Section 3: Hazard, Vulnerability and Risk Assessment

The following section provides information on wildfires and how they may affect the Custer County's ability to respond. This initial assessment is the baseline for developing a more in-depth disaster data tracking system, which will provide a more accessible and accurate profile for risk assessments in the future. For current and historical fire loading see BLM and Forest Service Fire Maps in Appendix 6.

Hazard Assessment

Analysis of Specific Areas/Conditions

Specific risks are subsets of the general risk category. They are individual improvements or resource values that have the potential to be at risk under identified fire behavior.

- Areas of fire fighter safety concerns
- Developed recreation sites
- Summer home sites
- Designated communication sites
- Oil and gas facilities
- Municipal watersheds
- Private land with structures
- Noxious plants
- Timber emphasis areas
- Mining facilities
- Above-ground utility corridors
- High-use travel corridors
- Historic Resource areas
- Capable range land
- Wildlife habitat

Sawtooth National Recreation Area

The Sawtooth National Recreation Area (SNRA) is experiencing severe drought conditions throughout the forest. ERC values are above the 97th percentile, with 1000-hour fuels showing 9-11%, and live fuel moistures ranging from 70-134%. The mountain pine beetle epidemic in the Sawtooth Valley and Stanley Basin and the high number of homes in the wildland/urban interface increase the potential for large wildfires that put community and firefighter safety at risk. In addition, there is high public usage in this area and abandoned campfires were one of the main ignition causes in 2002. The long-term fire weather forecast is predicted to remain hot and dry, with the possibility of extreme fire behavior.

Due to these variables, the Sawtooth National Forest requested a National Fire Prevention Team funded with severity funding. The team was tasked with addressing the fire potential and looking at reducing the number of human-caused ignitions on the Sawtooth National Forest and its neighbors. Homeowners in this area were very concerned about the red tree problem and the high potential for a wildfire. For a complete report of this effort see Appendix 5.

Large areas of the SNRA, as well as a portion of the Yankee Fork Ranger District of the Salmon/Challis National Forest, are experiencing significant increases in hazardous fuel loading, primarily created from a very active attack of Mountain Pine Beetle (MPD). In some areas, nearly 70-80% of the lodgepole pine trees are dead or dying. This is a naturally occurring phenomenon, brought about by successive years of drought coupled with a "short-lived" species of trees that has reached and exceeded the age of maturity.

Epidemics of MPB are not new the SNRA and have been previously documented. Historical records indicate that the lodgepole pine in the Stanley Basin suffered an infestation by the MPB on over 90,000 acres in the early 1900s. Records indicate that the infestation was too extensive to permit any control measures to be undertaken. According to the Sawtooth National Forest Historical Information Report of 1941, there was another widespread infestation in 1926. Within three or four years practically all the mature and over mature lodgepole pine in the forest were killed. The infestation subsided after six or seven years.

In the early to mid 1980's, thousands of trees were killed by the MPB in the Alturas Lake Creek, Champion Creek, Pole Creek, Lost Creek, and Taylor Creek drainages. A new infestation began in 1996, starting in the Salmon River corridor east of Stanley. Surveys indicate that the infestation continues to intensify in the Sawtooth Valley and Stanley Basin. Forest Health Protection entomologists recorded that the number of lodgepole pine tress killed by the MPB rose from 8,143 in 1999 to 845,000 in 2002.

The MPB and fire have co-existed in lodgepole pine ecosystems almost as long as there has been lodgepole pine. Wildfires play a key role in the lodgepole pine forests. In the ecosystem, without high public use, MPB killed trees would burn and prompt the regeneration of new lodgepole pine stands. In is a naturally occurring cycle of regeneration. Accurate records regarding wildfire suppression in the Sawtooth Valley/Stanley Basin date back to 1948. Wildfire suppression has occurred since 1905. Since 1948, three hundred and twenty six wildfires have been suppressed in the lodgepole pine community of the Sawtooth Valley affecting ninety-two acres. The policy of suppression has allowed for a high density, even aged lodgepole pine community and a large amount of fuel on the ground.

Hazard Condition

Mountain Pine Beetles attack trees that are between 20 and 120 years old and with diameters greater than 6 inches. A large portion of the lodgepole pine in the Sawtooth Valley is composed of dense stands of this age and diameter with decreased biodiversity, due in part to the long history of wildfire suppression. Through the course of the infestation, the fire hazard is expected to change from dry red needles to dead standing timber to heavy fuel loads on the forest floor if stands are left untreated. It is the dead needles of the affected lodgepole pine, along with excessive fuel loading and a continuous even-aged stand that represents a potential for increased wildfire behavior for the next several years. Currently, there are large amounts of standing dead, lodgepole pine in the Sawtooth Valley. The Stanley basin is not a high frequency, low-intensity burning fire regime like some areas in the County. The SNRA (lodgepole pine and sub-alpine/spruce) is in fire regime #4 (35-100 yrs and stand replacing fires) and some fire regime #5 (200+ yrs). It is currently in its natural state. However, this natural state is extremely hazardous when mixed with the wildland/urban interface and recreational uses.

Historically in the Western United States, lighting ignites and estimated 70% of wildland fires however, 80% of wildfires in the Sawtooth Valley are human caused. Wildfire starts have increased in the Sawtooth Valley due in large part to increased visitor use. The visitor use pattern in the Sawtooth Valley, coupled with the ongoing MPB infestation and drought increases significantly the risk of wildfire occurrence.

Developments of both private and public structures are encroaching on the lodgepole pine stands within the Sawtooth Valley. These structures are difficult to protect from wildfire and with limited firefighting capabilities are often impossible to protect.

Current hazardous fuel loading, as a result of the MPB infestation would exhibit extreme fire behavior if ignited. Although the MPB outbreak is a naturally occurring event, it has the potential to result in uncharacteristically intense wildfires and increased risk to life, property, firefighters, and natural resources. It has also caused noted visual changes to the landscape and a loss of vegetative diversity.

The large amount of biomass created by the MPB infestation, the dead and downed woody debris, and the dense canopy, increases the risk that a wildfire will move into the tree canopy by the way of ladder fuels, which carry a fire from the forest floor up into the trees. This condition has the potential to result in an intense "stand" replacing wildfire. Many of the homes within the Sawtooth Valley are directly adjacent to these "red tree" stands. Fires within these stands pose significant risk to nearby homes and properties. Effective suppression would be extremely difficult and firefighter safety could be comprised. The heavy fuels that enable wildfires to spread across public and private ownership boundaries are compromising the safety of the public and structures on private held properties.

Salmon Challis National Forest

The Wildland/Urban Interface Fire Management Unit within the Salmon Challis National Forest is 626,450 acres in size and is scattered across the Forest primarily along river and stream corridors. It covers areas in both Lemhi and Custer Counties. Included within the unit are areas bordering the Salmon River, Owl Creek, Panther Creek, Napias Creek, Silver Creek, Spring Creek, Indian Creek, North Fork of the Salmon River, Sheep Creek, Dahlonega Creek, Fourth of July Creek, Hayden Creek, Big Timber Creek, Little Timber Creek, Williams Creek, Williams Lake, Morgan Creek, Challis Creek, Garden Creek, Pass Creek, Wet Creek, Big Lost River, East Fork of the Big Lost River, Rio Grand Canyon and Antelope Creek.

Lands within or in close proximity to this Fire Management Unit are classified as Wildland urban interface areas. Included are the at risk communities identified by the State of Idaho as a part of the National Fire Plan as well as other communities and developed areas that qualified as Wildland Urban Interface and Wildland urban intermix communities using the Forest Wildland Urban Interface definition. The specified suppression strategy for fires occurring within this area is full suppression. Fire management direction comes from either the Challis National Forest or Salmon National Forest Land and Resource Management Plan.

The geographic landform can be characterized as river and stream bottom lands. Many of these areas are located in extremely narrow canyons bordered by steep mountain slopes. The climate within the Fire Management Unit is consistent with valley bottom weather patterns in Central Idaho. Precipitation is light with average annual precipitation ranging from 7.4 inches per year to 15 inches. The majority of annual precipitation occurs during late fall through early spring months however; summer thunderstorms may also bring intense short duration periods of precipitation to the area, occasionally in significant quantities. Fall, winter and early spring precipitation may come in the form of rain or snow; snow pack development is uncommon in the area. Representative weather stations in Salmon, Challis and Stanley Idaho provide 70-year precipitation average of: 9.12 inches, 7.4 inches and 14.33 inches respectively. Temperatures are cool in the winter and warm in the summer, the January mean average winter temperature at Salmon, Challis and Stanley is: 18°, 20° and 13° degrees respectively. The July mean average summer temperature at these three stations is: 68°, 68° and 57° respectively. The upper air wind pattern in the area is dominated by westerly winds however; surface winds are heavily influenced by topography with wind funneling very common. A number of canyons and valleys in the unit are aligned with the predominant winds and this has a marked influence on fire behavior. Local winds are also influenced by surface heating so up slope/up valley breezes are common during the summer months.

The geology of the Fire management Unit is very diverse owing to the fragmented and dispersed nature of the unit. This unit is located in valley bottoms along the major rivers and streams that flow the length of

the Forest accordingly a number of geologic formations are represented within the unit. Four basic vegetative conditions typify the area and can be used in a general way to describe anticipated vegetative conditions. The conditions are:

- Canyon bottoms with sparse vegetation primarily in the form of grass and shrubs and a narrow riparian zone exists along streams and Rivers.
- Canyon bottoms are dominated by a broad band of riparian vegetation types including cottonwood and willow thickets.
- Forested canyon bottoms with a narrow band of riparian vegetation giving way to coniferous forest stands including ponderosa pine, Douglas fir lodgepole pine or mixed stands.
- Altered forest or rangelands where natural vegetation has been removed or modified as a result of agriculture, habitation, mining, road construction or other human activities.

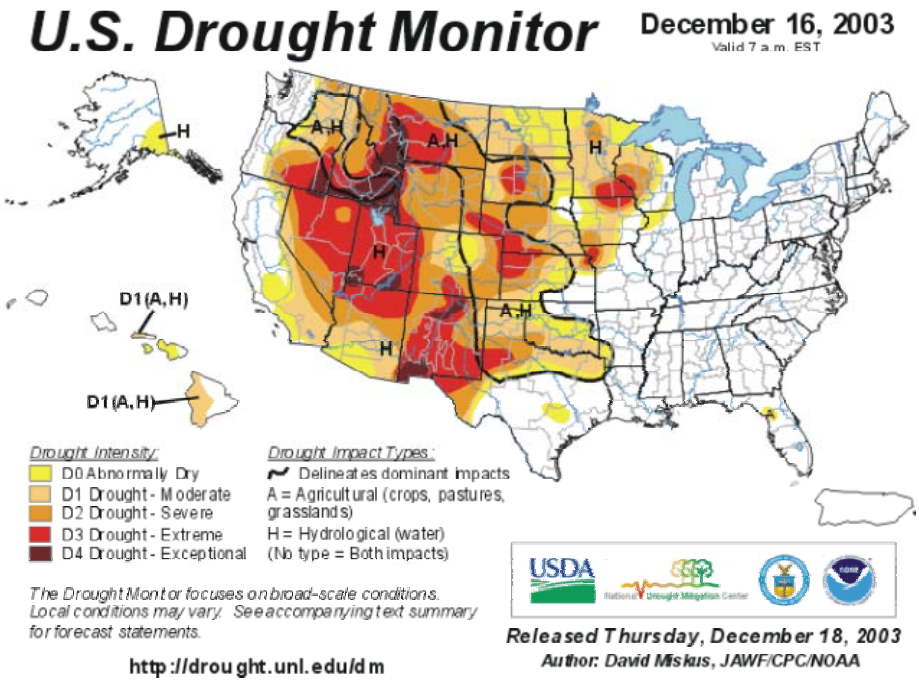
Big Lost Drainage

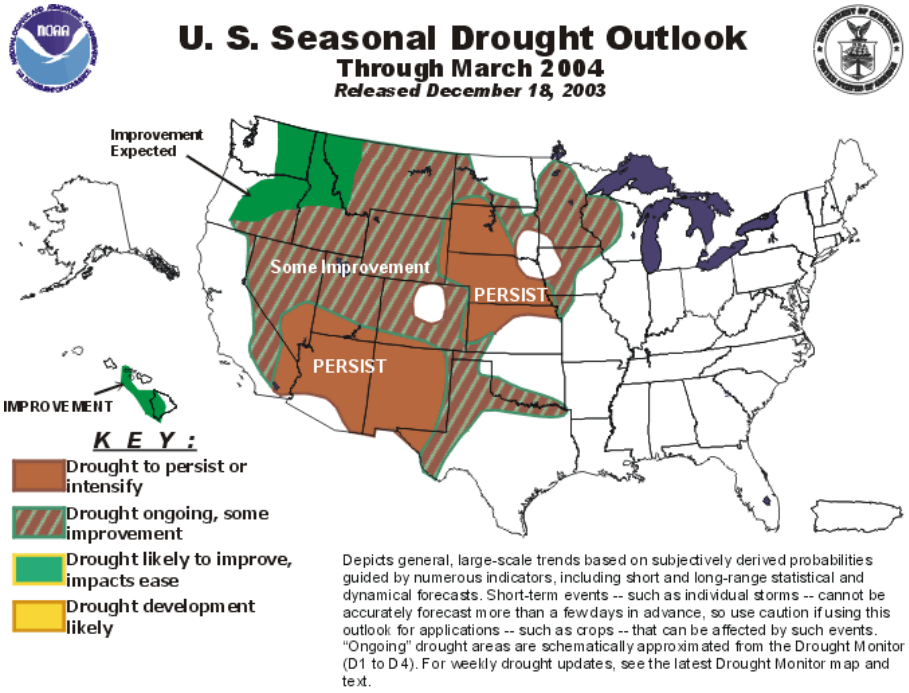
Severe Drought has significantly impacted the Big Lost Drainage. The Mackay Reservoir, according to the Basin Wide Reservoir Summary of September 2003 was 2% of capacity at the end of the 2003 irrigation season. Currently the USDA Natural Resource Conservation Service reports the Reservoir at 16% of capacity. Riparian lands along the Big Lost River have been severely impacted due to low stream. Naturally occurring vegetation has died leaving dead trees and brush within the Riparian Zones below Mackay Reservoir.

Private Lands, held along the Big Lost River, are vulnerable to Wildfires within the Riparian Zone. There has been a significant increase in construction of homes within the Riparian Zone within the past 10 years. These homes are surrounded with high levels of fuel due to the dead and dying trees and natural vegetation. The South Custer and Big Lost Fire Districts provide fire Suppression within the Big Lost River Riparian Zone.

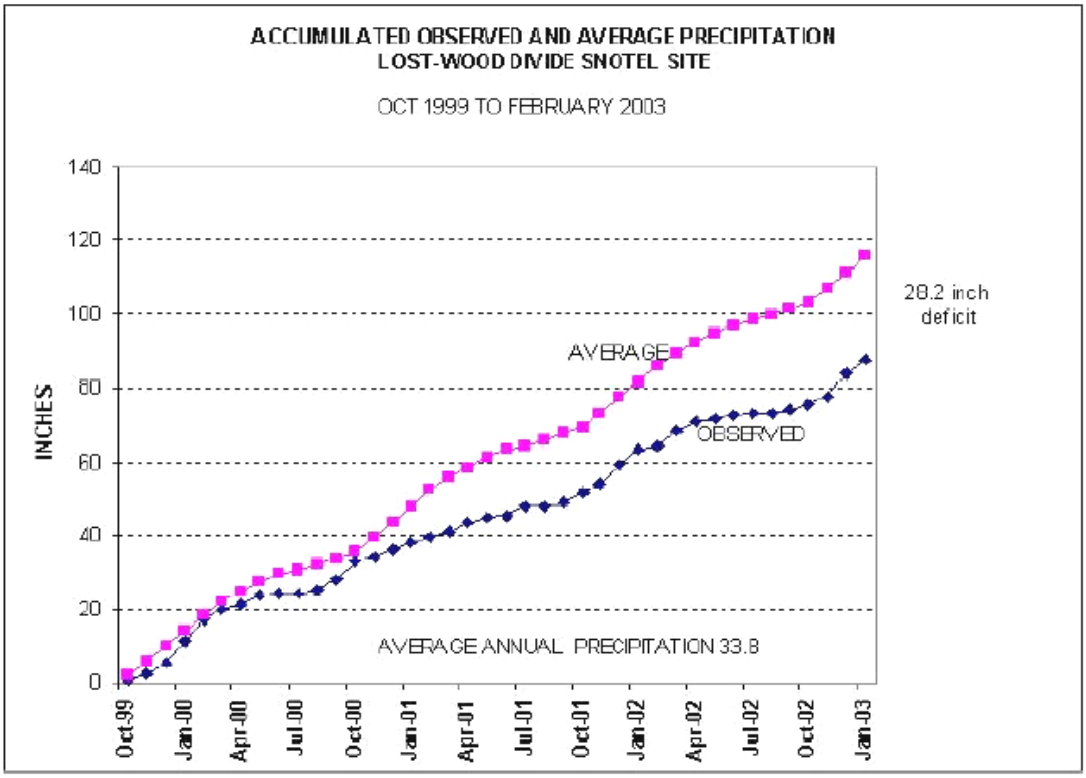
Drought

Drought conditions have existed in Custer County since 1999. The County Commissioners requested a Drought Disaster Declaration from the Idaho Department of Water Resources in April 2001, which was approved by Governor Dirk Kempthorne. The County has been under declaration status since that time with the declaration renewed annually by the Governor. According to the National Weather Service it is expected that in 2004 the drought will continue with below normal snow pack and below normal water supplies. See Figure 1 for current drought condition throughout the United States and Figure 2 for the 2004 Drought Condition Forecast.





The graph below illustrates the magnitude of the precipitation deficit that has developed at the Lost-Wood Divide site in the headwaters of the Big Lost River above Mackay. Since October 1999 an accumulated deficit of over 28 inches or almost a whole year's worth of precipitation has occurred. Three years of above normal precipitation will be needed to restore ground water conditions.



Landslide

Landslides occur when masses of rock, earth, or debris move down a slope. *Debris flows*, also known as *mudslides*, are a common type of fast-moving landslide that tends to flow in channels. Landslides are caused by disturbances in the natural stability of a slope. They can accompany heavy rains or follow droughts, earthquakes, or volcanic eruptions. Mudslides develop when water rapidly accumulates in the ground and results in a surge of water-saturated rock, earth, and debris. Mudslides usually start on steep slopes and can be activated by natural disasters. Areas where wildfires or human modification of the land have destroyed vegetation on slopes are particularly vulnerable to landslides during and after heavy rains.

In the United States, landslides and debris flows result in 25 to 50 deaths each year. The health hazards associated with landslides and mudflows include:

- Rapidly moving water and debris that can lead to trauma;
- Broken electrical, water, gas, and sewage lines that can result in injury or illness; and,
- Disrupted roadways and railways that can endanger motorists and disrupt transport and access to health care.

Some areas are more likely to experience landslides or mudflows, including:

- Areas where wildfires or human modification of the land have destroyed vegetation;
- Areas where landslides have occurred before;
- Steep slopes and areas at the bottom of slopes or canyons;

- Slopes that have been altered for construction of buildings and roads;
- Channels along a stream or river; and
- Areas where surface runoff is directed.

Landslides resulting from the removal of vegetation during a wildfire incident are common. The most vulnerable area within Custer County for damage due to landslides is the Salmon River Corridor from Stanley to Challis and beyond into Lemhi County along State Highway 75. This area is currently within the "Red Tree" treatment area discussed above. Work to remove dead and dying lodgepole pine along the Salmon River Corridor is underway however; the process is difficult because of the increasing requirements brought about by the Clean Water Act and issues related to fisheries.

Landslides within Custer County and the Sub Salmon River Drainage are not uncommon. For example on July 27, 2003 a major landslide occurred along the Salmon River between Dutch and Panther Creeks in Lemhi County. This landslide resulted in significant ecological and economic damage to the area.

The Upper Salmon River Sub Basin Assessment and Total Maximum Daily Load Report, published in January 2003, by the State of Idaho Department of Environmental Quality, provide and excellent review of the Topography, Geology, and Hydrology of the Salmon River Sub Basin with includes the majority of Custer County. The report, not replicated herein, http://www.deq.state.id.us/water/tmdls/Upper_Salmon/Upper_Salmon_1.pdf, describes the potential for significant landslides in the area due to loss of vegetation as a result of wildfires.

Landslides, not withstanding the cause, could cause significant public safety, ecological, and economical damage to Custer County. Damage to transportation routes, electrical transmission systems, communication systems, and private property are of high probability. Significant damage to the watershed is also highly probable.

Vulnerability Assessment

A vulnerability assessment identifies areas in the county that may be affected, individuals in the county who may be subject to injury or death, and what facilities, property, or environment may be susceptible to damages should a wildfire occur.

Electrical Power:

The Salmon River Electric Cooperative (SREC) transmission system has only one line into Custer County with limited redundancy outside of the county. This situation, while usually reliable, is very vulnerable to wildfires. For example, in July of 2003 a wildfire on the Idaho National Engineering Laboratory damaged power lines running from the Goshen Substation, near Idaho Falls, to Custer County. The County experienced two power outages as a result of the line damage, one on the 27th lasting 5 hours and one on the 28th lasting 3 hours. A map of the electrical supply system for Custer County is included in Appendix 12. As experience in July 2003, a wildfire anywhere between the Goshen substation and Custer County as the "end of the line" has a potential to interrupt electrical power.

Transportation Routes:

The main transportation routes through Custer County are U. S. Highway 93 and State Highways 75 and 21. These highways are two-way, opposing traffic roadways. The highest times of use are in the summer months during the tourism season. While U. S. Highway 93 essentially traverses the open valleys of

Custer County between Mackay and Challis, it crosses the Big Lost River riparian zone between Mackay and Leslie. This riparian area has a high concentration of dead trees and vegetation.

Highway 75 follows the Salmon River from Stanley to Challis and then into Lemhi County. The highway between Stanley and Challis winds through narrow river gorges filled with dead and dying lodgepole pines as described above. A wildland fire, or a resulting landslide, could easily close this major east/west corridor. Highway 75 leaves Stanley and turns south through the heart of the SNRA into Blaine County. The SNRA and Idaho Department of Lands Map, (See Appendix 12) showing the Red Tree Treatment areas, illustrates that Highway 75 is extremely vulnerable to wildfire closure due to the high fuel loading from the red tree hazard describe above.

Highway 21 comes from the North into Stanley through the SNRA and passes through designated Red Tree treatment areas as well and has the same vulnerabilities as highway 75.

Many of the improved roads in the County leave the main arteries described above to reach into remote areas within the confines of the two national forests. These roads, for the most part, end as unimproved roadways. Discussion within the Interagency Planning Group has focused on the width of these roadways, the narrow bridges, and lack of clearances for fire apparatus. Additionally there is concern that evacuation from high mountain areas, recreations areas, and in many instances, housing subdivisions have a single access road that could easily be blocked by wildfire or landslides.

Recreation Sites:

There are several significant recreation sites within Custer County. The most frequently mentioned area of concern is Red Fish Lake, the Red Fish Lake Lodge, and the Red Fish Lake Camp grounds and trail heads. Other areas include but are not limited to, Eddy Lake, Copper Basin, and campgrounds along the Salmon River. The SNRA has developed some evacuation plans for the Red Fish Lake Area. These areas are of significant risk due to the high fuel loading, the continued drought, and the high instance of visitation by the general public.

Custer Idaho and the Custer Motorway Adventure Road

In 1966, the Challis National Forest took ownership of the few remaining building of Custer, Idaho. Established in 1870s along the Yankee Fork of the Salmon River, this City was home to gold miners and other adventures. The City, essentially a ghost town, was placed on the National Registry of Historic Places. In 1990, the Idaho Department of Parks and Recreation joined the Forest Service in managing Custer. This led to the establishment of the "Land of the Yankee Fork" State and National Forest Historic Area.

Additional Historic Sites along the Custer Motorway Adventure Road include the City of Challis, Cartwright Gulch, Corkscrew Grand and Slab Barn, Greenwood Station, Tollgate Station, Homestead Station, Twelve-mile Station, Eleven Mile Barn, Yankee Fork Fisheries, Custer Cemetery, General Custer Mill Site, Jordan Creek, Yankee Fork Gold Dredge, Bonanza City, Dredge Tailings, Sunbeam Store and Sunbeam Dam. Any and all of these sites are within the boundaries of the Salmon-Challis National Forest and are considered part of the Urban Interface because of their relationship to Tourism.

Housing Subdivisions:

There are eleven major subdivisions and the Red Fish Lake Lodge within the SNRA and Custer County boundaries that are of specific concern. These subdivisions are within the Red Tree Treatment Areas. Many have not completed any fuel reduction activities and in some instances the fuel reduction activities are in direct conflict with their building certificates with the SNRA. These subdivisions are all vulnerable for significant loss due to wildfire. Most have only one-way in and out, narrow bridges, and various other

obstructions. Because of the drought and the MPB infestation there is significant fuel loading with little, if any, water available for suppression actions. Private Subdivisions and property of concern include but are not limited to the following:

- Cabin Creek
- Valley View
- Fisher Creek
- Stanley Basin /Buckhorn
- Iron Creek
- Goat Creek
- Crooked Creek
- Homestead
- Cow Camp Area
- Red Fish Lake Lodge

Local Fire Response:

The description of the fire districts in Custer County and there respective needs are included in Section 1 and, and therefore are not replicated here however, the following analysis is conducted as part of the vulnerability assessment to establish those challenges facing the local fire response elements. During meetings with each of the District Fire Chiefs the following concerns were expressed and documented in several reports found in the Appendices 1-3.

- Lack of adequate water supplies, water distribution systems, etc.
- Inaccessible structures
- Narrow roads and bridges
- Load limits on bridges
- Inadequate fire plans
- Inadequate Protection Codes and Code Enforcement
- Lack of integrated communications, planning, preparedness, and response protocols
- Additional and improved communications equipment
- Training of personnel
- Staffing and retention of volunteers
- Public Education
- Fire District Coverage
- Fire Station construction/expansion
- Additional response vehicles and equipment
- Maintenance and testing procedures
- Lack of Resources, assistance in obtaining grants and other funding

The challenges facing the Custer County Fire Districts are not unlike those facing most rural fire districts throughout the U.S. The need for additional manpower, vehicles, equipment, and training are all common challenges facing rural departments. The Custer County Fire Districts face these challenges and others listed above. The current response capability, while it could be improved, is adequate for most of the response areas within the county. There are however, significant challenges in dealing with the hazards facing the County in the wildland/urban interface areas within the South Custer, North Custer/Challis, and Stanley Fire Districts.

The largest vulnerability is the access to water for suppression actions. Much of the water used in the wildland/urban interface is either transported in or comes from streams, the Salmon River, and mountain

lakes. The Fire Districts indicate an inadequate "tender" capacity. The ongoing drought has lowered natural flows, additionally these flows are not available during the late fall, winter, and early spring due to freezing of natural water supplies.

The second largest vulnerability is access to residences and structures within the wildland/urban interface. Most subdivisions have a single, unimproved roadway leading in and out of the area. These roadways are narrow, clearances are poorly maintained, and in some instances have bridges that are impassable. Responders have a difficult time getting response equipment to the structures to be protected.

A third vulnerability, and one that could be easily addressed, is the lack of an integrated planning, preparedness and response. While this issue is easily addressed, if left unresolved it could be the most serious of all the vulnerabilities. The lack of a coordinated response capability can lead to ineffective protection, potentially resulting in significant property loss and a reduction in public safety.

Risk Assessment

General Risk

General risk as defined by the Forest Service is their Fire Management Unit (FMU) determinations is defined as a concentration of at-risk conditions that can be identified by a geographic area. General risk categories are used to describe relative risk on the Sawtooth and the Salmon Challis National Forest. (See Historic Fire Map in Appendix 6) Fuel conditions, concentrations of wildland urban intermix and interface, areas defined for protection from wildland fire by the Sawtooth and Salmon Challis National Forest Land Management Plans were used to geographically define general risk categories. General risk categories include:

Red Category - High Risk

Fire may perform an important role in the function of the ecosystem but because of resource concerns and potentially high economic impacts from unplanned ignitions, considerable constraints and mitigation measures are required. The appropriate management response is usually aggressive suppression actions to fire control. Fuels reduction is a major means of mitigating the potential risks and losses. Prescribed fire projects are often complex and costly due to stringent contingency planning and monitoring. Unplanned ignitions are typically not managed to meet resource management objectives due to the proximity of high value improvements and the concentration of areas excluded from wildland fire use by the National Forest Land Management Plans. Large relative concentration of private land in holdings surrounded by fire prone vegetation types has been classified a HIGH general risk area.

Yellow Category – Moderate Risk

Fire is a desirable component of the ecosystem with moderate mitigation requirements and constraints. A significant level of prescribed fire activity is used to attain desired resource and ecological conditions. Prescribed fire treatments for hazard reduction are a priority, but less than in the Red category. Wildland fires may be managed to meet resource management objectives under an approved wildland fire implementation plan (WFIP). Areas with scattered individual campgrounds, isolated developments or improvements and or vegetation that could have undesired effects from wildland fire have been classified as MODERATE general risk area.

Green Category – Low Risk.

Fire is an integral component in maintaining or achieving the desired future condition for affected lands with less mitigation requirements or resource constraints than categories described above. Prescribed

fire for hazardous fuel reduction is not a priority except where an immediate threat to public health and safety exists. Wildland fires may be managed to meet resource management objectives under an approved wildland fire implementation plan. An area with few improvements and or vegetation that has a high potential for beneficial effects from wildland fire has been classified as LOW general risk area.

Designated Wilderness, such as the Frank Church Wilderness, and Proposed Wilderness areas are included in the Green category where natural processes are encouraged.

Based on assessment made by the National Forest Service much of the current wildland/urban interface area within Custer County is rated as a Yellow – or Moderate Risk Area.

Table 1 is the evaluation of risk probability versus consequence. It has been used as a discussion tool with the Interagency Planning Group in establishing mitigation action priority. The table compares the identified hazard with the potential threat to life, property, and the environment. Future risk analysis efforts will better define the targets of consequence to specific risk. The ranking criteria are presented in Table 2.

Table 1 Risk Ranking

Risk Analysis				
Identified Hazards	Life Safety	Property Damage	Environmental Damage	Economic Impact
Wildfires within the Big Lost River Riparian Zone	Medium	High	Medium	Medium
Wildfire Adjacent to Subdivisions within SNRA Boundary	High	High	High	High
Wildfire Adjacent to Challis	Low	Low	Low	Low
Landslide Along the Salmon River/ Highway 75	Low	Low	Medium	Medium
Lack of Integrated Planning, Preparedness and Response	Medium	High	Medium	Medium

Table 2 Ranking Criteria

Consequence Criteria		
Life Safety	Low	Injuries limited to the area of effect. < 10
	Medium	Serious injuries >10
	High	Multiple fatalities, critical and serious injuries
Property Damage	Low	Minimal damages
	Medium	Structural damages evident
	High	Loss of structure
Environmental Damages	Low	Minimal impact at area of effect
	Medium	Regional damage

	High	Long-term recovery. Requires significant after action
Economic Impact	Low	Economic impact minimal
	Medium	Loss of business
	High	Regional long term loss

Summary

Based on the analysis conducted to date as part of the mitigation planning effort the largest risk within the wildland/urban interface areas from wildfires in Custer County is in the SNRA/private subdivision areas. The largest threat to life may well be the recreation sites such as Red Fish Lake, but certainly the highest property loss would occur within the privately owned subdivisions where loss of life could also be significant. Another serious risk area is the Riparian Zone below the Mackay Reservoir along the Big Lost River. The conditions within this area are not as well managed as the SNRA's Red Tree treatment areas. The Federal Government does not have ultimate responsibility for the treatment program and so the County and homeowners may well have to face this risk alone.