PANGUITCH CREEK WATERSHED

Taken from the Paiute name for "big fish," Panguitch is at the heart of the Upper Sevier River Watershed. The Panguitch Valley was once the historic wintering area for the southern Paiute Tribe. Farms and ranches still dominate the valley bottom, while visitors from all over the world come to explore the beautiful red rock formations found in nearby Casto and Red Canyon. Designated trails provide opportunities to hike, mountain bike, horseback or four-wheel on public lands.

Panguitch, Utah continues to be the gateway to several national parks and monuments, including Bryce Canyon National Park, Cedar Breaks National Monument, Zion National Park, Capitol Reef National Park and Grand Staircase-Escalante, as well as several state parks (such as Kodachrome Basin).

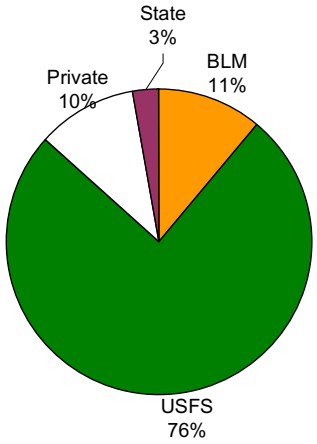

Fig. 4-12. Although the Panguitch Creek Watershed does not contain any National Park Service Lands, it is the gateway to several area national parks and monuments.

Land Ownership

U. S. Forest Service lands dominate the Panguitch Creek Watershed (63,408 acres) with private lands representing 8,809 acres (Table 4-7, Fig. 12), Bureau of Land Management administered lands (9,390 acres) and State lands (2,324 acres) are found bordering the Sevier River (Fig. 4-13). The area in and around Panguitch was first settled by Mormon pioneers in the late 1800's, and many generations of land ownership and use have continued, much as they did over 100 years ago.

Panguitch Creek Subwatersheds	Acres
Blue Spring Creek	12729
Butler Creek	13826
Fivemile Hollow-Panquitch Creek	16088
Haycock Creek	12900
Ipson Creek	16261
South Canyon-Panguitch Creek	12127
Total	83930

Table 4-7. The six subwatersheds in the Panguitch Creek Watershed consist of a variety of land ownership.

Vegetation Types

Extensive aspen forests (9,369 acres) are found throughout the watershed, which help to reduce erosion, provide scenic values and serve as important forage and cover for wildlife (Table 4-8, Fig. 4-14). From September to October, the watershed boasts beautiful fall colors, especially along Highway 143, through Cedar Breaks National Monument to Panguitch Lake. Like Mammoth and Asay Creek Watersheds, 90 percent of the Englemann spruce component has been affected by a recent spruce beetle invasion. The distribution, amount, and condition of sagebrush habitat has changed substantially since pioneers first settled the Upper Sevier River Basin. Much of this change has been a result of efforts to convert sagebrush habitat to croplands, the intensive use of some sagebrush-dominated lands by domestic livestock, and invasion of exotic weeds

such as cheat grass. These changes have affected a number of wildlife species, including sage grouse - a Utah Species of Special Concern.

At over 6,000 feet in elevation, the Panguitch Valley, although providing fertile lands, has a short growing season. The Utah State University Agricultural Experiment Station is one of only two research facilities designed to study crop and vegetation issues in areas with a short growing season and/or at high elevations. Students from Utah State University conduct research to improve economical and cultural enterprises in the intermountain west, and especially within the Panguitch Creek Watershed.

Vegetation Type	Acres	%
Agriculture	669	1%
Aspen	9369	11%
Grass/Forb	4660	6%
Mixed Conifer	3040	4%
Mountain Shrub	3873	5%
Pinyon/Juniper	17129	20%
Ponderosa Pine	8416	10%
Sagebrush/Grass	23930	29%
Spruce/Fir	9224	11%
Urban	455	1%
Other	3163	4%
Total	83930	100%

Table 4-8. Extensive sagebrush/grasslands are valued as priority habitat for deer, elk, sage grouse and numerous other birds and small mammals.

Elevation, Roads and Streams

Much of the Sevier River near Panguitch, Utah is diverted and used for irrigation. Diversions pose unique problems for wildlife and land managers - streams spread out, making riparian corridors wider, sustainable fisheries are interrupted, and wildlife that depend on precious water resources must look elsewhere. However, recent riparian improvement projects along Panguitch Creek, with the cooperation of various landowners, have improved conditions within the watershed, and set examples for other landowners and resource agencies to follow.

Water from the East Fork Sevier River and Panguitch Creek continues to be utilized for agriculture, livestock, and recreation, as well as for drinking, creating a need for various stakeholders to work together to improve watershed conditions and maintain multiple use of this precious commodity.

Highway 143 is the primary route through the watershed; however, many well-traveled gravel roads occur, especially around Panguitch Lake (Fig. 4-15) .

During summer and winter months, Panguitch Lake is a popular recreation area for fishermen, boasting large rainbow trout.

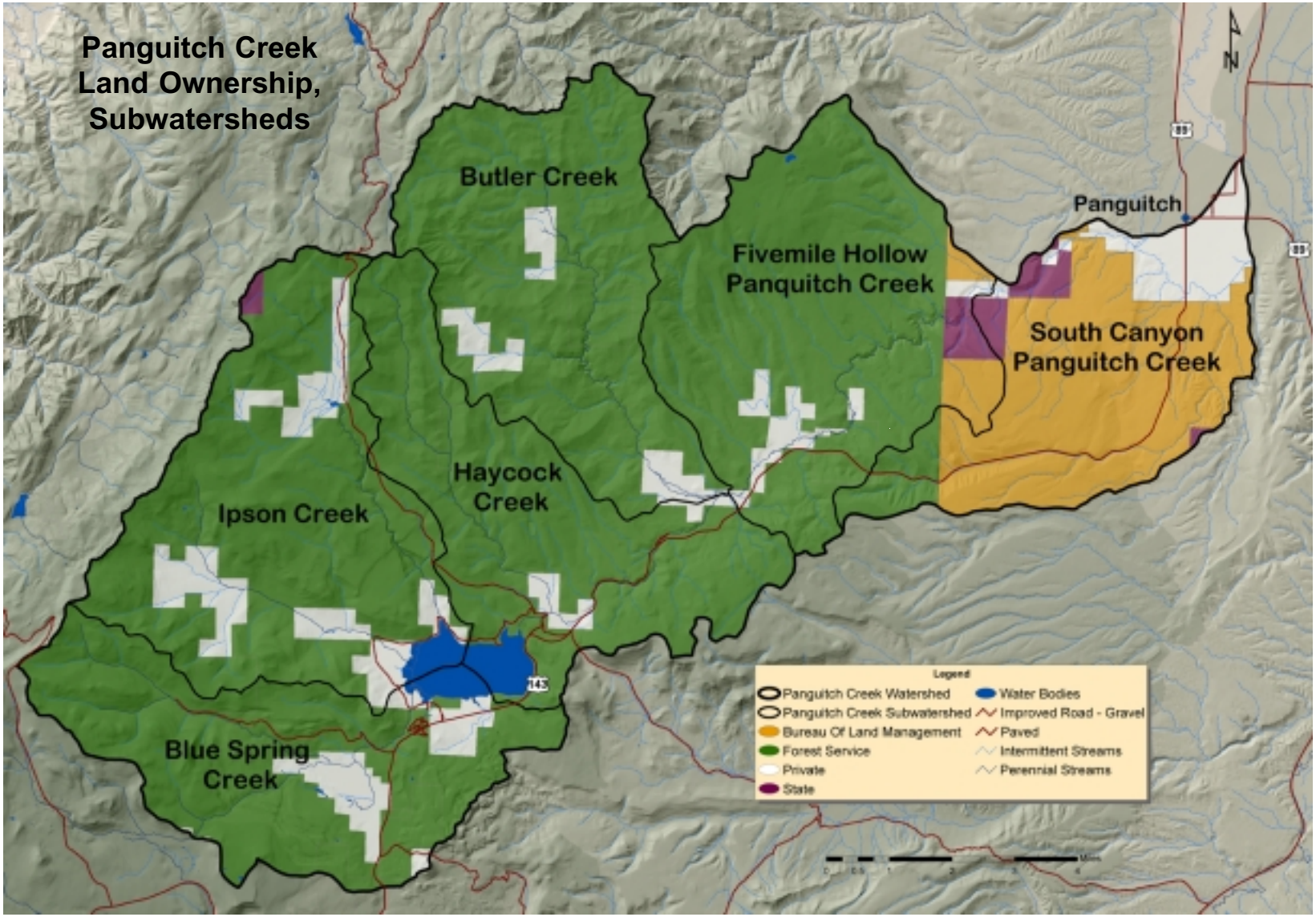

Fig. 4-13. Private lands along the Sevier River are valued as rangeland, and are used for agriculture and to build recreational homes.

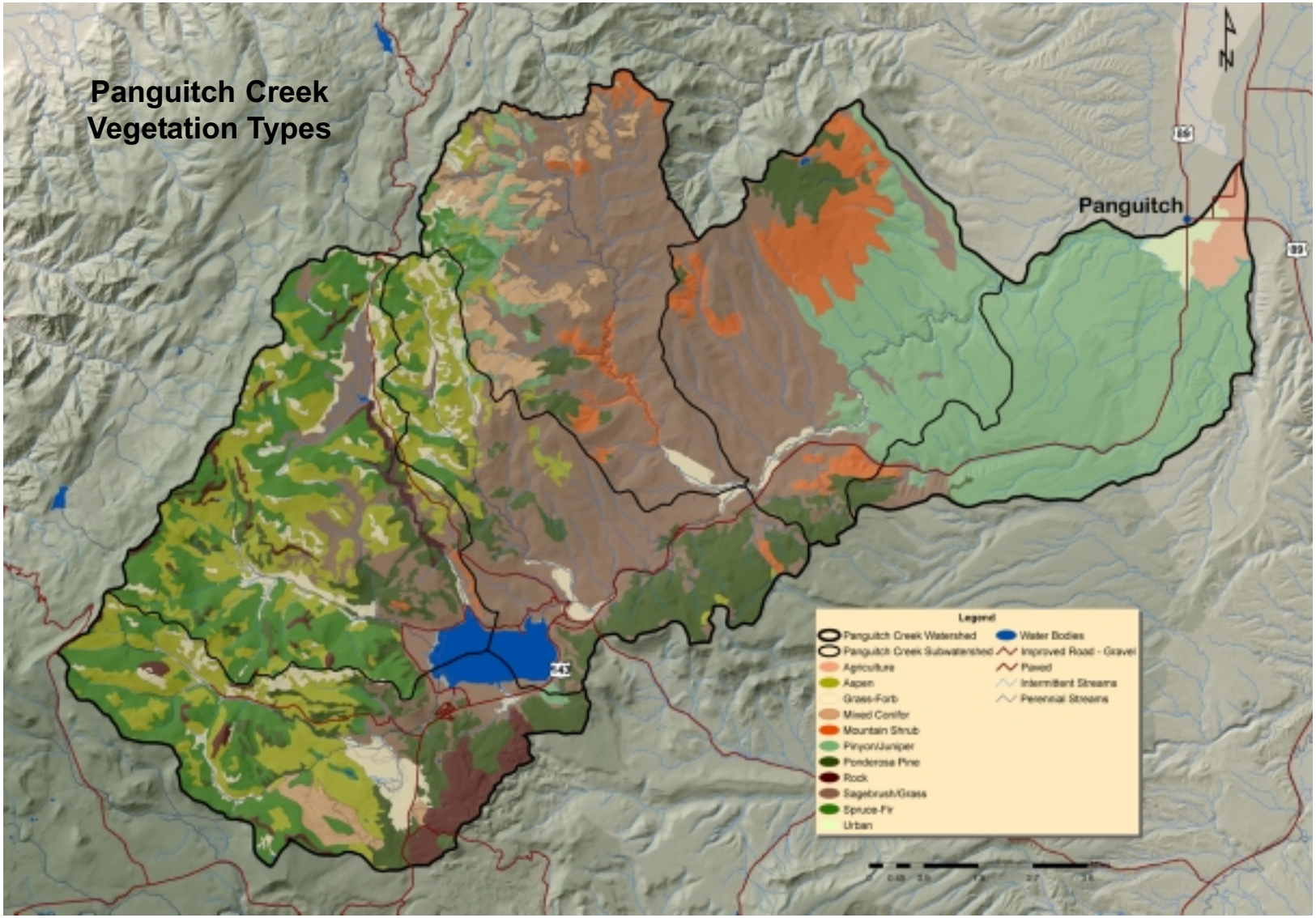

Fig. 4-14. Pinyon-juniper continues to increase throughout the Panguitch Creek Watershed. Although currently only 20% of the watershed is pinyon/juniper, historically, this vegetation component was much lower.

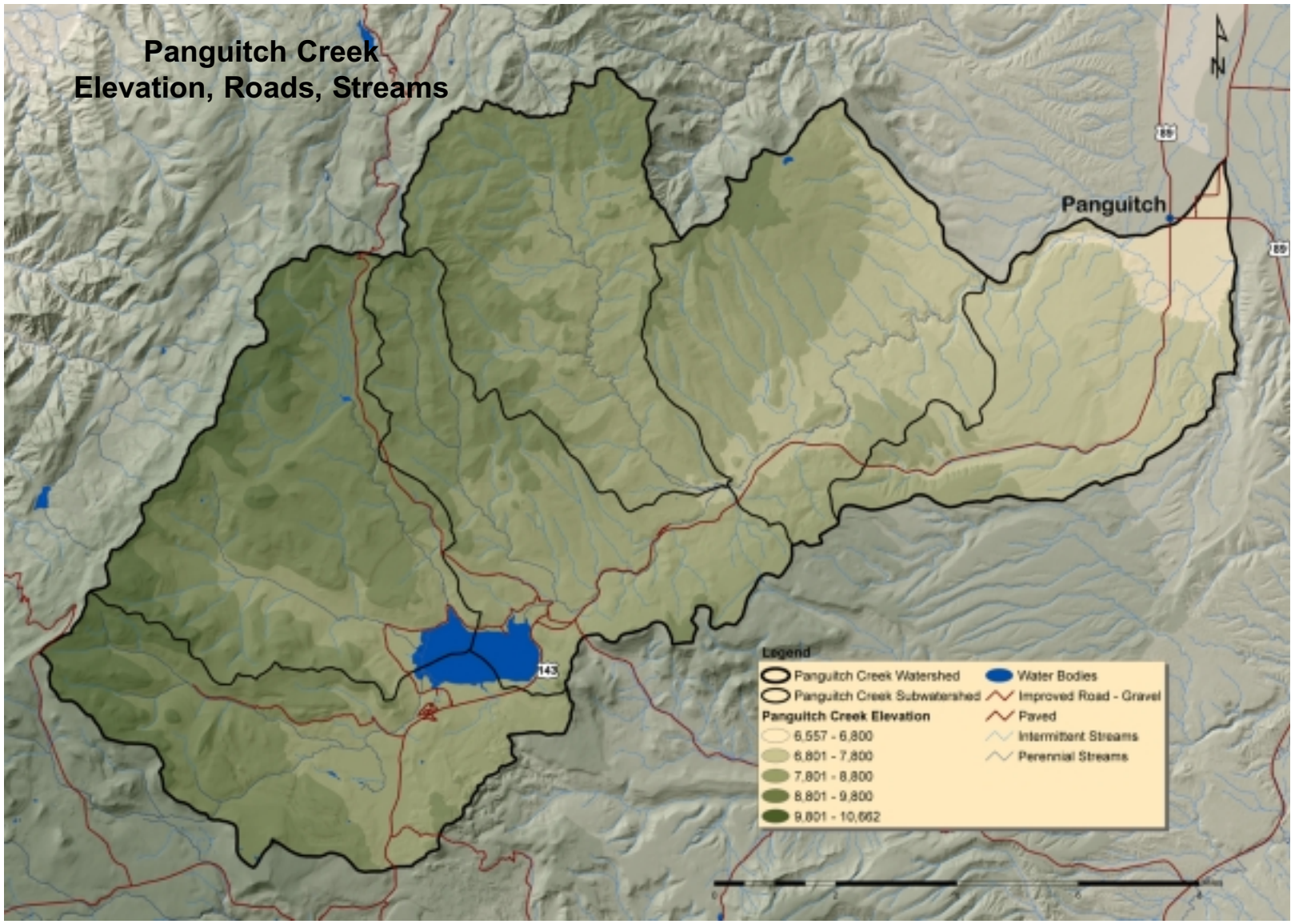

Fig. 4-15. Highway 143, running north-south between Panguitch, Utah and Duck Creek,Utah, is used extensively by tourists during summer months. The road provides access to area national parks and a variety of wildlife and vegetation types are visible along the road corridor.

Key Issues

Key issues identified for the Panguitch Creek Watershed are: 1) Accelerated Erosion; 2) Communities at Risk to Wildfire; 3) Development and Effects to Groundwater; 4) Development and Impacts to Adjacent Lands; 5) Enhancement or Protection of Deer/Elk Habitat; 6) Enhancement or Protection of Riparian Habitat & Riparian Vegetation Composition; 7) Enhancement or Protection of Sage Grouse Habitat; 8) Noxious Weeds - Vegetation and Agriculture); 9) PJ, Sagebrush-Grasslands - Fuel Conditions & Vegetation Composition; 10) Ponderosa Pine - Fuel Conditions, and 11) Wildlife Management in Agricultural Areas.(Figure 4-16). (Other issues and ratings within the Panguitch Creek Watershed are listed in Table 4-9).

1. Accelerated Erosion

Current Conditions, Patterns and Trends

The Panguitch Creek Watershed drains a portion of the Markagunt Plateau and the Western escarpment of the Paunsaugunt Plateau. Although the majority of the watershed contains gentle slopes,the areas within the Paunsaugunt Plateau contain steep, highly erodible slopes and cliffs, resulting in accelerated erosion, especially in areas of high road density and urban development. Many roads in the area are eroding due to poor location, design and maintenance, resulting in excessive soil loss and sedimentation into stream channels. In other areas where no crossings exist vehicles traverse streams causing further erosion and sedimentation. Poor drainage on some roads creates muddy conditions that vehicles avoid by driving on adjacent undisturbed areas, causing soil compaction and/or erosion, as well as wider and wider travel ways. In upland areas, accelerated erosion within historic tall forb communities and changes in vegetation composition in pinyon/juniper and spruce-fir ecotypes has exacerbated sheet and rill erosion. Recreation use is extremely heavy around Panguitch Creek and Panguitch Lake Reservoir.

Reference Conditions, Patterns and Trends

Diverse riparian vegetation historically helped maintain bank stability and natural erosion rates occurred within the watershed. Quality fisheries and

Riparain areas within the watershed are heavily impacted by human uses. In addition, upland erosion accounts for an increase in sediment transport within the watershed.

wildlife habitats existed throughout the watershed, with little or no human disturbance. Riparian areas, used extensively by a variety of wildlife, and three-quarters of all Utah's birds for nesting, rearing young, migrating, and protection, were undisturbed from roads and human uses. Productive meadowed areas and wildlife migration corridors were maintained by periodic fire and natural disturbance events, such as insects and disease, with little or no sheet or rill erosion due to vegetation holding soil in place.

Natural/Human Causes of Change Between Current/Reference Conditions

Roads not closed after timber harvest, increased urban and agricultural development, encroachment of non-native plants and changes in vegetation composition, have all played a role in accelerated erosion within the watershed.

2. Communities at Risk to Wildfire

Current Conditions, Patterns and Trends

Fire regimes of frequent, small intensity fires have been altered from historic conditions, and the risk of losing key ecosystem components as well as community structures remains high, especially in developed areas along Highway 14, and areas in and around Panguitch Lake. Mixed conifer areas have overgrown, with high fuel loads, ladder fuels and closed canopies. Approximately 90 percent of spruce trees are dead or dying as a result of a recent spruce beetle epidemic, greatly increasing the risk for wildland fires. Pinyon-juniper/mountain brush areas are outside of historic conditions and dominate many of the lower areas within the watershed, contributing to increased erosion and greater wildfire potential. Many property owners in the area remain unaware of the risk of wildland fire, and place importance on dense forest landscapes bordering their private lands.

Reference Conditions, Patterns and Trends

Frequent small intensity fires in ponderosa pine and mixed conifer ecotypes helped reduced fuel accumulations while maintaining structural diversity and minimizing tree densities. In the absence of ground litter, with more open canopy, grasses and forbs were also maintained, serving as important soil stabilizers and reducing the likelihood of crown fires. Although spruce beetle populations are always around at endemic levels, increasing tree densities, drought conditions, and old age classes of trees have left areas more sus-

Year-round and recreation/ summer homes occur within the Panguitch Creek Watershed. Although many are clear of fuels, still others are at risk to wildfire due to dense vegetation in close proximity to structures.

ceptible to insect and disease, and the current outbreak is at epidemic levels.

Natural/ Human Causes of Change Between Current/Reference Conditions

An increase in urban development in this area, as well as past fire exclusion efforts have increased high intensity wildfire potential in and around developed areas.

3. Development and Effects to Ground/Surface Water

Current Conditions, Patterns and Trends

There are approximately 750 developed lots in the Panguitch Lake area currently using septic tanks. As development continues to increase, impacts to groundwater may be a potential problem. Currently, the Southwest District Health Deparment is sponsoring a water quality study to determine potential impacts of septic systems to groundwater.

Dispersed recreation, in areas where few or no sanitary facilities exists as well as inadequate disposal facilities in established camping areas may also potentially impact groundwater. Increased dispersed recreation may also contribute to upland erosion and impact area waters, as more and more people camp and recreate near water.

Reference Conditions, Patterns and Trends

Historically, the watershed was primarily used on an intermittent/seasonal basis, with few year-round residents. Travel was limited to major roads, with little or no off-road impacts. Timber roads were often left open, because they received little if any post-harvest use, and could act as migration corridors for wildlife. Impacts from septic systems, because so few existed, were not of concern in this area.

Panguitch Lake and area streams have recently come under scrutiny because of water quality problems. High nutrient levels within the lake have prompted officials to take measures to improve water quality.

Natural/ Human Causes of Change Between Current/ Reference Conditions

The number of homes continues to increase , with many residents now residing in the area year-round, greatly increasing the amount of waste disposal and water use. In addition, past users consisted of those seeking solitude, which had very little impact on surrounding areas. Today, areas in and around Panguitch Lake are sought after by motorized recreation enthusiasts, increasing the number of user-created roads and re-opening previously closed roads.

4. Development and Impacts to Adjacent Lands

Current Conditions, Patterns and Trends

Summer and year-round residents within the Panguitch Creek Watershed continue to increase. In addition, an overall increase in those seeking outdoor recreation, and the proximity of the watershed to established towns and national recreation areas, has magnified use adjacent to Highway 143 and around developed recreation home areas. ATV use has also risen, with more off-road vehicles causing damage to meadows, streams and other habitats. Road densities currently exceed U.S. Forest Plan guidelines for the Dixie National Forest, and vandalism of posted road signs in closed areas is a recurring and expensive problem. In addition, increased use of the watershed may pose potential water quality problems as well as increase habitat fragmentation for wildlife species within the area.

Panguitch Lake attracts recreationists from all over. Impacts to water and upland areas increases as more and more people traverse the watershed.

Reference Conditions, Patterns and Trends

Historically, most use of the watershed was intermittent/ seasonal, with few year-round residents. Travel was limited to major roads, with little or no off-road impacts. Timber roads were often left open, because they received little if any post-harvest use, and could act as migration corridors for wildlife. Past use of the watershed consisted of those seeking solitude and having very little impact on surrounding areas.

Natural/ Human Causes of Change Between Current/Reference Conditions

The number of homes continues to increase with many residents now residing in the area year-round, greatly impacting surrounding areas. Overall recreational use of forested areas has risen considerably over the past 20 years.

5. Enhancement or Protection of Deer/Elk Habitat

Current Conditions, Patterns and Trends

Both deer and elk summer and winter ranges are found within the Panguitch Creek Watershed. Deer are the most abundant big game species on and adjacent to forested lands and can be found in about every habitat type within the watershed. Elk are found in isolated populations throughout the entire Upper Sevier River Basin, with a limited-entry trophy bull hunt occurring in the Panguitch Creek Watershed. Both big game animal species currently serve as management indicator species (MIS) for the Dixie and Fishlake National Forests, partly because the distribution of forage, cover, and other habitat factors required to maintain healthy populations also ensure provision of habitat requirements for many other wildlife species (including sage grouse, goshawk, flammulated owl, three-

toed woodpecker, Utah prairie dog and peregrine falcon). Deer and elk are also high-visibility species, both from a recreational hunting standpoint, and as a potential competitor to domestic livestock in rangeland and agricultural areas. Mule deer and elk habitat consisting of sagebrush/grassland types and mixed-conifer, aspen and ponderosa are found throughout the watershed; however high road densities, habitat fragmentation and loss of aspen understory may decrease available habitat in both summer and winter range areas. Dry range conditions and loss of aspen to conifer encroachment is affecting summer range areas, while increased density of pinyon-juniper that lacks understory and a subsequent loss of sagebrush/grasslands is negatively affecting winter habitats. Year-round sage grouse habitat also occurs within deer and elk habitat in this watershed.

Reference Conditions, Patterns and Trends

Extensive sagebrush/grassland areas once occupied portions of the Panguitch Creek Watershed. Periodic fire disturbance maintained vegetation diversity in the mixed conifer, aspen and ponderosa pine forest types, creating mosaics within the landscape. Limited use of the watershed from recreational vehicles, with little or no winter use, left most wildlife migration corridors undisturbed. Natural processes (spruce beetle epidemics, wildfire, etc) helped support habitat for other wildlife species as well.

Natural/Human Causes of Change Between Current/Reference Conditions

Increased human uses of roads and developments create more disturbance to deer and elk in winter and summer, fragment habitats, interrupt migration corridors, and reduce habitat effectiveness. Grazing and the introduction of elk to the watershed during the mid-20th century may play a role in eliminating tall forb communities, riparian habitats and degrading meadows, all of which deer and elk depend on for food and shelter. Woodcutting has reduced snags and cover, while timber harvest has reduced large diameter ponderosa pine, necessary for deer and elk cover. Fire suppression efforts during the last 100 years have encouraged high stand densities, pinyon-juniper expansion and a decrease in sagebrush age diversity, degrading the quality of deer and elk habitat.

Sagebrush/grasslands, as well as aspen and ponderosa pine forests, provide a variety of habitat necessary for deer and elk.

6. Enhancement and Protection of Sage Grouse Habitat

Current Conditions, Patterns and Trends

Sage grouse are currently listed on the Utah Sensitive Species List as a Species of Special Concern because of declining populations and limited distribution. Both current and historic sage grouse leks occur within the Panguitch Creek Watershed; however, current populations are declining due to loss of sagebrush/grassland habitat to pinyon-juniper expansion as well as habitat fragmentation. Vegetation diversity in sagebrush/grassland areas is lacking, and many areas have been converted into dense stands of exotic cheat grass. Where the quantity and quality of habitat has declined, sage grouse populations are vulnerable to excessive natural predation and chick survival remains low.

In some areas, decadent sagebrush, with little understory vegetation, does not provide adequate habitat for sage grouse, In this photo, some of the sagebrush is almost as tall as this biologist.

Reference Conditions, Patterns and Trends

Historical records suggest that portions of all 29 counties in Utah provided adequate habitat for sage grouse (Mitchell, 2001). Expansive sagebrush/grassland areas, maintained by periodic fire, were present prior to Euro-American settlement. Large fragments of habitat have been lost to agriculture and urban development.

Natural/Human Causes of Change Between Current/Reference Conditions

Habitat loss, fragmentation and degradation are the main causes of population decline. Vegetation range, pattern, and structure have been further impacted through intensive grazing and fire suppression, allowing increased establishment of pinyon-juniper and decreased grass and forb production.

7. Enhancement and Protection of Riparian Habitat & Riparian Vegetation Composition

Current Conditions, Patterns and Trends

Woody plant species and late seral herbaceous species are lacking along many riparian corridors, particularly along the Sevier River and tributaries, Blue Springs and Panguitch Creek. Where woody plant species (willow and cottonwood) are present, recruitment of young plants is limited, and the majority of plants are in a mature stage. Bank erosion has resulted in higher width/depth ratios along many stream corridors and increased head cuts on the upstream ends. Recreation around riparian areas has increased in recent years, especially in the vicinity of summer and recreation homes. All-terrain vehicle use has also increased. Riparian areas are of critical importance to birds, fish, amphibians, aquatic invertebrates, and other wildlife species. They provide critical breeding habitat for many

In many parts of the watershed, riparian vegetation is lacking, causing an increase in water temperatures and a decrease in overall water quality.

southwestern neotropical birds as well as water, shade, food and shelter for other wildlife species. Riparian areas also provide migratory routes for many bird species, and sheltered pathways to other habitats for other wildlife species.

Reference Conditions, Patterns and Trends

Riparian vegetation in the Panguitch Creek Watershed most likely consisted of mosaics of thick willows and late seral grasses. Cottonwood and willow communities were present at lower elevations and along the Sevier River. Expansive and diverse riparian grasses, along with willow and cottonwood, helped reduce sediment influx, maintained coarser stream substrate, contributed to cooler stream temperatures, and supported normal flow regimes.

Natural/Human Causes of Change Between Current/Reference Conditions

Changes in riparian vegetation have resulted from a variety of land uses including livestock grazing, channel adjustments, water diversions, road construction, recreation, and cropland cultivation.

8. Noxious Weeds – Vegetation Composition & Agriculture

Current Conditions, Patterns and Trends

Noxious weeds pose an increasing threat to native ecosystems, croplands and other plant communities within the Panguitch Creek Watershed. An increase in recreational vehicle use and increased traffic along Highway 143 and surrounding areas may accelerate the spread of noxious weeds. Currently, dalmation toadflax, Canada thistle, spotted knapweed, musk thistle and cheat grass are all found around Panguitch Lake. Recreational vehicles often act as weed vectors, transporting weeds great distances from their initial source, and once established, reduce forage production and compete with native plant and animal species for sunlight, moisture and nutrients. Nox-

Canada thistle, a difficult to eradicate noxious weed, is prevalent throughout the Panguitch Creek Watershed, especially around Panguitch Lake.

ious weeds, moved by sheep along drainages within the watershed, are currently competing with native riparian vegetation.

Reference Conditions, Patterns and Trends

Historically, limited populations of noxious weeds occurred within the watershed. Infested livestock feed most likely introduced noxious weeds to the area; however, most populations remained small or were outcompeted by native vegetation. Noxious weed establishment on disturbed sites, such as in livestock, agricultural or mechanical treatment areas (chainings) was typically noted, but with limited dispersal.

Natural/Human Causes of Change Between Current/Reference Conditions

Currently, trails and roads serve as the single-most common point of noxious weed invasion, providing channels for weeds to migrate into more remote rangelands, agricultural and forested areas (USDAFS, 2002). Horses (if utilizing infected hay), ATV's and other motorized and nonmotorized vehicles traveling in recreation and roaded areas, act as vectors for noxious weeds, making wide-spread control difficult. Movement by recreationists from watershed to watershed (possibly serving to increase noxious weeds) may pose long-term problems for resource managers as well as area landowners. Implementing noxious weed plans into current forest plans and enforcing weed-free closures may play a role in slowing weed dispersal.

Where natural fires once helped maintain vegetation types, today, resource managers may rely on prescribed fire to help maintain proper vegetative conditions.

9. Ponderosa Pine – Fuel Conditions

Current Conditions, Patterns and Trends

Mixed-conifer is currently over-represented in areas throughout the Panguitch Creek Watershed and is displacing remaining populations of ponderosa pine and aspen. Ponderosa pine densities are high, with even age structures of small diameter trees. Many high-density ponderosa pine populations have been affected by large populations of bark beetles. An increase in mixed-conifer and high-density ponderosa pine around urban interface areas has left many of these areas at extreme risk to high severity wildfires. Large diameter ponderosa pines, with accompanying large diameter snags, provide

important hiding and thermal cover for numerous wildlife species as well as nesting habitat for some bird species. The risk of stand-replacement fires within ponderosa pine ecotypes is also a concern.

Reference Conditions, Patterns and Trends

Periodic fires created uneven-aged stands comprised of small even-aged groups. Fire return intervals of 5 to 25 years, with low intensity surface fires helped maintain structural stages (PFC Assessment, 2000). Multi-age classes of different vegetation types were historically represented.

Natural/Human Causes of Change Between Current/Reference Conditions

Fire exclusion and livestock grazing (removing fine fuels) are the primary causes of change between current and reference conditions.

10. Pinyon-Juniper, Sagebrush-Grasslands – Fuel Conditions & Vegetation Composition

Current Conditions, Patterns and Trends

Pinyon-juniper encroachment into historic sagebrush/grassland communities has reduced ground cover, decreased grassland species diversity, eliminated portions of prime mule deer and livestock winter range and increased wildfire risk in areas of high pinyon-juniper densities, such as the Fivemile Hollow-Panguitch Creek, and South Canyon-Panguitch Creek subwatersheds. In addition, many sagebrush areas are decadent, with even age classes of old individuals and excessive crown canopies. Erosion has increased due to little understory vegetation to help retain soil. Disrupted sagebrush/grassland communities occur within all six Panguitch Creek Watershed subwatersheds.

Sagebrush/grassland areas have been altered from historic conditions, with many areas showing a conversion to rabbitbrush.

Reference Conditions, Patterns and Trends

Pinyon-juniper historically occupied rocky edges, outcrops and slopes within the watershed. Periodic, low intensity fires (10 to 30 years) helped maintain pinyon-juniper density and diversity, while preventing encroachment into other vegetation types. Mixed age classes of sagebrush with less than 15% canopy cover were dominant prior to Euro-American settlement. Patchy vegetation patterns, with several age and canopy classes of

sagebrush and grasses, were present and maintained by periodic fire, approximately every 20-40 years.

Natural/Human Causes of Change Between Current/Reference Conditions

Competition for available moisture and high ungulate use have substantially reduced the grass-forb component in mature and old, dense pinyon-juniper stands. Pinyon-juniper distribution has also increased because of recent fire suppression efforts. Chainings were conducted in the 1960's and 1970's on private, U.S. Forest Service and BLM lands to promote grass-forb communities; however, lack of additional disturbance, has allowed pinyon-juniper to re-establish on these sites. Lack of fire and extensive grazing has decreased sagebrush/grassland vegetation diversity.

11. Wildlife Management in Agricultural Areas

Current Conditions, Patterns and Trends

Wildlife damage to agricultural lands has increased steadily over the past decade. In the Panguitch Creek Watershed, depredation from elk is the primary concern; however, in some years deer are equally as likely to impact agriculture areas.

While mitigation measures such as landowner and control permits, fencing and actual dollar reimbursements offset some of the costs, wildlife continues to have an economic impact on private agricultural lands. Other concerns expressed from landowners include the impact to land development and use by the listing (endangered, threatened, etc.) of wildlife species such as Utah prairie dog and sage grouse, and the hesitation by landowners to engage in habitat improvement projects which may further attract wildlife and result in subsequent damage to local areas.

Farms and ranches in the Panguitch Creek Watershed may be heavily impacted by area deer and elk when resource conditions are not fully functioning.

Reference Conditions, Patterns and Trends

Elk were eliminated from the watershed around the first of the 20th century, but were reintroduced in the 1980's. Unrestricted hunting of predators as well as big game, resolved most wildlife/landowner conflicts.

Adequate winter and summer deer and elk ranges were maintained by periodic fire, further eliminating potential deer/elk conficts.

Natural/Human Causes of Change Between Current/ Reference Conditions

Restricted hunting, the demand for increased quality hunting opportunities, stricter compliance with fish and game laws, and the desire for wildlife viewing opportunities have resulted in an increase in deer and elk numbers from early settlement conditions. Drought and subsequent changes in vegetation composition within the watershed may temporarily decrease elk and deer numbers; however, these same conditions may cause deer and elk to seek additional forage opportunities on private agricultural lands, where adequate feed is available. Competition for available forage from domestic livestock has decreased range conditions in some areas, further contributing to wildlife depredation on cultivated lands.

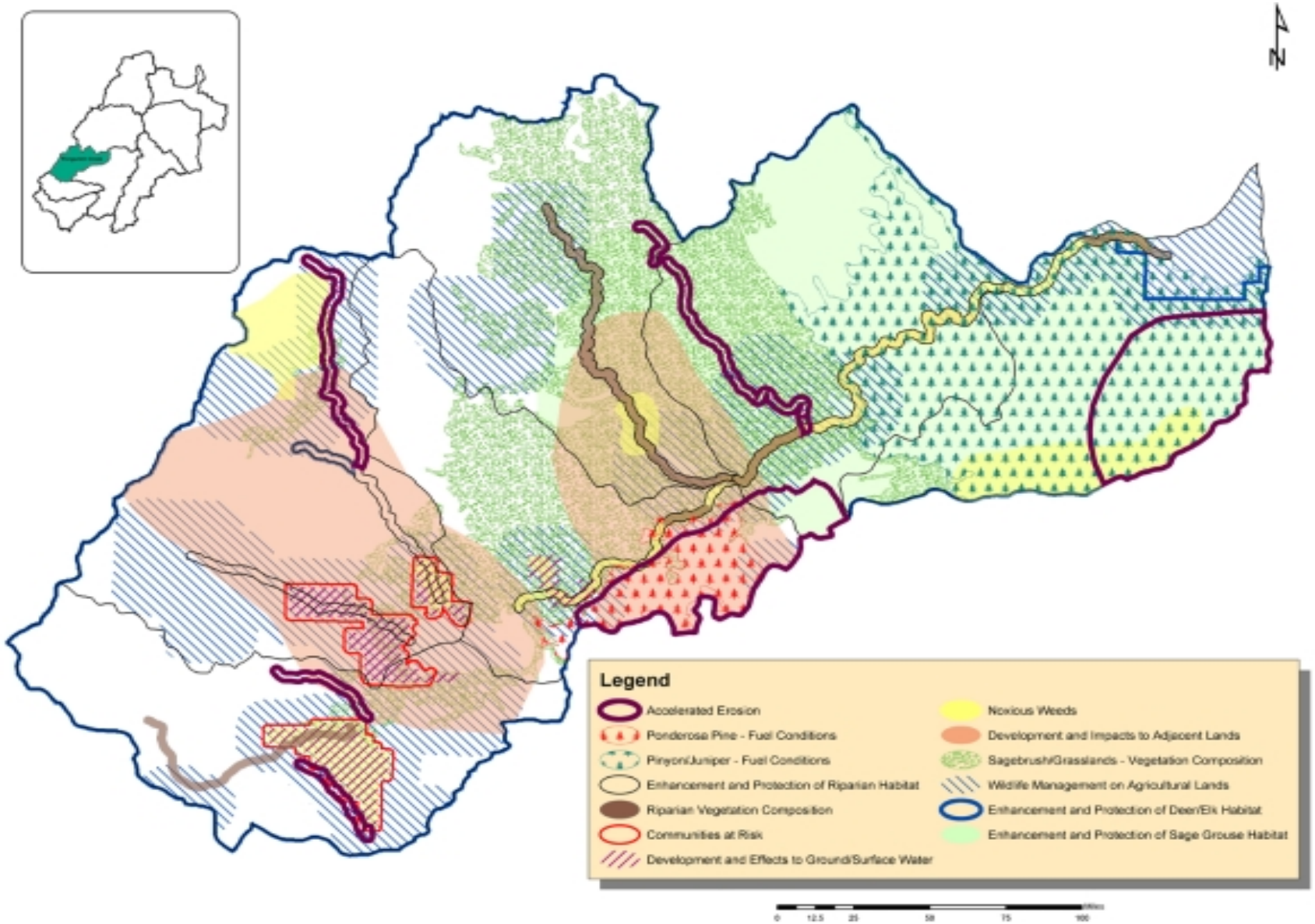

Fig. 4-16. The 13 key issues identified for the Panguitch Creek Watershed (as described in the 11 narratives) represent input from agriculture, fire, human uses, hydrology, species and habitat, and vegetation technical advisory committees (TACs).

	Blue Spring Creek	Ipson creek	Haycock Creek	Butler Creek	Fivemile Hollow-Panguitch Creek	South Canyon Panguitch Creek	**Total for Panguitch Creek Watershed**
Hydrology/Water Quality							
Hydrology							
Dewatering and altered flow regimes	H	NA	H	H	NA	H	**H**
Releases from Otter Ck. Res. may be causing bank erosion along E. Fork Sevier River	NA	NA	NA	NA	NA	NA	**NA**
Diversion of water from Castle Creek to Deer Creek has caused severe channel degredation	H	NA	NA	NA	NA	NA	**L**
Diversions along the Sevier R. may be affecting sediment transport capacity and channel equilibrium	NA	NA	NA	NA	NA	L	**L**
Loss of riparian veg. has resulted in reduced bank storage and summer streamflows	M	NA	NA	M	M	L	**L**
Hillslope Processes							
Accelerated erosion on high elevation meadows	L	NA	M	NA	M	NA	**L**
Accelerated erosion in pinyon-juniper and sagebrush stand	NA	NA	L	H	M	H	**M**
Accelerated erosion associated with urban development	NA	M	NA	NA	NA	NA	**L**
Accelerated erosion associated with roads	H	H	H	NA	M	H	**H**
Rill and gully erosion on hillslopes	M	NA	M	L	NA	NA	**L**
Accelerated erosion associated with illegal ATV use	NA	NA	NA	NA	NA	NA	**NA**
Riparian Vegetation							
Lack of health composition of riparian veg, defined by the presence of late seral herbaceous plants and multiple age class distribution of appropriate wood plant species	H	M	M	H	M	H	**H**
Water Quality							
Summer home development and associated impacts (I.e., groundwater contamination, erosion, recreation, etc.)	H	H	L	NA	NA	NA	**M**
Accelerated erosion, grazing management, recreation use, roads	L	NA	NA	NA	NA	L	**L**
TMDL listed and potentially listed water bodies due to nutrients, sediment, phosphorous, DO, habitat alteration, or temperature	H	H	H	H	H	H	**H**
Channel Morphology							
Active channel adjustments (vertical or lateral)	H	L	L	H	M	L	**M**
Accelerated bank erosion	H	NA	NA	H	M	L	**M**
Channelization	L	NA	L	H	NA	NA	**L**
Agriculture							
Animal Feed Operations	NA	NA	L	NA	NA	L	**L**
Water conservation concerns (Sprinkler vs. Flood Irrigation)	L	L	L	L	L	M	**M**
Pasture Mgt.	M	M	M	M	M	H	**H**
Fertilizer Usage and Impacts	NA	L	NA	NA	NA	L	**L**
Noxious Weeds	M	M	M	M	M	M	**M**
Wildlife Management in Agricultural Areas	H	H	H	H	H	H	**H**

Table 4-9. Issue ratings for all six Panguitch Creek subwatersheds, as identified by technical advisory committees (TACs). Issues highlighted in blue are addressed in detail in this section.

	Blue Spring Creek	Ipson creek	Haycock Creek	Butler Creek	Fivemile Hollow-Panguitch Creek	South Canyon Panguitch Creek	**Total for Panguitch Creek Watershed**
Fire							
Communities at Risk	H	H	M	M	M	H	**M**
Fuel Conditions	H	H	H	H	H	H	**H**
Human Uses							
Development and Effects to Ground/surface Water	H	H	H	M	M	H	**H**
Development and impacts to adjacent lands	M	H	H	M	M	H	**H**
Access Management	M	H	M	M	L	H	**H**
Developed and Dispersed Recreation	H	H	H	L	L	H	**H**
Vegetation							
Sagebrush - Grass	M	H	H	H	H	M	**H**
Aspen	H	H	M	M	NA	L	**M**
Grassland - Meadow	L	L	L	L	NA	L	**L**
Mixed Conifer - Mountain Fir	M	M	L	L	L	L	**M**
Oak - Mahogany - Mountain Shrub	L	L	L	L	M	L	**M**
Pinyon - Juniper	L	NA	L	L	M	H	**M**
Ponderosa	NA	M	M	L	L	L	**M**
Spruce - Fir	M	H	M	NA	NA	NA	**M**
Tall Forb	M	NA	NA	NA	NA	NA	**L**
Noxious Weeds	H	H	H	M	M	M	**H**
Species and Habitat							
Priorities for Enhancement or Protection of:							
Southwestern Willow Flycatcher Habitat	NA	NA	NA	NA	NA	NA	**NA**
Utah Prairie Dog Habitat	H	L	H	M	NA	M	**M**
Bald Eagle Habitat	H	L	H	L	L	M	**M**
Spotted Bat Habitat	H	H	M	L	L	M	**M**
Townsend's Big-eared Bat Habitat	M	M	M	M	M	L	**M**
Flammulated Owl Habitat	H	H	H	L	L	L	**M**
Three-toed Woodpecker Habitat	H	H	H	L	L	L	**M**
Northern Goshawk Habitat	H	H	H	M	M	L	**H**
Peregrine Falcon Habitat	M	M	M	M	M	M	**M**
Sage Grouse Habitat	L	L	H	H	H	M	**H**
Turkey Habitat	M	M	L	M	M	M	**M**
Deer Habitat	H	H	H	H	H	H	**H**
Elk Habitat	H	H	H	H	H	M	**H**
Pronghorn Habitat	NA	NA	L	M	M	M	**M**
Brian Head Mountain-Snail Habitat	NA	NA	NA	NA	NA	NA	**NA**
Beaver Habitat	M	M	M	H	H	H	**H**
Boreal Toad Habitat	NA	NA	NA	NA	NA	NA	**NA**
Bonneville Cutthroat Habitat	NA	NA	NA	NA	NA	NA	**NA**
Riparian Areas	H	H	H	H	H	H	**H**
Fisheries Habitat	H	H	H	M	M	M	**H**

Table 4-9 (con't). Issue ratings for all six Panguitch Creek subwatersheds, as identified by technical advisory committees (TACs). Issues highlighted in blue are addressed in detail in this section.

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