recognized for their contributions to the reduction of wildland fire risks:

- **Livestock Grazing** in and around the communities of Owyhee County has led to a reduction of many of the fine fuels that would have been found in and around the communities and in the wildlands of Owyhee County. Domestic livestock not only eat these grasses, forbs, and shrubs, but also trample certain fuels to the ground where decomposition rates may increase. Livestock ranchers tend their stock, placing resource professionals into the forests and rangelands of the area where they may observe ignitions, or potentially risky activities. Livestock grazing in this region should be encouraged into the future as a low cost, positive tool of wildfire mitigation in the Wildland-Urban Interface and in the wildlands.
- **Agriculture** is a significant component of Owyhee County's economy. Much of the northern portion of the county is intermixed with agricultural crops. The original conversion of these lands to agriculture from rangeland, was targeted at the most productive soils and juxtaposition to infrastructure. Many of these productive ecosystems were consequently also at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today, is that much of the rangeland historically prone to frequent fires, has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Owyhee County is integral to the continued management of wildfire risk in this region.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.a: Youth and Adult Wildfire Educational Programs	Protect people and structures by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk	Cooperative effort including: <ul style="list-style-type: none"> University of Idaho Cooperative Extension Idaho Department of Lands Bureau of Land Management Local School Districts 	To start immediately using existing educational program materials and staffing. Formal needs assessment should be responsibility of University of Idaho Cooperative Extension faculty and include the development of an integrated WUI educational series by year 3 (2007). Costs initially to be funded through existing budgets for these activities to be followed with grant monies to continue the programs as identified in the formal needs assessment.
5.2.b: Wildfire risk assessments of homes in identified communities	Protect people and structures by increasing awareness of specific risk factors of individual homesites in the at-risk landscapes. Only after these are completed can homesite treatments follow.	To be implemented by County Commissioners Office in cooperation with the Rural Fire Departments . Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	<ul style="list-style-type: none"> Cost: Approximately \$100 per homesite for inspection, written report, and discussions with the homeowners. There are approximately 4,450 housing units in Owyhee County, roughly 1,300 of these structures would benefit from a homesite inspection and budget determination for a total cost estimate of \$130,000. Action Item: Secure funding and contract to complete the inspections during years 1 & 2 (2005-06) Homesite inspection reports and estimated budget for each homesite's treatments will be a requirement to receive funding for treatments through grants.
5.2.c: Homesite WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Owyhee County	County Commissioners in cooperation with Fire Mitigation Consulting company and Rural Fire Districts <i>Complete concurrently with 5.4.b.</i>	<ul style="list-style-type: none"> Actual funding level will be based on the outcomes of the homesite assessments and cost estimates Estimate that treatments will cost approximately \$750 per homesite for a defensible space of roughly 150'. Approximately 1,300 homes in this category for an estimated cost of \$975,000. Homesite treatments can begin after the securing of funding for the treatments and immediate implementation in 2005 and will continue from year 1 through 5 (2010).

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.d: Community Defensible Zone WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding high risk communities in the WUI of Owyhee County	County Commissioners in cooperation with Fire Mitigation Consultants and Rural Fire Districts	<ul style="list-style-type: none"> • Actual funding level will be based on the outcomes of the homesite assessments and cost estimates. • Years 2-5 (2006-10): Treat high risk wildland fuels from homesite defensible space treatments (5.4.c) to an area extending 400 feet to 750 feet beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist. Should link together home treatment areas. Treatments target high risk concentrations of fuels and not 100% of the area identified. To be completed only after or during the creation of home defensible spaces have been implemented. • Approximate average cost on a per structure basis is \$650-\$800 depending on extent of home defensibility site treatments, for a cost estimate of \$ 942,500.
5.2.e: Maintenance of Homesite WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Owyhee County	County Commissioners Office in cooperation with Rural Fire Departments and local home owners	<ul style="list-style-type: none"> • Homesite defensibility treatments must be maintained periodically to sustain benefits of the initial treatments. • Each site should be assessed 5 years following initial treatment • Estimated re-inspection cost will be \$50 per homesite on all sites initially treated or recommended for future inspections (\$65,000) • Follow-up inspection reports with treatments as recommended years 5 through 10.
5.2.f: Re-entry of Homesite WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Owyhee County	County Commissioners Office in cooperation with Rural Fire Departments and local home owners	<ul style="list-style-type: none"> • Re-entry treatments will be needed periodically to maintain the benefits of the initial WUI home treatments. Each re-entry schedule should be based on the initial inspection report recommendations, observations, and changes in local conditions. Generally occurs every 5-10 years.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
<p>5.2.g: Access Improvements of bridges, cattle guards, and limiting road surfaces</p>	<p>Protection of people, structures, infrastructure, and economy by improving access for residents and fire fighting personnel in the event of a wildfire. Reduces the risk of a road failure that leads to the isolation of people or the limitation of emergency vehicle and personnel access during an emergency.</p>	<p>County Roads and Bridges Department in cooperation with BLM, State of Idaho (Lands and Transportation), and rangeland owners.</p>	<ul style="list-style-type: none"> • Year 1 (2005): Update existing assessment of travel surfaces, bridges, and cattle guards in Owyhee County as to location. Secure funding for implementation of this project (grants) • Year 2 (2006): Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Estimate cost of \$150,000 which might be shared between County, BLM, State, and private based on landownership associated with road locations. • Year 2 (2006): Post weight restriction signs on all crossings, copy information to rural fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly \$25-\$30,000 for signs and posting. • Year 3 (2007): Identify limiting road surfaces in need of improvements to support wildland fire fighting vehicles and other emergency equipment. Develop plan for improving limiting surfaces including budgets, timing, and resources to be protected for prioritization of projects (benefit/cost ratio analysis). Create budget based on full assessment.

5.5 Infrastructure

Significant infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to Owyhee County. These networks are by definition a part of the Wildland-Urban Interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and on-the-ground activities.

Communication Infrastructure: This component of the WUI seems to be diversified across the county with multiple source and destination points, and a spread-out support network. Although site specific treatments will impact local networks directly, little needs done to insure the system's viability.

Transportation Infrastructure (road and rail networks): This component of the WUI has some potential limitations in Owyhee County. The major arterials of Owyhee County's transportation network are U.S. 95 and State Routes 51 and 78. These and other specific infrastructure components have been discussed in this plan.

Ignitions along highways are significant and should be addressed as part of the implementation of this plan. Various alternatives from herbicides to intensive livestock grazing coupled with mechanical treatments have been suggested. As part of the multi-agency WUI team proposed in the previous section, these corridors should be further evaluated with alternatives implemented. A variety of approaches will be appropriate depending on the landowner, fuels present, and other factors. These ignitions are substantial and the potential risk to residents in the area is significant.

Many roads in the county have limiting characteristics, such as narrow travel surfaces, sharp turning radii, low load limit bridges and cattle guards, and heavy accumulations of fuels adjacent to the right-of-way. Some of these road surfaces access remote rangeland areas. While their improvements will facilitate access in the case of a wildfire, they are not necessarily the priority for treatments in the county.

Roads that have these inferior characteristics and access homes and businesses are the priority for improvements in the county. Specific recommendations for these roads are enumerated in Table 5.3.

Energy Transport Supply Systems (gas and power lines): (Owyhee County - Appendix I) A number of power lines crisscross Owyhee County. Unfortunately, many of these power lines cross over rangeland ecosystems. When fires ignite in these vegetation types, the fires tend to be fast moving, but burn at relatively low to moderate intensities. Additionally, there is a potential for high temperatures and low humidity with high winds to produce enough heat and smoke to threaten power line stability. Most power line corridors have been cleared of vegetation both near the wires and from the ground below. Observations across the county of these high tension power lines lead to the conclusion that current conditions coupled with urban developments have mitigated this potential substantially. It is the recommendation of this Wildfire Mitigation Plan that this situation be evaluated annually and monitored but that treatments not be specifically targeted at this time. The use of these areas as "fire breaks" should be evaluated further, especially in light of the treatments enumerated in this plan (eg., intensive livestock grazing, mechanical treatments, and herbicide treatments).

Water Supply: In many of Idaho’s communities, water is derived from surface flow that is treated and piped to homes and businesses. When wildfires burn a region, they threaten these watersheds by the removal of vegetation and creation of ash and sediment. As such, watersheds should be afforded the highest level of protection from catastrophic wildfire impacts. In Owyhee County, water is supplied to many homes by single home or multiple home wells. These ground water resources would not be significantly damaged in the event of a wildland fire.

5.5.1 Proposed Activities

Table 5.3. Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.3.a: Post FEMA “Emergency Evacuation Route” signs along the identified Primary and secondary access routes in the county.	Protection of people and structures by informing residents and visitors of significant infrastructure in the county that will be maintained in the case of an emergency.	County Commissioners in cooperation with Rural Fire Districts and Roads Department.	<ul style="list-style-type: none"> • Purchase of signs (2005). • Posting roads and make information available to residents of the importance of Emergency Routes
5.3.b: Fuels mitigation of the FEMA “Emergency Evacuation Routes” in the county to insure these routes can be maintained in the case of an emergency.	Protection of people and structures by providing residents and visitors with ingress and egress that can be maintained during an emergency.	County Commissioners in cooperation with Rural Fire Districts and Roads Department.	<ul style="list-style-type: none"> • Full assessment of road defensibility and ownership participation (2005). • Implementation of projects.

5.6 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland fire fighting districts in Owyhee County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies in the WUI and are fully supported by the planning committee.

Specific reoccurring themes of needed resources and capabilities include:

- More water tenders for Rural Fire Districts with drafting capabilities at unimproved sites
- New or expanded Fire Districts for Oreana, Indian Valley, Cliffs and Pleasant Valley.
- Expand the existing Fire Districts in the county to include growth areas.
- New fire station at Givens Hot Springs

The implementation of each issue will rely on either the isolated efforts of the fire districts or a concerted effort by the county to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve county wide equity. However, the West Central Idaho RC&D may be an organization uniquely suited to work with all of the districts in Owyhee County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the RC&D is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
<p>5.4.a: Enhance radio availability in each district, link into existing dispatch, and improve range within the region, update to new digital, narrow band frequency adopted by feds and state.</p>	<p>Protection of people and structures by direct fire fighting capability enhancements.</p>	<p>BLM in cooperation with rural and wildland fire districts and County Commissioners</p>	<ul style="list-style-type: none"> • Year 1 (2005): Summarize existing two-way radio capabilities and limitations. Identify costs to upgrade existing equipment and locate funding opportunities. • Year 2 (2006): Acquire and install upgrades as needed. • Year 2-3 (2006-07): Identify opportunities for radio repeater towers located in the region for multi-county benefits.
<p>5.4.b: Retention of Volunteer Fire Fighters</p>	<p>Protection of people and structures by direct fire fighting capability enhancements.</p>	<p>Rural and Wildland Fire Districts working with broad base of county citizenry to identify options, determine plan of action, and implement it.</p>	<ul style="list-style-type: none"> • 5 Year Planning Horizon, extended planning time frame • Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers • Year 1 (2005): Develop incentives program and implement it.
<p>5.4.c: Increased training and capabilities of fire fighters</p>	<p>Protection of people and structures by direct fire fighting capability enhancements.</p>	<p>Rural and Wildland Fire Districts working with the BLM, IDL, and USFS for wildland training opportunities and with the State Fire Marshall's Office for structural fire fighting training.</p>	<ul style="list-style-type: none"> • Year 1 (2005): Develop a multi-county training schedule that extends 2 or 3 years in advance (continuously). • Identify funding and resources needed to carry out training opportunities and sources to acquire. • Year 1 (2005): Begin implementing training opportunities for volunteers.
<p>5.4.d: Redistricting of Rural Fire Districts</p>	<p>Protection of people and structures by improving response time and capturing the synergies in joint Rural/City operations.</p>	<p>All current Rural Fire Districts, State Fire Marshall, County Commissioners, and City governments.</p>	<p>Year 1 (2005): meet with responsible parties to examine feasibility of redistricting.</p> <p>Year 2 (2006) Implement recommendations reached by responsible parties.</p>
<p>5.4.e: New Fire Station at Givens Hot Springs</p>	<p>Protection of people and structures by direct fire fighting capability enhancements.</p>	<p>Murphy Rural Fire District working with the BLM.</p>	<p>Year 1 (2005): meet with responsible parties to examine feasibility of a joint Rural Fire District/BLM fir Station.</p> <p>Year 2 (2006) Implement</p>

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.f: Identify areas lacking a sufficient water supply and develop publicly accessible fill sites.	Protection of people and structures by direct fire fighting capability enhancements.	County Commissioners and rural and wildland fire districts.	recommendations reached by responsible parties <ul style="list-style-type: none"> • Identify populated areas lacking sufficient water supplies and develop project plans to develop fill or helicopter dipping sites. • Implement project plans.
5.4.g: Maintain developed water sources for firefighting purposes.	Protection of people and structures by direct fire fighting capability enhancements.	Rural Fire Districts in cooperation with the BLM.	On going: Annual review of developed water source areas

5.7 Regional Land Management Recommendations

In section 5.3 of this plan, reference was given to the role that grazing and agriculture have in promoting wildfire mitigation services through active management. Owyhee County is dominated by wide expanses of rangelands intermixed with communities and rural houses.

Wildfires will continue to ignite and burn fuels and homes depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy range and forestland conditions, and promotes the use of these natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. We encourage the Bureau of Land Management, the Idaho Department of Lands, Industrial land owners, private land owners, and all other landowners in the region to actively administer their Wildland-Urban Interface lands in a manner consistent with the management of reducing fuels and risks in this zone.

Chapter 6: Supporting Information

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6.3 List of Preparers

The following personnel participated in the formulation, compilation, editing, and analysis of alternatives for this assessment.

Table 6.1. List of Preparers

Name	Affiliation	Role
William E. Schlosser, Ph.D.	Northwest Management, Inc.	Lead Author , Project Co-Manager, GIS Analyst, Natural Resource Economist, Hazard Mitigation Specialist
Toby R. Brown	Northwest Management, Inc.	Project Co-Manager, Natural Resource Manager, Fire Control Technician
Vincent P. Corrao, B.S.	Northwest Management, Inc.	Resource Management Specialist, Deputy Project Manager
Tera Duman, B.S.	Northwest Management, Inc.	Natural Resource Manager, Fire Control Technician
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Dennis S. Thomas	Northwest Management, Inc.	Fire & Fuels Specialist, Prescribed Burning Manager
Ken Homik, M.S.	Northwest Management, Inc.	Fire Use & Air Quality Specialist
Vaiden E. Bloch, M.S.	Northwest Management, Inc.	GIS Analyst
Greg Bassler, M.S.	Northwest Management, Inc.	Roads Engineer, Timber Sale Layout & Harvest Manager
Jim Desmond	Owyhee County Natural Resources Director	Coordinator, area specialist

6.4 Signature Pages

6.4.1 Representatives of Owyhee County Government

This Wildfire Mitigation Plan and all of its components identified herein were adopted formally through a resolution of the Board of County Commissioners as of _____ 2005, resolution number _____, recorded in the official record of the Owyhee County Commissioners. Departments and employees of the county who participated in this plan can be found in chapter 2.2.3. The County Commissioners, being the duly elected public body, are the legal authority of the entire county and the departments that were involved in the planning process.

By: Harold Tolmie, Chairman
Owyhee County Commissioner

Date

By: Chris Salove
Owyhee County Commissioner

Date

By: Dick Reynolds
Owyhee County Commissioner

Date

6.4.2 Representatives of City Government in Owyhee County

This Wildfire Mitigation Plan and all of its components identified herein were adopted formally through individual resolutions passed by each city government herein listed.

By: Donald Osterhoudt, Mayor City of Marsing	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____
By: Paul Fink, Mayor City of Homedale	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____
By: Paul Spang, Mayor City of Grand View	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____

6.4.3 Representatives of City and Rural Fire Districts in Owyhee County

This Wildfire Mitigation Plan and all of its components identified herein were developed in close cooperation with the participating fire districts listed herein. Those fire districts which are a City entity have shown their organization's adoption through the formal adoption of the City. Fire protection districts which are independent of a city or the county have indicated their formal adoption of the Wildfire Mitigation Plan below:

_____ By: Bob Maimberg , Chairman Board of FireCommissioners Marsing Fire Protection Department	_____ Date	Adopted by Resolution of the Department Resolution Number: _____ Adoption Date: _____
_____ By: Ted Jayo, Chairman Board of Fire Commissioners Grand View Fire Protection Department	_____ Date	Adopted by Resolution of the Department Resolution Number: _____ Adoption Date: _____
_____ By: Tom Benson, Chairman Board of Fire Commissoners Murphy-Renyolds-Wilson Fire Department	_____ Date	Adopted by Resolution of the Department Resolution Number: _____ Adoption Date: _____
_____ By: Dan Mori, Chairman Board of Fire Commissoners Bruneau Fire Department	_____ Date	Adopted by Resolution of the Department Resolution Number: _____ Adoption Date: _____
_____ By: Fred Degeus, Chairman Board of Fire Commissoners Homedale Fire Protection District	_____ Date	Adopted by Resolution of the Department Resolution Number: _____ Adoption Date: _____
_____	_____	

6.4.4 Representatives of Federal and State Agencies, and Companies

This Wildfire Mitigation Plan was developed in cooperation and collaboration with the additionally listed agencies and organizations. These entities listed below are not eligible to “formally adopt” this plan, but will strive to implement its recommendations.

By: Glen Secrist, Boise District Manager
US Department of the Interior, BLM

Date

By: Howard Hedrick, Twin Falls District Manager
US Department of the Interior, BLM

Date

By: Kevin Stabler, Mountain Home Air Force Base Fire Chief
US Air Force

Date

By: Steve Douglas, Area Supervisor
Idaho Department of Lands,
Southwest Supervisory Area

Date

By: Robin Finch, President
Southwest Idaho Resource Conservation and Development
Council, Inc.

Date

By: William E. Schlosser, Ph.D.
Project Co-Manager & Lead Author
Owyhee County WUI Wildfire Mitigation Plan
Northwest Management, Inc.

Date

6.5 Glossary of Terms

Anadromous - Fish species that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce (Salmon & Steelhead).

Appropriate Management Response - Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Biological Assessment - Information document prepared by or under the direction of the Federal agency in compliance with U.S. Fish and Wildlife standards. The document analyzes potential effects of the proposed action on listed and proposed threatened and endangered species and proposed critical habitat that may be present in the action area.

Backfiring - When attack is indirect, intentionally setting fire to fuels inside the control line to contain a rapidly spreading fire. Backfiring provides a wide defense perimeter, and may be further employed to change the force of the convection column.

Blackline - Denotes a condition where the fireline has been established by removal of vegetation by burning.

Burning Out - When attack is direct, intentionally setting fire to fuels inside the control line to strengthen the line. Burning out is almost always done by the crew boss as a part of line construction; the control line is considered incomplete unless there is no fuel between the fire and the line.

Canyon Grassland - Ecological community in which the prevailing or characteristic plants are grasses and similar plants extending from the canyon rim to the rivers edge.

Confine - Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Contingency Plans: Provides for the timely recognition of approaching critical fire situations and for timely decisions establishing priorities to resolve those situations.

Control Line - An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire.

Crew - An organized group of firefighters under the leadership of a crew boss or other designated official.

Crown Fire - A fire that advances from top to top of trees or shrubs more or less independently of the surface fire. Sometimes crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire.

Disturbance - An event which affects the successional development of a plant community (examples: fire, insects, windthrow, timber harvest).

Disturbed Grassland - Grassland dominated by noxious weeds and other exotic species. Greater than 30% exotic cover.

Diversity - The relative distribution and abundance of different plant and animal communities and species within an area.

Drainage Order - Systematic ordering of the net work of stream branches, (e.g., each non-branching channel segment is designated a first order stream, streams which only receive first order segments are termed second order streams).

Duff - The partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

Ecosystem - An interacting system of interdependent organisms and the physical set of conditions upon which they are dependent and by which they are influenced.

Ecosystem Stability - The ability of the ecosystem to maintain or return to its steady state after an external interference.

Ecotone - The area influenced by the transition between plant communities or between successional stages or vegetative conditions within a plant community.

Energy Release Component - The Energy Release Component is defined as the potential available energy per square foot of flaming fire at the head of the fire and is expressed in units of BTUs per square foot.

Equivalent Clearcut Area (ECA) - An indicator of watershed condition, which is calculated from the total amount of crown removal that has occurred from harvesting, road building, and other activities based on the current state of vegetative recovery.

Exotic Plant Species - Plant species that are introduced and not native to the area.

Fire Adapted Ecosystem - An arrangement of populations that have made long-term genetic changes in response to the presence of fire in the environment.

Fire Behavior - The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast - Fire behavior predictions prepared for each shift by a fire behavior analysis to meet planning needs of fire overhead organization. The forecast interprets fire calculations made, describes expected fire behavior by areas of the fire, with special emphasis on personnel safety, and identifies hazards due to fire for ground and aircraft activities.

Fire Behavior Prediction Model - A set of mathematical equations that can be used to predict certain aspects of fire behavior when provided with an assessment of fuel and environmental conditions.

Fire Danger - A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

Fire Ecology - The scientific study of fire's effects on the environment, the interrelationships of plants, and the animals that live in such habitats.

Fire Exclusion - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Intensity Level - The rate of heat release (BTU/second) per unit of fire front. Four foot flame lengths or less are generally associated with low intensity burns and four to six foot flame lengths generally correspond to "moderate" intensity fire effects. High intensity flame lengths are usually greater than eight feet and pose multiple control problems.

Fire Prone Landscapes - The expression of an area's propensity to burn in a wildfire based on common denominators such as plant cover type, canopy closure, aspect, slope, road density, stream density, wind patterns, position on the hillside, and other factors.

Fireline - A loose term for any cleared strip used in control of a fire. That portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil.

Fire Management - The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities.

Fire Management Plan (FMP) - A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. This plan is supplemented by operational procedures such as preparedness, preplanned dispatch, burn plans, and prevention. The fire implementation schedule that documents the fire management program in the approved forest plan alternative.

Fire Management Unit (FMU) - Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMU's are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Occurrence - The number of wildland fires started in a given area over a given period of time. (Usually expressed as number per million acres.)

Fire Prevention - An active program in conjunction with other agencies to protect human life, prevent modification, of the ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence, including public education, law enforcement, personal contact, and reduction of fire risks and hazards.

Fire Regime - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

Fire Retardant - Any substance that by chemical or physical action reduces flareability of combustibles.

Fire Return Interval - The number of years between two successive fires documented in a designated area.

Fire Risk - The potential that a wildfire will start and spread rapidly as determined by the presence and activities of causative agents.

Fire Severity - The effects of fire on resources displayed in terms of benefit or loss.

Fire Warden - has charge of the fire prevention and suppression system in the fire protection district of the warden and such other duties as are required by law.

Foothills Grassland - Grass and forb co-dominated dry meadows and ridges. Principle habitat type series: bluebunch wheatgrass and Idaho fescue.

Fuel - The materials which are burned in a fire; duff, litter, grass, dead branchwood, snags, logs, etc.

Fuel Break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Fuel Loading - Amount of dead fuel present on a particular site at a given time; the percentage of it available for combustion changes with the season.

Fuel Model - Characterization of the different types of wildland fuels (trees, brush, grass, etc.) and their arrangement, used to predict fire behavior.

Fuel Type - An identifiable association of fuel elements of distinctive species; form, size, arrangement, or other characteristics, that will cause a predictable rate of fire spread or difficulty of control, under specified weather conditions.

Fuels Management - Manipulation or reduction of fuels to meet protection and management objectives, while preserving and enhancing environmental quality.

Gap Analysis Program (GAP) - Regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities. This is accomplished through the following five objectives:

1. Map the land cover of the United States
2. Map predicted distributions of vertebrate species for the U.S.
3. Document the representation of vertebrate species and land cover types in areas managed for the long-term maintenance of biodiversity
4. Provide this information to the public and those entities charged with land use research, policy, planning, and management
5. Build institutional cooperation in the application of this information to state and regional management activities

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Heavy Fuels - Fuels of a large diameter, such as snags, logs, and large limbwood, which ignite and are consumed more slowly than flash fuels.

Hydrologic Unit Code - A coding system developed by the U. S. Geological Service to identify geographic boundaries of watersheds of various sizes.

Hydrophobic - Resistance to wetting exhibited by some soils, also called water repellency. The phenomena may occur naturally or may be fire-induced. It may be determined by water drop penetration time, equilibrium liquid-contact angles, solid-air surface tension indices, or the characterization of dynamic wetting angles during infiltration.

Human-Caused Fires - Refers to fires ignited accidentally (from campfires or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

Intensity - The rate of heat energy released during combustion per unit length of fire edge.

Inversion - Atmospheric condition in which temperature increases with altitude.

Ladder Fuels - Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Landsat Imagery - Land remote sensing, the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites.

Landscape - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Lethal - Relating to or causing death; extremely harmful.

Lethal Fires - A descriptor of fire response and effect in forested ecosystems of high-severity or severe fire that burns through the overstory and understory. These fires typically consume large woody surface fuels and may consume the entire duff layer, essentially destroying the stand.

Litter - The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Maximum Manageable Area - The boundary beyond which fire spread is completely unacceptable.

Metavolcanic - Volcanic rock that has undergone changes due to pressure and temperature.

Minimum Impact Suppression Strategy (MIST) - “Light on the Land.” Use of minimum amount of forces necessary to effectively achieve the fire management protection objectives consistent with land and resource management objectives. It implies a greater sensitivity to the impacts of suppression tactics and their long-term effects when determining how to implement an appropriate suppression response.

Mitigation - Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Monitoring Team - Two or more individuals sent to a fire to observe, measure, and report its behavior, its effect on resources, and its adherence to or deviation from its prescription.

National Environmental Policy Act (NEPA) - This act declared a national policy to encourage productive and enjoyable harmony between humans and their environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and will stimulate the health and welfare of humankind; to enrich the understanding of important ecological systems and natural resources; and to establish a Council on Environmental Quality.

National Fire Management Analysis System (NFMAS) - The fire management analysis process, which provides input to forest planning and forest and regional fire program development and budgeting.

Native - Indigenous; living naturally within a given area.

Natural Ignition - A wildland fire ignited by a natural event such as lightning or volcanoes.

Noncommercial Thinning - Thinning by fire or mechanical methods of precommercial or commercial size timber, without recovering value, to meet MFP standards relating to the protection/enhancement of adjacent forest or other resource values.

Notice of Availability - A notice of Availability published in the Federal Register stating that an EIS has been prepared and is available for review and comment (for draft) and identifying where copies are available.

Notice of Intent - A notice of Intent published in the Federal Register stating that an EIS will be prepared and considered. This notice will describe the proposed action and possible alternatives, the proposed scoping process, and the name and address of whom to contact concerning questions about the proposed action and EIS.

Noxious Weeds - Rapidly spreading plants that have been designated “noxious” by law which can cause a variety of major ecological impacts to both agricultural and wild lands.

Planned Ignition - A wildland fire ignited by management actions to meet specific objectives.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Programmatic Biological Assessment - Assesses the effects of the fire management programs on Federally listed species, not the individual projects that are implemented under these programs. A determination of effect on listed species is made for the programs, which is a valid assessment of the potential effects of the projects completed under these programs, if the projects are consistent with the design criteria and monitoring and reporting requirement contained in the project description and summaries.

Reburn - Subsequent burning of an area in which fire has previously burned but has left flareable light that ignites when burning conditions are more favorable.

Riparian Habitat Conservation Areas (RHCA) - Portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris, and nutrient delivery systems.

Riparian Management Objectives (RMO) - Quantifiable measures of stream and streamside conditions that define good fish habitat and serve as indicators against which attainment or progress toward attainment of goals will be measured.

Road Density - The volume of roads in a given area (mile/square mile).

Scoping - Identifying at an early stage the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental analysis accordingly.

Seral - Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition.

Serotinous - Storage of coniferous seeds in closed cones in the canopy of the tree. Serotinous cones of lodgepole pine do not open until subjected to temperatures of 113 to 122 degrees Fahrenheit causing the melting of the resin bond that seals the cone scales.

Stand Replacing Fire - A fire that kills most or all of a stand.

Sub-basin - A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th - field Hydrologic Unit Code.

Surface Fire - Fire which moves through duff, litter, woody dead and down, and standing shrubs, as opposed to a crown fire.

Watershed - The region draining into a river, river system, or body of water.

Wetline - Denotes a condition where the fireline has been established by wetting down the vegetation.

Wildland Fire - Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP) - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

Wildland Fire Situation Analysis (WFSA) - A decision making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use", which is a broader term encompassing more than just wildland fires.

Wildland Fire Use for Resource Benefit (WFURB) - A wildland fire ignited by a natural process (lightning), under specific conditions, relating to an acceptable range of fire behavior and managed to achieve specific resource objectives.

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