Susanville Indian Rancheria

Integrated Resource Management Plan

December 2014
Final

Susanville Indian Rancheria

Integrated Resource Management Plan (IRMP)

Prepared For:
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Executive Summary

This document is the ***Integrated Resource Management Plan (IRMP)*** for the **Susanville Indian Rancheria (SIR).** It was developed by the SIR Natural Resources Department (NRD) with input from:

- SIR Tribal Membership (with specific emphasis on input from youth and elders)
- Tribal Business Council (Tribal Leaders)
- Tribal Liaison Committee (Cultural Committee)
- SIR Housing Authority (SIRHA)
- Lassen Indian Health Center (LIHC)
- Tribal Administration and Departments
- Tribal Businesses

This IRMP is a strategic, vision-based, long-range management plan based on Tribal member's interests, needs, and concerns for their lands and natural resources. It provides guidelines for strategic resource management in order to restore, preserve, and manage these resources for future generations.

The IRMP is intended to be a management guide for Tribal Department Directors and Resource Managers. It translates vision into goals and lays down objectives for present and future resource management. It will be used as a framework to assist the Tribal Business Council (TBC) and Administration in decision-making, and will guide development and implementation of individual Resource Management Plans within the Natural Resources Department. Integrating all resources under one plan helps to identify and resolve existing and potential conflicts between resource management activities. SIR Department heads and TBC members met several times to discuss opportunities for cooperation and coordination during the planning process. This IRMP is the result of this cooperation.

The IRMP has been prepared under guidelines provided by the Bureau of Indian Affairs (BIA) Office of Trust Responsibilities. It meets the requirements of the National Environmental Policy Act (NEPA, 42 U.S.C. 4321). It also serves to satisfy Tribal regulations and conforms to all pertinent federal statutes.

Over the past year, a range of Alternatives were developed that respond to changing conditions on the Rancheria and incorporate input from the Tribal community. Significant input from Tribal Members, Tribal Staff, and Tribal Leaders was employed in developing the IRMP to provide:

- Responsiveness to Tribal preference and policies
- Incorporation of technical recommendations from Tribal staff
- Assurance that Tribal and federal regulations will be met.

The Alternatives are listed below:

1) **No Action Alternative:** Continuance of current management practices without the increased levels in planning, coordination, and integration identified during the IRMP development process.

2) **IRMP Alternative (Preferred Alternative):** This alternative promotes environmentally and culturally responsible growth and economic development. Continued growth and development is expected but with implementation of the Preferred Alternative. Development on the Tribal Lands will be encouraged to be compatible with the IRMP. This alternative focuses on sustainable growth and economic development with minimal impact on environmental and cultural resources.

3) **Preservation Alternative:** This alternative supports the development of a more active program to conserve resources in the Tribal Lands. This alternative includes the greatest level of environmental and cultural protection. However, the Tribe will discourage growth in the tribal land unless it retained structure consistent with preservation of biodiversity and cultural heritage. This alternative promotes preservation of environmental and cultural resources with emphasis on educational and outreach programs.

4) **Economic Growth Alternative:** This alternative focuses on continued growth and economic development while minimizing costs to Tribal programs. This Alternative imposes limitations on preservation of environmental and cultural resources, sacrificing long term sustainability. This alternative allows decisions to be driven by economics more than ecology or culture.

1. Purpose and Need for Action

1.1. Background

The Ancestors of the Tribes and Bands associated with the Susanville Indian Rancheria (SIR) lived in the northeastern California and northwestern Nevada region since time immemorial. These tribes and bands controlled a vast domain that encompassed lands from the crest of the southern Cascade Mountains east to the Great Basin and from the Modoc Plateau south to the crest of the northern Sierra Nevada mountains which seemingly had endless natural wealth such as deer, elk, fish, oak, coniferous forests, and sagebrush seas. The control of virtually all of this land was lost with the arrival of settlers in search of gold and other resources in the 1800's. Treaties that were made between the tribes and bands and federal government agents were never ratified by the U.S. government.

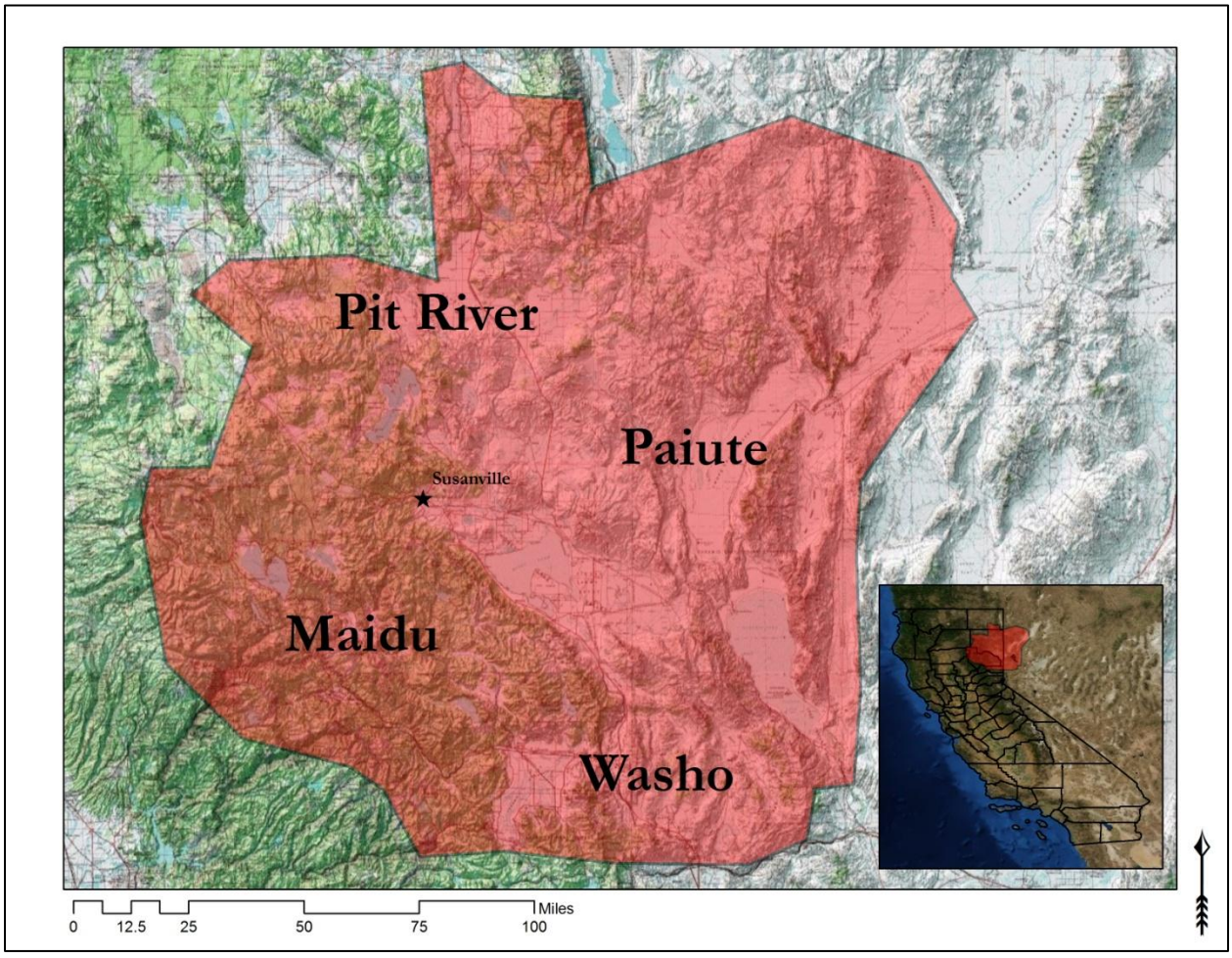

Figure 1. Ancestral Homelands of the Tribes and Bands associated with the SIR

The Tribal membership elected to charter under authority of the Indian Reorganization Act (IRA) of 1934 and thus the initial Rancheria Constitution and Bylaws were approved by the Secretary of the Interior on March 3, 1969. The anthropological tribes associated with the Rancheria are: Mountain Maidu, Northern Paiute, Pit River, and Washoe. The Federal Government, however, through the Department of Interior recognizes political entities and not the anthropological entities. It is under the authority of the Susanville Indian Rancheria Tribal Business Council (TBC) that the Integrated Resource Management Plan (IRMP) is being created through funds granted from the Bureau of Indian Affairs (BIA).

The IRMP meets the requirements of the National Environmental Policy Act (NEPA) mandating that planning and management take into account the impacts that management decisions have on all resources; in other words, it requires the use of a systematic interdisciplinary approach to planning and decision-making (42 U.S.C. 4321, Sec. 102(2) (A)). The IRMP also addresses NEPA instructions requiring that planning and management be an open process with public input. Thus, it meets all applicable NEPA requirements. It also serves to satisfy Tribal regulations and conforms to all pertinent federal statutes.

1.2. Purpose and Need for Action

Since the establishment of the Rancheria as a federally recognized tribe in 1969 through the Indian Reorganization Act, the Tribe believes that preserving the high quality of the environment on its lands can be successfully balanced with the need for economic development projects, housing development and other land uses only if the Tribe creates a comprehensive Integrated Resource Management Plan (IRMP).

The purpose of this IRMP is to provide a guide to manage existing Tribal resources and to engineer a pathway for future resources to be harmonized into Tribal policy. It will accomplish this by showing what the Susanville Indian Rancheria community's priorities are regarding resources. It will also provide future department managers and TBC members the information they need to make knowledgeable and comprehensive decisions on how to manage Tribal assets.

Table 1. Acreage of SIR Lands held in Trust status and fee title.

SIR Properties	Acres in Trust Status	Acres in Fee Title
SIR Lower Rancheria	33.21	
SIR Cemetery	.53	
SIR Upper Rancheria	995.00	
SIR Herlong	72.00	
SIR Cradle Valley		160.00
SIR Ravendale		80.00
TOTAL:	**1,100.74**	**240.00**

The Susanville Indian Rancheria (SIR) currently encompasses 1,340.74 acres in six locations throughout Lassen and Plumas Counties in Northeastern California. Four of these locations

representing 1,100.74 acres are held in Trust status and two of these locations, representing 240.00 acres, are held in fee title by the Susanville Indian Rancheria (*See Table 1 and Figure 2*).

SIR's lands include:

SIR Lower Rancheria: The original 30 acres of the Rancheria were purchased from Mrs. Fannie H. Taylor on August 15, 1923 under the Landless and Homeless Act under which the U.S. Congress provided funds to purchase land for landless and homeless California Indians. At the time of the purchase there were landless and homeless California Indians from many different Tribes, including the Mountain Maidu, Northern Paiute, Pit River, and Washoe, who lived in the general Susanville area and occupied the 30-acre parcel. The Rancheria land was considered to have "federal status as a tribe". The individual Indians from the various named Tribes thus became one political, governmental entity with the chartering and approval of its constitution and bylaws by the Secretary of the Interior in 1969.

The Susanville Indian Rancheria Housing Authority purchased 3.21 acres adjacent and to the east of the Lower Rancheria on December 30, 2000, transferred the land to the tribe, and the land was accepted into trust status on January 5, 2004.

SIR Cemetery: On June 6, 1975, Mr. Clifton C. Cramer and Mrs. Betty G. Cramer performed a Quit Claim conveyance of the Cemetery consisting of .53 acres to the Bureau of Indian Affairs to hold into trust for the Susanville Indian Rancheria. The Bureau of Indian Affairs accepted this conveyance on December 7, 1981.

SIR Upper Rancheria: On October 14, 1978, 120 acres was added to the Rancheria under the special legislation of Public Law 95-459 which was sponsored by the honorable Congressman Bizz Johnson.

On March 29, 2002, the tribe purchased an additional 875 acres adjacent to the Upper Rancheria. This land was accepted into trust status on December 08, 2004.

SIR Herlong: An additional 72 acres located at the Sierra Army Depot (SIAD) based in Herlong, California was acquired from the U.S. Department of the Army under the Base Realignment and Closure (BRAC) Act and added to the Rancheria on November 6, 2000.

SIR Cradle Valley: On September 30, 2003, the tribe purchased 160 acres (the Cradle Valley Ranch) located close to Antelope Lake in Plumas County, CA.

SIR Ravendale: Another 80 acres located in Lassen County, CA was donated to the Rancheria in 1994 that has not been put in to Federal Trust status.

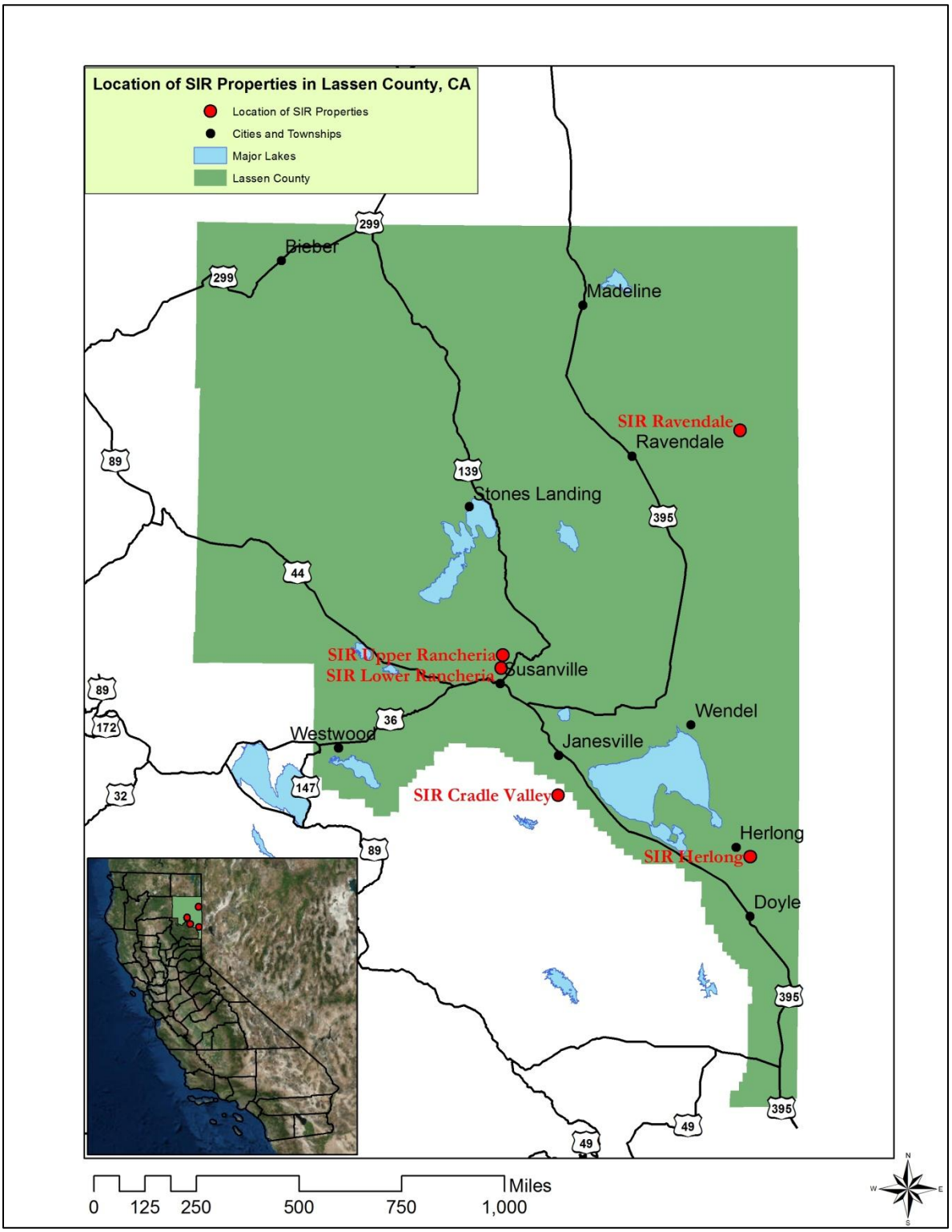

Figure 2. Location of SIR Tribal Trust and Fee Lands in Lassen and Plumas Counties, CA

This IRMP will focus on both the trust and fee properties and the resources that directly affect or are connected to them as they are all important in meeting the goals of the Tribe with regard to natural resource protection, human health and well-being, and the future growth of the Tribe.

The IRMP may and will refer to official Susanville Indian Rancheria Tribal ordinances passed by the Tribal Business Council (TBC). Any Ordinance, Act or Code passed will supersede any information in the IRMP.

1.3. Public Involvement

The IRMP is a strategic, vision-based, long-range management plan based on Tribal members' interests, needs, and concerns for their lands and natural resources. The IRMP will identify resources that are important to the Tribe and will provide a clear direction for how the Tribe will need to manage their lands and assets in order to restore, preserve, and protect these resources for future generations. This plan spells out a vision for the Tribe's resource planning and management, the condition of these resources, as well as a set of actions to achieve this vision.

An IRMP Core Team was created by the Natural Resources Department (NRD) consisting of SIR Program Managers, Tribal Members, and local representatives. The Core Team's goal was to base the plan on the needs and desires of the tribal community. The Tribe assisted the IRMP Core Team in understanding their vision for the future of the Reservation's natural, social, and cultural resources. In particular, IRMP Core Team helped staff to understand:

a. **Resources** on SIR lands that are utilized by the Tribal community.
b. Tribal member **satisfaction** with opportunities to use these resources; and
c. Natural resource and environmental **problems and concerns**.

The development of the IRMP was an open and inclusive process. In addition to the Core Team, input from Tribal members was achieved through:

- **Public Workshops**
- **Tribal IRMP Youth Committee**
- **Tribal IRMP Elder Committee**
- **Tribal Liaison Committee (Cultural Committee)**
- **Tribal Business Council Meetings**
- **SIRCO Planning Workshops**

Concerns about current and future resource management strategies, land use, and development impacts were evident among a majority of the participants. One notable observation is that Tribal members are highly interested in cultural and natural resource management and many Tribal members reported the willingness to serve on the IRMP Core Team and Tribal IRMP

Committees. There was a general perception of a need to take control of environmental quality and land use for Tribal benefits as a whole. This IRMP represents the Tribal Resource Management Vision, Goals, Objectives, and Actions expressed by the SIR Tribal Community through public involvement.

1.4. Methodology and Organization of Plan

As previously discussed, the SIR Natural Resources Department (NRD) established an IRMP Core Team of Tribal members, Program Managers, and local representatives. The NRD Director was identified as the Core Team Leader to direct the Core Team. Each team member was given specific tasks in the development of the plan. The IRMP Core Team began by identifying Tribal resources and preparing an IRMP outline based on these resources. The NRD staff prepared resource descriptions including delineation of individual resource boundaries, plant and animal species inventories, and culturally important sites identification.

As the NRD staff mapped and documented resources. Boundaries were identified, and species were inventoried within each resource. Culturally important sites were also recognized along with the needs for these unique resources. Strategic goals and objectives for prospective Tribe growth and development were identified and incorporated in the IRMP.

The next step of the IRMP development was to identify possible alternatives for consideration and evaluate the impacts of these alternatives. Alternatives were chosen based on input from Tribal members and were approved by the TBC. The main steps of the IRMP development are listed below:

1. Delineation of individual resource boundaries.
2. Inventory of species within each resource.
3. Identification of culturally important sites.
4. Identification of needs for each resource and cultural site.
5. Delineation of proposed and other potential development.
6. Setting up strategies for resource management.
7. Consideration of development alternatives.
8. Evaluation of alternative impacts.

2. Alternatives

This chapter presents the requirements that the Preferred Alternative must meet and presents the Alternatives that were developed during the IRMP process. It further includes Tribal vision, goals, and objectives. Alternatives are introduced at the end of this chapter.

2.1. Regulation and Requirements

The Susanville Indian Rancheria is a federally recognized Indian Tribe. The Tribe elected to charter under authority of the Indian Reorganization Act (IRA) of 1934 and thus the initial Rancheria Constitution and Bylaws were approved by the Secretary of the Interior on March 3, 1969.

The basis for the Tribe's assertion of authority to manage and assert control over the Susanville Indian Rancheria's lands stems from its inherent sovereignty as an Indian Tribe to regulate the conduct and activities of members and non-members on reservation lands. The Tribe has adopted a Constitution as a means to organize its traditional governmental structure. Article VI of the Tribe's Constitution outlines the duties of the General Council and the TBC (*See Appendix A: Article VI of the SIR Tribal Constitution*).

The governing body of the Susanville Indian Rancheria is the General Council, which is composed of all the members who are at least eighteen years old. The General Council has delegated the responsibility of running the day-to-day business of the Rancheria to the Tribal Business Council, which is a seven-member board. The TBC's enumerated powers, include, but are not limited to:

- Regulate the use of Tribal lands within the jurisdiction of the Tribe.
- Remove or exclude non-members whose presence may be injurious to the peace, health, or welfare of the Tribe from the territory of the Tribe.
- Safeguard and promote the peace, safety, moral, and general welfare of the members of the Tribe by regulating the behavior of all persons within the jurisdiction of the Tribe.
- Provide for the enactment and enforcement of the laws of the Tribe.
- Regulate and license the conduct of business activities within the Tribe's jurisdiction.
- Regulate and license persons exercising special privileges or profiting on general resources on Tribal property.
- Manage, develop, protect, and regulate water, minerals, timber, fish, wildlife, and other natural resources within the Tribe's jurisdiction.
- Regulate land use and development in areas within the Tribe's jurisdiction (SIR Tribal Constitution Art. VI, § 2).

All powers not expressly delegated to the TBC are reserved by the General Council.

The TBC has the constitutional and traditional authority to enact the laws of the Tribe. In addition, the TBC also declares its will through the adoption of Resolutions. In addition to the written laws of the Tribe, the Tribe governs itself in accordance with the traditional, and often unwritten, laws and customs of the tribes and bands of the SIR. Tribal authority is unique (in contrast to Anglo-American forms of government) in that it is not obtained solely through a constitution and written law. Rather, Tribes retain their inherent aboriginal sovereignty, including the ability to implement and enforce traditional tribal laws and customs as well as to exercise its traditional jurisdiction if not otherwise extinguished by Federal law. What this means is that if the Constitution or laws of the SIR are silent on a particular issue, other sources of Tribal law (i.e. traditions and customs) may be referenced in order to ascertain whether the alleged authority lawfully exists. The Tribe's inherent sovereign authority to assert jurisdiction over Tribal natural resources on SIR Tribal lands[1] is bolstered by the federal government's explicit consent in federal statutes such as the Clean Water Act, Clean Air Act and the Resource Conservation and Recovery Act for an Indian Tribe to be treated as a state for purposes of implementing the provisions of the Act. *See, e.g.*, Clean Water Act, 33 U.S.C. § 1377 (e) ("The Administrator is authorized to treat an Indian Tribe as a State…").

2.2. Goals and objectives

The Susanville Indian Rancheria believes that the overall goal for strategic resource management is to restore and preserve the following **six resources** for future generations:

1. Cultural Resources
2. Water Resources
3. Air Resources
4. Geologic Resources
5. Ecological Resources
6. Human Resources

Goals and management objectives associated with each resource are summarized in Section 2.2.

[1] The term "SIR Tribal lands" is a legal term of art which is defined as "lands over which the Susanville Indian Rancheria exercises jurisdiction, including but not limited to, the initial reservation, trust lands (Tribal and individual), lands subject to treaty-reserved rights, and lands within the federal definition of "Indian Country" set forth in 18 U.S.C. § 1151." This term is used throughout Susanville Indian Rancheria ordinance. It is the Tribe's position that this term also includes all waters that pertain to waters of the Rancheria, trust or restricted lands.

2.2.1. Cultural Resources

Preservation of irreplaceable cultural resources is essential to the continued well being of the Tribes and Bands of the SIR. Cultural resources will be maintained and enriched for the Tribes' future generations. The cultural foundation of the Tribes should be preserved as a living part of Tribal community life and development in order to give a sense of orientation to the people.

Measures are necessary to foster conditions under which our Tribal modern community and prehistoric, historic and cultural resources can co-exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations.

Cultural Resource Goals:

1. Protect and restore cultural sites traditionally significant to the Tribes and Bands associated with the SIR.
2. Educate tribal members and the local community about the traditional practices of SIR tribes and bands and the ways in which natural resources were utilized in a sustainable and harmonious fashion to provide for current and future communities.
3. Support the protection, restoration, and utilization of culturally significant plant and animal communities.

Cultural Resource Management Objectives:

1. Establish, preserve, and provide access to plant communities consisting of ethnobotanically significant species.
2. Plan and establish an educational program to promote the use and significance of culturally relevant species such as beargrass, black oaks, elderberry, trout, and deer.
3. Research and identify ethno-botanical species of local significance to the SIR Tribal people.
4. Construct and maintain a sweat lodge.

Figure 3. Youth from the SIR Education Center collecting acorns on the Upper Rancheria.

2.2.2. Water Resources

Water is a sacred cultural resource that is the life blood of the Tribal people. The Tribe employs an integrated approach to manage and protect water resources including surface water, groundwater, and drinking water.

Water Resource Goals:

1. To protect, maintain, and improve the quality of surface and groundwater resources found on and within Susanville Indian Rancheria lands.
2. To provide healthy drinking water for Tribal communities and residents.

Water Resource Management Objectives:

1. Protect and preserve surface water resources such as springs, wetlands, and riparian areas.
2. Develop Water Quality Standards for surface waters on Tribal lands
3. Continue to implement Surface Water Quality Monitoring Program on the Upper Rancheria and maintain a database of principal water quality measurements.
4. Develop a Surface Water Quality Monitoring Program for the SIR Cradle Valley property.
5. Continue to monitor drinking water quality on the Lower Rancheria, Upper Rancheria, and SIR Herlong properties.
6. Continue to implement the Groundwater Monitoring Program on the SIR Herlong property to ensure that groundwater contamination from the Sierra Army Depot (SIAD) is not impacting tribal groundwater resources.
7. Investigate the potential to utilize groundwater resources for drinking and agricultural purposes.

Figure 4. SIR NRD Staff member collects a water sample for SIR's Surface Water Quality Monitoring Program.

2.2.3. Air Resources

Air Resource Goals:

It is in the best interest of the Susanville Indian Rancheria and its members to:

1. Establish and maintain a comprehensive Tribal air quality policy, the objectives of which will be to manage and control emissions of air contaminants into the air of the land in trust in order to protect the health, safety and welfare of tribal members, and to preserve the environment; and
2. Understand how climate variability and change will potentially affect present resource management strategies.

Figure 5. Smoke from the Moonlight Fire that burned for 22 days in Lassen and Plumas Counties in 2007 creating inhalable particulate matter pollution.

Air Resource Management Objectives:

1. Monitor, interpret, and assess regional air quality data to assess trends and determine their implications.
2. Integrate approaches to manage climate change impacts into near-term operational and long-term strategic planning.

2.2.4. Geologic Resources

Geologic Resource Goals:

1. Protect and preserve quality of geologic materials and soil for current and future generations.
2. Acquire additional land so that the SIR regulatory jurisdiction can likewise expand and further protect geologic features and view sheds within SIR aboriginal territories.

Geologic Resource Management Objectives:

1. Focus acquisition plans on land that is adjacent to or near existing Rancheria properties.
2. Acquire BLM property east and adjacent to the Upper Rancheria in the vicinity of Hidden Valley.

2.2.5. Ecological Resources

The Tribe understands that sustainable practices supported by the best available science and Traditional Ecological Knowledge (TEK) are a mainstay of any landscape management strategy. According to the overarching goal to preserve natural habitats for future generations, the SIR is interested in restoration and preservation of all affected plant communities and habitats located on SIR lands.

Ecological Resource goals:

1. Increase species diversity while maximizing income/value.
2. Provide specific, critical habitat for threatened, endangered, and sensitive species.

Figure 6. Mule deer on the Upper Rancheria eating bitterbrush (*Purshia tridentata*), two traditionally important species.

Ecological Resources Management Objectives:

1. Define and prioritize realistic restoration goals, objectives, and tasks.
2. Develop a program to protect and restore natural plant communities and biodiversity on Tribal lands. This includes identifying and prioritizing tasks, techniques, and best practices to achieve restoration goals and objectives.
3. Develop performance indicators to measure the success of the restoration program.
4. Monitor performance indicators to determine progress towards meeting restoration goals and objectives.
5. Document and communicate successes, failures, and lessons learned to avoid pitfalls and to promote successful projects.
6. Develop education materials related to ecological resources and TEK.
7. Modify the restoration strategies and tactics, as necessary, to better meet goals and objectives.

2.2.6. Human Resources

The Tribe believes that the health of the environment is tied directly to the health of the people. In order to meet these vital needs, the Tribe has developed an Integrated Solid Waste Management Plan (ISWMP) to oversee the generation, disposal, and transportation of solid waste. The ISWMP will allow the Tribe to accommodate needs of future Reservation development and coordinate between Tribal departments on issues of solid waste.

Human Resource goals:

1. Protect the environment.
2. Sustain human health and well being of the tribal community.
3. Provide economic opportunities for the Tribal community.
4. Provide safe communities for Tribal housing.
5. Coordinate hazardous waste management on the SIR in the most environmentally responsible way.
6. Assess and prepare for natural and human-made hazards that can potentially affect the people, economy, environment, and property of the SIR.

Human Resource Management Objectives:

1. Prohibit or minimize the degradation of the environment on Tribal lands and in the region.
2. Restore and preserve ecosystem function on Tribal lands and in the region in order to maximize the environmental health and well-being of Tribal members and the surrounding communities.
3. Utilize and promote TEK through educational and outreach programs.
4. Develop and enforce Tribal Solid Waste Ordinances and Codes.
5. Update SIR's Integrated Solid Waste Management Plan every five years.
6. Initiate environmentally preferable purchasing.
7. Revise and enforce rules and regulations relating to the use and disposal of hazardous waste within SIR boundaries.
8. Identify and catalogue existing or potential hazardous waste sites.
9. Develop a database of known hazardous waste sites.
10. Create quality assurance and standard operating procedures for testing current and potential sites.
11. Coordinate transfer of hazardous waste collection within the boundaries of the SIR.
12. Revise and update the SIR Emergency Operations Plan (EOP) as new information on past hazard events is discovered and new events occur.

13. Invest in economic activities that will result in employment opportunities for Tribal members.
14. Investigate options for providing for the current and future healthcare and housing needs of the Tribal community.

2.3. Alternatives

The alternatives are listed below:

1. **No Action Alternative (*No change in management style*)**: Continue current management practices without increased levels in planning, coordination, and integration identified during the IRMP development process.

2. **IRMP (*Preferred Alternative*):** Promote environmentally and culturally responsible growth and economic development. Continued growth and development is expected, but with implementation of the Preferred Alternative, development on Tribal Lands is encouraged to be compatible with the IRMP. This alternative focuses on sustainable growth and economic development with minimal impact on environmental and cultural resources.

3. **Preservation Alternative:** Develop a more active program to conserve resources on Tribal Lands. This alternative includes the greatest level of environmental and cultural protection. However, the Tribe discourages growth on tribal land unless it retains structure consistent with preservation of biodiversity and cultural heritage. This alternative promotes preservation of environmental and cultural resources with emphasis on educational and outreach programs.

4. **Growth and Economic Emphasis Alternative:** Continue growth and economic development while minimizing costs to Tribal programs. This Alternative imposes limitations on preservation of environmental and cultural resources, sacrificing long term sustainability. This alternative allows decisions to be driven by economics more than ecology or culture.

3. Resource Description and Management Strategies

3.1 Current Status of SIR Lands – No Action Alternative

As previously discussed, the Susanville Indian Rancheria (SIR) currently encompasses 1,340.74 acres in six locations throughout Lassen and Plumas Counties in Northeastern California (table 1):

- SIR Lower Rancheria
- SIR Cemetery
- SIR Upper Rancheria
- SIR Herlong
- SIR Cradle Valley
- SIR Ravendale

3.1.1 SIR Lands Near the City of Susanville (Lower Rancheria, Upper Rancheria, and SIR Cemetery)

Three of SIR's properties, all of which are held in Trust, are located adjacent to the City of Susanville in Lassen County, California (*See Figure 7*). The SIR Lower Rancheria and Cemetery (Township 30N, Range12E, portions of the SW Corner of Section 29) are surrounded by the City of Susanville and the SIR Upper Rancheria is located to the north of the City limits on the southern foothills of Susanville Peak (T 30N, R12E, portions of Sections 17, 18, 20, & 21).

SIR Lower Rancheria and Cemetery

The SIR Lower Rancheria is 33.21 acres and includes the original 30 acres that was purchased in 1923 and an additional 3.21 acres that was acquired by the SIR Housing Authority and donated to the SIR *(See Figure 8)*. Most of the land has been developed, including:

- 43 Tribal homes
- 6 Tribal homes specifically for Tribal Elders
- Tribal Administration Office and Parking
- Public Works Department facilities
- Lassen Indian Health Center (LIHC) and parking
- SIR Housing Authority office
- Gymnasium
- Fitness Center
- Teen Center
- Tribal Elder's Eatery
- SIR Community Center
- Park/Children's Playground
- Storage Warehouse
- Fleet Yards
- Storage Yards
- Education Facility w/ Park
- Diamond Mountain Casino and Hotel
- Diamond Mountain Mini-Mart and Gas Station
- Diamond Mountain Smoke Shop

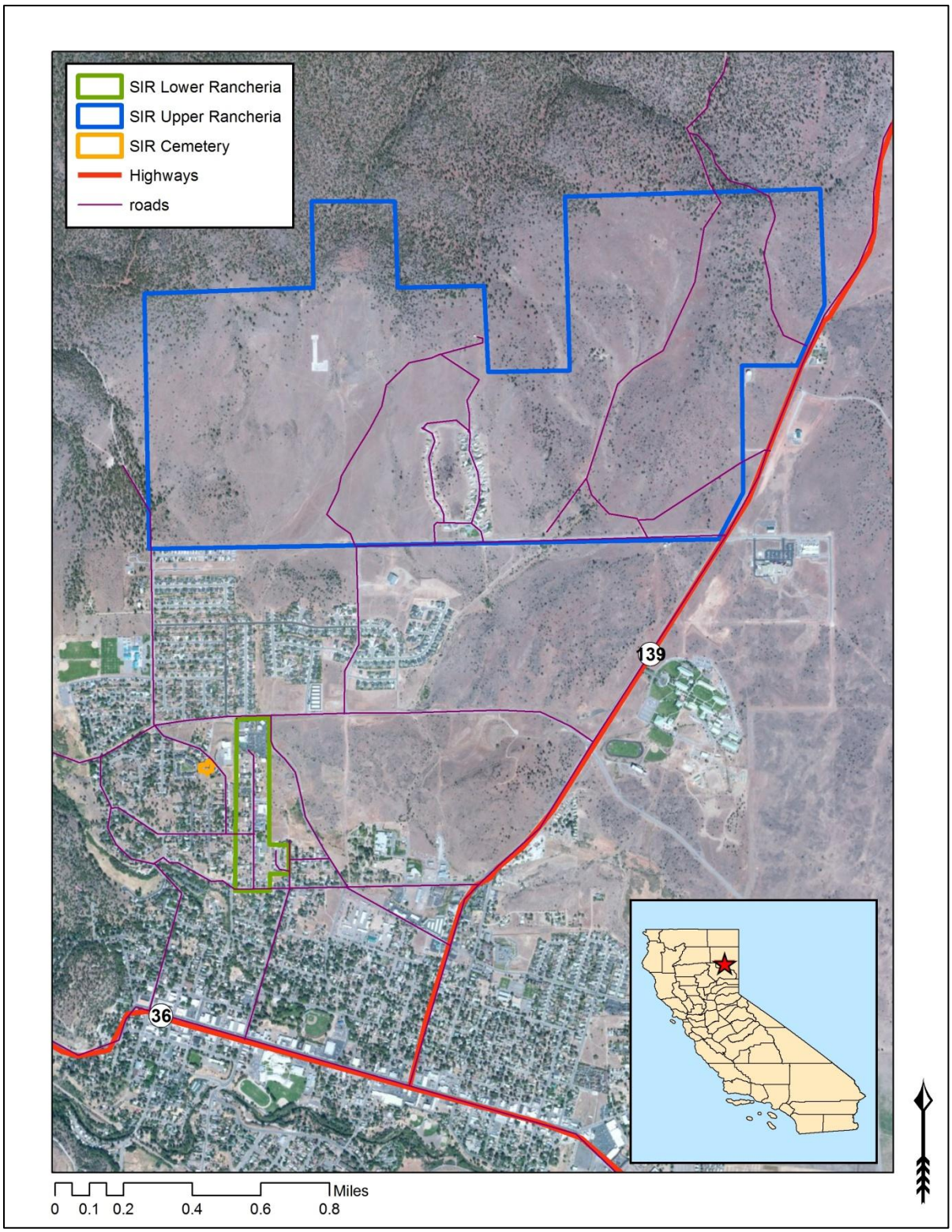

Figure 7. SIR Lands within the vicinity of the City of Susanville

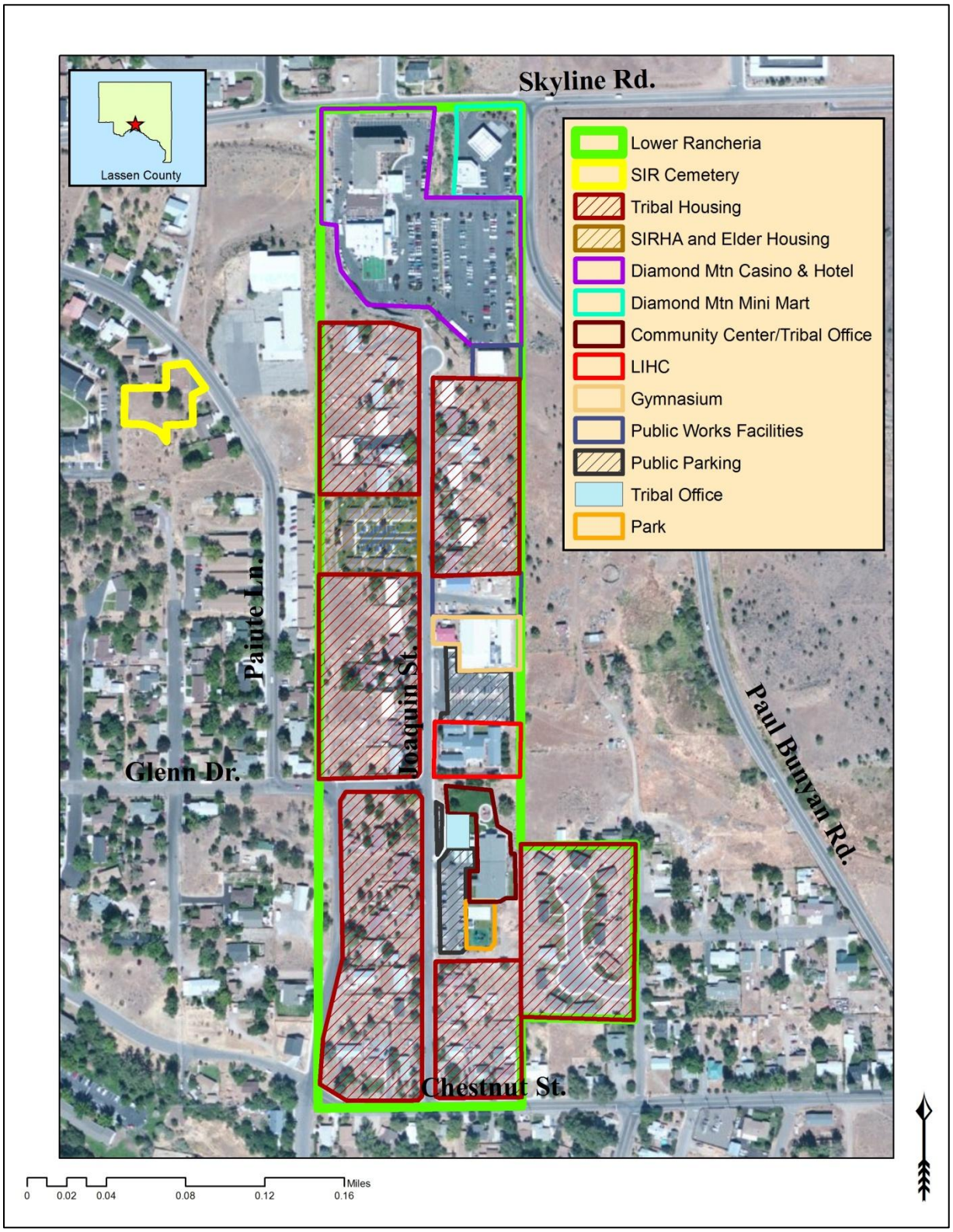

Figure 8. SIR Lower Rancheria and Cemetery

The SIR Cemetery is located on an old Homestead occupied by George Evans, an ancestor to many of the current Tribal members who lived on the property during the early 20th century. On June 6, 1975, Clifton C. Cramer and Betty G. Cramer performed a Quit Claim conveyance of the Cemetery consisting of 0.53 acres to the Bureau of Indian Affairs to hold into trust for the Susanville Indian Rancheria. The Bureau of Indian Affairs accepted this conveyance on December 7, 1981.

SIR Upper Rancheria

The Upper Rancheria is 995 acres directly north of the City of Susanville. In 1978, with special legislation sponsored by Honorable Congressman Bizz Johnson, 120 acres was added to the Rancheria (original Upper Rancheria). On March 29, 2002 the tribe purchased an additional 875 acres, 400 acres of which were west of the original 120 acre Upper Rancheria and 475 acres of which were east of the original 120, bringing the total to 995 acres.

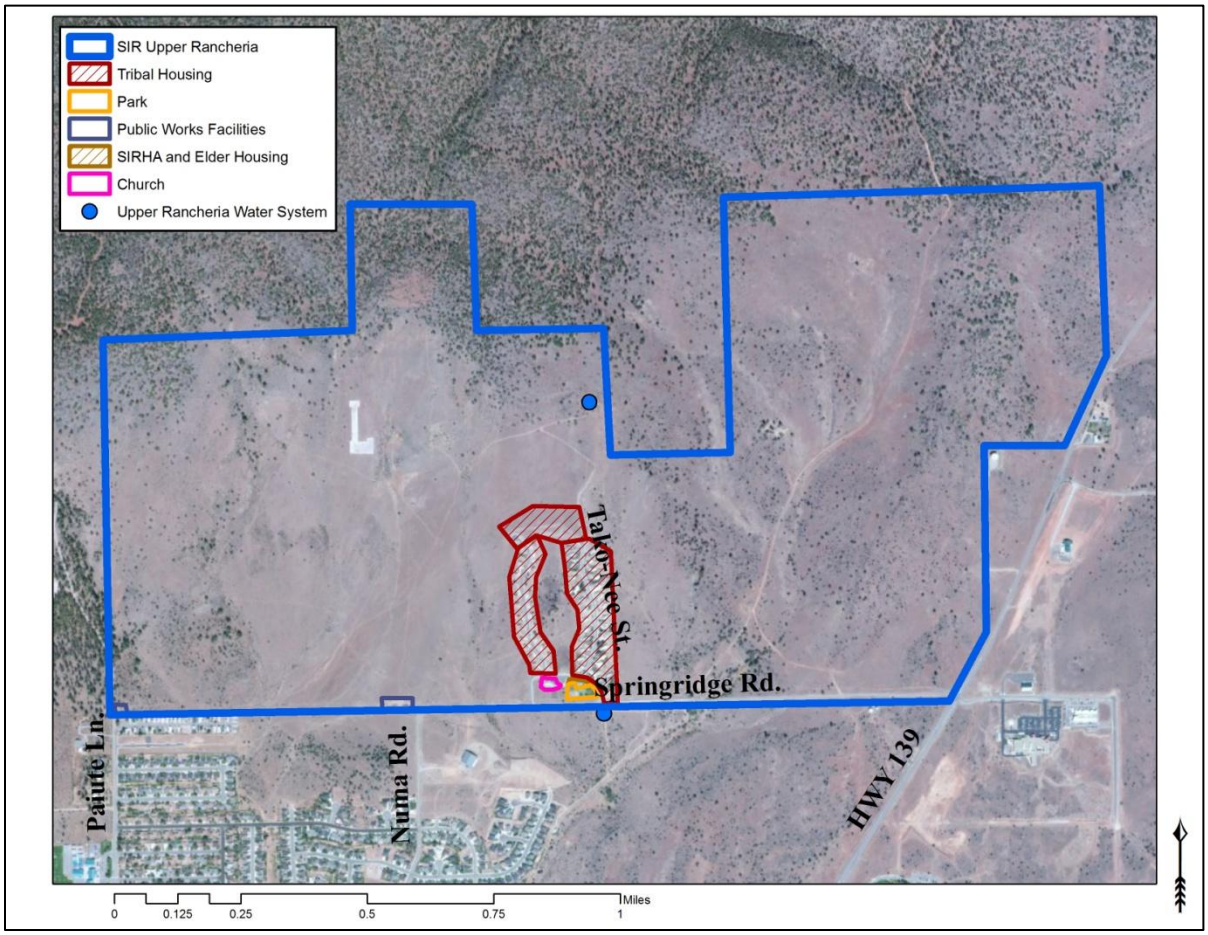

Figure 9. SIR Upper Rancheria

Elevations on the Upper Rancheria range from 4,400 – 5,200 feet. The northern portion of the property exhibits the steepest slopes of 30-40% and the southern portion exhibits slopes generally less than 10%. The original 120 acres has been developed into:

- 26 Tribal Rental Units
- 26 Tribal Homes
- 14 Undeveloped Homesites
- Park
- Church
- SIRHA Maintenance Facility

The 875 acres remains undeveloped and represents many of the resources that the Tribe wishes to protect and utilize as well as opportunities for economic development and growth (*See Figure 9).*

3.1.2 SIR Herlong

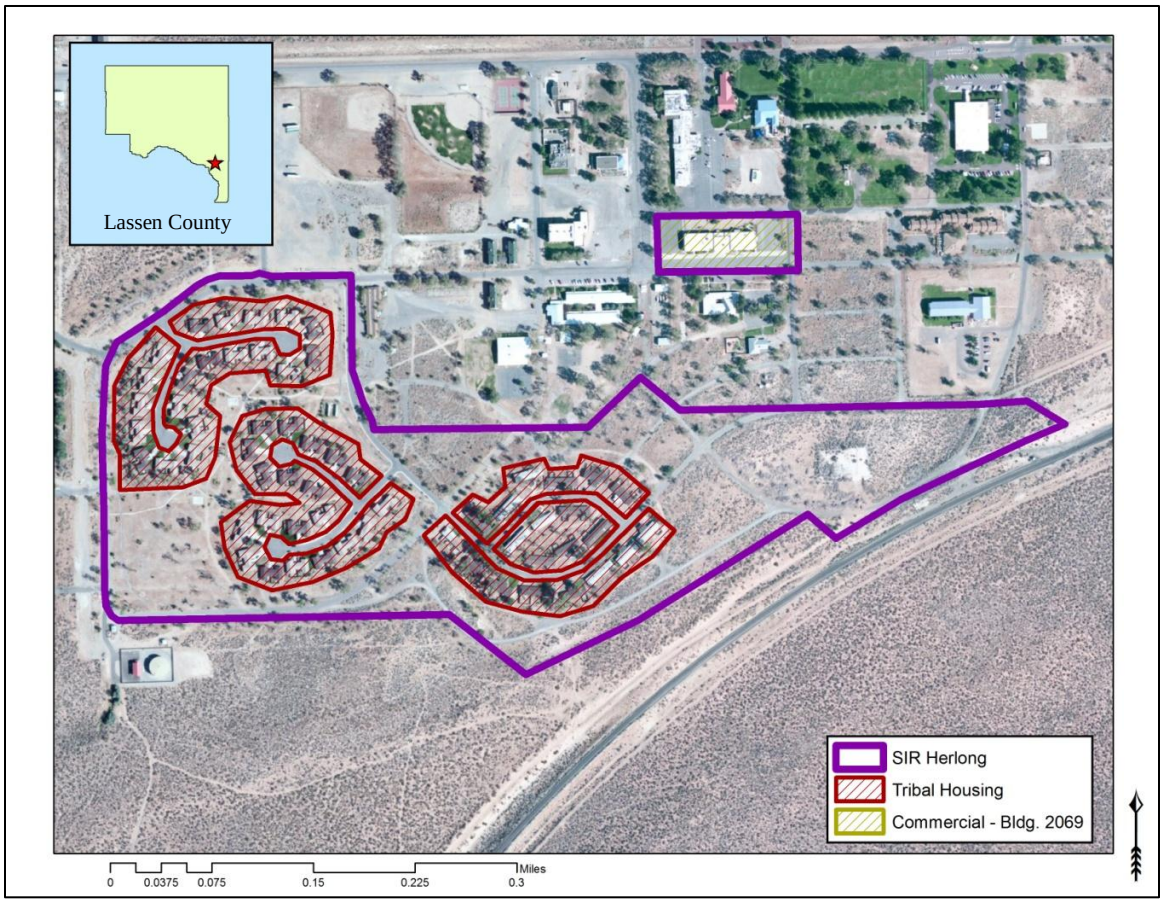

Figure 10. SIR Herlong

In 2000, SIR acquired 72 acres in Trust from the Sierra Army Depot (SIAD) in Herlong, CA through a federal-to-federal land transfer from the U.S. Army to the Bureau of Indian Affairs (BIA). SIAD was being realigned due to the Base Realignment and Closure (BRAC) Act. The 72 acres is divided into two separate parcels. One parcel is 68 acres the majority of which consisted of 116 2-4 bedroom housing units, which the Tribes economic development corporation, SIRCO, currently manages as a home rental business. The other parcel is a commercial building on 4 acres, which SIRCO also manages (*See Figure 10*).

3.1.3 SIR Cradle Valley

Figure 11. Clarks Creek flowing through SIR Cradle Valley

On September 30, 2003, the Tribe purchased 160 acres (the Cradle Valley Ranch) located close to Antelope Lake (Section 3 of T27N, R13E, MDM) in Plumas County. The property is completely surrounded by the Plumas National Forest and is accessed by taking the Janesville Grade road for 6.7 miles after turning off of Highway 395. The property is primarily high elevation coniferous forest. There is a small cabin and another building with showers and bathrooms located on the property. SIR has installed a well and a septic system on the property. Clarks Creek, a Class 1 watercourse, flows through the property (*See Figure 11*). The SIR has placed 67 acres of the property associated with Clarks Creek into a Natural Resource Conservation Service (NRCS) Wetland Reserve Program (WRP) conservation easement. Topography at SIR Cradle Valley is gentle with less than 10% slope over most of the area. Elevations range from 5,920 to 6,160 feet. Annual precipitation is approximately 20 inches falling as snow and rain typically from November through April. Soils are derived from granodiorite rocks and soil texture is a sandy or coarse gravelly loam. The property is utilized for forestry and cultural resources and the SIR plans on creating an outdoor cultural recreation area on the property (*See Figure 12*).

3.1.4 SIR Ravendale

The SIR acquired 80 acres east of Ravendale, CA through a donation in 1994. SIR Ravendale has not been put in to Federal Trust status. The property is located near Buckhorn Reservoir and is undeveloped with limited access. Buckhorn Creek flows through the northwest corner of the

property, which is sagebrush steppe and juniper woodland with a small patch of aspen near the creek (*See Figure 13*).

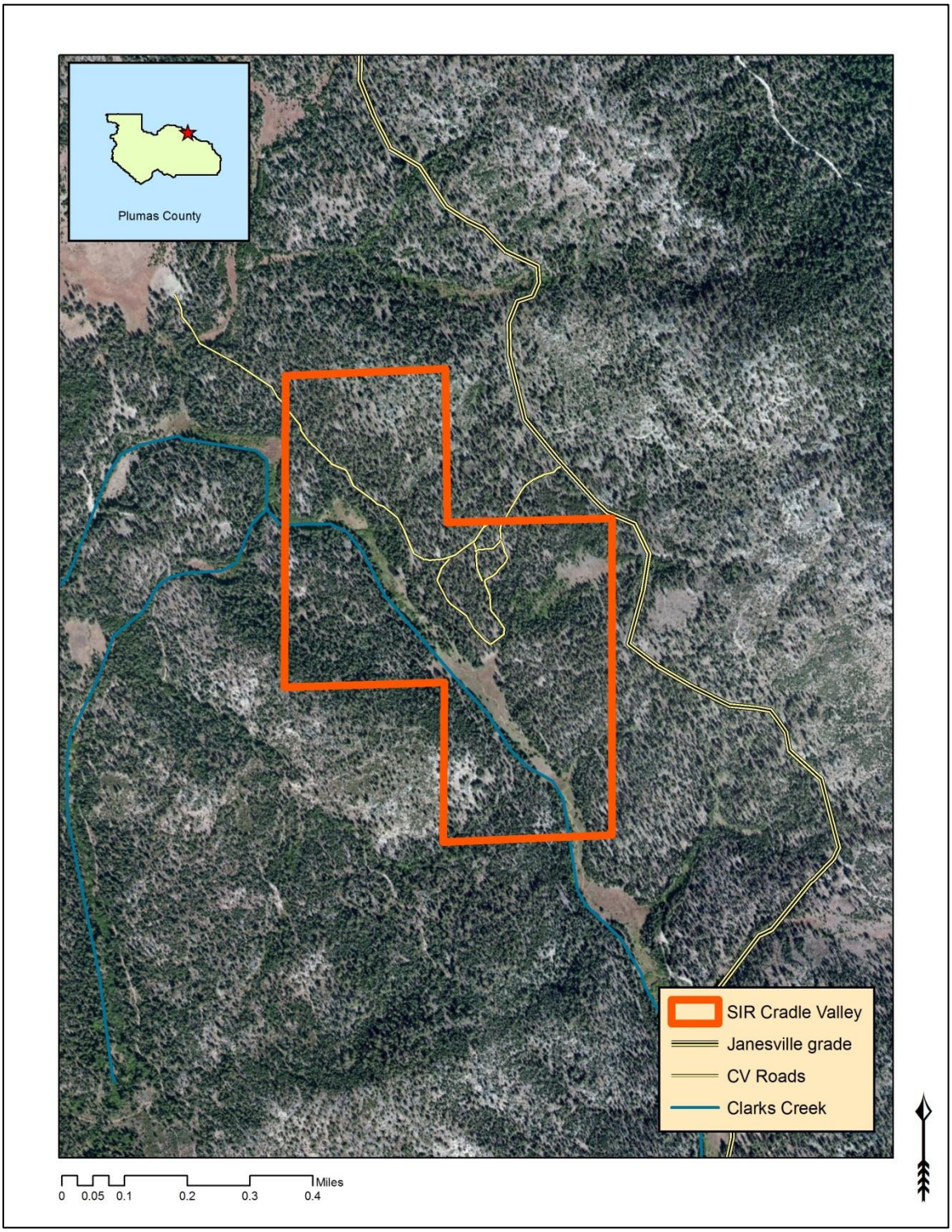

Figure 12. SIR Cradle Valley

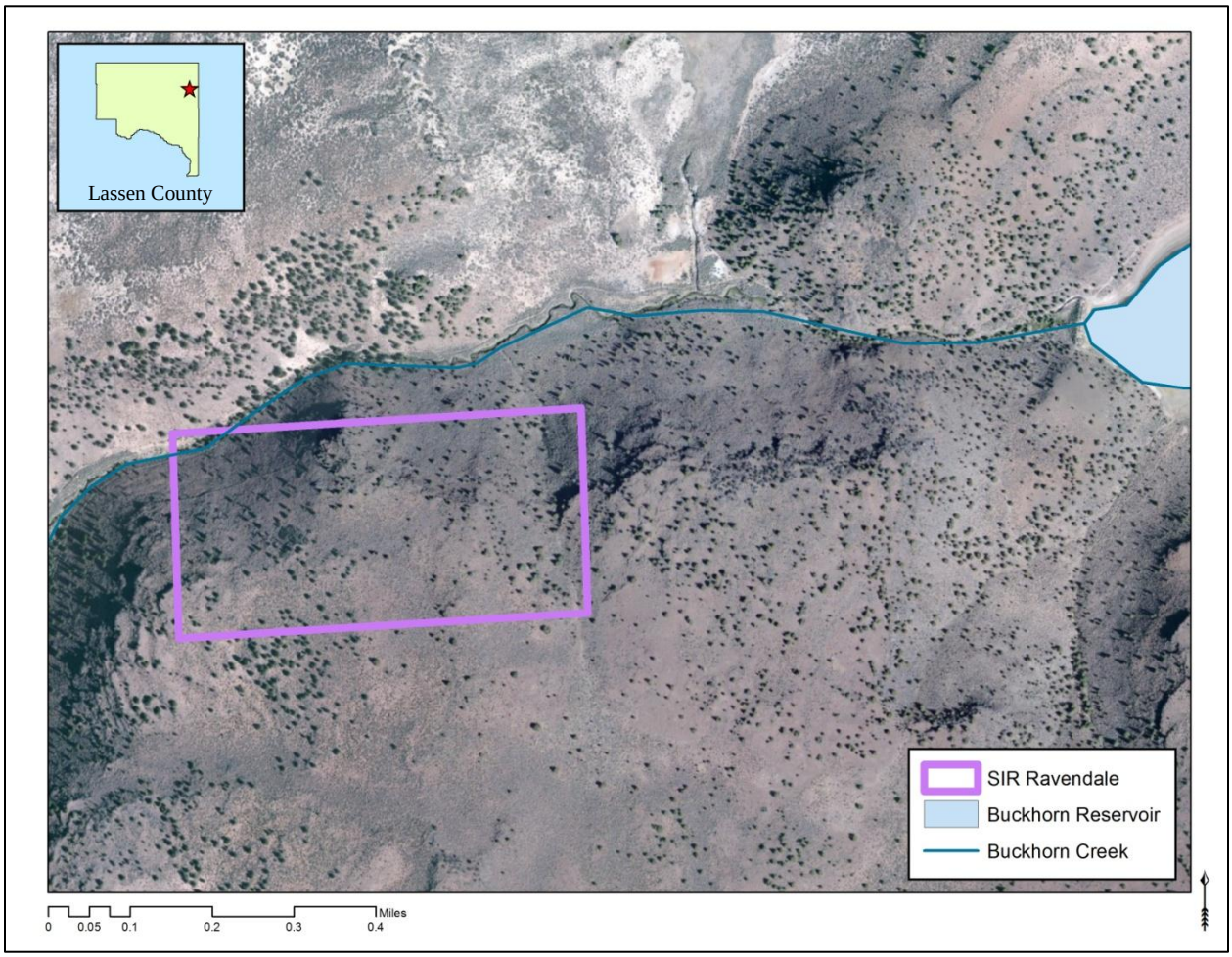

Figure 13. SIR Ravendale Property

3.2 Cultural Resources

Cultural Resources refer to native plant material, objects, or cultural or religious objects or sites which are nominated or determined eligible for the National Register as having cultural significance. Cultural resources may include, but are not limited to, such things as hunting blinds, burials, roots, berries, barks, arrowheads, modified rocks, and Indian medicines. The Tribes and Bands of the SIR have used these resources since time immemorial. To manage and protect this heritage the SIR is developing a Cultural Resource Protection Ordinance.

Tradition and culture are not limited to arbitrary boundaries, therefore the Tribe cannot predict impacts to cultural resources or locations outside of it lands. These resources are still considered of equal importance to the Tribe for protection and conservation. The Tribe has established an eight-member Tribal Liaison Committee consisting of two members from each of the four ancestral Tribes associated with the SIR. These members are appointed by the

TBC and consult with organizations and agencies to protect cultural resources outside of the Tribe's boundaries.

The Tribe maintains a secure database of known resources, locations, and other pertinent information. This information is only available to the SIR NRD unless otherwise released by the TBC.

It is the policy of the TBC to protect traditional cultural resources by establishing a preservation program to identify, evaluate, and protect cultural, historic, and archaeological resources associated with the Tribes and Bands of the SIR and by regulating the undertakings on SIR Lands when they may result in changes in the character or use of such cultural resources. The TBC has established the following policies to protect cultural resources:

1. The spirit and direction of the Susanville Indian Rancheria is founded upon and reflected in its cultural heritage.
2. The cultural foundation of the Tribe should be preserved as a living part of our community life and development in order to give a sense of orientation to the Tribal people.
3. Cultural resources of the Tribe are being lost, substantially altered, or destroyed with increasing frequency.
4. In the face of ever increasing energy, economic, residential, highway, sanitation, and public health developments, the present Tribal and non-Tribal governmental cultural resource preservation programs are inadequate to ensure future generations a genuine opportunity to appreciate and enjoy the rich heritage of the Tribe.
5. Measures are necessary to foster conditions under which our modern society and our prehistoric, historic and cultural resources can co-exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations.
6. Self-governing capabilities, political integrity, health and welfare, and economic security of the Tribe will be enhanced and protected by the Tribe's governing control, as well as regulation, and preservation of irreplaceable cultural resources which are essential to the continued well being of the Tribe and will be maintained and enriched for the Tribe's future generations.

Cultural Ecological Resources: Traditionally, SIR Tribal members have used native plants for food, medicine, dyes, tools, construction, and basketry. Many Tribal members continue to harvest and use native plants in a traditional manner. The SIR is responsible for the preservation of the Traditional Ecological Knowledge (TEK) of the Tribes and Bands associated with the SIR and making this knowledge available to the members for the future.

The goals of the SIR TEK Program are:

1. Educate Tribal members and the community on natural resource processes and to share ways they can be stewards of Tribal lands in their own actions. Education materials will

continue to be developed to improve understanding of TEK used in this area before European contact, including sustainable harvest of native plants used for food, medicine, housing, clothing and other daily uses.

2. To create a TEK Education Trail for tribal members and the community to learn about the habitat in which particular plants grow.
3. Support development of culturally significant native plant communities.

Intensive cultural resource surveys have been performed on all of SIR's properties except SIR Ravendale. The SIR maintains a confidential GIS database of cultural site locations. The SIR wishes to establish a policy of avoiding disturbance to any identified cultural site that has the potential to be listed on the National Register of Historic Places (NRHP) as dictated by the National Historic Preservation Act (NHPA). In addition the SIR has established that riparian/meadow, black oak (*Quercus kelloggii*) and bitterbrush (*Purshia tridentata*) habitats should be treated as culturally significant sites due to their traditional importance as resources for the survival of Tribal ancestors. The SIR has established the following land use zones to protect significant cultural-historic areas and black oak habitat:

- **Cultural-Historic Areas:** Land use zone located around areas of cultural and historic sensitivity including important wildlife habitat and archaeological resources restricting activities in these areas in order to protect these important resources. Approximately 80 acres on the Upper Rancheria have been proposed for this zone and 67 acres on the Cradle Valley property (*See Figures 14 and 15*).

- **Restricted Black Oak Area:** Land use zone located around black oak habitat restricting activities in these areas in order to protect these cultural resources. Approximately 100 acres on the Upper Rancheria have been proposed for this zone (*See Figure 14*)

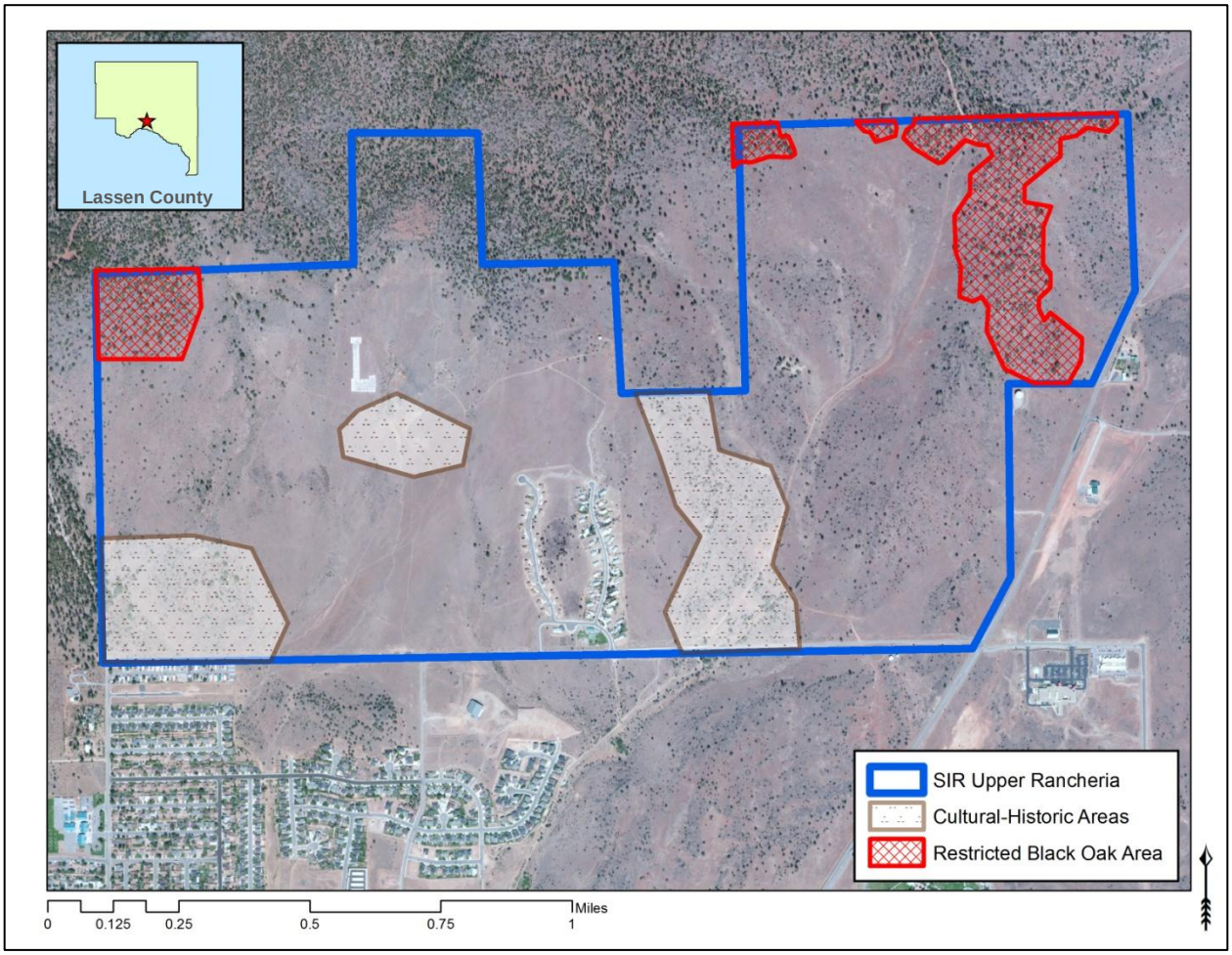

Figure 14. Areas proposed for Cultural-Historic Area and Restricted Black Oak Area land zoning on the Upper Rancheria

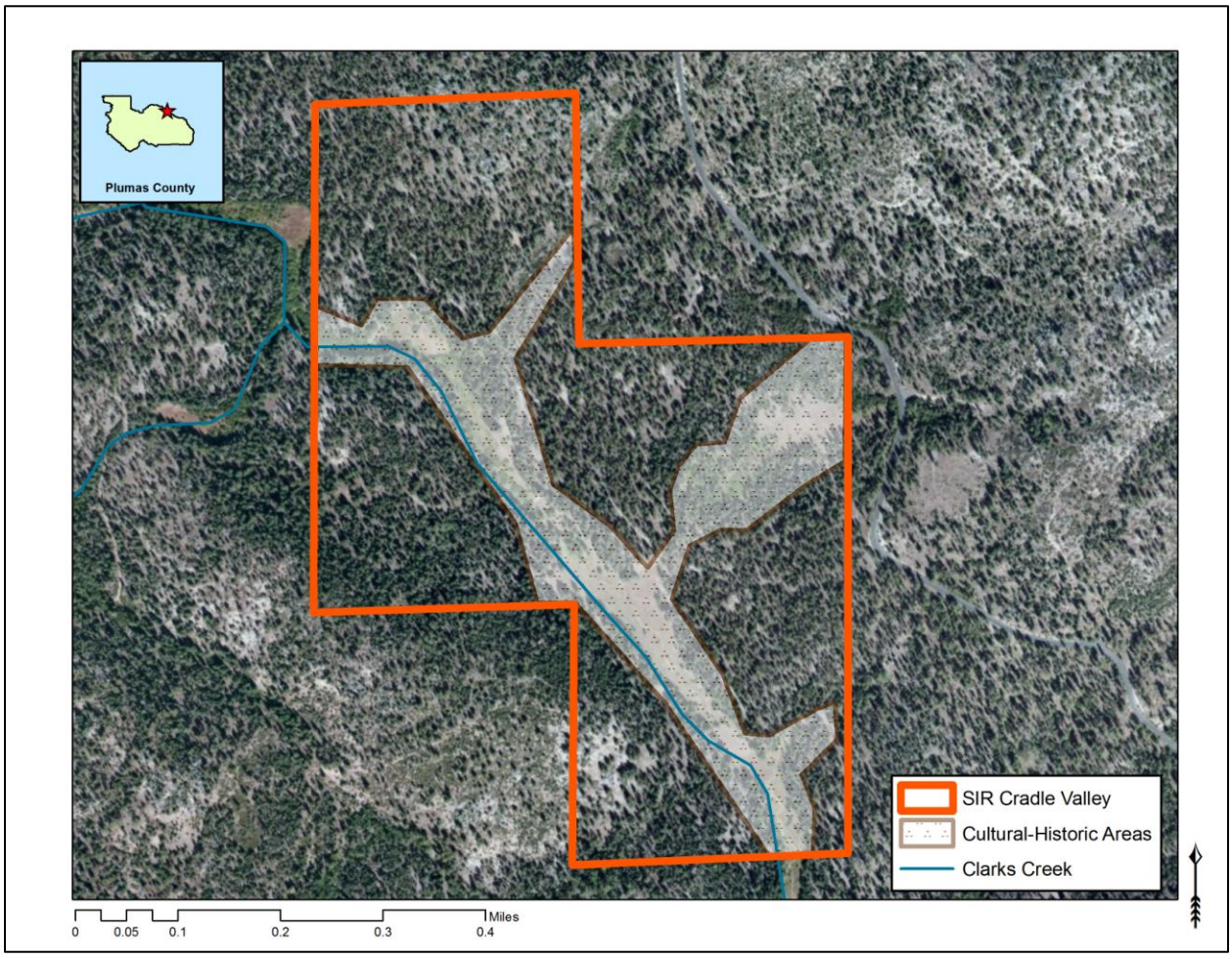

Figure 15. Proposed Cultural-Historic Area land zoning on SIR Cradle Valley

3.3 Water Resources

3.3.1 Surface Water Resources

The SIR considers water resources sacred and as such wishes to establish a policy to protect and avoid disturbance to surface waters, riparian corridors, and wetlands. The Tribe employs an integrated approach to manage water resources that include surface water and groundwater. The goals are to protect, maintain, and improve quality of the surface water and groundwater resources found on or within SIR lands.

The Tribe has adopted the following ordinance to protect Tribal surface and ground waters:

- Discharge of Pollutants into the Waters of the Susanville Indian Rancheria – This ordinance prohibits the discharge of pollutants into the Waters of the SIR.

The SIR has developed two programs to protect surface waters:

- **Water Pollution Control Program**: The SIR has established a surface water monitoring program with assistance from U.S. Environmental Protection Agency (EPA) Clean Water Act (CWA) § 106 funding. The SIR has developed a Quality Assurance Program Plan (QAPP), which has been approved by the EPA,that establishes the sampling locations and the constituents to be tested for. The goal is to establish baseline data and use this data to develop tribal water quality standards that are consistent with the identified beneficial uses of Tribal surface waters.
- **Non-point Source Pollution Control Program:** Development and implementation of the SIR Non-Point Source Assessment and Management Plan.

The following agencies and programs have provided assistance to develop these programs:

- U.S. Environmental Protection Agency (EPA) General Assistance Program (GAP)
- EPA Performance Partnership Grant (PPG)
- EPA Clean Water Act (CWA) § 106 – Water Pollution Prevention Program
- EPA CWA § 319 Non-Point Source Prevention
- Bureau of Indian Affairs (BIA) Water Management, Planning, and Pre-Development Program.

The SIR has established the following land zone to protect these resources:

- **Water Resources:** Land use zone located around springs and riparian corridors restricting activities in these areas in order to protect these resources. Approximately 1 acre on the Lower Rancheria, 160 acres on the Upper Rancheria, and 8 acres on SIR Ravendale are being proposed for this land zoning (*See Figures 16-18*).

Lower Rancheria: West Barry Creek, an intermittent drainage flows through the northwest corner of the Lower Rancheria between the Diamond Mountain Casino and Hotel parking lot and the Diamond Mountain Mini-mart. A wetland delineation conducted during the environmental review of potential on and off-site impacts associated with the expansion of the casino and development of the hotel determined that this area is wetland habitat (*See Figure 16*).

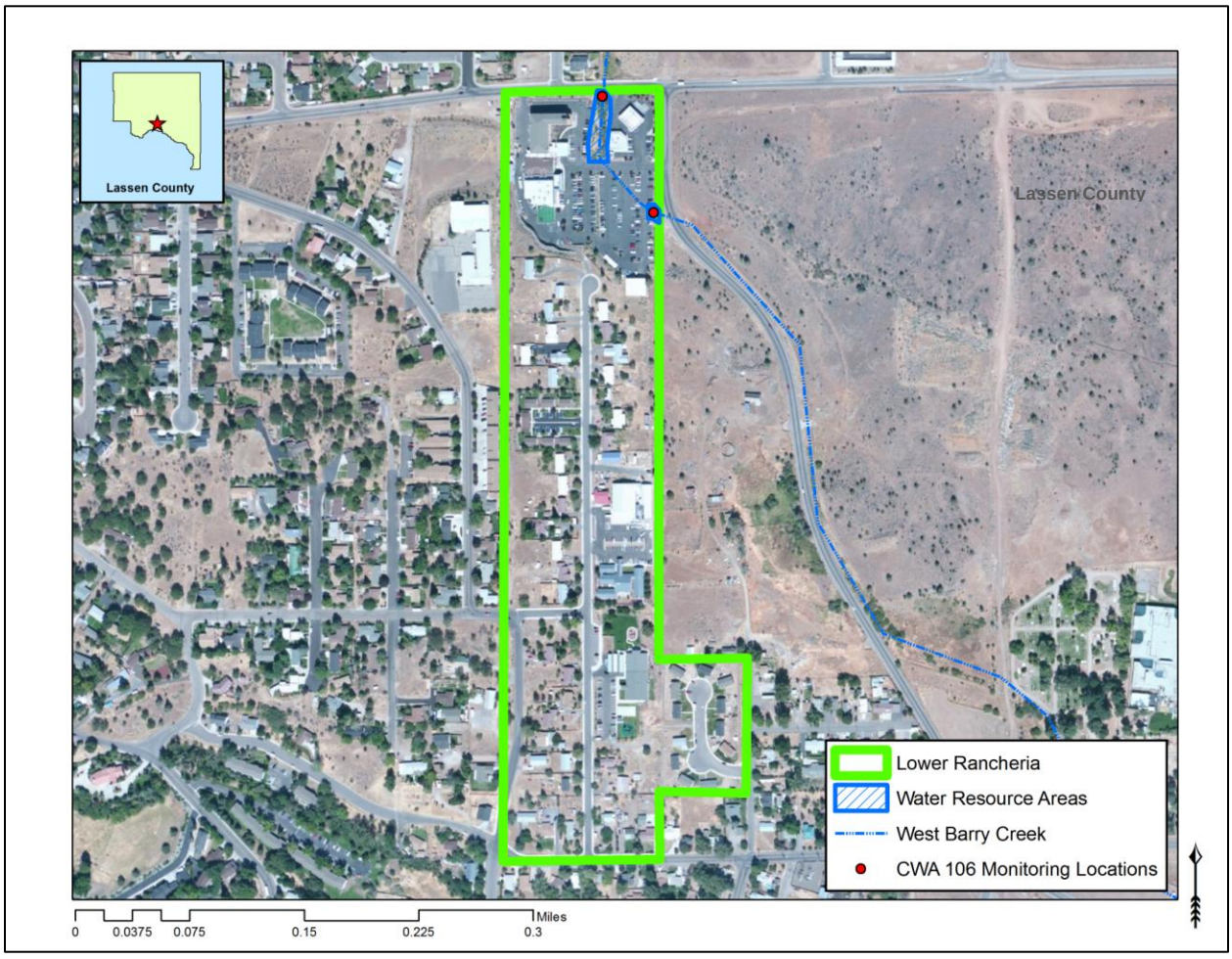

Figure 16. Areas proposed for Water Resource land zoning on the Lower Rancheria

Upper Rancheria: There are five perennial springs on the Upper Rancheria that support small areas of wet soils and wetland-type vegetation as well as several ephemeral and intermittent drainages throughout the property. These water sources form the headwaters for East and West Barry Creek and drain south, ultimately into Mardis Barry Reservoir. Two of the site drainages have well defined channels. These features would likely meet the criteria of the U.S. Army Corps of Engineers as jurisdictional wetlands and waters of the United States. Small areas at each of the five springs (each less than one-fifth of an acre) support some hydrophytic, or wetland-type vegetation including sedges (*Carex spp.*), rushes (*Juncus spp.*) and willow (*Salix sp.).* The wet areas around all the spring sources on the site have been degraded by past grazing prior to the property coming into Tribal control. The Tribe utilized EPA CWA §319 to completely fence off the property between 2008 and 2011 (*See Figure 17*).

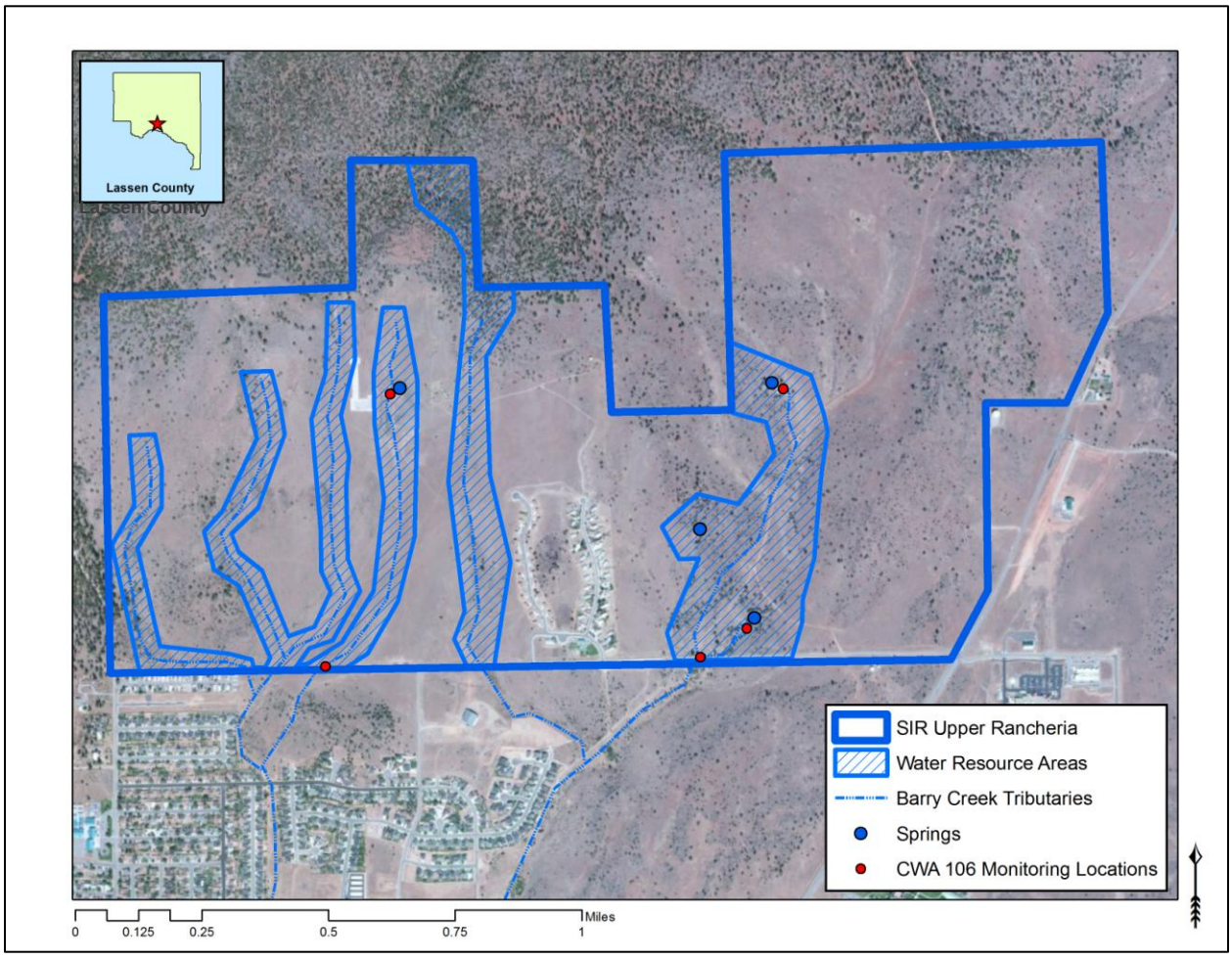

Figure 17. Areas on the SIR Upper Rancheria proposed for Water Resources land zoning

SIR Ravendale: As previously discussed, Buckhorn Creek flows through the SIR Ravendale property and is proposed for Water Resources zoning (*See Figure 18*).

3.3.2 Groundwater Resources

In the vicinity of the Rancheria, groundwater is an important natural resource used for private, municipal, industrial and agricultural water supply, and feeds streams, wetlands, and lakes. Local groundwater resources are recharged by precipitation, most of which occurs as snow and rain in the fall, winter, and spring.

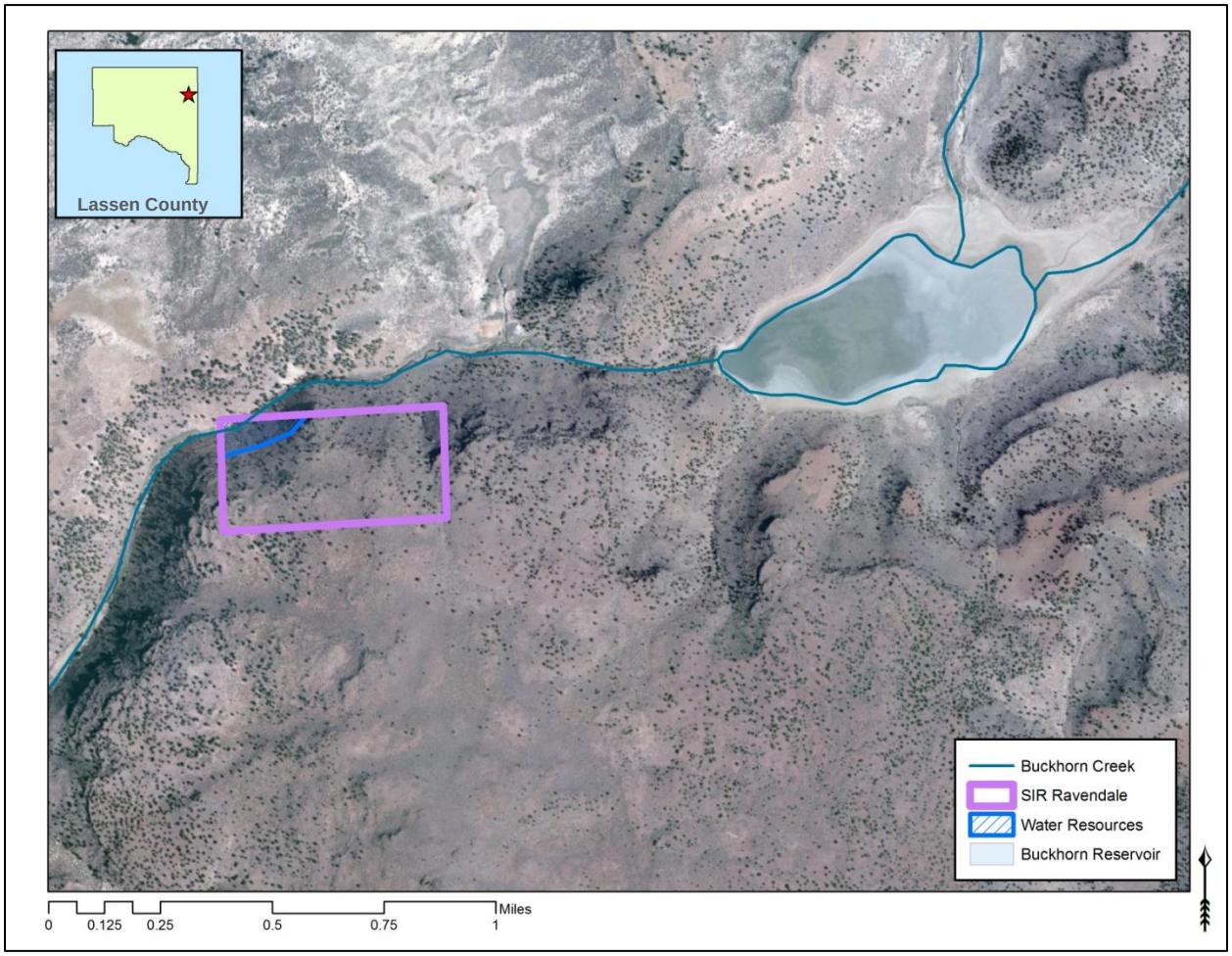

Figure 18. Area proposed for Water Resources Land Zoning on SIR Ravendale

The SIR Lower and Upper Rancheria and SIR Herlong are located in the Honey Lake Valley Groundwater Basin. Groundwater recharge in Honey Lake Valley occurs through direct precipitation, infiltration of stream flows, and precipitation that infiltrates basalt north of the valley and then percolates laterally to beneath the valley floor (DWR 1963). Upland recharge areas consist of Pleistocene Volcanic Rocks, recharge occurs as precipitation infiltrates the volcanic rocks and then percolates laterally beneath the valley floor. Subsurface flow may also enter Honey Lake Valley from Secret Valley through Pliocene Lake Deposits, which may be continuous beneath volcanic rocks separating the valleys (DWR, 1963). Groundwater storage capacity to a depth of 750 feet has been estimated to be about 16,000,000 acre-feet, however much of this storage is not available for use due to water quality impairments (DWR, 1963). Groundwater levels in Honey Lake Valley exhibit different trends in different areas. Hydrographs for wells along the California/Nevada state line show that groundwater levels do not fluctuate seasonally in that area. Hydrographs for wells in the northwestern portion of the valley, where SIR's Susanville properties are located, show that the groundwater table is influenced by summer pumping and that groundwater fluctuates from five to 30 feet annually.

Groundwater in the northwest portion of the valley also is affected by drought periods, showing changes in spring groundwater levels of 20 feet over the period from 1987 to 1991 as compared to preceding and subsequent years. Hydrographs in the area near Herlong do not appear to be affected by drought periods, but instead show a continued decline in groundwater levels of 20 feet during period from 1984 through 2005. Groundwater movement is largely controlled by topography in Honey Lake Valley, generally moving towards Honey Lake.

Groundwater quality in Honey Lake Valley is generally good with some areas of concern. DWR's Bulletin 118 reports that poor quality waters, exist east of Honey lake, and North of Herlong, near the ordinance depot and that Total Dissolved Solids (TDS) generally increase west to east, and range from 89 mg/L to 2,500 mg/L (DWR, 2003). In eastern Honey Lake Valley, there are areas where fault-related water is found, which may be of geothermal origin (Moll 2000). Water quality concerns regarding trichloroethylene (TCE) are present and are being remediated in the vicinity of the Sierra Army Depot (Brathode, 2006). The SIR NRD has developed a groundwater monitoring well on SIR's Herlong property and collects quarterly samples to monitor for TCE and perchlorate to ensure that plumes on SIAD are not migrating onto SIR's Herlong property.

Nitrate has been reported as a groundwater quality issue near Herlong, and arsenic has been an issue in the playa areas near Honey Lake. Arsenic has been detected in wells at the Sierra Army Depot (Brathode, 2006). Residential septic systems located upgradient from water supply sources (Bagwell springs and Cady Springs) for the City of Susanville represent water quality concerns for nitrates and other pathogens for this municipal supply. Subsidence has been observed in the area surrounding Amedee hot springs, where groundwater extraction for geothermal purposes is ongoing. The County assumes, but no studies have been completed, that the observed subsidence is associated with groundwater extraction.

Limited information exists about the groundwater basins associated with SIR's Ravendale and Cradle Valley properties. The SIR has developed a domestic well on SIR's Cradle Valley property that is 140 feet deep and produces 15-20 gallons a minute of good quality water. No wells have been developed on the other SIR properties.

3.4 Air Resources

Tribal members have a primary interest in the protection and control of the air quality affected by the improper emission of air contaminants within the land in trust. Air resources must be protected to insure the health, economic, aesthetic and cultural well-being of the People. The Clean Air Act establishes national levels of air quality that states must attain through an implementation plan. Tribes can create their own implementation plans consistent with the Act (42 U.S.C. §7601(d)). The Act requires that each air pollution source must obtain a permit from the local agency (State or Tribal) to construct and/or operate so that it will not cause significant deterioration in ambient air quality. Implementation plans must meet the requirements of 42

U.S.C. §7410 and generally details how ambient air quality will be attained in non-attainment areas and how ambient air quality will be maintained in attainment areas by controlling specific new and existing sources of air pollution. Tribes are exempt from some of the time lines and other criteria set out in the Act (see 40 C.F.R. §49.4).

The goal of the SIR and its members is to protect the air shed related to SIR Properties. In order to reach this goal the Tribe may need to establish and maintain a comprehensive tribal air quality policy to manage and control emissions of contaminants into the air shed. As a management tool the Tribe may need to develop an Air Monitoring Program in the future.

3.5 Geologic Resources

The Tribe recognizes that the SIR's geologic and soil resources are invaluable assets essential to sustaining healthy ecosystems. The overall goal of the Tribe with respect to geologic and soil resources is to protect and preserve quality of geologic materials and soil for current and future generations.

Land use activities including housing, commercial development, utility installation, and roads attempt to be compatible with soil characteristic for load-bearing capacity and soil stability, as well as erosion control. Like soil, sediments are comprised of parent material from numerous geologic and biologic sources. Sediments are also a principle component of aquatic habitats.

The site geologic conditions described below were determined from the Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2014).

3.5.1. Regional Geology

A Major Land Resource Area(MLRA) is a geographic area, usually several thousand acres in extent that is characterized by a particular pattern of soils, climate, water resources, land uses, and type of farming (NRCS 2014a).

SIR Lower and Upper Rancheria: The Lower and Upper Rancheria are located at the junction of three different Major Land Resource Areas:

- Klamath and Shasta Valleys and Basins (MLRA 21);
- South Cascade Mountains (MLRA 22B); and
- Malheur High Plateau (MLRA 23)

Klamath and Shasta Valleys and Basins (MLRA 21): This area is in a transition zone between the Basin and Range Province to the southeast, the Cascade and Klamath Mountains to the west and northwest, and the Sierra Nevada Mountains to the south. The MLRA is

characterized by a vast volcanic upland interspersed with numerous reservoirs, lakes, and narrow stream valleys that comprise the Pit and Klamath River drainages; hydrologically separate, internally drained basins with lakes or periodically dry lakebeds; and isolated volcanic peaks. Elevation typically ranges from 2,600 to 4,600 feet (795 to1,400 meters), but many mountain peaks exceed 7,000 feet (2,135 meters). Lava plateaus and many valleys and basins make up most of the area. Steep mountain spurs and rimrock escarpments surround the plateaus.

The Modoc portion of this MLRA is underlain by Cenozoic volcanic rocks. Surface exposures are dominated by Miocene to Pleistocene "flood basalts" and rhyolite ash. Andesites, volcanic mudflow deposits, and rhyolitic intrusives also occur. Volcanism and the extrusion of flood basalts occurred as a result of crustal thinning and extension associated with development of the Basin and Range. Valleys are typically underlain by recent alluvial, lacustrine, and dry lakebed (playa) deposits. Pliocene to Pleistocene nonmarine sedimentary deposits (including fan and stream terrace deposits and old lake deposits) underlie portions of many of the basins. The dominant soil order in this MLRA is Mollisols. Small areas of Inceptisols and Histosols are in the basins. The soils in this area dominantly have a mesic or frigid soil temperature regime, a xeric soil moisture regime, and mixed or smectitic mineralogy. They generally are well drained, but they may be poorly drained or very poorly drained in the basins. They generally are loamy, clayey, or sandy and are shallow to very deep.

This area has a cover of shrubs interspersed with annual and perennial grasses. Nevada bluegrass, Sandberg bluegrass, Idaho fescue, and bluebunch wheatgrass are the major species. The basins and meadows support sedges, wiregrass, slender wheatgrass, creeping wildrye, and bluegrass. Sagebrush, rabbitbrush, bitterbrush, and mountain mahogany are the main shrubs. Western juniper is common, and scattered ponderosa pine trees are on the lower foothills. The higher elevations support ponderosa pine, Douglas-fir, white fir, and California red fir with an understory of bitterbrush and ceanothus.

South Cascade Mountains (MLRA 22B): This MLRA is the southernmost extent of the Cascade Mountain Range trending north-south. It lies east of the Trinity Mountains and the Northern Sacramento Valley and west of the Modoc Plateau and the Great Basin and is bordered on the north by Butte Valley and the Central Cascade Mountains. It extends to the Sierra Nevada Mountains to the south. Elevation generally ranges from a low in the foothills of about 1,500 feet (455 meters) to 8,200 feet (2,500 meters). This MLRA consists mostly of rolling volcanic mountains and intermontane basins.

The Southern Cascade Mountains are made up primarily of Tertiary and Quaternary volcanics (basalt, andesite, dacite, and rhyolite) exposed as prominent peaks and volcanic uplands, surrounded by lower, moderately steep and steep shield and composite volcanoes and cinder cones. The dominant soils in this area are Alfisols, Andisols, Entisols, Inceptisols, and

Mollisols. The soil temperature regimes are mostly mesic in the foothills and frigid in the mountains. They are cryic at the highest elevations. The soils on uplands are mostly well drained and have a xeric soil moisture regime, and the soils in basins are somewhat poorly drained or poorly drained and have a xeric to aquic soil moisture regime.

This MLRA has three main vegetation types—low-elevation mixed conifer (ponderosa pine) forest, mixed conifer forest, and upper montane red fir forest. California black oak is an important associated species. The understory species include snowbrush ceanothus, bitter cherry, sharpleaf snowberry, and Sierra gooseberry. The communities on the eastern slopes are dominated by Jeffrey pine and ponderosa pine with an understory of antelope bitterbrush, big sagebrush, and greenleaf manzanita. Three types of meadows are throughout areas of these forest types. Wet meadows consist mainly of perennial sedges, rushes, and grasses. Woodland meadows consist mainly of scattered grasses and forbs interspersed with lodgepole pine, willows, quaking aspen, and black cottonwood. The shorthair sedge type occurs on the drier meadow sites. It consists mainly of shorthair sedge, Brewer's lupine, western needlegrass, and spike trisetum.

Malheur High Plateau (MLRA 23): All of this MLRA is on the Intermontane Plateaus. Elevation ranges from 3,900 to 6,900 feet (1,190 to 2,105 meters) in most of the area. This area consists primarily of nearly level to moderately steep plateaus, basins, and valleys bordered by long, gently sloping alluvial fans. Occasional north-south trending fault-block mountain ranges separate the basins. Volcanic plateaus rise sharply above the valleys. Drainage patterns have not yet been established on the youngest lava plateaus.

Most of this area consists of young andesite and basalt layers(6 to 17 million years old). Older volcanic rocks and marine and continental sediments are exposed in the mountain ranges. These north-south trending ranges are uplifted fault blocks. The basins between the mountains and lava plateaus are filled with a mixture of Quaternary alluvium, continental sediments, and volcanic ash. The long alluvial fans consist of coarser alluvium near the mountains and fine grained sediments at their distal ends. Playas or shallow lakes are common in the lowest areas within the closed basins. The dominant soil orders in this MLRA are Aridisols and Mollisols. The soils in the area dominantly have a mesic or frigid soil temperature regime, an aridic or xeric soil moisture regime, and mixed or smectitic mineralogy. The soils on uplands generally are well drained, loamy or clayey, and shallow or moderately deep. The soils in basins generally are poorly drained to well drained, loamy or clayey, and very deep. Locally, large areas have an ashy particle-size class and glassy mineralogy.

This area supports a shrub-grass association. Big sagebrush, low sagebrush, rabbitbrush, needlegrasses, and squirreltail are common on the plateaus and mountains. Big sagebrush and basin wildrye are on bottom lands. Spiny hopsage and bud sagebrush are on the drier sites.

Greasewood, saltbush, and saltgrass grow on salty and sodic soils in basins. Silver sagebrush grows on moist sites that have intermittent water, such as areas along the margin of playas. Western juniper is on rocky sites. Aspen groves occur on moist sites at high elevations, and isolated stands of Douglas-fir and whitebark pine also occur in the mountains.

SIR Herlong: SIR Herlong is located in:

Carson Basin and Mountain (MLRA 26): Isolated north-south trending mountain ranges are separated by aggraded desert plains. The mountains are uplifted fault blocks with steep side slopes. Elevation ranges from 3,900 to 6,550 feet (1,190 to 1,995 meters) in valleys and is as high as 13,100 feet (3,995 meters) on mountain crests.

Mesozoic and Tertiary intrusives are common in this area. These rocks are granitic near the Sierra Nevada Mountains on the west side but are typically andesite and basalt in the rest of the area. There are some young tuffaceous sediments in this MLRA, and a complex of Mesozoic sediments and volcanic rocks occurs on the edges of uplifted fault blocks. Alluvium fills the valleys between the mountains. There is a level line evident on the higher slopes marking the former extent of glacial Lake Lahontan. The dominant soil orders in this MLRA are Aridisols and Mollisols. The soils in the area dominantly have a mesic soil temperature regime, an aridic or xeric soil moisture regime, and mixed or smectitic mineralogy. They generally are well drained, are clayey or loamy and commonly skeletal, and are very shallow to moderately deep.

SIR Ravendale: SIR Ravendale is located in the Malheur Plateau (*See* SIR Lower and Upper Rancheria Regional Geology).

SIR Cradle Valley: SIR Cradle Valley is located in:

Sierra Nevada Mountains (MLRA 22A): This area consists of the higher elevations of the Sierra Nevada Mountains. It is a strongly asymmetric mountain range with a long, gentle western slope and a steep eastern escarpment. It is characterized by hilly to steep mountain relief and occasional mountain valleys. It is 50 to 80 miles (80 to 130 kilometers) wide and runs in an approximately north-south direction through eastern and central California for more than 400 miles (645 kilometers). Elevation ranges from 1,500 to 9,000 feet (455 to 2,745 meters) in most of the area. The strongly sloping to precipitous mountains have unstable slopes and sharp crests. Valleys are typically narrow and are filled with alluvium. Almost all of the valleys have streams with actively eroding banks.

Most of this area is dominated by plutonic (dominantly quartz monzonite and granodiorite) rocks of Mesozoic age, otherwise known as the Sierra Nevada Batholith. Volcanic activity of minor extent has produced Mioceneage lava flows. The valleys are filled with relatively coarse alluvium since most of the sediments have not moved far from their source.

Pleistocene to Recent glaciers have shaped the Sierra Nevada Mountains by scouring out cirques, U-shaped valleys, and other glacial erosional features, depositing poorly sorted till in glacial moraines and influencing streamflow patterns by contributing variable amounts of runoff and periodically forming ice dams and lakes. The intermontane valleys are filled with coarse glacial deposits and with coarse alluvium since most of the deposits have not moved far from their source.

The dominant soil orders in this MLRA are Alfisols, Entisols, Inceptisols, Mollisols, and Ultisols. The soils in the area dominantly have a mesic, frigid, or cryic soil temperature regime, depending largely on elevation; a xeric soil moisture regime; and mixed mineralogy. They generally are very shallow to deep, well drained or somewhat excessively drained, and loamy or sandy. The dominant soils in the MLRA formed in residuum and colluvium on hills and mountains.

This area supports montane coniferous forest vegetation. The main species are ponderosa pine, Douglas-fir, incense cedar, sugar pine, white fir, California red fir, Jeffrey pine, lodgepole pine, and mountain hemlock. Bluegrass, hairgrass, sedges, wiregrass, clovers, and wild iris grow in montane meadows. Manzanita, sagebrush, blue wildrye, fescues, bluegrasses, and mountain brome are common understory species in open stands of timber.

3.5.2. Soils and Topography

Lower Rancheria: The geologic setting includes volcanic rock which has weathered to form primarily shallow stony loams. Soils on the project site support a variety of ecological sites (*See* Section 3.6.1). The USDA NRCS Soil Survey delineated 3 soil types occurring on the project area (*See Figure 19*):

1) Searles-Orhood-Devada association, 5 to 30 percent slopes (360);
2) Searles-Devada-Rubble land association, 30 to 50 percent slopes (367);
3) Bieber cobbly loam, 2 to 9 percent slopes (116); and
4) Badenaugh stony sandy loam, 5 to 15 percent slopes (110).

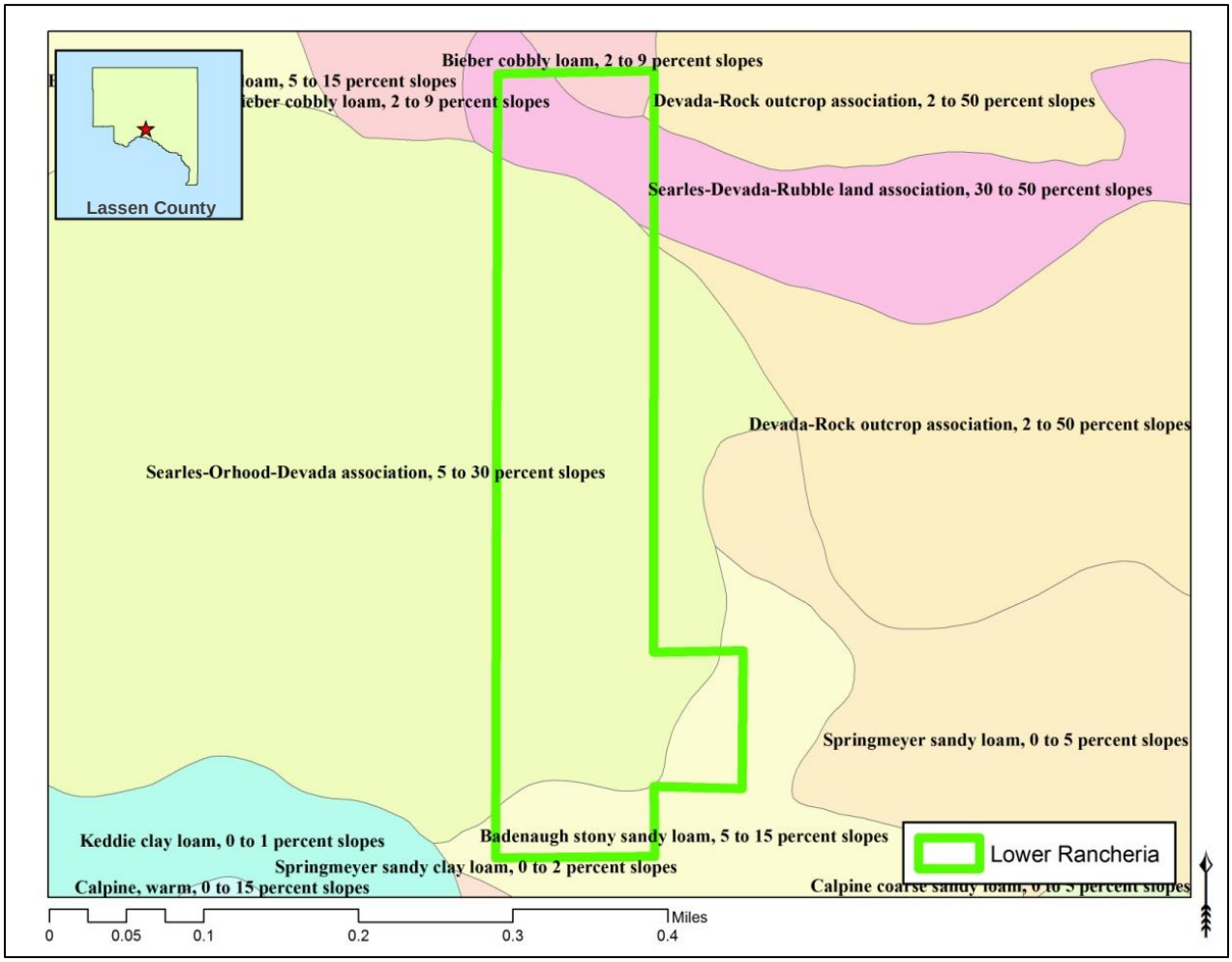

Figure 19. Lower Rancheria Soils

Upper Rancheria: The geologic setting includes volcanic rock which has weathered to form primarily shallow stony loams. Soils on the project site support a variety of ecological sites (*See* Section 3.6.1). The USDA NRCS Soil Survey delineated 6 soil types occurring on the project area (*See Figure 20*):

1. Bieber cobbly loam, 2 to 9 percent slopes (116);
2. Devada-Rock outcrop association, 2 to 50 percent slopes (179);
3. Fiddler-Gavel-Rubble land complex, 5 to 30 percent slopes (194);
4. Fiddler-Gavel-Rubble land association, 30 to 50 percent slopes (195);
5. Searles-Orhood-Devada association, 5 to 30 percent slopes (360); and
6. Ulhalf-Southpac complex, 2 to 30 percent slopes (394).

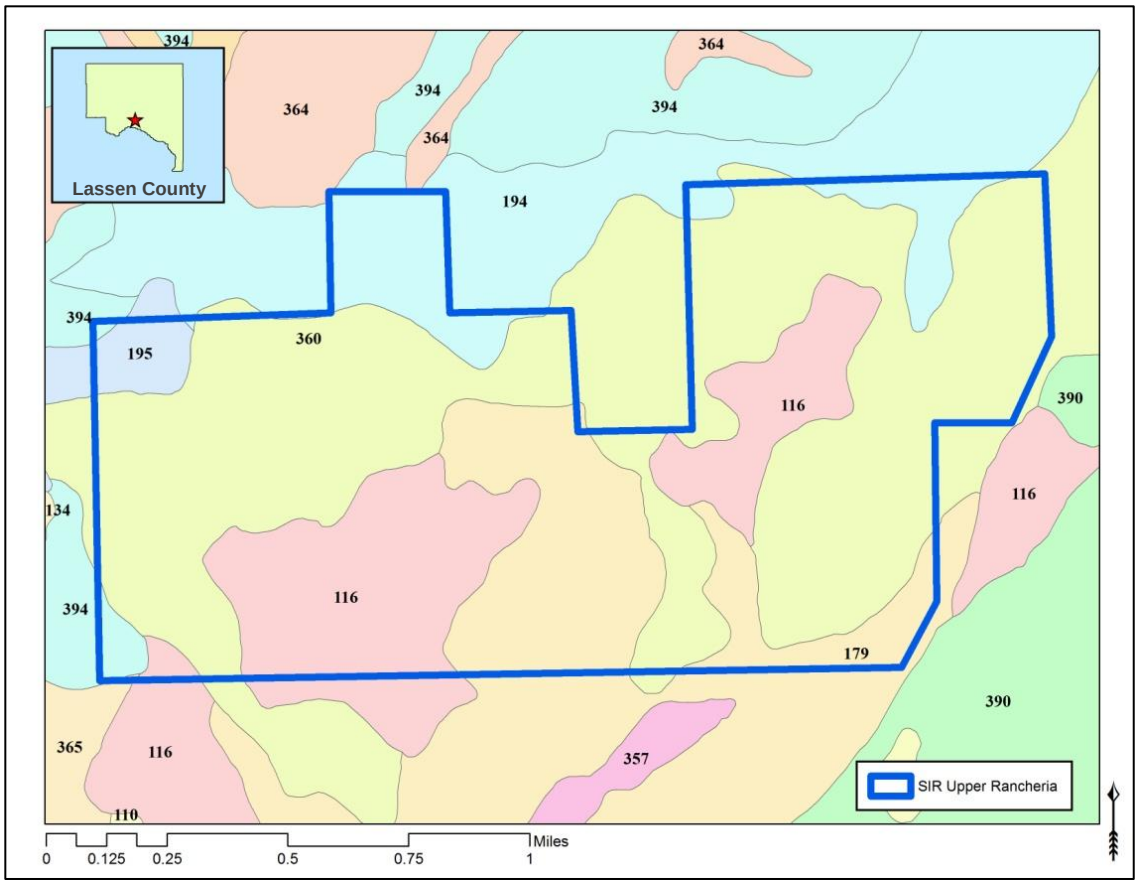

Figure 20. Upper Rancheria Soils

SIR Herlong: The geologic setting includes volcanic rock which has weathered to form primarily shallow stony loams. Soils on the project site support a variety of ecological sites (*See* Section 3.6.1). The USDA NRCS Soil Survey delineated 3 soil types occurring on the project area (*See Figure 21*):

1. Incy fine sand, 0 to 5 percent slopes;
2. Mottsville gravelly loamy coarse sand, 2 to 9 percent slopes; and
3. Zorravista sand, 2 to 15 percent slopes.

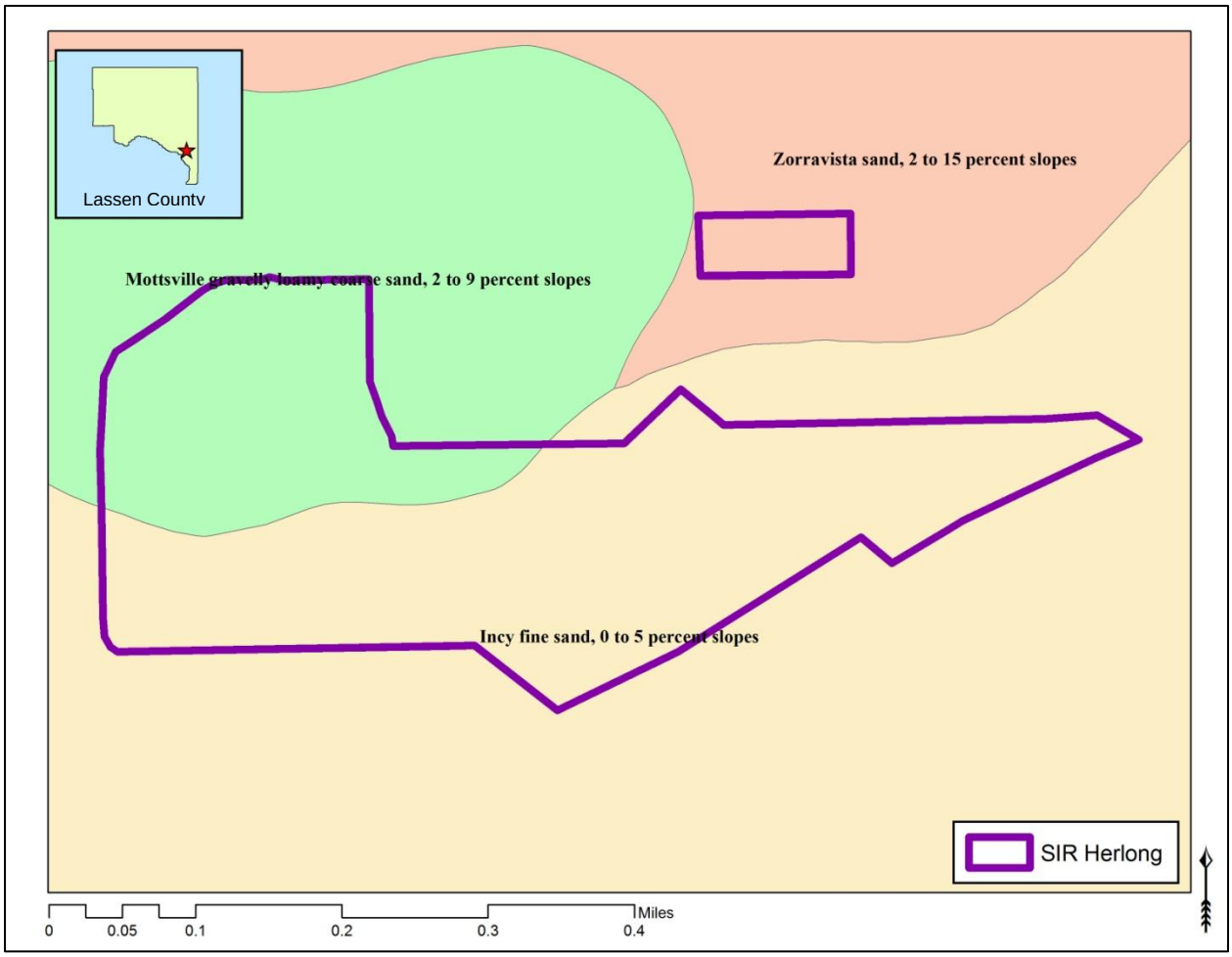

Figure 21. SIR Herlong Soils

SIR Ravendale: The geologic setting includes volcanic rock which has weathered to form primarily shallow stony loams. Soils on the project site support a variety of ecological sites (*See* Section 3.6.1). The USDA NRCS Soil Survey delineated 3 soil types occurring on the project area (*See Figure 22*):

1. Observation-Searles-Madeline Association, 30 to 50 percent slopes
2. Anawalt-Ninemile Association, 5 to 15 percent slopes
3. Home Camp Runyon Association, 5 to 30 percent slopes

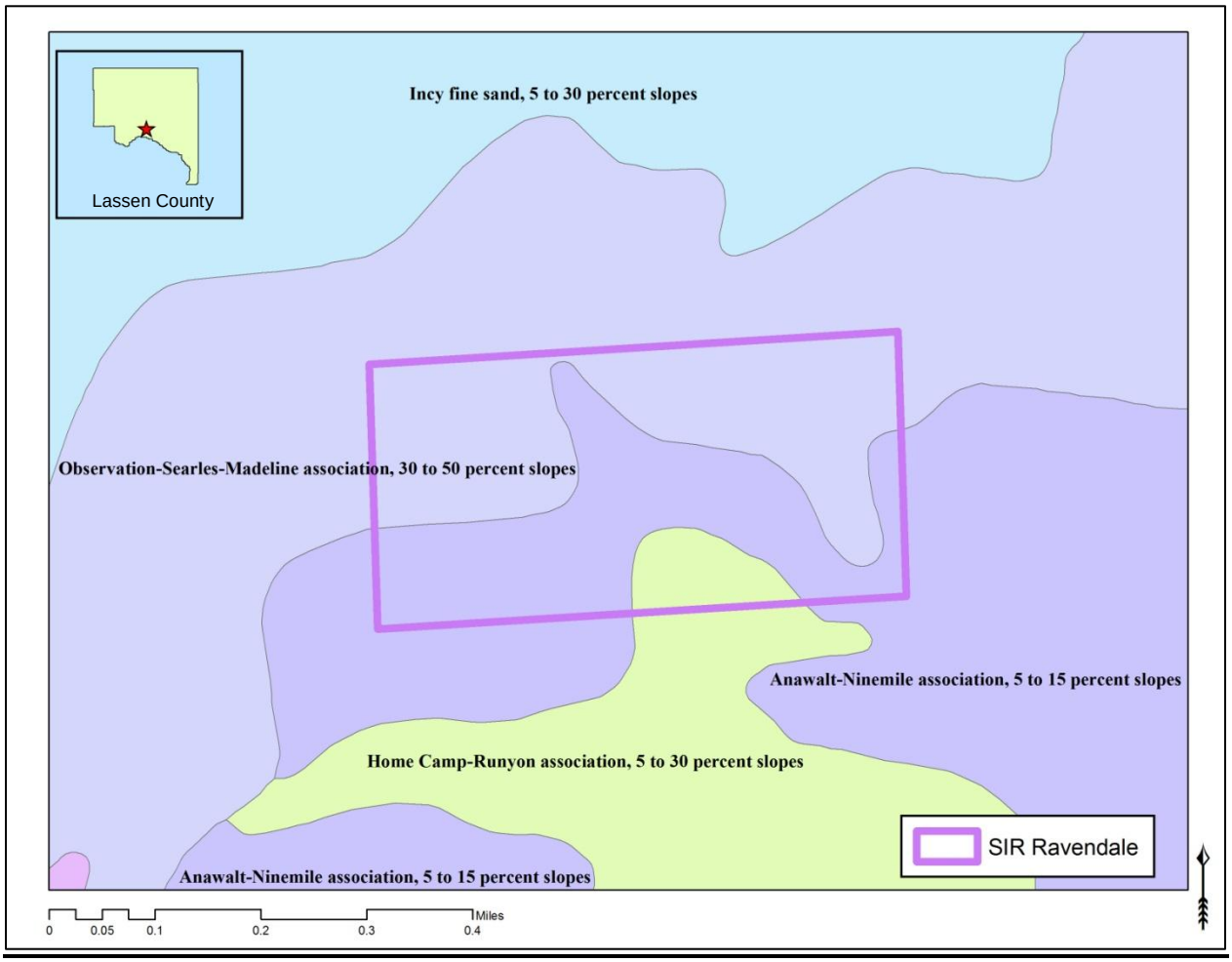

Figure 22. SIR Ravendale Soils

SIR Cradle Valley: The USDA NRCS Soil Survey has not characterized the soils in the SIR Cradle Valley area.

3.5.3. Geologic Hazards

Seismic Hazards –Rancheria properties lie within Seismic Zone 3 as defined by the Uniform Building Code (UBC, 1997). Existing geologic maps show no mapped faults, surface rupture, or lineament features on or in the vicinity of the Lower Rancheria, Upper Rancheria, SIR Ravendale, and SIR Cradle Valley. The soil types are typically not prone to liquefaction during an earthquake.

Herlong is an earthquake fault zone. Earthquake Fault Zones are regulatory zones around active faults. The zones are defined by turning points connected by straight lines. Most of the turning points are identified by roads, drainages, and other features on the ground. Earthquake Fault

Zones are plotted on topographic maps at a scale of 1 inch equals 2,000 feet. The zones vary in width, but average about one-quarter mile wide.

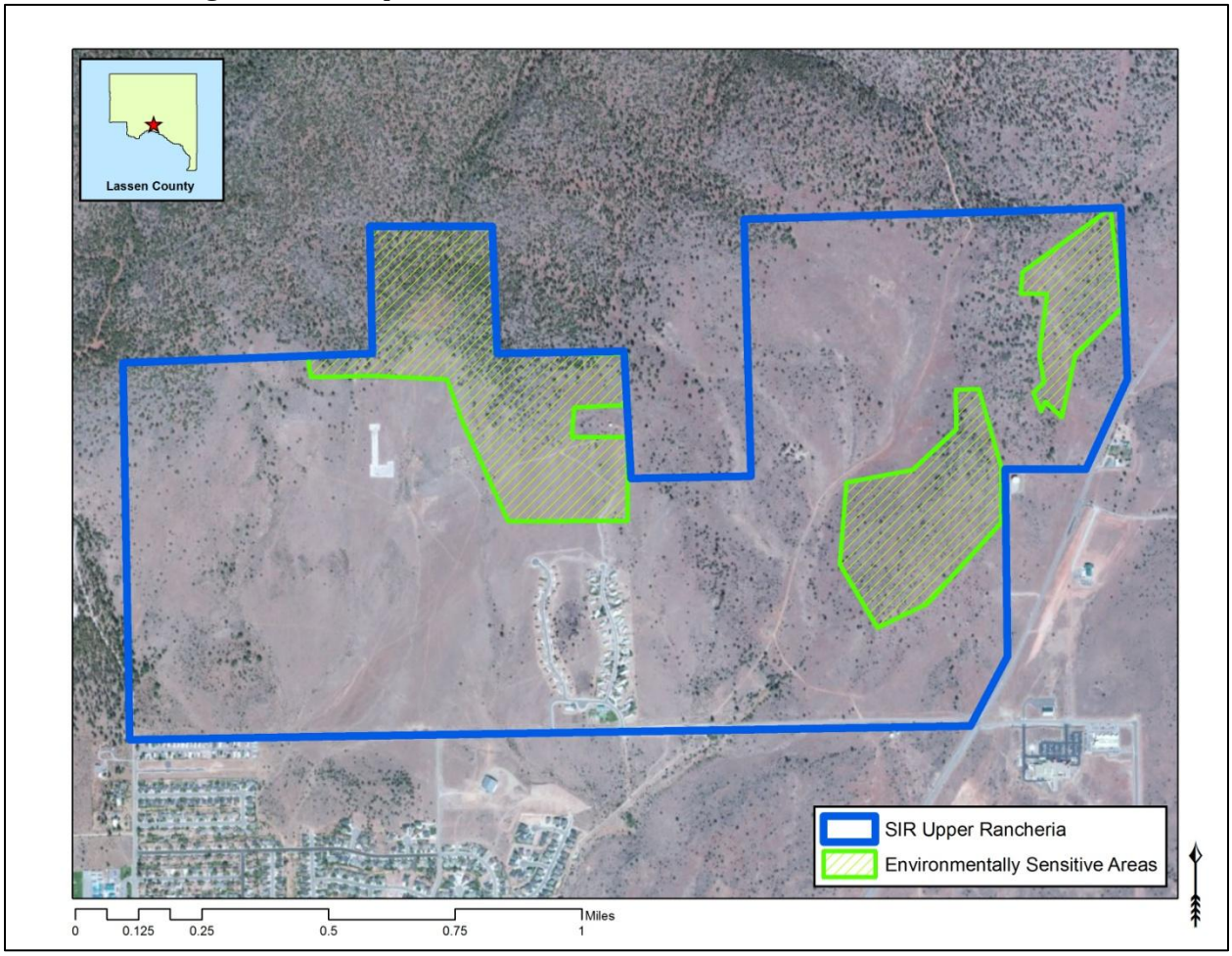

Figure 23. Areas proposed for Environmentally Sensitive Land Zoning on the SIR Upper Rancheria

Land Zoning to Protect Sensitive Soils: The SIR has established the following land use zones to protect significant cultural-historic areas and black oak habitat:

- **Environmentally Sensitive Areas:** Land use zone of approximately 140 acres located around areas with resource issues, including steep slopes and rocky soils, restricting activities in these areas in order to reduce erosion and protect these areas. There are 140 acres of with this proposed zoning on the SIR Upper Rancheria (*See Figure 23*) and 35 acres on SIR Ravendale (*See Figure 24).*

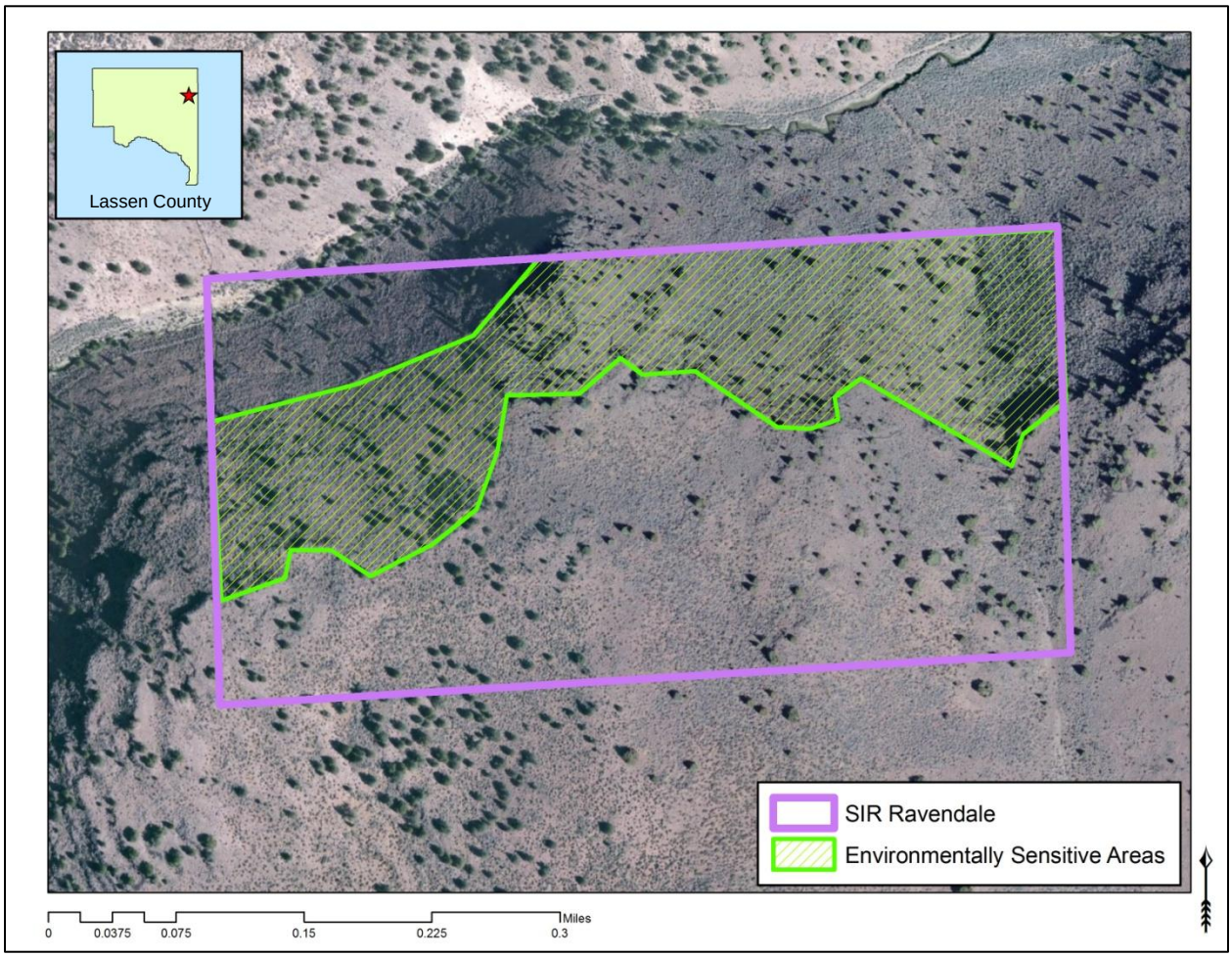

Figure 24. Areas proposed for Environmentally Sensitive Land Zoning on SIR Ravendale

3.6. Ecological Resources

3.6.1. Ecological Sites

The ecological site is a product of all the environmental factors responsible for its development including soils, topography, climate and fire (NRCS 2014). An ecological site is recognized and described based on its ability to produce and support a particular plant community. The following ecological sites are present within the project area and surrounding areas:

Lower Rancheria: The Lower Rancheria contains three different ecological sites (*See Figure 25*):

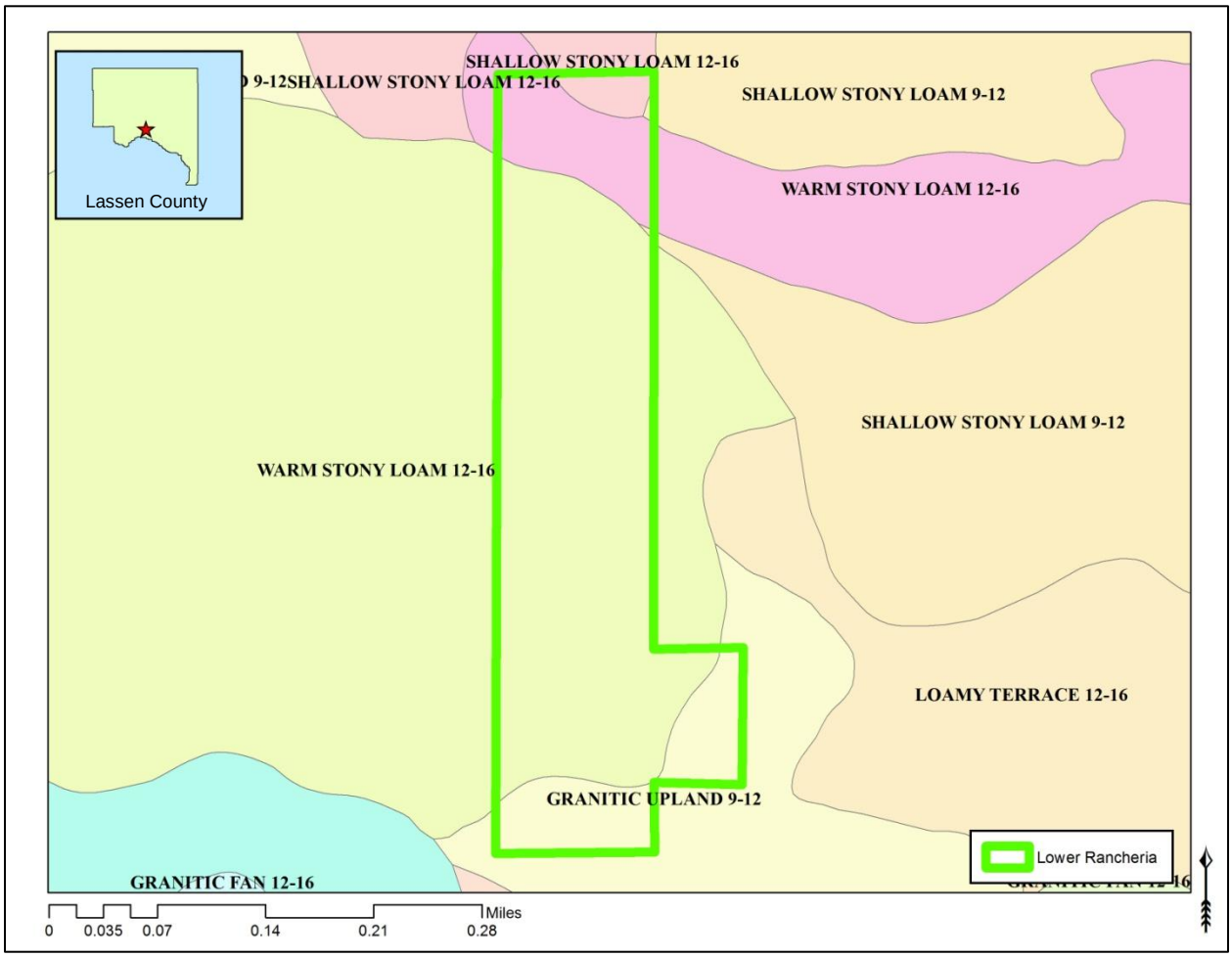

Figure 25. Lower Rancheria Ecological Sites

Warm Stony Loam 12-16": The site is characterized by very stony loam soils on uplands, mountains, and lava plains. The potential native plants are bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, Wyoming big sagebrush, basin big sagebrush, antelope bitterbrush, and western juniper. Annual production is between 900-1,200 lbs/acre. The soils were formed in colluvium and residuum weathered from rhylite and basalt. Soils are moderately deep, well drained soils with moderately slow permeability (moderately high saturated hydraulic conductivity). These sites are compatible with livestock grazing and wildlife habitat.

Shallow Stony Loam 12-16": The site is characterized by very cobbly sandy loam composed of alluvium from volcanic rock formed on terraces. Vegetation on the site is primarily, bluebunch wheatgrass (40%), Thurber needlegrass (15%), bluegrass (10%), low sagebrush (10%), and Antelope bitterbrush (5%). Annual production is between 500-1,000 lbs/acre. The soils were

formed in old alluvium. Soils are composed of Bieber Cobbly Loam that are well drained and have very slow permeability. This site can be used as rangeland.

Granitic Upland 9-12": This site consists of very deep, well drained soils that formed in alluvium derived from mixed igneous rocks. The site is found on fan remnants and stream terraces. Slopes are 2 to 30 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 47 degrees F. These soils are well drained; medium or high surface runoff; moderate or moderately slow permeability. This site is used for rangeland. The vegetation is mainly mountain big sagebrush, antelope bitterbrush, Indian ricegrass, Thurber's needlegrass, and scattered western juniper.

Upper Rancheria: The SIR Upper Rancheria contains five different ecological sites (See Figure 26):

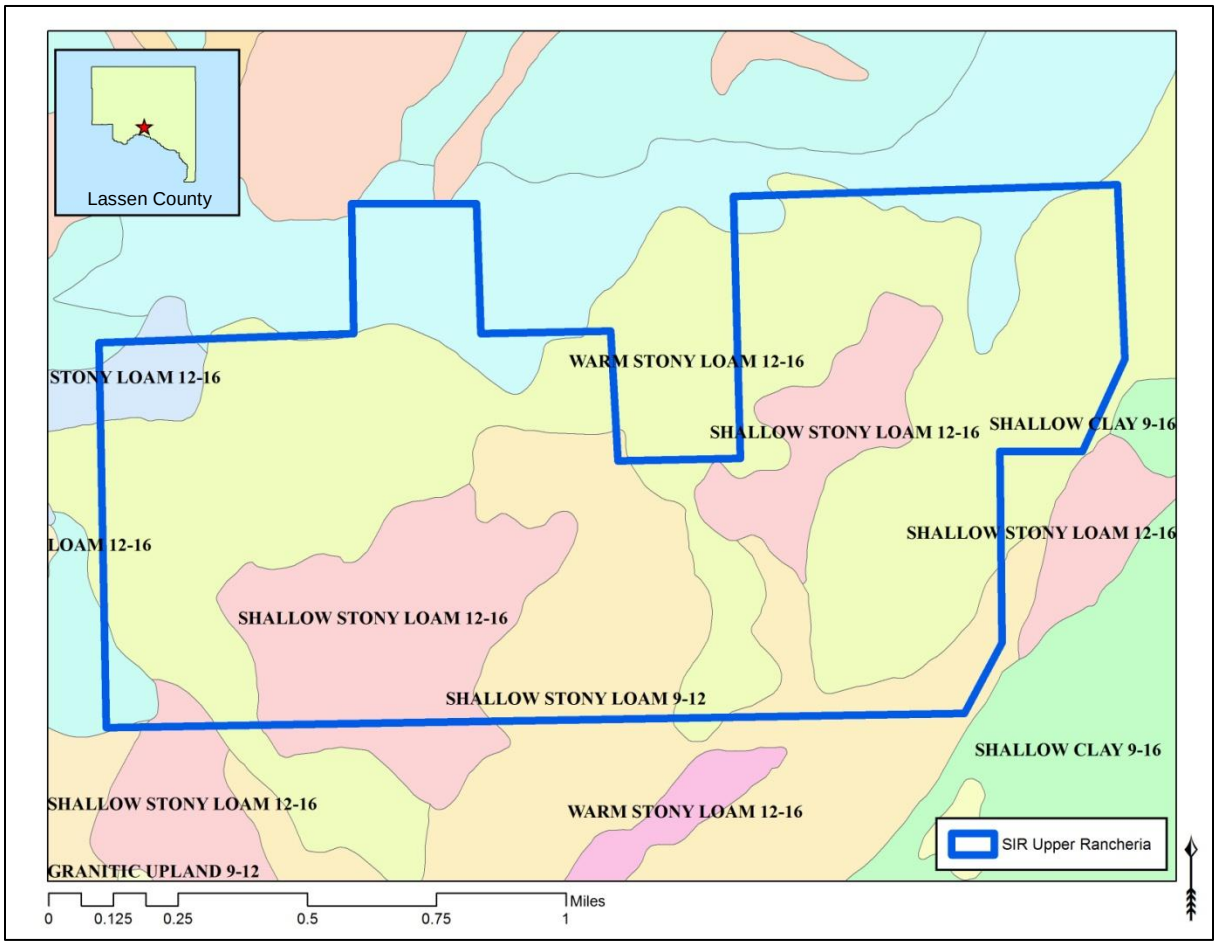

Figure 26. Upper Rancheria Ecological Sites

Loam 12-16": This site is characterized by gravelly sand loams on hills and mountains. The site is dominated by grasses and shrubs and is characterized by the sagebrush steppe vegetations

type. The plant community consists of 75-85% perennial grasses, including Bluebunch wheatgrass, Idaho fescue, and needlegrass and 10-15% shrubs, including Mountain big sagebrush and Antelope bitterbrush. Annual production for this site is 1,400-2,200 lbs/acre. The soils were formed in volcanic ash over colluvium and residuum derived from andesite or basalt. The soils are well drained, with medium surface runoff and moderately slow permeability. The site provides livestock grazing opportunities and is primarily used as rangeland.
The site is valuable for wildlife habitat when Antelope bitterbrush is present. It provides habitat for quail, deer, sage-grouse, coyote, mountain lion, ground squirrels, song birds, raptors, and numerous reptiles. If antelope bitterbrush is removed through wildfire or mechanical methods, wildlife habitat values are diminished. Re-establishment of bitterbrush is difficult. Juniper has invaded this site.

Stony Loam 12-16": The range site consists of very stony or extremely stony loams that are underlain at a depth of 26-36 inches with unweathered bedrock. This site occurs on slopes from 5-30%. Root development is not restricted. Forage production is not affected by the cobbly surface with production ranging from 600-1100 lbs/acre. The potential plant community is 15% Idaho fescue, 10% Bluebunch wheatgrass, 10% mountain big sage, 10% Nevad bluegrass, 5% Antelope bitterbrush, 5% Arrowleaf balsamroot, 5% bottlebrush squirreltail, 5% Rabbitbrush, 5% Sandberg bluegrass, and 5% Thurber needlegrass. Juniper invasion has occurred extensively on the site.

Warm Stony Loam 12-16": *See* Lower Rancheria Ecological Sites.

Shallow Stony Loam 12-16": *See* Lower Rancheria Ecological Sites

Shallow Stony Loam 9-12": The site is characterized by very cobbly loams and outcrops of andesite and basalt. Vegetation on the site is primarily bluebunch wheatgrass (30%), low sagebrush (40%), Thurber needlegrass (15%), and Bluegrass (10%). Annual production is between 500-900 lbs/acre. The soils were formed in old alluvium. Soils are composed of Devada loams that are well drained and have slow permeability and a severe hazard of erosion by water. This site can be used as rangeland.

SIR Herlong: SIR Herlong contains three different ecological sites (See Figure 27):

Granitic Fan 9-12": This ecological site consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils are on alluvial fans, fan remnants and fan aprons. Slopes are 0 to 15 percent. The mean annual precipitation is about 280 mm and the mean annual temperature is about 9 degrees C. This site is excessively drained; negligible or very low surface runoff; high saturated hydraulic conductivity. These soils are susceptible to rare flooding for extremely brief periods throughout the year. Soils are used for

rangeland and urban development. The vegetation is mainly big sagebrush, antelope bitterbrush, Anderson's peachbrush, and needlegrasses.

Sand Dunes 6-9": The ecological site consists of very deep, excessively drained soils that formed in mixed eolian material derived from mixed rocks. The soils are on semi-stabilized sand dunes and sand sheets superimposed on beach terraces, lake plains, barrier bars and alluvial fans. Slopes are 0 to 15 percent. The mean annual precipitation is about 230 mm and the mean annual temperature is about 9 degrees C. The climate is cool, semiarid with cold, moist winters and warm, dry summers. Soils are excessively drained; very slow runoff; moderately low saturated hydraulic conductivity and are good for livestock grazing and wildlife habitat. Building 2069 is on this site and so it is paved. The natural vegetation would be mainly big sagebrush, rabbitbrush, horsebrush, spiny hopsage, indian ricegrass and fourwing saltbush.

Granitic Sand 9-12": The Incy series consists of very deep, excessively drained soils that formed in eolian sand derived mainly from granitic rocks. Incy soils are on semi-stabilized dunes superimposed on basin floor remnants, alluvial fans, and hills. Slopes are 0 to 30 percent. Soil moisture is usually moist in the moisture control section in winter and spring, dry in summer and fall; aridic soil moisture regime that borders on xeric. Mean annual soil temperature: 9 to 12 degrees C. The climate is semiarid with cool, moist winters and warm, dry summers. The mean annual precipitation is 200 to 300 mm, the mean annual temperature is 7 to 11 degrees C, and the frost-free period is 60 to 130 days. Soils are excessively drained; negligible or very low surface runoff; very high saturated hydraulic conductivity. These sites are used for rangeland and wildlife habitat. The present vegetation is mainly antelope bitterbrush, Anderson's peachbrush, Wyoming big sagebrush, Indian ricegrass, and bottlebrush squirreltail. These soils are also a source of sand for construction materials.

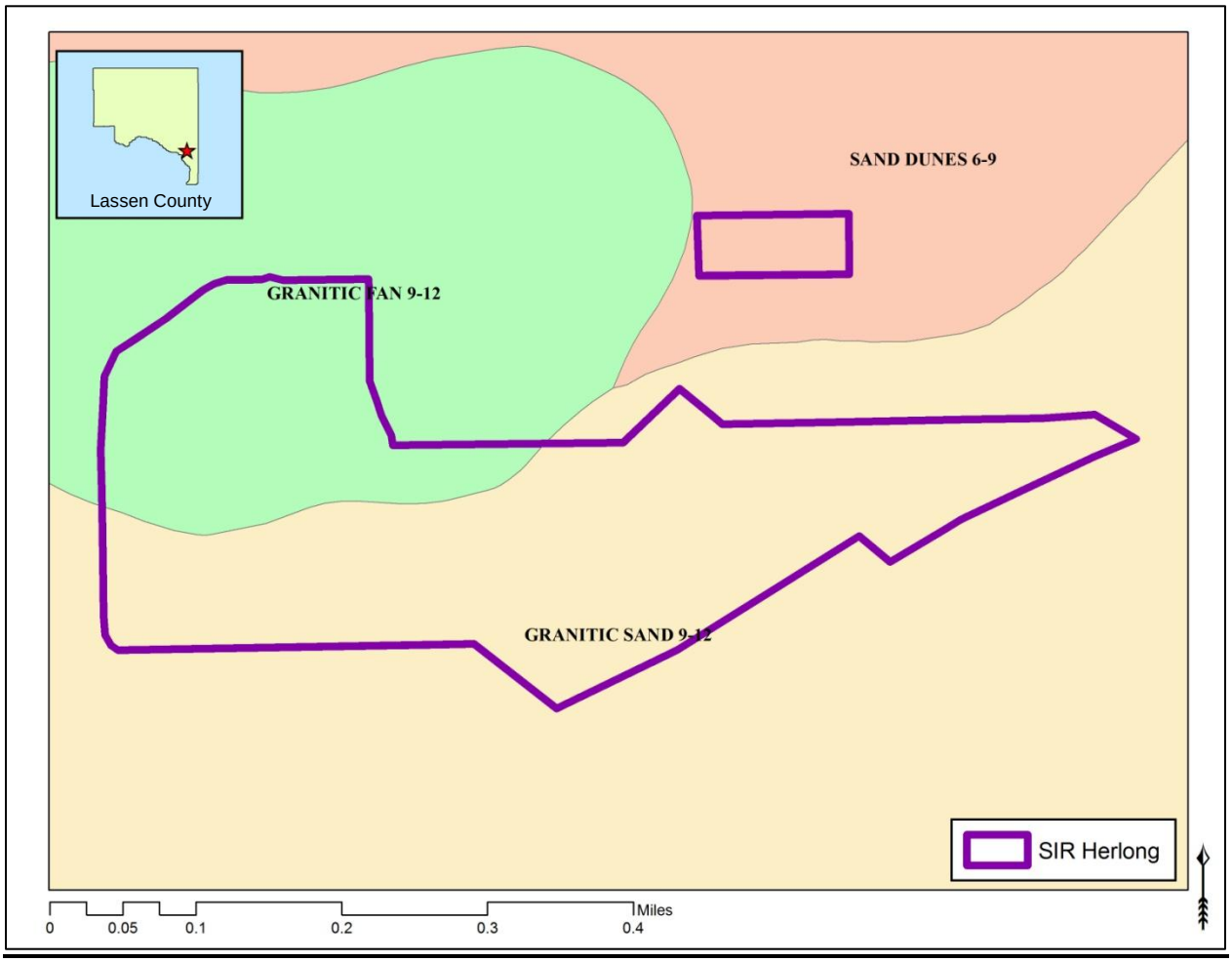

Figure 27. SIR Herlong Ecological Sites

SIR Cradle Valley: There is no ecological site information available for the SIR Cradle Valley property.

SIR Ravendale: The SIR Ravendale contains two different ecological sites (*See Figure 28*):

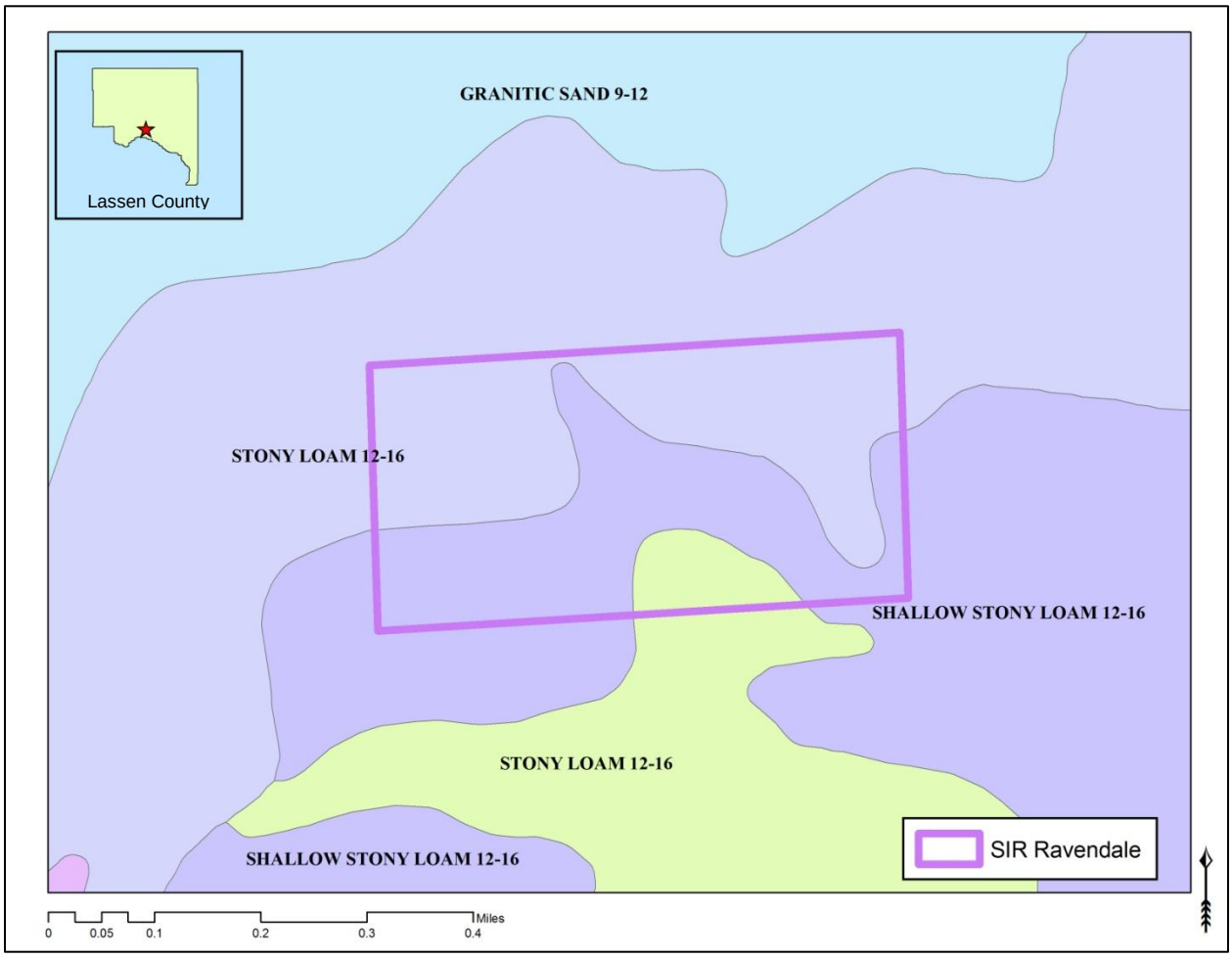

Figure 28. SIR Ravendale Ecological Sites

Stony Loam 12-16": *See* Upper Rancheria Ecological Sites.

Shallow Stony Loam 12-16": *See* Lower Rancheria Ecological Sites.

3.6.2. Plant Resources

3.6.2.1. Plant Resources by Habitat Type

The properties and surrounding areas consist of a variety of plant communities characterized by species composition and habitat association. The classification system generally follows the California Wildlife Habitats Relationships (CWHR) system (CDFG 2008). Upland plant communities on SIR properties include:

- **Sagebrush (SGB)**
- **Low Sagebrush (LSG)**
- **Eastside Pine (EPN)**
- **Jeffrey Pine Forest (JPN)**
- **Western Juniper Woodland (JUN)**
- **Montane Chaparral (MCP)**
- **Aspen (ASP)**
- **Montane Wet Meadow (WTM)**
- **Montane Hardwood Conifer (MHC)**
- **Lodgepole Pine (LPN)**
- **Mixed Conifer (MCN)**
- **Bitterbrush (BBR)**
- **Annual Grassland (AGS)**

A description of the predominant plant communities follows:

Sagebrush (SGB): - A large portion of SIR properties including SIR Lower and Upper Rancheria, SIR Ravendale, and SIR Herlong were once dominated by big sage (*Artemesia tridentata*). This vegetation type should dominate much of these properties, but due to fire suppression and rangeland management practices over the last 150 years, it has succeeded to juniper woodland. The sagebrush is mixed with other shrub species of similar growth and form habit including antelope bitterbrush (*Purshia tridentata*). Better sites have an understory of perennial grasses and forbs including bluebunch wheatgrass (*Agropyron spicatum*), Idaho fescue (*Festuca idahoensis*), Sandberg's bluegrass (*Poa secunda*), Thurber's needlegrass (*Achnatherum thurberianum*), and numerous annual forbs. Estimated total annual production in favorable sites is 1100-2000 lbs/acre.

Human activities and shifts in disturbance regimes since Euro-American settlement have resulted in significant losses of sagebrush (West 1996, West and Young 2000). Sagebrush shrub-steppe is in generally poor condition, and is under high threat of habitat loss, conversion and fragmentation (Saab and Rich 1997). The trend for Great Basin shrub-steppe habitats is generally downward due to human activities, which likely correlate with downward trends for sagebrush obligate species (Whisenant 1990; Knick and Rotenberry 1995, 1997). Urgent conservation measures need to be taken to ensure the survival of the sagebrush ecosystem (Allen-Diaz and Bartolome 1998, West 2000, Knick et al. 2003), and ultimately, the survival of birds and other wildlife that depend on the sagebrush biome (CalPIF 2005).

Low Sage Brush (LSB): This habitat is generally dominated by broad-leaved, evergreen shrubs ranging in height from about 0.1 to 0.5 m (4 to 19 in), typically averaging about 15 percent cover. Deciduous shrubs and small trees are sometimes sparsely scattered within this type. A ground cover of grasses and forbs is typically sparse 5 to 15 percent coverage.

The habitat may be dominated by either low sagebrush or black sagebrush, often in association with Douglas rabbitbrush, antelope bitterbrush, or big sagebrush; black sagebrush is also commonly associated with winterfat and Mormon-tea. Western juniper may be sparsely scattered in stands dominated by low sagebrush. Common grass species include Sandberg bluegrass,

bluebunch wheatgrass, bottlebrush squirreltail, Thurber needlegrass, and Idaho fescue. A rich variety of forbs is usually present. The abundance and distribution of associated plants is highly influenced by soils and precipitation.

Eastside Pine (ESP): The habitat is characterized by short to moderate height pine trees, 65 to 115 feet tall at maturity. The desired crown spacing of eastside pines is open, allowing light to penetrate, whereas other associated trees provide more dense foliage. This leads to an understory of low and big sagebrush (*Artemisia sp.*), bitterbrush (*Purshia tridenata*), and perennial grasses. Pine types with shrubby understories have a high degree of vertical diversity, especially when other conifers are present. A century of fire suppression has left most SIR pine stands in need of thinning where recent logging has not occurred. Some of the overcrowded stands have been subject to recent bug kills.

Jeffrey Pine Forest (JPN): Jeffrey pine (*Pinus jeffreyi*) forests vary over its distribution. A singletree layer is characteristic of Jeffrey pine stands on moderately dry sites. On moist and mesic sites a second tree layer exists which is composed of deciduous hardwood species, whereas on dry sites evergreen hardwood species can form the second tree layer. Most stands have 40-70 percent crown cover in the uppermost tree layer and usually less than 50% crown cover in the second layer. At Susanville the Jeffrey pine stands on the Upper Rancheria contain black oak (*Quercus kelloggii*), while the Jeffrey pine stands in Cradle Valley Fee contain mostly other conifers.

Figure 29. Encroachment of young western junipers into sagebrush steppe habitat on the Upper Rancheria

Western Juniper Woodland (JUN) This site is characterized as woodlands of open to dense aggregations of western juniper (*Juniperus occidentalis*) in the form of arborescent shrubs or small trees with occasional pines. Dispersion of junipers ranges from small clumps to widely scattered single plants. Denser stands (25-90% canopy cover) are commonly associated with little to no understory vegetation other than a few annual and perennial grasses and forbs. This leads to very little forage for wildlife and livestock operations. When stands are more open (less than 25% canopy cover) understory is usually sagebrush (*Artemisia sp.*), bitterbrush (*Purshia*

tridentata), perennial grasses and forbs. However, the University of California Cooperative Extension, Lassen County cites that with only a 10% canopy cover of western juniper, there is a 50% decline in forage and forbs diversity.

It is generally excepted that fire suppression and rangeland management practices over the last 150 years have resulted in the rapid expansion of western juniper into neighboring plant communities causing considerable concern because of: increased soil erosion; potential reduced stream flows; reduced forage production; altered wildlife habitat; changes in plant community composition, structure, and biodiversity; and replacement of mesic and semi-arid plant communities with juniper woodlands (>10% tree canopy). The project area is a prime example of juniper invasion and significant benefits to wildlife habitat, rangeland health, and watershed conditions will result from its treatment.

The following SIR Properties have western juniper habitat: SIR Upper Rancheria and SIR Ravendale.

Montane Chaparral (MCP): Montane chaparral is characterized by evergreen species; however, deciduous or partially deciduous species may also be present. Within the project area this habitat type is dominated by mountain mahogany (*Cercocarpus ledifolius var. intermontanus*). Understory vegetation in the mature chaparral is largely absent. Scattered junipers and pines may also occur. As with other plant species, western juniper out-competes mountain mahogany for limited moisture and nutrients.

This site typically occurs on rocky outcrops or escarpments and forms small- to large-patch stands in forested areas. The higher elevations of the SIR property contain mountain mahogany woodlands. Most stands occur as shrublands on ridges and steep rimrock slopes, but they may be composed of small trees in steppe areas. Scattered junipers or pines may also occur. This system includes both woodlands and shrublands dominated by sagebrush and bitterbrush and manzanita, western service berry, and snowberry are often present. Undergrowth is often very sparse and dominated by bunch grasses. This vegetation, in dense enough stands, provides nesting habitat for blue grouse. It is one of the few species that meets protein requirements for wintering deer. Where present in even small amounts within sagebrush habitats, mountain mahogany allows greater diversity and abundance than would otherwise occur. As with other plant species, western juniper out-competes mountain mahogany for limited moisture and nutrients.

Aspen (ASP): – This habitat type is characterized by quaking aspen (*Populus tremuloides)* with average canopy closures of 60 to 100% in young and intermediate-aged stands and from 25 to 60% in mature stands often shared with other deciduous trees and a few conifer species, typically pines. The open nature of intermediate to mature aspen stands results in substantial light

penetration to the ground leading an herbaceous understory with about half maintaining a tall shrub layer.

Aspen stands are located on SIR Ravendale and SIR Cradle Valley. Most of the aspen stands on SIR properties have been encroached by western juniper and other conifers and require management if they are to be maintained within this vegetation type. Most of the aspen stands on SIR Cradle Valley have been treated to remove encroaching conifers with funding from the Plumas National Forest (PNF) and Natural Resource Conservation Service (NRCS).

Montane Wet Meadow (WTM): Montane wet meadow areas generally have a simple structure consisting of a layer of herbaceous plants including grasses (75-90%) and forbs (10-20%) (*See* Figure 9). Shrubs or tree layers are usually absent or very sparse (0-5%). They may, however, be an important feature of the meadow edge.

Montane Wet Meadow areas on the Upper Rancheria are being encroached by western juniper affecting water availability and the herbaceous understory. There is a significant amount of anecdotal evidence indicating that removal of western juniper (*Juniperus occidentalis*) results in increased water availability, expansion of riparian/meadow habitats, and increased vegetative productivity. SIR is working with UCCE to implement a Sierra Nevada Conservancy (SNC) funded project within the SIR Upper Rancheria to assess soil moisture and vegetative response following western juniper removal.

Montane Hardwood-Conifer (MHC): Montane Hardwood-Conifer habitat includes both conifers and hardwoods (Anderson et al. 1976), often as a closed forest. In the case of the Upper Rancheria and SIR Cradle Valley the vegetation is a forest canopy of Jeffrey and ponderosa pine and black oak, with scattered western juniper and an understory of curlleaf mountain mahogany, antelope bitterbrush, mountain big sagebrush, mule's ear, sierra carpet, and perennial grasses. Other trees species may include Douglas-fir, incense cedar, bigleaf maple, white alder, and dogwood. The habitat often occurs in a mosaic-like pattern with small pure stands of conifers interspersed with small stands of broad-leaved trees (Sawyer 1980).

Typically, conifers to 65 m (200 ft.) in height form the upper canopy and broad-leaved trees 10 to 30 m (30 to 100 ft) in height comprise the lower canopy (Proctor et al 1980, Sawyer 1980). Due to fire suppression, the conifer component has overtaken the broad-leaved component on many of the sites containing this vegetation type within the project area and are in need of management in order to maintain the broad-leaf component.

Lodgepole Pine (LPN): Lodgepole pine exists solely within the SIR Cradle Valley property. Lodgepole stands typically form open stands of similarly sized specimens in association with a

few other species and with a sparse understory. In this instance associated species include aspen. The understory often consists of grasses, forbs, and sedges.

Mixed Conifer (MCN): This habitat type is composed primarily of ponderosa pine (*Pinus ponderosa*). Also found in this habitat with less densities are the white fir (*Abies concolor*), red fir (*Abies magnifica*), incense cedar (*Calocedrus decurrens*), Douglas fir (*Pseudotsuga menziesii*), sugar pine (*Pinus lambertiana*), California black oak (*Quercus kelloggi*i), and western juniper (*Juniperous occidentalis*). Jeffrey pine (*Pinus jeffreyi*) and lodgepole pine (*Pinus contorta*) also occur, although typically at higher elevations and none were observed on site. The understory consists of manzanita (*Arctostaphylos sp.*), Sierra carpet (*Ceanothus prostratus*), mountain mahogany (*Cercocarpus ledifolius*), sagebrush (*Artemisia tridentata*), wedgeleaf ceanothus (*Ceanothus cuneatus*), mountain snowberry (*Symphoricarpos oreophilus*). Herbaceous vegetation is composed of a mix of native and non-native grasses and herbs such as mule's ear (*Wyethia amplexicaulis*), arrowleaf balsam root (*Balsamorhiza sagittata*), Idaho fescue (*Festuca idahoensis*), and bottlebrush squirreltail (*Elymus elymoides*).

Bitterbrush (BBR): Bitterbrush stands range from small, widely spaced shrubs to large, closely spaced shrubs with more than 90 percent canopy cover. Stands usually contain 750 to 3000 plants per hectare (300 to 1200 per acre). Two species occur, which differ in stature and stand structure. Antelope bitterbrush is slightly larger and generally grows in more mesic sites than desert bitterbrush. Stands of antelope bitterbrush tend to be dense. Antelope bitterbrush is typically 1 to 2.5 m (3 to 8.5 ft) tall and 2 to 4 m (6.5 to 13 ft) in diameter. Plants can take on an arborescent form and become very tall in good sites and without significant browsing in the early years of growth. On exposed ridges at high elevations or with very heavy browsing, the shrubs may be held to 0.5 m (1.5 ft) in height. Shrubs moderately browsed since they were young tend to become globular and tightly hedged, which protects them from overuse. Unbrowsed or lightly browsed plants tend to remain open-crowned and are susceptible to damaging overbrowsing and early death.

Bitterbrush is only occasionally found in pure stands. Antelope bitterbrush often occurs as a codominant with big sagebrush or rubber rabbitbrush. It is also found with gray horsebrush, Douglas rabbitbrush, Mormon tea, curlleaf mountain mahogany, and desert peach. Overstory species found in bitterbrush habitats are ponderosa or Jeffrey pine, lodgepole pine, or western juniper. Understory herbaceous plants vary greatly in composition and density; examples include Idaho fescue, bottlebrush squirreltail, needlegrass, bluebunch wheatgrass, eriogonum, and phlox. The total understory usually makes up less than 10 percent cover. Desert bitterbrush is found mixed with big sagebrush, fourwing saltbush, creosotebush, rubber rabbitbrush, Mormon tea, spiny hopsage, and, on the north end of its range, antelope bitterbrush. Overstory species commonly found with desert bitterbrush are Utah juniper, singleleaf pinyon, Joshua tree, and, at higher elevations, Jeffrey pine. Some of the common understory species are Thurber needlegrass,

eriogonum, common snakeweed, and big galleta. These usually total less than 5 percent ground cover.

Annual Grassland (AGS): Annual Grassland habitats are open grasslands composed primarily of annual plant species. Structure in Annual Grassland depends largely on weather patterns and livestock grazing. Dramatic differences in physiognomy, both between seasons and between years, are characteristic of this habitat. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring, when temperatures increase and stimulate more rapid growth. Large amounts of standing dead plant material can be found during summer in years of abundant rainfall and light to moderate grazing pressure. Heavy spring grazing favors the growth of summer-annual forbs, such as tarweed and turkey mullein, and reduces the amount of standing dead material. On good sites, herbage yield may be as high as 4900 kg/ha (4400 lb/ac).

Introduced annual grasses are the dominant plant species in this habitat. These include cheat grass, medusa head, wild oats, soft chess, ripgut brome, red brome, wild barley, and foxtail fescue. Common forbs include broadleaf filaree, redstem filaree, turkey mullein, true clovers, bur clover, popcorn flower, and many others. Perennial grasses, found in moist, lightly grazed, or relic prairie areas, include purple needlegrass and Idaho fescue. Species composition is also related to precipitation.

3.6.2.2. Plant Resources of Special Interest on SIR Properties

SIR Lower Rancheria:

Noxious Weeds: The goals of noxious weed control on Tribal lands are to remove invasive species that are in competition with young late successional woody species and native understory plant species, as well as culturally significant understory species. The overall goal of this program is to create a natural environment and habitat that is as close to one that might have existed before major human disturbances occurred.

With assistance from the U.S. EPA, the SIR developed an Integrated Pest Management Plan (IPMP) to address these infestation. The SIR is a member of the Lassen County Special Weed Action Team (SWAT) and utilizes the SWAT Weed Warriors to implement the IPMP.

Noxious weeds infestations on the Lower Rancheria include yellow starthistle (*Centaurea solstitialis)*, puncture vine (*Tribulus terrestris*), and perennial pepperweed (*Lepidium latifolium*).

SIR Upper Rancheria:

Western Juniper Encroachment of Sagebrush: Vegetation on the lower to mid-elevations of the SIR Upper Rancheria consist of an open low sagebrush (*Artemisia arbuscula*) and grass habitat with scattered areas of big sagebrush (*Artemesia tridentate*) and antelope bitterbrush (*Purshia tridentata*). This vegetation type should dominate much of the Upper Rancheria area, but due to fire suppression and rangeland management practices over the last 150 years, it has succeeded to juniper woodland. SIR has received funding from the BIA and the NRCS to treat western juniper and restore sagebrush steppe on the SIR Upper Rancheria (See Figure 30):

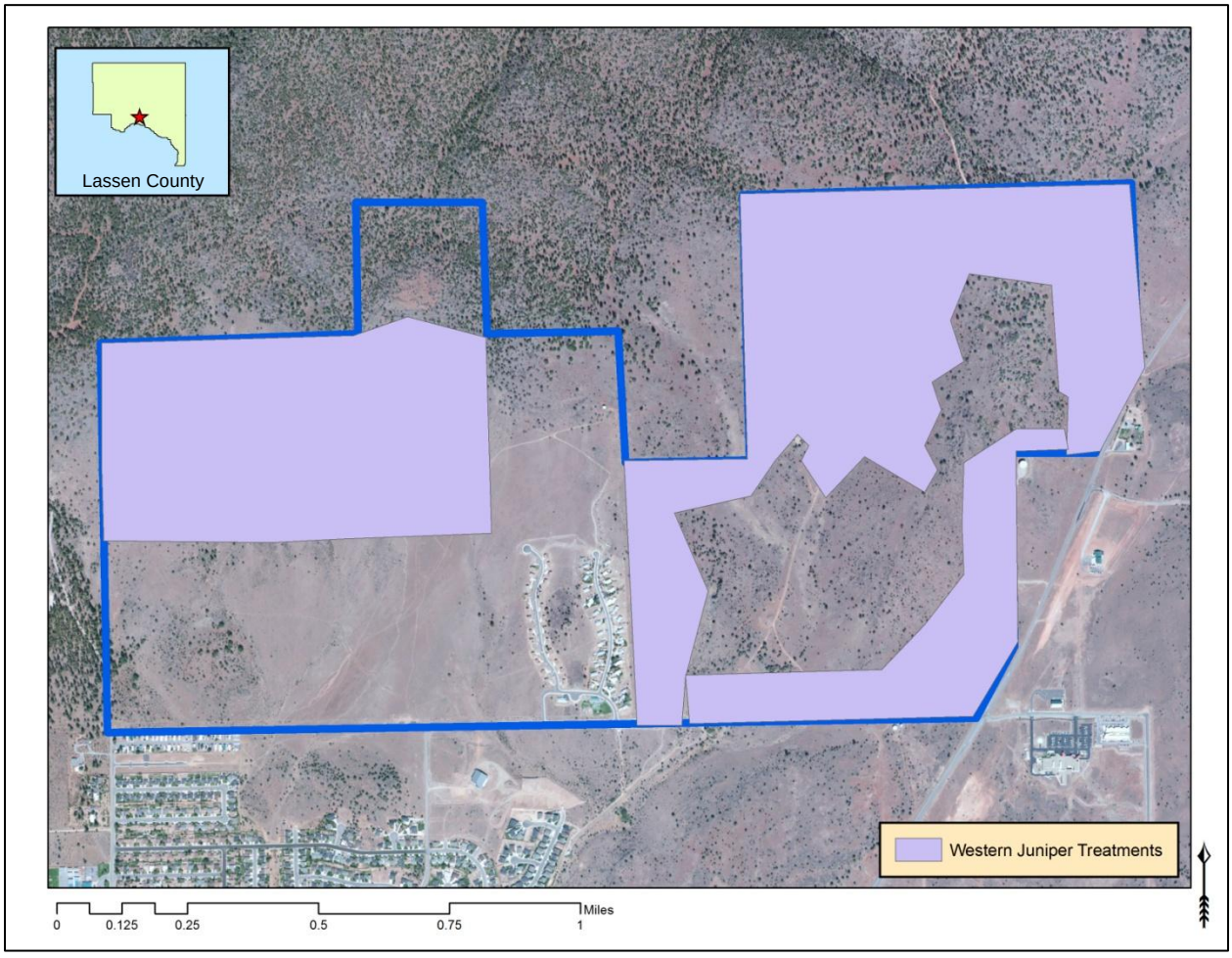

Figure 30. Areas where western juniper has been treated on the Upper Rancheria

Forestry Resources: Management of forest stands on SIR Properties should emphasize maintenance of large, old individual trees and providing quality habitat for native species.

Adhereing to these principles will not only preserve the aesthetics of SIR lands, but will contribute to future generations by conservation of critical but shrinking quality habitat.

In the future, the Susanville Indian Rancheria may become interested in managing lands for habitat preserves and timber resources. Both management strategies can benefit wildlife, the Tribe and the surrounding communities. Sustainable practices supported by the best available science should always be a mainstay of any forest management strategy. With the assistance of the BIA, the SIR developed a Forest/Woodland Management Plan (*See* Appendix B).

The forest management plan combines Tribal goals and policies with the Tribe's issues and concerns and creates management standards and strategies to help reach the Tribe's goals and address the Tribes concerns. As an example, Chapter IV, Forest Protection, includes strategies for wildfire suppression and describes potential work that, if funded, would help to create defensible space around the residential portions of the Rancheria.

The SIR TBC has adopted the following goals for the forested/woodland portions of SIR properties:

1. Establish accurate exterior boundaries of the Reservation by conducting an on-the-ground survey and boundary posting by a licensed surveyor.
2. Reduce the risk of wildfire to people, structures and forest resources by establishing and maintaining defensible fuel profile zones and fuel breaks.
3. Develop management strategies related to establishing and maintaining defensible space around the residential/developed portions of the Reservation.
4. Reduce impacts from trespass (e.g., livestock trespass), principally by establishing and maintaining fencing along Tribal boundaries.
5. Develop a program for regrowth of native plant cultural materials that have been reduced or eliminated from the Susanville Indian Rancheria by the absence of cultural burning and other cultural activities that provided for these species' regeneration and presence.
6. Manage minor forest products harvesting (e.g. firewood) in order to maintain and improve the health of the forest and woodlands.
7. Improve the health of the forest and woodlands through management.
8. Reduce potential wildland fire behavior through active management.
9. Reduce impacts to the health of the forest/woodlands from invasive species.
10. Reduce impacts to the health of the forest/woodlands from pests and diseases.
11. Reduce juniper encroachment onto former rangelands.

The SIR has identified the following issues, concerns, and opportunities for the forestland on the Rancheria:

1. There is a continuing effort by the SIR to expand its scope of management oversight to its former aboriginal territory outside the Rancheria, as allowed by law and through cooperation with federal agencies.
2. There is a concern that Rancheria boundaries are not accurately and precisely established

on the ground. Property corners are not monumented to U.S. Geological Survey standards, and "boundary lines" which are now *de facto* represented by existing fencing do not appear to represent the actual boundary lines; making the tribally utilizable acreage less than it should be.

3. There is a strong concern that invasive plant species, particularly including but not limited to perennial pepperweed (*Lepidium latifolium L*) are a serious noxious weed problem and need to be actively managed.
4. There is a concern that forest/woodland resources, human life, and property could be destroyed or damaged by wildfire.
5. There is a concern that juniper invasion is reducing the quality of the Tribe's lands and affecting water quantity, water quality and increasing the potential for catastrophic wildland fire on the Upper Rancheria

Forestry/Woodland Resources identified on the SIR Upper Rancheria include Jeffrey Pine (JPN), western juniper (JUN), and Montane Hardwood-Conifer (MHW) (*See Figure 31*). The size code is based on tree diameter at 4.5' above the ground (size class 1 – 1-5", 2 – 5-11", 3 – 11-21", 4 – 21"+, 5 two storied) while canopy cover is based on overstory tree cover (S – sparse 10-20%, P – open 20-40%, M – moderate 40-60%, D-dense 60%+). Once the WHR type is known, then projections of the wildlife that might occur in that vegetation type can be developed. The major vegetation types that are found on the SIR are described below and summarized in Table 2.

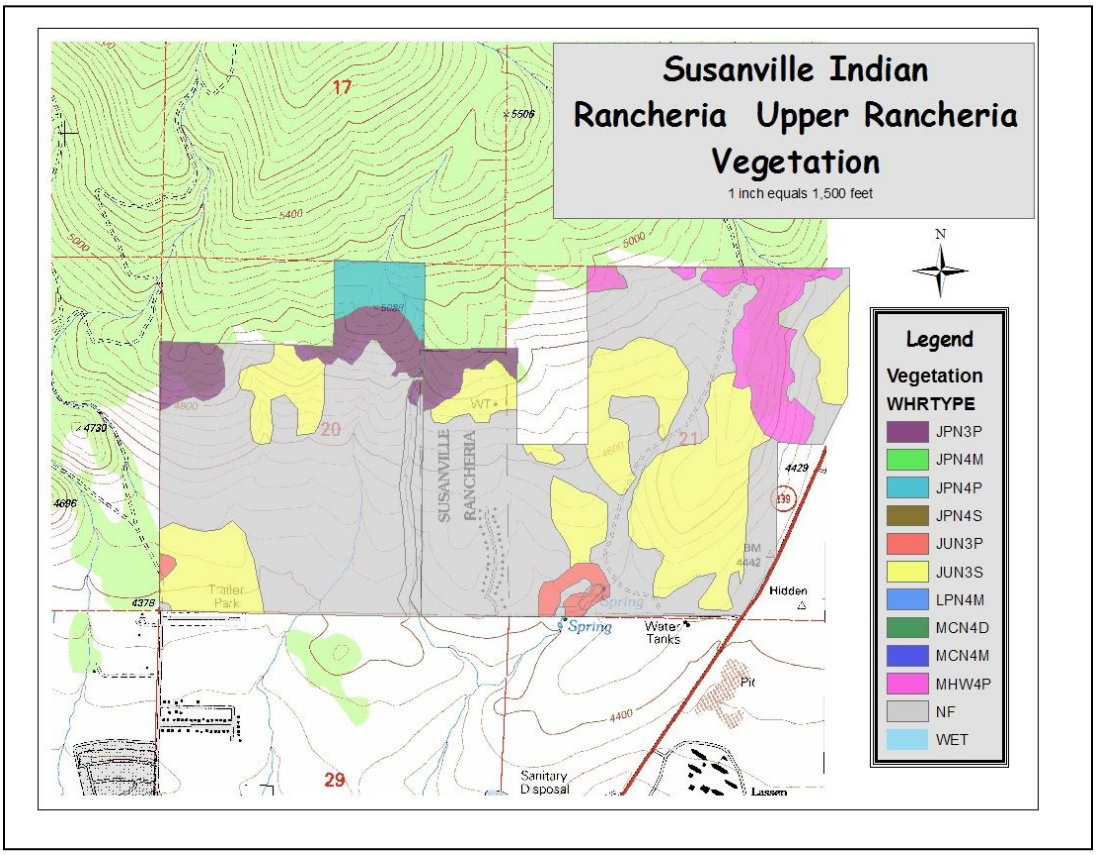

Figure 31. SIR Upper Rancheria Vegetation as illustrated in the SIR Forest/Woodland Management Plan (SIR FWMP)

TABLE 2.

ACREAGE OF VEGETATION ON FORESTED PORTIONS OF THE SIR (from the SIR FWMP)

Veg Type	Upper Rancheria	Cradle Valley Fee	Total
JPN3P	60		60
JPN4M		35	35
JPN4P	25		25
JPN4S		3	3

JUN3P	15		15
JUN3S	259		259
LPN4M		11	11
MCN4D		13	13
MCN4M		80	80
MHW4P	58		58
NF	578		578
WET		18	18
Total	995	161	1,156

Noxious Weeds: Invasive weedy species noted in the area include medusahead, thistles (*Cirsium sp.*) in disturbed areas along Spring Ridge Road, and a small amount spotted knapweed (*Centaurea maculosa*), perennial pepperweed (*Lepidium latifolium*), yellow starthistle (*Centaurea solstitialis)*, Mediterranean sage (*Salvia aethiopis* L.), and dalmation toadflax (*Linaria vulgaris*).

SIR Herlong:

Noxious Weeds: The following weed species are present in SIR Herlong: dalmation toadflax (*Linaria vulgaris*).

SIR Ravendale:

Western Juniper Removal: Vegetation on the southern flat plateau portion of SIR Ravendale consists of an open low sagebrush (*Artemisia arbuscula*) and grass habitat with scattered areas of big sagebrush (*Artemesia tridentata*) and antelope bitterbrush (*Purshia tridentata*). This vegetation type should dominate much of SIR Ravendale, but due to fire suppression and rangeland management practices over the last 150 years, it has succeeded to juniper woodland.

SIR Cradle Valley:

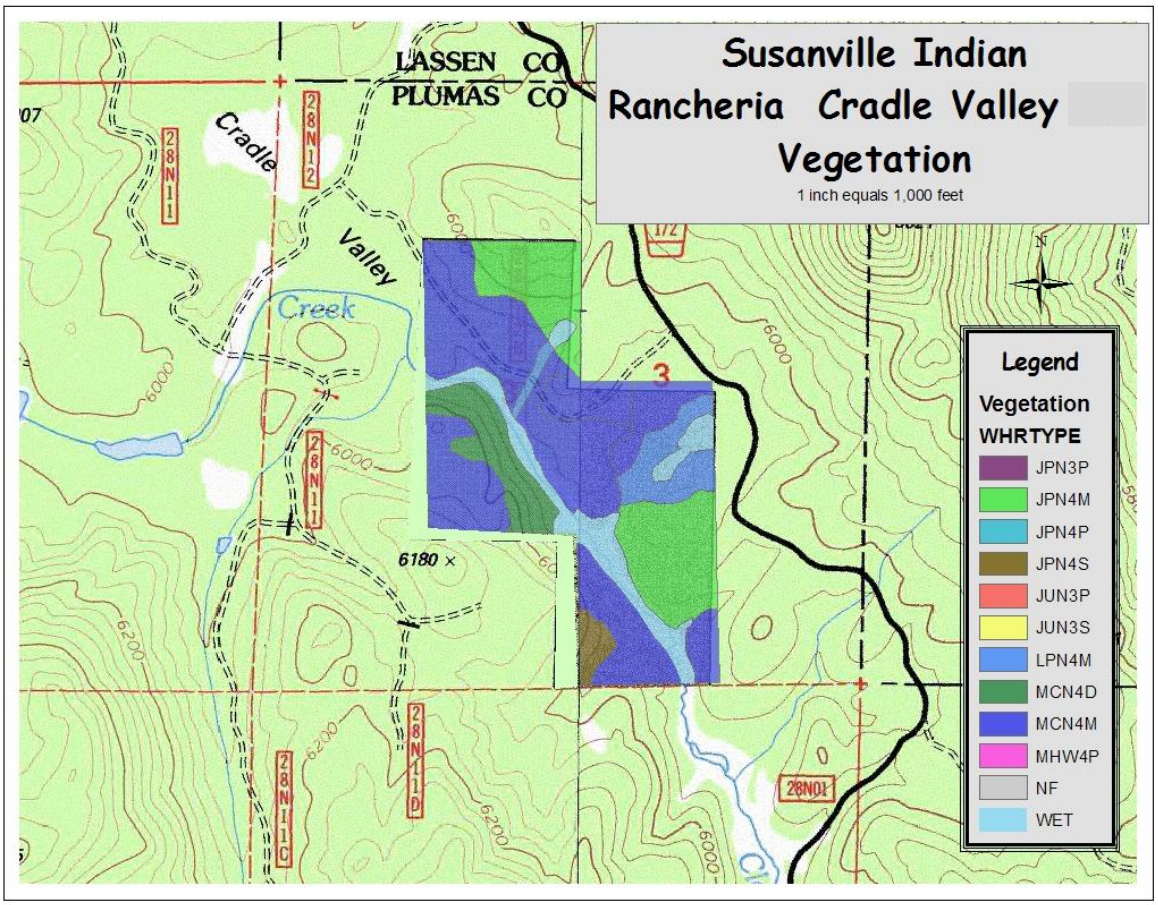

Figure 32. SIR Cradle Valley vegetation as illustrated in the SIR FWMP

Forestry Resources: Forestry Resources on SIR Cradle Valley include Mixed Conifer (MCN), Jeffrey Pine (JPN), and Lodgepole Pine(LPN) (*See Figure 32 and Table* 2). The SIR has received funding for the Cradle Valley Indigenous Landscape Enhancement Project (CVILEP) from the Plumas National Forest, NRCS, and the California Fire Safe Council to improve forest health and reduce the risk of catastrophic wildlife.

3.6.3. Wildlife Resources

3.6.3.1. Wildlife Resources by Habitat Type

Sagebrush (SGB): Sagebrush steppe is very important to wildlife because it serves as habitat for game animals and occupies a vast area of the landscape. It is a major winter-range type for migratory mule deer and many herds prefer to summer in Sagebrush and Eastside Pine complexes at middle and high elevations as found in the SIR Upper Rancheria. Much of the 875

acres is considered critical mule deer habitat. Pronghorn antelope have a pronounced affinity for plant associations with a strong sagebrush component, and their distribution conforms relatively well to the distribution of areas occupied by *Artemisia* species.

Other mammal species that utilize sagebrush steppe include elk, badgers, kit fox, bobcat, mountain lion, coyote, and long-tailed weasels. Groundsquirrels (*Spermophilus* sp.) are important to shrub-steppe ecosystems as a prey species, as well as, to soil chemistry through the mixing and aeration of soils while burrowing. Despite their importance, ground squirrels have not been appreciated by humans and very little is known about their role in shrubsteppe ecosystems (Van Haegen et al. 2001).

A number of bird species are primarily associated with sagebrush shrublands during at least part of the year and have been considered sagebrush obligate species (Braun et al. 1976, Page and Ritter 1999). These include greater sage-grouse, sage thrasher, Brewer's sparrow, and sage sparrow. The gray flycatcher uses a variety of sagebrush and woodland habitats, but overall the range of this species is closely tied to that of big sagebrush, and the term "near obligate" has been used to describe its affinities to sagebrush habitat (Sterling 1999). The lark sparrow, loggerhead shrike, and black-throated sparrow are associated with a greater variety of shrubland habitats – but nonetheless rely on sagebrush habitats to a large degree for breeding habitat within the intermountain west (CalPIF 2005). Important gamebird species which utilize sagebrush habitats include mountain quail, California quail, doves, and chukar.

Of the bird species listed above: the greater sage-grouse is a California Species of Concern (CSC); Brewer's sparrow, sage sparrow, and loggerhead shrike are all considered by the U.S. Fish and Wildlife Service (USFWS) to be bird species of conservation concern (BCC); the gray flycatcher is considered to be a sensitive species by the U.S. Forest Service and the black-throated sparrow is a BLM sensitive species. All eight bird species have been identified as focal species for the California Partners in Flight Sagebrush Bird Conservation Plan due to long term trends derived from Breeding Bird Survey (BBS) data spanning 1966-2002 suggesting widespread declines. Page and Ritter (1999) identified eighteen bird species associated with sagebrush ecosystems that are of conservation concern, sixteen of which are found in Lassen County, CA. In addition to those listed above, the list also includes: Swainson's hawk (CA State Threatened); ferruginous hawk (CA Species of Concern(CSC); prairie falcon (CSC); long-billed curlew (CSC); burrowing owl (CSC); short-eared owl (CSC); and vesper sparrow (BLM Sensitive).

Sagebrush habitats are also occupied by jackrabbits, cottontail rabbits, ground squirrels, least chipmunk, kangaroo rats, wood rats, pocket mice, and deer mice. Many predators including bobcats, badgers, coyotes, and mountain lions hunt in sagebrush habitats.

Many raptor species including bald eagles, golden eagles, Swainson's hawk, red-tailed hawk, rough legged hawk, prairie falcon, American kestrel, short-eared owls, long-eared owls, and burrowing owl forage in sagebrush habitats.

Low Sagebrush (LSG): Excluding species dependent on ponds lakes, marshes, and cliffs commonly found in northeastern California, Laudenslayer (1982) lists 28 species of terrestrial vertebrates that find conditions optimum for breeding in typical stands of LSG (<20% shrub cover), including chukar, burrowing owl, rock wren, and pronghorn. He lists 37 additional species that find conditions suitable for breeding in typical stands, including sage grouse, mourning dove, and kit fox. In addition, several species of raptorial birds find ideal hunting grounds in stands of low sagebrush. These stands tend to lose their snow cover earlier in spring than surrounding habitats; thus they provide an especially important source of new, green forage for pronghorn and mule deer.

Eastside Pine (ESP): Eastside pine stands often form important migratory and winter range for deer. Large pine branches form good nesting substrates for large raptors. Higher elevation stands with grassy understories near water may be extremely important deer fawning areas and migratory holding areas. Black bears utilize pine habitats for hunting and foraging. Listed and sensitive wildlife species in the eastside pine habitat include the bald eagle and the Sierra Nevada red fox.

Jeffrey Pine Forest (JPN): Jeffrey pine is intermediate in species richness between warmer forests at lower elevations and colder forests at higher elevations in the Klamath Mountains and on the west side of the Sierra Nevada. Its species richness exceeds that of the adjacent upper elevation forests and lower elevation woodland and scrub types in both the Transverse and Peninsular Ranges.

The value of the Jeffrey pine forest type as a habitat for wildlife is due in large part to the food value of the Jeffrey pine seeds. Pine seeds are included in the diet of more wildlife species than any other genus except oak. The bark and foliage also serve as important food sources for squirrels and mule deer. Jeffrey pine provides vital nesting cover for several species such as nuthatch, brown creeper, woodpecker, and northern flying squirrel.

Western Juniper (JUN): The presence of juniper has been associated with an increase in bare ground, smaller more widely spaced grass clumps, and a decrease in ground cover (Roberts and Jones 2000; Knapp and Soule 1998; and Bunting et al. 1999). In many cases this has led to a decline in species richness (Miller et al. 2000) and therefore many studies have found a significant increase in herbaceous species diversity and richness following western juniper

removal (Bates et al. 2000). This increased shrub and herbaceous recruitment and related seed production improves food and cover for small mammal populations (Bates et al. 2000, 2002). Several studies in the Intermountain West have shown small mammal numbers generally increase when western juniper is either thinned or completely cut (Kundaeli and Reynold 1972, O'Mera et al. 1981, Elmore 1984, Severson 1984, Willis and Miller 1999). Elmore (1984) reported twice as many species and a 60% increase in several of the species following juniper removal. No wildlife species is considered a juniper obligate although many bird and small mammal species utilized juniper berries for food.

Juniper removal results in improved foraging conditions for several raptor species by increasing the prey base, removing obstacles, and increasing visibility. Leaving mature, old growth junipers within the thinned areas provides perches in these improved foraging areas. Raptor species, including listed and species of special concern, have been observed on the Upper Rancheria, SIR Ravendale and adjacent areas including: bald eagle (Federally Listed as Threatened) **,** Swainson's Hawk (CA Threatened)**,** golden eagle (CA Fully Protected)**,** prairie falcon (CA Species of Concern (CSC))**,** ferruginous hawk (CSC) **(**wintering), and northern harrier (CSC).

Although large herbivores such as deer and antelope may utilize stands of juniper for thermal cover, juniper provides minimal food resources. Both digestibility and levels of available protein are low in western juniper. Increased western juniper dominance across the landscape has been found to result in a decline in browse resources (Adams 1975, Miller et al. 2000, Schaefer et al. 2003). In northeastern California, the decline in mule deer populations in the late 1960's may in part be related to the concurrent increase in western juniper dominance and the decline in shrubs (Schaefer et al. 2003).

It can be argued that the removal of juniper will also benefit many wildlife species that utilize riparian and wetland areas by increasing the quantity and quality of available water resources. Several long-term studies have demonstrated that removal of juniper generated increases in base stream flow (Clary et al. 1974, Baker 1984). Pierson et al. (2003) compared hydrologic response of western juniper-dominated hillslopes with hillslopes where the western juniper had been removed and found increased run-off, sheet erosion, and rill erosion in the juniper-dominated hillslopes. Wildlife in the area would benefit from the water quality and quantity improvements generated from juniper removal.

In summary, increasing dominance of western juniper at both the community and landscape levels will result in a general decline in landscape and plant community diversity, resulting in a decline of wildlife abundance and diversity (Miller et al. 2005)

Montane Chaparral (MCP): Montane chaparral provides habitat for a wide variety of wildlife. Numerous rodents, including ground squirrels, chipmunks, and wood rats inhabit chaparral. Deer and other herbivores often make extensive use of chaparral. Montane chaparral provides critical summer range foraging areas, escape cover and fawning habitat. Fawning areas are frequently found where the chaparral lies adjacent to or contains an interspersion of perennial grass or meadow-riparian habitat as in the project area (Ashcraft 1975). Some small herbivores use chaparral species in fall and winter when grasses are not in abundance. Rabbits and hares eat twigs, evergreen leaves and bark from chaparral. Shrubs are important to many mammals as shade during hot weather, and moderate temperature and wind velocity in the winter (Loveless 1967). Many birds find a variety of habitat needs in the montane chaparral. It provides seeds, fruits, insects, protection from predators and climate, as well as singing, roosting and nesting sites (Verner and Boss 1980). This vegetation in dense enough stands provides nesting habitat for blue grouse. It is one of the few species that meets protein requirements for wintering deer. Where present in even small amounts within sagebrush habitats, mountain mahogany allows greater diversity and abundance than would otherwise occur.

Aspen (ASP): Although no wildlife species is totally dependent on habitats dominated by aspen, this cover type adds significantly to the richness of the wildlife in areas where it occurs. The habitat typically has a shrubby ecotone with adjacent meadows. This and the shrub understory within stands provide nesting cover for several species that might otherwise be scarce or absent. The mesic sites that permit aspen to establish also result in higher insect production compared to adjacent forests or shrublands. Such insect production, together with a high rate of fungal infection of trees, is thought to account for the greater variety and abundance of birds in ASP habitats than in adjacent forests and shrublands (Winternitz 1980). Aspen stands are habitats favored by a variety of cavity-nesting birds, such as bluebirds, sapsuckers, downy woodpeckers, and chickadees. Snags are important to cavity nesters in these stands, but live aspens are easily and therefore commonly drilled by excavating species. On the eastern slopes of the Sierra Nevada, aspen stands adjoining sagebrush and other shrub habitats apart from forested sites often provide nesting cover for northern goshawks.

Montane Wet Meadows (MWM): Mule deer and elk may feed within this vegetation type, especially seeking forbs and palatable grasses. Waterfowl, especially mallard ducks, frequent streams flowing through wet meadows. Yellow-headed and red-winged blackbirds in particular occasionally nest in wet meadows with tall vegetation.

Montane Hardwood-Conifer (MHC): Montane hardwood-coniferous forests on the Upper Rancheria and SIR Cradle Valley typically consist of Jeffrey and ponderosa pine and black oak, with scattered western juniper and an understory of curlleaf mountain mahogany, antelope bitterbrush, mountain big sagebrush, mule's ear, sierra carpet, and perennial grasses. This habitat

is in an area of vegetational and floristic diversity with large numbers of endemic species (Proctor et al. 1980). Montane hardwood-conifer forests provide habitat for a variety of wildlife species. Mature forests are valuable to cavity nesting birds. Moreover, acorn crops are an important food source for many birds as well as mammals. Canopy cover and understory vegetation are variable which makes the habitat suitable for numerous species. Oaks (*Quercus* spp.) are a critical species for wildlife. Oaks may be the single most important genus used by wildlife for food and cover in California forests and rangelands. Livestock also use oaks for food and cover.

Cavities in the trees provide den or nest sites for owls, various woodpeckers, tree squirrels, and American black bears. Trees provide valuable shade for livestock and wildlife during the hot summer months. California black oak forests are heavily used for spring, summer, and fall cover by black bears.

Oaks are browsed by mule deer and livestock. Acorns are heavily utilized by livestock, mule deer, rodents, quail, Steller's jay, scrub jays, Bullock's oriole, grosbeak, flickers and many species, including Acorn and Lewis woodpeckers. Acorns constitute an average of 50% of the fall and winter diets of western gray squirrel and deer during good mast years. Fawn survival rates increase or decrease with the size of the acorn crop. The acorn woodpeckers in the Susanville and Janesville area are one of only two populations on the eastern side of the Sierras.

Lodgepole Pine (LPN): Lodgepole pine stands have low structural diversity and are relatively low in animal species. Many species found in lodgepole pine stands are associated with the meadow edge. The Lodgepole habitat provides suitable habitat for 6 reptiles and amphibians, 49 birds, 35 mammals (Verner and Boss 1980). These species include wolverine (rare), goshawk (sensitive), bald eagle (endangered), and prairie falcon (sensitive).

Mixed Conifer (MCN): The mixed conifer forest supports some 355 species of animals (Verner and Boss 1980). Sensitive species inhabiting mixed conifer include spotted owl, fisher, and pine marten. Endangered species include bald eagle and peregrine falcon (Verner and Boss 1980). Variety in plant species composition provides diversity in food and cover. Black oak acorns, berries from a variety of shrubs (e.g., deerbrush), and a great number of grasses and forbs provide the forage resource essential for wildlife (Kosco and Bartolome 1983).

Bitterbrush (BBR): Bitterbrush is highly digestible and contains desirable levels of moisture, calcium, phosphorus, and fat (Hickman 1975). It tolerates considerable browsing from livestock and wildlife. Its leaves and twigs are favored by mule deer, pronghorn, cattle, sheep, and horses. Dietz (1965) listed the minimum level of crude protein required in mule deer diets as 6 to 7 percent. Antelope bitterbrush exceeds that level, even in winter when it is especially important in the deer diet. It exceeds 17 percent crude protein during the period of rapid growth in early June.

Many species of birds, rodents, and insects use seeds. Birds also eat the loopers and tent caterpillars that feed on the vegetative parts of bitterbrush. Some of the more characteristic wildlife species found in bitterbrush habitat include the western fence lizard, gray flycatcher, Brewer's blackbird, green-tailed towhee, jackrabbits, least chipmunk, Belding's ground squirrel, kangaroo rats, and badger.

Annual Grassland (AGS): Many wildlife species use annual grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Characteristic reptiles that breed in Annual Grassland habitats include the western fence lizard, common garter snake, and western rattlesnake. Mammals typically found in this habitat include the black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger, and coyote. Common birds known to breed in Annual Grasslands include the burrowing owl, short-eared owl, horned lark, and western meadowlark. This habitat also provides important foraging habitat for the turkey vulture, northern harrier, American kestrel, and prairie falcon.

3.6.3.2. Wildlife Resources of Special Interest on SIR Properties

SIR Upper Rancheria: Numerous species of wildlife utilize the Upper Rancheria for migration from summer to winter habitat and many species use it on a year round basis. The Upper Rancheria and the surrounding area provide habitat for mule deer, pronghorn antelope, mountain lion, coyote, badger, black-tailed hare, and cottontail rabbit. Various reptiles including rattlesnake, garter snake, gopher snake, leopard lizard and the western fence lizard utilize this area. The area provides foraging habitat for several potential raptor species including the red tailed hawk, great horned owl, Swainson's hawk, rough-legged hawk, ferruginous hawk, prairie falcon, short-eared owl, bald eagle, and golden eagle occupy the area.

Proposed land zoning on the Upper Rancheria has been designed to allow for north-south and west-east wildlife migration corridors.

SIR Ravendale:

Sage-Grouse: Greater sage-grouse (*Centrocercus urophasianus*) is a sagebrush obligate species found in all the western states except Arizona and New Mexico. Breeding populations have declined by seventeen to forty-seven percent (17-47%) throughout much of its range. To date, the petition to list greater sage-grouse has been found to not warrant listing by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered (Federal Register, 2005) primarily due to the development by government agencies and private stakeholders of conservation strategies, such as the strategy developed for Lassen County, CA sage-grouse Population Management Unit (PMU), Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush

Ecosystems within the Buffalo-Skedaddle Population Unit (NCSGWG, 2005). The California Department of Fish and Wildlife (CDFW) considers sage-grouse as a Species of Special Concern and the Bureau of Land Management (BLM), California and Nevada, considers the sage-grouse a BLM Sensitive Species.

According to the Buffalo-Skedaddle Conservation Strategy (BSCS), areas of sagebrush ecosystems within the PMU that have the potential to support sage-grouse (approximately 1,475,506 acres) have declined over the past 100 years. Potential habitat is defined as habitat where mature sagebrush and seedlings are present. Approximately 46% of the potential habitat is imperiled by understory dominated by annual grass, annual forbs, bare ground, or 0 to 9 perecent (0-9%) juniper cover. Approximately 19% of the potential sagebrush habitat has crossed the threshold from sagebrush-dominated to juniper or annual grass-dominated communities (mature sagebrush and seedlings are not present). The BSCS also states that any meaningful sage-grouse conservation strategy in Lassen County must include measures that apply to private lands. Most of the better and more accessible soil and free water sites within the PMU are on private lands, as well as the late brood rearing and forb-rich summer habitats. Eight of the 32 active leks in the California portion of the PMU are on, or immediately adjacent to, private land.

The significant decrease in understory vegetation resulting from western juniper's dominance causes severe reductions in plants essential for sage-grouse habitat. As juniper proliferates, the sage-grouse are left with less forage and fewer places to seek refuge. And the lack of native plant cover exposes sage-grouse nests and chicks to predators. Several studies, including a radio-telemetry study conducted in Lassen County by the CDFW, have found that sage-grouse avoided western juniper communities for nesting and winter use (BLM 1994) Goal #7 of the BSCS calls for the removal of juniper from nesting, brood-rearing, and wintering habitat and identifies the need to take advantage of grants, or large project initiative funding to complete site treatments which include removal of dominant species and reseeding with a mix of perennial native shrubs, grasses, and forbs. Other upland game bird species including quail and dove will also benefit from this strategy.

Brewer's Sparrow: The Brewer's sparrow (*Spizella breweri*) is a shrub obligate that is threatened by large scale reduction and fragmentation of sagebrush habitats occurring as a result of a number of human activities. The Brewer's Sparrow is closely associated with shrublands dominated by big sagebrush. The Brewer's sparrow has been significantly declining throughout its range during last 10 to 20 years (Rotenberry et al. 1999). North American Breeding Bird Survey (BBS) data for 1966 through 1996 show significant and strong survey-wide declines averaging -3.7 percent per year (n = 397 survey routes). These negative trends appear to be consistent throughout the 30 year survey period. Threats to Brewer's Sparrow are primarily

those that result in the loss or degradation of mature sagebrush cover, which the species uses almost exclusively during the breeding season.

Sage Sparrow: The sage sparrow (*Amphispiza belli*) prefers large stands of sagebrush for breeding habitat. It is most abundant in large tracts of shrub steppe, and the probability of presence increases with increasing patch size and spatial similarity of sites (Knick and Rotenberry, 1995). It is listed as a California species of special concern, according to due to reduction and fragmentation of sagebrush habitat.

Loggerhead Shrike: Optimal habitat for loggerhead shrike (*Lanius ludocicianus*) has been described as late-seral big sagebrush with patches of tall shrubs in a mosaic with openings (Poole 1992). Breeding Bird Survey data for 1980 through 2000 indicate ongoing, significant declines, although the rates of these declines may be slowing down for some populations. Range wide, the decline was 2.2% annually, or 53% for the 20 year period (Sauer et al. 2001). Regionally, the declines were 3% annually (46% overall) for the eastern region, 1.9% annually (32% overall) for the central region, and 1.6% annually (28% overall) for the west. Loggerheads are a California Species of Special Concern (CalPIF 2005).

Pygmy Rabbit: The pygmy rabbit (*Brachylagus idahoensis*) is a member of the family Leporidae, which includes hares and rabbits. It is the smallest Leporid in North America. The pygmy rabbits' historical range includes portions of: California, Oregon, Nevada, Idaho, Montana, Wyoming, Utah and Washington. The pygmy rabbit, a California Species of Concern, is typically found in areas of tall, dense sagebrush (*Artemisia* spp.*)* cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. The pygmy rabbit diet in the winter consists of up to 99% sagebrush (USFWS 2014).

The loss of habitat through human activities (Whisenant 1990; Knick and Rotenberry 1995, 1997) is probably the most significant factor contributing to pygmy rabbit population declines. Sagebrush cover is critical to pygmy rabbits and sagebrush eradication is detrimental (Holochek 1981). Fragmentation of sagebrush communities also poses a threat to populations of pygmy rabbits (Weiss and Verts 1984) because dispersal potential is limited. Some populations of pygmy rabbits are susceptible to rapid declines and possibly local extirpation.

SIR Cradle Valley:

Willow Flycatcher: The willow flycatcher (*Empidonax traillii*) is a small insect-eating, neotropical migrant bird of the tyrant flycatcher family. The willow flycatcher has been designated as an Endangered Species by the State of California and a species of special concern by the U.S. Fish and Wildlife Service. Willow flycatcher habitat is present along the northern portion of Clarks Creek on SIR's Cradle Valley property. Willow flycatcher surveys were

conducted in 2009 in conjunction with SIR's Cradle Valley Timber Harvest Plan (THP). No willow flycatchers were detected.

Northern Goshawk: The northern goshawk (*Accipiter gentilis)* is the largest member of the genus *Accipiter*. It is a raptor with short, broad wings and a long tail, both adaptations to manoeuvring through trees in the forests it lives and nests in. The northern goshawk is a U.S. Forest Service species of concern. A northern goshawk nest site is located on Plumas National Forest lands immediately adjacent to the western boundary of SIR's Cradle Valley property. The nest site has not been active for the past five years.

Great Gray Owl: The great gray owl (*Strix nebulosa*) is a large owl that prefers forest habitat adjacent to large open meadows. The great gray owl has been listed as endangered by the State of California. SIR was required by CDFW to conduct great gray owl surveys in 2009 and 2010 in conjunction with SIR's Cradle Valley Timber Harvest Plan (THP). No great gray owls were detected.

3.6.4. Fisheries

SIR Cradle Valley:

Rainbow Trout: Rainbow trout (*Oncorhynchus mykiss*) are present in Clarks Creek. Clarks Creek is an ephemeral drainage within SIR Cradle Valley property. Recolonization of rainbow trout is dependent upon immigration from upstream and downstream areas. A series of beaver dams on lower Clarks Creek effectively blocks upstream fish passage and prevents annual recolonization by rainbow trout and other fish species from Last Chance Creek.

3.7. Human Resources

The Tribe understands that the health of the environment is tied directly to the health of the people. To protect the environment and sustain human health and well being are key goals for the SIR. **Traditional ecological knowledge (TEK)** describes aboriginal, indigenous, or other forms of traditional knowledge regarding sustainability of local resources. TEK refers to a cumulative body of knowledge, belief, and practice, evolving by accumulation of TEK and handed down through generations through traditional songs, stories and beliefs. TEK concerns the relationship of living beings (including human) with their traditional groups and with their environment. It is important that Tribal members retain TEK and carry on cultural traditions. However, much of this traditional knowledge has been lost through history.

In addition to retention in Tribal documents, the minds of the people are repositories for important experiences and knowledge that exist nowhere else. It is vital to the future health and legacy of the Tribe that these experiences and knowledge are passed on from elders to youth. Environmental health refers to those aspects of human health and disease that are determined or influenced by factors in the environment, both built and natural. Workers in the field of

environmental health ascribe to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. The traditional knowledge of the Tribe is closely connected to environmental health and encompasses physical, mental, and spiritual well-being. It also stresses the importance of interactions on many levels.

Management objectives are:

- Prohibit or minimize the degradation of the environment on Tribal lands and in the region; this will benefit Tribal members' environmental health and well-being.
- Restore and preserve ecosystem function on Tribal lands and in the region in order to maximize the environmental health and well-being of Tribal members and the surrounding communities.
- Utilize and promote traditional knowledge through educational and outreach programs .

Tribal employees are another keystone in the Tribe's structure. Tribal employees work for the Tribal government, LIHC, SIRHA and several Tribal businesses run by SIRCO. Their combined experience and expertise are an important resource in accomplishing Tribal goals and realizing Tribal resolutions.

3.7.1. Roads and Transportation

The goals are to provide and maintain safe roadways on Tribal lands at a level that meets but does not exceed adequacy for reasonably efficient travel.

Management objectives are:

- Identify, evaluate, and assist Tribal members and employees with transportation needs where applicable.

Transportation

As an owning entity, the SIR manages roads on SIR properties. The Tribe's Indian Reservation Road (IRR) system is a catalog of roads that serve Tribal land and facilities for the BIA. The IRR, combined with the Tribe's Transportation Plan and Transportation Improvement Program (TIP) are requirements for eligibility to receive federal funds for transportation improvements on the Reservation Roads system. With a BIA maintenance program in place and property documentation in the TIP, the Tribe can access highway trust funds for use on its own roads. The Tribe can also partner with other roads-owning entities in the construction and maintenance of roads. As the Tribe grows and acquires new lands, revisions and additions to the SIR Transportation Plan will likely become necessary.

In general, roads should be built only where necessary and their construction should account for the retention of proper ecosystem functions. Excessive road density can interfere with wildlife or water quality due to sediment contribution to streams, the interruption of groundwater flow, habitat fragmentation, and introduction of invasive species.

The following maps illustrate existing roads, as well as future roads that the SIR has identified during strategic planning sessions as necessary to meet future growth while protecting natural and cultural resources.

SIR Upper Rancheria:

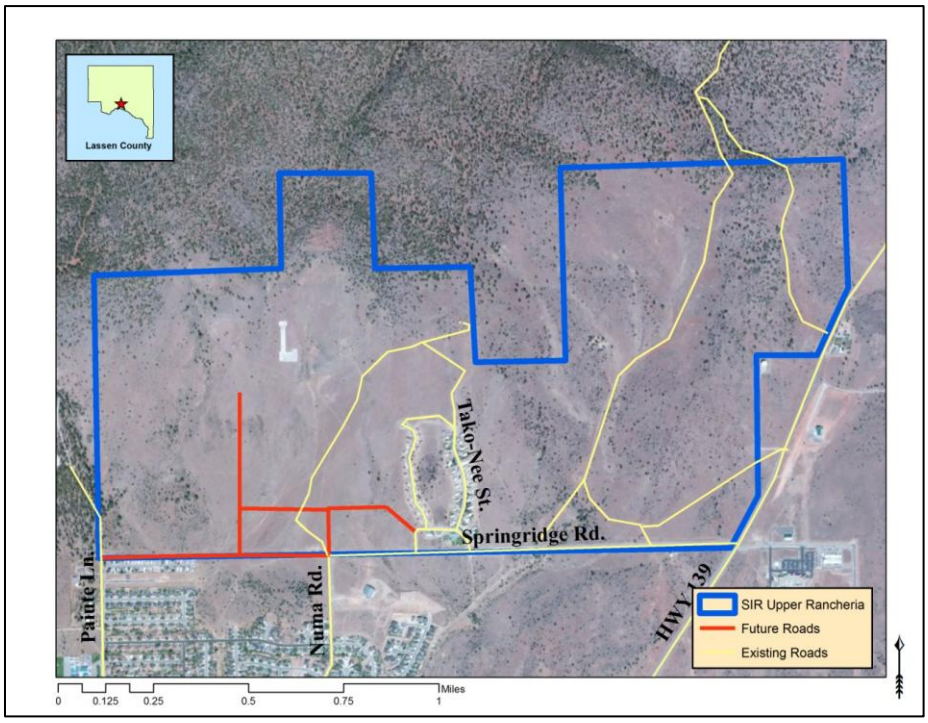

Figure 33. Proposed roads on the Upper Rancheria to meet future growth

3.7.2. Housing and Facilities

Ideally, the Tribe would like to add land to its Trust so that its regulatory jurisdiction can likewise expand. Thus, the Tribe would like to focus its acquisition plans on land that is adjacent or near to the current Rancheria. The BIA process for putting land into Trust is easier for land that is adjacent to the Rancheria. The SIR and SIRCO have worked together to develop a Tribal Land Acquisition Plan that identifies adjacent lands that would be beneficial to acquire for future economic benefit, tribal housing and facilities, and natural and cultural resource protection. The time period for acquisition of these properties is difficult to predict, as it depends entirely on the willingness of the owner to sell their property for a reasonable price.

Other properties adjacent or near the Rancheria will regularly be reviewed to determine their availability for acquisition. Uses of newly acquired lands will be determined by the TBC with input from the Tribal membership. Such uses could include commercial activities; tribal-government facilities; tribal health, education, cultural and social service programs; recreation, and housing.

There are approximately 250 Tribal households ranging in size from one to nine people. Not all tribal members wish to reside on SIR properties, however, a significant percentage of people in these households are interested in living on or at least near the Rancheria. Surveys and regular dialogue will help inform the TBC and tribal housing staff as to the level of interest the Tribal membership has for Rancheria housing in particular and Tribally-owned housing in general.

Types of possible housing include multi-unit housing, such as apartment and duplexes, and single-family homes. In the future, housing will be needed for elders and people requiring assisted-living, people with special-needs such as homeless and disabled persons, single people and families with working adults and children. Landscaping and amenities such as playgrounds and open space will be critical in creating and establishing a comfortable and inviting community that is a desirable place to live.

As environmental stewardship is one of its most important responsibilities, the Tribe will endeavor to develop its housing stock with the highest degree of sensitivity to the natural environment. Conflict inevitably arises between competing needs – here, the need for housing development and the need for environmental stewardship. All of the Tribe's housing development will be undertaken with a high level of environmental analysis and review, so that conflicts can be analyzed far in advance of committing significant resources in areas such as purchasing property, architects, engineers, permits, etc. The Tribe also commits to developing housing with concern and awareness for energy efficiency and utility conservation. The Tribe will strive for the most efficient designs, products and systems consistent with the location, size, and economic limitations of each particular development.

SIR has developed a Housing Land Zone and the figures below indicate existing and proposed future housing locations consistent with the goals of this IRMP.

SIR Lower Rancheria

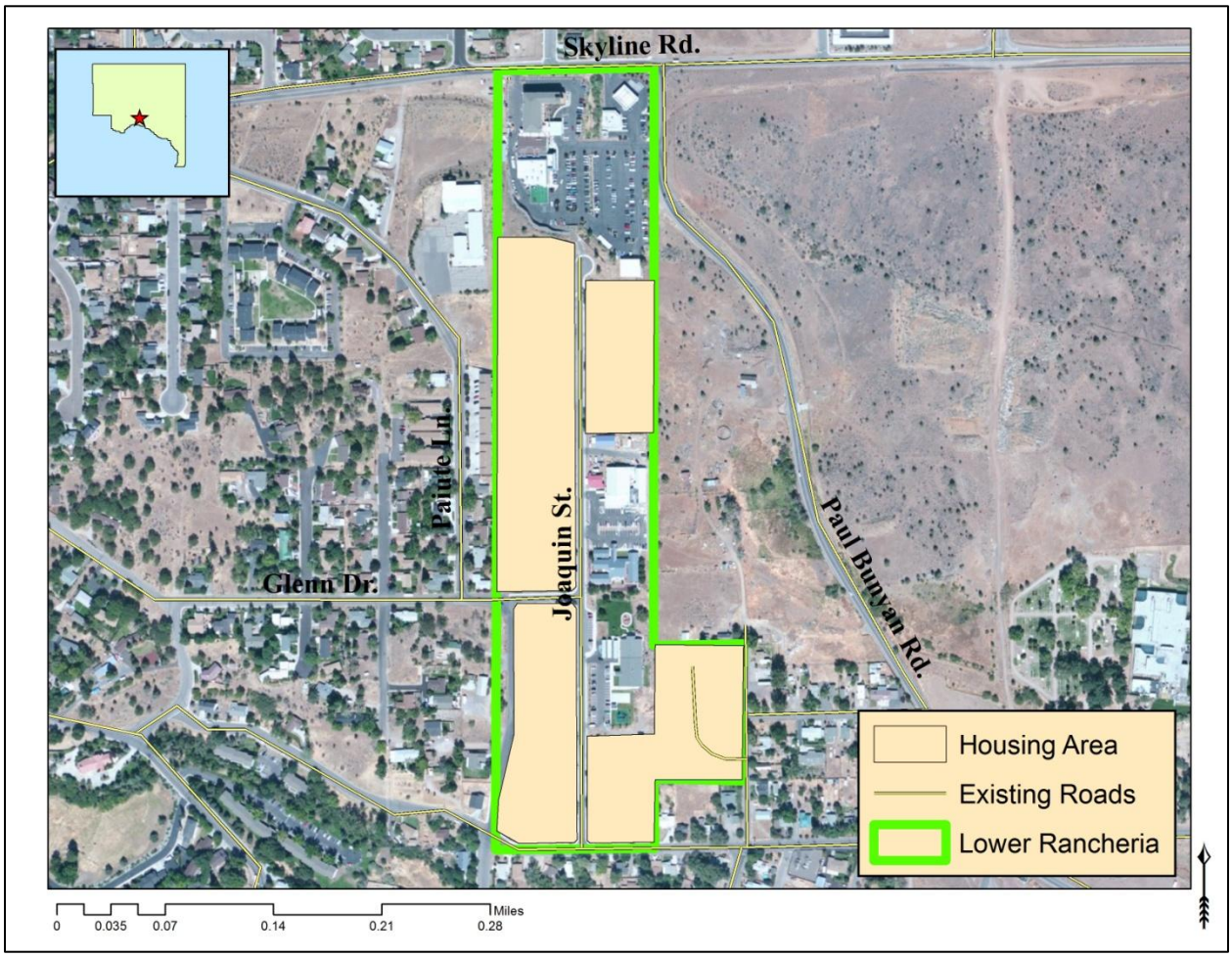

Figure 34. Area proposed for Housing Land Zoning on the SIR Lower Rancheria

SIR Upper Rancheria:

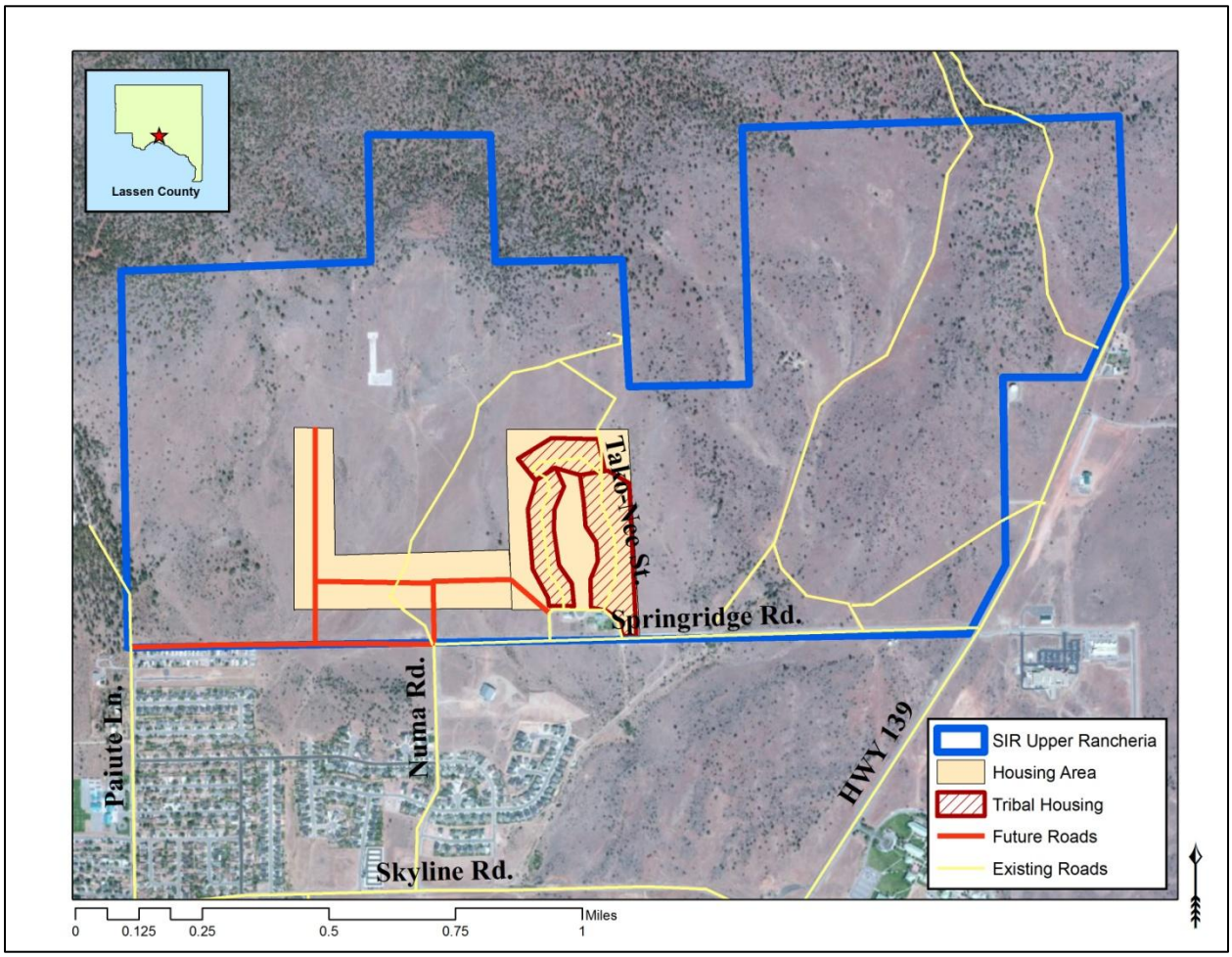

Figure 35. Area proposed for Housing Land Zoning on the Upper Rancheria

SIR Herlong:

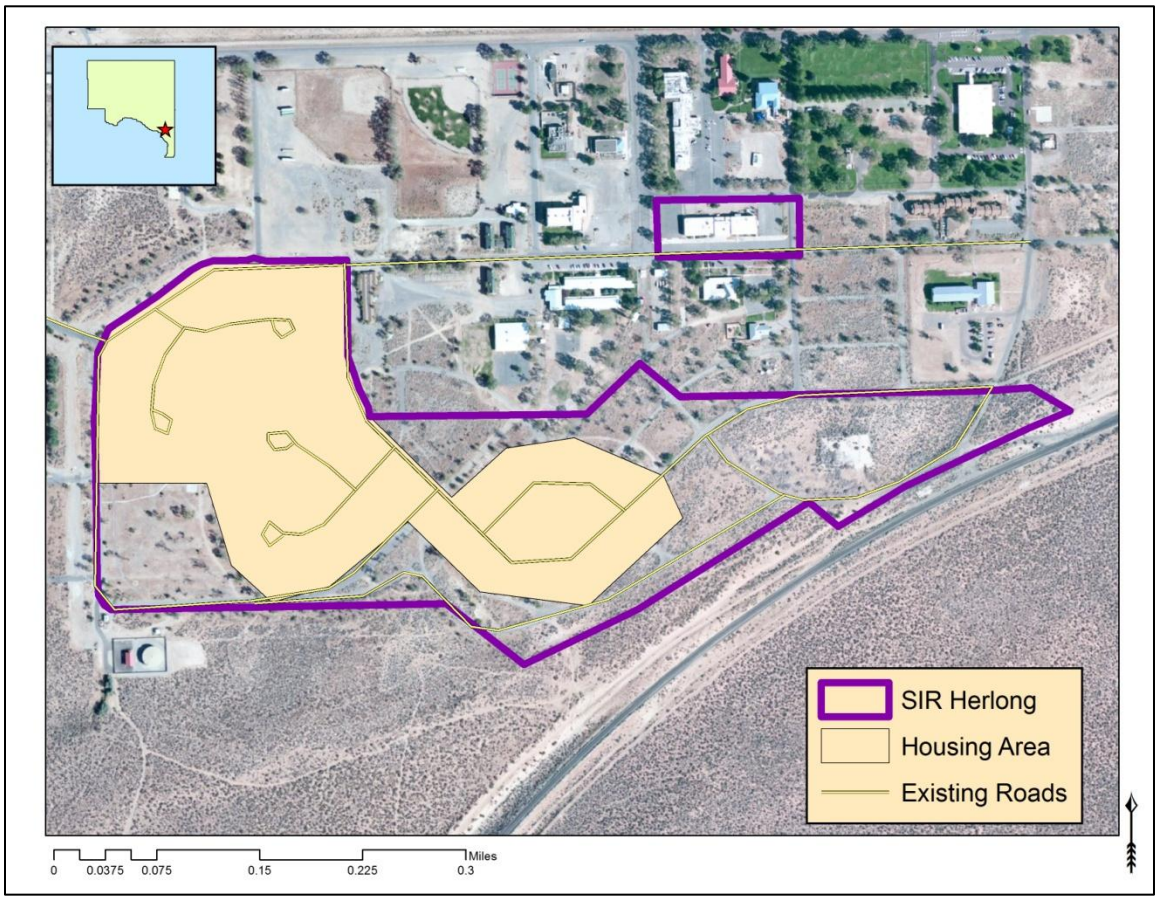

Figure 36. Area proposed for Housing Land Zoning on SIR Herlong

3.7.3. Energy

Energy is a necessity for life on our planet. It is just as important as clean air to breathe and fresh water to drink. SIR realizes the importance of energy to the future success of the Tribe. To that end, the Tribe is beginning to research and plan for its future energy needs. The Tribe realizes that the future will require energy from a variety of different sources as traditional forms of energy production begin to be modified or phased out in favor of more sustainable and renewable energy sources.

The SIR anticipates steady growth in the coming years and will require increased amounts of energy supplies to sustain that growth. The Tribe also realizes that conserving energy will play a key role in allowing the Tribe to expand ethically and responsibly. The future Tribal infrastructure projects will be carefully planned out and evaluated so that energy conservation is a goal before the shovel hits the ground.

Susanville Indian Rancheria looks to renewable energy to reduce its dependency on costly and environmentally damaging energy produced outside of the Rancheria. This will promote

traditional cultural stewardship of the environment, aligning the Tribe closer to its core values. This will be attained by exploring such technologies as solar, wind, geothermal, biomass, micro hydro, along with using energy efficient appliances and building practices. Exploring the opportunities of renewable energy will provide education to tribal members and strengthen the Tribe as a role model to the surrounding community.

According to the United States Department of Energy (DOE), there are four basic steps to implementing a renewable energy program:

- Strategic planning;
- Evaluating options;
- Organizational development; and
- Project development.

With the expansion of Tribal lands and activities, the use of alternative energy will help reduce the Tribe's carbon footprint while constructing a more desirable cleaner future. Energy conservation plays a vital role in the way we consume and produce energy. The time to implement energy independence is now. By using alternative resource management and conservation techniques the Tribe can reaffirm tribal sovereignty. Since we are only here for a short time, it is important to protect and manage our resources responsibly for future generations. This will also create an avenue for training, education, and economic growth.

Potential Energy Sources: The following is a cursory look at the potential renewable energy sources available to the Susanville Indian Rancheria. The Tribe plans to research and evaluate the feasibility of each energy source and begin building a plan to utilize these resources in the future.

Solar: Developing technologies that take advantage of the clean abundant energy of the sun is important to reduce greenhouse gasses and stimulate local economies. Examples of solar power technologies being developed by the Department of Energy and Industry are photovoltaic cells, concentrated solar power technologies and solar thermal collectors. Photovoltaic cells convert sunlight directly into electricity by producing electrical currents and are made of semiconductors such as crystalline silicon or various thin-film materials. Concentrated solar power technologies use reflective materials to concentrate the sun's heat energy into a small area, which ultimately drives a generator to produce electricity. These technologies include dish/engine systems, parabolic troughs, and central power towers. Solar thermal collectors also absorb the sun's heat energy, but the heat is used directly for hot water or space heating for residential, commercial, and industrial facilities.

Wind: Wind energy can be used for practical purposes like generating electricity, charging batteries, pumping water, and grinding grain. Wind turbines convert the kinetic energy of

the wind into other forms of energy. Large, modern wind turbines operate together in wind farms to produce electricity for utilities. Small turbines are used by homeowners and remote villages to help meet energy needs.

Geothermal: Geothermal energy is energy that emanates from a heat source beneath the surface of the Earth. Sources of geothermal energy include hot water and hot rock found a few miles beneath the Earth's surface, and down even deeper to the extremely high temperatures of molten rock called magma.
The Department of Energy's Geothermal Technologies Program supports the geothermal industry in providing diversity in domestic energy supply options. This support also helps the industry maintain its technical edge in world energy markets, thereby enhancing exports of U.S. goods and services and job growth. The DOE works in partnership with U.S. industry to establish geothermal energy as an economically competitive contributor to the energy supply.

Biomass: Biomass energy is energy that is produced from plant material and animal waste. It includes a wide variety of resources such as tree and grass crops and forestry, agricultural, and urban wastes. This energy is extracted through combustion of the biomass product such as a wood fire furnace or can be extracted through the decomposition of the material such as biodigesters used to extract methane.

Biomass energy is considered renewable due to the fact that the energy embodied in the material come from the sun. Through the process of photosynthesis, chlorophyll in plants captures the sun's energy by converting carbon dioxide from the air and water from the ground into carbohydrates, complex compounds composed of carbon, hydrogen, and oxygen. When these carbohydrates are burned, they turn back into carbon dioxide and water and release the sun's energy they contain. In this way, biomass functions as a sort of natural battery for storing solar energy. As long as biomass is produced sustainably—with only as much used as is grown—the battery will last indefinitely.

The most common way to capture energy from biomass energy throughout history was to burn it to make heat, steam and electricity. Recent advances in biomass research have lead to more efficient and cleaner ways to extract this energy. It can be converted into liquid fuels, for example, or cooked in a process called "gasification" to produce combustible gases. Certain crops such as switchgrass and willow trees are especially suited as "energy crops," plants grown specifically for energy generation.

The SIR has developed the following land zoning for Energy Resources:

- **Energy Resource Area:** Land use zone of approximately 80 acres located in the Northeast corner of the 875 acres designated for future proposed solar development.

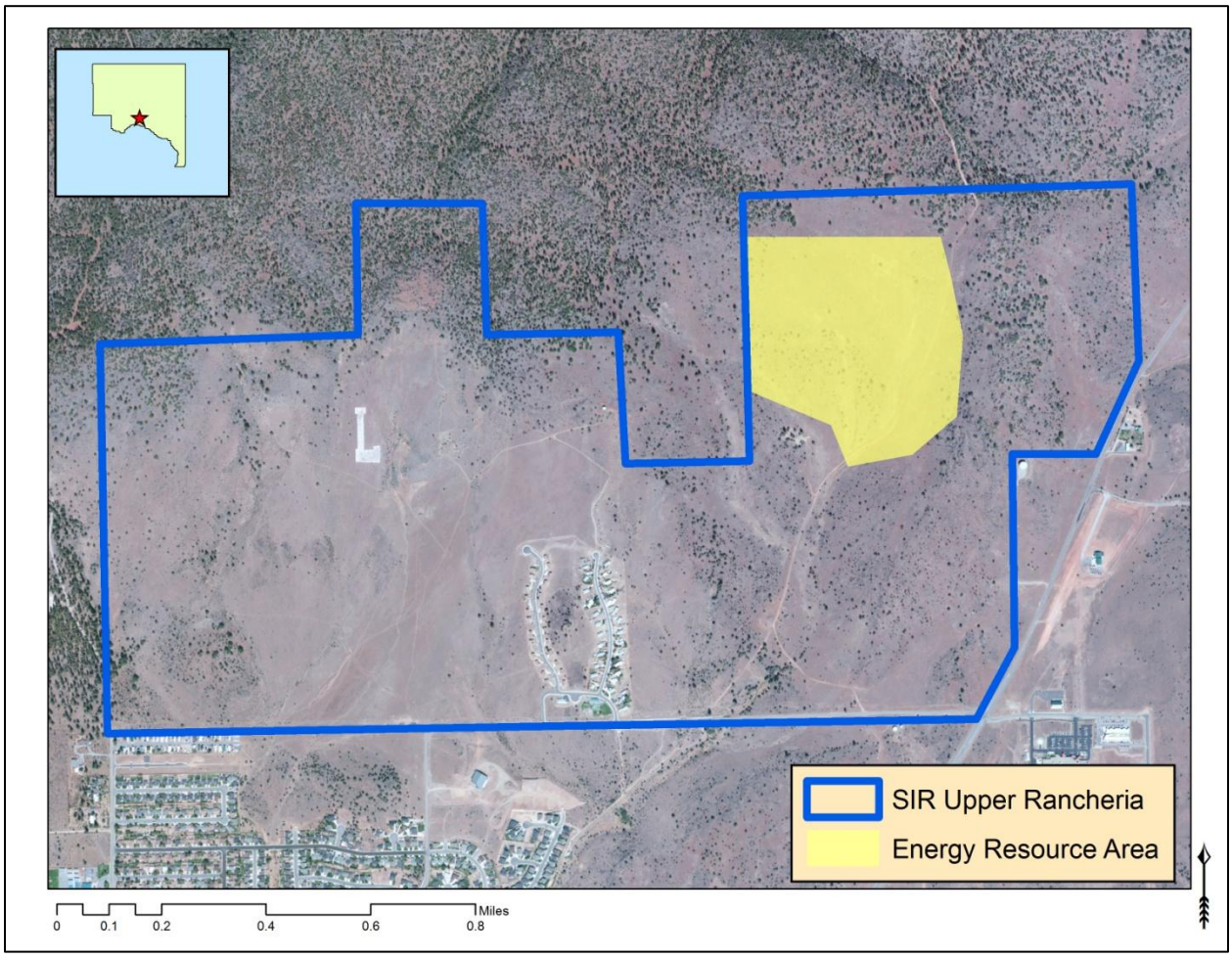

Figure 37. Area proposed for Energy Resource Land Zoning on the Upper Rancheria

3.7.4. Climate Change

While there is scientific consensus about climate change and its causes there are some perceptions circulated that climate change can only be addressed at the global scale. The highly publicized debates on carbon dioxide (CO2) emissions reduction strategies (e.g., the Kyoto Protocol) may contribute to perceptions that climate change is an international scale problem that will be handled through federal policies and international agreements. However, the impacts of climate change will be felt most acutely at the local scale.

The Tribe perceives the need to develop locally-based strategies for climate change. Climate variability and change present both challenges and opportunities for resource management. Increased winter precipitation may, for example, fill reservoirs sooner but the additional

precipitation could also increase the risk of winter flooding. Effectively managing the consequences of climate fluctuations requires: (1) understanding how climate variability and change affect present resource management strategies and (2) integrating approaches to manage these impacts into near-term operational and long-term strategic planning; in other words, planning for climate variability and change.

Based on results from a number of global climate models, annual temperatures in Northern California are predicted to increase approximately 0.5 degree Fahrenheit (0.3 degree Celsius) per decade over the next 50 years. Two of the primary anticipated effects are increases in the amount of precipitation falling as rain and simultaneous decreases in annual snow pack. These two effects of climate change have the potential to dramatically impact the Rancheria and neighboring communities. Sustaining quality of life and our environment will require a significant commitment on the part of the Susanville Indian Rancheria to both reducing greenhouse gas (GHG) emissions and adapting to the climate change impacts in the changing environment.

Predicted impacts of climate change to the Rancheria and the ambient region:

- Increased average annual temperatures, increased temperatures across all seasons, significantly increased summer temperatures, and increased urban "heat island" effects, in which urban air and surface temperatures are higher than in the Rural Area due to storage of heat in pavement and buildings;
- Changes to the timing and magnitude of streamflows due to snowpack and glacier reduction, increased winter rainfall, decreased winter snowfall, and earlier spring melt;
- Increased stress to regional water supplies due to increased frequency of drought events and increased demand;
- Negative effects on public health including thermal stress (especially for elders), respiratory problems due to increased smog, and increased exposure to certain infectious diseases;
- Increased stress to forests in the foothills, and potentially increased growth in forests at higher elevations that were snow-dominated;
- Increased stress to plant and animal species due to vegetation changes, food web disruption, streamflow changes, and increased freshwater and marine water temperatures; and
- Altered regional distributions of many species.

The Tribe, as a community member, has a responsibility to do its part to reduce GHG emissions through its transportation investments, energy purchasing practices, building standards, operation of facilities, land use planning, and monitoring and assessment programs.

Even if all GHG emissions ceased today, global and regional temperatures would continue to increase. The Tribe's approach is to be proactive in adapting to the global climate change impacts that will affect the region. This includes preparing for more frequent and severe

flooding and droughts, developing capacity for reclaimed water where appropriate, and taking steps to improve the resiliency of the natural environment.

3.7.5. Solid Waste Management

The Tribe understands that the growth of the Rancheria has created a need for additional environmental management plans, policies, codes and procedures. In order to meet these new and vital needs with regard to the development of Solid Waste, SIR NRD developed an Integrated Solid Waste Management Plan in 2006. This plan was developed with assistance from the EPA GAP program and aims to comply with the Pollution Provention Act (PPA) and the Resource Conservation and Recovery Act (RCRA). In addition the SIR TBC has approved two ordinances developed by the SIR NRD to address solid waste issues on Rancheria lands:

- Solid Waste Ordinance
- Abandoned Vehicle Ordinance

Integrated Solid Waste Management Plan (ISWMP): The Plan will allow the Tribe to accommodate needs of future development and coordinate between Tribal departments on issues of solid waste. The development of this and other plans are part of SIR's efforts to manage resources in the most environmentally responsible way and be a community leader in protection of the environment.

Based on an assessment of solid waste management practices and conditions in 2006, the following objectives were identified in the ISWMP

Phase I: Solid Waste Management Infrastructure Improvement and Future Development

Objective: Improve existing methods to address the indiscriminate dumping of refuse-solid waste in a variety of places on the reservation.

- Evaluate Options and Levels of Service
- Cost Analysis
- Development of a SIR Solid Waste Plan in concert with other Interested Parties

Phase II: Dump Site Clean-up/Permanent Closure

Objective: Focus on actions required for clean-up of the areas on the reservation with solid waste problems. Develop methods to control indiscriminate discard of refuse on the reservation and at the disposal sites.

- Identify Funding Sources

- Obtain Bids/Cost Estimates from Contractors
- Formulate a Plan for Clean-up of Problem Sites
- Clean Up of Existing Solid Waste Problem Sites
- Enforcement of Solid Waste Ordinance

Phase III: Recycling & Special Waste Handling

Objective: Provide recommendations and methods to facilitate recycling; for an abandoned vehicle abatement program; for the disposal of waste requiring special handling and disposal of Household Hazardous Waste

- Identify/Develop Recycling Opportunities
- Abandoned Vehicle Abatement Program
- Special Waste Handling & Disposal

Phase IV: Herlong Landfill Siting Proposal

Objective: Research information for developing a Landfill owned and operated by the SIR

Existing solid waste programs developed by the SIR NRD include:

Local Community Solid Waste Services: Residential and business solid waste disposal service for the SIR and Herlong is currently provided by Lassen Waste Systems. Some residents of the SIR have elected to manage their solid wastes by transporting it to the local sanitary landfill.

The City of Susanville and SIR offer annual fall and spring green waste and solid waste collection events. These events are available to SIR residents for disposal of green waste such as tree trimming, grass clippings, and leaves. Once a year the SIR provides containers for the collection of solid waste on the Upper and Lower Rancheria. The Lassen Regional Solid Waste Management Authority and the Bass Hill Landfill sponsor Household Hazardous Waste Collection events. This event is available to SIR residents.

SIR Residential Recycling: The SIR NRD has a routine schedule for collection and disposal of residential recycling. Residents contribute to this program by routinely leaving their recyclables in a designated temporary storage area around their home for collection by the SIR once a week. The SIR collects and disposes of the recyclables. Recyclables collected include office paper, cardboard, newspaper, magazines, aluminum, plastic, glass, dry cell batteries, and fluorescent lamp ballasts.

Tribal Programs Recycling Project: The SIR NRD addresses the disposal needs of the SIR tribal services and economic enterprises. NRD recycles office paper, glass, aluminum, cardboard, and compost.

SIR Tribal Programs Green Waste Collection: SIR businesses participate in a green waste collection program. The SIR provides businesses with green waste collection containers, routine collection service, and disposal of green waste. Green waste collected is used to build a compost pile, which is utilized in the SIR's Traditional Native Plant garden. Green waste collected includes, coffee grounds, vegetables, fruits, eggshells, grass clipping, and leaves. Native plants from the garden will be utilized to restore degraded habitats on SIR properties.

Abandoned Vehicle Abatement Program: The TBC has approved an abandoned vehicle ordinance, annually assesses the number of abandoned vehicles on SIR properties, inputs the data into a GIS database, and abates abandoned vehicles when necessary.

Illegal Dumpsite Abatement Program: The SIR has inventoried illegal dumpsite locations and entered the data into a GIS database. The SIR has prioritized dumpsite locations and has begun treatment of those location by removing abandoned vehicles and installing fencing as prevention efforts.

SIR Resident & Business Household Hazardous Waste Collection: The SIR periodically hosts a one day HHW collection day event. Participants are allowed to bring an unlimited amount of HHW to the event for safe collection & disposal.

3.7.6. Hazardous Waste Management

The Tribe's major goals are to coordinate hazardous waste management on SIR lands in the most environmentally responsible way and to determine current and potential environmental risk at hazardous waste sites.

Management objectives are:

- Revise and enforce rules and regulations relating to the use and disposal of hazardous waste within Reservation boundaries.
- Identify and catalogue existing or potential hazardous waste sites.
- Develop a database on known hazardous waste sites.
- Create quality assurance and standard operation procedures for testing current and potential sites Coordinate transfer of hazardous waste collection within the boundaries of the Reservation.
- Hazardous waste are certain chemical materials which, when improperly handled, may pose a substantial or potential hazard to human health or the environment. The Federal law classifies certain substances as hazardous waste and regulates their use under the Resource Conservation and Recovery Act (RCRA). A hazardous waste can be found in any physical form, such as a solid, liquid, contained gas, sludge, or a combination of these. The trait that distinguishes hazardous waste from other types of waste is the

possession of one or more of four hazardous characteristics: corrosiveness, ignitability, reactivity, and extraction procedure toxicity.

- Facility maintenance waste, household waste, and transportation waste are the three potential sources of hazardous waste contamination on the Rancheria. Hazardous waste includes: cleaning solvents, junk cars, batteries, oils, and other household chemicals.
- The Emergency planning and Community Right-to-Know Act gives every individual the right to obtain information on the manufacture, storage, transportation and release of hazardous materials.

3.7.7. Emergency Planning

Key goals of the SIR for emergency planning are to assess and prepare for natural and technological (human-made) hazards that can potentially affect the people, economy, environment, and property of the Tribal community.

Management objectives are:

- To continually revise and update the SIR Emergency Operations Plan when: new information on past hazard events is discovered; new events occur; better scientific understanding on the causes and prediction of natural hazards is discovered; and/or the requirements and practices of emergency management evolve

Threats identified include:

- Earthquakes
- Flooding
- Severe Weather, including drought
- Wildfires
- Epidemic/Pandemic
- Hazardous Materials
    - Illegal dumping, including appliances and chemicals
    - Groundwater contamination from future development of the aquifer(s)
    - Use of herbicides and pesticides by utilities and maintenance staff
    - Workplace hazards, especially in food service, maintenance, and security departments

3.7.8. Information Management and Technology Planning

The Tribe has a robust and growing Information Technology (IT) infrastructure. The proper management of IT is important for ease of data sharing, to allow quick communications and data distribution and most of all to protect the integrity of data passed through or stored on Tribal IT hardware. To ensure this goal is met the Tribe, it is in the best interest of the Tribe to develop an IT User Guide and an IT Administrative Policy and Procedure Manual. The IT Department is responsible for IT Management in all Tribal Administrative offices. The offices supported are owned by the Tribe.

The need for a robust IT infrastructure is vital and never static. The IT Department has created both physical and logical frameworks that allow for straightforward expansions and upgrades to its computer network and telecommunications systems, while maintaining security, stability and meeting today's industry standards.

Protection of geospatial data collected by the SIR is critical to the assessment, planning, and management of natural resources on SIR lands.

3.7.9. Planning and Economic Development

As economic resources become available, the Tribal government will endeavor to provide and enhance services for the Tribal members in the areas of housing, health care, education, social welfare and cultural re-connection. All of these activities and enhancements will be planned with an eye towards environmental stewardship and consideration of the preservation of biodiversity.

Building codes and land use planning decisions will be made while incorporating information and data about resource sustainability, water quality, air quality, and cultural resources protection.

SIR proposes to establish a Commercial land zoning that establishes areas for future economic development that do not impact important natural and cultural resources identified in this plan:

- **Commercial:** Land use zone of approximately 8 acres on the north end of the Lower Rancheria, 100 acres designated for economic development along Springridge Road (including the future extension of Springridge Rd. to the west from Numa Rd. to Paiute Lane) and along Hwy 139, and 35 acres of SIR Herlong (See Figures 38, 39, and 40).

SIR Lower Rancheria

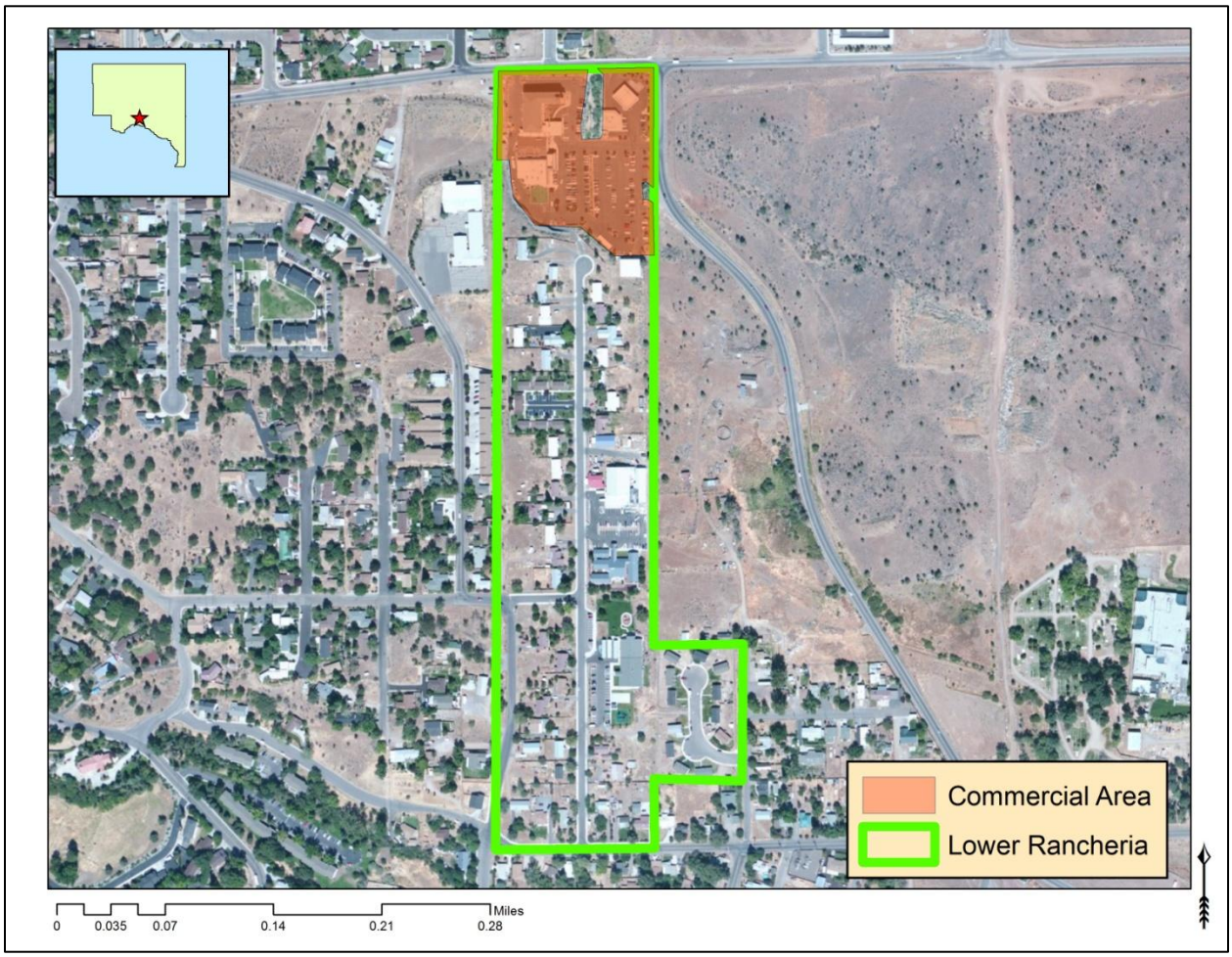

Figure 38. Area proposed for Commercial Zoning on the SIR Lower Rancheria

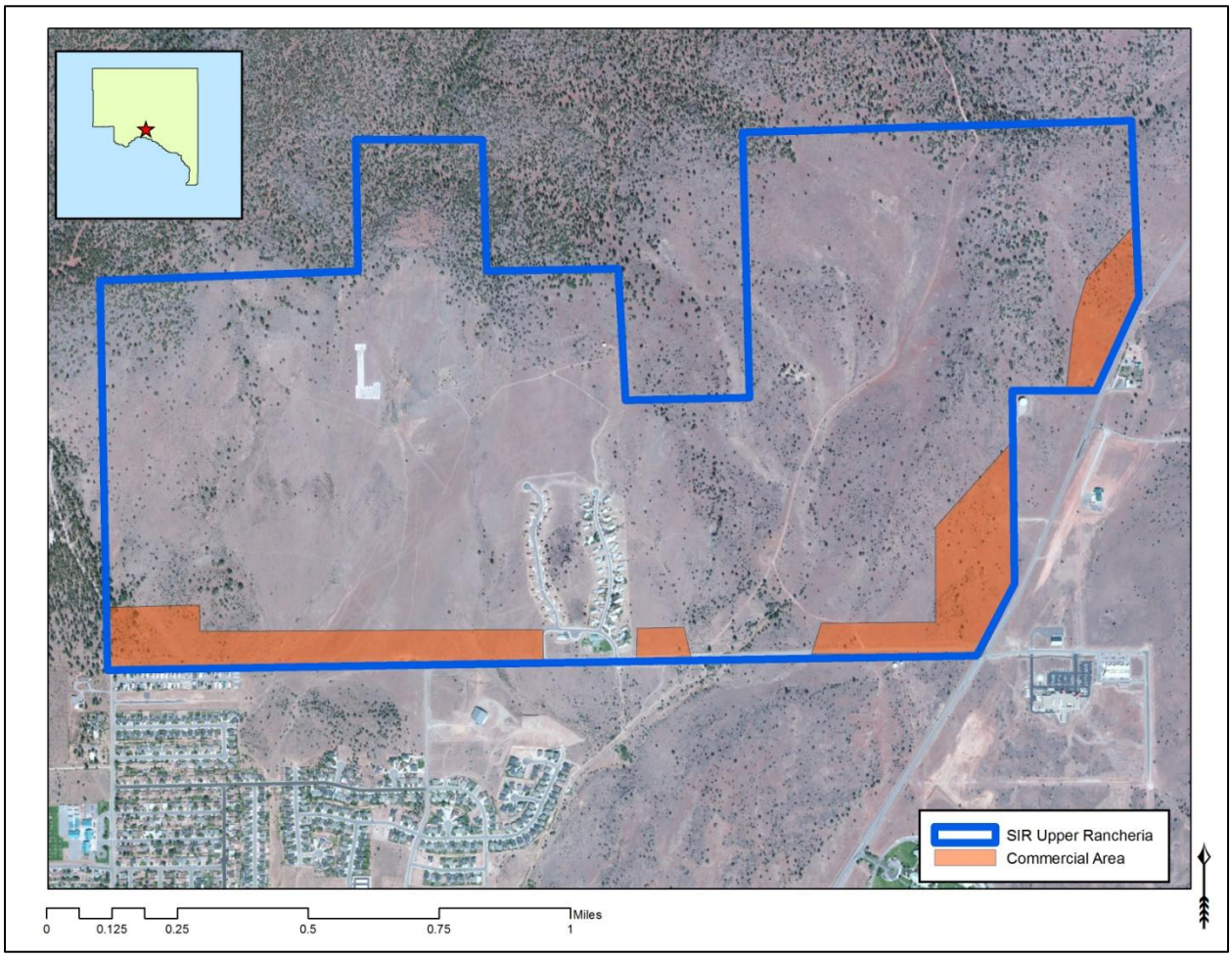

Figure 39. Areas proposed for Commercial Land Zoning on the SIR Upper Rancheria

SIR Herlong

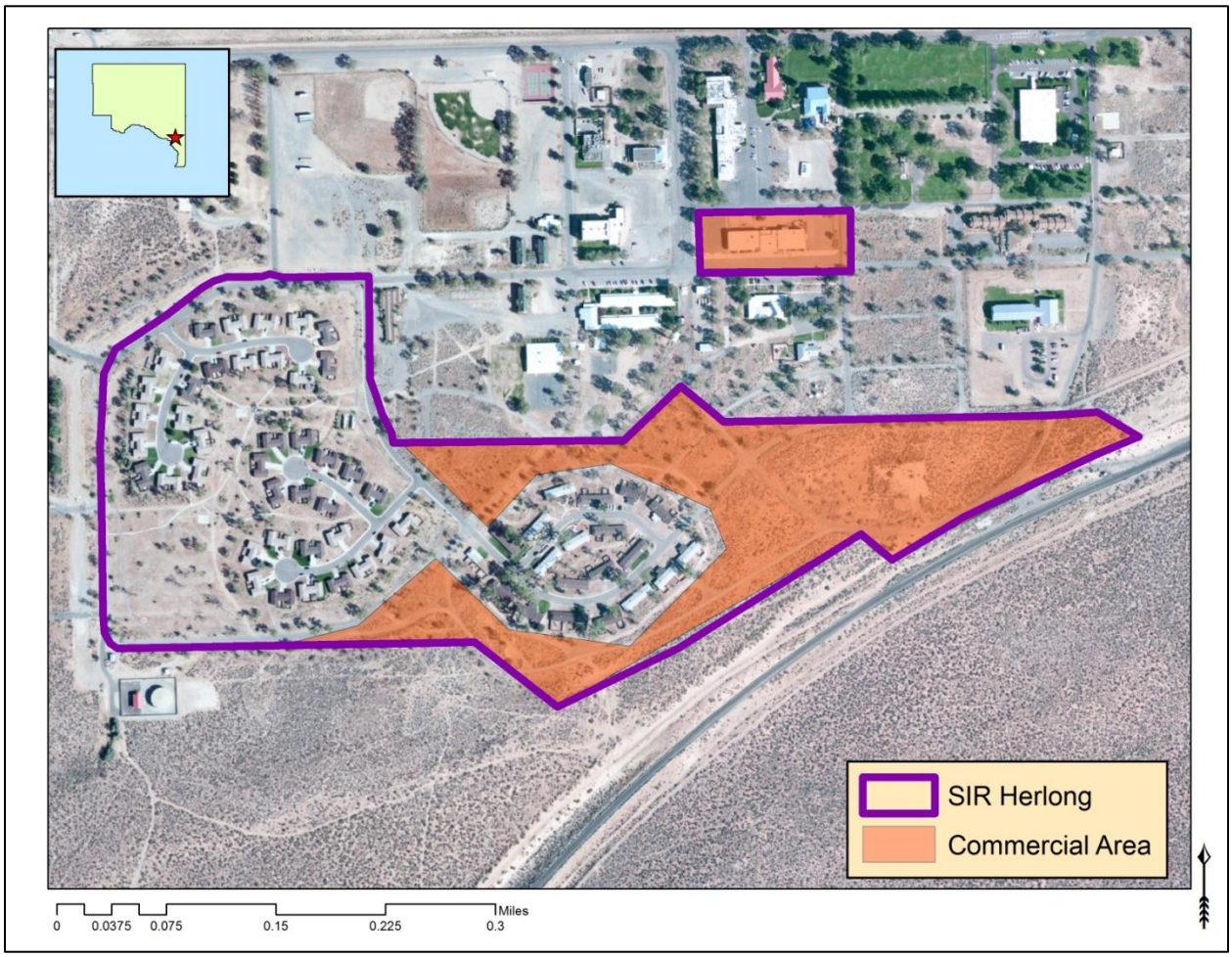

Figure 40. Areas proposed for Commercial Zoning or SIR Herlong

4. Summary of Proposed Alternatives

4.1. No Action Alternative

See Section 3.1

4.2. IRMP Alternative Preferred Alternative

Lower Rancheria:

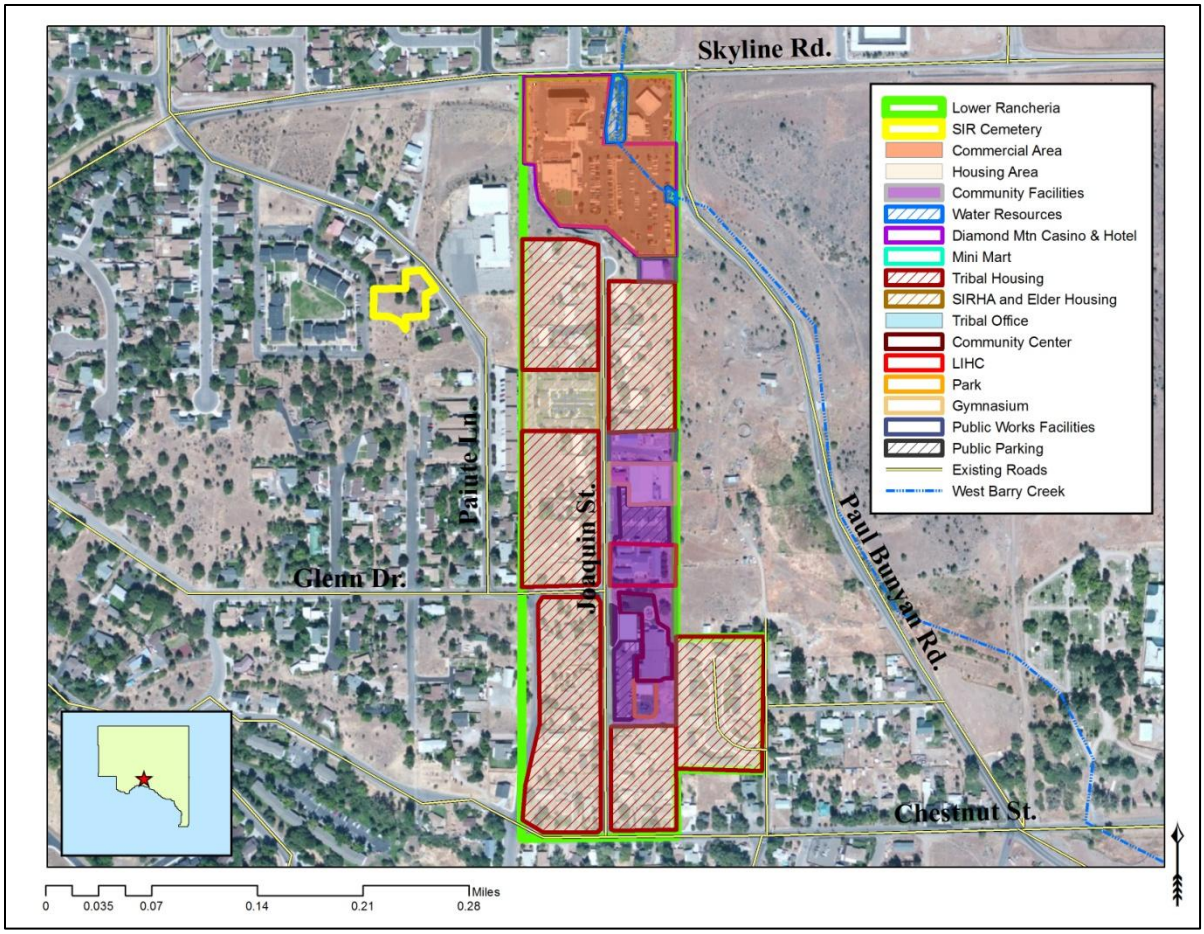

Figure 41. Proposed Land Zoning for the Lower Rancheria under IRMP Alternative

Upper Rancheria:

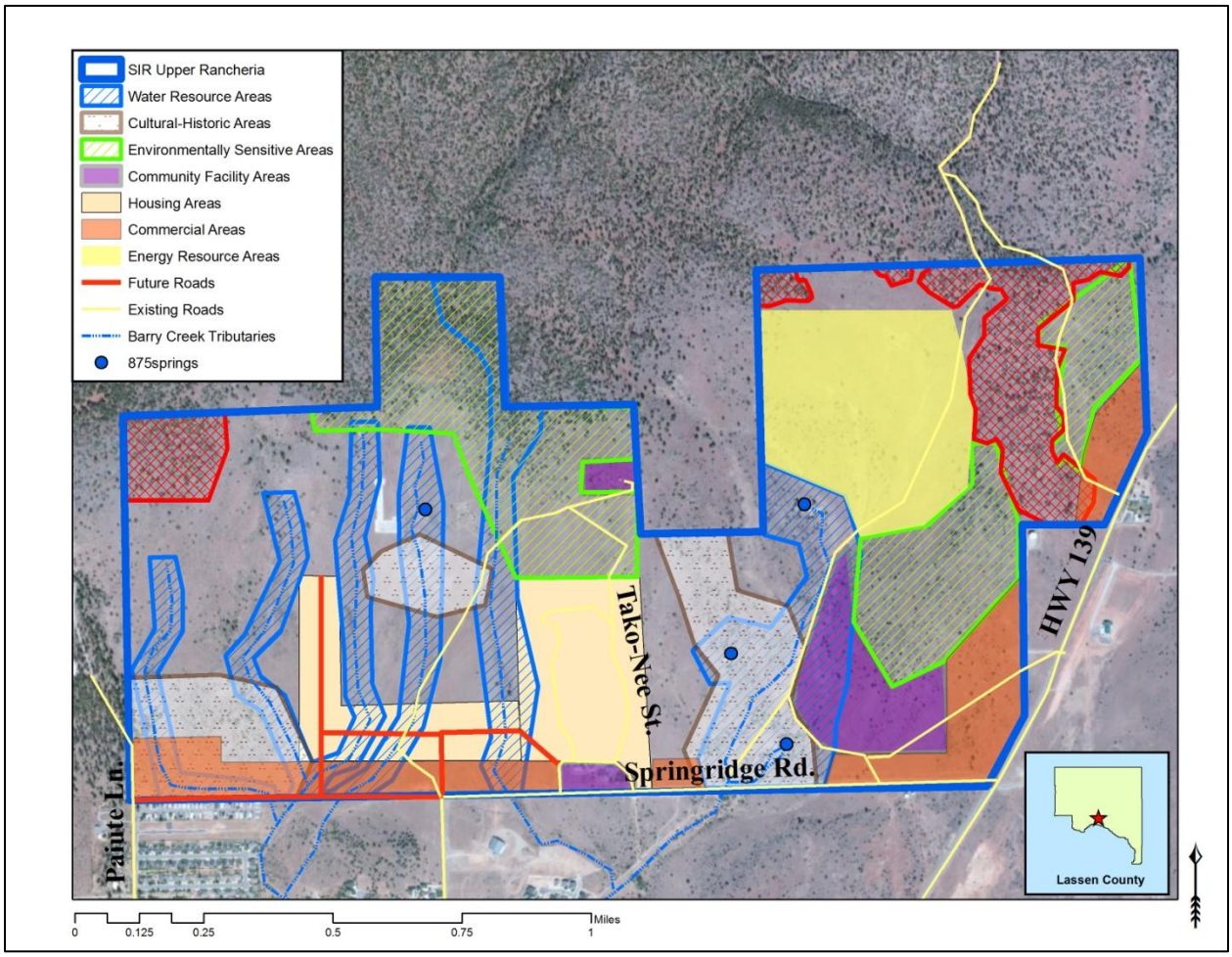

Figure 42. Proposed land zoning for the Upper Rancheria under IRMP Alternative

SIR Herlong:

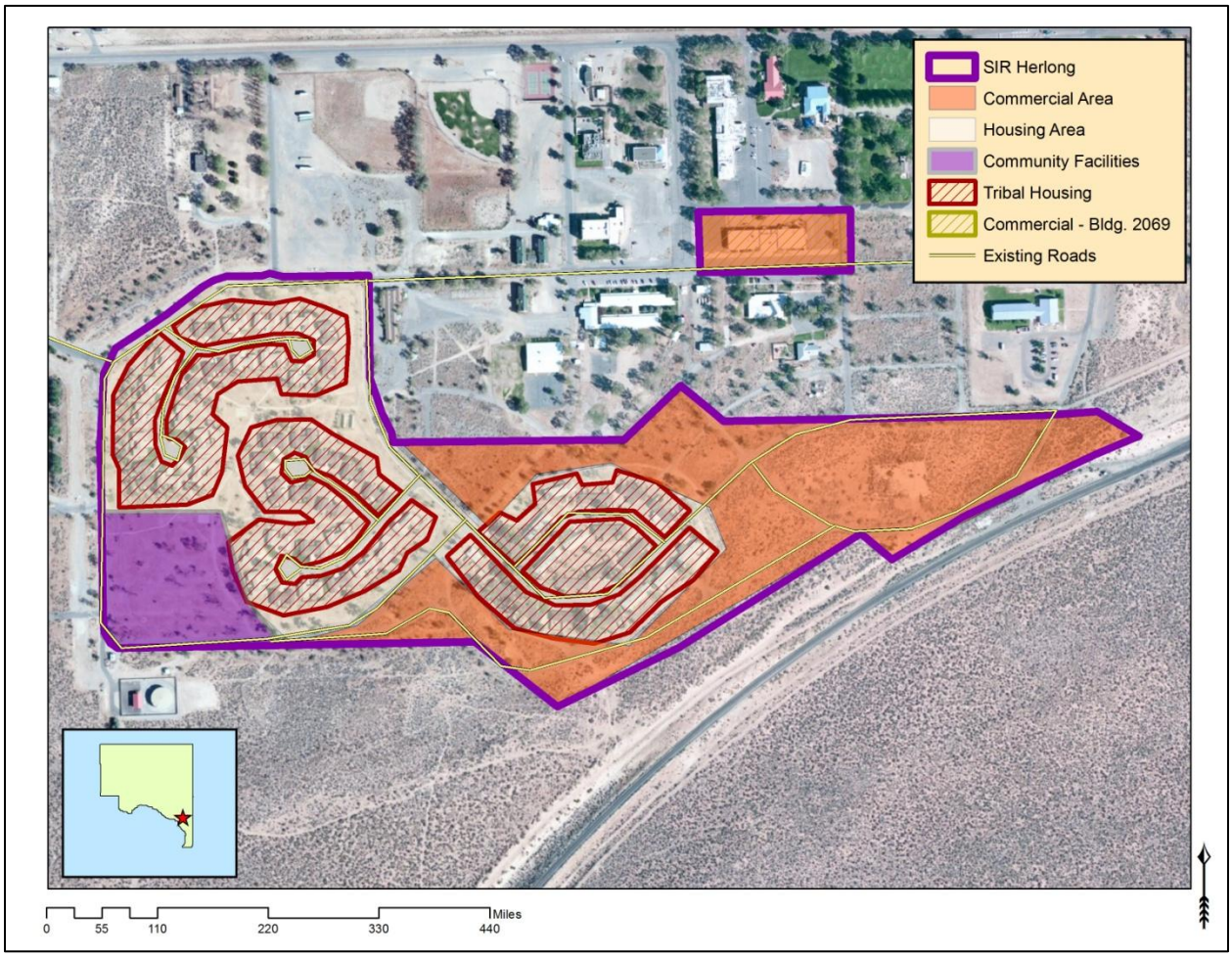

Figure 43. Proposed zoning for SIR Herlong under the IRMP Alternative

SIR Cradle Valley:

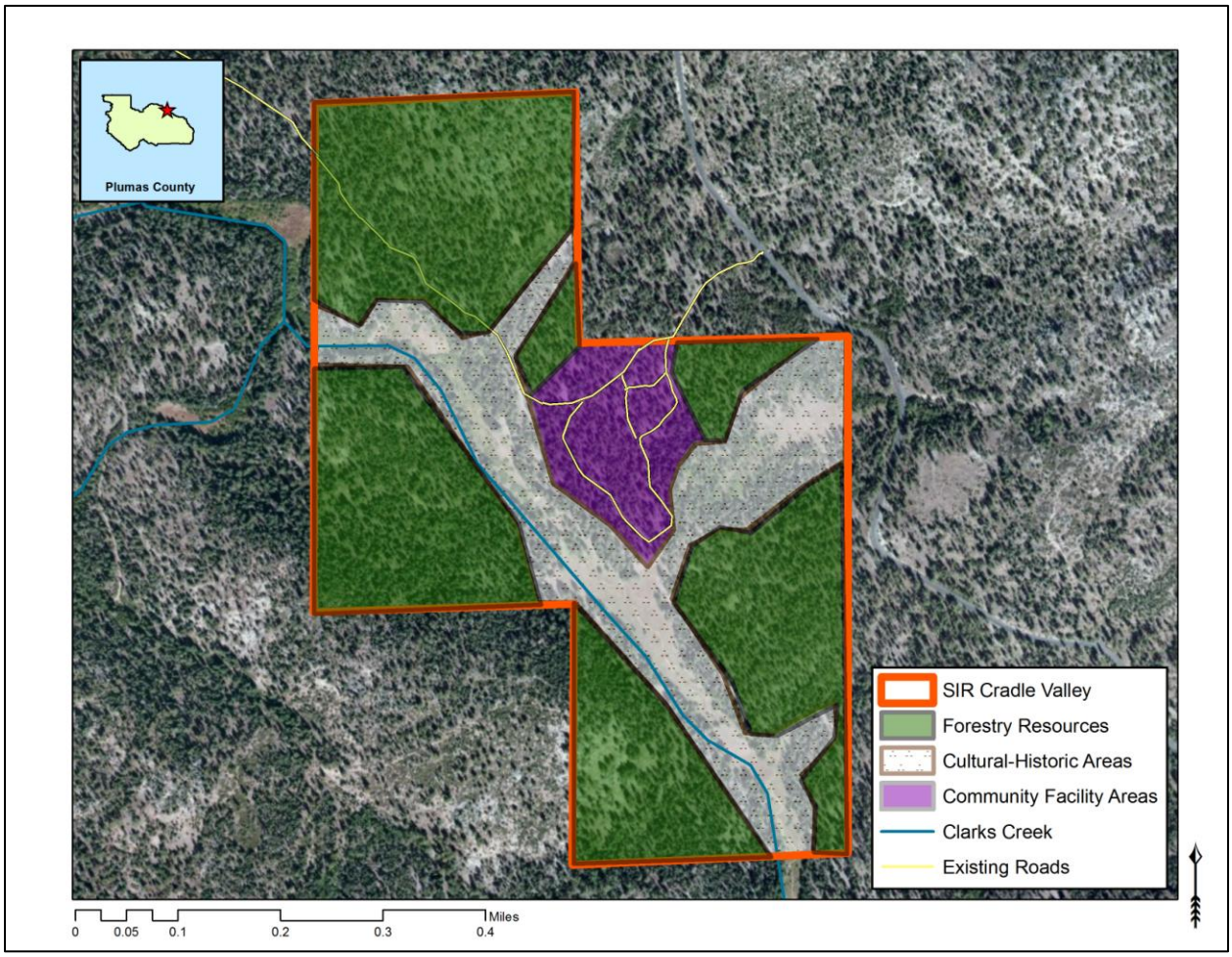

Figure 44. Proposed land zoning for SIR Cradle Valley under the IRMP Alternative

SIR Ravendale:

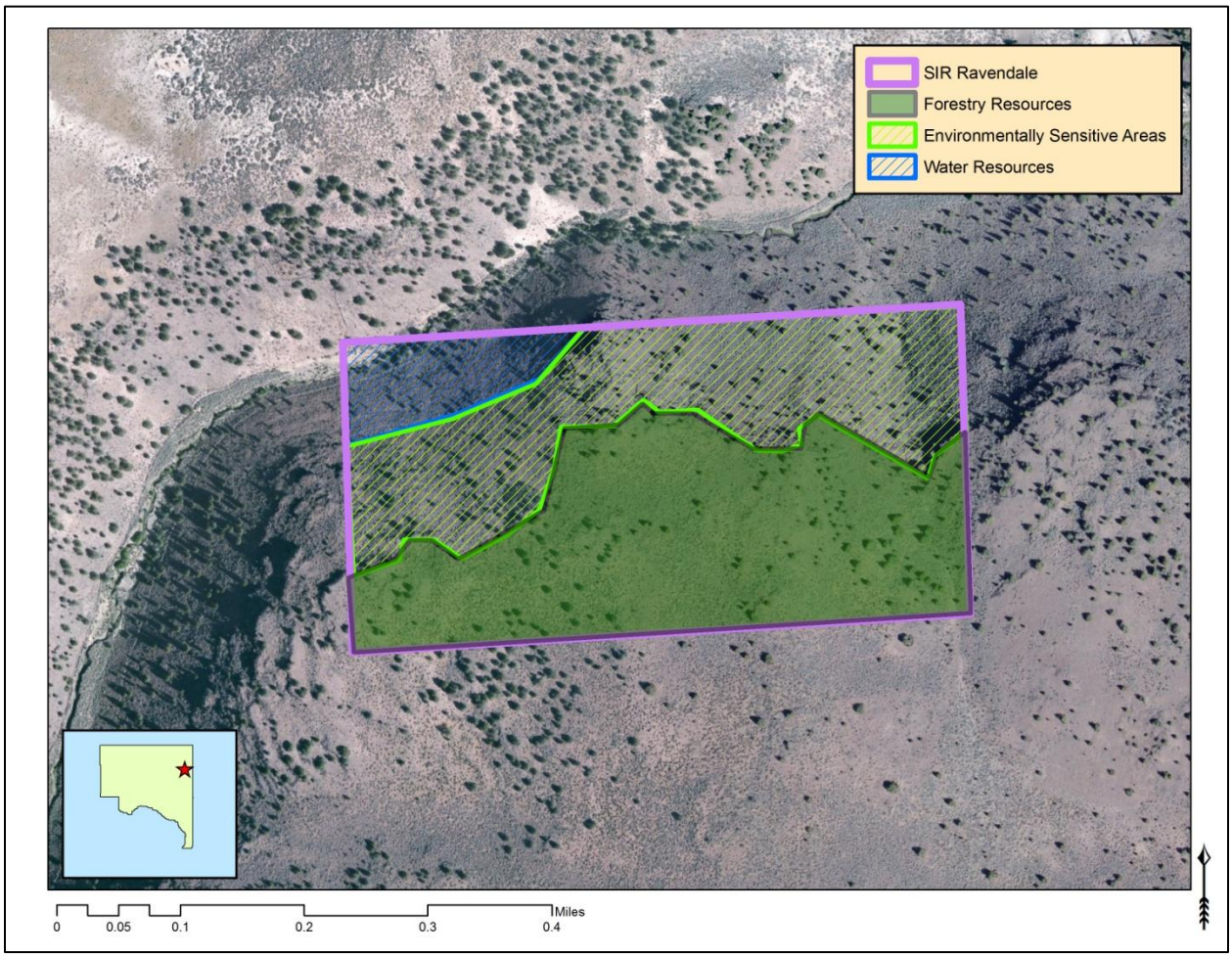

Figure 45. Proposed land zoning for SIR Ravendale under the IRMP Alternative

4.3. Preservation Alternative

Under the Preservation Alternative the Lower Rancheria, SIR Herlong, SIR Cradle Valley, and SIR Ravendale land zoning would be the same as proposed in the IRMP Alternative. Commercial zoning and Energy Resource zoning in the Upper Rancheria would be eliminated and replaced with Cultural-Historic and Water Resource Zoning.

4.4. Economic Growth Alternative

Under the Preservation Alternative the Lower Rancheria, SIR Herlong, SIR Cradle Valley, and SIR Ravendale land zoning would be the same as proposed in the IRMP Alternative. Commercial zoning in the Upper Rancheria would be expanded into areas of Cultural-Historic, Water Resource, Restricted Black Oak, and Environmentally Sensitive Area Zoning.

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Appendix A:

Article VI of the SIR Tribal Constitution

Appendix B:

SIR Forest/Woodland Management Plan