

GALENA WATERSHED ANALYSIS—SUPPLEMENT 2002

EXECUTIVE SUMMARY OF THE SOUTHEAST GALENA DEIS AND WATERSHED ANALYSIS INDEX OR CROSSWALK

*This document is intended to serve as a supplement to the Galena Watershed Ecosystem Analysis at the Watershed Scale (EAWS²) 1999 (and is to be referenced as **Galena Watershed Analysis—Supplement 2002**). Extensive effort went into the development of the Southeast Galena Restoration Draft Environmental Impact Statement (DEIS) which analyzed the National Forest system land described herein, the DEIS was canceled in the Federal Register, May 31, 2002. A determination was made to evaluate individual restoration projects in this area on a more site-specific basis. Therefore, the DEIS was not followed through to a decision. The Draft Environmental Impact Statement had all the elements of a Watershed Analysis, however as the Galena Watershed Analysis—Supplement 2002 it will reflect the design of a National Environmental Policy Act (NEPA) document to a large extent. This following summary will show the development of the analysis and a crosswalk, or index of how the steps of Federal Guide to watershed analysis provides recommendations for projects which will restore watershed function and direction for proceeding in this manner.*

INTRODUCTION

Analysis was performed on 49,473³ acres of the Davis, Placer, Vinegar, Tincup, Little Butte, Butte, Vincent, Little Boulder, Deerhorn and Granite Boulder subwatersheds and the tributaries to the Middle-Fork of the John Day River (Chapters 1-4 this document, see also Map A page 1 and Appendix E, Maps 1-31). The Middle Fork of the John Day River originates south of the North Fork of the John Day River in the Blue Mountains, and flows westerly for approximately 75 miles, then merges with the North Fork about 18 miles above Monument, Oregon. The analysis area is located about 25 air miles northeast of John Day, Oregon. These subwatersheds share a common road system. Access from John Day is east on Highway 26 to the junction of Highway 7, north on Highway 7 to the junction of County Road 20, then west on County Road 20 along the Middle Fork John Day River. Major developed Forest Service roads that access the analysis area include the 2010, 2045, 2050, 2055, 2610, 2612, 2614, 4550, 4557, and 4559 roads.

Located in northeastern Oregon, the John Day River is the second longest free-flowing river in the continental United States after the Yellowstone River. Populations of summer steelhead trout (a threatened species) and spring Chinook salmon (a sensitive species) in the John Day River are two of the last remaining intact wild populations of anadromous fish in the Columbia River basin. Bull Trout (also a threatened species), were historically found throughout much of the Upper John Day Basin, including the Middle Fork of the John Day River (see Appendix E, Map 5 TES species and Essential Fish Habitat for fish) and are present in the Analysis Area.

The Forest Service has focused on the southeast portion of the Galena Watershed in the Middle Fork of the John Day River for a supplement to watershed analysis completed in 1999. The seven subwatersheds, within the greater Galena watershed, have become the subject matter of recommended restoration acres that lay north and south (both sides) of the Middle Fork of the John Day River. There are about 35 perennial tributaries and numerous smaller drainages within the analysis area that support anadromous and resident fish. The conclusion of this analysis is a recommendation of restoration throughout these seven subwatersheds (see Summary Table 1 Recommended, or a Possible Program of Work by Subwatersheds, page xiii).

² Following a federal procedure of *Ecosystem Analysis at the Watershed Scale*, as revised in Version 2.2 August, 1995

³ All numbers are approximate

There are about 1,200 acres of private holdings within the analysis area boundaries with potential private and forest National Forest system land interface concerns. Also, each of the small communities of Bates, Austin, and Greenhorn are located outside the analysis area's eastern boundary. The rest of the analysis area, is National Forest system land and includes two of the inventoried roadless areas, in the Malheur *Land and Resource Management Plan* (LRMP), i.e., the Dixie Butte Roadless Area, and the Greenhorn Mountain Roadless Area. Additionally, the North Fork John Day River Wilderness on the Umatilla National Forest borders the northeast boundary of the analysis area.

The Galena Watershed is in the Middle Fork John Day River subbasin and is comprised of mostly National Forest system land with an estimated combined area of 127,456 acres. The analysis area covers approximately 38% of the watershed. Originally another five subwatersheds of the Galena watershed were considered for this analysis, but were reduced to these seven in order to accomplish analysis in a timely manner. Approximately 33% of the Galena watershed was analyzed and treated in the Summit Fire Recovery project (1999). The *Galena Watershed Analysis* 1999 made recommendations of management actions in the remaining portions of the Galena watershed that were outside the Summit Fire (1996) area. This analysis is an intermediate scale to the broader scale of the 1999 analysis. Site specific NEPA project will follow with fine scale analysis prior to project implementation.

This present analysis began as a Draft Environmental Impact Statement from a Notice of Intent (NOI), on August 16, 1999 which went through the Draft stage and then was canceled in the Federal Register, May 31, 2002. In August 1999, the Long Creek/Bear Valley Ranger District (now the Blue Mountain Ranger District) of the Malheur National Forest mailed a scoping package to over 1,000 members of the public. The scoping package asked for comments and provided information on the Southeast Galena Restoration Project's recommended action and its purpose and need. A number of comments were received and each were evaluated to identify preliminary key issues for developing draft alternatives (see 1.3.4—Relevant Planning and Scoping Dates, page 29; 1.4 Issues Studied in Detail, page 30 and 1.4.13—Other Items Tracked but not Considered to be a “Key” or “Significant” Issue, page 34).

It is important to note that this supplement to watershed analysis is not a decision document for implementing projects. However, landscape scale analysis from this effort may be utilized to supplement the Galena Watershed Analysis, completed in 1999. From this analysis effort projects may now be implemented through, and in accordance with the National Environmental Policy Act. This analysis is, (just as the 1999 Galena Watershed Analysis was, but on a broader scale) a document that identifies a need for activity in site-specific locations. The 1999 Galena Watershed Analysis was intended to be updated in this manner (cf. File letter 1900 June 30, 1999 by District Ranger). By using the important analysis from the DEIS, a large amount of the work can be planned and implemented, after appropriate National Environmental Policy Act (NEPA) documents are complete and regulatory consultation takes place (see Summary Table 1 page xiii).

By using the Steps in the *Ecosystem Analysis At The Watershed Scale: A Federal Guide to Watershed Analysis* 1995 as an index to this document which was originally an unpublished Draft Environmental Impact Statement, this analysis will capture important information which can be vital in selecting or foregoing future decisions made in the Galena watershed. The Federal guide gives the following directions, “Federal agencies will conduct multiple analysis iterations of watersheds as new information becomes available, or as ecological conditions, management needs, or social issues change,” and further, “Teams can interpret existing analyses as they relate to a particular watershed to speed their analyses without sacrificing scientific credibility.” In this manner this analysis is intended to supplement the existing *Galena Watershed Ecosystem Analysis at the Watershed Scale* (EAWS) 1999.

Relation to Other Laws, Regulations, and Processes

This in-depth analysis is the result of detailed work by a dedicated interdisciplinary team to establish a watershed and a subbasin context for restorative efforts to ecosystems that have been degraded over the

past century. This analysis details the potential future cumulative effects of foreseeable management or restorative efforts in these subwatersheds. Recommendations for future projects in this document are placed in context of, and consistency with, the existing objectives from the Malheur National Forest *Land and Resource Management Plan* (LRMP), PACFISH/INFISH guidelines, and current science. This analysis will establish a logical watershed wide context for setting priorities, making decisions and implementing projects in these subwatersheds in accordance with laws, regulations and resource processes as well as public input.

National Forest Management Act (NFMA)

Ecologically sustainable restoration projects implemented from recommendations in this analysis can assist in the improvement of current conditions and habitat for threatened fish species, habitat for threatened terrestrial species of wildlife, the improvement of current degraded hydrological conditions to the proper functioning condition, the improvement of degrading forest stand conditions, the improvement of degrading forage for wildlife, the improvement of declining aspen stands, the decommissioning and relocation of roads currently in Riparian Habitat Conservation Areas (RHCA), improvement of trails, trail heads, campgrounds and dispersed recreation sites. This analysis thoroughly considers ecosystem capability, the sensitivity to disturbance regimes and examines the suitability of these watersheds to sustain an array of public use. Projects recommended herein, are in a logical sequence to facilitate the display of effects on existing and possible future conditions, to both desired conditions and undesired conditions. Recommended project design, including location and timing were made under applicable LRMP standards and guidelines. Additionally, a detailed assessment of habitat is presented with population trends (eg., 3.2.4.1 Dry Forest Type, page 140 and 3.2.6.1 Threatened, Endangered, and Sensitive Species, page 165). Further, this analysis, can assist in establishing a context for identifying and prioritizing watershed restoration needs. Further still, this analysis will be instrumental in adhering to NFMA guidelines in supporting planning processes, including LRMP amendments as it has identified conflicts between LRMP features and ecosystem capabilities. Current science has established additional protection needs since LRMP implementation in 1990, and this analysis identifies these additional protection needs, and recommends a number of non-significant amendments to the *Land and Resource Management Plan* (see 2.4.2 Alternative 2—Recommended Action, page xxi).

National Environmental Policy Act (NEPA)

The results of Galena Watershed Analysis of 1999 (Galena WA, 1999) established a consistent watershed-wide context for project-level NEPA documents. Information from this analysis, referenced as Galena Watershed Analysis—Supplement 2002(Galena WA, Supplement—2002), since it originated as a NEPA document and maintains the format required in 40 CFR 1500-1508, may be used to enhance the quality of projects and action-specific NEPA documents, from categorical exclusions, to Environmental Assessments and if significant effects are found, another Environmental Impact Statement. Therefore, Galena WA, Supplement—2002, when used as a supplement to Watershed Analyses forms a strong basis for NEPA cumulative effects analysis for future projects as it describes the current environment at the watershed level, past and present management activities and the influence of these activities on the watershed, and the likely historical conditions (e.g., 1.2.1.4 Undesired Condition: Vegetation outside of a Historical Range of Activity, page 14 and 1.2.1.5 Undesired Condition: High Wildfire Hazards, page 17 and 3.2.5 High Wildfire Hazard, page 159; Wildfire Risk at the Watershed Scale, page 271). In turn, future project-level NEPA documents will augment watershed analysis with site-specific data. In this manner, when reaching subsequent decisions through the NEPA process, responsible officials will be able to document a consistency of logic with watershed analysis results.

Endangered Species Act (ESA)

Two Federal Agencies with different executive branch department heads (USDI/USFWS and the DOC/NMFS), that are separate from the USDA Forest Service are responsible for consultation concerning threatened species of fish and wildlife in the analysis area. Results of this supplement to watershed analyses and appended documents establishes a consistent, watershed-wide context for Section 7, conferencing and consulting pursuant to the Endangered Species Act (ESA). Analysis contained herein, includes information applicable to many projects and activities within the seven subwatersheds in the Galena Watershed. Information on existing population status, species distribution, and habitat conditions are presented in this analyses and can subsequently be used as a lead document to evaluate the effects and cumulative effects of recommended actions, as well as assisting in determining measures to avoid jeopardy and adverse modifications of critical habitat. The Galena WA, Supplement—2002, presents recommendations that would reverse declining habitat and population trends of threatened and sensitive fish and wildlife species. Information in this analysis is presented in a manner that enables project level consultation on documents to directly reference or incorporate pertinent sections of analysis reports. This may facilitate consultation in advance of NEPA public scoping efforts, the timing of which often conflicts with consulting agency analysis. This supplement to watershed analysis may also contribute information to support Section 4 and 7, (listing, recovery and consultation) and Section 10 (permits and habitat conservation planning) activities, in a manner that can get restorative projects into implementation in a timely manner.

PACFISH/INFISH Guidelines and other Regional Direction

In the Columbia River Basin, the Forest Service and the Bureau of Land Management have a duty to manage salmonid habitat under the direction of PACFISH⁴ (USDA AND USDI 1994) and INFISH Inland Native Fish Strategy; USDA 1995). These interim management strategies endeavor to protect areas that add to salmonid recovery and improve riparian habitat and water quality throughout the basin, which includes the John Day subbasin. These strategies have also facilitated the ability of the federal land managers to meet requirements of the ESA (see above) and avoid jeopardy to threatened species. Under PACFISH/INFISH the seven subwatersheds have been denoted “key watersheds,” to protect and restore important fish habitats. PACFISH guidelines have been used in recommendations for restoration in the analysis area, for the protection of habitat and threatened populations anadromous fish. These guidelines have been used in all design of recommended restoration for Aquatic, Vegetation and Infrastructure projects (see 2.2 Process and Design Used to Formulate the Alternatives, page 38). INFISH guidelines have been used in recommendations for restoration in the analysis area for the protection of habitat and threatened populations of bull trout.

To meet recovery objectives, these strategies have been key in establishing watershed and riparian goals to maintain or restore fish habitat. Under PACFISH/INFISH watershed analyses such as this present Galena Watershed Analysis—Supplement 2002), will be for site-specific watershed restoration recommendations and provide guidance on priorities for watershed restoration.

Recovery objectives for forest stands would move toward the Historical Range of Variability (HRV) as directed by the Regional Forester’s Eastside Forest Plan Amendment #2⁵ (June 1995) which simultaneously amended the Malheur National Forest *Land and Resource Management Plan*. Forest stand sustainability and resiliency would be the overall goal for stewardship of the natural resources

⁴ *Interim Strategies for Managing Anadromous Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California* USDA Forest Service and USDI Bureau of Land Management (February 1995). This is an interim strategy for managing anadromous fish-producing watersheds in eastern Oregon and Washington, Idaho, and portions of California.

⁵ *LRMP (Forest Plan) Amendment No. 2: Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales*, Also referred to as *Regional Forester’s Eastside Forest Plan Amendment No. 2*.

under this direction, and guidelines establishing a trend toward a Historical Range of Variability(HRV) would guide recommendations. These guidelines are more restrictive than PACFISH/INFISH restrictions regarding Riparian Habitat Conservation Areas(RHCAs).

Federal Clean Water Act(CWA).

Results of watershed analysis establishes a consistent watershed-wide context for watershed quality efforts mandated by the State of Oregon and for the protection of beneficial use identified by the State (in the case of these subwatersheds with water temperature problems that are on the State of Oregon 303 d list). Additionally, any concerns that the tribes may have in their water quality standards under the Federal Clean Water Act, in the same manner establishes a consistent watershed-wide context for watershed quality for tribal concerns. Results of this supplement to watershed analyses may subsequently be used to develop or update State management plans. Watershed analysis establishes a context for identifying resource protection and monitoring needs and restoration opportunities that are responsive to water quality issues described in this supplement to watershed analysis.

Federal Trust Responsibilities to Indian Tribes

This analysis establishes a watershed context for early identification of issues covered by treaty rights, resources protected by treaty, and other tribal concerns. The results of this analyses will assist the Forest Service in complying with policies and laws relating to tribal trust resources. This analysis identifies tribal trust resources that occur in the watershed (e.g., 3.2.6.4.6—Culturally Significant Plants, page 202 and 4.4.11 American Indian Tribes, page 452; see also 1.0 Introduction, page 1, and 1.5.1—Applicable Laws and Treaties, page 35).

ECOSYSTEM ANALYSIS AT WATERSHED SCALE

The Galena watershed has long been a center of human activity due to the richness of the area's natural resources. Over one hundred years of land and resource use in the form of placer mining for gold, railroad logging, and livestock grazing, has caused a number of undesirable conditions, which have put important resources at risk. Land and resource use during the past century has arranged the re-configuration of streams and hydrologic processes in a manner, which allows water to leave the landscape in the uplands too rapidly (see 1.2.1.1 Undesired Condition: Early Season Peak Flows, page 8). This existing condition is now worse because of previous wildfire adjacent to the analysis area has removed large areas of vegetation in the watershed as whole. These conditions have contributed to a trend of elevated stream temperatures in streams during dry months when threatened species of fish depend upon cool water, for spawning and other life cycles of their existence. At the same time that fire danger has increased in the unburned portions of the Galena Watershed, the habitat for wildlife has been deteriorating because overstocked, dense stands of trees have inhibited vegetation in the understory that once provided high quality forage for deer and elk. These conditions no longer allow sunlight to reach the forest floor in a manner that provides acceptable forage, which was always available under historic conditions.

While the watershed analysis of 1999 was targeted at a broader scale, this effort, (originally intended as an Environmental Impact Statement) is targeted at a determination of a potential effects from a range of possible management activities that have been compared to the effects of no action in the same area (beginning in section 4.2—Predicted Attainment of Project Objectives, page 239). The 1999 *Galena Watershed, Ecosystem Analysis at the Watershed Scale* (EAWS⁶) was an explanation of the process and function of ecosystems in the entire watershed and made general recommendations. This document, now referenced as the Galena Watershed Analysis—Supplement 2002(Galena WA—Supplement 2002),

⁶ Following a federal procedure of *Ecosystem Analysis at the Watershed Scale*, as revised in Version 2.2 August, 1995

makes site specific recommendations and tracks the environmental consequences of these recommendations as well as tracking the environmental consequences a range of alternatives to these recommendations.

Known data gaps will be applied to future analysis (such as updated stand exams) and will apply to further analysis and may differ slightly from this document when applied to future NEPA projects.

Important habitat losses have occurred in the Galena watershed. In the watershed analysis area, the Middle Fork of the John Day River, combined with the Creeks of the seven subwatersheds contain approximately 140 river miles of anadromous fish habitat. Historic hydraulic placer mining for gold, grazing, railroad logging and wildfire suppression that has allowed the accumulation of fuels in the past century has contributed to the alteration of the proper functioning condition of elements of the ecosystems in this area. All of these subwatersheds support various life stages of the threatened mid-Columbia steelhead trout, and one subwatershed supports spawning populations of bull trout (however, recent surveys have found bull trout presence in another subwatershed in this area). Both of these species are listed as threatened under the Endangered Species Act. Additionally, Chinook salmon, a sensitive species is also present and spawn in the analysis area. Additionally, habitat for Canada lynx (a species listed as threatened) is present in a number of the higher elevation portions of this area. In 2001, the Oregon Department of Fish and Wildlife (John Day Subbasin Summary Draft 2001) identified the John Day River as containing what may be the largest wild run of steelhead in the Columbia Basin. Additionally, all of the area has been designated as “key watersheds,” by the Blue Mountain Demonstration Project, due to their important role in the recovery of at-risk fish stocks within the Columbia basin. This portion of the Middle Fork of the John Day River is also designated as a State of (Oregon) Scenic Waterway.

Bull trout populations in the Middle Fork are found in only four tributaries Clear Creek (Upper Middle Fork Watershed), Granite Boulder Creek, Big Creek (Galena Watershed), in a ODFW population assessment in 1999. Additional surveys in the summer of 2000 found a single bull trout in Vinegar Creek (ODFW 2001) which is also in the Galena watershed and is covered in this analysis. The Oregon Department of Fish and wildlife has stated that the bull trout population on the Middle Fork is considered to be, “the most vulnerable and at the highest risk of extinction because they are found in only four tributaries that are relatively far apart and separated by apparently unsuitable habitat.”⁷

One third of the Galena watershed, recently burned (1996) in an uncharacteristically severe manner. This type of fire occurred because forest stand structure, and species composition has changed from a historic range of conditions that once withstood natural disturbance regimes such as disease, insects and fire (see Recent Uncharacteristically Severe Wildfire—Summit Fire, page 159). Now, overstocked stands contribute to the likely scenario of large uncharacteristically severe wildfires burning through entire subwatersheds and larger. In the Analysis area forest stands, understory, and riparian vegetation now exist in a manner that is no longer compatible with natural disturbance regimes such as insects, disease and fire. A serious consequence of these conditions has been an increase in the size and severity of wildfires in the Galena watershed that was mentioned previously (see Appendix E, Map 2—Large Fire History). This analysis has shown that: formerly mostly small, low intensity fires burned the understory of forests every year in a beneficial manner in small patches across the landscape. Now, dense stands of small diameter overstocked forests allow fire to enter the crowns of forest stands of trees where they are likely to become uncontrollable high intensity fire. Fire of this type burns in an uncharacteristically severe manner and damages soil and detrimentally affects all resources in subwatersheds. This detrimental change in structure and species composition of tree stands has allowed a trend toward thousands of acres being burned in single event, high-intensity fire that now has a tendency toward engulfing whole subwatersheds (e.g. Summit Fire 1996) or even larger areas of the landscape.

With the threatened fisheries concerns as well as the potential for subwatershed and watershed scale losses of multiple resources due to uncharacteristically severe wildfire as a background, the following

⁷ John Day Subbasin Summary Draft 2001 page 40

analysis can be placed in a watershed-wide context for project level National Environmental Policy Act (NEPA) analysis which must precede recommended restorative action. The Blue Vegetative Management Environmental Assessment (EA) is currently in this process in the Vincent and Vinegar Creek subwatersheds utilizing this analysis and will be complete by Summer of 2003, followed by and Aquatics environmental documents, and roads environmental documents. Projects in other subwatersheds may follow as management establishes a priority. Infrastructure projects needed to effectively accomplish some of these treatments, as well as to restore and rehabilitate existing road systems, trails and campsites that are causing sediment problems are also considered with in-depth analysis of potential effects in this document. In some cases, a need exists to move roads out of Riparian Habitat Conservation Areas (RHCA) by decommissioning the roads and then moving the location of these roads to upland areas. By moving the location of some segments of roads in this manner, streams with fish habitat would no longer receive detrimental effects from roads (see Appendix E, Map 8—Stream and Riparian Rehabilitation for Action Alternatives;). Decisions made in the near future to implement restoration projects recommended the Galena Watershed Analysis—Supplement 2002 (this document) will begin the course for the next one hundred years toward a balanced recovery of ecosystems, with trends similar to historic conditions, or set trends that point landscape conditions toward a historic range that will once again become resilient and sustainable.

The National Marine Fisheries Service (NMFS) issued a Biological Opinion on the federal Columbia River hydropower system, which recognizes the importance of the John Day subbasin to fish and wildlife restoration efforts (NMFS 2000). NMFS has specifically identified the upper John Day (meaning North Fork, Middle Fork and the Upper John Day as defined by DEQ above Service Creek) as a priority subbasin to receive immediate attention for habitat and species recovery for the Mid-Columbia steelhead ESU (NMFS 2000). NMFS assigned priority status to the upper John Day subbasin because this portion of the subbasin has an important potential for improvement in productive capacity.

Review and assessment of this present analysis as a supplement to ecosystem analysis at the watershed scale (*Galena Watershed Analysis* June 1999) provides key information for the Middle Fork of the John Day River subbasin and discloses the biological potential and potential environmental effects of prospective restorative projects in the Southeast Galena Analysis Area on resources and human uses within and around this analysis area on the Blue Mountain Ranger District of the Malheur National Forest. Additionally, many of the goals and objectives of the National Wildland Fire Management Policy (1998) are included in these recommended projects. This area was selected for restoration due to many concerns outlined in both the *Galena Watershed Analysis* (June 1999) and due to this area being part of the Blue Mountains Demonstration Area, an inter-governmental partnership including the Oregon Governor, USDA Under Secretary, and USDA Forest Service Chief. The Galena Watershed Analysis—Supplement 2002 is meant to update 1999 analysis and facilitate ongoing site-specific projects that would be implemented in accordance with the National Environmental Policy Act.

INDEX TO ECOSYSTEM ANALYSIS AT WATERSHED SCALE BY STEPS

Step 1. Characterization of the Watershed:

The dominant physical, biological, and human processes or features of the watershed that affect ecosystem functions or conditions are identified in the sections of Chapter 3, beginning on page 111. This chapter also explains the relationship between these ecosystem elements and those occurring in the John Day River subbasin. Additionally, the Interdisciplinary Team has identified undesired conditions beginning on page 8. The most important land allocations are found in Chapter 1 page 36, plan objectives are found in Chapter 1 page 21, and regulatory constraints that influence resource management in the watershed can be found in Chapter 1 Section 1.5 Applicable Legal and Regulatory Requirements and other Planning Documents page 35. This analysis is a mid-scale effort to delineate a configuration of key watersheds to protect and restore important elements of forest stand structure and

fish and wildlife habitat in accordance with PACFISH/INFISH standards and guidelines. Additionally, this analysis will create on a landscape scale, site-specific projects in key subwatersheds, with the appropriate NEPA documentation to provide guidance and priorities for watershed restoration on a subwatershed by subwatershed basis (see Summary Table 1 Recommended, or a Possible Program of Work by Subwatersheds, page xiii).

Step 2. Issues and Key Questions

In Chapter 1 the Interdisciplinary Team emphasized their center of attention on seven undesired conditions (see 1.2.1 Undesired Conditions, page 8) in the analysis area which are key elements most relevant to the management questions, human values, or resource conditions—these were contrasted to desired conditions (see 1.2.2 Desired Conditions page 21) in a manner that provided management objectives which are assessed further in Chapter 4 (see 4.2—Predicted Attainment of Project Objectives, page 239). Twelve key issues were also developed in Chapter 1 (see 1.4 Issues Studied in Detail page 30) which varied from the five issues developed in the 1999 effort of watershed analysis (Galena WA page 2-1). These issues were compiled from public scoping efforts, (see 1.3.4—Relevant Planning and Scoping Dates, page 29) and agency resource concerns. The issues studied in detail (1.4 Issues Studied in Detail, page 30) provide a measurement method for further analysis and a range of comparative treatment by numbered alternatives to recommended action that are analyzed in depth in Chapter 4. The core questions from the Federal Guide to Watershed Analysis that were applicable are discussed in the 1999 document and are not revisited here. These issues and their subsequent measures drove the formulation of alternatives for restoration in the watershed and were based on indicators commonly used to measure the key ecosystem elements.

Step 3: Description of Current Conditions

The purpose of this step is to develop information (more detailed than the characterization in Step 1) the Interdisciplinary Team has identified undesired conditions, 1.2.1 Undesired Conditions, beginning on page 8 which are relevant to the desired conditions in 1.2.2 Desired Conditions which begin on page 21. Chapter 3, page 111 gives the current range, distribution, and conditions of the relevant ecosystem elements in the Analysis Area and include:

3.1.0—Overview of Existing Conditions, page 111; Existing Scenic and Ecological Integrity, page 112; 3.2.0—Existing Conditions, page 113; 3.2.1—Early Season Peak Flows, page 113; Overview of Soils in the Analysis Area, page 114; Erosion Processes—Overview, page 118; Hydrologic System, Water Quantity, and Water Timing—Departure from Potential, page 123; 3.2.2—Stream Temperatures, page 124; 3.2.3 Aquatic Habitat, page 125; Fish Habitat; 126; Summer-run Steelhead *Oncorhynchus mykiss*, page 128; Bull Trout *Salvelinus confluentus*, page 127, page 128; Spring Chinook *Oncorhynchus tshawytscha*, page 129; Blue Mountain Cryptochian Caddisfly *Cryptochia neosa*, page 130; Riparian Habitat, page 130; Analysis Area Stream Overview, page 131; Level II Stream Survey Results, page 132; Disturbance Regimes In Aquatic Habitat, page 136; Recreation Affects in RHCAs, page 136; Grazing; page 137; Access Travel Management, page 137; 3.2.4 Vegetation by Forest Type, page 139; 3.2.4.1 Dry Forest Type, page 140; 3.2.4.2 Moist Forest Type, page 147; 3.2.4.3 Lodgepole Pine Forest Type, page 151; 3.2.4.4 Cold Forest Type, page 154; 3.2.4.5 Woodland Forest Type, page 157; Sub-Alpine Meadows, page 158; Hardwoods (including Aspen), page 158; Riparian Meadows, page 158; Rock Outcrops, page 158; Threatened Endangered and Sensitive Plant Species, page 159; 3.2.5 High Wildfire Hazard, page 159; Recent Uncharacteristically Severe Wildfire—Summit Fire, page 159; Wildfire Hazard and Risk, page 162; Wind Event in Vincent and Vinegar subwatersheds, page 163; Private Land Interface, page 163, Air Quality, page 163; 3.2.6 Wildlife Habitat, page 165; 3.2.6.1—Threatened, Endangered, and Sensitive (TES) Species, page 165; Species Compositions and Successional Relationships—Cold Forest, page 167, 173; 3.2.6.2.1—MIS for Old Growth, page 173; Pileated Woodpecker *Drycopus pileatus*, page 173; Pine Marten *Martes americana*, page 175; White-headed woodpecker *Picoides albolarvatus*, page 177; Dedicated Old Growth and Connectivity, page

178;3.2.6.2.2—MIS—Primary Cavity Excavators (PCE) , page 180;3.2.6.2.3—MIS—Rocky Mountain Elk, page 183;3.2.6.3—Species of Interest (SOI) , page 191;3.2.6.4—Habitat Summary Tables3.2.6.4.1—Dry Forests and Associated Wildlife Species, page 193; 3.2.6.4.2—Moist Forests and Associated Wildlife Species, page 195;3.2.6.4.3—Lodgepole Forests and Associated Wildlife Species, page 197;3.2.6.4.4—Cold Forests and Associated Wildlife Species, page 198;3.2.6.4.5—Unique and Sensitive Habitats: Non-Forested Areas, Hardwoods, and Juniper Woodlands, page 200;3.2.6.4.6—Culturally Significant Plants, page 202;3.2.7—Noxious Weeds, page 203;3.3.0 Roadless Character, page 204;3.3.1—Dixie Butte Roadless Area, page 204;3.3.2—Greenhorn Mountain Roadless Area, page 207; 3.4.0—Human Use, page 209; 3.4.1 History of the Analysis Area, page 209;Fire Exclusion Policies and Fire regimes, page 211; 3.4.2 Austin, Bates and Greenhorn, page 212;3.4.3 Social and Economic Factors, page 212; Restoration Opportunities For Local Communities, page 216; Population Changes, page 218; Wildfire Hazards at the Watershed Scale, page 266;Public Safety and Property, page 266;Air Quality, page 266.

Chapter 4 beginning on page 237, details the scientific and analytic basis for the summary comparison of effects presented in Chapter 2 beginning on page 38 and summarized in Table 68, page 103. Chapter 4 presents the predicted effects of all alternatives, in this Chapter the predicted attainment or non-attainment of the recommended project objectives and the predicted effects on the quality of the human environment. The no action alternative analysis shows the current conditions in the following manner:

4.2.1.1—Alternative 1—Early Season Near and peak flows—No Action, page 239;4.2.2.1—High Stream Temperatures—Alternative 1—No Action, page 253; 4.2.3 Treatment Objectives for Aquatic Habitat, page 255; 4.2.3.1—Alternative 1, page 256; 4.2.4.1 & 4.2.5.1—Treatment objectives for HRV and High Wildfire Hazards—Alternative 1, page 263;4.2.6.1—TES Species, MIS and SOI, page 284;4.2.6.1.1—Alternative 1, page 284;4.2.6.2.1.1—Alternative 1, page 297;4.2.6.2.2 Timber Harvest/Prescribed Fire within Old Growth Habitat and Connectivity Corridors, page 300; 4.2.6.2.2.1—Alternative 1, page 300;4.2.6.2.2 Timber Harvest/Prescribed Fire within Old Growth Habitat and Connectivity Corridors, page 300;4.2.6.3—Big Game, page 303; 4.2.6.3.1—Alternative 1, page 303;4.2.6.4—Effects to Goshawks—Treatment in Post-Fledging Areas (PFAs) , page 319;4.2.7 Treatment Objectives for Noxious Weeds, page 320;4.2.7.1—Alternative 1, page 320; 4.3.1—ISSUE 1.4.1—Restricted Access, ALTERNATIVE 1—Restricted Access, page 327; 4.3.2—ISSUE 1.4.2—Effects of All Terrain Vehicle (ATV) use, ALTERNATIVE 1—Effects of ATV use, page 330; 4.3.3—ISSUE 1.4.3—Effects of Ground Based Systems, ALTERNATIVE 1—Ground Based Systems; page 334; 4.3.4—ISSUE 1.4.4—Effects of Heavy Equipment in RHCAs, page 347; 4.3.5—ISSUE 1.4.5—Effects of Prescribed Fire in RHCAs, ALTERNATIVE 1—Prescribed Fire in RHCAs, page 354; 4.3.6—ISSUE 1.4.6—Inadequate RHCA Size, ALTERNATIVE 1—Inadequate RHCA Size, page 358;4.3.7—ISSUE 1.4.7—Blow down in Vincent/Vinegar RHCAs, ALTERNATIVE 1 and ALTERNATIVE 4—Blow down in Vincent/Vinegar RHCAs, page 362; 4.3.8.1—Competing Vegetation, ALTERNATIVE 1—Toxic Chemicals—Competing Vegetation, page 367; 4.3.8.2—Animal Damage, ALTERNATIVE 1—Toxic Chemicals—Animal Damage, page 380; 4.3.8.3—Noxious Weeds, ALTERNATIVE 1—Toxic Chemicals—Noxious Weeds, page 393; 4.3.9—ISSUE 1.4.9—Inadequate Amount of Treatment—Forest Sustainability and Resiliency, Alternative 1—Forest Sustainability and Resiliency, page 400; 4.3.10—ISSUE 1.4.10—Insufficient Pileated Woodpecker Habitat, ALTERNATIVE 1—Insufficient Pileated Woodpecker Habitat, page 409;ALTERNATIVE 1—Retaining Additional Wildlife Snags, page 412; 4.3.11—Issue 1.3.11—Effects on Connectivity for Wildlife, ALTERNATIVE 1—Connectivity for Wildlife, page 415; 4.3.12—ISSUE 1.4.12—Effects of Managing Roadless Areas, ALTERNATIVE 1—Roadless Areas, , page 421; 4.4.1 TIMBER-HARVEST RELATED EMPLOYMENT, ALTERNATIVE 1—Timber-Harvest Related Employment, page 429 4.4.2 Restoration Opportunities for Local Communities, ALTERNATIVE 1—Restoration Opportunities for Local Communities, page 431; 4.4.3 POPULATION CHANGES, ALTERNATIVE 1—Population Changes, page 434; 4.4.4 RECREATION USEALTERNATIVE 1—Recreation use , page 435; 4.4.5—Heritage Resources, ALTERNATIVE 1—Commercial Thinning, page 440; Alternative 1—Prescribed Fire, page 441; ALTERNATIVE 1—In-Stream Hydrological Projects, page 442; 4.4.6 Non-timber Forest Products, ALTERNATIVE 1—Non-Timber Forest Products, page

442; 4.4.8 Rangeland, ALTERNATIVE 1—Rangeland, page 445; 4.4.9 Attitudes, Beliefs And Values, ALTERNATIVE 1—Attitudes, Beliefs and Values, page 447; 4.4.10 Human Health and Safety, ALTERNATIVE 1—Human Health and Safety, page 449; 4.4.11 American Indian Tribes, ALTERNATIVE 1—American Indian Tribes, page 452;4.4.12 Environmental Justice, ALTERNATIVE 1—Environmental Justice, page 454;4.4.13 Financial Viability Of Timber Harvesting, page 455;4.5 Synergistic Effects, page 460.

Step 4: Description of Reference Conditions

The purpose of Step 4 is to explain how ecological conditions have changed overtime as a result of human influence and natural disturbances. The Interdisciplinary Team has identified seven undesired conditions,(see 1.2.1 Undesired Conditions, beginning on page 8) which are relevant to the desired conditions (see 1.2.2 Desired Conditions which begin on page 21). Each of the undesired conditions explain how historical conditions have changed and the desired conditions have a reference of how conditions could be restored to reflect referenced historical conditions, or how restoration could be accomplished so that over time conditions would move in a direction toward these reference conditions (see Summary Table 2—Undesired/Desired Conditions Matrix., page xvii). Chapter 3, page 111 gives an analysis of how current conditions developed over the period that the system evolved. Section 3.2.0—Existing Conditions, page 113 are broken in to the following sections:3.1.0—Overview of Existing Conditions, 3.2.0—Existing Conditions, page 113; 3.2.1—Early Season Peak Flows, 3.2.2—Stream Temperatures, page 124; 3.2.3 Aquatic Habitat, page 125; 3.2.4 Vegetation by Forest Type, page 139; 3.2.5 High Wildfire Hazard, page 159; Recent Uncharacteristically Severe Wildfire—Summit Fire, page 159; 3.2.6 Wildlife Habitat, page 165; 3.2.7—Noxious Weeds, page 203; 3.3.0 Roadless Character, page 204; 3.3.1—Dixie Butte Roadless Area, page 204; 3.3.2—Greenhorn Mountain Roadless Area, page 207; 3.4.0—HUMAN USE, page 209; 3.4.1 History of the Analysis Area, page 209; 3.4.2 Austin, Bates and Greenhorn, page 212; 3.4.3 Social and Economic Factors, page 212; 3.4.4—Heritage Resources, page 231; 3.4.5—Roads, page 232; 3.4.6—Local Communities, page 233, 3.4.7—Social Values and Beliefs; 3.4.7—Social Values and Beliefs, page 234; 3.4.8—American Indian Tribes, page 235; 3.4.9—Environmental Justice, page 235. Key management plan objectives can be found in Section 1.5.2 Planning Documents, page 36.

Step 5: Synthesis and Interpretation of Information

With this analysis the Forest Service has considered the intermediate or mid- scale cumulative effects of implementing aquatic and vegetation treatments to bring conditions back within a range of sustainability. This is a step beyond normal watershed analysis and provides in-depth analysis, particularly the analysis of environmental consequences (see Chapter 4.0—Environmental Consequences, beginning on page 237). Analysis of the No Action Alternative provides a rationale for implementing future action in these seven subwatersheds. By examining the effects of undesired conditions that remain untreated and comparing the existing conditions of Alternative 1, the No Action alternative, (e.g., 4.2.1.1—Alternative 1—Early Season Near and peak flows—No Action, page 239) with the reference conditions described in Chapter 3 (e.g., 3.2.1—Early Season Peak Flows, page 113)of specific ecosystem elements will show the significant differences, similarities, and trends and their causes. The capabilities of achieving management plan objectives can also be evaluated. By comparing further analysis of recommended action in Alternative 2, will show how the implementation of projects which address these conditions would begin to establish a level of resiliency across the landscape of the analysis area (e.g., 4.2.1.2—Early Season Near and peak flows—Alternative 2, page 240, through, 4.2.7.2—Alternative 2, page 323). Other action alternatives to recommended action (Alternative 3, 4, 5) when considered in a comparative manner will demonstrate a range of response to treatment that will allow future projects to gauge recommended implementation and to judge the cumulative effects of treatment. Future projects may then propose a narrower range of alternatives that come closer to the purpose and need of management activity.

Interdisciplinary Team has identified undesired conditions, 1.2.1 Undesired Conditions, beginning on page 8, which are relevant to the Desired Conditions in 1.2.2 Desired Conditions which begin on page 21. By comparing the existing and reference conditions of specific ecosystem elements found in Chapter 3, and looking at the analysis of trends and their causes from the following portions of analysis in the no action alternative, with reference conditions found in Chapter 3, and their counter-part in Alternative 2, the capability of the system to achieve key management objectives can then be succinctly evaluated by a comparison with treatment objectives of Alternative 2. What follows is an index of Alternative 1 No action alternative with an analysis of trends, cause and effect relationships, examined next to treatment objectives in Alternative 2, the Recommended Action.

4.2.1.1—Alternative 1—Early Season Near and peak flows—No Action, page 239; cf., 4.2.1.2—Early Season Near and peak flows—Alternative 2, page 240; 4.2.2.1—High Stream Temperatures—Alternative 1—No Action, page 253; cf., 4.2.2.2—High Stream Temperatures-Alternative 2, page 253; 4.2.3 Treatment Objectives for Aquatic Habitat, page 255; 4.2.3.1—Alternative 1, page 256; cf., 4.2.3.2—Alternative 2, page 256; 4.2.4.1 & 4.2.5.1—Treatment objectives for HRV and High Wildfire Hazards—Alternative 1, page 263; cf., 4.2.4.2 & 4.2.5.2—Treatment objectives for HRV and High Wildfire Risk—Alternative 2, page 267; 4.2.6.1—TES Species, MIS and SOI, page 284; cf Old Growth Habitat and Connectivity—Alternatives 2, 3, 4 and 5, page 297; 4.2.6.2.1.1—Alternative 1, page 297; cf., 4.2.6.2.2—Alternative 2, page 301; 4.2.6.2.2 Timber Harvest/Prescribed Fire within Old Growth Habitat and Connectivity Corridors, page 300; 4.2.6.2.2.1—Alternative 1, page 300; 4.2.6.2.2 Timber Harvest/Prescribed Fire within Old Growth Habitat and Connectivity Corridors, page 300; 4.2.6.3—Big Game, page 303; 4.2.6.3.1—Alternative 1, page 303; cf., 4.2.6.3.2—Alternative 2 (HEI), page 313; 4.2.6.4—Effects to Goshawks—Treatment in Post-Fledging Areas (PFAs), page 319; cf., Alternatives 2, 3 and 5, page 319; 4.2.7 Treatment Objectives for Noxious Weeds, page 320; 4.2.7.1—Alternative 1, page 320; cf., 4.2.7.2—Alternative 2, page 323; 4.3.1—ISSUE 1.4.1—Restricted Access, ALTERNATIVE 1—Restricted Access, page 327; cf., 4.3.1—ISSUE 1.4.1—Restricted Access, page 327; 4.3.2—ISSUE 1.4.2—Effects of All Terrain Vehicle (ATV) use, ALTERNATIVE 1—Effects of ATV use, page 330; cf., Alternatives 2 and 3—Effects of ATV use, page 330; 4.3.3—ISSUE 1.4.3—Effects of Ground Based Systems, ALTERNATIVE 1—Ground Based Systems; page 334; ALTERNATIVE 2—Ground Based Systems, page 337; 4.3.4—ISSUE 1.4.4—Effects of Heavy Equipment in RHCAs, page 347; ALTERNATIVE 1—Heavy Equipment in RHCAs, page 347; cf., ALTERNATIVE 2 and 5—Heavy Equipment in RHCAs, page 348; 4.3.5—ISSUE 1.4.5—Effects of Prescribed Fire in RHCAs, ALTERNATIVE 1—Prescribed Fire in RHCAs, page 354; cf., ALTERNATIVES 2 & 5—Prescribed Fire in RHCAs, page 356; 4.3.6—ISSUE 1.4.6—Inadequate RHCA Size, ALTERNATIVE 1—Inadequate RHCA Size, page 358; cf., ALTERNATIVE 2—Inadequate RHCA Size, page 359; 4.3.7—ISSUE 1.4.7—Blow down in Vincent/Vinegar RHCAs, ALTERNATIVE 1 and ALTERNATIVE 4—Blow down in Vincent/Vinegar RHCAs, page 362; cf., ALTERNATIVE 2—Blow down in Vincent/Vinegar RHCAs, page 363; 4.3.8.1—Competing Vegetation, ALTERNATIVE 1—Toxic Chemicals—Competing Vegetation, page 367; cf., ALTERNATIVE 2—Toxic Chemicals—Competing Vegetation, page 368; 4.3.8.2—Animal Damage, ALTERNATIVE 1—Toxic Chemicals—Animal Damage, page 380; cf., ALTERNATIVE 2—Toxic Chemicals—Animal Damage, page 380; 4.3.8.3—Noxious Weeds, ALTERNATIVE 1—Toxic Chemicals—Noxious Weeds, page 393; cf., ALTERNATIVE 2—Toxic Chemicals—Noxious Weeds, page 394; 4.3.9—ISSUE 1.4.9—Inadequate Amount of Treatment—Forest Sustainability and Resiliency, Alternative 1—Forest Sustainability and Resiliency, page 400; cf., Alternative 2—Recommended Action—Forest Sustainability and Resiliency, page 402; 4.3.10—ISSUE 1.4.10—Insufficient Pileated Woodpecker Habitat, ALTERNATIVE 1—Insufficient Pileated Woodpecker Habitat, page 409; cf., ALTERNATIVES 2, 4 and 5—Insufficient Pileated Woodpecker Habitat, page 409; ALTERNATIVE 1—Retaining Additional Wildlife Snags, page 412; cf., ALTERNATIVES 2, 4 and 5—Retaining Additional Wildlife Snags 412; 4.3.11—Issue 1.3.11—Effects on Connectivity for Wildlife, ALTERNATIVE 1—Connectivity for Wildlife, page 415; cf., ALTERNATIVE 2—Connectivity for Wildlife, page 416; 4.3.12—ISSUE 1.4.12—Effects of Managing Roadless Areas, ALTERNATIVE 1—Roadless Areas, , page 421; cf., ALTERNATIVE 2—Roadless Areas, page 423 4.4.1 TIMBER-HARVEST RELATED EMPLOYMENT,

ALTERNATIVE 1—Timber-Harvest Related Employment, page 429; cf., ALTERNATIVE 2—Timber-Harvest Related Employment, page 429; 4.4.2 Restoration Opportunities for Local Communities, ALTERNATIVE 1—Restoration Opportunities for Local Communities, page 431; cf., ALTERNATIVE 2—Restoration Opportunities for Local Communities, page 431 ; 4.4.3 POPULATION CHANGES, ALTERNATIVE 1—Population Changes, page 434; cf., ALTERNATIVES 2, 3, 4 and 5—Population Changes, page 434; 4.4.4 RECREATION USE ALTERNATIVE 1—Recreation use , page 435;cf., ALTERNATIVE 2—Recreation use, page 436; 4.4.5—Heritage Resources, ALTERNATIVE 1—Commercial Thinning, page 440;cf., ALTERNATIVES 2, 3, 4, & 5—Commercial Thinning, page 441 Alternative 1—Prescribed Fire, page 441;cf., Alternatives 2, 3, 4, and 5—Prescribed Fire, page 441; ALTERNATIVE 1—In-Stream Hydrological Projects, page 442; cf., ALTERNATIVES 2 and 5—In-Stream Hydrological Projects, page 442 ;4.4.6 Non-timber Forest Products, ALTERNATIVE 1—Non-Timber Forest Products, page 442;; cf., ALTERNATIVES 2, 3, 4, and 5—Non-Timber Forest Products, page 443; 4.4.8 Rangeland, ALTERNATIVE 1—Rangeland, page 445;cf., ALTERNATIVES 2, 3, 4 & 5—Rangeland, page 445; 4.4.9 Attitudes, Beliefs And Values, ALTERNATIVE 1—Attitudes, Beliefs and Values, page 447; cf., ALTERNATIVES 2, 3, 4, and 5—Attitudes, Beliefs and Values, page 448; 4.4.10 Human Health and Safety, ALTERNATIVE 1—Human Health and Safety, page 449; cf., ALTERNATIVE 2—Human Health and Safety, page 449; 4.4.11 American Indian Tribes, ALTERNATIVE 1—American Indian Tribes, page 452; cf., ALTERNATIVES 2 and 3—American Indian Tribes, page 453; 4.4.12 Environmental Justice, ALTERNATIVE 1—Environmental Justice, page 454;cf., ALTERNATIVES 2, 3, 4 and 5—Environmental Justice, page 454;4.4.13 Financial Viability Of Timber Harvesting, page 455;4.5 Synergistic Effects, page 460.

Reference conditions can be found in Chapter 3 section, 3.2.0—Existing Conditions, page 113 and are broken in to the following sections:3.1.0—Overview of Existing Conditions, 3.2.0—Existing Conditions, page 113; 3.2.1—Early Season Peak Flows, 3.2.2—Stream Temperatures, page 124; 3.2.3 Aquatic Habitat, page 125; 3.2.4 Vegetation by Forest Type, page 139; 3.2.6 Wildlife Habitat, page 165; 3.2.7—Noxious Weeds, page 203; 3.3.0 Roadless Character, page 204; 3.3.1—Dixie Butte Roadless Area, page 204; 3.3.2—Greenhorn Mountain Roadless Area, page 207; 3.4.0—HUMAN USE, page 209; 3.4.1 History of the Analysis Area, page 209; 3.4.2 Austin, Bates and Greenhorn, page 212; 3.4.3 Social and Economic Factors, page 212; 3.4.4—Heritage Resources, page 231; 3.4.5—Roads, page 232; 3.4.6—Local Communities, page 233, 3.4.7—Social Values and Beliefs; 3.4.7—Social Values and Beliefs, page 234; 3.4.8—American Indian Tribes, page 235; 3.4.9—Environmental Justice, page 235.

Essentially the identified undesired conditions of early peak water flows, elevated stream temperatures, damaged stream segments, deteriorated forest stands, high risk of uncharacteristically severe wildfire, degraded wildlife habitat, and displaced native ground cover due to noxious weed invasions, would all continue as adverse trends if recommended management activities do not occur. Additionally, section 4.5 Synergistic Effects, page 460 provides a synthesis or, “synergistic interaction of different effects,”⁸ disclosed under the resource sections that quantitatively and, where necessary, qualitatively interact with each other, using benchmark dates of approximately 5, 10, 50, and 125 years from project completion.

Step 6: Recommendations

Restoration activities are recommended to improve aquatic and vegetative conditions by establishing a trend toward resilient vegetation and properly functioning condition of subwatersheds and streams (ICBEMP 2000). While this analysis is a fine scale compared to other efforts of subbasin review, it is intended as a broad scale analysis to focus on the immediate and perceived problems and make site specific recommendations for considered action. While site specific projects may be considered and implemented at a finer scale, subwatershed by subwatershed. This analysis can facilitate consideration and is subject to change as the finer scale is applied to recommended actions, throughout these watersheds. This analysis originated as a National Environmental Policy Act process from a Notice of

⁸ Footnote to CEQ 1997 “Considering Cumulative Effects Under the National Environmental Policy Act” p.8.

Intent to prepare an Environmental Impact Statement (see page 1). The document will follow the format of a Draft Environment Impact Statement to allow more site specific planning in each subwatershed to apply analysis from a general template to potential projects.

Summary Table 1 Recommended, or a Possible Program of Work by Subwatersheds

Restoration Project	Davis/Placer	Vinegar	Vincent	Little Boulder/ Deerhorn	Tin cup/ Little Butte	Butte	Granite Boulder	Totals	Projected Implementation
SWS Number	30201	30203	30205	30207	30209	30211	30213		
Rx Fire (acres)	2,033	2,787	3,356	6,679	4,354	1,363	1,077	21,649	2002-2010
Pre-commercial Thinning/with Wildlife and silviculture objectives (acres)	625	725	452	827	171	307	0	3,107	
Mechanical Treatment (acres logged)	1818	1717	1597	1902	2008	686	0	9,728	
Placement of LWD in Bull Trout streams(acres)	1.99	3.37	0	0	0	9.94	12.77	28.07	
Culvert Replacements/ Improvements (fish bearing streams)	1	6	5	3	8	2	4	29	
Spot planting of Riparian conifers along bull trout Streams(acres)	0	5.84	0	0	0	0	0.99	6.83	
Caging and Fencing Hardwoods(acres)	1.99	1.99	0	5.83	0	2.16	0	11.97	
Planting Riparian Hardwoods(acres)	.99	3.18	1.93	1.99	2.51	0	0	10.6	
Watershed Improvement Projects(acres)	0	834.93	188.38	20.74	25.82	9.98	134.4	1,214.25	
Modification of in- stream structures(acres)	0	0	0	16.81	0	0	0	16.81	
Aspen Enhancement(acres)	2.89	9.07	6.28	4.93	85.38	0	0	108.55	
Noxious Weed Treatment (acres) <i>Does not include MNF Weed EA Rx treatment which overlaps all these SWS.</i>	2.02	8.52	8.7	8.33	2.35	0.57	1.59	32.08	
Recommended Decommission of Trails(miles)	0.0	0.0	0.0	0.0	0.0	0.95	0.74	1.69	
Recommended Improvement of Trails(miles)	3	0.42	0.0	1.8	1.65	1.76	0.0	8.63	

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Restoration Project	Davis/Placer	Vinegar	Vincent	Little Boulder/ Deerhorn	Tin cup/ Little Butte	Butte	Granite Boulder	Totals	Projected Implementation
SWS Number	30201	30203	30205	30207	30209	30211	30213		
Recommended New Trail Construction(miles)	0.0	0.0	0.0	0.03	0.0	0.5	1.26	1.76	
Trailhead Decommission(sites)	0.0	0.0	0.0	1	0.0	1	1	2	
New Trailhead(sites)	0.0	1	0	0.0	0.0	1	0.0	2	
Deerhorn campground(acres)	0.0	0.0	0.0	2.53	0.0	0.0	0.0	2.53	
Dispersed Recreation site improvements(acres)	0.0	0.0	3.54	2.79	4.64	0.0	0.0	10.97	
Dispersed Recreation site relocation (acres)	0.0	0.0	14.04	0.0	2.49	0.0	0.0	16.53	
ATM▲									
Constructed Miles	2.7	5.4	4.8	5.8	3.3	0.3	0.1	22.4	
Minor Reconstructed Miles	14.9	4.1	1.2	7.7	5.5	2.9	4.7	41	
Major Reconstructed Miles	14.4	26.2	23.1	19.4	17.1	13.9	16.2	130.3	
Decommissioned Miles	9.2	11.4	5.9	10.6	7.9	8.0	8.9	61.9	
▲ Figures for roads represent Alternative 5 data (ATM-A see Appendix E, Map 30), however the recently completed <i>Southeast Galena Roads Analysis 2002, Appendix G</i> reflects more recent data, and new agency definitions for roads numbers from Appendix G will differ slightly from these figures.									