NORTHERN UTAH

REGIONAL WILDFIRE PROTECTION PLAN

Covering Box Elder, Cache, Davis, Morgan, Rich, Salt Lake, Summit, Tooele, Utah, Wasatch, and Weber Counties

State of Utah
Division of Forestry, Fire & State Lands

May 14, 2007

FINAL

NORTHERN UTAH
REGIONAL WILDFIRE PROTECTION PLAN

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and

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EXECUTIVE SUMMARY

Wildfire has always been a natural part of the ecosystems of Utah. Historically, fires were predominantly low intensity surface fires that thinned fuel accumulations on a regular basis, with occasional, intense, stand-replacement fires in patchy areas or under extreme fire conditions. Over the last century, land management policies have emphasized fire suppression to protect human assets and interests. In forests where wildfire has been repeatedly suppressed, saplings, brush and shrubs, grass, needles, and leaves have built up to unprecedented levels, and forest stands have become denser. Such forests form huge reservoirs of fuel awaiting ignition, and resulting wildfires are often more difficult and dangerous to control. Additionally, a rapidly developing wildland-urban interface (WUI) has increased the number of residents and structures at risk from wildfire.

To address these issues, a group of multi-jurisdictional agencies (federal, state, and local), organizations, stakeholders, and residents have developed the Northern Utah Regional Wildfire Protection Plan. This RWPP is one of five regional plans covering each of the wildfire planning and protection regions of Utah. The goal of each RWPP is to assist the region and its counties, communities, and government agencies in reducing the risk of catastrophic wildfire within the region.

The Northern Utah RWPP emphasized public participation among all collaborating entities. Twenty (20) priority project areas are identified in the plan based on the need for fuels reductions as understood by fuels specialists and fire wardens; risk levels in the RWPP risk assessment; community values at risk (CVARs) in the area; the number of Communities at Risk (CARs) in the area; current projects underway; whether or not the National Environmental Policy Act (NEPA) process had been completed; how many agencies were involved; and local community involvement. Several recommendations from the public, mostly general in nature, are also presented. Implementation and monitoring of the RWPP will be the responsibility of the Northern Utah Fuels Committee. The RWPP is a living document and will be revised and updated annually or on an as needed basis by the NUFC.

The wildfire threat to residents and communities of Northern Utah is manageable if multi-jurisdictional agencies continue to work together in cooperation with community and county representatives. Local and state fire agencies, as well as community fire protection groups, are excellent resources for information and assistance. A combination of homeowner and community awareness, public education, and agency collaboration and treatments will assist in reducing wildfire risk. These elements are essential components of the Northern Utah Regional Wildfire Protection Plan and will be important in maintaining the goals and priorities of the plan in the future.

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NORTHERN UTAH REGIONAL WILDFIRE PROTECTION PLAN

SIGNATORY AUTHORITIES

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UTAH FORESTRY, FIRE, AND STATE LANDS

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Chapter 1. Introduction

Wildfire has always been a natural part of the ecosystems of Utah. Historically, fires were predominantly frequent surface fires of low intensity that thinned fuel accumulations in forests, with occasional, intense, stand-replacement fires in patchy areas or under extreme fire conditions. Over time, these periodic, natural fires created a mosaic pattern of different vegetation types and ages.

Over the last century, as populations have increased dramatically throughout the West, land management policies have emphasized fire suppression in order to protect human assets and interests. Although the policy of wildfire suppression has indeed protected human populations throughout the West, it has also disrupted the natural fire regimes that once existed. Wildfire readily and thoroughly consumes flammable materials such as understory, saplings, brush and shrub growth, grass, needles, and leaves. In forests where wildfire is suppressed year after year, flammable materials build up to unprecedented levels, and the stands become much denser. Such forests form huge reservoirs of fuel awaiting ignition, and pose a particularly significant threat when drought is also a factor (USFS 2005). As a result, wildfires are not so much suppressed as delayed, and when they occur, they are often more difficult to control, more destructive, and more dangerous to fight. As more and more communities develop and grow into areas that are adjacent to fire-prone lands, in what are known as the wildland-urban interface (WUI), wildland fires pose an increasing threat to people and their property (NFP 2001).

The Northern Utah Regional Wildfire Protection Plan (RWPP) is one of five regional plans covering each of the wildfire planning and protection regions of Utah. The goal of each RWPP is to assist the region and its counties, communities, and government agencies in reducing the risk of catastrophic wildfire within the region.

1.1 Overview of the RWPP

In response to the risk to people and property, a number of planning strategies have been implemented in recent years to address the conflicting needs of managing wildland fire to reduce threats to human development and maintaining, managing, and/or restoring fire's natural function in the ecosystem. The National Fire Plan (NFP) (2001) and the 10-Year Comprehensive Strategy Implementation Plan (2002) both emphasize a need for a collaborative approach among federal land managers, states, and local communities in reducing fire hazards and impacts to communities. The Healthy Forests Initiative (HFI 2002) and the Healthy Forests Restoration Act (HFRA 2003) also emphasize overall restoration of fire-prone ecosystems on federal, state, tribal, and private lands, in forests and rangelands, with the intent of reducing the risks that severe wildfires pose to people, communities, and the environment.

The HFRA contains a variety of provisions to expedite hazardous-fuel reduction and forest-restoration projects on federal lands that are at risk of wildland fire or insect and disease epidemics. The goals of the HRFA are to:

- strengthen public participation in developing high-priority forest health projects;
- reduce the complexity of environmental analysis, allowing federal land agencies to use the best science available to actively manage lands under their protection;
- provide a more effective appeals process that encourages early public participation in project planning; and
- issue clear guidance for court action against forest health projects (The White House 2007).

A key component of the HFRA is the development of Community Wildfire Protection Plans (CWPPs) as mechanisms of public input and prioritization of fuels reduction projects. A CWPP is a required prerequisite for receiving hazardous fuels reduction funding under the HFRA. As defined by the HFRA, the minimum requirements of a CWPP are:

1. Collaboration
2. Prioritized fuel reduction
3. Treatment of structural ignitability

The Northern Utah RWPP has been developed to meet and exceed the above minimum requirements of a CWPP, as specified in the HFRA:

1. This RWPP used a collaborative process involving federal and state agency and local government representatives to:
    - identify high-risk areas across the Northern Utah region, and
    - set broad priorities for recommendation and actions to reduce the risk to human life and property due to catastrophic wildland fire in the WUI of the state-identified "communities at risk" (CARs).[1]
2. This RWPP contains prioritized recommendations to:
    - reduce hazardous fuels,
    - promote community involvement,
    - increase communities' abilities to prepare for and respond to wildland fires,
    - reduce structural ignitability, and
    - increase wildfire awareness and education.

This RWPP serves as a comprehensive, programmatic plan for counties and communities in the Northern Utah region as they prepare to develop their own CWPPs. The intention

[1] Following Congressional direction, each state compiled a list of communities in the vicinity of federal lands determined by wildland fire officials to be at risk from wildland fire. An Overall Score was given to each community identified throughout the state of Utah, representing the sum of multiple risk factors analyzed for each community, including fire history, local vegetation, and fire-fighting capabilities. The Overall Score ranges from 0 (No risk) to 12 (Extreme risk). As of 2005, Utah had identified almost 600 communities at risk (CARs). 292 of those communities are within the Northern Utah region (See Chapter 2).

of the RWPP is to provide all counties and communities in the Northern Utah project area with a landscape-level overview of factors to consider in wildfire planning, to provide general recommendations for the entire Northern Utah region, and to direct the preparation of county and local CWPPs.

The RWPP is *not* a substitute for local CWPPs. It is important to note that the regional/landscape scale and scope of the RWPP does *not* include detailed information about each community. The more detailed CWPPs are needed to identify and address specific issues, to provide opportunities for input from the local public, and to provide the necessary community- and county-based decision-making. Each subsequent planning effort by a community should determine more specific WUI boundaries and identify specific treatment methods to reduce risk to the community and its water supplies, infrastructure, and lands. Appendix A includes a list of the completed CWPPs in the Northern Utah region.

1.2 RWPP PLANNING PROCESS

To provide communities with guidance in developing a CWPP, the Society of American Foresters, in collaboration with National Association of Counties, National Association of State Foresters, Western Governors' Association, and the Communities Committee developed a handbook entitled "*Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities*" (SAF et al. 2004). This document outlines eight steps for developing a CWPP and served as the guide for preparing the Northern Utah RWPP (Table 1).

Table 1. Eight Steps for Developing a CWPP

Step 1:	Convene Decision-makers. Form a Core Team composed of representatives from the appropriate local governments, local fire authorities, and state agencies responsible for forest, fire, and hazard management.
Step 2:	Involve Federal Agencies. Identify and engage local representatives of the USFS and Bureau of Land Management (BLM). Contact and involve other federal land management agencies as appropriate.
Step 3:	Engage Interested Parties. Contact a broad range of interested organizations and stakeholders and encourage their active public involvement in plan development.
Step 4:	Establish a Community Base Map. Work with decision-makers and stakeholders on a baseline map of the region that depicts the communities' WUIs, other inhabited areas at risk, forested areas that contain critical human infrastructure, and forested areas at risk of large-scale fire disturbance.
Step 5:	Develop a Community Risk Assessment. Work with partners to develop a community risk assessment that considers fuel hazards; risk of wildfire occurrence; homes, businesses, and essential infrastructure at risk; other community values at risk (CVARs); and local preparedness capability. Rate the level of risk for each factor and incorporate into the base map as appropriate.
Step 6:	Establish Community Priorities and Recommendations. Use the base map and risk assessment to identify local priorities for fuels treatments, opportunities to reduce structural ignitability, and other issues of interest. Clearly indicate whether

Table 1. Eight Steps for Developing a CWPP

	priority projects are directly related to 1) protection of communities and essential infrastructure or 2) reduction of wildfire risks to other CVARs.
Step 7:	Develop an Action Plan and Assessment Strategy. Develop a detailed implementation strategy to accompany the RWPP, as well as a monitoring plan that will ensure its long-term success.
Step 8:	Finalize CWPP. Finalize the CWPP and communicate the results to regional and community leaders, decision-makers, and key partners.

Source: SAF et al. 2004.

SWCA Environmental Consultants (SWCA), Portage Environmental, and Wildland Fire Associates were contracted to facilitate planning meetings, conduct the risk assessment, plan and facilitate public meetings and compile public comments, and write the planning document.

1.2.1 CORE TEAM

The first step in the RWPP process was to invite stakeholders representing agency, county, private, and tribal interests to form a Core Team. The stakeholders that responded to that invitation are listed in Table 2. The group met for the first time on June 15, 2006. Subsequent meetings were held on a monthly basis to set the direction for the plan and process. Although not all stakeholders attended all monthly meetings, those responding to the initial invitation received project updates and the opportunity to provide input via email.

Table 2. Stakeholders Represented on Core Team

State of Utah Division of Forestry, Fire and State Lands (UDFFSL)
County Planning and Zoning, Emergency Management, and Fire Departments
Bear River Association of Governments
Bureau of Land Management
U.S. Forest Service (representatives from the Wasatch-Cache and Uinta National Forests)
Natural Resources Conservation Service, Northern Utah Resource Conservation & Development and Uintah Headwaters Resource Conservation & Development
Utah National Guard (Camp Williams)
Wasatch Front Regional Council

1.2.2 PROJECT BOUNDARY

The original intent of the State of Utah and the BLM was to organize the five regional plans by Interagency Fire Center coverage area (Figure 1). To facilitate county or community funding requests, the Core Teams of each of the five regions reconfigured project boundaries to match county boundaries; thus, the Northern Utah region encompasses the counties of Box Elder, Cache, Davis, Morgan, Rich, Salt Lake, Summit, Tooele, Utah, Wasatch, and Weber Counties (Figure 2). The majority of the Goshute Indian Reservation, including its tribal headquarters, is included in the Northern Utah region, while a small portion of the reservation is in the Central Utah region.

1.2.3 MEDIA RELATIONS AND WEBSITE

To increase awareness of the RWPP process and the 5 planned public meetings, a press release was distributed in October 2006 announcing the formation of the planning teams for the 5 regions and providing a contact name and phone number for each region. In addition, a public service announcement was provided to KCPW in October. An RWPP website was also launched in October 2006 (linked to www.utahfireinfo.gov) to assist individuals in obtaining information about the project.

1.2.4 PUBLIC INVOLVEMENT

A series of 5 public meetings was held to educate the public about the goals of the plan and to solicit input about issues and concerns regarding wildfire. The meetings' format was a combination of presentations and "open house." These meetings were advertised and promoted throughout the area covered by the RWPP. Meetings were conducted in key cities centrally located in the Northern Utah RWPP project area: Salt Lake City, Park City, Logan, Ogden, and Provo. Additional information regarding meeting format, materials, and advertising venues, as well as a summary of the public comments received, are included as Appendix B.

1.2.5 DEFINITION OF WUI IN THE PLANNING REGION

The discussions in this document of natural fire regimes and mimicking them or incorporating them into future land use policies do not preclude the fact that *any* kind of wildfire, however large or small, poses a threat to human life and property. Wildland fires pose the greatest threat to community residents, property, and fire-fighters when they occur in or spread into the WUI, commonly defined as the geographic area where human habitation and developments intermix with wildland or vegetative fire. As a result, national legislation—such as the National Fire Plan, the Ten-Year Comprehensive Strategy, and the HFRA—places a priority on defining risk in this area. Under the HFRA, at least 50% of all funds appropriated for projects must be used within the WUI.

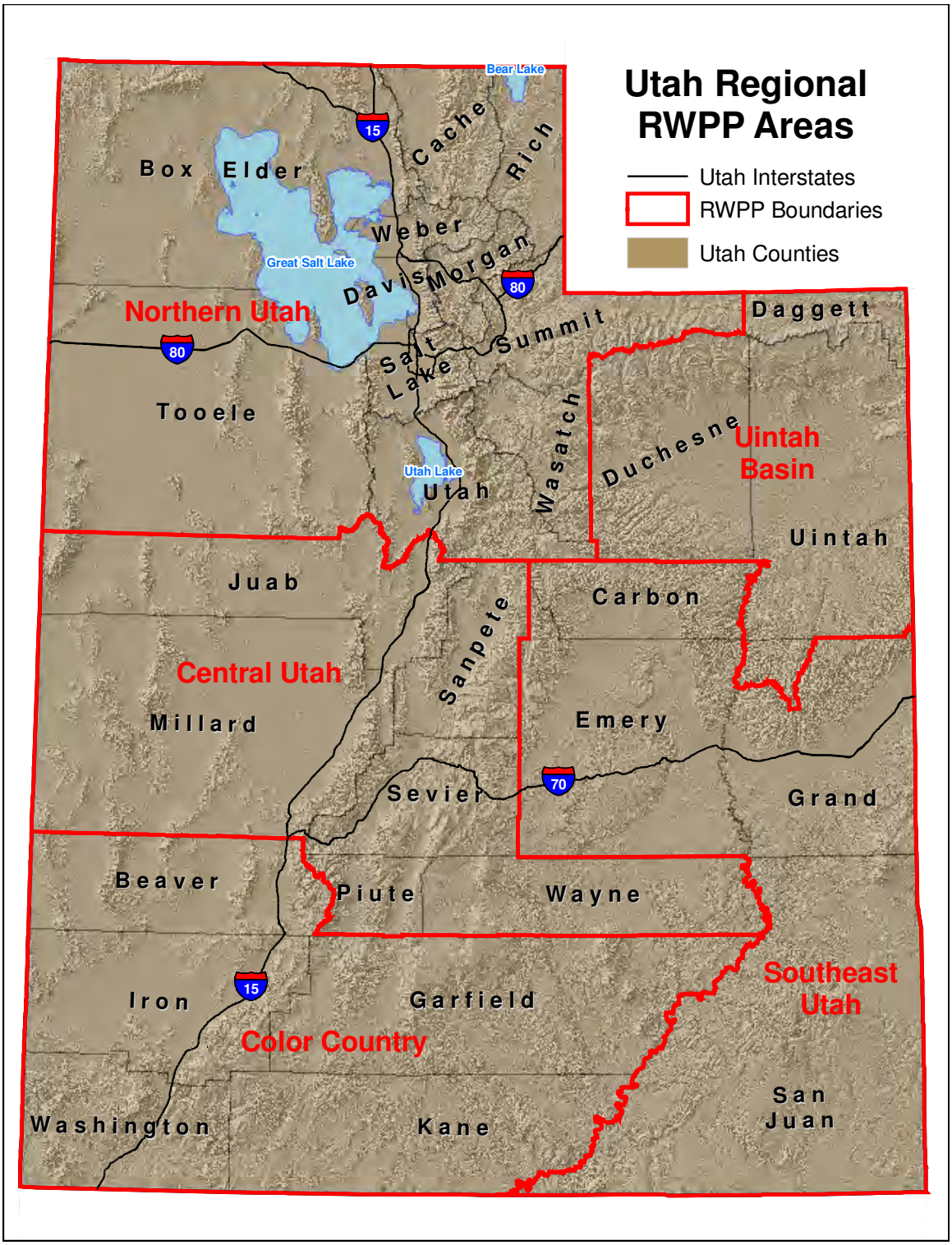

Figure 1. Boundaries for the five Utah RWPPs.

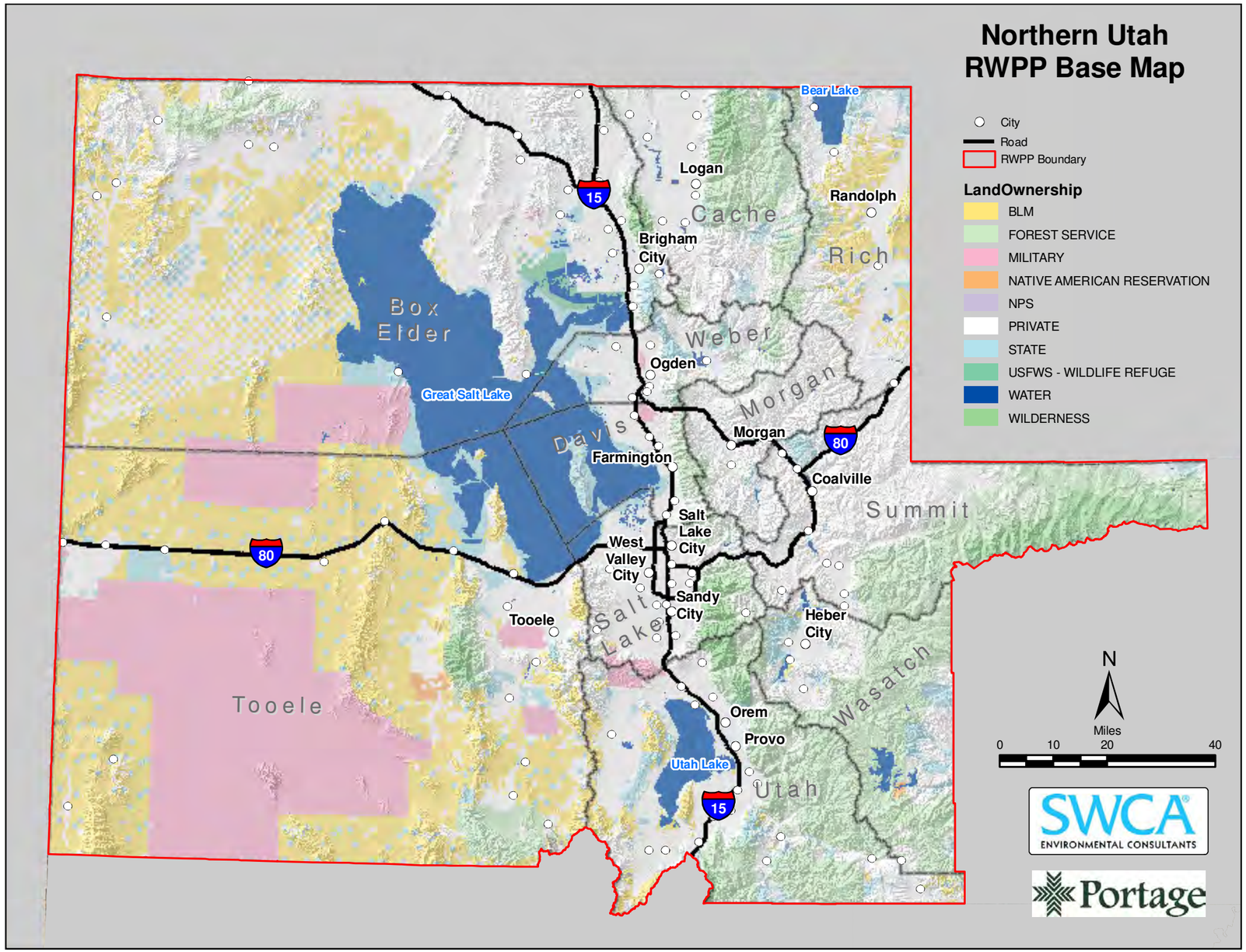

Figure 2. Northern Utah RWPP boundary and land ownership map.

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In the context of the HFRA, the WUI is defined as follows:

1) an area extending 1/2 mile from a boundary of an "at risk community"[2]; or
2) an area within 1-1/2 miles of the boundary of an at-risk community, including any land that (a) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community; (b) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or (c) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; or
3) an area that is adjacent to an evacuation route for an at-risk community that the Secretary[3] determines, in cooperation with the at-risk community, requires hazardous fuels reduction to provide safer evacuation from the at-risk community (HFRA 2003).

To encourage the development of more detailed county and local CWPPs, this RWPP uses the narrowest definition from the HFRA, "an area extending 1/2 mile from a boundary of a [community at risk]" (Figure 3).

For existing and future CWPPs, this WUI should be further defined or expanded, based on local conditions and Community Values At Risk (CVARs). One of the benefits a CWPP offers to CARs is the opportunity to establish a localized definition and boundary for the WUI, using elements such as fuel hazards, local topography, fire history, vegetation, community characteristics, watershed protection, and fire-fighting preparedness.

1.2.6 COMMUNITIES AT RISK

Using National Fire Plan guidelines, the Utah Division of Forestry, Fire, and State Lands (UDFFSL) has worked with national and local wildland fire officials to create a statewide list of CARs. As of 2005, there were over 600 communities listed, 292 of which are located in the Northern Utah region.

Each community was given a score ranging from 0 (no risk) to 12 (extreme risk) based on the sum of multiple risk factors (e.g., fire history, local vegetation, fire-fighting capabilities) analyzed in every area. The scoring system allows Utah's fire prevention program officials to assess the relative risk in a given area of the state and open communication channels with these communities to help them better prepare for wildfire (Figure 3). A list of the CARs specific to each county with their relative scores is provided in Chapter 2 with the county descriptions for the Northern Utah region.

[2] "Community" is defined as "an interface community defined in the Federal Register notice of January 4, 2001 (66 FR 753), or a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) in or adjacent to Federal Land." Section 101 (1) of HFRA.

[3] Secretary means Secretary of Agriculture.

1.2.7 COMMUNITY VALUES AT RISK

CVARs are a way to measure people, property, natural resources, and other resources that, if lost in a wildfire event, would be a collective loss to the community. Examples of CVARs include the following:

- Housing
- Business and infrastructure (including utilities, trails, and roads)
- Natural resources (including wildlife and water resources)
- Cultural resources
- Tribal concerns and values
- Recreation areas and open space
- Scenic resources (including significant landscapes)

Because of the regional nature of this plan, the county descriptions included in the next section only briefly outline some of the major resources and values that may be at risk. CVARs should be more specifically defined in county and local CWPPs.

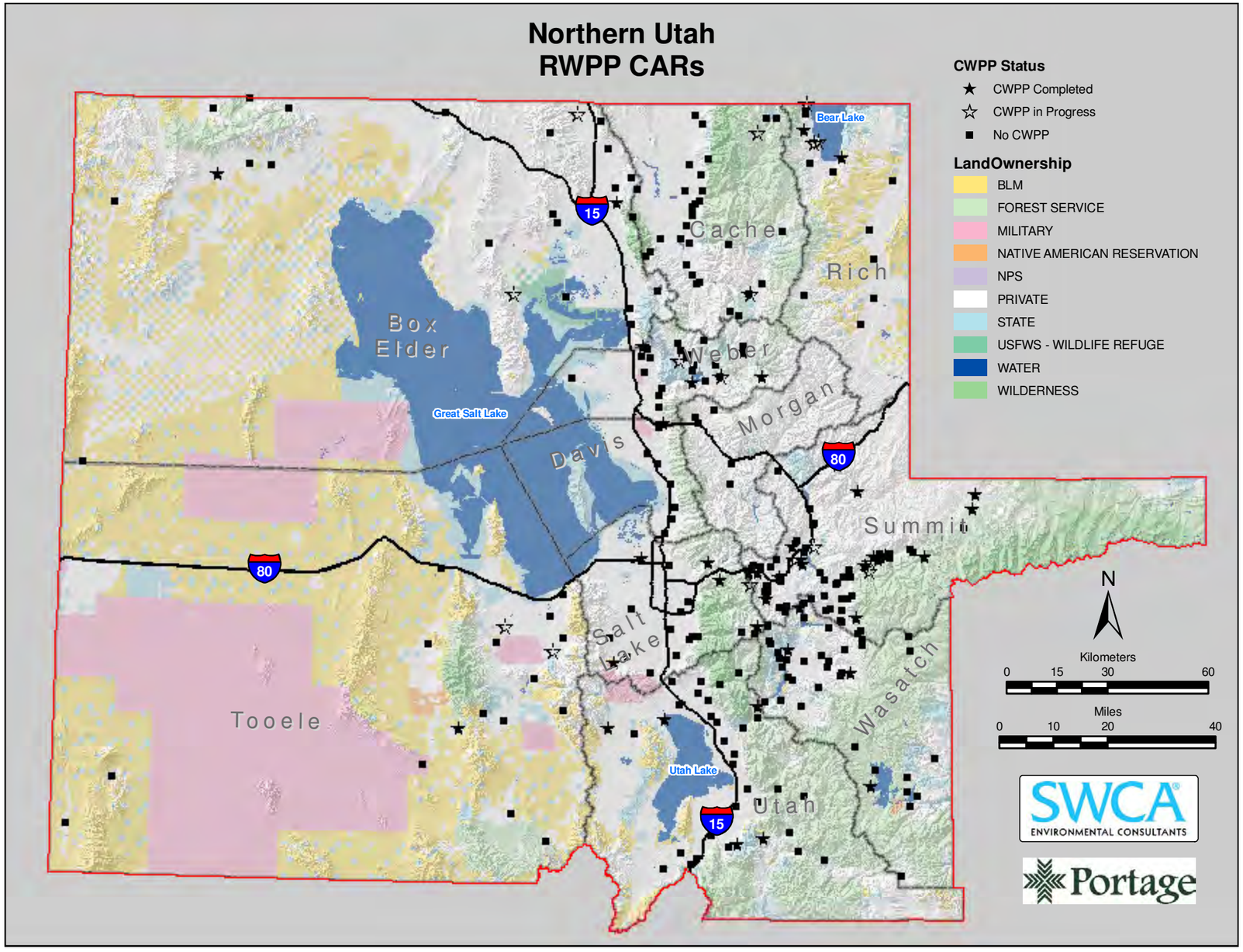

Figure 3. Northern Utah RWPP CARs.

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Chapter 2. Background

2.1 Fire Management History and Ecology

As long as vegetation has covered the landscape, fire has helped regulate species type, occurrence, composition, and patterns of succession. Lightning during spring and summer thunderstorms was historically the primary source of ignition. Historical wildfires acted as natural thinning agents by removing unhealthy trees and dead snags, consuming downed branches and needle litter, and thinning dense young trees and shrubs. The removal of these fuels reduces "laddering" potential, which is the potential for fire to move from the forest floor into the forest canopy where it can destroy healthy mature trees and tree stands in crown fires. Because of reduced laddering potential early fires largely remained surface fires—they killed few mature trees and kept destructive, stand-replacing crown fires to a minimum.

2.2 Changes to Historic Fire Regime

Fire exclusion, as well as past logging practices and past grazing patterns, have collectively precipitated the decline of forest health in Utah and resulted in forests that are denser and less diverse. Today's forests have a greater abundance of late successional species and a large accumulation of woody debris and increased fuel loads. Drought conditions have exacerbated these conditions. Consequently, Utah's forests have become more susceptible to intense wildfire, insect infestations, and diseases (UDNR et al. 2003).

By the late 1890s and early 1900s, as human occupation and land use increased, it became the widely accepted tactic to suppress all wildfires. The region's original settlers actively suppressed wildfire whenever they could to protect their property and resources, and federal agencies managing public lands have continued the practice.

Due to these suppression activities natural wildland fire and its fuels-consuming and thinning effects disappeared from the successional cycle. Forest stands began to overcrowd, heavy fuels accumulations appeared across the landscape, and communities of fire-adapted species became less diverse and healthy. Insects and disease then found easy hosts in overstressed forest stands, precipitating the decline of these forests. Eventually, over a 60-80 year period, fires became much larger, more intense, and difficult to control.

The impacts of suppression on native ecosystems are similarly dramatic. The fire regimes in pinyon-juniper woodlands, ponderosa pine forests, and drier mixed conifer forests have shifted from frequent, low-intensity surface fires to stand-replacing, high-intensity fires as a result of fuels buildup. Further, the absence of periodic fires has resulted in many aspen stands becoming decadent and more prone to high intensity fires on a more frequent basis.

Fire suppression is still a commonly used wildfire management tool. However, as wildfire's role in tempering and regulating the Intermountain West's ecosystems becomes more evident, land and fire managers turn to prescribed burn techniques to help manage the risk to people, property, and ecosystems.

Where fire has been suppressed, insects and disease have become more common. Community members often express concerns about increased wildfire risk due to beetle infestation. However, based on land management experience and knowledge, local forest officials for the Northern Utah region have concluded that there is not currently a fire risk resulting from beetle infestation.

2.3 CURRENT VEGETATION TYPES AND FIRE ECOLOGY

To gauge fire occurrence and likelihood in the Northern Utah RWPP project area, one of the essential tasks was to identify the general types, locations, and extents of vegetation communities using Southwest Regional Gap Analysis Project (ReGAP) data (USGS 2005). Table 3 and Figure 4 provide an overview of the vegetation types in the region and their respective acreages. In keeping with the broader, landscape-level analysis of fire behavior in this document, some cover types treated as separate types under ReGAP have been judiciously grouped together in this document for ease of analysis.

2.3.1 "OTHER" NON-VEGETATION COMMUNITIES

Other, non-vegetation communities (Table 3) represent approximately 20% of the acreage of the Northern Utah region—the highest percentage, due to the large amount of open water in the region, including the Great Salt Lake and Utah Lake. Additional categories in this type include recently burned, disturbed (e.g., oil wells), recently logged, recently mined or quarried, developed, and agricultural areas.

2.3.2 BARREN AREAS

Barren areas account for approximately 18% of the Northern Utah region, with almost 16% of that total as Inter-Mountain Basins Playa. The Northern Utah region also includes cliffs, badlands, dunes, bedrock, and alpine fell-field type communities (Table 3). Because of the lack of vegetation in these areas, there is little risk of wildfire.

Table 3. Vegetation Types, Acreages, and Percentages Found in the Northern Utah Region

Vegetation Type	SW ReGAP Analysis Vegetation Cover	Planning Area Acres	% Planning Area[1]
Other	Unknown Agriculture Developed, Medium - High Intensity Developed, Open Space - Low Intensity Disturbed, Non-specific Disturbed, Oil well North American Alpine Ice Field Open Water Recently Burned Recently Logged Areas Recently Mined or Quarried	**3,079,789**	**20%**
Barren	Barren Lands, Non-specific Colorado Plateau Mixed Bedrock Canyon and Tableland Inter-Mountain Basins Active and Stabilized Dune Inter-Mountain Basins Playa Inter-Mountain Basins Shale Badland Inter-Mountain Basins Volcanic Rock and Cinder Land Inter-Mountain Basins Wash Rocky Mountain Alpine Bedrock and Scree Rocky Mountain Alpine Fell-Field Rocky Mountain Cliff and Canyon Inter-Mountain Basins Cliff and Canyon	**2,748,149**	**18%**
Mountain Shrub/Oak	Great Basin Semi-Desert Chaparral Inter-Mountain Basins Montane Sagebrush Steppe Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland Rocky Mountain Alpine Dwarf-Shrubland Rocky Mountain Bigtooth Maple Ravine Woodland Rocky Mountain Gambel Oak-Mixed Montane Shrubland Rocky Mountain Lower Montane-Foothill Shrubland Southern Rocky Mountain Montane-Subalpine Grassland	**2,637,599**	**17%**
Mid-Elevation Sagebrush/Grasses	Colorado Plateau Mixed Low Sagebrush Shrubland Great Basin Xeric Mixed Sagebrush Shrubland Inter-Mountain Basins Big Sagebrush Shrubland Inter-Mountain Basins Big Sagebrush Steppe	**2,497,528**	**16%**

Table 3. Vegetation Types, Acreages, and Percentages Found in the Northern Utah Region

Vegetation Type	SW ReGAP Analysis Vegetation Cover	Planning Area Acres	% Planning Area[1]
	Inter-Mountain Basins Semi-Desert Grassland Inter-Mountain Basins Semi-Desert Shrub Steppe Invasive Annual and Biennial Forbland Invasive Annual Grassland Invasive Perennial Grassland		
Mixed Conifer/Aspen	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland Inter-Mountain West Aspen-Mixed Conifer Forest and Woodland Complex Rocky Mountain Aspen Forest and Woodland Rocky Mountain Dry Tundra Rocky Mountain Lodgepole Pine Forest Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland Rocky Mountain Ponderosa Pine Woodland Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland Rocky Mountain Subalpine Mesic Meadow Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	**1,661,103**	**11%**
Desert Shrub	Inter-Mountain Basins Greasewood Flat Inter-Mountain Basins Mixed Salt Desert Scrub	**1,599,484**	**10%**
Pinyon-Juniper	Colorado Plateau Pinyon-Juniper Shrubland Colorado Plateau Pinyon-Juniper Woodland Great Basin Pinyon-Juniper Woodland	**975,325**	**6%**
Riparian/ Wetland	Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland North American Arid West Emergent Marsh North American Warm Desert Wash Rocky Mountain Alpine-Montane Wet Meadow Rocky Mountain Lower Montane Riparian Woodland and Shrubland Rocky Mountain Subalpine-Montane Riparian Shrubland Rocky Mountain Subalpine-Montane Riparian Woodland	**295,783**	**2%**
Total		**15,494,759**	**100%**

[1] Due to rounding errors, percentages may not add up to 100%.

Note: SW ReGAP Analysis vegetation data were intended to be used for depicting the distribution of the state's various vegetation types at scales of 1:100,000 or smaller. While adequate for characterizing vegetation over large areas, this data is less accurate when viewed for smaller project areas.

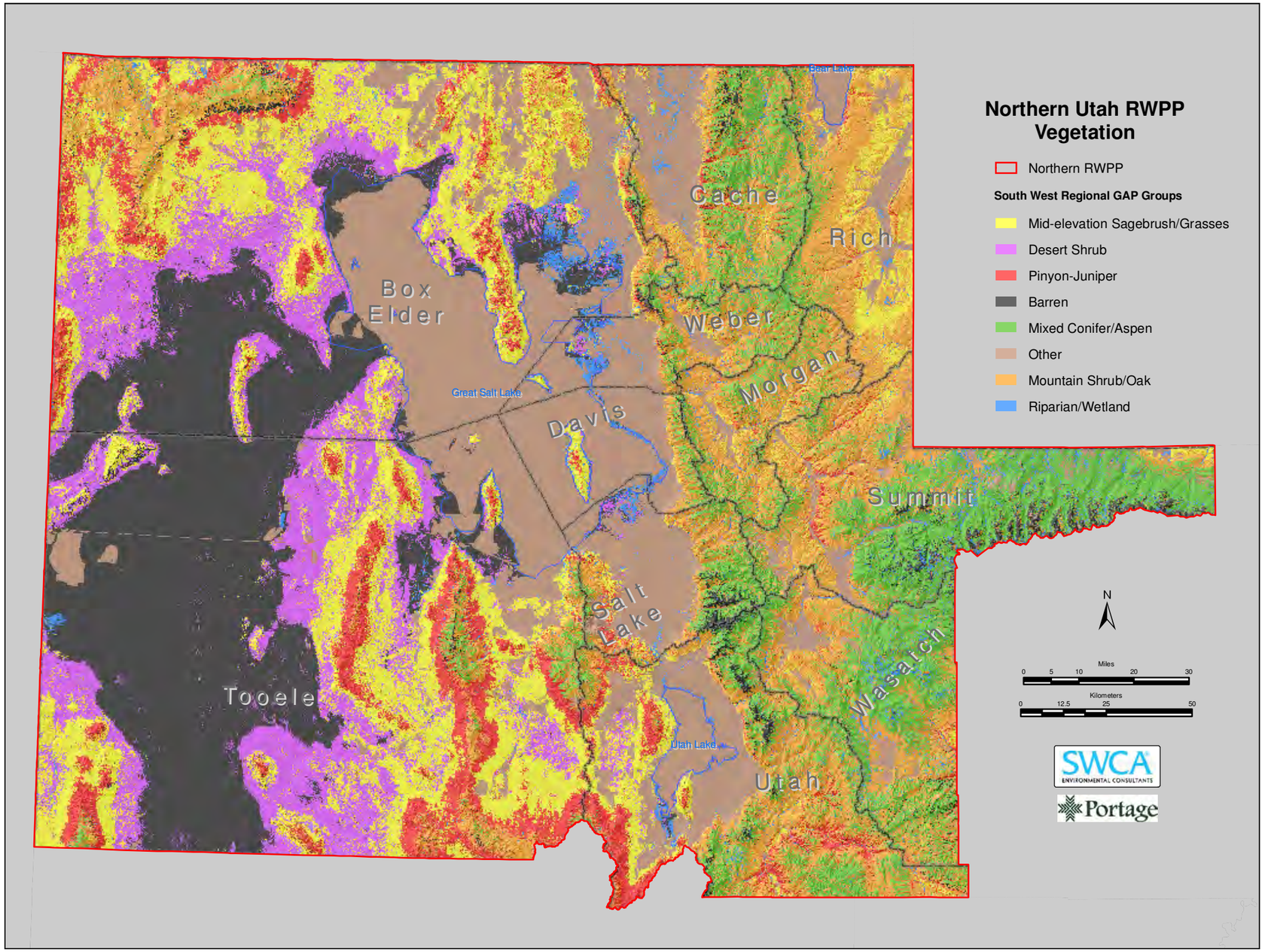

Figure 4. Southwest Regional GAP vegetation data for the Northern Utah region.

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2.3.3 MOUNTAIN SHRUB AND OAK

Mountain shrub and oak accounts for approximately 17% of cover in the Northern Utah region. This vegetation type consists of a variety of shrubs, including Gambel oak (*Quercus gambelii)*, maple (*Acer* spp.), mountain mahogany (*Cercocarpus montanus)*, and mixed mountain shrub (a diverse community made up of chokecherry [*Prunus virginiana*], serviceberry [*Amelanchier utahensis* and *A. alnifolia*], currant [*Ribes* spp.], snowberry [*Symphoricarpos* spp.], elderberry [*Sambucus* spp.], bitterbrush [*Purshia tridentata*], mountain sagebrush [*Artemisia tridentata* subsp. *Vaseyana*], ninebark [*Physocarpus* spp.], buckbrush [*Ceanothus* spp.], and others)(Figure 5). These species are found at moderately high elevations (7,000 to 8,500 feet) on mainly north and east slopes, above the pinyon-juniper zone and below the conifer zone (BLM 2005b).

Figure 5. Example of mountain shrub and oak vegetation.

Fire Ecology. Fire frequency for the mountain shrub and oak species ranges from 25 to 100 years. Return intervals vary widely depending on elevation, aspect, site moisture, and associated woodland type. Most species re-sprout after low- to moderate-severity fires. Sprouting mountain shrubs are generally fire-tolerant and generally recover following a fire. Bitterbrush and mountain sagebrush do not re-sprout and may be completely removed from the site depending on the intensity of the fire (Wasatch-Cache National Forest 1991, as cited in BLM 2005a).

2.3.4 MID-ELEVATION SAGEBRUSH AND GRASSES

Mid-elevation sagebrush and grassland cover types compose 16% of the planning area and are characterized by the species listed in Table 3. Grasslands are included in this section, since a considerable portion of the acreage listed under perennial grasslands

(native) may be considered as representing the early seral component of sagebrush communities (BLM 2005a).

This vegetation type occurs at elevation ranges from 5,500 to almost 10,000 feet. Big sagebrush (*Artemisa tridentata*) dominates the vegetation in this community type (Figure 6). The extent of sagebrush has been greatly reduced due to urbanization, irrigated agriculture, and livestock grazing, as well as cheatgrass (*Bromus tectorum*) conversion and juniper (*Juniperus osteosperma*) encroachment. Recent drought conditions have also contributed to dramatic reductions of sagebrush cover across portions of the state.

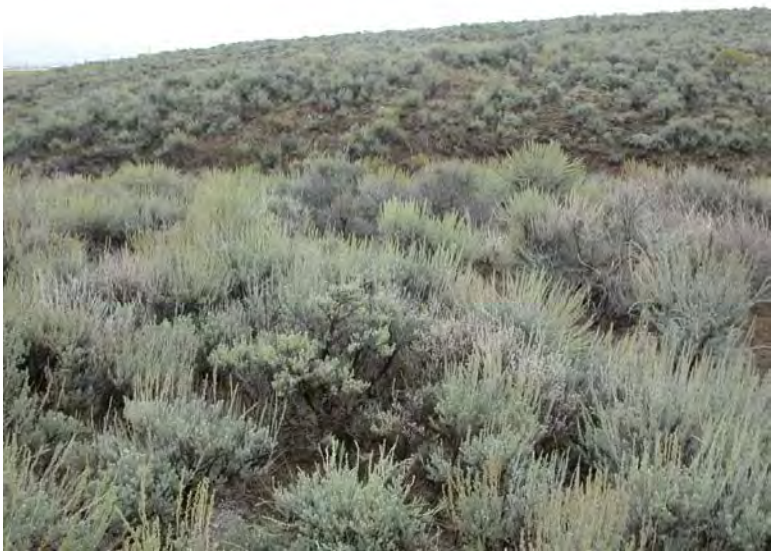

Figure 6. Example of mid-elevation sagebrush vegetation.

Fire Ecology. Fire frequency varies for the different sagebrush species and subspecies, but is considered to be between 10 and 110 years depending on precipitation, elevation, species, and associated vegetation. Most sagebrush species (including all three subspecies of big sagebrush common throughout Utah) do not sprout after fire and are killed by low- to high-severity fires. Sagebrush is a prolific seeder, however, and if a seed source is present, re-establishment is quite rapid and dominance will occur within 20 years. Because sagebrush seeds generally are not transported far from the parent, unburned areas within large burn areas are often the most important source of seed material for natural recruitment and re-establishment of sagebrush (BLM 2005a).

Some noxious weeds are included in this category and are an increasing problem. Invasive and noxious weeds rapidly displace desirable plants that provide habitat for wildlife and food for people and livestock (Harvey and Ruyle 2002, as cited in BLM 2005a). Species include those such as cheatgrass and halogeton (*Halogeton glomeratus*) and account for approximately 2.5% of the vegetation in this category. The high growth rate, timing of maturation and death (around mid- to late-June), and flammability of weeds tend to increase the risk of wildfire to the vegetation community and structures in

the WUI (Arno and Wakimoto 1987, as cited in BLM 2005a). Invasive grasses also provide flammable fuels in the interspaces among shrubs that allow the fire to carry in an unnatural manner (McAuliffe 1995, Brown 2000, as cited in BLM 2005a).

Cheatgrass is a late winter annual grass that originated in Europe and Asia and established in the Northern Utah region by the late 1800s. Cheatgrass in later stages is unpalatable to livestock (except sheep and goats). By spring, cheatgrass matures its seeds and, unlike native bunchgrasses, usually dies by the end of June. Dead cheatgrass burns easily, causing many large and rapidly spreading wildfires that tend to damage or kill native grasses. It also out-competes native plant communities for available water and becomes dominant in many locales.

2.3.5 MIXED CONIFER AND ASPEN

Mixed conifer and aspen communities account for approximately 11% of the Northern Utah region. Mixed conifer forests occur at elevations from approximately 8,000 to 10,000 feet and include species such as Douglas-fir (*Pseudosuga menziesii*), white fir (*Abies concolor*), and lodgepole pine (*Pinus contorta*) (Figure 7) (UDNR et al 2003). Aspen (*Populus tremuloides*) is commonly found between 7,500 and 10,500 feet and is often valued for its landscape diversity, aesthetics, and wildlife habitat (Forest Health in Utah 2003). Major forest community types of mixed conifer are included in Table 3. Ponderosa pine (*Pinus ponderosa*) is also included in this category due to its relatively low occurrence in the Northern Utah region; however, it is generally discussed as a separate category because fire management for this species tends to differ from mixed conifer and aspen. Ponderosa pine communities are typically open and savannah-like with widely spaced large trees and open understories that are periodically cleared by low-severity ground fires. Aspen occur as pure stands or in association with conifers. Conifer invasion may be a natural pattern in aspen stands; however, long-term fire suppression has resulted in increased representation and dominance by conifer in aspen stands (BLM 2005b).

Fire Ecology. The fire return interval in mixed conifer communities ranges from 100 to 300 years. Fire regimes are a combination of understory fires and complete stand replacement fires (Arno 2000, as cited in BLM 2005a). A mosaic stand structure and fuels pattern results from the mixed severity fire regime of these communities. Further, past stand burn mosaics tend to increase the probability that subsequent fires will also burn in a mixed pattern (Arno 2000, as cited in BLM 2005a). Dead woody fuels often accumulate on the ground in a haphazard manner; the greatest fuel loadings tend to occur on the most productive sites, which are predominantly stand-replacement fire regimes.

For ponderosa pine communities fire frequency ranges from 10 to 40 years with low- to mixed-severity fires (FEIS 2004, as cited in BLM 2005a). Ponderosa pine forests in Utah are classified as Fire Regime I and Fire Regime Condition Class (FRCC) 3. These forests could be at risk for cheatgrass invasion or crown fire as a result of having missed between five and ten fire cycles in the years of fire suppression. Otherwise, the understory species typically associated with these stands exclude cheatgrass. Proper management can reduce

the risk of cheatgrass invasion and crown fire. The thick bark of Ponderosa pines protects them from serious damage from surface fires making them the most fire-adapted conifer in the West (Bradley et al. 1992, as cited in BLM 2005a).

Figure 7. Example of mixed conifer vegetation.

For aspen, fire frequency ranges from 25 to 100 years with mixed severity fires (Gruell and Loope 1974, as cited in BLM 2005a). Aspen stands often act as natural fuel breaks during wildfires because they do not easily burn. Unless there is a large amount of understory fuel, fires in young aspen stands tend to be low-intensity surface fires. Abundant fuels can result in high intensity fires in older stands, especially during the warmest and/or driest months of the year. Decadent aspen stands and other areas with thin, acidic soils may be less vigorous at regenerating via suckering (vegetative propagation where lateral buds grow out to produce an individual that is a clone of the parent) and may tend to support conifers even after fire (USDA 2002i, as cited in BLM 2005a).

2.3.6 DESERT SHRUB

This vegetation type accounts for 10% of the cover in the Northern Utah region and includes desert shrub and semi-desert shrub land cover types listed in Table 3, including salt-tolerant, succulent shrubs such as greasewood (*Sarcobatus vermiculatus)*, Mormon tea (*Ephedra* spp.*)*, shadscale (*Atriplex confertifolia)*, four-wing saltbush (*Atriplex canescens)* and threadleaf rubber rabbitbrush (*Chrysothamnus nauseosus* subsp. *consimilis*). Common grasses include inland saltgrass (*Distichlis spicata*), alkali sacaton (*Sporobolus airoides*), bottlebrush squirreltail (*Elymus elymoides*) and Indian ricegrass (*Stipa hymenoides*) (Figure 8)(BLM 2005b; Chronquist et al. 1982). These areas receive relatively low annual precipitation (5 to 10 inches), which results in very little soil moisture available for plant growth. Elevations range from 4,000 to 5,400 feet. The soils

that support members of the saltbush zone are also often highly saline and extremely susceptible to wind and water erosion. These factors limit this vegetation's ability to recover following surface disturbance.

Figure 8. Example of desert shrub vegetation.

Fire Ecology. Fire frequency in the desert shrub vegetation type has been estimated at 35 to more than 300 years (FEIS 2004, cited in BLM 2005a). Fire-adapted plants are generally not found in these communities as these vegetation types have not burned enough historically to support them. Further, most desert shrub species do not readily regenerate following fire. Large, fast moving fires now occur more regularly in these communities as a result of cheatgrass invasion, which provides sufficient fuel to sustain fires. Where cheatgrass has invaded, native desert shrub communities have been lost or are at high risk of loss. Further expansion of invasive species (cheatgrass, tall peppergrass [*Lepidium virginicum* var. *pubescens*] and Russian knapweed [*Acroptilon repens*]) following fire is a major concern for these communities (BLM 2005a).

2.3.7 PINYON-JUNIPER WOODLAND

Pinyon-juniper woodland accounts for approximately 6% of the cover in the Northern Utah region and grows at elevations between 4,700 and 8,600 feet where precipitation totals 12 to 18 inches per year. Dominant tree species include Colorado pinyon (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) (Figure 9). Pinyon-juniper woodlands are characterized by trees that are generally less than 33 feet tall and comprise a closed or open woodland. Undergrowth is variable and dependent upon canopy closure, soil texture, elevation and aspect (Welsh et al. 1993; as cite in BLM 2005a). This is the most extensive forest type in Utah, exceeding, in acreage, all other forests combined (Lanner 1984, as cited in BLM 2005b).

Juniper tends to grow at lower elevations and in more arid areas as its scaled foliage allows it to conserve water more effectively than pinyon pine. Juniper-dominated woodlands tend to include open savannas of scattered trees without a significant shrub component, except in areas where big sagebrush has become dominant as a consequence of overgrazing (Grahame and Sisk 2002). On lower edges of the woodland zone, Utah juniper is frequently the only tree species (BLM 2005b).

Pinyon dominates at higher elevations, and tends to form more closed-canopied stands. There is often a significant shrub component. Colorado pinyon occurs throughout most of the state except in western Utah, where it is replaced with single-leafed pinyon *(Pinus monophylla)* (Grahame and Sisk 2002).

Figure 9. Example of pinyon-juniper vegetation.

Fire Ecology. Historically, fire burned every 15-20 years in the area where pinyon-juniper woodland currently dominates (Kitchen 2004, Miller and Tausch 2001, as cited in BLM 2005a). In fact, fire was the major cause of mortality, historically, for young juniper trees. On the other hand, adult juniper trees in mature stands are difficult to burn since the understory is usually sparse. Winds greater than 35 miles per hour are necessary to carry fire through the canopy of naturally spaced pure juniper stands (*Vegetation Types of the Wasatch-Cache National Forest* 1991, as cited in BLM 2005a).

With the absence of recurring stand regulating fires today, coupled with favorable climatic conditions, pinyon-juniper woodland cover is estimated to have increased up to ten-fold over the past 130 years throughout the Intermountain West (Miller and Tausch 2001, as cited in BLM 2005a). Following high intensity wildfires, the primary invader species is often cheatgrass.

2.3.8 RIPARIAN/WETLAND COMMUNITIES

Riparian/Wetland communities also account for a minimal portion of the Northern Utah region (2%). Specific vegetation types found in these communities are listed in Table 3. Due to their relatively low numbers and vegetation composition they are not generally considered a significant fire risk. However, invasive species such as salt cedar (*Tamarix* spp.), tall whitetop (*Lepidium latifolium*), and Russian olive (*Elaeagnus angustifolia)* have become well established in the riparian communities and are slowly replacing the native vegetation across much of Utah. Salt cedar is especially problematic as it is much more flammable than the native vegetation that it replaces (BLM 2005a).

2.4 NORTHERN UTAH ECOREGIONS

Ecoregions are areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources; they are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components (Woods et al. 2001).

The Northern Utah region can be divided into five distinct physiographic provinces or ecoregions. The two largest ecoregions covering the majority of the Northern Utah region include the Central Basin and Range (western portion) and the Wasatch and Uinta Mountains (eastern portion). Three smaller ecoregions also occur in the project area including the Colorado Plateau (Wasatch County), the Northern Basin and Range (Box Elder County), and the Wyoming Basin (Rich and Summit Counties). A map showing all of the ecoregions in Northern Utah is included as Figure 10.

2.4.1 CENTRAL BASIN AND RANGE ECOREGION

2.4.1.1 TOPOGRAPHY AND CLIMATE

The Central Basin and Range Ecoregion is characterized by wide desert valleys bordered by parallel mountain ranges generally oriented north-south. Areas lower than approximately 5,200 feet elevation were once inundated by Pleistocene Lake Bonneville. Extensive playas occur and are nearly flat, clayey, and salty. In general, this ecoregion is dry and lacks extensive, dense forests (Woods et al. 2001).

Precipitation in this ecoregion averages 4 to 10 inches (10 to 25 cm) annually, though mountains may receive as much as 18 inches (46 cm). Precipitation is very low from summer to mid-autumn. Summers are hot and dry with low humidity, and winters are cold and dry. Temperature throughout the year averages from 45 to 55 ºF (7 to 13 ºC) and the growing season ranges from 60 to 150 days (USFS 1994a). Precipitation that falls within the Central Basin and Range ecoregion does not ultimately drain to either the Atlantic Ocean or the Pacific Ocean, but rather, drains to ephemeral or saline lakes via streams, or disappears via evaporation and/or absorption into the soil (Grayson 1993, as cited in Soulard 2006).

The Provo, Jordan, Bear and Weber rivers are the major drainages for the portion of the Central Basin and Range ecoregion located in the project area. Small streams drain the mountain ranges, and all areas have internal drainage (USFS 1994a). Springs are relatively numerous, but usually small. Ground water is scarce and has poor quality because of high salt concentrations.

2.4.1.2 VEGETATION AND WILDLIFE

The dominant natural vegetation of the Basin and Range ecoregion includes those species in the mid-elevation sagebrush and grasses, desert shrub, pinyon-juniper and barren vegetation types. The sagebrush zone constitutes the largest amount of land in the Central Basin and Range Ecoregion. This ecoregion supports a number of populations including antelope, desert bighorn sheep, mule deer, cougar, coyotes, bobcats and extensive populations of rabbits, hares, and pikas (USFS 1994a). Shorebirds are also common around the Great Salt Lake and Utah Lake.

2.4.1.3 DISTURBANCE REGIMES

Common low intensity short duration burns of sagebrush and desert shrubs occur during summer thunderstorms. Often there is insufficient understory to carry fires, or they are suppressed. Cheatgrass and other introduced annuals not only out-compete native bunchgrasses, but have also altered the ecoregion's fire regime; in areas that previously burned approximately every 30 to 70 years, the introduction of cheatgrass has increased fire-return intervals to less than 10 years. In turn, this has led to a significant decline in native sagebrush. Historical fire suppression and widespread livestock grazing have also contributed to contraction of the sagebrush zone (Soulard 2006).

2.4.2 WASATCH AND UINTA MOUNTAINS ECOREGION

2.4.2.1 TOPOGRAPHY AND CLIMATE

The Wasatch and Uinta Mountains ecoregion is a block of high montane habitat stretching from southeastern Idaho and southwestern Wyoming to the isolated ranges of the Colorado Plateau in southern Utah (Figure 10). It is composed of high, glaciated mountains, dissected plateaus, foothills, and intervening valleys. Above an elevation of approximately 11,000 feet, alpine meadows, rockland, and talus slopes occur. The ecoregion encompasses two different mountain ranges; the Wasatch, a major north-south range; and the Uinta, one of few major east-west ranges in the United States (WWF 2001). Summers are generally warm and dry with low humidity and winters are generally cold with considerable snow fall. Precipitation ranges from 16 to 40 inches (41 to 102 cm) annually; most occurs during fall, winter and spring mostly as snow above 6,000 feet. Temperature averages 35 to 45 °F (2 to 7 °C), but may average as high as 50° in the valleys, while the growing season lasts 80 to 120 days (USFS 1994b).

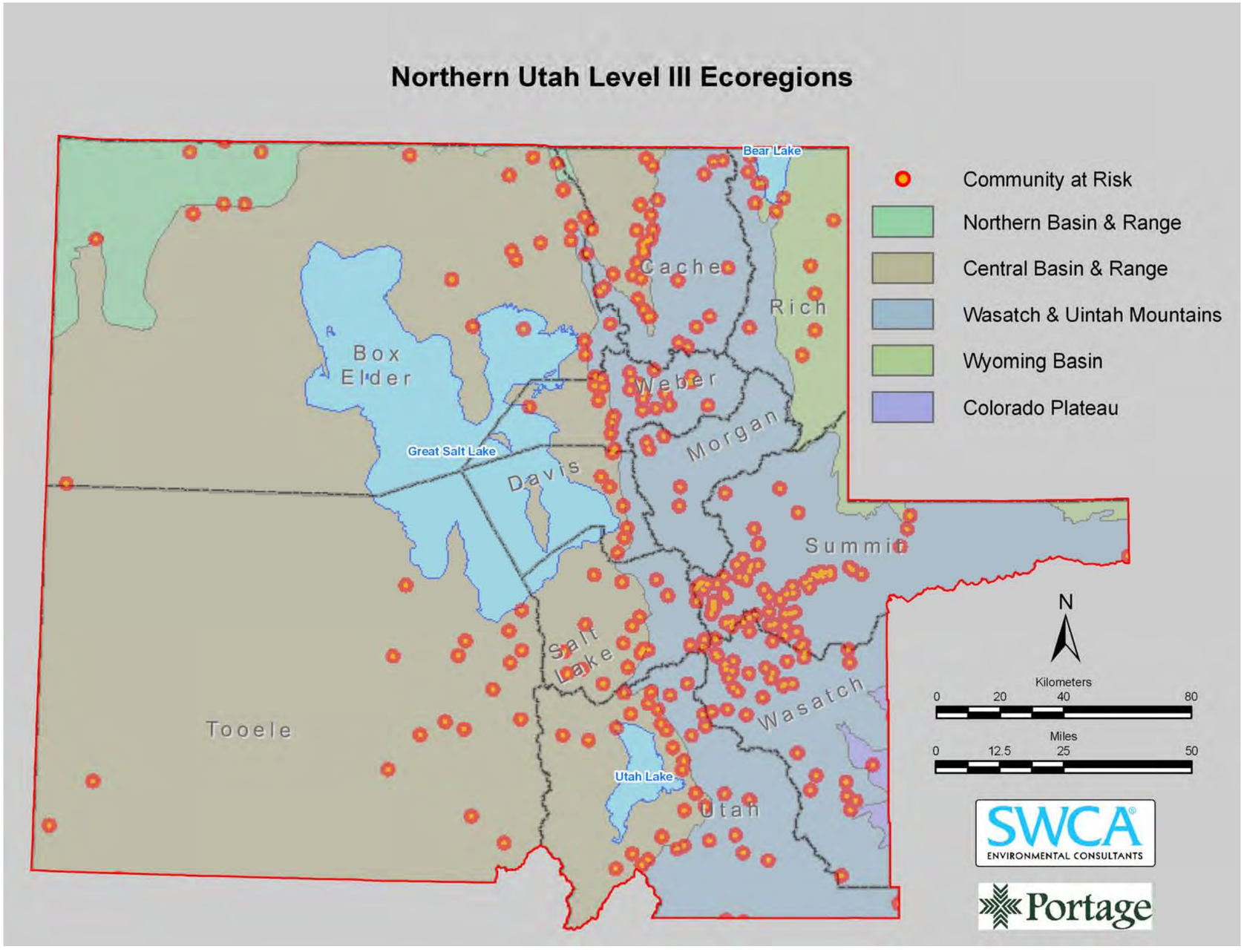

Figure 10. Ecoregions located in the Northern Utah RWPP project area.

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Most rivers in the Wasatch area flow into the Great Basin drainage (a closed drainage system that, unlike most drainages, does not ultimately lead to the ocean, but rather ends in a terminal basin, the Great Salt Lake). A small area of the ecoregion is drained by the Colorado River. Lakes and wet meadows are associated with areas higher than 5,000 feet but are generally few (USFS 1994b).

2.4.2.2 VEGETATION AND WILDLIFE

The dominant natural vegetation of the Wasatch and Uinta Mountains ecoregion includes those species in the mountain shrub, mixed conifer, and pinyon-juniper vegetation types. The ecoregion is home to a variety of wildlife, including bighorn sheep, mule deer, elk, black bears, cougars, moose, and Rocky Mountain goat, as well as a variety of reptiles, neotropical migratory land birds, waterfowl and game birds, and fish species (USFS 1994b).

2.4.2.3 DISTURBANCE REGIMES

Continued grazing and 50 years of attempted fire exclusion, combined with favorable climatic conditions, have allowed juniper expansion to go unchecked (Ferry et al. 1995). Decreases in fire frequency are also seriously affecting ponderosa pine forests. Historically, the ponderosa pine ecosystem had frequent, low-intensity, surface fires that perpetuated park-like stands with grassy undergrowth (Barrett 1980, as cited in Ferry at al. 1995). In recent years, however, humans have attempted to exclude fire on these sites, resulting in ponderosa pine forests that are overstocked, and subject to severe stand-destroying fires (Mutch et al. 1993, as cited in Ferry et al. 1995). Long-term fire suppression has also resulted in a loss of aspen. Aspen replace higher seral species after fire; root systems of top-killed stems send up a profusion of sprouts for several years after fire and may out-compete other woody vegetation. Fire suppression has resulted in increased dominance of conifer species. Further, ungulates (mostly Elk) preferentially browse aspen sprouts when they are present causing aspen stands to deteriorate (Romme et al. 1995).

2.4.3 COLORADO PLATEAU ECOREGION

2.4.3.1 TOPOGRAPHY AND CLIMATE

The Colorado Plateau lies between the Great Basin to the west, and the Rocky Mountains to the east (Figure 10). The flora and fauna of the region include elements of each of these provinces in addition to endemic species that have evolved in areas of relative isolation atop the Plateau. The Colorado Plateau is generally very dry with annual precipitation amounts in most areas of less than 10 inches. More than half of the annual precipitation falls during the winter (Tuhy et al. 2002). Summers are dry with low humidity. The high plateaus and small mountain ranges receive considerably more precipitation than surrounding lower elevation areas due to orographic lifting and cooler temperatures. Most areas above 8,000 feet receive 20-25 inches (51 to 64 cm) annually, while mountains above 11,000 feet often receive approximately 35 inches (89 cm) per

year. Most of this occurs in the winter as snow. Annual average temperatures are 40 to 55 °F (4 to 13 °C), decreasing with rising elevation (USFS 1995).

The Colorado River and its tributaries drain the Colorado Plateau ecoregion. In general, water is scarce and ground water supplies are deep and limited. Summer rainstorms cause flash flooding in much of the ecoregion. Some of the high plateaus of Utah are known to have an abundance of surface water (Grahame and Sisk 2002).

2.4.3.2 VEGETATION AND WILDLIFE

The dominant natural vegetation of the Colorado Plateau ecoregion includes those species in the desert shrub, pinyon-juniper, and barren vegetation types. Summer moisture from thunderstorms supports warm season grasses not found in the Central Basin and Range region, and the species diversity is greater (Woods et al. 2001). Wildlife species include mule deer, coyotes, desert bighorn sheep, cougars, golden eagles, various hawks, and occasionally black bear. Native fish species include the Colorado pikeminnow and the humpback chub.

2.4.3.3 DISTURBANCE REGIMES

Wildfires were once common occurrences throughout the grasslands and forests of the Colorado Plateau. These regular wildfires helped maintain an open forest structure in the region's middle-elevation forests by preventing tree encroachment into mountain meadows and grasslands. In some areas, regular wildfires led to replacement of forested land with grassland or savannah. Fire suppression has disturbed this natural occurrence, and like other ecoregions, pinyon-juniper woodlands, ponderosa pine forests, and drier mixed conifer forests of the Colorado Plateau have shifted from a fire regime of frequent, surface fires to one of stand-replacing, high-intensity fires (Grahame and Sisk 2002).

2.4.4 WYOMING BASIN

2.4.4.1 TOPOGRAPHY AND CLIMATE

The Wyoming Basin ecoregion occurs in the high northeastern portion (Rich County) of the Northern Utah region. It is characterized by arid grasslands and shrublands, surrounded by mountains without the extensive pinyon-juniper forests found to the south in the Colorado Plateau ecoregion. The area is largely used for grazing (Omernik 1987). In Utah the major drainage is the Bear River. The Wyoming Basin receives very little precipitation due to its location in the rain shadow of the Rocky Mountains. Latitude and physiography are influential factors in distinguishing this ecoregion from other similar ecoregions, such as the Snake/Columbia and Great Basin Shrub Steppes (WWF 2001).

2.4.4.2 VEGETATION AND WILDLIFE

The dominant vegetation in the ecoregion is varied species of the sagebrush-steppe (*Artemisia* spp.) interspersed with desert shrublands, dunes, and barren areas in more arid regions (WWF 2001).

A unique aspect of the Wyoming Basin is the presence of remnant prairie dog ecosystems occasionally used by raptors, coyotes, and fox when available. Ungulates such as pronghorn prefer these sites because the forage quality is higher, due to greater concentrations of nutrients from animal waste. The persistence of these ecosystems may be due to the harsh climate and remote location of some of the other areas in the ecoregion impeding agricultural conversion (WWF 2001).

2.4.4.3 DISTURBANCE REGIMES

Fire, wind, grazing, and variations in precipitation and temperature are the major disturbances in the ecoregion (WWF 2001). Cheatgrass out-competes native bunchgrasses and has also altered the ecoregion's fire regime. The combined effects of heavy livestock grazing and fire suppression have also altered the structure and composition of some areas of the ecoregion. Heavy grazing removes potential grass fuels, thus minimizing the likelihood of periodic fires. On the other hand, fire suppression may result in build up of fuels in areas where grazing in less widespread. Also, cheatgrass is often less affected by livestock grazing since it is unpalatable to livestock (except sheep and goats) in its later stages (WWF 2001).

2.4.5 NORTHERN BASIN AND RANGE

2.4.5.1 TOPOGRAPHY AND CLIMATE

The Northern Basin and Range occurs adjacent to the Central Basin Range in the high Northwestern portion (Box Elder County) of the Northern Utah region. The ecoregion consists of arid tablelands, intermontane basins, dissected lava plains, and widely scattered low mountains, largely covered with sagebrush steppe vegetation. Elevation ranges from 4,000 to 7,200 feet. (Omernik 1987)

Precipitation ranges from 4 to 20 inches (10 to 51 cm) annually, with the higher end occurring mainly in the mountainous areas. Precipitation is evenly distributed throughout fall, winter, and spring, but is low in the summer. Summers are hot and dry and winters are cold and dry with an annual average temperature of 41 to 50 °F (5 to 10 °C). Water is scarce (except at higher elevations) with few streams and little water storage (USFS Undated).

2.4.5.2 VEGETATION AND WILDLIFE

Dominant vegetation types include sagebrush steppe including shrub-grass with saltbush-greasewood vegetation. The area is considered a major migration route for waterfowl across the ecoregion including tundra swans, lesser snow geese, American wigeons, pintail, canvasback, and ruddy ducks, which use the wetlands around interior basin lakes (USFS Undated). Pronghorn and mule deer are also present.

2.4.5.3 DISTURBANCE REGIMES

Disturbance regimes include short duration and low intensity brush fires, which occur due to summer thunderstorms. Other land disturbance is associated with water and wind erosion, mining, and livestock grazing with limited farming (USFS Undated).

2.5 COUNTY BACKGROUND

The Northern Utah region consists of 11 counties (Figure 2). Key features of each county's fire history[4], population and CARs (UDFFSL 2005), land use/land cover, and CVARs are discussed.

CARs were determined using the 2005 *Utah Communities at Risk* list (UDFFSL 2005). The list consists of communities throughout Utah that have been determined by wildland fire officials to be at risk from wildland fire. Each community was given a "score" based on the sum of multiple risk factors analyzed for each community and can range from 0 (No risk) to 12 (Extreme risk). Risk factors include but are not limited to fire history, local vegetation, and fire-fighting capabilities. The score allows Utah's fire prevention program officials to assess relative risk and create opportunities for communications with those communities on the list.

Fire response for the Northern Utah region is coordinated through the Northern Utah Interagency Fire Center (NUIFC), in cooperation with the Eastern Great Basin Coordination Center. The NUIFC is a cooperative effort among the BLM, USFS and the UDFFSL. The NUIFC is responsible for dispatch and coordination for approximately 14 million acres of land that average 500 fires per year.

The NUIFC is located in Salt Lake City, Utah and dispatches the following cooperating agencies:

- BLM, Salt Lake Field Office
- BLM, Utah State Office
- National Park Service (NPS), Golden Spike National Historic Site
- NPS, Timpanogos Cave National Monument
- USFS, Region 4 Office
- USFS, Uinta National Forest
- USFS, Wasatch-Cache National Forest
- USFS, Geospatial Service and Technology Center
- UDFFSL, Bear River, Wasatch Front, and Northeast
- Utah Fire and Rescue Academy
- Bear River Migratory Bird Refuge

[4] Fire history was derived from a database consisting of all fires reported by the State, BLM, and USFS, regardless of size or origin. Each fire was plotted as one point on the map, regardless of the number of acres burned and a 5-mile radius was put around each point to calculate the fire start density. The results were reclassified in terms of fires per square mile (No Fires, 0 – 0.2 Fires/mile2, 0.2 – 1 Fires/mile2, and Greater than 1 Fire/mile2).A complete discussion of fire history methodology is available in section 3.1.7 Fire Occurrence.

- Salt Lake County
- Utah County

Equipment capabilities for Northern Utah include:

- 1 national type 2 helicopter
- 3 type 3 helicopters
- 3 interagency hotshot crews
- 8 agency type 2 crews
- 8 BLM engines and 2 water tenders
- 7 USFS engines
- 3 USFS initial attack squads
- 3 Utah County (Cooperator) engines
- County/State engines depending on need (not NUIFC resources)
- Volunteer Fire Department engines depending on need (not NUIFC resources)

A "Fire Danger Operating and Preparedness Plan" (USFS 2003) was developed for Northern Utah in February 2003 by the BLM, USFS, and UDFFSL to maintain an appropriate level of preparedness to fire response throughout Northern Utah.

All counties in the state of Utah, including the 11 counties covered under the Northern Utah RWPP, are affected by Utah Code Section 65A-8-6 (House Bill 146 [HB 146], which passed the Utah Legislature in the 2004 General Session and took effect in March of 2006).

Utah Code Section 65A-8-6 requires that counties meet eligibility requirements to enter into a cooperative agreement with the UDFFSL for wildfire protection. The Code states that counties shall

- Adopt a wildland fire ordinance based on minimum standards established by the division (UDFFSL);
- Require that the county fire department or equivalent private provider under contract with the county meet minimum standards for wildland training, certification, and wildland fire suppression equipment based on nationally accepted standards as specified by the division (UDFFSL); and
- File with the division (UDFFSL) a budget for fire suppression costs.

Each of these eligibility requirements must be met before UDFFSL may enter into a cooperative agreement for wildfire protection with any county. For further information on Utah Code Section 65A-8-6 counties may consult with personnel at UDFFSL.

2.5.1 BOX ELDER COUNTY

Box Elder County's topography is diverse. Located in the northwest corner of Utah, Box Elder County encompasses approximately 5,614 square miles (3,592,960 acres), extending from the west spur of the Wasatch Mountains north to the Idaho border and westward to the Nevada border. The county includes parts of the Great Salt Lake and the Great Salt Lake Desert, as well as the lower course and deltas of the Bear River, the Malad River Valley, and the Promontory Mountains. Box Elder County is part of the Basin and Range ecoregion and fully encompasses the Northern Basin and Range ecoregion in Utah. The county contains fertile farmlands, accounting for the large area of land (43%) used for agriculture (mostly livestock, hay, grain, alfalfa, fruit, garden crops, and sugar beets), as well as significant wetlands at the mouth of the Bear River. The largest private employers in the county are ATK/Thiokol and Autoliv ASP. The county seat is Brigham City (Media Solutions 2006).

2.5.1.1 FIRE HISTORY

Box Elder County experienced 1,086 fires between 1973 and 2005. The majority of fires have been wildland fires that occurred in the eastern portions of the county (Figure 11).

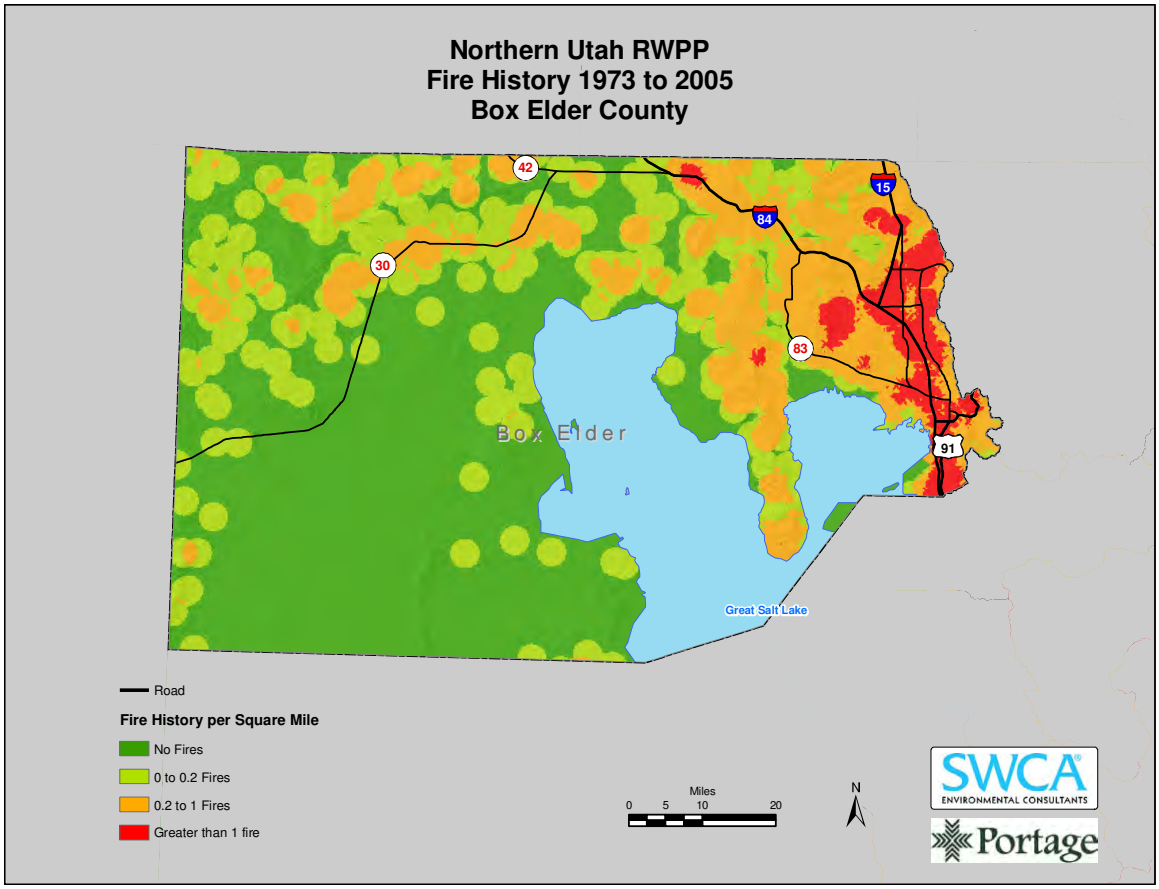

Figure 11. Box Elder County fire occurrence.

2.5.1.2 POPULATION AND COMMUNITIES AT RISK

In 2000 the total population of Box Elder County was 42,745. Brigham City (17,411) is the largest population center in the county, while Tremonton (5,592), Perry (2,383), Garland (1,943), Willard (1,630), and Honeyville (1,214) are other major population centers. Box Elder County contains 23 CARs, with overall scores ranging from 8 to 10 (Table 4).

Table 4. CARs in Box Elder County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Alred Sub / NW Tremonton	8
Beaver Dam	8
Cedar Hill	8
Clear Creek	8
Marble Hills	8
Park Valley	8
Plymouth	8
Portage	8
Standrod	8
T-Bar Ranch	8
West Hills	8
Brigham-Collinston Bench	9
Brigham-Willard Bench	9
Dove Creek	9
Grouse Creek / Etna	9
Perry / Willard	9
Rosette	9
Snowville	9
Thatcher	9
Washaki	9
Yost	9
Mantua	10
Promontory	10

2.5.1.3 LAND USE / LAND COVER

Box Elder County land use/land cover is largely mid-elevation sagebrush/grasses, other, and barren. Open Water, mostly from the Great Salt Lake, also makes up a considerable portion of the county. A small portion of the county is developed. (Figure 12)

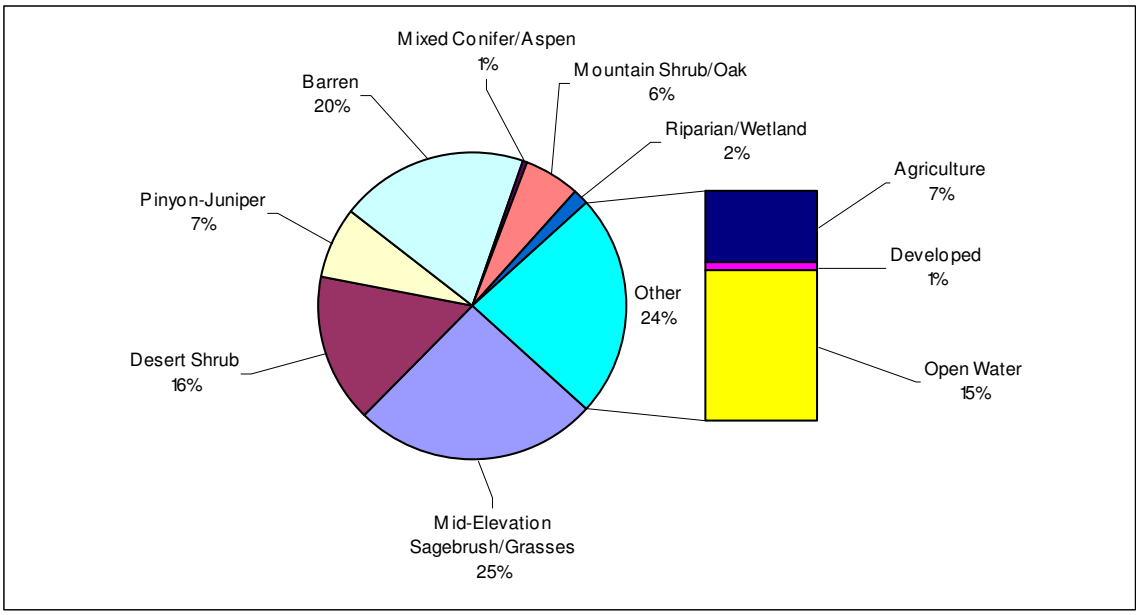

Figure 12. Box Elder County land/use land cover.

2.5.1.4 COMMUNITY VALUES AT RISK

Historic Sites. Important historic sites include the Golden Spike National Historic Site and the Willard Historic District. Important archaeological sites include Danger Cave, Promontory Caves, Hogup Cave, and Shallow Shelter. The region is known to have a rich, stratified archaeological record going back 12,000 years.

Recreation Areas and Other Points of Interest. Recreation in Box Elder County includes water sports associated with Willard Bay and Willard Bay State Park. The Bear River Migratory Bird Refuge has a loop that offers scenic opportunities by vehicle or bike. Hunting and fishing opportunities are widespread throughout the open spaces in the county where these activities are allowed. There is also a put-in where people can launch canoes and kayaks and view wildlife. Other points of interest include Brigham City Museum and Gallery and the Box Elder Tabernacle in Brigham City.

Natural Resources. The Bear River Migratory Bird Refuge is home to 208 species of birds, including 29 species of swans, geese and ducks, and 30 species of shorebirds, and more unique species such as the northern goshawk, western wood-pewee, willow flycatchers, chipping sparrows, and rock wrens. The Great Salt Lake is also a valuable resource in the county, offering recreational opportunities and providing important wildlife habitat.

Infrastructure and Investments. Major investments and infrastructure in Box Elder County include military installations such as the Utah Test and Training Range, I-15 and I-84, railroads, and various facilities associated with private employers.

2.5.2 CACHE COUNTY

Cache County occupies an area of 1,171 square miles (749,440 acres) in the northern part of Utah. It is bordered by the Wasatch Mountains on its east and by the Wellsville Mountains on its west. The Bear River flows through the northwestern corner of the county. Its major tributaries—the Little Bear, Blacksmith Fork, and Logan Rivers—join it in this location. Cache County is within the Wasatch and Uinta Mountains ecoregion.

The county's economy is based on manufacturing, trade, education, service, and agriculture. Utah State University is the county's largest single employer while a number of manufacturing firms, retail trade outlets, and service providers (including government services) contribute to Cache County's economy, as does agriculture (particularly dairying and livestock, though the county is also a major producer of hay, alfalfa, and grains). The county seat is Logan (Media Solutions 2006).

2.5.2.1 FIRE HISTORY

Cache County experienced 496 fires between 1973 and 2005. The majority of fires were wildland fires that occurred in the central part of the county (Figure 13).

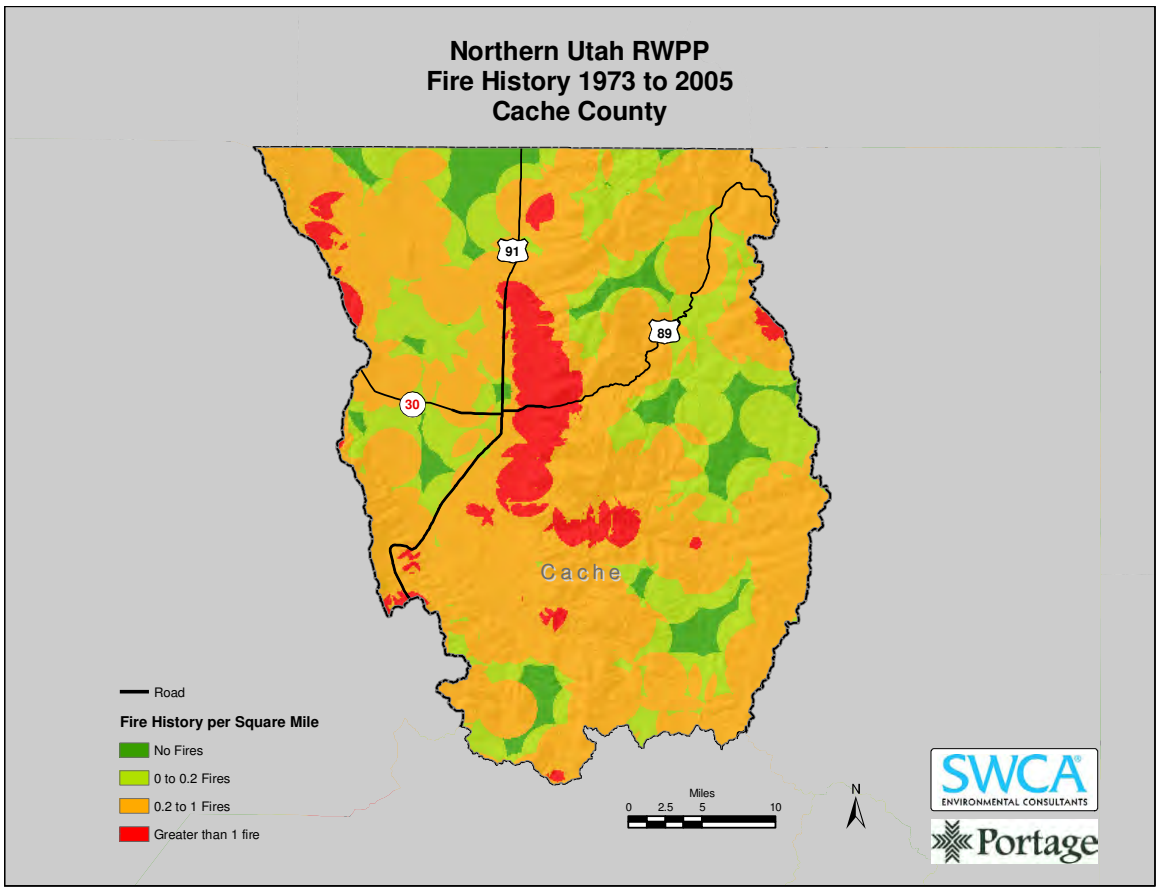

Figure 13. Cache County fire occurrence.

2.5.2.2 POPULATION AND COMMUNITIES AT RISK

Cache County's total population in 2000 was 91,391. More than half of this population resides in Logan (42,670) and North Logan (6,163). The remainder of the population is found in other principal cities such as Smithfield (7,261), Hyrum (6,316), Providence (4,377), and Wellsville (2,728). There are 32 CARs in Cache County, with overall scores ranging from 8 to 11 (Table 5).

Table 5. CARs in Cache County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Avon-Smithfield Bench	8
Clarkston	8
Greenville	8
Logan	8
Mendon	8
Paradise	8
Sheep Creek	8
Avon East	9
Avon-South Canyon	9
Blacksmith Fork	9
Cove-Richmond Bench	9
East Hyrum	9
Hyde Park	9
Hyrum	9
Laplatta	9
Logan Canyon	9
Millville	9
Nibley	9
North Logan	9
Peavine	9
Petersboro	9
Providence	9
River Heights	9
Scare Canyon / Hardware Ranch	9
Smithfield	9
Wellsville	9
Baker Canyon	10
Beaver Creek	10
Cove	10
Smithfield Canyon	10

Table 5. CARs in Cache County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Beaver Mountain	11
Sherwood Hills	11

2.5.2.3 LAND USE / LAND COVER

The majority of Cache County (Figure 14) is covered with species from the Mountain Shrub/Oak and Mixed Conifer/Aspen land use/land cover categories. Major developed uses include agriculture and cities/towns. A rapid expansion of residential development is moving into the wildland areas.

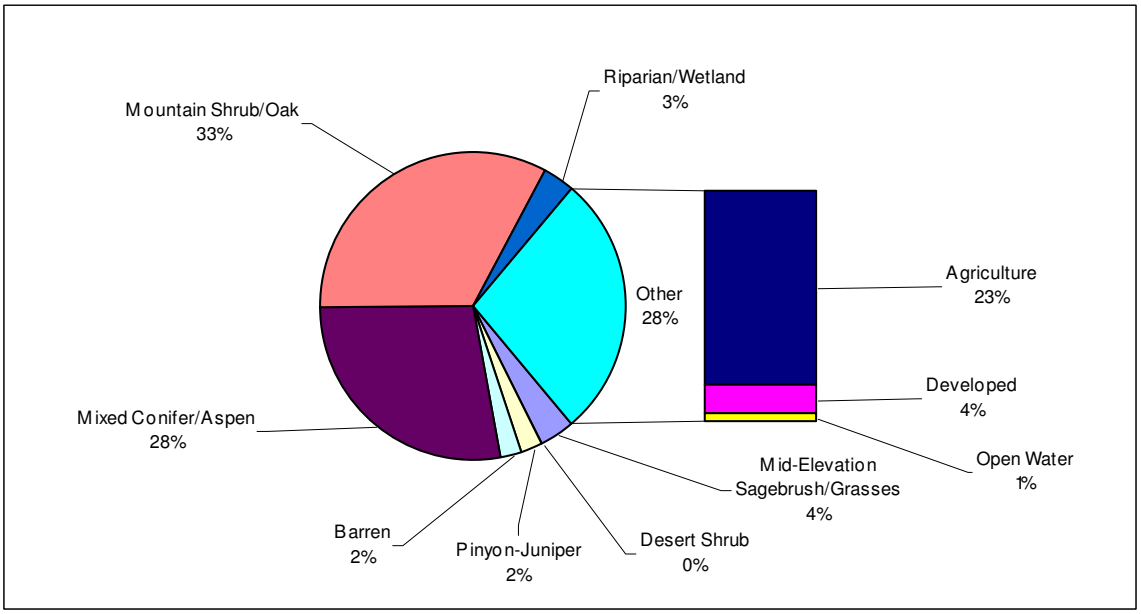

Figure 14. Cache County land use/land cover.

2.5.2.4 COMMUNITY VALUES AT RISK

Historic Sites. Historic sites in Cache County include the Hardware Elk Ranch, where hundreds of elk over-winter, and the Ronald V. Jensen Living Historical Farm.

Recreation Areas and Other Points of Interest. Popular recreation sites include Beaver Ski Resort and Hyrum Lake State Park. Mountain biking, hiking, ATV use, and fishing are popular forms of summer recreation in the area. Other points of interest include the Logan Latter Day Saints (LDS) Temple, the Logan LDS Tabernacle, and the Wellsville LDS Tabernacle.

Natural Resources. The Wasatch-Cache National Forest and Logan Canyon are both located in Cache County. The Logan Canyon highway (State Road 89) is designated as a

scenic byway. This highway is the western gateway to Bear Lake. The Logan and Blacksmith Fork Rivers are blue ribbon trout fisheries, and the Little Bear and Bear River marshes west of Logan and Smithfield are prime waterfowl hunting areas. The Wellsville Mountains west of Cache County provide a popular vista for professional photographers. The Fish Experiment Station, staffed by the Utah Division of Wildlife Resources, is also located in the county. Additionally, Cache County is home to "Jardine Juniper" (a Rocky Mountain Juniper, *Juniperus scopulorum*), discovered in 1923 and said to be one of the largest juniper trees in existence.

Infrastructure and Investments. Cache County's most well known feature is Utah State University, which also includes Old Main and the Nora Eccles Harrison Art Museum. Major infrastructure includes Highway 89, Highway 91 and the Union Pacific Railroad's mainline in northwest Cache County as well the Cache Valley branch line that services Swift Meat Packaging in Hyrum and businesses in Lewiston and Preston, Idaho.

2.5.3 DAVIS COUNTY

Davis County is the smallest county in Utah, occupying an area of 268 square miles (171,520 acres). It is situated between the Wasatch Mountains to the east and the Great Salt Lake to the west.

Runoff from the Wasatch Mountains is the main source of water for the county, which has always been a rich agricultural area. Because of this, it was recognized early on by the Mormon pioneers as a productive area for settlement despite the fact that 56% of the county is occupied by the Great Salt Lake.

Davis County is one of the state's fastest growing counties and now has the third highest population in the state (after Salt Lake and Utah Counties). Though the county's economy was initially based on agriculture, which still remains a strong contributor (notably alfalfa, grain, onions, and fruit), its economy today is based largely on the defense industry (Hill Air Force Base, particularly), small manufacturing and distribution (the Freeport Center), and service industries. The county seat is Farmington (Media Solutions 2006).

2.5.3.1 FIRE HISTORY

Davis County experienced 153 fires between 1973 and 2005, the fewest number of all the counties in the Northern Utah region. The majority of fires were wildland fires that occurred in the northeastern part of the county and south along the Davis Bench (Figure 15).

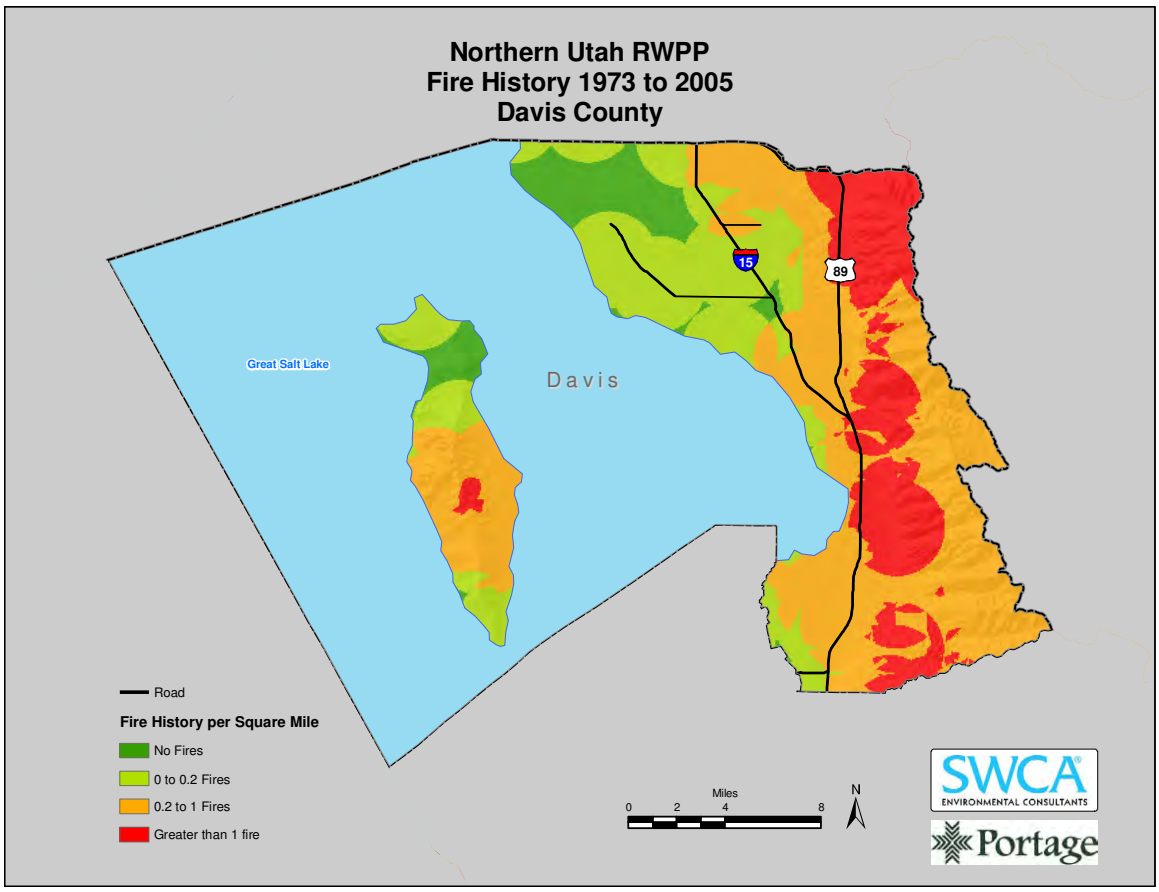

Figure 15. Davis County fire occurrence.

2.5.3.2 Population and Communities at Risk

In 2000 the total population of Davis County was 238,994. Principal cities and towns include Layton (58,474), Bountiful (41,301), Clearfield (25,974), Kaysville (20,351), Centerville (14,585), Farmington (12,081), North Salt Lake (8,749), and South Weber (4,260). Davis County contains 7 CARs, with overall scores ranging from 7 to 9 (Table 6).

Table 6. CARs in Davis County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Farmington	7
Layton	7
Bountiful	8
Centerville	8
Kaysville	8
North Salt Lake	8
South Weber	9

2.5.3.3 LAND USE / LAND COVER

The largest land use/land cover category for Davis County (Figure 16) is open water, due to the large portion of the Great Salt Lake that is within the boundaries of the county. Development and Agriculture account for the next largest land use/land cover categories. Vegetative cover is a relatively small portion of the county, approximately 23% total.

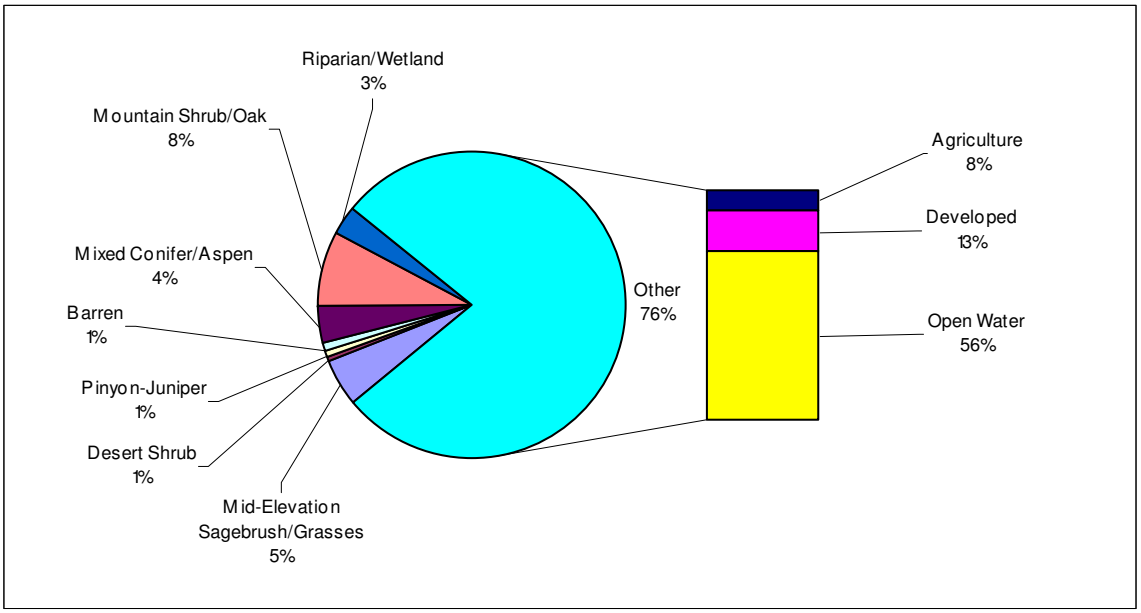

Figure 16. Davis County land use/land cover.

2.5.3.4 COMMUNITY VALUES AT RISK

Historic Sites. Popular historic sites include the Farmington Rock Chapel and the Freeport Center. Numerous prehistoric archaeological sites can be found throughout the county, as its fertile lands have attracted every distinct cultural group in Utah's prehistory.

Recreation Areas and Other Points of Interest. Recreation areas of interest include the Bonneville Shoreline Trail (which is popular with hikers, bikers, and horse owners) and the Mueller Park Loop, which is one of the more popular hiking and biking trails along the Wasatch Front. Additional points of interest in Davis County include Antelope Island State Park, Farmington Canyon, Pioneer Village, and Mueller Park.

Natural Resources. Farmington Bay Waterfowl Management Area on the shore of the Great Salt Lake hosts more than 200 species of birds, from white pelicans to horned grebes. The Howard Slough Waterfowl Management Area is another popular natural resource area.

Infrastructure and Investments. Hill Air Force Base provides worldwide engineering and logistics management for military aircraft and contributes significantly to the

economy of Davis County. Interstate 15 and Highway 89 are significant north-south routes through the county.

2.5.4 MORGAN COUNTY

Morgan County is located in a high valley of the Wasatch Mountains, occupying an area of 611 square miles (391,040 acres). The county is bisected by the Weber River, which runs from Summit County, through Morgan County, and then through Weber County on its way to the Great Salt Lake. There are a number of streams that feed the Weber River in Morgan County, which made the area appealing to aboriginal peoples as well as to fur trappers. There is more privately owned land in Morgan County (351,936 acres, or 90% of the total area) than in any other county in Utah. Much of the land area is used for livestock, notably beef and dairy cattle and sheep, and for hay and other field crops. There is also a strong manufacturing presence at the Devil's Slide Portland cement manufacturing plant, which has been in operation for more than 80 years. All the ingredients for Portland cement are found in Morgan County, though mining has occurred on only a small scale. Nonetheless, agriculture and industry are not able to employ all the residents of Morgan County; more than half of the population works outside the county. Morgan County is currently experiencing tremendous growth. Over the course of the next year approximately 2,400 building permits will be issued, many falling within the WUI zone established by Utah Code Section 65A-8-6. The county seat is Morgan City. (Media Solutions 2006; UAC 2005).

2.5.4.1 FIRE HISTORY

Morgan County experienced 444 fires between 1973 and 2005. The majority of fires were wildland fires that occurred in the central part of the county along the 1-84 corridor that runs through the county (Figure 17).

2.5.4.2 POPULATION AND COMMUNITIES AT RISK

The total population of Morgan County in 2000 was 7,129. More than a third of this population lives in Morgan City (2,635), with the remainder scattered throughout the county in much smaller towns or in the unincorporated areas. There are 5 CARs in Morgan County, with overall scores ranging from 8 to 10 (Table 7).

Table 7. CARs in Morgan County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Mountain Green	8
Morgan	9
Trappers Loop	9
East Canyon	10
Porterville	10

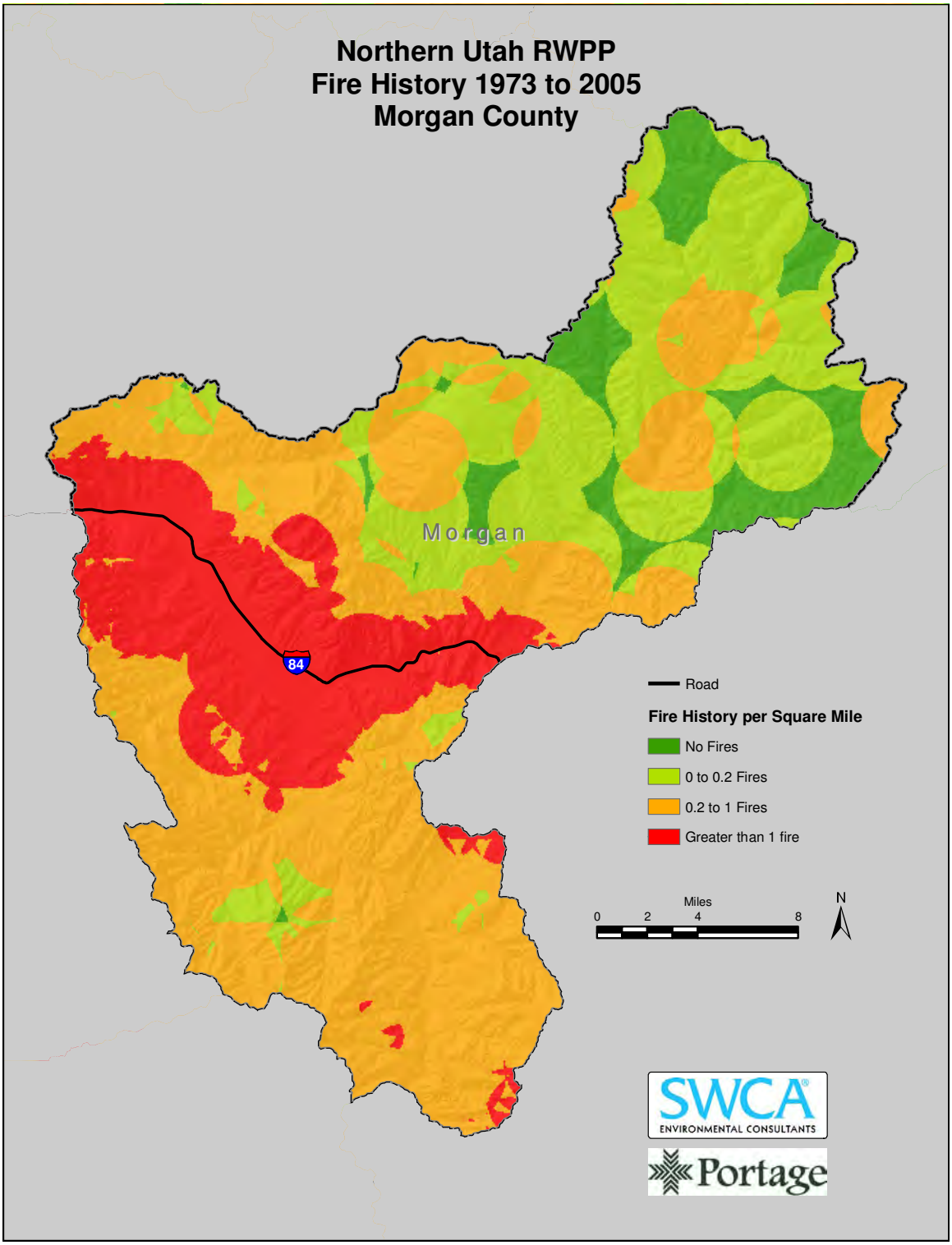

Figure 17. Morgan County fire occurrence.

2.5.4.3 LAND USE / LAND COVER

Vegetative cover accounts for 90% of Morgan County's land surface and comprises primarily 3 vegetative communities (Figure 18).

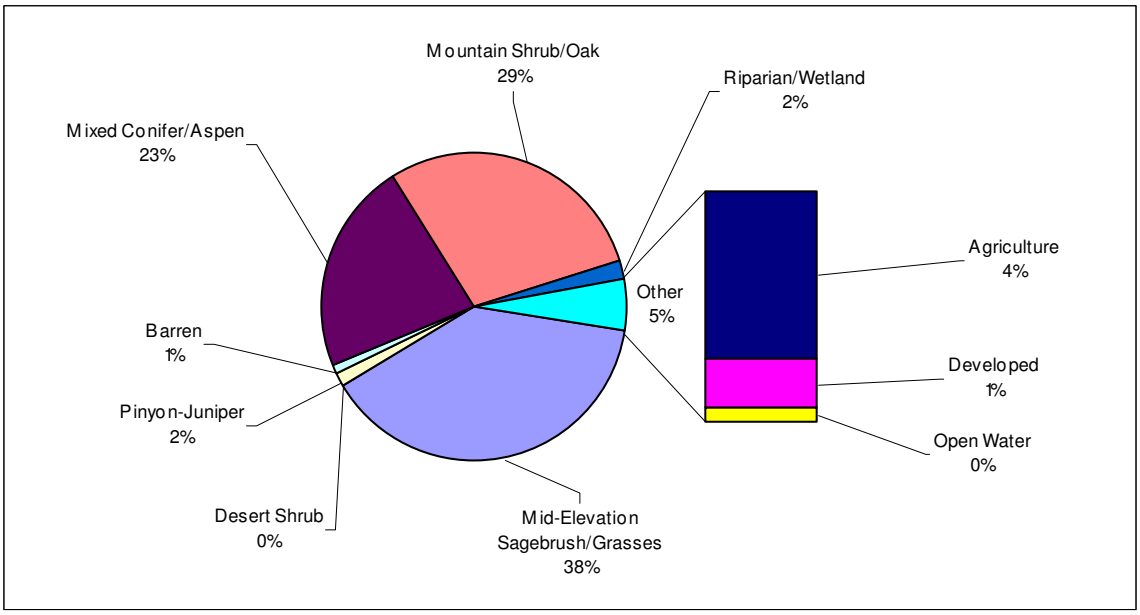

Figure 18. Morgan County land use/land cover.

2.5.4.4 COMMUNITY VALUES AT RISK

Historic Sites. Morgan County historic sites include the Mountain Green Trappers' Confrontation site, the Devil's Slide Portland Cement manufacturing plant, Hasting's Cutoff/Mormon Flats, the Donner/Reed, Mormon Pioneer, and Pony Express Trails, Bauchmann Pony Express Station, and the Morgan City Train Station.

Recreation Areas and Other Points of Interest. Major points of interest include Lost Creek State Park, East Canyon State Park, East Canyon Resort, LDS Girls Camp, Devil's Slide, and Hardscrable Canyon. A large portion of the county is open land, which is popular with campers, hikers and fishers.

Natural Resources. The Weber River and its tributaries provide habitat for a variety of wildlife in Morgan County. These areas are also important fisheries. Watershed values are also of concern for water quality.

Infrastructure and Investments. Major infrastructure located in Morgan County includes the Trappers Loop Road, which runs into Pineview Reservoir. The road has been designated as a Scenic Byway, with views of the backside of the northern Wasatch Range. Also, the Union Pacific Railroad is a large part of the local economy.

2.5.5 RICH COUNTY

Rich County lies in the upper northeastern corner of Utah and occupies an area of 1,034 square miles (661,760 acres). Much of the county is considered highlands (elevations range from about 6,000 to 9,000 feet); however, there are also fertile lowlands that support agriculture (primarily livestock grazing). The tourism economy of the county is supported in large part by Bear Lake, which includes resorts, public beaches, and summer homes.

The area is characterized by particularly harsh winters. Woodruff, for example, averages just 57 frost-free days per year and holds the record for the coldest temperature recorded in Utah (-50 °F). The county seat is Randolph (Media Solutions 2006).

2.5.5.1 FIRE HISTORY

Rich County experienced 304 fires between 1973 and 2005. The majority of fires were wildland fires that occurred in the northwestern part of the county near Bear Lake (Figure 19).

2.5.5.2 POPULATION AND COMMUNITIES AT RISK

Rich County's total population in 2000 was 1,961. Principal cities and towns include Randolph (483), Laketown (188), and Garden City (357). Rich County contains 15 CARs, with overall scores ranging from 7 to 11 (Table 8).

Table 8. CARs in Rich County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Garden City / Bridgerland	7
Garden City / Sweetwater Trailer Park	7
Home Ranch	7
Laketown / Vista Grande	7
Meadowville / Round Valley	7
Mountain Fuel / Randolph	7
Randolph	7
Sweetwater	7
Woodruff / Chournos	7
Woodruff / Eagle Springs	7
Garden City / Elk Hollow	8
Garden City / Little Switzerland	8
Garden City / Swan Creek	8
Laketown	8
Majestic Ranch / Surrounding Ranches	8

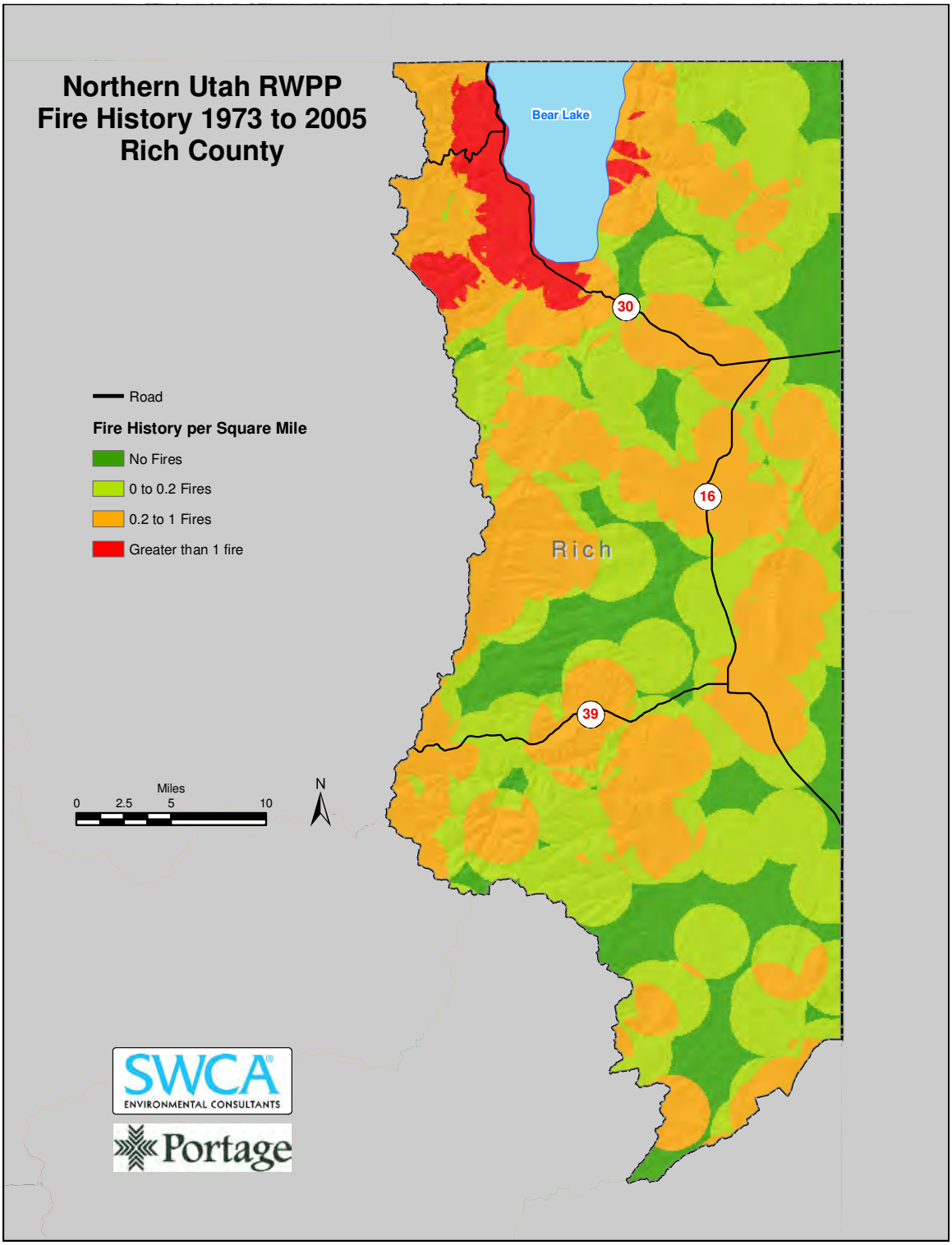

Figure 19. Rich County fire occurrence.

2.5.5.3 LAND USE / LAND COVER

Rich County is unique, in that the majority of the county is covered by the Mid-elevation Sagebrush/Grasses land use/land cover category. The next largest land use/land cover is agriculture. Very little of the county is developed (Figure 20).

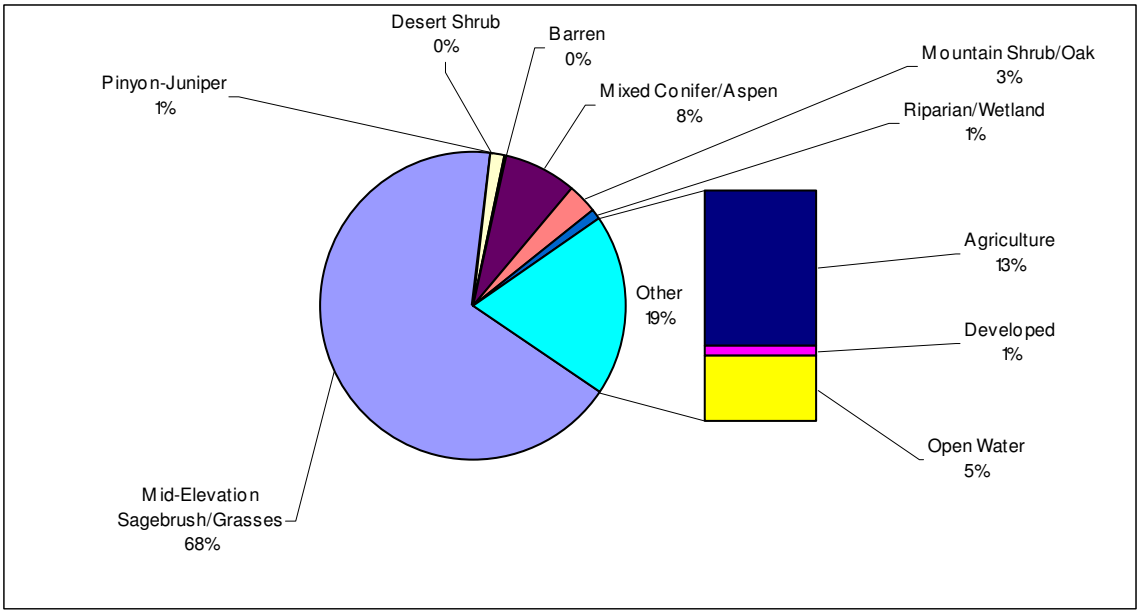

Figure 20. Rich County land use/land cover.

2.5.5.4 COMMUNITY VALUES AT RISK

Historic Sites. Located in the city of Randolph is the territorial home of former LDS Church President Wilford Woodruff, which is a popular local attraction that has been turned into a two-room museum. In addition, Round Valley, once a popular pioneer settlement and now an abandoned town, is a wealth of historical local and regional information, with a cemetery, remnants of an old schoolhouse, and an elaborate old mansion.

Recreation Areas and Other Points of Interest. The major recreation point of interest in Rich County is Bear Lake State Park. The lake is relatively large and provides opportunities for boating, watercraft, fishing and swimming. The lake also offers opportunities for bird-watching, with more than 1,760 acres of marsh, open water and grasslands. The lake is home to sandhill cranes, herons, snowy egrets, white pelicans, and numerous species of waterfowl (Grass 2005). Other points of interest include Rendezvous Beach State Park and Randolph LDS Tabernacle.

Natural Resources. Bear Lake provides habitat for three fishes found nowhere else in the world: the Bonneville cisco, Bonneville whitefish, and Bear Lake whitefish (Grass 2005). Attempts to start populations in other waters have not been successful.

Infrastructure and Investments. Major investments include summer homes and resorts around Bear Lake. Highways 39 and 16 are Scenic Byways popular with motorcyclists.

2.5.6 SALT LAKE COUNTY

Salt Lake County encompasses an area of 764 square miles (488,960 acres) in the fertile valley between the Wasatch Mountains to the east, the Oquirrh Mountains to the west, the Great Salt Lake to the north, and the Traverse Mountains to the south. The western half of the county is in the Basin and Range ecoregion, while the eastern half of the county is in the Wasatch and Uinta Mountains ecoregion. The Wasatch Fault bisects the eastern part of the county, near the base of the Wasatch Mountains. The county's main water artery is the Jordan River, which flows from Utah Lake in the south, north through the county to the Great Salt Lake. Major tributaries of this river in Salt Lake County, include Little Cottonwood Creek, Big Cottonwood Creek, Mill Creek, Parley's Creek, Emigration Creek, Corner Canyon Creek, and City Creek. These tributaries provide the majority of culinary water to residents of the Salt Lake Valley. Salt Lake County's economy is based on wholesale and retail trade, manufacturing, services, transportation and communications, finance, mining, construction, tourism, and agriculture. Salt Lake County is the most populous county in Utah. The county seat is Salt Lake City (Media Solutions 2006).

2.5.6.1 FIRE HISTORY

Salt Lake County experienced 444 fires between 1973 and 2005. The majority of fires were wildland fires that occurred in the southwestern part of the county and along the Wasatch front in or near City Creek, Red Butte, Emigration, Parleys, Mill Creek, Big Cottonwood, and Little Cottonwood Canyons (Figure 21).

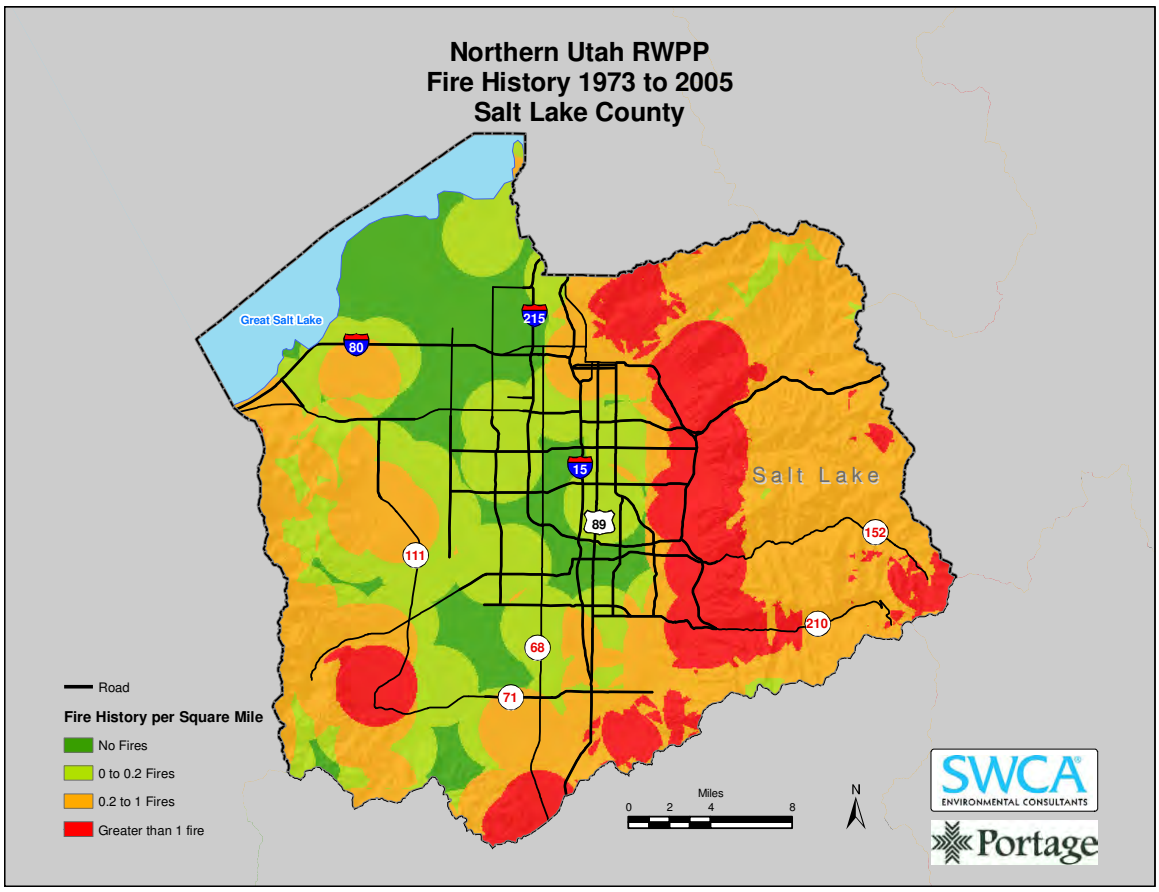

Figure 21. Salt Lake County fire occurrence.

2.5.6.2 Population and Communities at Risk

Salt Lake County's total population in 2000 was 898,387. Principal cities include Salt Lake City (181,743), West Valley City (108,896), Sandy (88,418), West Jordan (68,336), Murray (34,024), Kearns (33,659), South Jordan (29,437), Midvale (27,029), and Draper (25,220). Salt Lake County contains 19 CARs, with overall scores ranging from 5 to 10 (Table 9).

Table 9. CARs in Salt Lake County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Holladay	5
Alta	6
Little Cottonwood	6
Suncrest	6
Big Cottonwood	7
Brighton	7
Copperton	7

Table 9. CARs in Salt Lake County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Granite	7
Herriman	7
Bluffdale	8
Draper	8
Olympus Cove	8
Salt Lake City	8
Sandy	8
Dimple Dell	9
High Country Estates	9
Lambs Canyon	9
Mount Aire	9
Emigration Canyon	10

2.5.6.3 LAND USE / LAND COVER

Developed land comprises the largest portion of Salt Lake County. Combined with agriculture and open water these categories make up half of the county. The other half is mainly Mountain Shrub/Oak and Mixed Conifer/Aspen (Figure 22).

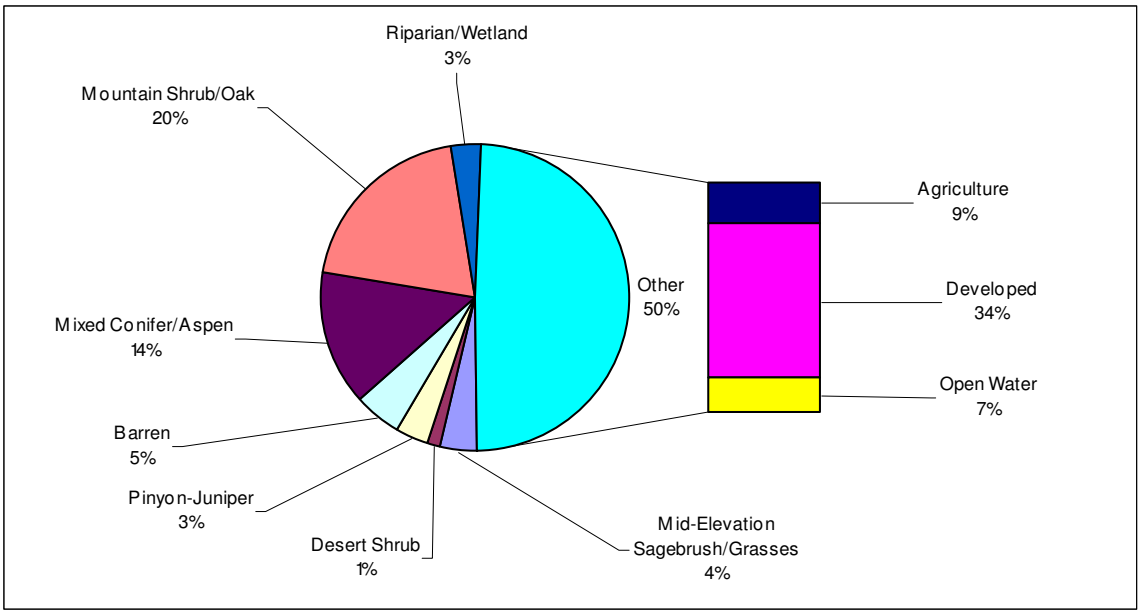

Figure 22. Salt Lake County land use/land cover.

2.5.6.4 COMMUNITY VALUES AT RISK

Historic Sites. Salt Lake County is home to a number of historic sites that may be at risk, including Fort Douglas and "This is the Place" Heritage Park. In addition, Wheeler Historic Farm, as well as a number of past mining communities such as Alta and Bingham may potentially be threatened with wildfire.

Recreation Areas and Other Points of Interest. Ski resorts such as Alta, Brighton, Snowbird, and Solitude are a large source of the recreation in Salt Lake County in both winter and summer. The vast terrain of these areas provides numerous opportunities for skiing, snowboarding, hiking, mountain biking, and rock climbing. Recreation opportunities are also prevalent in the Wasatch Mountains outside of ski areas. Other points of interest include Pioneer Trail State Park, Hogle Zoo, the State Capitol building, and the Bonneville Shoreline Trail.

Natural Resources. Some notable natural resources in the county include the Great Salt Lake, Red Butte Gardens (Natural Study Area), the Jordan River, and Big Cottonwood, Little Cottonwood, City Creek, Emigration, Millcreek, and Parley's Canyon drainages (all important for watershed values as well as recreation and habitat).

Infrastructure and Investments. Because Salt Lake County contains the Utah State Capitol and the state's largest population, it also contains significant infrastructure and investments, including the Bingham Copper Mine, Little Dell Reservoir, Salt Lake International Airport, major medical facilities such as the Huntsman Cancer Institute, and the University of Utah. Two major interstates run through Salt Lake County: I-80 (east-west) and I-15 (north-south).

2.5.7 SUMMIT COUNTY

Summit County occupies 1,849 square miles (1,183,360 acres) of land in the northeastern portion of the state and borders Wyoming. The county owes its name to the high mountain summits forming the divides of the Weber, Bear, and Green River drainages. The eastern portion of the county is dominated by the east-west-trending Uinta Mountains, while a high back valley of the Wasatch Mountains forms the county's western border. The county seat is Coalville.

Prior to the arrival of Mormon pioneers in 1847, Summit County was prime hunting ground for the Northern Shoshone Indians. The Weber and Provo Rivers, which drain the western slope of the Uintas, provided the Indians with fish. Since Euroamerican settlement, economic activities in the area have focused on mining, timber production, livestock, and (more recently) skiing and tourism (Media Solutions 2006).

2.5.7.1 FIRE HISTORY

Summit County experienced 870 fires between 1973 and 2005. The majority of fires were wildland fires that occurred in the western part of the county along major transportation arteries including I-80 and US40 (Figure 23).

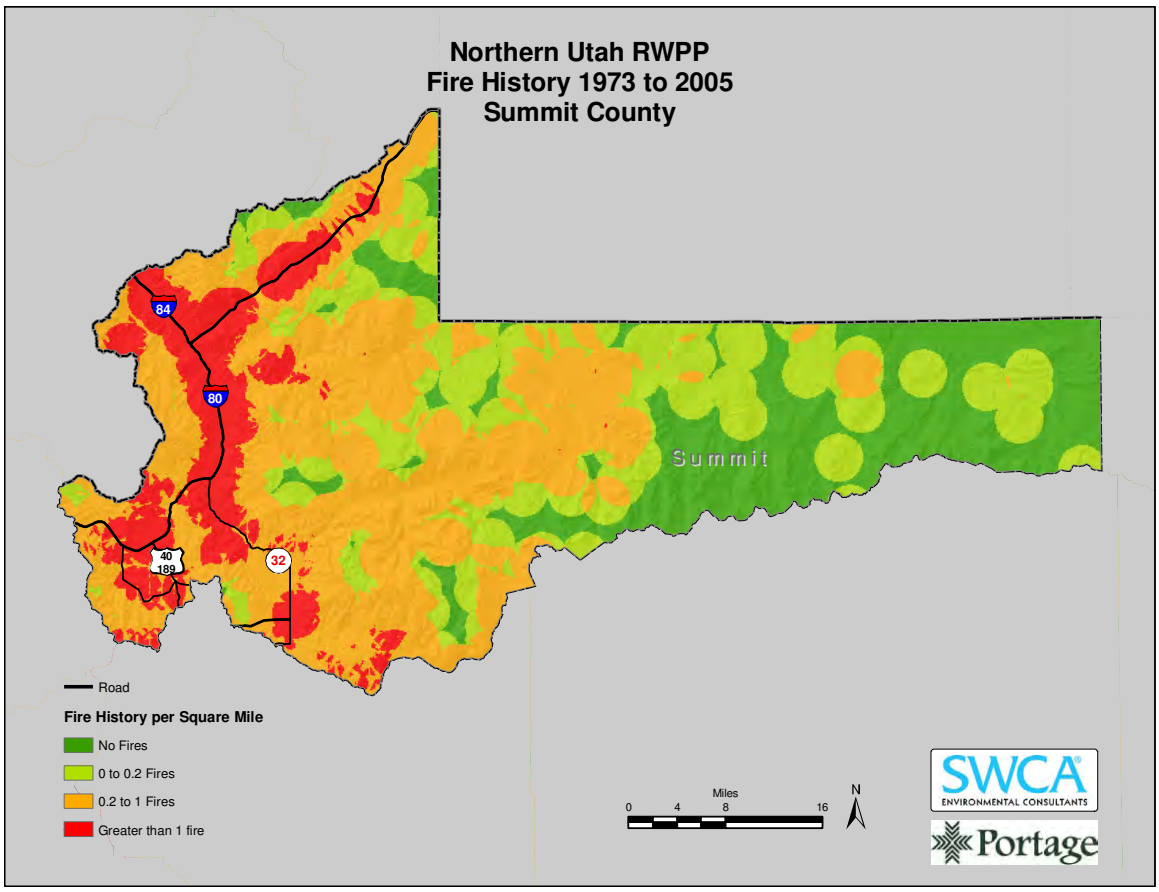

Figure 23. Summit County fire occurrence.

2.5.7.2 Population and Communities at Risk

The total population of Summit County in 2000 was 29,736. Principal cities and towns include Park City (7,371), Coalville (1,382), Kamas (1,274), and Snyderville (5,457). Summit County contains 76 CARs, with overall scores ranging from 5 to 11 (Table 10).

Table 10. CARs in Summit County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Coalville	5
Marion	5
Peoa	5
Snyderville	5
Aspen Mountain	6
Francis	6
Henefer	6
Hoytsville	6
Kamas	6
Oakley	6

Table 10. CARs in Summit County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Wanship	6
Beaver Springs	7
Canyon Rim	7
Deer Mountain	7
Glendale	7
Highland Estates	7
Alpine Acres	8
Black Hawk	8
Freeman Ranch	8
Grass Creek	8
Mountain Valley Ranches	8
Park City / Deer Valley	8
Silver Creek	8
Sun Peak	8
The Canyons	8
Weber Meadowview	8
Wild Willow	8
Woodland	8
Bear Hollow	9
Cherry Canyon Ranches	9
Colonies at White Pine	9
Echo Creek Ranches	9
Little Dipper	9
Meadow Haven	9
Pinebrook	9
Pineway	9
Ranch Place	9
River Song Ranch	9
Silver Springs	9
Stage Coach	9
Stillman Ranch	9
Summit Park	9
Upton	9
Weber Wild	9
1000 Peaks Ranch	10
Aerie	10
Bridge Hollow	10

Table 10. CARs in Summit County (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Deer Valley	10
Garff Ranches	10
Gorgoza Park	10
Hidden Cove	10
Hidden Lake	10
Holiday Park	10
Maple Hills	10
Maple Ridge Ranches	10
Marion Ranches	10
Mill Hollow Scout Camp	10
North Bench Farms	10
Ridgeview	10
Rockport Estates	10
Rockport Ranches	10
Samak	10
Silver Summit	10
Solamere	10
South Fork	10
South Ridge	10
Bear River Lodge Christmas Meadow	11
Big Canyon Ranch	11
Jeromy Ranches / Red Hawk	11
Kamas East	11
Manorlands / Uintalands	11
Pine Meadows / Forest Meadows	11
Pine Mountain	11
Promontory	11
The Pines	11
Two Bear	11

2.5.7.3 LAND USE / LAND COVER

A large portion of the land cover for Summit County falls into the Mixed Conifer/Aspen category. Most of the remainder is Mountain Shrub/Oak. Developed land use/land cover makes up a relatively small portion of the county (Figure 24).

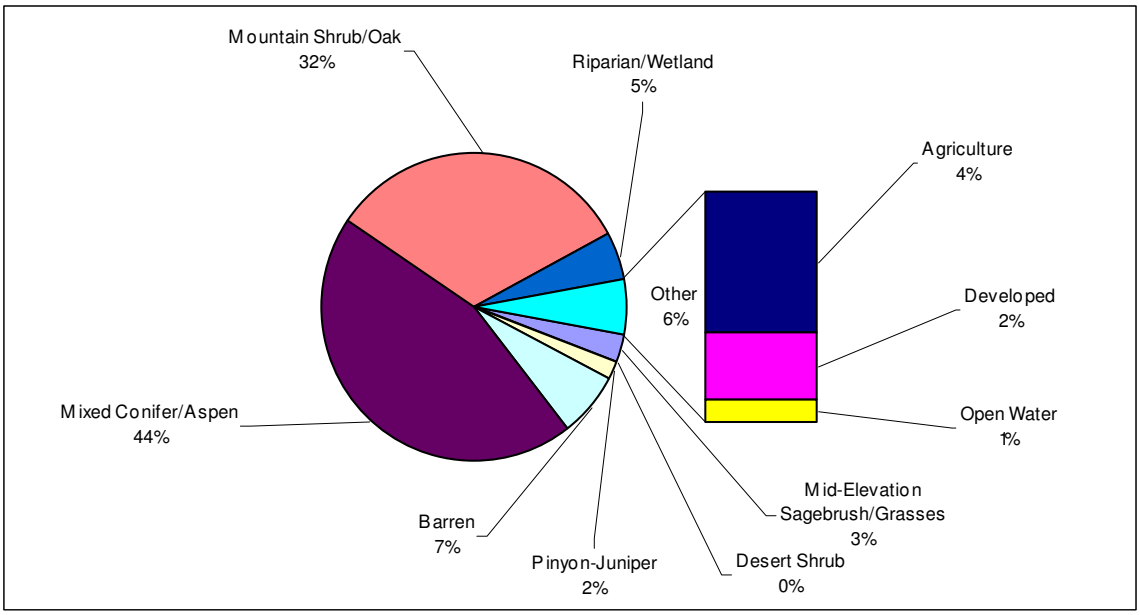

Figure 24. Summit County land use/land cover.

2.5.7.4 COMMUNITY VALUES AT RISK

Historic Sites. Park City's Main Street includes a significant Historic District for the county. Historically, the area was a booming mine town; now it houses many shops and art galleries and hosts nationally recognized art and film festivals. There are a number of other historic sites throughout Summit County.

Recreation Areas and Other Points of Interest. Popular recreation areas include Park City area ski resorts (Park City Resort, Deer Valley Resort, and The Canyons Resort), Rockport State Park, and Echo Reservoir. Recreational opportunities include boating, fishing, biking, and hiking.

Natural Resources. Summit County includes the High Uintas Wilderness Area, important for its habitat and recreational opportunities. The Swaner Nature Preserve (SNP), located in the Snyderville Basin, is "dedicated to promoting open space values through land preservation, restoration, awareness, and education." (SNP 2006)

Infrastructure and Investments. Echo Reservoir is an important water source for the county (Grass 2005). I-80 crosses through Summit County and US 40 connects Summit and Wasatch counties (AAR 2006).

2.5.8 TOOELE COUNTY

Tooele County is Utah's second largest county by area, with an area of 6,923 square miles (4,430,720 acres). The county is located along the eastern edge of the Basin and Range ecoregion. The majority of the county's population resides in cities and towns situated between the Oquirrh Mountains to the east and the Onaqui and Stansbury Mountains to

the west. Western Tooele County consists mostly of Great Salt Lake Desert except for the southwest portion of the County where the Deep Creek Mountains rise. The county seat is Tooele City.

There are a number of prehistoric Indian sites in the county, but the Goshutes (a branch of the Western Shoshone), who currently have a reservation in Skull Valley, claim the area as their ancestral homeland. Non-Indian settlement of the area began with the Mormons who first herded livestock in Tooele Valley and then farmed, built gristmills and sawmills, and manufactured salt, charcoal, lime, adobe bricks, and woolen products. Other activities included sheep and cattle herding, hay and grain farming, and mining and smelting. Mining and smelting were responsible for most of the county's growth from the 1860s to World War II. Since World War II military installations in the county have continued to boost the local economy. Wendover Air Force Base (now closed), Tooele Army Depot, and Dugway Proving Grounds have all employed significant numbers of people in the county (Media Solutions 2006). Tooele County is currently experiencing tremendous growth in the Tooele Valley as well as outlying areas east of the Stansbury Mountains. These areas are subject to the provisions of HB146. Tooele County adopted a WUI ordinance in 2001, preceding Utah Code Section 65A-8-6 by five years. As part of the ordinance WUI areas have been extensively mapped and WUI overlays are available in GIS format.

2.5.8.1 FIRE HISTORY

Tooele County has experienced 1,885 fires between 1973 and 2005. The majority of fires are wildland fires and occur most often in the eastern half of the county in and around the Oquirrh and Stansbury Mountains (Figure 25).

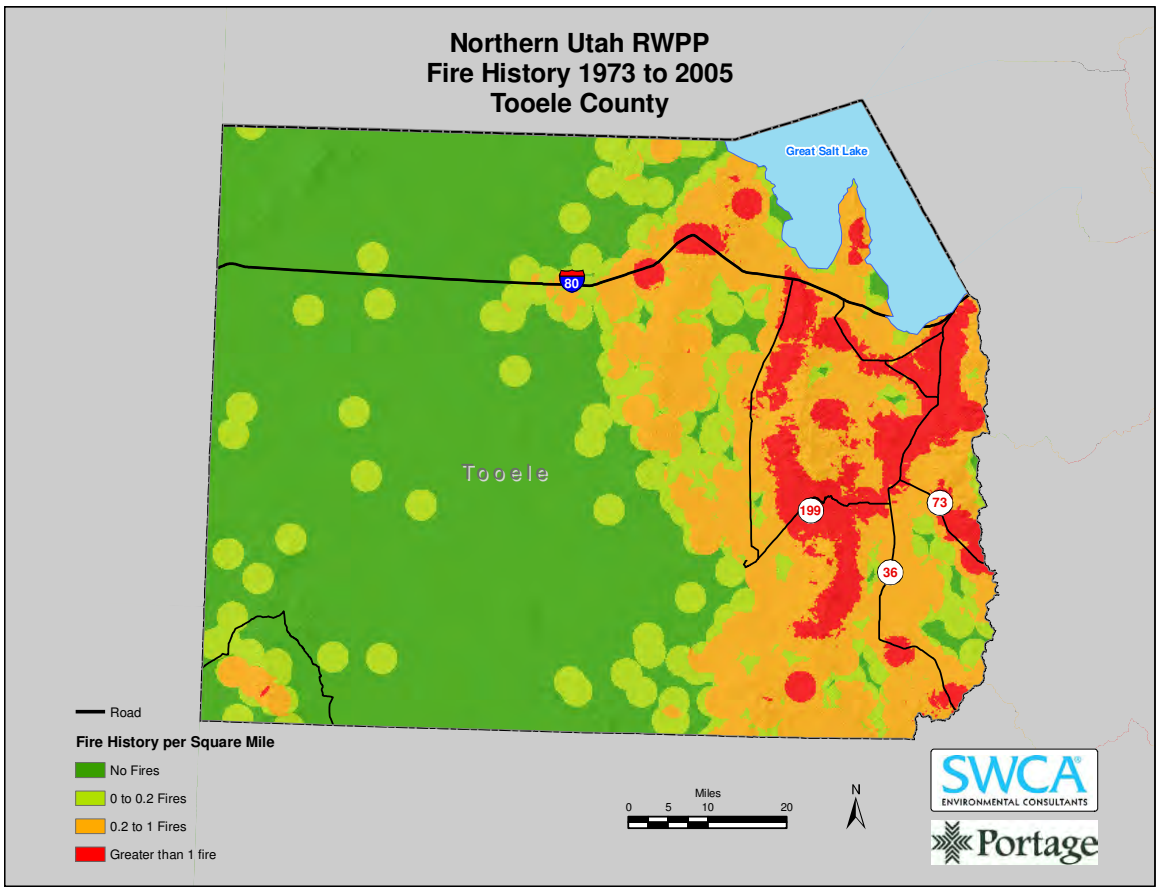

Figure 25. Tooele County fire occurrence.

2.5.8.2 Population and Communities at Risk

In 2000 the total population of Tooele County was approximately 40,735 people. More than half the total population at that time resided in Tooele City (22,502) and Grantsville (6,015), the county's two largest cities. There are 17 communities in Tooele County included on the 2005 Communities at Risk list with overall scores ranging from 7 to 10 (Table 11).

Table 11. CARs in Tooele Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Erda	7
Pine Canyon	7
Tooele	7
Ibapah	8
Lake Point / Mills Junction	8
Lofgreen	8
South Willow	8
Big Hollow	9

Table 11. CARs in Tooele Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Gold Hill	9
Grantsville	9
Northeast Skull Valley / Iosepa	9
Stockton	9
Ophir	10
Rush Valley / Clover	10
Skull Valley	10
Terra	10
Vernon	10

2.5.8.3 LAND USE / LAND COVER

Almost 37 percent of Tooele County is classified as Barren due to extensive areas of Inter-Mountain Basins Playa found mainly in the western part of the county. Mid-elevation sagebrush and grasses and Desert Shrub, accounting for approximately 20 percent each, are found mostly in the eastern part of the county. Agriculture and developed land account for a small portion of the county with 1 and 2 percent, respectively (Figure 26).

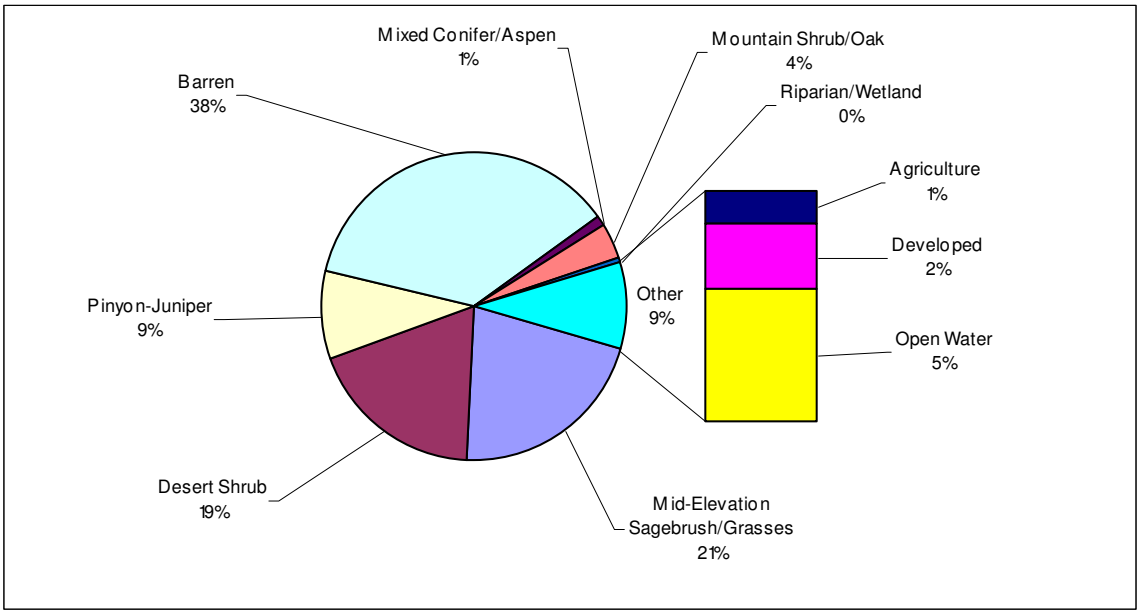

Figure 26. Tooele County land use/land cover.

2.5.8.4 COMMUNITY VALUES AT RISK

Historic Sites. Important historic sites in Tooele County include but are not limited to the Old Pony Express and Stage Route, Iosepa Cemetery, Ophir Town Hall, Grantsville First Ward, Rush Valley Mining District, International Smelting and Refining Company smelter, Tooele Valley Railroad, and Benson Grist Mill. The Oquirrh Mountains include some of the state's more scenic and historic canyons, such as Settlement Canyon and Reservoir; Dry Canyon where the ghost town Jacob City is located; and Soldier Canyon, once a hotbed for early mining. Most ghost towns in Tooele County are remnants of past mining activities.

Recreation Areas and Other Points of Interest. Important recreation areas and other points of interest include but are not limited to the Bonneville Speedway and the Deseret Peak Complex used for a variety of competitive events and activities by local community members. The Salt Flats are also home to annual motorcycle and race car events.

Natural Resources. Important natural resources in Tooele County include the Deseret Peak Wilderness Area and the Great Salt Lake. The Oquirrh Mountains include peaks up to 10,590 feet tall. The mountain range is 30 miles long and home to one of the state's largest elk herds and some of the state's largest bull elk. Canyons of the Oquirrh and Stansbury Mountains are also essential for their watershed values for water quality.

Infrastructure and Investments. Critical infrastructure and investments of concern in Tooele County include but are not limited to the Morton Salt facilities, Tooele Army Depot and Dugway Proving Grounds. SR-36 is a main access route through the county as well as Highway 199. Interstate 80 crosses through Tooele County.

2.5.9 UTAH COUNTY

Utah County is 2,142 square miles (1,370,880 acres) in area. The county contains the state's largest fresh-water lake, Utah Lake, which occupies 151 square miles (96,900 acres) of the total area of the county. The Wasatch Mountains form the eastern boundary of the county and, in addition to Utah Lake, are the county's most striking geographical feature. In Utah County the Wasatch Mountains are over 11,000 feet in areas and receive heavy snowfall. The county seat is Provo

Prior to settlement by Mormon pioneers Utah Valley was populated by Ute Indians who lived predominantly along the eastern shore of Utah Lake subsiding mostly on fish from the lake. In 1849 Mormon pioneers began settling Utah Valley, establishing permanent residence on the fertile strip of land between the Wasatch Mountains and Utah Lake. Since settlement by Mormon pioneers important industries have included farming, which was the most important early industry (especially fruit growing and sugar beet processing), mining, manufacturing and technology, and tourism. The fruit industry continues to be important in Utah County though it is now centered in the south end of the valley, where orchards are not threatened by housing developments (Media Solutions 2006).

2.5.9.1 Fire History

Utah County has experienced 1,951 fires between 1973 and 2005, which is the highest in the Northern Region. The majority of fires are wildland fires, which are fairly widely scattered around the county with a concentration along the Wasatch Mountains, the US 6 corridor, and west of Utah Lake (Figure 27).

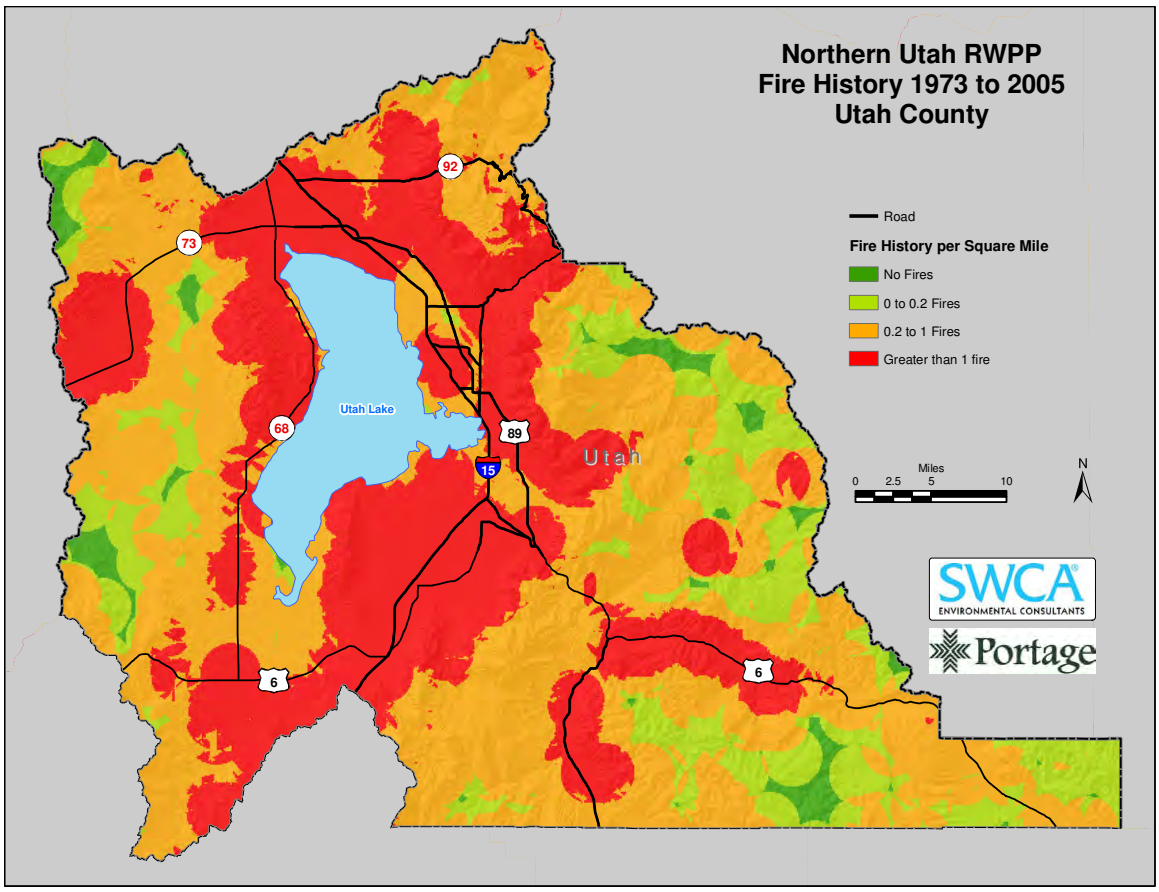

Figure 27. Utah County fire occurrence.

2.5.9.2 Population and Communities at Risk

The total estimated population of Utah County in 2005 was 443,738 people. Most of this population resides in Utah County's principal cities and towns: Provo (105,410 2003 estimate), Orem (87,599 2003 estimate), American Fork (21,941 in 2000), Springville (20,424 in 2000), Pleasant Grove (23,468 in 2000), Spanish Fork (20,246 in 2000), Payson (12,716 in 2000), and Lehi (19,028 in 2000); There are 33 communities in Utah County on the 2005 Communities at Risk list with overall scores ranging from 6 to 9 (Table 12).

Table 12. CARs in Utah Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
American Fork Canyon	6
Draper (Utah County section)	6
Saratoga Springs	6
Springville	6
Wanrhodes Basin	6
Genola	7
Goshen	7
Lindon	7
Mapleton	7
Payson	7
Pleasant Grove	7
Santaquin	7
Spanish Fork City	7
Sundance	7
Tibble Fork	7
Vivian Park	7
Alpine	8
Cedar Hills	8
Covered Bridge	8
Diamond Fork Canyon	8
Eagle Mountain	8
Highland	8
Hobble Creek	8
Lehi	8
Orem	8
Pleasant View	8
Provo	8
Sheep Creek	8
Spanish Fork Canyon	8
Springdell	8
Cedar Fort	9
Elk Ridge	9
Woodland Hills	9

2.5.9.3 LAND USE / LAND COVER

Mountain Shrub/Oak is the most common land cover in Utah County, covering 29 percent of the land surface. Almost 19 percent of that is Rocky Mountain Gambel Oak-Mixed Montane Shrubland. Agriculture, open water, and developed land also contribute to a large part of the land cover with agriculture comprising more than half of this (Figure 28).

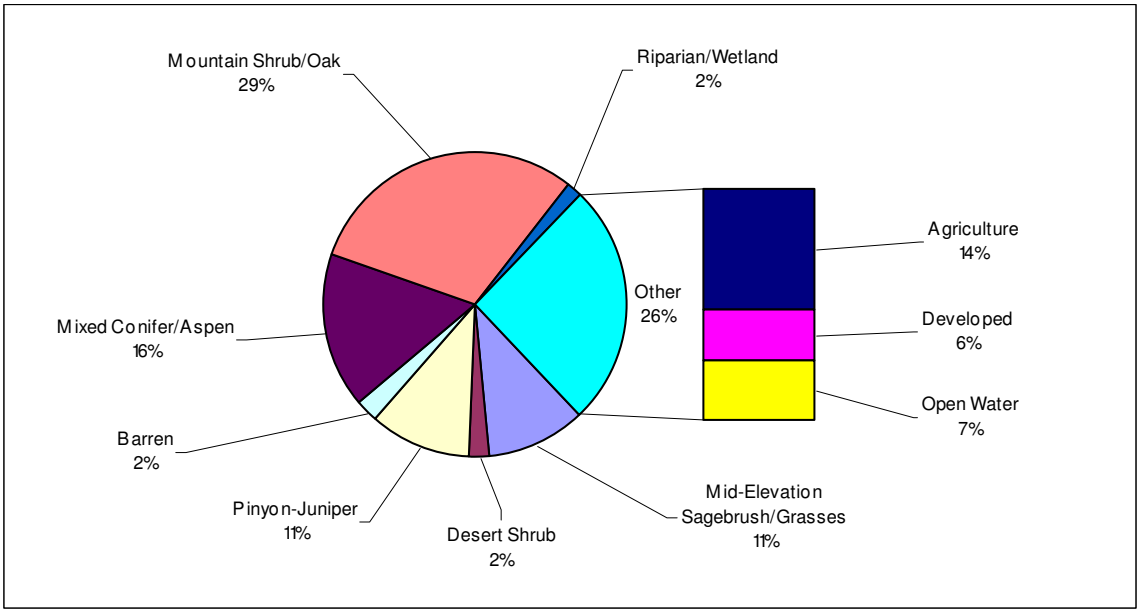

Figure 28. Utah County land/use land cover.

2.5.9.4 COMMUNITY VALUES AT RISK

Historic Sites. There are a number of historic sites in Utah County. Some of these include Fairfield Stagecoach Inn, Brigham Young University, remnants of the mining industry in American Fork Canyon and the Tintic valley, and cultural sites along the shores of Utah Lake. Camp Floyd State Park is another of the more known attractions (Grass 2005).

Recreation Areas and Other Points of Interest. Important recreation areas and points of interest in Utah County include Utah Lake, Timpanogos Cave National Monument, Sundance ski resort, and Bridal Veil Falls. Hiking is an extremely popular activity in many of these areas as well as at the Timpooneke Trail. Sundance is a year-round recreational center offering winter skiing and a range of summer activities including hiking, biking trails, fly fishing, and horseback riding.

Natural Resources. Natural resources of importance include water, vegetation and wildlife found throughout the county. Utah Lake is considered one of the more

underfished bodies of water. At different times of the year it offers great fishing for catfish, walleye and white bass. Watersheds are of concern for water quality.

Infrastructure and Investments. Critical infrastructure and investments in Utah County include 1-15, Highway 6, and Highway 89. Utah County is also home to two of Utah's scenic byways, Provo Canyon and Nebo Loop. Major educational institutions include Brigham Young University and Utah Valley State College.

2.5.10 WASATCH COUNTY

Wasatch County occupies an area of 1,191 square miles (762,240 acres) to the east of the Wasatch Mountains. The highest peaks in the county are greater than 10,000 feet and greater than half the land surface of the county lies above 7,500 feet. The land area in Wasatch County is classified as undifferentiated highlands where summers are cool and winters are very cold with a large degree of variation from place to place. The average annual precipitation is sixteen inches. The county is split between two watersheds, the Colorado and the Great Basin drainage systems. Compared to many other areas in Utah Wasatch County has a relative abundance of water. The Wasatch County seat is Heber City.

The economy of Wasatch County is primarily agricultural producing hay, dairy products, sheep and cattle. Recreation is a major industry as well. Strawberry Reservoir (completed in the 1910s), Deer Creek Reservoir (completed in the 1940s), and Jordanelle Reservoir (completed in the 1990s), together with streams and mountain scenery, attract numerous visitors with a variety of recreational interests (Media Solutions 2006).

2.5.10.1 FIRE HISTORY

Wasatch County has experienced 748 fires between 1973 and 2005. The majority of fires are wildland fires, which occur most often in the northwestern portion of the county (Figure 29).

2.5.10.2 POPULATION AND COMMUNITIES AT RISK

In 2000 the total population of Wasatch County was approximately 15,215. More than half of the population is represented in the principal cities/towns of Heber City (7,291), Midway (2,121), Charleston (378), and Walsburg (274). There are 40 communities on the 2005 Communities at Risk list with overall scores ranging from 4 to 11 (Table 13).

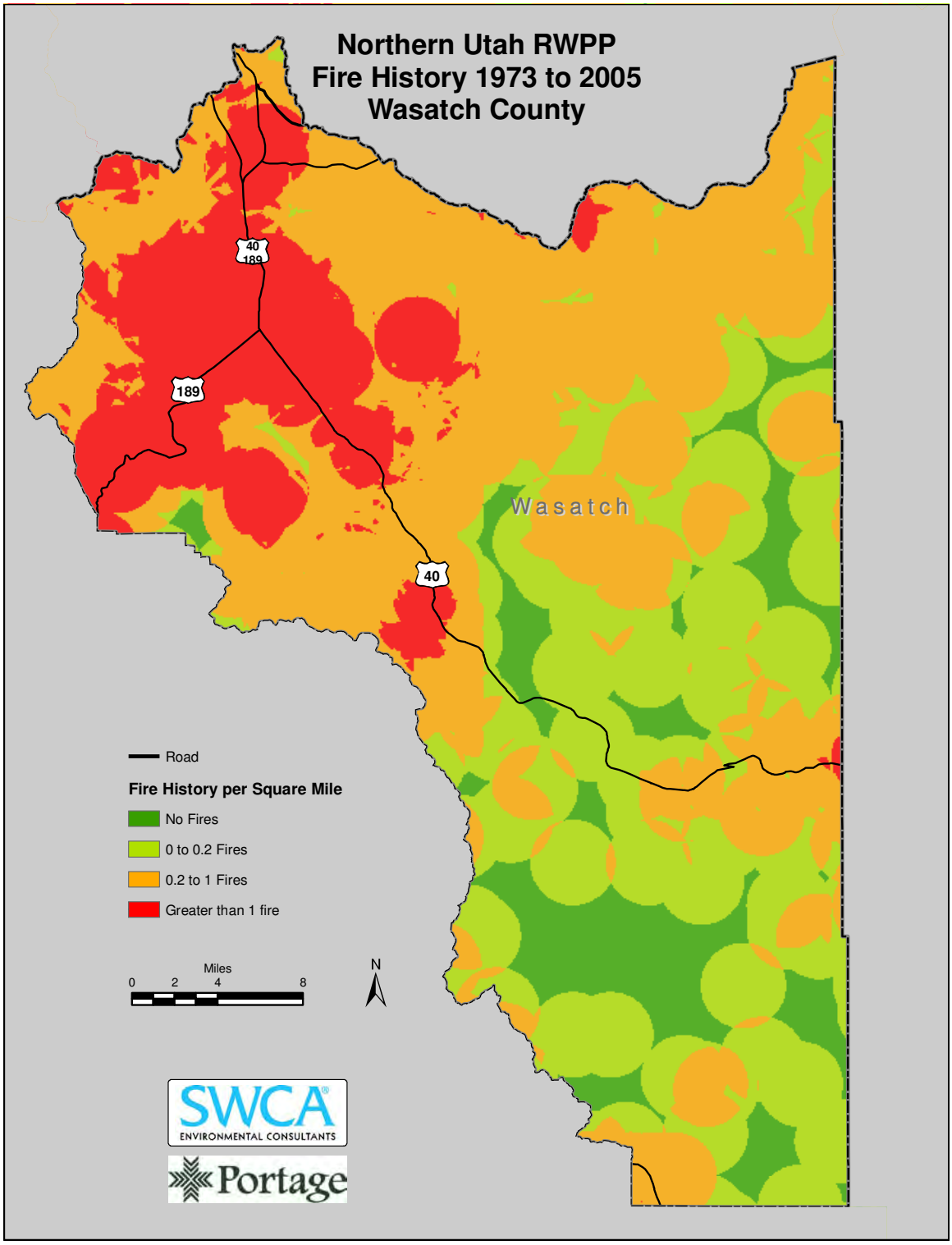

Figure 29. Wasatch County fire occurrence.

Table 13. CARs in Wasatch Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Charleston	4
Heber City	6
Midway	6
Bonanza Flat	7
Bryants Fork	7
Canyon Meadows	7
Strawberry Valley	7
40 Dam Acres	8
Bench Creek Ranches	8
Camp Piuta	8
Daniels Summit	8
Soldier Creek	8
Square Mountain Estates	8
Walsburg	8
Alpine Meadows	9
Currant Creek	9
Jordanelle State Park Communities	9
Pine Hollow	9
Wolf Creek Ranches	9
Big Hollow	10
Big Pole Estates	10
Deer Crest	10
Greenerhills	10
Interlaken	10
Lake Creek Farms	10
Storm Haven	10
Swiss Mountain	10
Wolf Creek	10
Brighton Estates	11
Cloud Rim	11
Diamond Bar X	11
Heber Valley Camp	11
K&J Subdivision	11
Oak Haven	11
Soapstone	11
Soldier Hollow	11
Soldier Summit	11

Table 13. CARs in Wasatch Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Timberlakes	11
Timpanogas Meadows	11
Tuhaye Subdivision	11

2.5.10.3 LAND USE / LAND COVER

Wasatch County is mainly covered with species in the Mountain Shrub/Oak and Mixed Conifer/Aspen vegetation types. Dominant vegetation types in each of these categories include Inter-Mountain Basins Montane Sagebrush Steppe and Rocky Mountain Aspen Forest and Woodland. A small amount of the county's land surface is developed and agricultural (Figure 30).

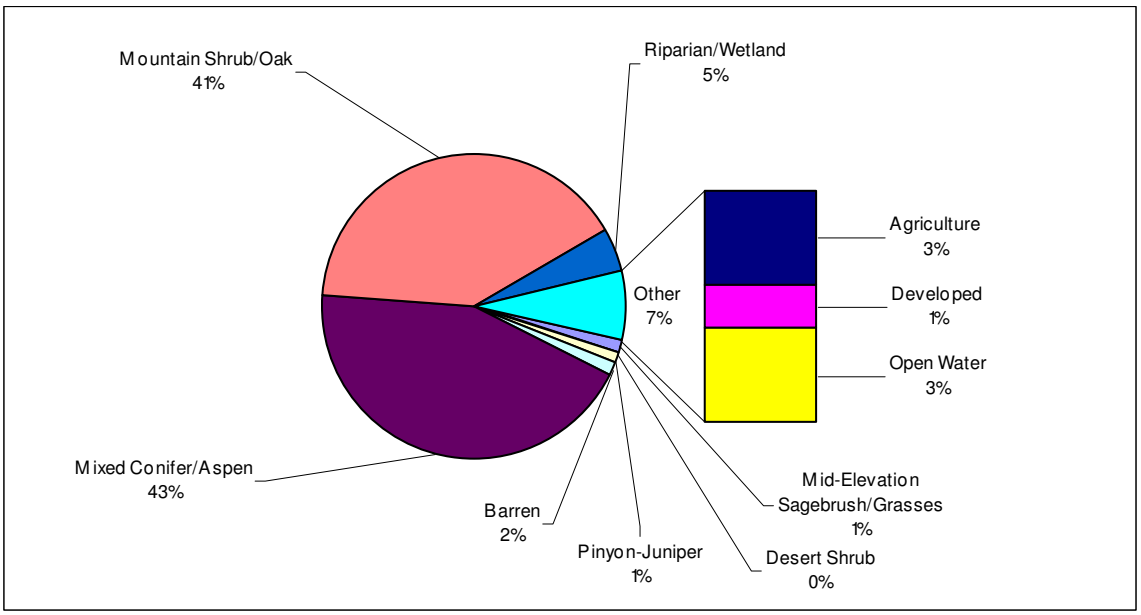

Figure 30. Wasatch County land use/land cover.

2.5.10.4 COMMUNITY VALUES AT RISK

Historic Sites. Historic sites located in Wasatch County include the Heber Creeper, a train that has become a major tourist attraction that crosses the farmlands of the Heber Valley. Additionally, a number of historic homes are located in the town of Midway.

Recreation Areas and Other Points of Interest. Recreation areas and points of interest include Strawberry, Deer Creek, and Jordanelle reservoirs used for a variety of activities including fishing and boating. Additional areas include Wasatch Mountain State Park and the Wasatch LDS Tabernacle in Heber City. There are also excellent opportunities for other summer and winter outdoor activities including hiking, skiing, and snowmobiling.

Natural Resources. Flowing from the east are Daniels, Lake Fork, and Center Creeks. From the north and northeast is the Provo River, an excellent trout fishery. From the west Snake Creek drains a central portion of the Wasatch Mountains. All of these waterways provide valuable habitat for wildlife and vegetation.

I**nfrastructure and Investments.** There are three major man-made water sources to facilitate water storage for Wasatch County. The Ontario Drain Tunnel west of Keetley drains many of the Park City mines, and the Weber/Provo diversion canal diverts water from the Weber across the Kamas prairie in Summit County to the Provo River. The Jordanelle Dam forms Jordanelle Reservoir. Major infrastructure includes Highway 40, which is a major access route from Salt Lake City to Eastern Utah into Colorado.

2.5.11 WEBER COUNTY

Weber County occupies an area of 644 square miles (412,160 acres) in northern Utah. The Wasatch Mountains form its eastern boundary and the western part of the county extends into the Great Salt Lake. The Ogden and Weber Rivers are the most significant waterways in the area. The eastern half of the county is in the Wasatch and Uinta Mountains eco-region and the western half is in the Basin and Range eco-region. The Weber County economy is based largely upon defense and aerospace industries, education (Weber State University is a major employer), government (USFS regional headquarters, IRS Service Center) transportation, warehousing, distribution, retailing, tourism, recreation, health care (McKay-Dee and St. Benedict's hospitals) and printing. The county seat is Ogden (Media Solutions 2006).

2.5.11.1 FIRE HISTORY

Weber County has experienced 436 fires between 1973 and 2005. The majority of fires are wildland fires which occur along the Ogden Bench and State Road 39 (Figure 31).

2.5.11.2 POPULATION AND COMMUNITIES AT RISK

The total population of Weber County in 2000 was 196,533. More than half this population is in Ogden (77,226) and Roy (32,885) while South Ogden (14,377), North Ogden (15,026), and Washington Terrace (8,551) make up the majority of the remaining population. Weber County contains 28 communities on the 2005 Communities at Risk list with overall scores ranging from 6 to 10 (Table 14).

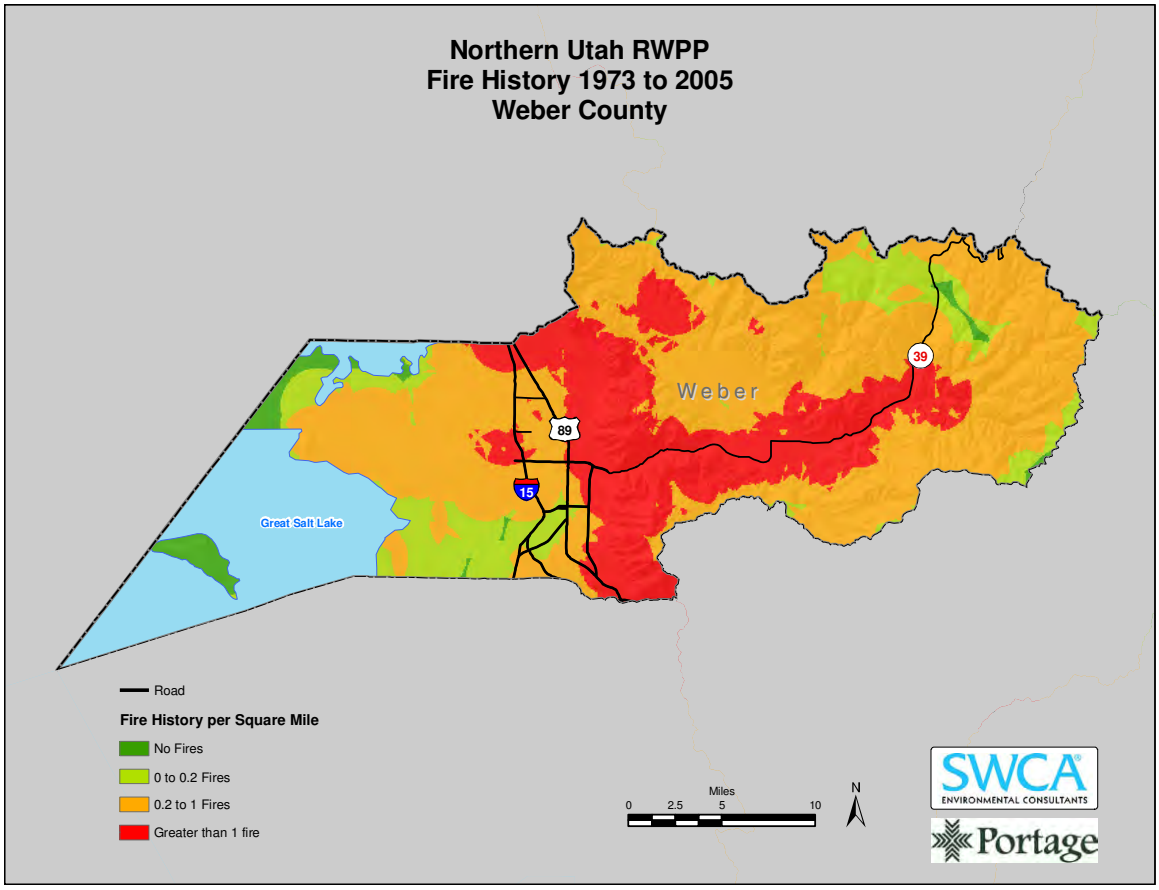

Figure 31. Weber County fire occurrence.

Table 14. CARs in Weber Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Harrisville	6
Eden	7
Little Mountain	7
Liberty	8
North Ogden Bench	8
Pleasant View	8
South Fork-Huntsville	8
Spring Mountain	8
Causey Estates	9
Derffie Creek	9
Evergreen Estates	9
North Fork	9
Pine Canyon	9
Pole Patch	9
Sourdough	9

Table 14. CARs in Weber Co. (2005) and Overall Risk Scores (of 12)

Community Name	Overall Score
Sunrise Estates	9
Green Hills	10
Kelley Canyon	10
Middle Fork	10
Nordic Valley	10
Ogden	10
Ogden Canyon	10
Pine View	10
Powder Mountain	10
Snow Basin	10
South Ogden Bench	10
Uintah Bench	10
Wolf Creek	10

2.5.11.3 LAND USE / LAND COVER

Agriculture, developed land, and open water comprise the largest portion of Weber County's land surface totaling 40%. Mountain Shrub/Oak and Mixed Conifer/Aspen species account for most of the remaining 60% (Figure 32).

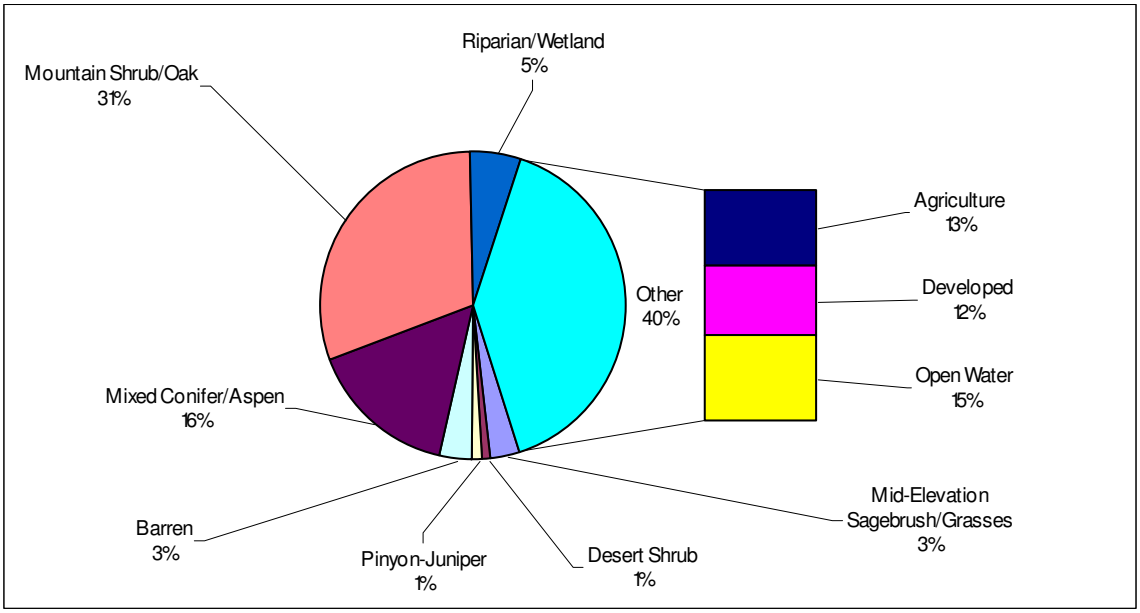

Figure 32. Weber County land use/land cover.

2.5.11.4 COMMUNITY VALUES AT RISK

Historic Sites. The Ogden Union Station is a popular historic site in Weber County as well as the Browning Firearms Museum, the Browning Kimball Vintage Car Collection, and Fort Buenaventura State Park, once a state park but now run by the city of Ogden. The reconstructed fort includes a stockade, replicas of old cabins, camping areas and a pond. Additional historic sites include Ogden's Historic 25th Street, Abbey of Our Lady of the Holy Trinity in Huntsville, cultural sites related to Nomadic Shoshone, Ute, and prehistoric Indians who favored the area for centuries.

Recreation Areas and Other Points of Interest. Weber County recreation largely includes kayaking and tubing down the Weber River. Snowbasin ski area is located in the county and is well known for hosting three 2002 Winter Olympic events. Other points of interest include Pineview Reservoir, Willard Bay State Park, Powder Mountain, Nordic Valley, Weber State University, and the Eccles Community Art Center.

Natural Resources. In addition to Ben Lomand Peak, Weber County is the home of The Nature Conservancy.

Infrastructure and Investments. Major infrastructure includes Interstate 15, Highway 89 and State Road 39.

Chapter 3. Community Risk Assessment

The purpose of the risk assessment is to provide regional, landscape-level data about the level of risk associated with wildfire and the consequences that fire would have on communities, property, and infrastructure located in the WUI. These data are needed to provide an assessment of wildland fire risks throughout the project area and what impact the risks could have on the communities in the region. From this risk assessment, land-use managers, fire officials, planners, and others can identify priority areas for treatment in the region, put available federal funds to their best possible use, and prepare strategies, methods, and community education for reducing the threat of wildfire. The identified goals of the risk assessment include the following:

- Depict the risk of wildfire to communities
- Identify potential for high-intensity wildfire within the region
- Communicate wildland fire management concerns to Utah public officials.
- Provide a visual display of fire concerns within the state of Utah to support fire management funding.
- Identify and prioritize areas where fuels reduction treatment may be necessary.
- Identify general areas within the region where more detailed interagency planning may be needed.

3.1 Risk Assessment Methodology

The risk assessment was performed by developing a spatially weighted, overlay model using geographic information systems (GIS) technology to integrate individual GIS datasets into a comprehensive map. A spatially weighted overlay model takes datasets of the same scale and assigns a user-defined weight to each dataset, according to its importance. A weighted overlay must use datasets that rank the data units, or cells, according to a specific number of classes.

SWCA created this particular risk assessment model for the Northern Utah RWPP by building upon past models developed by SWCA, as well as using significant input from the Core Team. The specific references used were the *Sandoval County New Mexico Wildland Urban Interface (WUI) Area Inventory Assessment* (Barz, et al. 2004), the Greater Cuba New Mexico Community Wildfire Protection Plan (Forest Guild 2006), and the Utah Statewide Fire Assessment Project (BLM 1996).

This risk assessment used four classes (1–4, with 1 being the lowest risk). In each dataset, depending on the original data cell values and value ranges, each cell's value was reclassified according to the four classes, between 1 and 4, based on the significance of the value to overall risk. Ultimately, each layer of the model represented a dataset with cell values from 1 to 4. As each layer was overlaid on the next, its weighting in the

overall model (i.e., its percentage of the entire model, based on its importance as a risk factor) was fine-tuned to accurately reflect on-the-ground conditions.

The Core Team chose to analyze the relationship between seven parameters for the risk assessment:

1) Fuels (35%),
2) Slope (25%),
3) Aspect (15%),
4) Communities at risk proximity (10%),
5) Population (rings) (5%),
6) Fire station proximity (5%),
7) Fire occurrence (5%).

This risk assessment used four classes. Depending on the original cell values, each cell was re-classified given a new value between 1 and 4, based on the significance of the data. The output of these layers also consisted of datasets with cell values between 1 and 4:

1 = low risk
2 = moderate risk
3 = high risk
4 = extreme risk

As each model was overlaid with the next, it was given a weighting, i.e., a percentage of its importance to the entire model.

Table 15 provides a summary of the individual datasets, data sources, the relative weights assigned within the model, and the risk categories assigned to the data. Each dataset is discussed in further detail in the paragraphs following this table.

Table 15. Risk Assessment Variables, Weights, and Cell and Output Risk Values

Variable	Wt. (%)	Cell and Output Risk Values			
		1 Low	2 Moderate	3 High	4 Extreme
Fuels	35	Appendix C	Appendix C	Appendix C	Appendix C
Slope	25	0-10%	10-20%	20-40%	> 40%
Aspect	15	Flat and 0° – 90°	90° – 135° and 315° – 360°	135° – 180° and 270° – 315°	180 – 270 degrees
CARs Proximity	10	> 8 miles	4 – 8 miles	2 – 4 miles	0 – 2 miles

Table 15. Risk Assessment Variables, Weights, and Cell and Output Risk Values

Variable	Wt. (%)	Cell and Output Risk Values			
		1 Low	2 Moderate	3 High	4 Extreme
Fire Station Proximity	5	0 – 2 miles	2 – 5 miles	5 – 10 miles	> 10 miles
Population	5	*i.*	*ii.*	*iii.*	*iv.*
0-1,000		> 1.5 miles	1 – 1.5 miles	0.5 – 1 mile	0 – 0.5 mile
1,000 – 5,000		> 4.5 miles	3 – 4.5 miles	1.5 – 3 miles	0 – 1.5 miles
5,000 – 20,000		> 13.5 miles	9 – 13.5 miles	4.5 – 9 miles	0 – 4.5 miles
20,000 – 50,000		> 24 miles	16 – 24 miles	8 – 16 miles	0 – 8 miles
> 50,000		> 40.5 miles	27 – 40.5 miles	13.5 – 27 miles	0 – 13.5 miles
Fire Occurrence (5 mile radius)*	5	0 fires/mile^2	0 – 0.2 fires/mile^2	0.2 – 1 fire/mile^2	> 1 fire/mile^2
* Using fire data from State of Utah, BLM, and USFS 1973 – 2005					

3.1.1 FUELS

To identify the potential for high intensity wildfire within the region, the fuels hazard layer assigned risk categories to vegetative communities based on expected fire behavior.

The vegetation of an area determines critical fire characteristics such as flame length and rate/type of spread. Fire spreads in three basic ways:

1) surface fire spread, where the flaming front remains on the ground surface (i.e., in grasses, shrubs, small trees, etc);

2) crown fire, where the surface fire "ladders" up into and spreads through the tops (or crowns) independent of or along with the surface fire, and

3) spotting, where embers are lifted and carried with the wind ahead of the main fire and ignite in receptive fuels.

Surface fires burn hot and fast, but are usually relatively easy to control, whereas crown fires are much more catastrophic and possibly beyond the capability of suppression resources. The risk of catastrophic fires resulting from spotting would depend upon the properties of the vegetation present. Low moisture content or presence of volatile oils, make certain vegetation types more combustible and at higher risk for ignition.

The data layer was derived from Southwest ReGAP vegetation data. This data uses multi-season satellite imagery (Landsat ETM+: 25 m pixel size with an extra panchromatic band to produce panchromatic images at 12.5 m resolution) from 1999-2001 in conjunction with digital elevation model (DEM) derived datasets to form natural and semi-natural vegetation classes. Each ReGAP vegetation class present in the project area was given a rank from 1 (least amount of risk for high intensity wildfires) to 4 (greatest risk). Initial classifications were reviewed by the Core Team for a confirmation of on-the-ground conditions and revised accordingly.

Mixed conifer communities were assigned the highest or extreme hazard rating based on the loading or volume of both live and dead fuels. Cover types with significant cheatgrass invasion were also classified as high or extreme due to the potential for wind to quickly spread wildfire and endanger or engulf suppression crews. Low and mid elevation shrub and grasses not dominated by cheatgrass were rated as moderate hazard in this analysis because flame lengths generally allow for direct attack by suppression crews. Cover types such as rock, water, and urban cells were assigned a low hazard level because of the inflammability of these materials. Many urban areas have significant open areas of bare soil, concrete, and other inflammable materials. However, they may also contain homes, wood decks, firewood, aboveground propane tanks and other highly flammable elements. These concerns are noted in each of the recommended project treatment areas.

Because wildfire is impossible without fuel, this layer was given a relative weighting of 35% in the final model.

3.1.2 SLOPE

Slope is also known as the "steepness" of an area and plays an important role in fire behavior. Fires usually move faster uphill than downhill and the steeper the slope, the faster the fire will move. This can result in greater potential for a fire to accelerate into a high intensity crown fire. To assess this risk, the following categories were assigned to slope.

0-10%	= 1
10-20%	= 2
20-40%	= 3
Greater than 40%	= 4

Because the percentage of a slope contributes to the intensity of a wildfire it was given a relative weighting of 25% in the final model.

3.1.3 ASPECT

Aspect is defined as "the direction the land faces" (north, south, east or west). The aspect of a slope influences fire behavior in that southern aspects receive more heat from direct sun resulting in drier fuels. South facing slopes are characterized by higher temperatures and stronger winds. The following categories were assigned to assess aspect (MFR 2007),

and each relates to degrees as they occur on a compass rose (where 0°-90° is north facing and 180°-270° is south facing).

Flat and 0° – 90°	= 1
90° – 135° and 315° – 360°	= 2
135° – 180° and 270° – 315°	= 3
180 – 270°	= 4

Because of the importance that aspect plays in fire risk, it was given a relative weighting of 15% in the final model.

3.1.4 COMMUNITIES AT RISK PROXIMITY

To depict the risk of wildfire to communities, the CARs data layer assigned a risk value based on distance to state-identified CARs.

The Core Team identified the boundaries of each CAR and a 1/2-mile boundary was added to that boundary, in accordance with the chosen WUI definition. Risk categories were assigned to distances from CARs as follows:

Greater than 8 miles	= 1
4-8 miles	= 2
2-4 miles	= 3
0-2 miles	= 4

This layer was given a relative weighting of 10% in the final model. This weighting was chosen because the primary goal of the RWPP Risk Assessment is to depict the risk to communities.

3.1.5 POPULATION (RINGS)

Population density was also a factor used in determining risk. In the model population density was calculated by determining population numbers within a given radius in miles. Greater population density (that is, greater population within a smaller radius) translated into greater risk (Table 15). Because population density plays an important role in communities at risk, it was given a relative weighting of 5% in the final model.

3.1.6 FIRE STATION PROXIMITY

Fire response time plays an important role when a wildfire strikes. The risk to a community becomes greater the farther away they are from a fire station. The following values were assigned for fire station proximity:

0-2 miles	= 1
2-5 miles	= 2

5-10 miles = 3
Greater than 10 miles = 4

Because fire response time is an important factor during a wildfire, the proximity of a fire station was given a relative weighting of 5% in the final model.

3.1.7 FIRE OCCURRENCE

Because the location of past fires can be an indicator of where they may occur in the future, fire history was chosen as the final layer in the risk assessment

The fire history layer was derived from a database consisting of all fires reported by the State, BLM, and FS, regardless of size or origin, and may indicate areas at high risk for a variety of reasons, including a high number of lighting strikes (the most common cause of fires in the project area), high risk vegetation, a drier, south-facing aspect, or high human use (i.e., an increased likelihood of human-caused fires).

Each fire was plotted as one point on the map, regardless of the number of acres burned and a 5-mile radius was put around each point to calculate the fire start density. The results were reclassified from 1-4 in terms of fires per square mile. Density was ranked as follows:

0 Fires/mile^2 = 1
0-0.2 Fires/mile^2 = 2
0.2-1 Fires/mile^2 = 3
Greater than 1 Fires/mile^2 = 4

Fire Occurrence was given a weighting of 5% in the final model.

3.2 RISK ASSESSMENT RESULTS

The risk assessment resulted in a depiction of extreme, high, medium and low risk areas across the Northern Utah region (Figure 33). The percentages calculated from the model are

- Low = 27.21%
- Medium = 46.33%
- High = 23.73%
- Extreme = 2.74%

According to this risk assessment the majority of the Northern Utah region—about 74%—is at medium risk of wildfire or lower. About 26% of the region is at high or extreme risk of wildfire including WUI areas.

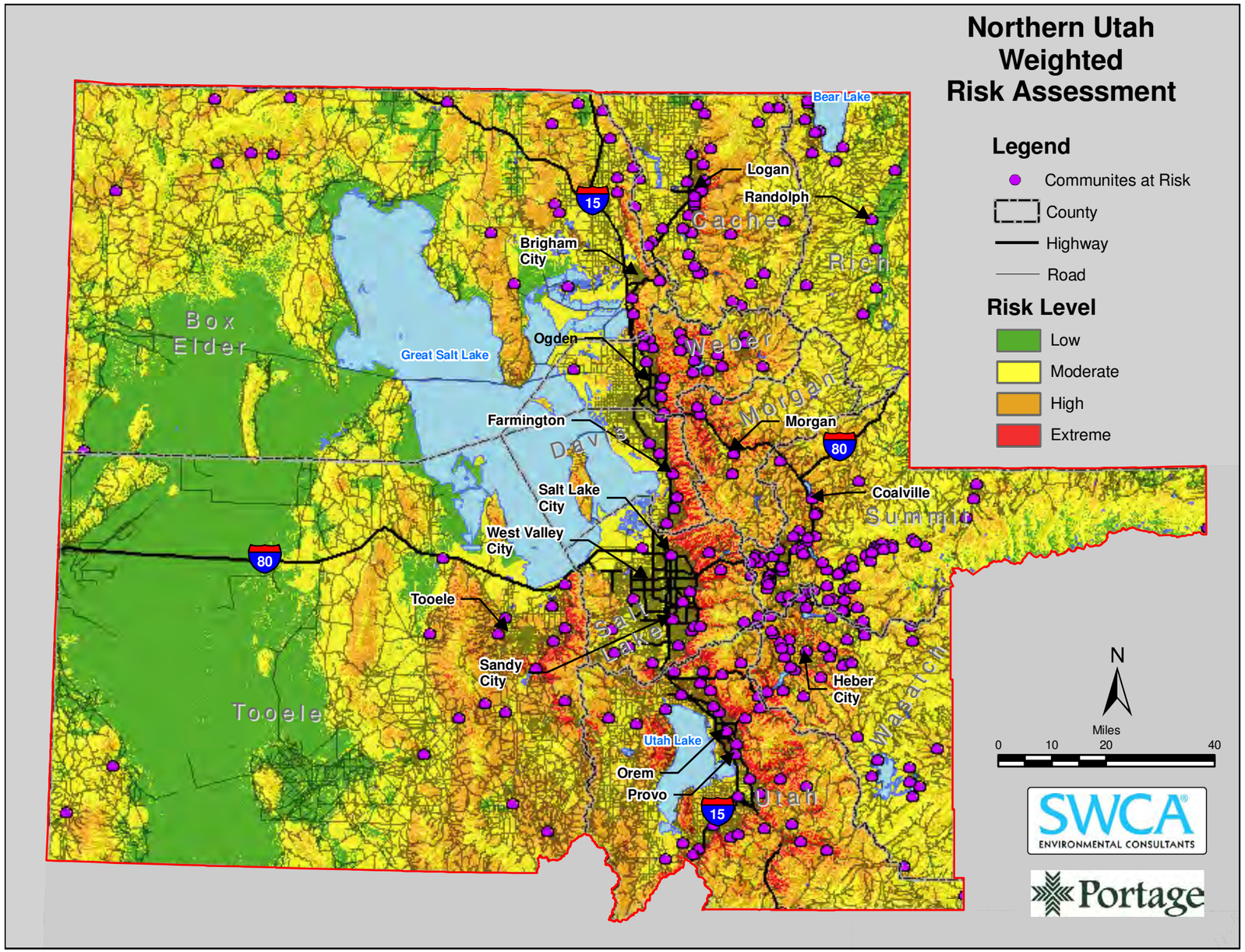

Figure 33. Northern Utah RWPP risk assessment map.

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3.3 RISK ASSESSMENT LIMITATIONS

The risk assessment was based on the best available data combined with professional knowledge of field conditions in the project area. There are limitations to the risk assessment used in the RWPP:

1) **The choice of the parameters selected**. The choice of the layers and the weight they were given influence the degree to which the risk assessment measures wildfire risk or risk to communities from wildfire. Limitations with parameters may result from conflicts where an area may appear high risk because of its fuels, aspect, and slope, but is not considered high risk because it is not located near a community.
2) **Additional factors, such as weather conditions and wind speed and direction, that were not considered in this risk assessment.** These factors affect ignition rate and rate of spread. Spring and summer winds and increasing temperatures can dry out fuels, particularly on south-facing slopes, and burning conditions can worsen rapidly. Cured grasses, for example, can become highly flammable in as little as one hour following precipitation. With a high wind, grass fires can spread faster than a moving vehicle and can reach a community quickly. Prevailing wind data are not available on a region- or county-wide basis.
3) **Difficulty in identifying and analyzing specific ignition sources**. An evaluation of fire history provided some indication of where and how frequently fires occur. Information regarding specific sources of potential ignitions might have yielded still more useful results; however, data were not available on a region- or county-wide basis.
4) **Vegetation layer limitations**. Southwest ReGAP vegetation data were intended to be used for depicting the distribution of various vegetation types at scales of 1:100,000 or smaller. While adequate for characterizing vegetation over large areas, these data are less accurate when viewed for smaller project areas. Additionally, the type and volume of dead and downed fuels are not factored into available ReGAP data.
5) **Map resolution**: Data used in the risk assessment are coarse and intended for use at a regional level. These maps are at 30-m resolution (the smallest possible level of detail of a given sensor, or the minimum mapping unit). A 30-m resolution is approximately 10,000 square feet, or 0.25 acre. While this resolution is sufficient at a region-wide level, the accuracy of the information decreases when viewed at a county level. Each square, or pixel, represents our best estimate of the predominant land cover represented by that pixel, but small features can be missed.
6) **CVARs not included in the model.** The risk assessment does not measure risk to watersheds, recreation areas, or other CVARs. These values would need to be taken into account when developing fuels reductions projects.

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Chapter 4. Regional Recommendations and Priorities

Two primary goals of the RWPP are to

1) provide general recommendations for the Northern Utah region, and
2) provide guidelines and direction for the preparation of county and local CWPPs.

Although county guidelines are included, specific recommendations for each community were not designed to be part of this process since the needs for each community will vary depending on local fuels, topography, organization, public knowledge of the issues, and the desire to address those issues.

4.1 Priority Project Areas

On January 17, 2007, priority fuels treatments were discussed as an agenda item during the Northern Utah Fuels Committee meeting. Many members of the fuels committee are also members of the Core Team and assisted in determining which areas in the Northern Utah region require priority fuels treatment. Areas were then given a "High, Medium, or Low" priority classification (Table 16). Core Team meeting attendees then mapped 20 priority project areas within the Northern Utah region (Figure 34).

The selection of these areas was based on the need for fuels reductions as understood by fuels specialists and fire wardens, risk levels in the RWPP risk assessment, community values at risk in the area, the number of CARs in the area, current projects that were underway, whether or not the National Environmental Policy Act (NEPA) process had been completed, how many agencies were involved, and local community involvement.

Table 16. Northern Region Priority Treatment Areas

High	Medium	Low
Ogden Bench	Box Elder East	Grouse Creek/Park Valley
Pineview Area	Cache County Bench	Traverse Ridge
Davis Bench	Bear Lake	Northern Utah County
Snyderville	Bear River	Strawberry
Upper Weber	West Utah Lake	Tooele Valley
Heber Foothills	Rush Valley	
Salt Lake Canyons	Salt Lake West Bench	
Southern Utah County		

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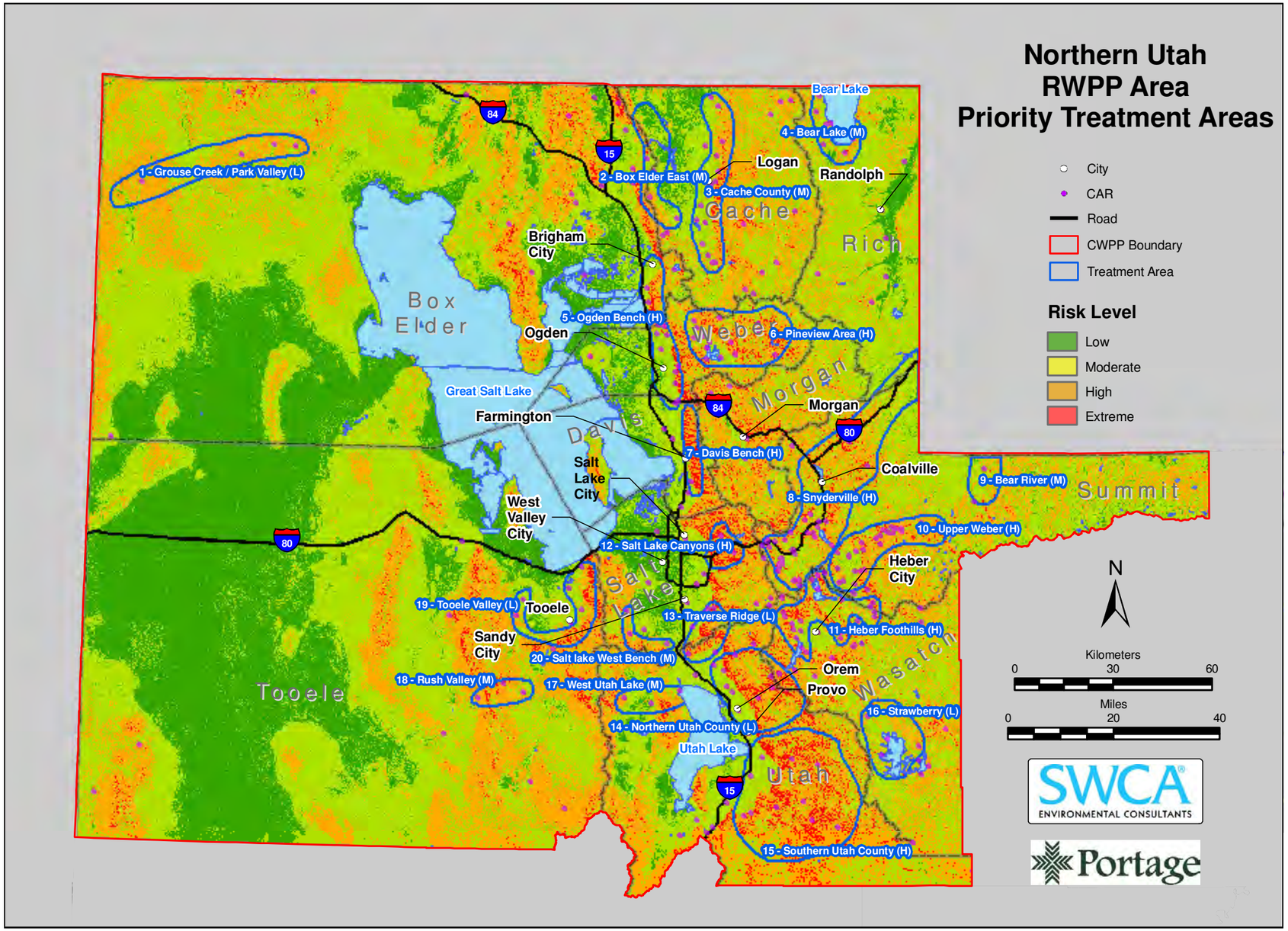

Figure 34. Northern Utah RWPP priority treatment areas.

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4.2 RECOMMENDATIONS FROM THE PUBLIC

During the planning process recommendations were suggested by the public and stakeholders. Many of these recommendations are intended to assist communities in obtaining funding towards fire prevention in the WUI, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance. The recommendations are included based on specific comments received from the public as well as fire and emergency management officials interested in the outcome of the planning process but not members of the Core Team. Recommendations provided are generally brief (in bold text) with elaboration or response following.

As part of the comment forms available at public meetings, posted on the project website, and mailed to stakeholders, responders were encouraged to rate the following list of concerns in order of importance. The results are as follows with 1 being rated as the highest importance:

1. Removal of brush or timber from home sites
2. Citizen awareness of fire risk factors
3. Removal of dead or dying trees
4. Evacuation plan in case of fire
5. Widening of streets for fire equipment
6. Water supplies for fire suppression
7. Firewise landscaping around homes
8. Firewise materials for building
9. Treatment of trees for insects
10. Secondary access from property in case of fire

Recommendation: Northern Utah Counties Should Complete County Wildfire Protection Plans.

Recommendation: Northern Utah Communities Should Complete Detailed Community Wildfire Protection Plans.

Local plans should include but are not limited to:

- Location of community in relation to the WUI
- Definition of the WUI based on specific site conditions
- Land ownership within the community
- Jurisdiction and land ownership
- Population
- Schools
- Hospitals

- Fire stations
- Risk factors to that community or county
- Municipal water supply
- Past fire occurrence
- Community values at risk
- Preparedness and protection capabilities
- Detailed Fuels Reduction Plans, especially for high-risk areas
- Various education programs to reduce structural ignitability for homeowners and the community

Recommendation: **Northern Utah Counties Should Assist Communities as They Develop Growth Plans and Master Development Plans.**

Recommendation: **Northern Utah Counties Should Consider Identifying Helipad Sites and Corridors to Communities During Master Planning Phases.**

Recommendation: **Northern Utah Communities Should Promote Education and Community Outreach.**

One important element of fire prevention is education for homeowners and community members on how to reduce the risk of wildfire damage to their homes and communities. Many residents attending the RWPP public meetings expressed a need for better information on reducing wildfire risk and what to do in the event of a wildfire. A Homeowners Guide is provided as Appendix D of this document. This guide was developed to meet the expressed needs of the community, and can be distributed to the public to provide information on reducing wildfire risk, what to do in the event of a wildfire, as well as specific measures that can be taken by homeowners to reduce structural ignitability.

The following list includes additional suggestions for education about fire prevention and mitigation of loss.

- Allowing for full-time dedicated personnel to promote public education. This may include materials development (pamphlets, brochures, and handouts), school presentations, newspaper inserts, and community workshops/demonstrations (fire expert).
- Implementing education programs that discuss the different fuels reduction types and the pros and cons of each. Concern arises from the visual impacts of prescribed fire and/or mechanical thinning when it looks like a "clearcut." Perhaps an understanding of how and why these methods would be used may be helpful.
- Promoting education regarding defensible space and other programs to help homeowners be more knowledgeable about how to reduce wildfire risk.
- Educating communities on historic fire regimes and how moving towards a historical fire regime can be beneficial to communities. Appropriate fuels

treatments (see below) can help reduce the risk of future large catastrophic wildfires that threaten communities. Elements of historic fire regimes that can be helpful for communities include reduction in salvage logging practices, promoting the establishment of native plants through post-burn seeding practices, and implementing programs for vegetation treatment programs such as SageSTEP (www.sagestep.org).

- Providing education on the availability and type of community and volunteer fire fighter resources available.
- Providing education regarding defensible space, particularly around culinary water sources.
- Educating landowners of the risk of wildfire to increase interest and cooperation.
- Providing education on where building is occurring.
- Providing education regarding clearing combustible vegetation.
- Providing education on land practices that would lead to historic fire regimes such as education on cheat grass proliferation and mitigation and how to deal with dead and diseased trees on forest lands.
- Providing education on the available resources to residents and local volunteer fire fighters.
- Providing education of county resources.
- Incorporating Firewise education requirements as part of the scouting program.
- Incorporating Firewise education in local high schools through workshops.
- Implementing Firewise concepts in future community development.
- Conducting surveys to gauge the impact of Firewise and other fire education materials.
- Developing and maintaining relationships with partners relevant to meeting the National WUI Fire Program's goals, in coordination with local fire plans.
- Seeking community training through local workshops and site demonstrations.
- Providing training for local volunteer fire fighters so they can work with agencies.
- Providing more code enforcement education for fire officials.
- Providing additional information on closed fire season.
- Coordinating wildfire education in schools with the National Fire Prevention Week.

Recommendation: Northern Utah Communities Should Develop Additional Fuels Reduction Activities to Reduce the Risk of Wildfire.

Another way for communities to reduce the risk of wildfire is through hazardous fuels reduction projects using a variety of treatment methods. The first priority should be given to treating areas of dangerous fuels adjacent to communities, and then working outward in the WUI. One community member specifically requested fuels reduction of Spanish Oak.

Appendix E includes a description of the different types of fuels reduction that may be effective in reducing wildfire risk. The best treatment will vary for each community depending on the area's local geography, topography, vegetation types and communities at risk. A list of pros and cons related to different fuels treatment options is included in Appendix E.

Recommendation: Northern Utah Communities Should Develop Plans to Reduce Structural Ignitability to Homes and Community Values at Risk.

An important action for communities to consider is reducing the risk of structural ignitability to homes and communities. Actions that may help in achieving this goal could include the following:

- Firewise landscaping.
- Firewise construction.
- Encouraging defensible space.
- Encouraging use of sprinkler systems.
- Removing flammable materials.
- Developing fuel breaks.
- Highway Mowing to reduce flammable vegetation.
- Developing a Community Weed Management Area (CWMA) for cheatgrass control.
- Increasing communications between fire-fighters and homeowners.

Recommendation: Northern Utah Communities Should Improve Fire Response Capabilities.

Another important element in reducing risk to homeowners and communities is ensuring that wildfire response capabilities are adequate in the event of a wildfire. Community members can be educated and make efforts to reduce hazardous fuels and structural ignitability but without adequate fire-fighting capabilities there still exists a great risk to communities. The following is a list of suggestions that could help communities enhance their wildfire response capabilities.

- Improving roads to provide adequate access.
- Improving GIS and road data.
- Obtaining accurate e-911 data.
- Obtaining adequate equipment including possible purchase from federal agencies.
- Seeking training reimbursements for volunteer fire-fighters.
- Enhancing communications between local and federal governments regarding wildfire response.
- Improving egress routes to recreation areas.
- Developing county evacuation plans.

- Considering fire stations located in the canyons.
- Including consideration of water sources.
- Improving communications between local and agency fire officials.
- Developing air support and a satellite operations center based out of a central location in Northern Utah.
- Increasing the turnover rate of federal and state equipment to allow local fire departments to have newer equipment.

Recommendation: Northern Utah Communities Should Consider Working with the Utah State Insurance Commission to Motivate Homeowners to Pursue Firewise Principles.

Recommendation: Northern Utah Communities Should Provide Protection for Homes, Scenery, Wildlife Habitat, Watersheds, and Community Water Supplies to Protect Historic Values and Scenic Resources.

- Including recreation areas and ski resorts.
- Including historic sites.
- Including fire stations and businesses.
- Including personal safety.

Recommendation: Northern Utah Communities Should Provide Firewise Information at Local Garden Shows.

Recommendation: Northern Utah Counties Should Adopt and Enforce Utah Code Section 65A-8-6 to Facilitate Fire Awareness and Maintain Funding Sources.

4.3 COUNTY-SPECIFIC RECOMMENDATIONS

Recommendation: Salt Lake County Should Use The Parade of Homes as a Strategy to Advertise.

- Including a home with defensible space on the route to demonstrate. Coordinate with a contractor or a builder.

Recommendation: Salt Lake County Should Include Wildfire Prevention Information in Homeowners Associations' Newsletters.

Recommendation: Salt Lake County Should Coordinate Wildfire Education in Schools With The National Fire Prevention Week.

- Including expanding educational opportunities from structural to wildland fires during this week.
- Including equipment exhibitions to demonstrate differences.

Recommendation: **Salt Lake County Should Assist Communities as They Develop Growth Plans and Master Development Plans.**

Recommendation: **Salt Lake County Should Consider Identifying Helipad Sites and Corridors to Communities During Master Planning Phases.**

Recommendation: **Weber County and Cache County Should Collaborate With Community and County Planners and Zoning Officials.**

- Including personal contact with council members.

Recommendation: **Weber County and Cache County Should Consider Deficiencies in Water Supply and Water Pressure in interface development areas.**

Chapter 5. Implementation & Monitoring Strategies

5.1 Steps to Implement Plan

Implementation and monitoring of this RWPP will be the responsibility of the Northern Utah Fuels Committee (Committee). Updates to the plan will occur annually or on an "as needed" basis determined by the Committee.

In this plan, members of the Core Team and Committee identified 20 priority treatment areas. These are areas known to be problematic in terms of wildfire risk and areas where no or few CWPPs have been successfully completed. These areas also go beyond the scale of a single community and therefore require additional effort and coordination for completion of treatments. Priority treatment areas were identified in this plan for 3 main purposes

1. For assistance in developing future treatment plans including the identification of priority areas for NEPA analysis.
2. For assistance in identifying future treatment projects that satisfy the goals of multiple agencies and communities.
3. To focus attention on key treatment needs.

5.2 Funding

Appendix F includes a list of grant opportunities and the associated websites with information on funding opportunities that may be available to communities for fire prevention, education, hazardous fuels reduction, and wildfire response.

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Chapter 6. Summary of Plan

The Northern Utah RWPP has been developed to meet the requirements of a CWPP as specified in HFRA. The Northern Utah RWPP is one of five regional plans and the primary goal of the plan is to assist Utah regions, counties, and communities, and government agencies in reducing the risk of catastrophic wildfire within the region.

The Northern Utah RWPP used a collaborative process involving federal agency and local government representatives to identify high-risk areas across the Northern Utah region, and to set broad priorities for recommendations and actions to reduce the risk to human life and property due to catastrophic wildland fire in the WUI of the state-identified CARs

Federal and state agency and local government representatives formed a core planning team to set the direction for the plan and process. Organizations and stakeholders were contacted through postcards, press releases, and radio and newspaper advertisements and encouraged to participate in plan development by submitting comments by mail or at one of the five public meetings held in the region. Public comments received are included as Appendix B.

The Core Team established a baseline map of the WUI areas located in the Northern Utah region, using the WUI definition contained in HRFA, and developed a community risk assessment that considered fuel hazards; slope; aspect; fire station proximity; CARs (as defined by the State of Utah) proximity; population density; and risk of wildfire occurrence.

Using the base map, risk assessment, and the public comments received during public meetings, the Core Team identified and made the following general recommendations:

- reduce hazardous fuels,
- restore forest/watershed health,
- promote community involvement,
- increase communities' ability to prepare for and respond to wildland fires,
- reduce structural ignitability, and
- increase wildfire awareness and education.

As such, the Northern Utah RWPP meets and exceeds the minimum requirements for CWPPs under HFRA.

The Core Team also identified 20 treatment areas classified as "High, Medium, and Low" priority. Areas were characterized as high, medium or low priority based on

- the need for fuels reductions as understood by fuels specialists and fire wardens,

- risk levels in the RWPP risk assessment,
- community values at risk in the area,
- the number of CARs in the area,
- current projects that were underway,
- whether or not the NEPA process had been completed,
- how many agencies were involved, and
- local community involvement

A collaborative process has been in place for the duration of this plan and will continue as projects are implemented. Implementation and monitoring of this RWPP will be the responsibility of the Northern Utah Fuels Committee. The plan will be updated annually or as necessary. Twenty priority treatment areas were identified in this plan to assist in developing future treatment plans, to assist in identifying future treatment projects that satisfy the goals of multiple agencies and communities, and to focus attention on key treatment needs.

Acronyms and Glossary

LIST OF ACRONYMS

AAR	AA Roads
ATV	All-Terrain Vehicle
BLM	Bureau of Land Management
CARs	Communities at Risk
CVAR	Community Values at Risk
CWMA	Community Weed Management Area
CWPP	Community Wildfire Protection Plan
DEM	Digital Elevation Model
EA	Environmental Assessment
FD	Fire Department
FEIS	Final Environmental Impact Statement
FMO	Fire Management Officer
FMP	Fire Management Plan
FRCC	Fire Regime Condition Class
GIS	Geographic Information System
HB 146	House Bill 146
HFI	Healthy Forest Initiative
HFRA	Healthy Forest Restoration Act
LDS	Latter Day Saints
MFR	Ministry of Forests and Range
MOB	Mobilization Guide
NEPA	National Environmental Policy Act
NF	National Forest
NFP	National Fire Plan
NPS	National Park Service
NRCS	National Resource Conservation Service
NUIFC	Northern Utah Interagency Fire Center
RC&D	Resource Conservation and Development
ReGAP	Regional Gap Analysis Project
RWPP	Regional Wildfire Protection Plan
SWCA	Steven W. Carothers & Associates Environmental Consultants
UAC	Utah Association of Counties
UDFFSL	Utah Division of Forestry, Fire and State Lands

UDNR	Utah Department of Natural Resources
UDWR	Utah Division of Wildlife Resources
UHE	Utah History Encyclopedia
US	United States
USFS	United States Forest Service
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VFD	Volunteer Fire Department
WWF	World Wildlife Fund
WUI	Wildland-Urban Interface

GLOSSARY

Aerial Fuels: Standing and supported live and dead combustibles not in direct contact with the ground and consisting mainly of foliage, twigs, branches, stems, cones, bark, and vines.

Agency: An agency is a division of government with a specific function, or a non-governmental organization (e.g., private contractor, business, etc.) that offers a particular kind of assistance.

Aspect: Direction toward which a slope faces.

Bark Beetle: An insect that bores through the bark of forest trees to eat the inner bark and lay its eggs.

Canopy: The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees.

Conifer: A tree that produces cones, such as a pine, spruce, or fir tree.

Crown: The part of a tree or other woody plant bearing live branches and foliage.

Crown Fire: A fire that advances through the crown fuel layer, normally in direct conjunction with a surface fire.

Decadent: A stand of trees is considered decadent when there are a large number of over-mature trees, dead and downed trees, and a dense understory of young trees and shrubs.

Density: The number of trees growing in a given area, usually expressed in terms of trees per acre.

Diameter at Breast Height (DBH): Tree diameter, measured 4.5 feet above ground.

Direct Attack: A fire-fighting technique in which a line is constructed adjacent to the fire perimeter. Usually the preferred method, because of immediate access to escape routes and safety zones. Used when fire behavior, weather and fuel permit. Directly related to individual experience, escape routes and safety zones.

Ecosystem: A functional unit consisting of all the living organisms in a given area, and all of the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size, but it always functions as a whole unit.

Extreme Fire Behavior: "Extreme" implies a level of fire behavior that ordinarily precludes methods of direct control. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

Fine Fuels: Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than 1/4 inch in diameter and have a time lag of one hour or less. These fuels ignite readily and are rapidly consumed by fire when dry.

Fire Behavior: How fire reacts to the influences of fuel, weather, and topography.

Fire Management Plan (FMP): A plan which identifies and integrates all wildland fire management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (wildfire, prescribed fire, and wildland fire use). The plan is supplemented by operational plans, including but limited to preparedness plans, preplanned dispatch plans, and prevention plans. Fire Management Plan's assure that wildland fire management goals and components are coordinated.

Fire Prevention: Activities such as public education, community outreach, law enforcement, and reduction of fuel hazards that are intended to reduce wildland fire and the risks it poses to life and property.

Fire Regime: Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects as well, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as fire return interval.

Fire Regime Condition Class (FRCC): Depiction of the degree of departure from historical fire regimes, possibly resulting in alternations of key ecosystem components. These classes categorize and describe vegetation composition and structure conditions that currently exist inside the Fire Regime Groups. Based on the coarse-scale national data, they serve as generalized wildfire rankings. The risk of loss of key ecosystem components from wildfires increases from Condition Class 1 (lowest risk) to Condition Class 3 (highest risk).

Fire Risk: The probability or chance of a fire starting, determined by the presence and activities of causative agents.

Fire Suppression (Fire Control): All of the work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

Fire: Rapid oxidation, usually with the evolution of heat and light; heat, fuel, oxygen and the interaction of the three.

Forb: A plant with a soft rather than permanent woody stem, that is not a grass or grass-like plant.

Forest Health: The condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity while providing for human needs and values.

Fuel: Combustible material that includes vegetation such as grass, leaves, ground litter, plants, shrubs, and trees. Includes living plants, dead, woody vegetative materials, and other vegetative materials that are capable of burning.

Fuel Break: A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wildfire. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, man-made barriers.

Fuel Condition: Relative flammability of fuel as determined by fuel type and environmental conditions.

Fuel Loadings: The oven dry weight of fuels in a given area, usually expressed in tons per acre. Fuel loadings may be referenced to fuel size or time lag categories; and may include surface fuels or total fuels. The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Management: Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives.

Fuel Model: Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Fuel Reduction: Manipulation, including combustion or removal of fuels, to reduce the likelihood of ignition and/or lessen potential damage and resistance to control.

Fuel Type: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

Geographic Information System (GIS): Computer software that provides database and spatial analytic capabilities.

Hazard: In fire-fighting, a fuel complex, defined by kind, arrangement, volume, condition, and location, forming a special threat of ignition and resistance to control.

Hazard Reduction: Any treatment of living and dead fuels that reduces the potential spread or consequences of fire.

House Bill 146 (HB 146): In 2002, Utah wildland fire suppression costs well exceeded the funds available in the State's Wildland Fire Suppression Fund and a supplemental appropriation of $12.4 million had to be requested from the legislature. As a result, a joint task force consisting of State legislators and county commissioners was formed to review the State's program and subsequently recommended changes to existing statute. The bill took effect March 7, 2006 and resulted in Utah Code Section 65A-8-6. To be eligible to enter into a cooperative agreement with the division a county must: a) adopt a wildland fire ordinance based on minimum standards established by the division; b) require county fire departments (or private provider under contract with the county) to meet minimum standards for wildland training, certification, and wildland fire suppression equipment based on nationally accepted standards as specified by the division; and c) file a budget for fire suppression costs with the State. The State cannot enter into an agreement until the County meets these requirements.

Implementation Plan: The design and definition of all the activities, resources, limitations, and contingencies required for successful wildland fire management.

Initial Attack: An aggressive suppression action consistent with fire-fighter and public safety and values to be protected.

Ladder Fuels: Fuels that provide vertical continuity between strata, so that fire is able to move upward from the surface fuels into the crowns of trees or shrubs with relative ease.

Live Fuels: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

Mitigation: Those activities implemented prior to, during, or after an incident which are designed to reduce or eliminate risks to persons or property that lessen the actual or potential effects or consequences of an incident. Mitigation measures can include efforts to educate governments, businesses, and the general public on measures they can take to reduce loss and injury and are often informed by lessons learned from prior incidents.

Mobilization Guide (MOB): A written description of procedures used by federal, state, and local organizations for activating, assembling, and transporting resources that have been requested to respond to or support an incident.

Monitoring: The orderly collection, analysis, and interpretation of environmental data to evaluate management's progress toward meeting objectives, and to identify changes in natural systems. Monitoring is also conducted on wildland fires to observe fire effects,

fire behavior, or both. For example, the work done by Fire Effects Monitor (FEMO) or Field Observer (FOBS) positions.

Montane: refers to highland areas located below the timberline. Montane regions generally have cooler temperatures and often have higher rainfall than the adjacent lowland regions, and are frequently home to distinct communities of plants and animals. Areas above the timberline are known as Alpine regions.

National Forest Lands: Public lands, generally forest, range, or other wildland, administered by the Forest Service, USDA.

National Forest System: Consists of all national forest lands, the national grasslands and land utilization projects administered under title III of the Bankhead-Jones Farm Tenant Act, and other interests as defined in Section 9 of the National Forest Management Act of 1976.

National Interagency Fire Center (NIFC): A facility located at Boise, Idaho, jointly operated by several federal agencies, dedicated to coordination, logistical support, and improved weather services in support of fire management operations throughout the United States.

National Park: A federal reservation administered by the National Park Service of the U.S. Department of the Interior in order to conserve unique scenery, flora and fauna, and any natural and historic objects within its boundaries for public enjoyment in perpetuity.

Native Species: Species that are indigenous to a region, not introduced or exotic.

Preparedness Plan: A written plan providing for timely recognition of approaching critical fire situations, priority setting, the deployment of forces, and other actions to respond to those situations.

Prescribed Burning: Application of prescribed fire.

Prescribed Fire: The intentional application of fire to wildland fuels in either their natural or modified state under conditions that will allow the fire to be confined to a predetermined area and at the same time to produce the intensity of heat and rate of spread required to further certain planned objectives (i.e., silviculture, wildlife management, etc.). Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Project: An organized effort to achieve an objective, identified by location, activities, outputs, effects, time period, and responsibilities for execution.

Riparian: A geographic area containing an aquatic ecosystem and adjacent upland areas that directly affect the ecosystem. Includes floodplains, woodlands, and all areas within a specified distance from the normal line of high water of a stream channel, or from the shoreline of a standing body of water.

Risk: The chance of a fire starting, as determined by the presence and activity of causative agents.

Safety Zone (SZ): Areas that are fuel-free zones, thus incapable of burning. They afford a very high degree of fire-fighter safety from advancing wildfire. They can be natural or human-made fire-resistant areas such as lakes, dirt, gravel or asphalt parking lots, roads, and areas burned to secure line.

Significant Fire Potential: The likelihood a wildland fire event will require mobilization of additional resources from outside the area in which the fire situation originates.

Slope: The ratio between the amount of vertical rise of a slope and horizontal distance. In other words, the 'steepness' of an area.

Suppression: The act of extinguishing or confining a fire.

Surface Fire: Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.

Watershed: The drainage basin to a stream, lake, or river, contributing water, organic matter, dissolved nutrients, and sediments.

The following key terms were used as part of the risk assessment. Section 3.1 includes a description of the methodology used for the risk assessment. SOURCE: NIFC Glossary of Wildland Fire Terms.

Understory: The portion of vegetation that is underneath the dominant tree canopy.

Volunteer Fire Department (VFD): A fire department of which some or all members are unpaid.

Volunteer Fire-fighter: Legally enrolled fire-fighter under the fire department organization laws who devotes time and energy to community fire service without compensation other than Worker's Compensation or other similar death and injury benefits.

Wildfire: An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

Wildfire Suppression: An appropriate management response to wildfire, escaped wildland fire use or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in pre-defined designated areas outlined in Fire Management Plans.

Wildland Fire: A non-structure fire, other than prescribed fire, that occurs in the wildland. Any fire originating from unplanned ignition.

Wildland-Urban Interface (WUI): The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Wildland: An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

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References

AA Roads (AAR). 2006. Interstate-Guide.com. Available at: http://www.interstate-guide.com/i-080.html

Aspen Hills. 2003. Aspen Hills Subdivision Community Fire Plan A Wildland/Urban Interface Designed to Protecting Life, Property, and Community Values Through Community-Based Planning Submitted to Utah Division of Forestry, Fires and State Lands, Salt Lake City. October 2003.

Barz, D., J. Lissoway, and J.J. Fluder, 2004. Sandoval County New Mexico Wildland Urban Interface Area Inventory Assessment.

Bureau or Land Management. 1996. Utah Statewide Fire Assessment Project.

Bureau of Land Management (BLM). 2000. Draft Management Guidelines for Sagebrush (Artemisia) in the Western United States.

BLM 2005a. FONSI/DR and Environmental Assessment for the Utah Land Use Plan Amendment of Fire and Fuels Management UT-USO-04-01. September.

BLM 2005b. Salt Lake Fire Management Plan Environmental Assessment. UT-020-2004-0091. November.

California Fire Safe Council. Undated. Treatment Types. Available at: http://www.grants.firesafecouncil.org/client/instructions/instprtreatment.html

Chronquist, Arthur, Holmgren, Arthur H., Holmgren, Noel H. and James L. Reveal. 1982. Intermountain Flora. Vascular Plants of the Intermountain West, USA. Volume One. Published by the New York Botanical Garden. Hafner Publishing Company, New York.

David Evans and Associates, Inc (DEA). 2002. Wasatch Front Fuels Assessment Report. Prepared for USFS, Wasatch-Cache and Uinta National Forests.

Echo Reservoir, Echo Resort, Inc. 2006. Available at: http://areas.wildernet.com/pages/area.cfm?areaID=UTECHRES&CU_ID=1

Fire and Aviation Management. (FAM) 2006. Fire Terminology.

Ferry, Gardner W. Ferry Clark, Robert G., Mutch, Robert W., Leenhouts, Willard P. and G. Thomas Zimmerman (Ferry et al.). 1995. Altered Fire Regimes Within Fire-adapted Ecosystems. Available at: http://biology.usgs.gov/s+t/noframe/m1197.htm. Accessed on January 29, 2007.

Forest Guild. 2006. Greater Cuba Area Community Wildfire Protection Plan.

Grahame, John D. and Thomas D. Sisk, ed. 2002. Canyons, cultures and environmental change: An introduction to the land use history of the Colorado Plateau. [12/15/2006)] <http://www.cpluhna.nau.edu/>.

Grass, Ray. 2005. Utah County Recreation Series. Accessed on 2/5/07. Available at: http://deseretnews.com/dn/view/0,1249,635159734,00.html

Hill Air Force Base (HAFB). Accessed 2/2007. Available at: http://www.hill.af.mil/main/index.html

Kulakowski, Dominik, Veblen, Thomas T. & Bebi, Peter. 2003. Effects of fire and spruce beetle outbreak legacies on the disturbance regime of a subalpine forest in Colorado. Journal of Biogeography 30 (9), 1445-1456. doi: 10.1046/ j.1365-2699.2003.00912.x.

Media Solutions, University of Utah. Accessed 12/2006. Available at: http://www.media.utah.edu/UHE/index_frame.html

Ministry of Forests and Range (MFR). Accessed 2/6/2007. The Forest Fire: A Basic Guide to Fire Behaviour and Suppression.

Northern Utah Interagency Fire Center (NUIFC). Undated. Fire Response Information. Available at: http://www.fs.fed.us/r4/nuifc/

Omernik. 1987. Primary Distinguishing Characteristics of Level III Ecoregions of the Continental United States. Available at: http://www.hort.purdue.edu/newcrop/cropmap/ecoreg/descript.html

Online Utah. 2007. Utah County Histories. Available at: http://www.onlineutah.com/counties.shtml

Regional Parks Online (RPO). 2007. Grazing Animals in the East Bay Regional Park District [online website]. Regional Parks Online, East Bay Regional Park District, San Francisco. [Accessed February 1, 2007]. Available at http://www.ebparks.org/resources/stewards/grazing.htm.

Romme, William H. and Monica G. Turner, Linda L. Wallace, Jennifer S. Walker. 1995. Aspen, elk, and fire in Northern Yellowstone National Park. Ecology. Available at: http://www.findarticles.com/p/articles/mi_m2120/is_n7_v76/ai_17438528. Accessed on March 27, 2007.

Sage Brush Steppe Treatment Evaluation Project. Available at: http://www.sagestep.org/. Accessed on March 27, 2007.

Society of American Foresters, National Association of Counties, National Asso ciation of State Foresters, Western Governors' Association, and the Communities Committee (SAF et al.). 2004. Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities." http://www.safnet.org/policyandpress/cwpphandbook.pdf.

Soulard, Christopher E. 2006. Land-Cover Trends of the Central Basin and Range Ecoregion. U.S. Geological Survey Scientific Investigations Report 2006-5288.

Swaner Nature Preserve (SNP). 2006. Available at: http://www.swanernaturepreserve.org/

The Nature Conservancy TNC). Accessed 2/2007. Available at: http://www.nature.org/aboutus/

Tuhy, et al, 2002. A Conservation Assessment of the Colorado Plateau Ecoregion. The Nature Conservancy, Moab Project Office, Moab, Utah.

Utah Department of Natural Resources, Division of Forestry, Fire and State Lands. (UDNR et al.) 2003. Forest Health in Utah. June.

U. S. Environmental Protection Agency (EPA). 2006. Surf your Watershed. Available at http://www.epa.gov/surf/). Accessed on 12/18/2006.

U. S. Forest Service (USFS). 1994a. Ecological Subregions of the United States. Chapter 47. Intermountain Semi-Desert and Desert. Available at: http://www.fs.fed.us/land/pubs/ecoregions/ch47.html. Accessed on January 29, 2007.

USFS. 1994b. Ecological Subregions of the United States. Chapter 43. Southern Rocky Mountain Steppe - Open Woodland - Coniferous Forest - Alpine Meadow. Available at: http://www.fs.fed.us/land/pubs/ecoregions/ch43.html. Accessed on January 29, 2007.

USFS. 1995. Colorado Plateau Semidesert Province. Available at http://www.fs.fed.us/colorimagemap/images/313.html. Accessed on January 29, 2007.

USFS. 2000. Utah Fire Amendment EA. USDA Forest Service Intermountain Region.

USFS. 2003. Northern Utah Interagency Fire Danger Operating and Preparedness Plan. Available at: http://www.fs.fed.us/r4/nuifc/reports/FDOP_N_Utah.pdf

USFS 2005. Project and Policies: *Healthy Forest Initiative*. Information available at http://www.fs.fed.us/projects/hfi/.

USFS. Undated. Compiled by Intermountain Region. Chapter 48: Ecological Subregions of the United States. Available at: http://www.fs.fed.us/land/pubs/ecoregions/ch48.html#342B

U.S. Forest Service and Bureau of Land Management (USFS and BLM) 2004.The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide. February 2004.

U.S. Forest Service, Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and Fish and Wildlife Service (USFS et al.) 2006. Protecting People and Natural Resources: A Cohesive Fuels Treatment Strategy. February.

U. S. Geological Survey (USGS). 2004. Southwest Regional GAP Analysis Project, Land Cover Descriptions. Available at: http://earth.gis.usu.edu/swgap .

Utah Department of Natural Resources, Division of Forestry, Fire and State Lands (UDFFSL). 2005. 2005 Communities at Risk List. Available at: http://www.ffsl.utah.gov/firemgt/WUI/ComAtRisk/CommunitiesAtRisk.php

Utah Department of Natural Resources, Division of Forestry, Fire and State Lands. (UDNR et al.) 2003. Forest Health in Utah. June.

Utah State University Extension .2005. Agricultural County Profiles. Available at: http://extension.usu.edu/htm/publications/by=category/category=94 /.

Utah History Encyclopedia (UHE). 1994. Edited by Allan Kent Powell. Originally published by the University of Utah Press in 1994. Available at: http://www.media.utah.edu/UHE/.

Woods, A.J., Lammers, D.A., Bryce, S.A., Omernik, J.M., Denton, R.L., Domeier, M., and Comstock, J.A. (Woods et al). 2001. Ecoregions of Utah (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,175,000).

The White House. 2007. Healthy Forests: An initiative for wildfire prevention and stronger communities.

Utah.com. 2001-2005. Utah Heritage and Culture. Available at: http://www.utah.com/culture/historic_sites.htm

Utah Association of Counties (UAC). 2005. Morgan County. Accessed 1/5/2006. Available at: http://www.uacnet.org/for_kids/counties/county.php?id=15

World Wildlife Fund (WWF). 2001. Terrestrial ecoregions of North America: A Conservation Assessment. Wasatch and Uinta montane forests. Island Press. Available at: http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0530_full.html

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Appendix A—Northern Utah Region CARs and CWPP Status

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State-identified communities at risk (CARs) within the Northern Utah RWPP project area are listed below. CWPP status is detailed in the far right column. The list was compiled using the knowledge of Core Team members and will be updated on an annual basis.

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
Box Elder	**County Plan**	County plan started - working on fuel breaks on east bench at mouth of Sardine Canyon; restoring fuel breaks near Perry
	Alred Sub/NW Tremonton	Fuel Break Completed
	Beaver Dam	
	Brigham-Collinston Bench	
	Brigham-Willard Bench	
	Cedar Subdivision	done 2005
	Clear Creek	
	Dove Creek	done 2005 - Fuel break project cont. defensible space cont.
	Grouse Creek/Etna	
	Mantua	
	Marble Hills	
	Park Valley	
	Perry/Willard	
	Plymouth	
	Portage	In progress
	Promontory	In progress
	Rosette	
	Snowville	
	Standrod	
	T-Bar Ranch	
	Thatcher	
	Washaki	
	West Hills	
	Yost	
Cache	**County Plan**	started - Bonneville Shoreline Trail fuel break started?; Logan Canyon to Green Canyon Bonneville Shoreline Trail done
	Scare Canyon	90% - demo sites done
	Avon East	
	Avon-Smithfield Bench	
	Avon-South Canyon	
	Baker Canyon	
	Beaver Creek	
	Beaver Mountain	
	Birch glen	done 2005 - project

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
		done
	Blacksmith Fork	
	Burdy/Vallhala	
	Cinnamon Creek	evacuation plan only
	Clarkston	
	Cove	
	Cove-Richmond Bench	
	East Hyrum	
	Greenville	
	Hardware Park	
	Hyde Park	
	Hyrum	
	La Plata Area	
	Laplatta	
	Lazy S Ranch	
	Logan	
	Logan Canyon	
	Mendon	
	Millville	
	Nibley	
	North Logan	
	Paradise	
	Peavine	
	Petersboro	
	Providence	
	River Heights	
	Sheep Creek	
	Sherwood Hills	
	Smithfield	
	Smithfield Canyon	
	Wellsville	
Rich	**County Plan**	
	Bridgerland	done 2002 - project done
	Garden City/Bridgerland	
	Garden City/Elk Hollow	
	Garden City/Swan Creek	
	Home Ranch	
	Laketown	
	Laketown/Vista Grande	
	Little Switzerland	In progress
	Majestic Ranch/Surrounding Ranches	
	Meadowville/Round Valley	
	Mountain Fuel/Randolph	
	Randolph	
	Sweetwater	ready for signature
	Vista Grande	done
	Woodruff/Chournos	

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	Woodruff/Eagle Springs	
Weber	**County Plan**	
	Causy Estates	done 2005
	Derffie Creek	
	Eden	
	Evergreen Estates	
	Green Hills	90 pecent done
	Harrisville	
	Kelley Canyon	
	Liberty	
	Little Mountain	
	Middle Fork	
	Nordic Valley	90 pecent done
	North Fork	
	North Odgen Bench	
	Ogden	
	Ogden Canyon	
	Pine Canyon	
	Pine View	project done
	Pleasant View	
	Pole Patch	project done
	Powder Mountain	
	Snow Basin	
	Sourdough	done 2005 - Fuel break and defensible space cont
	South Fork-Huntsville	
	South Ogden Bench	
	Spring Mountain	
	Sunrise Estates	
	Uinta Highlands	done 2005 - defensible space cont
	Wolf Creek	
Summit	**County Plan**	
	1000 Peaks Ranch	
	Aerie	
	Aspen Acres Mountain Combined	done 2005
	Bear Hollow	
	Bear River Lodge Christmas Meadow Summit 11	
	Beaver Springs	
	Big Canyon Ranch	
	Black Hawk	
	Bridge Hollow	
	Canyon Rim	done 2003
	Cherry Canyon Ranches	In progress
	Coalville	

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	Colony at White Pine Canyon	done 2003
	Deer Mountain	
	Deer Valley	
	Echo Creek Ranches	done 2003
	Francis	
	Freeman Ranch	
	Garff Ranches	
	Glendale	
	Gorgoza Park	
	Grass Creek	
	Henefer	
	Hidden Cove	
	Hidden Lake	done 2002
	Highland Estates	
	Holiday Park	done 2004
	Hoytsville	
	Jeromy Ranches/ Red Hawk	
	Kamas	
	Kamas East	
	Little Dipper	
	Manorlands	done 2002
	Maple Hills	
	Maple Ridge Ranches	
	Marion	
	Marion Ranches	
	Meadow Haven	
	Mill Hollow Scout Camp	
	Moose Hollow	done 2006
	Mountain Valley Ranches	
	North Bench Farms	
	Oakley	
	Park City/ Deer Valley	
	Peoa	
	Pine Meadows/ Forest Meadows	done 2005
	Pine Mountain	done 2003
	Pinebrook	done 2003
	Pines Ranch	done 2005
	Pineway	
	Promontory	In progress
	Ranch Place	
	Ridgeview	
	River Song Ranch	
	Rockport	done 2004
	Samak	done 2004
	Silver Creek	done 2006
	Silver Springs	
	Silver Summit	
	Snyderville	
	Solamere	

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	South Fork Weber	In progress
	South Ridge	
	Stage Coach	
	Stillman Ranch	
	Summit Park	done 2002
	Sun Peak	
	The Canyons	
	The Colony	
	The Pines	
	Two Bear	
	Uintalands	done 2004
	Upton	
	Wanship	
	Weber Meadowview	In progress
	Weber Wild	
	Wild Willow	
	Woodland	
Wasatch	**County Plan**	
	40 Dam Acres	
	Alpine Meadows	
	Bench Creek Ranches	
	Big Hollow	
	Big Pole Estates	
	Bonanza Flat	
	Brighton Estates	
	Bryant's Fork	done 2005
	Camp Piuta	
	Canyon Meadows	
	Charleston	
	Cloud Rim	
	Currant Creek	
	Daniels Summit	
	Deer Crest	done 2005
	Diamond Bar X	
	Diamond Hills	done 2004
	Greenerhills	
	Heber City	
	Heber Valley Camp	
	Interlaken	done 2002
	Jordanelle State Park Communities Wasatch 9	
	K&J Subdivision	
	Lake Creek Farms	
	Midway	
	Oak Haven	
	Pine Hollow	
	Soapstone	
	Soldier Creek	

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	Soldier Hollow	
	Soldier Summit	
	Square Mtn Estates	
	Storm Haven	
	Strawberry Valley	
	Swiss Mountain	
	Timber Lakes	done 2004
	Timpanogas Meadows	
	Tuhaye Subdivision	
	Walsburg	
	Wolf Creek	
	Wolf Creek Ranches	
Tooele	**County Plan**	
	Big Hollow	
	Erda	
	Gold Hill	
	Grantsville City	Incomplete
	Ibapah	
	Lake Point/Mills Junction	
	Lofgreen	
	Northeast Skull Valley/Iosepa	
	Ophir	
	Pine Canyon (Tooele Co)	
	Rush Valley/Clover	
	Skull Valley	
	South Willow	
	Stockton	
	Terra	done 2004
	Tooele	No. Tooele Co. - incomplete
	Vernon	
Morgan	**County Plan**	
	East Canyon	East Canyon - started
	Morgan	
	Mountain Green	
	Porterville	
	Trappers Loop	
Salt Lake	**County Plan**	
	Alta	
	Big Cottonwood	Completed 2002 (this includes Silver Fork, Brighton, Cardiff Fork) City Creek Canyon - in progress
	Bluffdale	
	Brighton	done 2002

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	Cardiff Fork	done 2002
	Copperton	
	Dimple Dell	
	Draper	
	Emigration Canyon	done 2004
	Evergreen	done 2002
	Forest Home at Lamb's Canyon (upper half)	done 2003
	Giles Flat	done 2002
	Granite	
	Herriman	
	High Country Estates	done 2004
	Holladay	
	Kennecott Utah Copper	
	Lambs Canyon (lower half)	in progress
	Little Cottonwood	
	Mill D	done 2002
	Mount Aire	done 2003
	Mt. Haven	done 2002
	Olympus Cove	
	Parley's Canyon	done 2004
	Pinetree	done 2002
	Salt Lake City	
	Sandy	
	Silver Fork	done 2002
	Suncrest	
Utah	**County Plan**	
	Alpine	
	American Fork Canyon	
	Cedar Fort	done 2006
	Cedar Hills	
	Covered Bridge	done 2002
	Diamond Fork Canyon	
	Draper (Utah Co. Part)	
	Eagle Mountain	
	Elk Ridge	
	Genola	
	Goshen	
	Highland	
	Hobble Creek	
	Lehi	
	Lindon	
	Mapleton	
	Orem	
	Payson	
	Pleasant Grove	
	Provo	
	Santaquin	

County	Community Name	Date CWPP Completed and/or Projects In Progress (blank lines = No CWPP)
	Saratoga Springs	done 2004
	Sheep Creek	
	Spanish Fork Canyon	
	Spanish Fork City	
	Springdell	
	Springville	
	Sundance	done 2000
	Tibble Fork	
	Vivian Park	
	Wanrhodes Basin	
	Woodland Hills	done 2001
Davis	**County Plan**	Davis county plan to address fuelbreak project along benches completed 2003
	Bountiful	
	Centerville	
	Farmington	
	Kaysville	
	Layton	
	North Salt Lake	
	South Weber	

Appendix B—Public Comment Summary Report

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1.1 NORTH UTAH REGION—INTRODUCTION

As part of the regional wildfire protection plan (RWPP) development process, the public participation component for the Northern Utah Region was held in the form of five public open house meetings. These meetings were held in Salt Lake City, Park City, Ogden, Logan, and Provo, Utah. These locations were chosen to allow for centralized and relatively easy access for members of the affected counties as well as multiple opportunities for participation.

1.2 MEETING ADVERTISING AND PROMOTION

Each meeting was advertised at least one week prior to its scheduled date. Advertising and promotion for the meetings included the following:

- Advertisements were placed in local and regional newspapers including the Salt Lake Tribune, Deseret News, the Herald Journal, the Ogden Standard Examiner, the Park Record, and the Wasatch Wave
- A public service announcement was submitted to KCPW.
- Leading up to the public meetings, core team members hung posters in prominent public locations.
- Approximately 700 postcards were sent to citizens groups, local and county officials, emergency management personnel, planning personnel, representatives from state and national parks and recreation areas, and home owners associations.
- Information packets (including a comment form, regional plan update and other materials) were mailed to all county commissioners, emergency management personnel, and planning departments and commissions in the Northern Utah Region in the middle of December. These packets were sent out in response to comments made during the public comment period that ended November 30, 2006, and intended to solicit additional information from key officials not present at the public meetings. The packets were also intended to educate officials about the planning process and various issues surrounding wildfire.

1.3 MEETING OVERVIEW

All of the Northern Utah Region public meetings were conducted in a similar manner. Upon arrival, attendees were greeted by the RWPP project leader and meeting support staff, attendees were requested to sign in and provided with an information packet. Attendees were then either personally toured or invited to self-tour the display area and also encouraged to take copies of brochures and handouts prior to the start of the meeting.

The meetings began with an introduction by the meeting facilitator/RWPP project leader followed with a slide presentation. The presentation introduced the purpose and scope of the RWPP, the region's core team, the RWPP planning process, and the RWPP development schedule. The audience was encouraged to ask questions both during and following the presentation. Questions were addressed in tandem with the presentation, as they were raised, and/or the presentation was followed by a question and answer period. The meetings concluded with another opportunity to view the display area.

The displays focused on the RWPP process, depicting the region's project area and draft risk analysis; identifying potential issues in more detail; and encouraging attendees to consider, document, and submit their comments. A variety of brochures, information sheets, and other handouts providing additional information on wildfire, fuels treatment methods, defensible space, and other relevant issues were also available.

During the informal periods of the open house, the facilitator, support staff, and core team members/agency resource specialists actively engaged attendees in dialogue to clarify topics, identify and capture concerns, and/or provide additional information. Often attendees documented and submitted their comments on the comment forms within their information packet prior to leaving. Others indicated that they would follow up with their comment forms at a time after the meeting. Foreseeing this possibility, the project leader had included handout-sized copies of the meeting display boards and presentation slides (and a comment form) in the information packet to facilitate later recall. The facilitator/support staff members took brief notes of meeting discussions that raised relevant issues. These discussion notes were later transcribed to formal notes for analysis and inclusion in the RWPP project file. Table 1 provides summary information about the public meetings held in support of the Northern Utah RWPP.

Table 1. Northern Utah RWPP public meeting participation information.

Date	County	Meeting Location (City)	Attendees (no.)[a]	Individuals Submitting Comments (no.)[b]	Comment Type[c]
11/1/06	Salt Lake	Salt Lake City	12	4	4 f
11/2/06	Summit	Park City	13	—	—
11/7/06	Weber	Ogden	13	1	1 f
11/8/06	Cache	Logan	11	—	—
11/14/06	Utah	Provo	17	7	7 f

a. Attendee number as documented on sign-in sheets, attendees were asked to sign in. The number will not necessarily include meeting facilitator, support staff, or core team members in attendance.
b. Includes all comments submitted through the end of the public comment period, 11/30/06.
c. f = form, dn = discussion notes, o = other.

1.4 PUBLIC PARTICIPATION

With the long history of wildfire in the Northern Utah Region, it was anticipated that the public meetings would be of primary interest to individual citizens and concerned homeowners and that they would make up the majority of the meeting attendees. What was observed was that the majority of participants were actually fire-related professionals, land management professionals, city and county leaders, private developers

and fire or fuels reduction-related contractors.[1] While a number of concerned citizens were in attendance, they were the minority participants.

1.5 COMMENT GENERATION

The form used to solicit comments included a list of 7 questions and a priority chart designed to gauge community interest and gather suggestions regarding fuels reduction treatment areas and methods, community values at risk, structural ignitibility, and fire fighting capabilities, for consideration by the core team in their formulation of the RWPP's priorities and recommendations. The questions were as follows:

1. Where do you live?
2. Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.
3. What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken.)
4. What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken.)
5. What is the single most important action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and actions).
6. What is your biggest concern about your community's ability to respond to a wildfire (Is it water? Equipment? Personnel? Training, evacuation plan, access...etc.?)
7. What information do you need to be better prepared for wildfire?
8. Priority table.

Please prioritize (with 1 being your highest priority and 10 being your lowest priority).	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	
Removal of dead or dying trees	
Treatment of trees for insects	
Removal of brush or timber from home sites	
Widening of streets for fire equipment	
Water supplies for fire suppression	
Citizen awareness of fire risk factors	
Secondary access from property in case of fire	

[1] No data were collected on profession and this list does not present the professions in any particular order, other than that observed, noted on sign-in sheets, or brought forward in conversation to the meeting facilitator and support staff.

Firewise landscaping around homes	
Firewise materials for home construction	

1.6 COMMENT COLLECTION

Meeting attendees were encouraged to answer the comment form questions (and/or to provide any additional comments) in writing during the meeting, but were given until November 30, 2006, to submit comments.

1.7 FINDINGS

After the initial review of submitted comments and because the volume of comments was lower than anticipated, it was determined that the best way to capture public comments as they pertained to a regional-level document would be to summarize them according to the generating question on the comment form. If comments were relevant to a regional level, but not question specific, they would be included in a general comment summary category. Therefore, for each of the questions presented in Subsection 1.5, one summary is presented per question and one summary includes all other relevant comments that were not question specific, in a manner appropriate to the style of question presented. Thus, eight responses are provided that are intended to convey the overall response of the region to a particular question. A reminder that community-specific comments are still captured by this process, but they are managed differently, as explained in Subsection 1.10. Comment summaries are presented in Table 2.

Table 2. Comment Summaries for the Northern Utah RWPP.

1. Where do you live?	
Comments were received from individuals in Salt Lake, Utah, and Weber Counties. No comments were received from any individuals specifically representing Box Elder, Tooele, Cache, Rich, Morgan, Summit, Wasatch, or Davis Counties.	
2. Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	
Action Identified	Related Responses (no.)
Real estate/homes	9
Recreation/ski resort	4
Watershed	2
Historic sites	1
Fire station/businesses	2
Personal safety	1
BYU Aspen Grove	1
Scenery	1

Comment Summaries for the Northern Utah RWPP (continued)	
3. What is the single most important action could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken.	
Action Identified	Related Responses (no.)
Public education, includes homeowner responsibility education and defensible space education	7
Fuels reduction	7
Defensible space	2
Work with insurance companies to education and motivate homeowners	1
Fire breaks	1
4. What actions could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken.)	
Action Identified	Related Responses (no.)
Public/resident education	4
Work with Planning/Zoning to include Firewise principles in building codes	1
Enforcement of HB 146	1
Fire breaks	1
Defensible space	1
Evacuation plan	1
5. What is the single most important action that could be taken to reduce the threat to your home (of list of 3-4 actions)? (List community name and/or action that could be taken.)	
Action Identified	Related Responses (no.)
Fuels reduction/Spanish Oak	3
Home building materials	2
Firewise landscaping	1
Defensible space	1
Sprinkler systems	1
6. What is your biggest concern about your community's ability to respond to a wildfire (Is it water? Equipment? Personnel? Training, evacuation plan, access...etc.?)	
Action Identified	Related Responses (no.)
Evacuation plan	5

Comment Summaries for the Northern Utah RWPP (continued)	
Equipment	3
Volunteer fire department/personnel	2
Restricted/difficult road access	2
No fire station in the canyon	1
Water	1
Training	1
7. What information do you need to be better prepared for wildfire?	
Get current information out to garden shows	
Understanding and the importance of defensible space	
Need to know the resources the county	
Evacuation plan	
We have enough information, we need to get to work	
8. Please prioritize (with 1 being your highest priority and 10 being your lowest priority).[1]	
Results: Priority (from highest priority to lowest)	

	Summed priorities	Effective priorities
Removal of brush or timber from home sites	25	1
Citizen awareness of fire risk factors	30	2
Removal of dead or dying trees	34	3
Evacuation plan in case of fire	49	4
Widening of streets for fire equipment	50	5
Water supplies for fire suppression	51	6
Firewise landscaping around homes	52	7
Firewise materials for building	57	8
Treatment of trees for insects	69	9
Secondary access from property in case of fire	78	10

1. Nine priority tables were submitted for analysis. All individual category priority scores were summed. Lowest possible sum per category is 9 and the highest is 90. The list was then ordered from lowest sum (highest priority) to highest sum (lowest priority). A priority result column was added to the table to simplify the findings.

1.8 OBSERVATIONS

Because the majority of public participants were also fire-related or land management professionals, they brought with them on-the-ground experience and comments based on direct observation and direct public contact in their professions. This is reflected in the large number of comments emphasizing the need for more public education, large area fuels reduction needs, and defensible space as priorities, to name a few. Because this RWPP covers large urban areas, the priority on protecting real estate is also clearly evident.

1.9 ADDITIONAL PUBLIC OUTREACH

During the public comment period, several meeting attendees suggested that the RWPP planning team make more of an effort to reach county and local officials to educate them about the RWPP plan and process and to provide them with a way to give input. In response, information packets were mailed to County Commissioners, County Emergency Management Officials, and County Planning Departments and Commissions from each of the 11 counties in the Northern Utah RWPP planning area. Over 100 packets were mailed. Information packets included the following:

- A letter explaining the RWPP planning process and encouraging involvement.
- "Wildland Fire in the United States," a pamphlet published by the National Wildfire Coordinating Group.
- Copies of the display boards used for the public meetings.
- A comment form.
- A House Bill 146 fact sheet.
- "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities" (available at: http://www.safnet.org/policyandpress/cwpphandbook.pdf, accessed 2/16/2007).
- "Firewise Landscaping for Utah," published by Utah State University Extension.
- "Living With Fire: A Guide for the Homeowner," published by Great Basin Fire Prevention.
- A Utah Living with Fire magnet with web addresses www.ut.blm.gov and www.firewise.org.

1.9.1 Comments Received

One comment was received in response to information packets mailed to County Commissioners, County Emergency Management Officials, and County Planning Departments and Commissions in each of the 11 counties in the Northern Utah RWPP planning area. A summary of the comments made is in Table 3.

Table 3. Additional Comment Summary for the Northern Utah RWPP.	
1. Where do you live	
No response provided, however, responder represents Weber County Planning	
2. Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/views, hiking trails, businesses, etc.	
Three Ski resorts Real estate	
3. What is the single most important action that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken).	
Clear zones around, materials used in construction and landscaping	
4. What actions could be taken to reduce the threat of (or be prepared for) wildfire in your community? (List community name and action that could be taken).	
Fire wise landscaping; Fire wise materials for home; removal of brush, clear zone around homes	
5. What is the single most important action that could be taken to reduce the threat to your home (or list 3-4 actions)? (List community name and/or home address and action(s)).	
No response provided.	
6. What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access…?)	
Water and water pressure	
7. What information do you need to be better prepared for wildfire?	
No response provided.	
8. Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
Water supplies for fire suppression	1
Fire-wise landscaping around homes	1
Fire-wise materials for home construction	1
Secondary access from property in case of fire	2
Removal of brush or timber from homesites	3
Removal of dead or dying trees	4
Evacuation plan in case of fire	5
Treatment of trees for insects	6
Citizen awareness of fire risk factors	7
Widening of streets for fire equipment	8

1.10 DOCUMENTATION

This section provides the comment documentation collected in support of the Northern Utah Region RWPP. The first part of this section provides discussion notes taken by the

meeting facilitator or support staff and is organized by county. The second part of this section provides photocopies of the submitted comment forms, also organized by county. The purpose of providing this material is primarily for community wildfire protection plan development. Many comments are specific to projects for a specific area that is outside the scope of the regional plan.

1.10.1 DISCUSSION NOTES

Discussion notes are only presented for a county if notes were taken and formalized for that county. Audience participation is reflected in "normal" font, the RWPP response is in italics.

CACHE COUNTY NOTES

Topic discussions summarized as follows:

- Establish community priorities and recommendations? One community over another? Who is making this determination? *The RWPP is a more broad scope development. It may recommend actions like additional education, plans to be developed, etc. The CWPP will be more focused on the local level.* The core team is not expected to provide those community priorities, or are they? *The flexibility of this allows communities to tailor it for their needs—they can target homeowner associations for example. Your comments and input at meetings like tonight will impact the RWPP.*
- Who from Cache County is on the core team? *Craig, Cindy, Brad, Kelly Allen.*
- 5 or 6 communities who are not represented at tonight's meeting—Hyde Park, North Logan, planning and zoning...maybe we need to schedule meetings in their locations, their city councils, etc. then do public comments in Jan/Feb. *The next core team meeting is Dec 12. Please provide your input. Power point is available on the website. If you want to add your link on the website, then we're looking for that information also.*
- For the forest service, the areas at risk are the high Unita's Wilderness, lots of rock, fuel barren. Is there a way to filter it so that the risk assessment better fits with the landscape? *We are working on the big picture. There's always something we can do with the model, what do we gain from it? Community based plan—what's the risk to the community? How many structures across the landscape is probably better data than population but we don't have that data.*
- Ultimately, you are going to need detailed GIS to be of use to communities. Who's going to do that? *Unknown. In Summit County, the fire warden has been drawing things in...digitizing information. Our recommendation as part of this plan is to identify funding needs to do these things.*
- The visible effects of fuel breaks are actually minimal. The break around Brigham City toward the south is two dozer blades wide but you can't distinguish it from I-15.
- Another success story…Richmond: lightning strike had no devastating effects due to treatment. The Bonneville Shoreline Trail in Cache County has not been tested yet but fuel reduction/breaks have been implemented.

- The risk assessment map will be a key component of this effort. More GIS data at the county level collected. Logan City has information/maps in GIS—very aggressive with their GIS. Logan City will share their data. How applicable to the county is unknown—a county level planning effort would be able to identify what percentage of Cache County is covered by GIS. *The RWPP map is not meant to be a surrogate for the county efforts. Some limitations are evident with this broad scale planning. A fine scale map for a community might be better mapped with fine scale air photos than gap data. Tap into local resources—Master's thesis could be/include mapping out the local vegetation. Consider what the fuel is—it may not matter if it's Douglas fir or what variety of fir if the fuel behavior is similar for all. Focus on areas defined as highest risk.*
- Where is the county at in terms of a county plan? Do we have a time line for completion or initiation of a plan? *Gary Roberts, chief, stays in contact with planning and zoning. The planning/zoning is pretty far out in the future. The fire plan—the planning process initiating first part of 2007.*

SALT LAKE COUNTY NOTES

Topic discussions summarized as follows:

- Suggest using House Bill 146 to facilitate fire awareness and to promote availability.
- Use "Parade of Homes" as a strategy to "advertise." Include a home with defensible space on the route to demonstrate. Coordinate with a contractor or a builder.
- Include wildfire prevention information in home owners associations' newsletters.
- Coordinate wildfire education in schools with the National Fire Prevention Week. Expand educational opportunity from structural to wildlands during this week. Include equipment exhibitions to demonstrate differences.
- Target communities as they develop growth plans and master development plans. Need to consider identifying helipad sites, locking up corridors to communities during master planning phases.
- Consider adding the power point presentation to the emergency management meeting agendas. Also, January 5 is UEMA. Dustin Lewis can provide contact information for necessary contacts to facilitate coordination.

SUMMIT COUNTY NOTES

Topic discussions summarized as follows:

- What happens to community plans already in place? Do communities have to be identified in the risk assessment in order to qualify for financial resources? *Communities with plans in place are eligible for resources. Support can be used for activities such as fuel reduction.*
- Are the financial resources geared for BLM or forest service lands? How will it change the current system? *This is an opportunity to identify resources for more broad scale planning.*

- Concern expressed on behalf of communities which already have plans in place—why bother? *This enables funds for individual plans, to complete the activities identified in local plans. Several sources of funding are out there. These will be identified in the RWPP as a resource to communities.*
- Communities at risk—can communities at risk target a recreation area, as an example, in their local plans. *Yes, at the community level, with proper justification and rationale, those areas identified as valuable within the community should be addressed. The RWPP is not focused at these levels. Federal money cannot go to federal land, but areas of interest can be included in broad scope areas. Consider evacuation routes, as an example. Wildland-urban interface will be identified at each level.*
- Summit County will provide mapping data already generated to RWPP effort.
- Will risk assessment impact home owners' insurance rates? *While this is not a focus or a point of the risk assessment and will not be listed as a recommendation, it may be a fall out of the process as companies realize the impacts to their bottom lines.*
- Confusion expressed regarding the interface between RWPP and House Bill 146 activities. How can we integrate these efforts? *In the RWPP, communities leading the effort will be recognized and their efforts acknowledged. Communities still lagging behind will have recommendations to tap into these resources to develop their plans. Communities with a CWPP have a fuel reduction mechanism.*
- When will monies be available? How to apply for it? *Money will be provided to the state of Utah to provide to the needs identified in the RWPP.*
- How are you coordinating with fire districts? *Requesting local level input at meetings just like this one for the RWPP. Tentatively planning an additional stake holder meeting in January.*

UTAH COUNTY NOTES

Topic discussions summarized as follows:

- Has anyone had any successful fuels reduction projects that they'd like to share with the group? *We just finished up a fuels reduction project that was originally started by the community of Sundance. And now it's an example treatment projects we can show the public. We cleared out small diameter material (6.0 in. or less) and cleared brush, etc., 50 ft from the road back on both sides (i.e., enhanced the fuel break quality of the road).*
- Any other planning? *Another project, Sundance, (with Barb Gardener). Conifer stands killed by beetle, marked, cut, took it out with draft horses, last Saturday, so the fuels reduction is conducted without additional destruction.*
- What is the trick to funding projects like that? We have a defensible space ordinance. Biggest problem is the undeveloped acreages that are not being maintained. We have permission to help clear that, but its having the funds to do it and most owners won't/can't do their own clearing at their own cost. *Lots of grants available. Fire*

departments help to get the grants. This process allows you to be eligible for money. This process, including community involvement, helps establish goals, which helps you to go after money. Barb on the core team is a great resource for this information. Barb has worked in this area, which has been an ongoing process, that has accomplished a lot over the last 10 years.

- What have been the biggest roadblocks? *We had a very successful project where reduced fuels would be brought to a lot and piled up for a big bonfire. It was successful because it was very visible and it motivated people to participate. We can't do that any longer because the community is too big and there is nowhere to burn the kind of volume we'd collect. Since we have stopped there is not nearly the same level of fuels reduction being undertaken on the private properties. Maybe we can try to bring the program back on a smaller level.*
- *Special service district holds chipper days because we can't burn during burn season (we have snow then). We put our piles out by the roads over the period of a few weekends, and the fire dept chips up the piles and we use it for mulch, decorative, etc.*
- Question posed about a big traveling chipper with a loader and how is it acquired. Discussion followed.
- Has anyone had success with the goats? *We did once, but it didn't seem to work and they haven't been brought back. Military uses them a lot and it has been real successful. In Cache and Weber Counties they are so successful that they actually need more goats. Don't need chemicals can use them around houses, etc., just one of many tools to use. They are expensive so you need defined objectives. They eat 90% woody material; cows eat 90% grassy material. You do have to evaluate what they are going to eat so you don't get a bad response (i.e., horey cress).*
- Question regarding Cedar Fort in the Cedar Valley. *We are surrounded on three sides with juniper. City of Utah* [sic] *will hopefully implement their private land project.* Funding here [RWPP/CWPP] is for private land. If communities have CWPPs then the Forest Service can be competitive in acquiring funds for their areas.
- We'll have defensible space out on our website so we can educate the public that we're not clear cutting around homes.
- *A good success story, Brigham City. Fire break was made eight days before the fire by expanding a road. The fire stopped. The community had been made aware that it was going to be an issue. Community helped thin the brush. The road goes down nearly the entire Wasatch front (Bonneville Shoreline Trail). Good opportunity if you're doing trail planning to consider. This helps stop fires on either side of the trail; look at all the aspects. Community interest is usually the biggest hurdle so public education is important.*

WEBER COUNTY NOTES

Topic discussions summarized as follows:

- How does the community at large know what is happening? Are the communities informed about these meetings? *Please provide us your comments on how you would*

suggest getting more involvement. Our efforts have included newspaper notices, radio advertisements, and invitations. The insurance companies may help when the rates are impacted. The community and county planners would be a good start. *If you could provide us with the contact information, that would be a real benefit.*

- We need to break it into smaller geographical areas, get the council names and make personal contact with those members. Personal contact would be better. The mailed items are over utilized and overlooked.
- The info-national process regarding HB146 needs to include requirements for codes. FFSL did come to the Weber County commissioners meeting a month or so ago, so you will start to see things.
- Sensitive land ordinance would this CWPP fit into that? *We have made some attempts to get wording into the sensitive land ordinance without much success. The HB will impact some changes.*
- A number of cities in this region border the forest lands—that is, county lands do not always border the wildland-urban interface. Cities need to be enticed to adopt the ordinance too. The RWPP at the counties was fairly well received in the northern areas. As the code is adopted, you'll see more involvement—developers will be more interested when it impacts their bottom line. The ordinance is not retroactive. If a change is made in the structure/re-modeling would have to fall under the ordinance.
- 20 years ago a document was developed and presented to the county commissioners, and it became a book end. It cannot happen again. Too many people are at risk now.
- Fire break above Farmington is another success story. Currently being built. Old Farmington burn was smaller and shorter, it acted as a break. Davis County donating the equipment to widen the road and cut in a new road. Concrete over passes being put in over the Weber Basin water piping. Land owners are mostly supportive—a few still struggling to get behind the effort but negotiations are underway.
- Our community is in the education phase. We have a couple of examples of fuel reductions that have been implemented and reactions are good. What do you tell landowners to gain their acceptance? *Landowners need to see that the amount of fuel just needs to be reduced to protect the structure—it's not about eliminating the wooded areas. You can't tell us what to do—it is voluntary. The other obstacle is "we don't have the resources to take care of this." The community fire plan will help identify available resources---Eagle Scout projects, for example. As the education increases, more acceptance will be seen.*
- The ATV riders tend to bring their own perspective. The defensible space approach protects the recreation areas as well as the individual structures. It works both ways.
- Weber County has just spent a tremendous amount of time and money on their GIS. They will overlay the property plat maps at no cost. 1 meter satellite maps. Provided at no cost to communities, just need to take advantage of it.
- It would be helpful if the RWPP included some advice to the community levels as to how much detail they need to include in their plans.

1.10.2 COMMENT FORMS

The following pages show the actual comment forms received for the public meetings held in support of the development of the Northern Utah RWPP. The provision of the documents is for public inspection and for future use in the development of subsequent CWPPs.

Salt Lake County Comment Forms

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In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) _____ Fire Service Personnel (which?) _____ Individual Community (which?) Big Cottonwood Other (specify) Safespace wildfire Mitigation Services Inc.
Where do you live?	Big Cottonwood Cyn.
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	watershed, homes
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	Silverfork, Thinning/mechanical treatment
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	Thinning
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	Thinning
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access…?)	evac plan
What information do you need to be better prepared for wildfire?	Understanding defensible space + its importance

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	3.
Removal of dead or dying trees	4.
Treatment of trees for insects	10
Removal or brush or timber from homesites	2. Not just homesites but communities as a whole
Widening of streets for fire equipment	9
Water supplies for fire suppression	5.
Citizen Awareness of fire risk factors	1. educate the public to act as a catalyst to establish
Secondary access from property in case of fire	8 fire wise communities
Fire-wise landscaping around homes	6.
Fire-wise materials for home construction	7.

Thanks for sharing your ideas with us!

Contact Information:

Name Dan Galley

Organization Safespace wildfire mitigation services inc.

Address 11261 Big Cottonwood Cyn Rd. ~~UT~~

City/State/Zip Brighton UT 84121

Telephone 801-712-4401 **Email:** dgskipaw@hotmail

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) SLC, TOOELE, UTAH County Fire Service Personnel (which?) BLM Individual Community (which?) Other (specify)
Where do you live?	SLC, UT
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	Historic sites, Personal safety
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	Fuels reduction → generally.
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	Education / Enforcement: HB #6 Fuels reduction → Engineering
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	Home building Materials. Firewise landscaping.
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	In my district → water / equipment training
What information do you need to be better prepared for wildfire?	Do garden shows. Jordan Conservancy District.

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	10
Removal of dead or dying trees	1
Treatment of trees for insects	3
Removal or brush or timber from homesites	9
Widening of streets for fire equipment	4
Water supplies for fire suppression	2
Citizen Awareness of fire risk factors	5
Secondary access from property in case of fire	8
Fire-wise landscaping around homes	6
Fire-wise materials for home construction	7

Thanks for sharing your ideas with us!

Contact Information:

Name Erin Darbonen

Organization SLFO/BLM

Address 2370 S 2300 W.

City/State/Zip SLC, UT 84119

Telephone 801 · 977 · 4328 **Email:** erin_darbonen@blm.gov.

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) Salt Lak Fire Service Personnel (which?) Individual Community (which?) Other (specify) Private Fuels Reduction Contractor
Where do you live?	
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	Suggestions: • Educate communities on writing FEMA grants
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	• Attend individual community meetings and write articles for their newsletters
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	• Work w/ insurance companies to educate at mutual Homeowners
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	•
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	
What information do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	
Removal of dead or dying trees	
Treatment of trees for insects	
Removal or brush or timber from homesites	
Widening of streets for fire equipment	
Water supplies for fire suppression	
Citizen Awareness of fire risk factors	
Secondary access from property in case of fire	
Fire-wise landscaping around homes	
Fire-wise materials for home construction	

Thanks for sharing your ideas with us!

Contact Information:

Name Chris Searle

Organization Safespace Wildfire Mitigation Services

Address

City/State/Zip

Telephone 801 209 9480 **Email:** CSEARLE@ Brightonresort.com

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one): Big Cottonwood	County (which?) _____ Fire Service Personnel (which?) _____ Individual Community (which?) ✓ Other (specify) _____
Where do you live? Big Cottonwood	
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	WUI Education - Include Wildland Fire Education in public schools
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	Help SLCounty Planning & Development to include firewise principles in Building regulations. The new Landscape Ordinance does not address fire resistant planting.
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	No fire station in the canyon!
What information do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	6
Removal of dead or dying trees	5
Treatment of trees for insects	7
Removal or brush or timber from homesites	1
Widening of streets for fire equipment	8
Water supplies for fire suppression	9
Citizen Awareness of fire risk factors	2
Secondary access from property in case of fire	10
Fire-wise landscaping around homes	3
Fire-wise materials for home construction	4

Thanks for sharing your ideas with us!

Contact Information:

Name Barbara Cameron

Organization Big Cottonwood Community Council

Address 3057 Silver Fork

City/State/Zip Brighton UT 84121

Telephone 435-940-9099 **Email:** barbaracameron@hotmail.com

Utah County Comment Forms

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In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) _____ Fire Service Personnel (which?) Fire dept Individual Community (which?) WOODLAND HILLS Other (specify) _____
Where do you live?	WOODLAND HILLS, UT
Please list any areas, structures or things thot you value and feel should be protected from the threat of wildland fire. Exomples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	many high-end homes in a fuel rich community
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action thot could be taken)	reduce fuel load better defensible space
What *actians* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action thot could be taken).	resident education
What is the *single most important* action that could be token to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evoc plan, access...?)	Volunteer dept - old equipment challenges w/ evacuation
What information do you need to be better prepared for wildfire?	resource knowledge in county.

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following		
	Pri	Priority (please add comments if necessary)
Evacuation plan in case of fire	5	2-routes now soon to be 3
Removal of dead or dying trees	2	funding needed to help city
Treatment of trees for insects	7	a problem - growing
Removal or brush or timber from homesites	1	heavy fuel near homes -
Widening of streets for fire equipment	3	needs funding to repeat
Water supplies for fire suppression	8	hydrants flow - out most of city.
Citizen Awareness of fire risk factors	4	Annual city wide meeting
Secondary access from property in case of fire	10	most homes adequate
Fire-wise landscaping around homes	9	mostly natural - too fuel rich
Fire-wise materials for home construction	6	good ordinances - mostly followed.

Thanks for sharing your ideas with us! We are interested in participating

Contact Information:

Name Dorel Kynaston
Organization WHFD chief
Address 160 west Oak Circle
City/State/Zip Woodland Hills, UT
Telephone 801-369-3281 Email: dorel@fps-gold.com

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) UTAH Fire Service Personnel (which?) Individuol Community (which?) Woodland Hills Other (specify)
Where do you live?	
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	REAL ESTATE— FIRE STATION
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	REMOVE OAK
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	PLACE FIRE BREAKS
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access…?)	ONLY 2 WAYS IN AND OUT BY ROAD
What information do you need to be better prepared for wildfire?	EVAC. PLAN

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following		
		Priority (please add comments if necessary)
Evacuation plan in case of fire	6	
Removal of dead or dying trees	2	
Treatment of trees for insects	9	
Removal or brush or timber from homesites	3	
Widening of streets for fire equipment	4	
Water supplies for fire suppression	8	
Citizen Awareness of fire risk factors	1	
Secondary access from property in case of fire		
Fire-wise landscaping around homes	7	
Fire-wise materials for home construction	5	

Thanks for sharing your ideas with us!

Contact Information:

Name _____

Organization _____

Address _____

City/State/Zip _____

Telephone _____ Email: _____

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) UTAH Fire Service Personnel (which?) W.H. Fire Dept. Individual Community (which?) Woodland Hills Other (specify)
Where do you live?	Woodland Hills, UTAH
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	Residenses, Realestate
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	Fuel reduction Woodland Hills
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	Education and hard work
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	Fuel reduction, Defensible Space around residenses
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	Personnel, evac plan
What information do you need to be better prepared for wildfire?	We have a lot of information - we just need to go to work

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following		
	Priority (please add comments if necessary)	
Evacuation plan in case of fire	2	all residents can be called at the same time
Removal of dead or dying trees	4	individual responsibility
Treatment of trees for insects	10	"
Removal or brush or timber from homesites	5	"
Widening of streets for fire equipment	9	
Water supplies for fire suppression	6	Woodland Hills has over 1,000,000 gallons storage
Citizen Awareness of fire risk factors	1	Education twice Annually
Secondary access from property in case of fire	7	Yes
Fire-wise landscaping around homes	8	has been given to residents (education)
Fire-wise moteriels for home construction	3	Mandated by ordinance

Thanks for sharing your ideas with us!

Contact Information:

Name Jarold Sorensen
Organization Asst Fire Chief Woodland Hills fire dept.
Address 700 oak Dr.
City/State/Zip Woodland Hills, UT 84653
Telephone (801) 423-2228 Email:

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) Utah Fire Service Personnel (which?) ____ Individuol Community (which?) SPANISH FORK CITY Other (specify) ____
Where do you live?	S.F. City
Please list any areas, structures or things that you value and feel should be protected from the threat of wildlond fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	S. F. Res, Snell eyN River Bottoms
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community nome ond oction that could be taken)	
What *actions* could be token to reduce the threot of (or be more prepored for) wildfire in your community? (List community name and action thot could be taken).	Fuels reduction
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	Spanish Oaks
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evoc plan, occess...?)	Equipment Type III engines
Whot informotion do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority ond 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuotion plan in case of fire	6
Removal of dead or dying trees	5
Treatment of trees for insects	8
Removal or brush or timber from homesites	1
Widening of streets for fire aquipment	4
Water supplies for fire suppression	2
Citizen Awareness of fire risk factors	7
Secondary access from property in case of fire	10
Fire-wise landscaping around homes	3
Fire-wise materials for home construction	9

Thanks for sharing your ideas with us!

Contact Information:

Name Brent Jarvis

Organization SFFD

Address 370 N. Main St

City/State/Zip SPANISH FORK UT 84660

Telephone 801-798-5000 Email: firedepartment@spanishfork.org

In an effort to ossess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one): Intrest only	County (which?) _____ Fire Service Personnel (which?) _____ Individual Community (which?) _____ Other (specify) _____
Where do you live?	
Please list any oreos, structures or things that you volue and feel should be protected from tho threat of wildland fire. Examples could includo historic sites, reol ostoto value, scenery/ views, hiking trails, businesses, etc.	
What is the *single most important action* thot could be taken to reduce the threot of wildfire in your community? (List community nome and action that could be taken)	
What *actians* could be taken to reduce the threat of (or be more prepored for) wildfire in your community? (List community name and action thot could be taken).	
What is the *single most important* oction that could be taken to reduce the threot to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to o wildfire? (Is it water? Equipment? Personnel, training, evac plon, access...?)	
What information do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	
Removal of dead or dying trees	
Treatment of trees for insects	
Removal or brush or timber from homesites	
Widening of streets for fire equipment	
Water supplies for fire suppression	
Citizen Awareness of fire risk factors	
Secondory access from property in case of fire	
Fire-wise landscaping around homes	
Fire-wise moterials for home construction	

Thanks for sharing your ideas with us!

Contact Information:

Name ERIC NILSON

Organization SFFD

Address 370 N. MAIN ST

City/Stote/Zip SPANISH FORK UT 84660

Telephone _____ Emoil: _____

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one):	County (which?) _____ Fire Service Personnel (which?) _____ Individual Community (which?) OREM Other (specify) _____
Where do you live?	229 WEST, DARRELL DR. OREM, UT 84057
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	In our interface area we have a variety of real estate (Homes) Trail resources, and recreational/watershed flows
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	Support to Defensible Space, ie. *Fuels reduction & Home owner education *Fire roads/hearts
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	? A - Evacuation Plan - Education - Fuels reduction
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	Equipment, Personnel, Access ....
What information do you need to be better prepared for wildfire?	?

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	9
Removal of dead or dying trees	8
Treatment of trees for insects	10
Removal or brush or timber from homesites	2
Widening of streets for fire equipment	5
Water supplies for fire suppression	4
Citizen Awareness of fire risk factors	3
Secondary access from property in case of fire	7
Fire-wise landscaping around homes	1
Fire-wise materials for home construction	6

Thanks for sharing your ideas with us!

Contact Information:

Name Russ Sheddon

Organization Orem DPS/Fire Marshal

Address 95 E. Center

City/State/Zip Orem, UT 84057

Telephone 801-229-7323 Email: rksheddon@orem.org

In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one): NORTH FORK FD	County (which?) UTAH Fire Service Personnel (which?) NORTH FORK FD / FIRE CHIEF Individual Community (which?) _____ Other (specify) _____
Where do you live? SUNDANCE, UT	
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	SUNDANCE SKI RESORT BYU ASPEN GROVE PRIVATE HOMES
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	COMMUNITY AWARENESS FUEL REDUCTION
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	FUEL REDUCTION DEFENSIBLE SPACE
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	FUEL REDUCTION BUILDING MATERIALS SPRINKLER SYSTEMS
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access...?)	EVACUATION OF AREA
What information do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following	
	Priority (please add comments if necessary)
Evacuation plan in case of fire	2
Removal of dead or dying trees	3
Treatment of trees for insects	5
Removal or brush or timber from homesites	1
Widening of streets for fire equipment	4
Water supplies for fire suppression	7
Citizen Awareness of fire risk factors	6
Secondary access from property in case of fire	8
Fire-wise landscaping around homes	9
Fire-wise materials for home construction	10

Thanks for sharing your ideas with us!

Contact Information:

Name SCOTT HART
Organization NORTH FORK FIRE DEPT.
Address RR 3 BOX B-1
City/State/Zip SUNDANCE UT 84604
Telephone 801 362 0318 Email: SCOTT_HART@byu.edu

Weber County Comment Forms

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In an effort to assess the Fire Risk in your community. We ask that you respond to the following questions.

I represent (please circle one): weber county Planning	County (which?) Weber county unincorporated areas Fire Service Personnel (which?) _____ Individual Community (which?) _____ Other (specify) Planning unincorporated areas
Where do you live?	
Please list any areas, structures or things that you value and feel should be protected from the threat of wildland fire. Examples could include historic sites, real estate value, scenery/ views, hiking trails, businesses, etc.	3 ski Resorts real Estate
What is the *single most important action* that could be taken to reduce the threat of wildfire in your community? (List community name and action that could be taken)	clear zones around, materials used in construction and Landscaping
What *actions* could be taken to reduce the threat of (or be more prepared for) wildfire in your community? (List community name and action that could be taken).	Fire wise Landscaping Fire wise materials For Home Removal of brush, clear zone around homes
What is the *single most important* action that could be taken to reduce the threat to your home (or list of 3-4 actions)? (List community name and/or home address and action(s)).	
What is your biggest concern about your community's ability to respond to a wildfire? (Is it water? Equipment? Personnel, training, evac plan, access…?)	water and water pressure
What information do you need to be better prepared for wildfire?	

Please prioritize (with 1 being your highest Priority and 10 being your lowest) the following		
		Priority (please add comments if necessary)
Evacuation plan in case of fire	5	
Removal of dead or dying trees	4	
Treatment of trees for insects	6	
Removal or brush or timber from homesites	3	
Widening of streets for fire equipment	8	
Water supplies for fire suppression	1	There are parts of weber County with no community water
Citizen Awareness of fire risk factors	7	
Secondary access from property in case of fire	2	Provision For secondary routes are being provided but they are built as development occurs, which may be years
Fire-wise landscaping around homes	1	Lot of new homes are being built in mountain areas
Fire-wise materials for home construction	1	water is supplied by wells

Thanks for sharing your ideas with us!

Contact Information:

Name Jim Gentry

Organization Planning

Address 2380 Washington Blvd

City/State/Zip Ogden UT 84401

Telephone 399-8767 Email:

Appendix C—Risk Assessment Fuels Ratings

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Southwest Regional GAP Vegetation Reclassified Fuel Ratings

Description	Rating
Rocky Mountain Lodgepole Pine Forest	4
Rocky Mountain Ponderosa Pine Woodland	4
Colorado Plateau Pinyon-Juniper Woodland	4
Barren Lands, Non-specific	4
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	4
Barren Lands, Non-specific	4
Great Basin Semi-Desert Chaparral	4
Inter-Mountain Basins Big Sagebrush Shrubland	4
Mogollon Chaparral	4
Recently Chained Pinyon-Juniper Areas	4
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	3
Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	3
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	3
Colorado Plateau Pinyon-Juniper Shrubland	3
Great Basin Xeric Mixed Sagebrush Shrubland	3
Colorado Plateau Blackbrush-Mormon-tea Shrubland	3
Inter-Mountain Basins Big Sagebrush Steppe	3
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	3
North American Warm Desert Riparian Woodland and Shrubland	3
North American Warm Desert Riparian Mesquite Bosque	3
Invasive Perennial Grassland	3
Invasive Annual Grassland	3
Recently Logged Areas	3
Rocky Mountain Aspen Forest and Woodland	2
Rocky Mountain Bigtooth Maple Ravine Woodland	2
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	2
Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	2
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	2
Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland	2
Inter-Mountain West Aspen-Mixed Conifer Forest and Woodland Complex	2
Rocky Mountain Alpine Dwarf-Shrubland	2
Inter-Mountain Basins Mat Saltbush Shrubland	2
Colorado Plateau Mixed Low Sagebrush Shrubland	2
Mojave Mid-Elevation Mixed Desert Scrub	2
Inter-Mountain Basins Mixed Salt Desert Scrub	2
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	2
Sonora-Mojave Mixed Salt Desert Scrub	2
Inter-Mountain Basins Montane Sagebrush Steppe	2
Inter-Mountain Basins Juniper Savanna	2
Inter-Mountain Basins Semi-Desert Shrub Steppe	2
Rocky Mountain Dry Tundra	2
Southern Rocky Mountain Montane-Subalpine Grassland	2
Inter-Mountain Basins Semi-Desert Grassland	2
Rocky Mountain Subalpine-Montane Riparian Shrubland	2
Rocky Mountain Subalpine-Montane Riparian Woodland	2
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	2
Inter-Mountain Basins Greasewood Flat	2
North American Arid West Emergent Marsh	2
Sonora-Mojave-Baja Semi-Desert Chaparral	2
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	2
Wyoming Basins Low Sagebrush Shrubland	2

Southwest Regional GAP Vegetation Reclassified Fuel Ratings

Description	Rating
Southern Colorado Plateau Sand Shrubland	2
Invasive Southwest Riparian Woodland and Shrubland	2
Invasive Annual and Biennial Forbland	2
North American Alpine Ice Field	1
Rocky Mountain Alpine Bedrock and Scree	1
Rocky Mountain Alpine Fell-Field	1
Rocky Mountain Cliff and Canyon	1
Inter-Mountain Basins Cliff and Canyon	1
Colorado Plateau Mixed Bedrock Canyon and Tableland	1
Inter-Mountain Basins Shale Badland	1
Inter-Mountain Basins Active and Stabilized Dune	1
Inter-Mountain Basins Volcanic Rock and Cinder Land	1
Inter-Mountain Basins Wash	1
Inter-Mountain Basins Playa	1
North American Warm Desert Bedrock Cliff and Outcrop	1
North American Warm Desert Volcanic Rockland	1
North American Warm Desert Wash	1
North American Warm Desert Playa	1
Rocky Mountain Subalpine Mesic Meadow	1
Rocky Mountain Alpine-Montane Wet Meadow	1
Open Water	1
Developed, Open Space - Low Intensity	1
Developed, Medium - High Intensity	1
Barren Lands, Non-specific	1
Agriculture	1
Disturbed, Non-specific	1
Recently Burned	1
Recently Mined or Quarried	1
Disturbed, Oil well	1

Source: Wildland Fire Associates

Appendix D—Homeowner Guide

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Many Northern Utah residents enjoy a rural lifestyle and close proximity to outdoor activities. However the attributes that make the area a desirable place to live also make it a precarious place to live. Accepting that fire is a natural part of the ecosystem means taking steps to prepare for a wildfire event and prevent home ignitions.

This guide was developed to provide information on reducing wildfire risk and what to do in the event of a wildfire, as well as to fulfill requirements for the CWPP. The guide suggests specific measures that can be taken by homeowners to reduce structure ignitability and enhance overall preparedness in the Northern Utah region by consolidating preparedness information from several local agencies and departments.

I. BEFORE THE FIRE: PROTECTION AND PREVENTION

A. REDUCING STRUCTURE IGNITABILITY

Structures can be threatened by a wildfire in three ways: direct exposure from flames, radiated heat, and airborne firebrands. Firebrands are burning embers produced by wildfire which are lifted into the air and carried beyond the fire front, and account for the majority of homes burned due to wildfire. A shower of thousands of firebrands can be produced during a major wildfire event, and depending wind speed and ember size, can be carried more than 1/2 mile ahead of the fire front. If these firebrands land in areas with easily ignited fuels, numerous spot fires can start and homes located well away from the main fire front can be threatened.

This section contains information on fire-resistant construction design and building materials, as well as actions you can take to reduce the risk of a fire starting or spreading in or near your home. Many wildfire losses have been caused by some small problems with simple solutions.

BUILDING MATERIALS AND CONSTRUCTION DESIGN

New Construction: In order to achieve compliance with Utah House Bill 146 (and eligibility for the state's Wildland Fire Suppression Fund), Utah counties are required to adopt WUI ordinances requiring more stringent water supply, fire-resistant building material, and defensible space specifications for all **new** subdivisions and residences built or moved into the WUI. These changes **do not** affect existing homes in the WUI.

County ordinances must meet the minimum standards recommended by Forestry, Fire and State Lands, but can also adopt stricter standards according to each county's needs and resources. Additionally, the WUI will be defined by the county and may differ from the WUI boundaries of this RWPP. For more information on specifications for new construction and the proposed WUI boundary, please contact your County Fire Warden or Building Inspector.

Roofing: The roof is the portion of the house that is most vulnerable to ignition by falling embers known as firebrands. If the roof is constructed of combustible materials, the house is in jeopardy of igniting and burning. Additionally, these materials can become airborne firebrands themselves, and land in receptive fuel beds such as the combustible roofs of nearby homes.

Unfortunately for homeowners with existing combustible roofs, there are no long-term reliable measures available to reduce roof vulnerability to wildfire, other than re-roofing with fire resistant materials. Consider replacing existing roofs with more fire resistant materials. Metal roofs afford the best protection against ignition from falling embers. Slate, tile or terra cotta roofs are also non-combustible, and Class-A asphalt shingles are recommended as well. The most dangerous type of roofing material is wood shake and shingles.

Removing debris from roof gutters and downspouts at least twice a year will help to prevent fire along with keeping them functioning properly.

Exteriors: Non-combustible materials are ideal for the home exterior. Preferred materials include stucco, cement, block, brick, and masonry. Wood or combustible material can be treated with UL-approved fire-retardant chemicals.

Enclose the underside of eaves and balconies with fire resistant materials. Cover all vents, (roof or foundation) with a small diameter / fine screen to prevent sparks or embers from being blown in or under your home. This can be done temporarily with a staple gun.

Make periodic inspections of your home, looking for deterioration such as breaks and spaces between roof tiles, warping wood, or cracks and crevices in the structure.

Windows and Doors: Double- and triple- paned windows are most resistant to heat and flames. Smaller windows tend to hold up better within their frames than larger windows. Tempered glass is best, particularly for skylights, because it will not melt as plastic will. When building, try to limit the size and number of windows in your home that face large areas of vegetation. Install non-flammable shutters on windows and skylights. Install a solid door with self-closing hinges between living areas and the garage.

Decks and Porches: The area below aboveground decks and porches can become a trap for burning embers or debris, increasing the chances of fire transferring to your home. Screen off the area using screening with openings no larger than 1/2 inch. Keep the area behind the screen free of all leaves and debris. Make sure elevated wooden decks are not located at the top of a hill where they will be in direct line of a fire moving up slope. Consider a terrace instead.

Fencing and Trellises: Any structure attached to the house should be considered part of the house. A wood fence or trellis can carry fire to your home siding or roof. If you wish to attach an all-wood fence to your house, use masonry or metal as a protective barrier between the fence and house. Consider using non-flammable materials such as metal when constructing a trellis and covering it with high-moisture, low flammability vegetation.

FIREWOOD, KINDLING, AND OTHER FLAMMABLES

Although convenient, stacked firewood on or below a wooden deck adds fuel that can feed a fire close to your home. Be sure to move all wood away from the home during fire season. Stack all firewood uphill, at least 30 feet and preferably 100 feet from your home, and remove vegetation within 10 feet of woodpiles. Covering stacked firewood is also a good idea.

Flammable materials such as paint, solvents, or gasoline in approved safety containers should be stored away from sources of ignition such as hot water tanks or furnaces. The fumes from highly volatile liquids can travel a great distance after they turn into a gas. If possible, store the containers in a safe, separate location away from the main house. Oily rags should be stored in UL-approved containers.

POWERLINES

If you have high voltage lines running near your property take a moment to walk underneath them and ensure that no tree branches are in close proximity to the towers or lines. If there is any situation that could be a fire hazard, contact your local utility company. Call your local utility company before planting trees close to any power line to confirm the maximum tree height allowable for that location, and before pruning near power lines.

CHIMNEYS AND FIREPLACE FLUES AND WOODSTOVES

Inspect your chimney and damper at least twice a year and have the chimney cleaned every year before first use. Spark arresters are devices fitted to the top of a chimney flue or woodstove pipe to prevent floating embers from a fireplace or woodstove fire setting light to a flammable roofing surface or falling onto combustible material on the ground. Have the spark arrestor inspected and confirm that it meets the latest safety code. The fire department will have the latest edition of National Fire Prevention Code 211 covering spark arrestors.

Make sure to clear away dead limbs from within 15 feet of chimneys and stovepipes.

Never take ashes from the fireplace and put them into the garbage or dump them on the ground. Even in winter, one hot ember can quickly start a grass fire. Instead, place ashes in a metal container, and as an extra precaution, soak them with water. Cover the container with its metal cover and place it in a safe location for a couple of days. Then either dispose of the cold ash with other garbage or bury the ash residue in the earth and cover with at least 6 inches of mineral soil.

PROPANE, OIL OR FUEL TANKS

Your propane, oil or fuel tank has many hundreds of gallons of highly flammable liquid that could become a very explosive, incendiary source in the event of a fire. These tanks should be clearly marked and located at least 30 feet from any structure. Keep all flammables at least 10 feet from your tank. Learn how to turn the tank off and on. In the event of a fire, you should turn the gas off at the tank before evacuating.

SMOKE ALARMS AND FIRE EXTINGUISHERS

A functioning smoke alarm can help warn you of a fire in or around your home. Install smoke alarms on every level of your residence. Install smoke detectors between living and sleeping areas and in bedrooms if you sleep with the door closed.

Test and clean smoke alarms once a month and replace batteries when changing to daylight savings and standard times. Replace smoke alarms once every 10 years.

Keep a charged, ABC-type fire extinguisher in the kitchen and garage; make sure family members know how to use it.

FIRE-SAFE BEHAVIOR

If you smoke, always use an ashtray in your car and at home. Store and use flammable liquids properly. Keep doors and windows clear as escape routes in each room.

DEFENSIBLE SPACE, LANDSCAPING AND MAINTENANCE

Proper plant selection, placement and maintenance can diminish the possibility of ignition, lower fire intensity, and reduce how quickly a fire spreads.

Landscape Design

Defensible space and firewise landscaping can be used to design a landscape that is attractive and yet minimizes wildfire hazard by appropriate vegetation choices and placement so that fuels loads are reduced between the home and the natural wildland.

Removal of dense, flammable foliage from the area immediately surrounding the house can help reduce the risk of structure ignition and allow firefighters access to protect the home. A 100-foot safety zone free of all trees and shrubs is recommended by the fire department; the minimum distance is 30 feet. When designing and installing a firewise landscape, factors such as local area fire history, site location and overall terrain, prevailing winds and seasonal weather, and property contours and boundaries should be considered. Steep slopes, for example, require increased defensible space because fire can travel quickly uphill.

The safety zone should focus on fuel breaks such as concrete patios, walkways, rock gardens, and irrigated garden or grass. Plantings in the safety zone should be limited to carefully spaced, low flammability species and should be well irrigated. Low-growing ground covers are appropriate for this area, but plants such as junipers and pines are extremely combustible and should be removed, pruned or thinned.

Vegetation continuity should be broken up to reduce fire spread. Groups of shrubs and individual trees should be spaced 15 feet apart and care should be taken to ensure that treetops are not touching.

Mulch should be used sparingly within the safety zone and focused in areas that will be watered regularly. Pine needles provide important erosion protection for soil but also may carry a surface fire. Accumulations of pine needles or cones should be removed within the safety zone and extending out as far as possible. Pine needles and leaves should be removed and bare mineral soil exposed in a 2-foot-wide perimeter along the foundation of the house. The use of non- flammable materials such as gravel is recommended in turnarounds and driveways instead of pine needles or wood chips.

All trees within the safety zone should have lower limbs removed to a height of 6-10 feet. Any branches within 15 feet of a chimney or overhanging any part of the roof should be removed.

Ladder fuels are short shrubs or trees growing under the eaves of the house or under larger trees. Ladder fuels carry fire from the ground level onto the house or into the tree canopy. The removal of ladder fuels within about 100 feet of the house will help to limit the risk of crown fire around your home. Be sure to remove all ladder fuels within the safety zone first.

Anther landscape design option is to implement a zone concept:

- Zone 1. This well-irrigated area should encircle the structure for a minimum 30' on all sides and implement the measures as discussed above, to reduce the risk of structure ignition and provide space for fire suppression equipment in the event of an emergency.
- Zone 2. Low flammability plant materials should be used in this zone. Plants should be low-growing, and the irrigation system should extend into this section.
- Zone 3. Low-growing plants and well-spaced trees should be placed in this area. The volume of vegetation (fuel) should be kept low.
- Zone 4. Located furthest from the structure, this is a natural area and a transition to the wildland beyond. Plants should be selectively pruned and thinned, and highly flammable vegetation removed.

More information about defensible space and firewise vegetation is provided at www.firewise.org.

Landscape Maintenance

Even the most firewise landscaping must be regularly maintained in order for it to effectively reduce risk to homes and structures located within the safety zone:

- Keep trees and shrubs properly pruned. Remove leaf clutter and dead and overhanging branches. Prune all trees so the lowest limbs are 6' to 10' from the ground.
- Mow the lawn regularly. Clean or remove flammable materials from around wooden decks or walkways, and between the cracks of your walkway.
- Maintain a landscape that is free from dead and dying plants. Rake and remove flammable debris such as dead grass, pine needles, and leaves from around homes and outbuildings.
- Dispose of cuttings and debris promptly. Become familiar with local regulations regarding vegetation clearances, disposal of debris, and fire safety requirements for equipment.
- Be sure the irrigation system is well maintained. Use care when refueling garden equipment and maintain it regularly.

Debris Burning

Debris fires account for about one fourth of the more than 100,000 forest fires that blacken the U.S. each year. Before doing any burning near wildland areas, consider the alternatives to burning. Some types of debris, such as leaves, grass, and stubble, may be of more value if they are not burned. Household trash can be hauled away to a recycling station. If you decide to burn debris, take the following precautions:

- Consult local fire officials for information on safe ways to burn debris and local regulations regarding burning. Some communities allow burning only during specified hours while other counties forbid it entirely. Make sure you have a valid permit if required.
- Check the weather. Hot, dry, windy days are not suitable for burning, because of the added danger that the fire will escape your control.
- Where burn barrels are used, clear flammable materials at least 10 feet around the barrel; cover the open top with a non-flammable screen with mesh no larger than 0.25 inches.
- Be sure to stay with your fire until it is out completely.
- Place debris in a cleared area, away from overhead branches and wires.
- Do not accumulated debris for several days before igniting. The debris becomes compacted and wet, which increases the air pollution and makes the fire burn longer.

FIRE RETARDANTS

For homeowners who would like home protection beyond defensible space and fire-resistant structural materials, fire retardant gels and foams are available. These materials are sold with various types of equipment for applying the material to the home. They are similar to the substances applied by firefighters in advance of wildfire to prevent ignition of homes. Different products have different timelines for application and effectiveness. The amount of product needed is based on the size of the home, and prices may vary based on the application tools. Prices range from a few hundred dollars to a few thousand dollars. An online search of "fire blocking gel" or "home fire fighting" will provide a list of product vendors.

C. FIREFIGHTER ACCESS AND LOCAL COMMUNICATIONS

ACCESS

Limited access may prevent firefighters from reaching many homes in the Northern Utah region, but many of the access problems occur at the property line and can be improved by homeowners:

- Every home should have the address clearly posted, with numbers at least 3 inches high. The colors of the address posting should be contrasting or reflective. The address should be posted so that it is visible to cars approaching from either direction.
- Make sure that emergency responders can get in your gate. If you will be gone for long periods during fire season, make sure a neighbor has access, and ask them to leave your gate open in the event of a wildfire in the area.
- Gates should swing inward. A chain or padlock can be easily cut with large bolt cutters, but large automatic gates can prevent entry. Counties have been willing to maintain a set of keys for those communities that are gated; however, the responsibility rests with the communities to provide those keys to the county. It is logistically unfeasible to try to keep keys for every gated home in the wildland.

Special emergency access red boxes with keys are sold by many gate companies but are not recommended by emergency services because keys are difficult to keep track of and may not be available to the specific personnel that arrive at your home. An alternative offered by some manufacturers is a device that opens the gate in response to sirens. This option is preferred by firefighters but may be difficult or expensive to obtain.

- Make sure your driveway is uncluttered and at least 12 feet wide with a vertical clearance of 15 feet and a slope that is less than 5 percent.
- Trim any overhanging branches to allow at least 13.5 feet of overhead clearance and make sure that any overhead lines are at least 14 feet above the ground. If any lines are hanging too low, contact the appropriate phone, cable, or power company to find out how to address the situation.
- The driveway and access roads should be well-maintained, clearly marked, and include ample turnaround space. If possible, consider a turnaround within your property at least 45 feet wide. This is especially important if your driveway is more than 300 feet in length. Even small fire engines have a hard time turning around and cannot safely enter areas where the only means of escape is by backing out. Any bridges must be designed with the capacity to hold the weight of a fire engine.

NEIGHBORHOOD COMMUNICATION

It is important to talk to your neighbors about the possibility of wildfire in your community. It is possible that you (or a neighbor) may not be able to return home when a fire breaks out and may have to relay neighbors for information and assistance. Unfortunately, it sometimes takes tragedy to get people talking to each other. Don't wait for disaster to strike. Strong communication can improve the response and safety of every member of the community.

Phone Trees: Many neighborhoods use phone trees to keep each other informed of emergencies within and around the community. The primary criticism is that the failure to reach one person high on the tree can cause a breakdown of the system. However, if you have willing and able neighbors, particularly those that are at home during the day, the creation of a well-planned phone tree can often alert residents of an emergency more quickly than media channels. Talk to your neighborhood association about the possibility of designing an effective phone tree.

In addition to calling other residents, the phone numbers of all emergency responders should also be included on the list.

Neighbors in need of assistance: Consider how you could help neighbors who have special needs such as elderly or disabled persons. It is a good idea for willing neighbors to commit to evacuating a mobility-impaired resident in the event of an emergency. Make sure that a line of communication is in place to verify the evacuation.

Absentee Owners: Absentee owners often do not maintain regular contact with their neighbors. If a home near you is unoccupied for large portions of the year, try to get contact information for the owners from other neighbors or your neighborhood association. Your neighbors would probably appreciate notification in the event of an

emergency. Also, you may want to contact them to suggest that they move their woodpile or make sure that the propane line to the house is turned off.

D. HOUSEHOLD EMERGENCY PLAN

A household emergency plan does not take much time to develop and will be invaluable in helping your family deal with an emergency safely and calmly. One of the fundamental issues in the event of any type of emergency is communication. Be sure to keep the phone numbers of neighbors with you rather than at home.

It is a good idea to have a contact for your family who lives out of state. When disaster strikes locally, it is often easier to make calls to a different area code than local calls. Make sure that everyone in the family has the contact phone number and understands why they need to check in with that person in the event of an emergency.

Designate a meeting place for your family. Having an established meeting site helps to ensure that family members know where to go even when they can't communicate with you by phone.

Children

Local schools have policies for evacuation of students during school hours. Contact the school to get information on how the process would take place and where the children would likely go.

The time between when the children arrive home from school and when you return home from work is the most important time frame that you must address. Fire officials must clear residential areas of occupants to protect lives and to allow access for fire engines and water drops from airplanes or helicopters. If your area is evacuated, blockades may prevent you from returning home to collect your children. It is crucial to have a plan with a neighbor for them to pick up your children if evacuation is necessary.

Pets and Livestock

Some basic issues about pets and livestock involve whether you have the ability to evacuate the animals yourself and where you would take them. Planning for the worst-case scenario may save your animals. An estimated 90 percent of pets left behind in an emergency do not survive. Don't expect emergency service personnel to prioritize your pets in an emergency. Put plans in place to protect your furry family members:

- Assemble a pet disaster supply kit and keep it handy. The kit should contain a two-day supply of food and water, bowls, a litter box, and a manual can opener if necessary. It is also important to have extra medication and medical records for each pet. The kit should contain a leash for each dog and a carrier for each cat. Carriers of some kind should be ready for birds and exotic pets. In case your pet must be left at a kennel or with a friend, also include an information packet that describes medical conditions, feeding instructions, and behavioral problems. A photo of each pet will help to put the right instructions with the right pet.
- In the event of a wildfire, you may be prevented from returning home for your pets. Talk to your neighbors and develop a buddy system in case you or your

neighbors are not at home when fire threatens. Make sure your neighbor has a key and understands what to do with your pets if they need to be evacuated.

- Contact friends and family in advance to ask whether they would be willing to care for your pets. Contact hotels and motels in the area to find out which ones accept pets. Boarding kennels may also be an option. Make sure your pets' vaccinations are up-to-date if you plan to board them.
- You may not be able or allowed to return home to rescue your livestock during a wildfire evacuation. Talk to your neighbors about how you intend to deal with an evacuation. If livestock are encountered by emergency responders, they will be released and allowed to escape the fire on their own. Make sure your livestock have some sort of identification. Ideally, your contact information should be included on a halter tag or ear tag so that you could be reached if your animal is encountered.
- If you plan to evacuate your livestock, have a plan in place for a destination. Talk to other livestock owners in the area to find out whether they would be willing to board your stock in the event of an emergency. If you do not own a trailer for your horses or other livestock, talk to a neighbor who does. Find out whether they would be willing to assist in the evacuation of your animals. If you do own a trailer, make sure it is in working condition with good inflated tires and functioning signal lights. Keep in mind that even horses that are accustomed to a trailer may be difficult to load during an emergency. Practicing may be a good idea to make sure your animals are as comfortable as possible when loading into the trailer.

House and Property

Insurance companies suggest that you make a video that scans each room of your house, to help document and recall all items within your home. This video can make replacement of your property much easier in the unfortunate event of a large insurance claim. See more information on insurance claims in the *After the Fire* section below.

Personal Items

During fire season, keep all items you would want to take with you during an evacuation in one readily accessible location. As an extra precaution, it may be a good idea to store irreplaceable mementos or heirlooms away from your home during fire season. It is important to make copies of all important paperwork such as birth certificates, titles, and so forth and store somewhere away from your home such as a safe deposit box. A Disaster Preparedness Kit could include the following:

- A three-day supply of water (one gallon per person per day) and food that won't spoil.
- One change of clothing and footware per person, and one blanket or sleeping bag per person.
- A first aid kit that contains your family's prescriptions.
- Emergency tools including a battery-powered radio, flashlight and plenty of extra batteries.

- An extra set of car keys and a credit card, cash or traveler's checks.
- Sanitation supplies.
- Special items for infant, elderly or disabled family members.
- An extra pair of eyeglasses.
- Keep important family documents in a waterproof container. Assemble a smaller version of your kit to keep in the trunk of your car.

II. WHEN WILDFIRE APPROACHES

A. REPORTING A FIRE

All fires should be reported by calling the Sheriff's office, the Interagency Fire Dispatcher, or the County Fire Warden.

Northern Utah Region Emergency Contact Numbers

Agency	Phone or Radio Contact Number
Northern Utah Interagency Fire Center (NUIFC)	801-908-1900
Box Elder County Sheriff	435-734-3800
Box Elder County Fire Warden	435-730-4594
Cache County Sheriff	435-755-1000
Cache County Fire Warden	435-994-1627
Davis County Sheriff	801-451-4129
Davis County Fire Warden	801-791-7798
Morgan County Sheriff	801-829-0590
Morgan County Fire Warden	801-845-4049
Rich County Sheriff	435-793-2285
Rich County Fire Warden	435-757-4974
Salt Lake County Sheriff	801-743-7000
Salt Lake County Fire Warden	801-743-7200
Summit County Sheriff	435-615-3600
Summit County Fire Warden	435-640-2075
Tooele County Sheriff	435-882-5600
Tooele County Fire Warden	435-843-3160
Utah County Sheriff	801-343-4100
Utah County Fire Warden	801-851-4137
Wasatch County Sheriff	435-654-1411
Wasatch County Fire Warden	435-671-3325
Weber County Sheriff	801-778-6602
Weber County Fire Warden	801-782-3580

B. NOTIFICATION

In the event of a wildfire, announcements from the local Emergency Management office will be broadcast over local radio and television stations. Media notification may be in the form of news reports or the Emergency Alert System.

On television, the emergency management message will scroll across the top of the screen on local channels. The notice is not broadcast on non-local satellite and cable channels.

One good way to stay informed about wildfire is to use a National Oceanic and Atmospheric Administration weather alert radio. The radios can be purchased at most stores that carry small appliances, such as Target, Sears, or RadioShack. The radio comes with instructions for the required programming to tune the radio to our local frequency. The programming also determines the types of events you want to be alerted for. The weather alert radio can be used for any type of large incident (weather, wildfire, HAZMAT, etc.), depending on how it is programmed. Local fire personnel can assist with programming if needed.

The counties comprising the Northern Utah region are currently considering the implementation of a "reverse 911" system. This system would call every land line in the area intermittently to notify residents in the event of an evacuation. The reverse 911 system would not call cell phones.

Sirens, once used for emergency notification, are no longer employed in the Northern Utah region. Today's homes are better insulated, and the thicker walls prevent sirens from being audible inside most homes. Sirens can also create panic because the public is unaware of just what the danger is.

C. PREPARING YOUR HOME FOR WILDFIRE

Before an evacuation order is given for your community, there are several steps you can take to make your escape easier and to provide for protection of your home:

- Back your car into the garage or park it in an open space facing the direction of escape. Shut the car doors and roll up the windows. Place all valuables that you want to take with you in the vehicle. Leave the keys in the ignition or in another easily accessible location. Open your gate.
- Close all exterior doors, including your garage door. Disconnect automatic garage openers and leave exterior doors unlocked.
- Close all windows. Move furniture away from windows and sliding glass doors.
- Remove lightweight or non-fire resistant curtains and other combustible materials from around windows. Close fire resistant curtains, shutters or venetian blinds.
- Close all exterior vents. If time permits, cover the exteriors of large windows, glass doors, eaves and unscreened vents with sheets of plywood.
- Close all interior doors.
- Leave a light on in each room.
- Move overstuffed furniture to the center of the room.

- Fill bathtubs, sinks and other containers with water. Outside, do the same with garbage cans and buckets. Remember that the water heater and toilet tank are available sources of water. Soak rags towels or small rungs with water to use in beating out embers or small fires.
- Confine all pets to one room, in case you need to evacuate quickly.
- Turn off pilot lights on appliances and furnaces.
- Turn off the propane tank or shut off gas at the meter.
- Move firewood and flammable patio furniture at least 30 feet away from the house or into the garage.
- Arrange temporary housing outside the threatened area.
- Connect garden hoses to all available outdoor faucets and make sure they are in a conspicuous place. Turn the water on to "charge" or fill your hoses and then shut off the water. This will aid firefighters when they arrive.
- Place a ladder up against the side of the home, opposite the direction of the approaching fire, to allow firefighters easy access to your roof.
- Keep wood shake or singles roofs moist by spraying water. Do not waste water. Consider placing a sprinkler on your roof if safe to do so, but do not turn it on until the fire's arrival is imminent. This will help conserve water for use by the fire department.

When evaluating what to do as wildfire threatens, the most important guideline is: **DO NOT JEOPARDIZE YOUR LIFE!** If you think you should evacuate, it is OK to leave before being asked to do so by law enforcement or fire officials.

D. EVACUATION

When evacuation is ordered, you need to go *immediately*. Evacuation not only protects lives, it also helps to protect property. Many roads in the Northern Utah WUI are too narrow for two-way traffic, especially with fire engines. Fire trucks may not be able to get into an area until the residents are out. Additionally, airplanes and helicopters may be used to drop water or retardant to help limit the spread of the fire, but these aerial attack resources cannot be used until the area has been cleared of civilians.

If a wildfire threatens and evacuation is necessary, emergency managers will determine the best evacuation route based on the location and spread of the fire and the optimal combination of getting residents out of and firefighters into the area. Use the methods described in the Notification section above to receive updated information on where and how to evacuate.

Expect emergency managers to designate a check-out location for evacuees, to help to ensure that everyone is accounted for and inform emergency personnel as to who may be remaining in the community. Residents should check in at the designated location **before** proceeding to any meeting location established by your family Household Emergency Plan.

Where protective clothing. Clothing should be cotton or wool, and include long pants, long sleeved shirt or jacket, and boots. Carry gloves, a handkerchief to cover the face,

water to drink and goggles. Take your disaster supply kit. Tell someone when you left and where you are going.

A light-colored sheet closed in the front door serves as a signal to emergency responders that your family has safely left. This signal saves firefighters precious time, as it takes 12-15 minutes per house to knock on each door and inform residents of the evacuation.

If you have evacuated pets, continue to provide for their safety by keeping them cool and hydrated. Try to get your pets to an indoor location rather than leaving them in the car. Do not leave your pets in your vehicle without providing shade and water. It is not necessary to give your pets water while you are driving, but be sure to offer water as soon as you reach your destination.

III. AFTER THE FIRE

A. RETURNING HOME

Follow the advice and recommendations of emergency management agencies, fire departments, utility companies, and local aid organizations regarding activities following the wildfire.

Do not attempt to return to your home until fire personnel have deemed it safe to do so.

Even if the fire did not damage your house, utility infrastructure may have been damaged and repairs may be necessary. Check for hazards such as gas or water leaks and electrical shorts. Turn off damaged utilities if you did not do so previously. Have the fire department or utility companies turn the utilities back on once the area is secured.

B. INSURANCE CLAIMS

Your insurance agent is your best source of information as to the actions you must take in order to submit a claim. Here are some things to keep in mind. Your insurance claim process will be much easier if you photographed your home and valuable possessions before the fire and kept the photographs in a safe place away from your home.

Most if not all of the expenses incurred during the time you are forced to live outside your home could be reimbursable. These could include mileage driven, lodging, and meals. Keep all records and receipts.

Don't start any repairs or rebuilding without the approval of your claims adjuster. Beware of predatory contractors looking to take advantage of anxious homeowners wanting to rebuild as quickly as possible. Consider all contracts very carefully, take your time to decide, and contact your insurance agent with any questions.

C. POST-FIRE REHABILITATION

Homes that may have been saved in the fire may still be at risk from flooding and debris flows. Burned Area Emergency Rehabilitation, or BAER, teams are interdisciplinary teams of professionals who work to mitigate the effects of post-fire flooding and erosion. These teams often work with limited budgets and manpower.

Homeowners can assist the process by implementing treatments on their own properties as well as volunteering on burned public lands to help reduce the threat to valuable resources. Volunteers can assist BAER team members by planting seeds or trees, hand mulching, or helping to construct straw-bale check dams in small drainages.

Volunteers can also help protect roads and culverts by conducting storm patrols during storm events. These efforts dramatically reduce the costs of such work as installing trash racks, removing culverts, and rerouting roads.

APPENDIX E —FUELS REDUCTION TREATMENT METHODS

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The following sections outline treatment methods that might be employed for fuels reduction. Table 1 lists some pros and cons of each type of treatment, as well as information on what types of treatments are most effective in which vegetation.

I. PRESCRIBED FIRE

According to the USFS Fire and Aviation Management, prescribed fire is defined as "a fire ignited under known conditions of fuel, weather, and topography to achieve specific objectives" (FAM 2006).

Prescribed fire is often used for fuels treatments because of its ability to mimic natural disturbance patterns. The following list includes various types of prescribed fires that may be used to reduce hazardous fuels.

- **Broadcast Burn** - A prescribed fire that is allowed to burn over a designated area within well-defined boundaries to achieve some land management objective.
- **Fire Use** - A wildfire that is allowed to burn over an area within well-defined boundaries to achieve some land management objective.
- **Hand Pile Burn** - To deliberately burn hand piles under specified environmental conditions, which allows the fire to be confined to the perimeter of the hand pile area and produces the intensity required to attain planned fuel reduction objectives.
- **Machine Pile Burn** - deliberately burn machine piles under specified environmental conditions, which allows the fire to be confined to the perimeter of the machine pile area and produces the intensity required to attain planned fuel reduction objectives. Machine pile and burn treatments are distinguished from Jackpot Burn by construction of a fireline to bare mineral soil around each machine pile.

II. WILDLAND FIRE

According to DEA 2002, the UFA and Federal Fire Policy identifies wildland fire as a potential tool for reducing fuel hazard and reaching properly functioning condition (USFS 2000). Wildland fire suppression is required in sensitive watersheds so it may not be an effective treatment in some of the areas.

III. MECHANICAL THINNING

Mechanical treatment employs the use of machinery or hand labor to physically break down vegetation to create fuelbreaks to reduce fuel loading and to prepare sites for reseeding. Mechanical treatment methods may include fuelwood harvest, hand thinning or cutting, anchor chaining, brush raking, bulldozing, roller chopping, and root plowing (BLM 2000). Mechanical treatments can be used when the risks of prescribed fire are too great specifically in close proximity to WUI areas.

The following list includes a description of various methods of mechanical treatments (California Fire Safe Council).

- **Chipping**– Use of a stationary machine for chipping small trees, limbs, tops, and brush. Chips are larger and courser than sawdust. Treated vegetation is usually moved to a central location for chipping, and can be scattered or blown back into the woods or into a truck for transport to an off-site location.
- **Crushing**– Use of a vehicular machine for crushing and flattening small trees and brush. Treated vegetation is usually left onsite.
- **Hand Pile**– Piles of slash (vegetative debris from hazardous fuel reduction projects) constructed by hand of such size and at such distance from trees so that burning shall not result in unnecessary damage to residual timber, and with construction of a fireline to bare mineral soil.
- **Lop and Scatter**–
    - Felling, cutting branches, tops, and unwanted boles into lengths and spreading debris more or less evenly over the ground.
    - Logging slash or fuel reduction debris cut and or scattered to reduce slash concentrations with slash being generally left within 18 or 30 inches of the ground. Slash is scattered into openings away from and without unnecessary damage to residual trees.
- **Mastication/Mowing**– Chopping, grinding, "bull-hogging" and/or mowing treatments, usually by mechanical means, to reduce fuel bed depth or crowning potential. The primary target is usually live fuels, such as brush and small trees, but can be used in light loadings of dead fuels. Vegetation is usually left in place.
- **Machine Pile**– Piles of slash (vegetative debris from hazardous fuel reduction projects), constructed using vehicular machines, of such size and at such distance from trees so that burning shall not result in unnecessary damage to residual timber, and with construction of a fireline to bare mineral soil.
- **Biomass Removal**– The removal, through harvest, sale, offer, trade or utilization, of trees and woody biomass, including limbs, tops, needles, leaves and other woody parts; removal may result in the production of the full range of wood products, including timber, engineered lumber, paper and pulp, furniture and value-added commodities, and bio-energy and/or bio-based products such as plastics, ethanol, and diesel.
- **Tree Felling & Removal**– The felling and removal of trees that are a hazard to human safety and property. Felling is usually done by hand tools, such as chainsaw, or using machinery such as feller-bunchers or cut-to-length systems.
- **Thinning-** Silvicultural treatment made to reduce forest or woodland density of trees primarily to improve growth, enhance forest health, recover potential

mortality or reduce hazardous fuels. Treatment can be by hand tools, such as chainsaw, machete, sandvik brush axes or brush hooks, or with machinery using feller-bunchers or cut-to-length systems.

IV. CHEMICAL TREATMENTS

Chemical treatments are those that use herbicides to treat undesired vegetation in a given area. Although it can be effective in certain areas (DEA 2002) the risk to water resources is also great.

V. BIOLOGICAL TREATMENTS

Biological treatments typically use animal grazing to eliminate undesired vegetation as a possible fuel source. The main source of biological control is through the use of goats to control Gambel Oak or grasses. Goats are drawn to the sprouting stage of Gambel oak and are known to nearly eliminate them with repeated browsing. (DEA 2002)

Ongoing research indicates that moderately grazed areas generally display a greater diversity and density of plant and animal life. Livestock grazing utilizing cattle, sheep and goats is used as a vegetation management tool to maintain and improve habitat conditions for resident plants and animals and to prevent wildfires (RPO 2007).

VI. GREENSTRIPPING

The idea behind greenstripping is to replace flammable plants with less flammable ones to reduce the fire hazard. Species used include those that would readily establish and persist, be difficult to ignite, burn with low intensity, and be fire tolerant. Greenstripping projects are completed by first removing all existing vegetation on the site, preparing a seedbed, and then seeding adapted plants. Existing vegetation can be removed mechanically with a tiller or dozer, by herbicide application, or by burning. The method of vegetation removal depends on the site and circumstances. To ensure that new plants become established quickly it is important to properly prepare the seedbed. Proper seedbed preparation techniques may vary depending on soil conditions and seeds. Seeding is best accomplished using a seed drill; however broadcast seeding can also be successful especially if the seeds are buried slightly. (DEA 2002)

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Table 1. Pros and Cons of Various Hazardous Fuels Treatment Types

	Prescribed Fire	Wildland Fire	Mechanical	Chemical	Biological	Greenstripping
	Pros	**Pros**	**Pros**	**Pros**	**Pros**	**Pros**
	Increased Wildlife Forage	Increased Wildlife Forage	Precise control	Marginal success for oak	Proven effective in oakbrush	Provides wildlife forage
	Mimics Natural Disturbance	Allowed in Wilderness Areas	Increased Wildlife Forage		Selectively target oakbrush	
	Treats Large Areas	Treats Large Areas	Effective for large-scale clearing		Low risk in WUI	
	Nutrient Release	Nutrient Release	Effective in sagebrush			
	Effective Sage Reduction	Effective Sage Reduction				
	Economical	Economical				
	Invigorates aspen stands	Invigorates aspen stands				
	Cons	**Cons**	**Cons**	**Cons**	**Cons**	**Cons**
	Rapid resprout in some species	Use constrained in WUI	Rocky, steep, wet conditions limit equipment use	Water quality impacts	Not applicable to all vegetation types	Often uses non-native species
	Potential soil erosion	Treatment results less precise	Aesthetic impacts can be severe in some cases		May require mechanical treatment	Requires maintenance
	Air quality hazard	Risk of escapement	Potential soil damage		Goat product market would need to be developed	Must combine with vegetation removal
	Risk of escapement	Soil erosion	Rapid resprout in some sp		More applicable in small areas	Drought conditions limit success
	Increase for cheatgrass invasion	Rapid resprout in some sp	Can be non-species selective		Revisions to ordinances likely necessary	
	Difficult to time correctly	Increase for cheatgrass invasion	Second treatment is likely necessary			
			Market must exist for fuelwood cutting			
	Prescribed Fire	**Wildland Fire**	**Mechanical**	**Chemical**	**Biological**	**Greenstripping**
Gamble Oak	recommended	n/a	Effective <30% slope, good next to private property	not recommended	Major use of goats	n/a
Grasslands	recommended	n/a	Successful	not recommended	At the discretion of land managers	n/a
Sagebrush	most effective	n/a	Varied success	not recommended	At the discretion of land managers	n/a
Aspen	recommended	n/a	Effective	not recommended	n/a	n/a

Table Information from DEA, 2002

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APPENDIX F—PROJECT FUNDING RESOURCES

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The following section provides information on Federal, State and private funding opportunities that may be utilized to obtain funding.

I. FEDERAL FUNDING INFORMATION

Source: **Pre-Disaster Mitigation Grant Program**

Agency: **Department of Homeland Security Federal Emergency Management Agency (DHS FEMA)**

Website: **http://www.fema.gov/government/grant/pdm/index.shtm**

Description: The Department of Homeland Security includes the Federal Emergency Management Agency (FEMA) and the U.S. Fire Administration. FEMA's Federal Mitigation & Insurance Administration is responsible for promoting pre-disaster activities that can reduce the likelihood or magnitude of loss to life and property from multiple hazards, including wildfire. The Disaster Mitigation Act of 2000 created a requirement for states and communities to develop pre-disaster mitigation plans, and established funding to support the development of the plans and to implement actions identified in the plans. This competitive grant program, known as PDM, has funds available to state entities, tribes and local governments to help develop multi-hazard mitigation plans and to implement projects identified in those plans. The grant would be supported by FFSL and State Dept of Emergency Services Ryan Pietremali is the contact at 801-538-9718. FEMA grants if pursued would be Community Driven (i.e., put together, researched, etc) and FRS would rubber stamp it and possibly administer the funds.

Source: **Section 319 Grant**

Agency: **Environmental Protection Agency**

Website: **http://www.epa.gov/owow/nps/cwact.html**

Description: Funding is often used for reduction of nonpoint source pollution, however one community successfully used the grant to obtain funding to reduce hazardous fuels to protect the municipal watershed. For additional information on this success story visit, www.santefewatershed.com. To see about obtaining this type of funding for your community, contact Mike Reichert with the Division of Water Quality at 801-538-6954.

Source: **Funding for Fire Departments and First Responders**

Agency: **Department of Homeland Security US Fire Administration**

Website: **http://www.usfa.dhs.gov/fireservice/grants/**

Description: Includes grants and general information on financial assistance for fire departments and first responders. Programs include the Assistance to Firefighters Grant Program (AFGP), Reimbursement for Firefighting on Federal Property, State Fire Training Systems Grants, and National Fire Academy Training Assistance.

Specific information for the **Assistance to Firefighters Grant (AFG)** can be found at**: http://www.firegrantsupport.com/afg/.** The primary goal of the Assistance to Firefighters Grants (AFG) is to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical services organizations.

Source: **Rural Fire Assistance**

Agency: **Bureau of Land Management (BLM)**

Website: **http://www.nifc.gov/rfa**

Description: The RFA program provides funds for RFDs that: Protect rural, wildland-urban interface communities; Play a substantial cooperative role in the protection of federal lands; Are cooperators with the Department of the Interior (DOI) managed lands through cooperative agreements with the DOI, or their respective state, tribe, or equivalent; Are less than 10,000 in population. The RFA program was established to improve safety and enhance wildland firefighting resource capability and readiness of rural and volunteer fire departments; to decrease wildland fire-related losses to rural economies through enhanced local fire protection; and to help reduce Federal, State, Tribal and local government expenditures on wildland fire suppression, particularly in the wildland-urban interface. All applicants must be rural fire departments serving a community with a population of 10,000 or less in the wildland/urban interface. Department of the Interior funding will be used to provide technical assistance, training, supplies, equipment, and public education support to rural fire departments, thus enhancing firefighter safety and strengthening wildland fire protection capabilities.

Source: **Conservation Innovation Grants (CIG)**

Agency: **National Resource Conservation Service**

Website: **http://www.wa.nrcs.usda.gov/programs/cig/index.html**

Description: Conservation Innovation Grants (CIG) State Component. CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program (EQIP) funds are used to award competitive grants to non-Federal governmental or non-governmental organizations, Tribes, or individuals. CIG enables NRCS to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with Federal, State, and local regulations. NRCS administers the CIG program. The CIG requires a 50-50 match between the agency and the applicant. The CIG has two funding components - national and state. Funding sources are available for Water Resources, Soil Resources, Atmospheric Resources, and Grazing Land and Forest Health.

Source: **Americorps**

Agency: **N/A**

Website: **www.americorps.gov/egrants**

Description: Could possibly be used for education fundings. The synopsis for this grant opportunity is detailed below, following this paragraph. This synopsis contains all of the updates to this document that have been posted as of 08/11/2006. If updates have been made to the opportunity synopsis, update information is provided below the synopsis.

Source: **Volunteer Fire Assistance**

Agency: **USDA Forest Service**

Website: **http://www.fs.fed.us/fire/partners/vfa/**

Description: USDA Forest Service funding will provide assistance, through the states, to volunteer fire departments to improve communication capabilities, increase wildland fire management training, and purchase protective fire clothing and firefighting equipment. For more information contact your state representative, which can be found on the National Association of State Foresters website

Source: **Economic Action Programs**

Agency: **USDA Forest Service**

Website: **http://www.fs.fed.us/spf/coop/programs/eap/index.shtml**

Description: USDA Forest Service funding will provide for Economic Action Programs that work with local communities to identify, develop, and expand economic opportunities related to traditionally underutilized wood products and to expand the utilization of wood removed through hazardous fuel reduction treatments. Information, demonstrations, application development, and training will be made available to participating communities. For more information contact a Forest Service Regional Representative.

Source: **Catalog of Federal Funding Sources for Watershed Protection**

Agency: **N/A**

Website: **http://cfpub.epa.gov/fedfund/**

The following grants are examples of the types of grants found at this site:

- Native Plant Conservation Initiative www.nfwf.org/programs/npci.cfm
- Targeted Watershed Grants Program www.epa.gov/owow/watershed/initiative/
- Pre-Disaster Mitigation Program www.fema.gov/fima/pdm.shtm

- Environmental Education Grants www.epa.gov/enviroed/grants_contacts.html

Source: **Firewise**

Agency: **Multiple**

Website: **http://www.firewise.org**

Description: Wildland/Urban Interface Working Team (WUIWT) of the National Wildfire Coordinating Group, a consortium of wildland fire organizations and federal agencies responsible for wildland fire management in the United States. The WUIWT includes: USDA Forest Service, USDI Bureau of Indian Affairs, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDI National Park Service, Federal Emergency Management Agency, US Fire Administration, International Association of Fire Chiefs, National Association of State Fire Marshals, National Association of State Foresters, National Emergency Management Association, National Fire Protection Association. There are many different Firewise activities that can help homes and whole neighborhoods become safer from wildfire without significant expense. Community clean-up days, awareness events, and other cooperative activities can often be successfully accomplished through partnerships among neighbors, local businesses, and local fire departments, at little or no cost. The Firewise Communities/USA recognition program page (www.firewise.org/usa) provides a number of excellent examples of these kinds of projects and programs.

Depending on who you are, where you are, and what you want to do, the kind of help you need may vary. Among the different activities individuals and neighborhoods can undertake, the following actions are often ones that benefit from some kind of seed funding or additional assistance from an outside source:

- Thinning/pruning/tree removal/clearing on private property – particularly on very large, densely wooded properties
- Retrofit of home roofing or siding to noncombustible materials
- Managing private forest
- Community slash pickup or chipping
- Creation or improvement of access/egress roads
- Improvement of water supply for firefighting
- Public education activities throughout the community or region

Some additional examples of what communities, counties and states have done can be found in the National Database of State and Local Wildfire Hazard Mitigation Programs at www.wildfireprograms.usda.gov. You can search this database by keyword, state, jurisdiction or program type to find information about wildfire mitigation education programs, grant programs, ordinances, and more. The database includes links to local websites and email contacts.

Source: **The National Fire Plan**

Website: **www.fireplan.gov**

Description: Many states are using funds from the National Fire Plan to provide funds through a cost-share with residents to help them reduce the wildfire risk to their private property. Usually this is in the form of thinning or pruning trees, shrubs and other vegetation and/or clearing the slash and debris from this kind of work. Opportunities are available for rural, state, and volunteer fire assistance.

II. STATE FUNDING INFORMATION

Source: **State Fire Assistance (SFA) program**

Agency: **USDA Forest Service's State and Private Forestry budget**

Website: **HTTP://www.firegrantsupport.com/**

Description: Directs federal funds to State agencies for work on community assistance and fire mitigation. These competitive cost-share funds are leveraged by communities for CWPP creation and implementation. In the West, it is now a requirement under the SFA that proposed projects be tied to a CWPP in order to be competitive. Without reliable federal funding to support communities' CWPP planning and implementation, there is a very real risk that the most vulnerable, low capacity communities will also become the least protected from fire. The Council believes the demand for State Fire Assistance greatly outstrips current availability of SFA funding for CWPP development and implementation and that increases in SFA or other dedicated funding can be put to demonstrated good use. The SFA program provides State forestry agencies with assistance in delivering a coordinated wildfire response and in complying with national safety and training standards which allow State and local crews to be deployed on Federal fires and other emergency or disaster situations. The program also assists States with hazard assessments, fuels treatment projects, and public education efforts. Contact your State Forester's office for grant application forms and deadlines.

USDA Forest Service funding will provide for technical and financial assistance to the states to enhance firefighting capacity at the state and local levels. This funding also supports fire hazard mitigation projects in the wildland urban interface and will facilitate an expanded series of Firewise workshops to help communities across the country implement Firewise practices that reduce fire risk. It will also support an expanded national public service fire prevention program. For more information contact your state representative, which can be found on the National Association of State Foresters website.

The **2007 Western WUI Grant Program** is a specific grant available under the SFA program. It includes opportunities for hazard fuels reduction, education, and community and homeowner actions. An application and instructions can be found at: http://www.firesafecouncil.org/news/attachments/2007_CDF_application-proccess_final168.pdf

Source: **Utah's Watershed Restoration Initiative**

Agency: **Utah Division of Wildlife Services**

Website: **http://wildlife.utah.gov/watersheds/**

Description: Utah Partners for Conservation and Development, (UPCD) have launched an aggressive campaign across the state called the Watershed Restoration Initiative. Their work is focused on the sagebrush and pinyon-juniper areas that are especially at risk. In 2005, the first year of the conservation initiative, the UPCD partners committed more than $8 million to restore more than 120,000 acres of public and private land in 22 counties. The Utah Legislature kicked things off with a $2 million contribution in support of the state's ongoing watershed conservation program. The Bureau of Land Management has taken the lead on public lands by allocating more than $3.5 million to range restoration, mostly through their fuel load reduction program. The Natural Resources Conservation Service has taken the lead on private lands by making $1.5 million in matching funds available to landowners through various Farm Bill programs.

Once a CWPP has been created, funding needs intensify. Hazardous fuel work is very expensive, easily on the scale of $1000/acre, and sometimes topping $2000/acre when mechanical means are utilized. Funding shortages can push land managers to use prescribed burning and/or look toward more remote areas as cheaper alternatives that enable them to report higher acreage accomplishments. Many states report a chronic shortage of crews and equipment to implement projects that are ready. Other states suggest that the scale of the problem is so large that multi-agency, inter-disciplinary teams should be assembled to craft landscape scale projects across ownership boundaries. The simple story is that if we want more fuels reduction work in high-priority areas, additional investments will be necessary.

Source: **Secure Rural Schools Act funding**

Agency: **State**

Website: **http://www.fireplan.gov/reports/361-369-en.pdf**

Description: Counties would have previously elected to receive funding under the Secure Rural Schools Act, particularly Titles II and III. These Titles offer a funding stream for both collaborative processes and hazardous fuels reduction work on federal and private lands. Reauthorization and funding of the Act with continued flexibility for counties to undertake resource stewardship projects is a significant complement to HFRA authorities. For additional information on whether or not your county has made this election, contact your local county commissioners or county budget/finance departments.

III. PRIVATE FUNDING INFORMATION

Source: **The Urban Land Institute**

Website: **www.uli.org**

Description: ULI is a 501(c) (3) nonprofit research and education organization supported by its members. The institute has more than 22,000 members worldwide representing the entire spectrum of land use and real estate development disciplines, working in private enterprise and public service. The mission of the Urban Land Institute is to provide responsible leadership in the use of land to enhance the total environment. ULI and the ULI Foundation have instituted Community Action Grants http://planet.uli.org/DK/DisCoun/pl_DisCoun_CAG_fst.html that could be used for Firewise activities. The deadline for the next round of applications is March 31, 2005. Applicants must be ULI members or part of a ULI District Council. Contact actiongrants@uli.org or review the web page to find your District Council and the application information.

Source: **Environmental Systems Research Institute (ESRI)**

Website: **www.esri.com/grants**

Description: ESRI is a privately held firm and the world's largest research and development organization dedicated to GIS (Geographic Information Systems). ESRI provides free software, hardware, and training bundles under ESRI-Sponsored Grants that include such activities as conservation, education and sustainable development, and posts related non-ESRI grant opportunities under such categories as agriculture, education, environment, fire, public safety and more. You can register on the website to receive updates on grant opportunities.

Source: **StEPP Foundation**

Website: **http://www.steppfoundation.org/default.htm**

Description: StEPP is a 501(c)(3) organization dedicated to helping organizations realize their vision of a clean and safe environment by nationally matching projects with funders. The StEPP Foundation provides project oversight to enhance the success of projects increasing the number of energy efficiency, clean energy and pollution prevention projects implemented at the local, state and national levels for the benefit of the public. The website includes an online project submittal system and a Request for Proposals page.

Source: **The Public Entity Risk Institute (PERI)**

Website: **www.riskinstitute.org**

Description: PERI is a not for profit, tax exempt organization. Its mission is to serve public, private, and nonprofit organizations as a dynamic, forward thinking resource for the practical enhancement of risk management. With its growing array of programs and projects, along with its grant funding, PERI's focus includes supporting the development and delivery of education and training on all aspects of risk management for public, nonprofit and small business entities and serving as a resource center and clearinghouse for all areas of risk management.

IV. OTHER FUNDING INFORMATION

The following list of websites includes resources that may also provide helpful information for funding opportunities.

Forest Service Fire Management Website - http://www.fs.fed.us/r3/sfe/fire/index.html

Insurance Services Office (town fire ratings) - http://www.isomitigation.com/

National Fire Protection Association - http://www.nfpa.org

National Interagency Fire Center, Wildland Fire Prevention/Education

http://www.nifc.gov/preved/rams.html

U.S. Department of Agriculture "How to Get Information" (contacts) http://www.usda.gov/news/howto/nre.htm

Utah BLM Fire Management Website

http://www.ut.blm.gov/fire/Assessment/assessment.html

Utah Twenty-First Century Communities Program

http://utahreach.usu.edu/comm21/index.htm

Internship Possibilities:

Agencies and local communities might consider volunteers for internships to assist with public and community education. Often students are interested in volunteer opportunities to help meet their graduation requirements. Agencies and local communities may consider utilizing this resource. Advertisements for internships may include information such as Organization background, internship details, expectations, and how to apply.

Another helpful resource for community education can be found on the Utah Society for Environmental Education (USEE) website found at: http://www.usee.org/database.html. There are a number of brochures and fire education resources that could be used by agencies and communities either directly or through the internship process.

How to find/apply for/write a grant

Grants.gov at www.grants.gov allows organizations to electronically find and apply for competitive grant opportunities from all Federal grant-making agencies. Grants.gov is

THE single access point for over 900 grant programs offered by the 26 Federal grant-making agencies.

"Writing Grants to Get Things Done" was presented at the National Wildland/Urban Interface Fire Education Conference in November 2004, by André LeDuc, Director of the Oregon Natural Hazards Workgroup. As a University of Oregon professor and researcher, Mr. LeDuc over $1 million in planning and technical assistance grants in the past three years. His presentation covers twelve steps to successfully developing and implementing grant proposals.

Your organization may be interested in becoming a tax-exempt nonprofit organization to qualify for federal grants. If so, visit the U.S. Internal Revenue Site for the details: http://www.irs.gov/publications/p557/ch03.html.

Additionally, for information on how to write effective grant proposals, see the "2005 Project Funding Recommendations and Proposal Evaluation Comments" which can be found at: http://www.fs.fed.us/r3/spf/cfrp/2005program/tac-report/complete.rtf