

December 7-8, 2011  
Hugh M. Burns Fresno State Building  
2550 Mariposa Mall, Room #1036  
Fresno, CA 93704



December 7, 2011

**Board Tour**

**12:30 – 5:30 PM**

Members of the Board and staff will participate in a field trip to explore issues and activities relevant to the Conservancy's mission in the South Subregion. Members of the public are invited to participate in the field tour but are responsible for their own transportation and lunch. The tour will start in the parking lot of the Radisson Hotel & Conference Center located at 2233 Ventura Street, Fresno.

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**Reception**

**6:00 – 7:30 PM**

Following the Board tour, Boardmembers and staff will attend a reception open to the public. The reception will be held in the lobby of the Fig Garden Financial Center, located at 5260 N. Palm Avenue, Fresno.

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December 8, 2011

**Board Meeting**

**9:30 – 1:00 PM**

*(End time of the meeting is approximate)*

- I. **Call to Order**
- II. **Roll Call**
- III. **Approval of September 8, 2011 Meeting Minutes (ACTION)**
- IV. **Public Comments**  
Opportunity for the public to comment on non-agenda items.
- V. **Board Chair's Report**
- VI. **Election of Vice Chair (ACTION)**  
The Board will elect a Vice Chair for 2012.
- VII. **Board Meeting Calendar 2012 (ACTION)**  
The Board will approve a schedule for Board meetings for calendar year 2012.
- VIII. **Executive Officer's Report (INFORMATIONAL)**
  - a. Administrative Issues
  - b. Board Receptions
  - c. 2011-12 Healthy Forests Grant Program Update
  - d. South Subregion Report

- IX. Deputy Attorney General's Report (INFORMATIONAL)**
- X. Land Conservation and Wildlife Habitat System Indicators Report (ACTION)**  
The Board will review the Land Conservation and Wildlife Habitat Indicators Report and may take action on the staff recommendation to approve it.
- XI. 2012-13 Action Plan (INFORMATIONAL)**  
The Board will be updated on the development of the the 2012-13 Action Plan.
- XII. 2012-13 Preservation of Ranches and Agricultural Lands Grant Program Update (INFORMATIONAL)**  
Staff will provide an overview of plans for the 2012-13 grant cycle, including the process for revising Guidelines and a proposed timeline.
- XIII. Updates on Various SNC Activities (INFORMATIONAL)**
  - a. Sierra Nevada Forest and Community Initiative Update
  - b. Great Sierra River Cleanup Final Report
  - c. California State Water Plan Report Update
  - d. Pacific Forest and Watershed Lands Stewardship Council Update
- XIV. Boardmembers' Comments**
- XV. Public Comments**
- XVI. Adjournment**

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Meeting Materials are available on the SNC Web site at [www.sierranevada.ca.gov](http://www.sierranevada.ca.gov). For additional information or to submit written comment on any agenda item, please contact Mrs. Burgess at (530) 823-4672, toll free at (877) 257-1212; or via email at [tburgess@sierranevada.ca.gov](mailto:tburgess@sierranevada.ca.gov). 11521 Blocker Drive, Suite 205, Auburn CA 95603. If you need reasonable accommodations please contact Mrs. Burgess at least **five** working days in advance, including documents in alternative formats.

**Closed Session:** Following, or at any time during the meeting, the Conservancy may recess or adjourn to closed session to consider pending or potential litigation; property negotiations; or personnel-related matters. Authority: Government Code Section 11126(a), (c) (7), or (e).



**I. Call to Order**

Board Chair Kirwan called the meeting to order at 9:06 AM.

**II. Roll Call**

**Present:** Bob Kirkwood, BJ Kirwan, Brian Dahle, Bill Nunes, Ted Owens, Linda Arcularius, Dan Jiron, Bob Johnston, Tim Burke (Representative for Bureau of Land Management), Mark Stopher (Representative for Natural Resources Agency) and David Graber

**Absent:** Pedro Reyes, John Brissenden, Dick Pland and Tom Wheeler

**III. Approval of June 2, 2011 Meeting Minutes (ACTION)**

There were no changes to the meeting minutes.

**Action: Boardmember Kirkwood moved and Boardmember Owens seconded a motion to approve the June 2, 2011 meeting minutes. The motion passed unanimously.**

**IV. Public Comments**

There were no public comments at this time.

**V. Board Chair's Report**

Board Chair Kirwan asked Boardmember Dahle to summarize the previous day's Board tour. Dahle said the visits of the Flournoy meadow restoration project, the Lassen Rail to Trails Modoc Line project, and the National Wildlife Refuge were informative and showed the range of work being done in the area. He encouraged the Board to spend some time to visit and see the area.

**VI. Executive Officer's Report (INFORMATIONAL)**

**A. Administrative Issues**

SNC Executive Officer Jim Branham thanked everyone involved with putting on the previous day's Board tour. He then introduced Administrative Services Chief, Theresa Parsley, who gave the report.

Parsley reported SNC is about to launch a new web layout that will conform to statewide web standards and will provide a new "look and feel." She said she expects to have the new site launched before the next Board meeting.

On the media front, Parsley stated the SNC has begun to focus more on telling the stories of our Proposition 84 grant projects as part of an effort to attract media attention to our partners and their projects.

Parsley reported on the SNC grant program, noting that grantee audits are occurring and SNC is monitoring the results. She also noted the SNC has submitted plans to address an unallocated budget reduction and that once the plan has been accepted the SNC will be released from the current hiring freeze. Boardmember Owens asked if Parsley anticipated any problems with the travel budget, in particular with staff being able to conduct project site visits and attend Board meetings. Owens also asked about restrictions on staff trainings. Parsley replied the travel freeze continues, but expects that exemptions for necessary site visits to grant projects and Board meetings will continue to be granted. She included there are no restrictions on training. Branham added that the reason SNC would not be affected by the budget "triggers" is because SNC is a special fund agency, not funded out of the State General Fund.

B. Mt. Whitney Fish Hatchery Project

Branham said the California Department of Fish and Game (DFG) can no longer operate this facility as a fish hatchery and is interested in transferring ownership, potentially to the SNC. He added that SNC is working with Inyo County, which has expressed interest in having it be of benefit to the public as a community facility.

SNC Mt. Whitney Area Manager Julie Bear said she is continuing to meet with Inyo County representatives to determine what role the SNC might be able to play. She added the building is an iconic place in the eastern Sierra.

Boardmember Arcularius (Inyo County Supervisor) thanked Branham and Bear for participating in meetings with Inyo County and the Friends of the Hatchery group.

Boardmember Owens asked about assumption of liabilities and maintenance costs. Branham said that the SNC has made it clear, owning and operating the facility over the long term is probably not a good fit, but SNC might be able to serve as a "bridge" for transferring the hatchery to a new owner. Branham said the SNC has been clear to everyone that it does not have the resources to support ongoing operations and maintenance of the property, and added the discussions were very preliminary. Arcularius stated there is an existing relationship between the Friends of the Fish Hatchery and the State that covers liability and maintenance costs.

C. North Subregion Report

Linda Hansen, SNC's Mt. Lassen Area Senior Representative, gave the Board an overview of the North Subregion, which includes all of Lassen County and part of Modoc, and Shasta Counties, as well as the Pit, Fall, and Susan River Watersheds.

Hansen reported that SNC has funded 24 Proposition 84 projects in the Subregion for a total of \$3.6 million. The projects include forest and fuels work in Lassen County, the management plan for the Modoc Line, partial funding for the Modoc River Center, the Sage Steppe Ecosystem Project, and meadow restoration.

Hansen added that SNC does a lot of collaboration with groups working in the Subregion, including the Burney/Hat Creek forest collaborative, the Quincy Library Group, the Lassen County Community Wildfire Protection Plan, and the Sage Steppe Ecosystem Collaborative. All these groups include agency, local government, and local resource conservation group representatives.

Public Comment:

Kim Hunter, City of Alturas and Modoc County Planner, was asked by Hansen to comment on the County's activities.

Hunter said the SNC and the County met to discuss the utilizations of juniper trees, including biomass energy opportunities. She indicated that Modoc County is looking at possibilities for small-scale biomass plants and has formed a working group to consider all energy options that would put Modoc "on the map" and give them a greater voice. Hunter expressed her appreciation for the time and great ideas the SNC staff has given them.

**VII. Deputy Attorney General's Report (INFORMATIONAL)**

Christine Sproul, Deputy Attorney General, noted she was watching legislation regarding CEQA exemptions for alternative energy projects and would provide a more detailed report at the December meeting.

**VIII. SNC Strategic Plan (ACTION)**

Jim Branham acknowledged the hard work of Assistant Executive Officer Joan Keegan, Janet Cohen and all staff in producing the draft Strategic Plan and soliciting and incorporating input throughout the process from a wide range of stakeholders. Branham pointed out that there was not much input from the public during the last comment period. He believes this is due to the extent and variety of the SNC's outreach efforts and reflects a general feeling of comfort with the plan's direction.

Keegan briefly described the strategic planning process to date, which began with a Board and stakeholder brainstorm session in June 2010 to identify priority areas for future work. She also pointed out the changes that have been made to the Plan based on public and Board input, as summarized in the staff report. A Board committee consisting of Boardmembers Owens and Johnston reviewed public comments and worked with staff to determine how best to address them. She noted most of these changes were for clarification purposes and did not substantively change the direction or content of the Plan's proposed strategies.

Keegan further explained staff will be developing a more specific Action Plan laying out how staff will work to achieve the goals and strategies in the Plan. This Action Plan will be distributed for a 30-day public review this fall and then brought to the Board with any changes for review and approval at the December Board meeting.

The term of the first action plan will be 18 months, then will move to a fiscal-year schedule to better align activities with State budget considerations. Boardmember Owens thanked Boardmember Johnston for his considerable time and contributions to the effort, especially in this last round of development.

**Action: Boardmember Owens moved and Boardmember Arcularius seconded a motion to approve the Strategic Plan without change. The motion passed unanimously.**

**IX. 2011-12 Proposition 84 Grant Guidelines (ACTION)**

Jim Branham presented to the Board the final draft Fiscal Year 2011-12 Proposition 84 Grant Guideline. Branham introduced this item by pointing out that the SNC conducted a significant amount of outreach, particularly to those groups who historically had not been as successful in the SNC's grant process. The SNC targeted groups such as the Fire Safe Councils and has responded to their suggestions surrounding process issues. Branham introduced Mt. Lassen Area Manager Bob Kingman to present the full report.

Kingman pointed out that the draft guidelines and presentation were available for review in the Board packet. He noted that the guidelines reflect all the changes approved by the Board at their June meeting. Some of the more significant points include the following:

- The Board gave direction for the next round of grants for FY 2011-12 would focus on the area of Healthy Forests, and the FY 2012-13 round of grant solicitations would be focused on Ranching and Agricultural Lands.
- The implementation of required pre-application process to help verify the projects were eligible, and to ensure that projects brought forward to be Board would be the best possible.
- Prioritization of eligible project types: Fee title acquisitions and pre-project work related to fee title acquisitions were eliminated.
- Setting new limits for grant amounts.
- No guaranteed funding allocation per Subregion.

All revisions reflect input from both the Board and the public comment period. September 26 is the target deadline to release the guidelines to the public, as well as the Grant Application Packet (GAP), which will include all the necessary forms and instructions needed to apply for a grant under this program.

Exhibit B in the Board packet details the public comments and the SNC's response. The general topics included:

- Reinvestment of revenue generated from grant projects;
- Environmental Site assessments for toxics;
- Clarifying that the SNC is accepting the role of lead agency for CEQA certification of documents, in limited situations;
- Use of registered professional foresters;
- Preferences in the project category weighting; and,
- Preferences in grant amount limits.

Kingman called the Board's attention to the two items needing a Board decision. The first is suggested weighting criteria point values to be assigned for Project Category Types. Boardmember Kirkwood said the staff had gotten the Board's direction exactly right. Alternative one presented in Board materials was selected by the Board.

The second is for maximum grant award for Category One grants. Alternative Two presented in the Board materials was selected by the Board making the ceiling for Category One up to \$350,000.

The schedule for the grant program, from the pre-application process through the June 7, 2012 meeting, was also proposed.

Kingman asked the Board to approve the final SNC Proposition 84 Healthy Forest Grant Guidelines for the FY 2011-12, and for the Board to authorize SNC staff to implement the 2011-12 Sierra Nevada Conservancy Grant Program.

Boardmember Burke asked if juniper removal as part of the sage-steppe restoration efforts would meet the requirements for Healthy Forest grants. Kingman said, in short yes, because they fall within the definition of mixed conifer forests.

**Action: Boardmember Kirkwood moved and Boardmember Dahle seconded a motion to approve Sierra Nevada Conservancy Proposition 84, Healthy Forests Grant Guidelines, Fiscal Year 2011-12 with minor modifications and direct staff to take the necessary actions to implement the 2011-12 Grant Program. The motion passed unanimously.**

Following the Board's action, Branham reminded the Board the water bond is on the ballot in November 2012 and there has been discussion about possibly changing or shrinking the size of the bond measure. It currently includes \$75 million for SNC. The SNC will be tracking these developments.

Kirkwood said that on the previous day's tour he was struck by the multiple benefits of the meadow restoration project including the impacts on quality and quantity of water and it seems like it is extremely important to quantify and record those benefits for future water supply and bond discussions to remind people that water issues start in the Sierra

**X. Demographic and Economic System Indicators Report (ACTION)**

Joan Keegan updated the Board on continued staff efforts to complete the System Indicators project. She noted the biggest difficulty has been obtaining data for counties that are only partially within SNC's boundaries. She said all the data has been collected, and the report has been divided into five separate documents to make it more manageable and allow SNC to tie indicators together to tell a better story.

Five reports as follows:

- Demographics and the Economy
- Land Conserved and Habitat
- Air and Water Quality and Climate
- Forest Lands
- Agricultural Lands and Ranches

The SNC 2006 Strategic Plan identified the need to develop System Indicators to measure progress in improving the environmental, economic and social well-being of the Sierra Nevada Region. Keegan said this first report on "Demographics and the Economy" is a good place to start since it has some good baseline data.

Information relative to each indicator will be available on the SNC Web site and will be updated periodically, providing an opportunity to observe trends over time. Keegan acknowledged the work of Chris Dallas, Liz van Wagendonk, and GIS Consultant Steve Beckwitt for their work on the report, and asked Dallas to give a short presentation with highlights.

Dallas noted the SNC Region, over the last decade, is similar to the rest of the State that most jobs are found in three sectors: health services, retail, and education.

In addition, Dallas pointed out that the biggest differences lie between the Subregions, with the Central Subregion being very different from the others.

- The Region overall grew in population by about 10 percent, same as the state as a whole.
- The Central Subregion now accounts for 48 percent of population of the SNC Region, and grew the most, 16 percent.
- The Central Subregion accounts for 72 percent of the growth of the Region during the period reviewed.

- The median household income is higher in the Central Subregion than California overall, but incomes are substantially lower than the state in all the other Subregions.
- The population of the SNC Region is older than the rest of the state by about 11 years, on average.
- Large-hydroelectric power in the Sierra Nevada (9,300 megawatts of total capacity) accounts for 73.5 percent of the State's hydroelectric output.

Boardmember Dahle said he would be interested in identifying how many people are leaving the state, who they are, and why they are leaving. He noted from 2007 to 2011 there has been a huge shift in the economy of the Region. Dallas responded that the SNC be updating that data over time. Boardmember Arcularius felt the information was very useful and requested that the report be emailed to the counties.

Keegan mentioned much of the information is at the Subregion or Region-wide level, but some of it is available by county as well. Dallas can provide more specific information upon request.

Boardmember Johnston said UC Davis is doing similar work statewide. He suggested going back to 1990 to capture more useful data. Johnston noted that there are more data sources, but they are very expensive. He said he would like to talk with SNC staff more about what UCD is doing with regards to projecting data out to 2050 for high-speed rail planning. He added that the data reminds us that the Sierra is really two different places; the center, which is struggling with the wildland/urban interface issues, and the rest of the Sierra, which is struggling with economic development issues.

Keegan concluded by saying that this report is just the beginning. Now that the methodology exists, it will be easier to capture data back to 1990. She said the intent is to have the data living on our web site to be enhanced as more data becomes available.

**Action: Boardmember Kirkwood moved and Boardmember Nunes seconded a motion to approve the System Indicators report. The motion passed unanimously.**

#### **XI. 2010-11 Annual Report (ACTION)**

Jim Branham said that due to the State budget and the variety of operational limitations faced by the SNC, he is proposing scaling back the scope of the Annual Report, while making sure all statutory reporting requirements are met. Board Chair Kirwan said it is an understandable approach, given the economy. Boardmember Owens said the new, more condensed approach might actually bring more readers.

**Action: Boardmember Kirkwood moved and Boardmember Owens seconded a motion to approve a streamlined in-house 2010-11 Annual Report and directed staff to develop and distribute the completed report in October 2011. The motion passed unanimously.**

## **XII. Updates on Various SNC Activities (Informational)**

### **A. Sierra Nevada Geotourism Update**

Jim Branham noted the Sierra Nevada Geotourism MapGuide Project display in the lobby, which allows potential visitors to plan a trip to the Sierra using information provided by locals. Selected destinations are placed as map points on a Web-based application. He said the project has exceeded expectations and added it was a way for SNC to fulfill one of its objectives of promoting tourism and recreation in the Region.

Bob Kingman said the project has just completed its fourth and final nomination phase, but more sites can be added at any time. This is the largest project of its type National Geographic has undertaken. To date, 1,200+ Sierra-specific destinations have been created by local residents, with another 800 pages in development. There have been 13,000 unique visitors to these pages, from 89 countries.

Kingman described upgrades to the Geotourism Web page, including the addition of twelve "Virtual Tours," and an introductory video to the Web site. He also discussed a free hand-held application for mobile phones has been developed that will use GPS to inform visitors of nearby Geotourism destination sites. Kingman said plans for the future include an annual marketing plan, outreach efforts to other areas of the country, ongoing support from the existing volunteer "geocouncils," and updates to Web site and related tools.

Boardmember Owens said the V-Tour of Nevada County has been very successful. Kingman said the Nevada County V-Tour and others have already been linked to the MapGuide.

Boardmember Jiron asked about the timeline for developing the cell phone applications and Kingman said he would hope to see it by next Board meeting in December.

### **B. Sierra Nevada Forest and Community Initiative (SNFCI) Update**

Branham reported a high level of interest in this Initiative around the Region. Boardmembers Kirkwood and Nunes serve on the SNFCI Regional Coordinating Council.

SNFCI Coordinator Kim Carr said SNC continues to remain very involved with 10 collaboratives around the Sierra. The Coordinating Council is working primarily around U.S. Forest Service issues, including the new "All Lands" vision that

favors collaboration, and implementing the Forest Plan Rule and Leadership Intent for Ecological Restoration. She said the timing is good, as federal officials of the 10 forests around the Sierra are now putting their plans together.

Carr highlighted one particular effort, the Mokelumne Watershed Environmental Benefits Project, which is working to quantify the benefits of watershed restoration and identify those entities who gain from those benefits, with the goal of developing additional investment mechanisms to support upstream restoration. A Conservation Innovation Grant funding application submitted to the National Resources Conservation Service was successfully awarded \$374,000 for this project. Members of the core team and working group matched the award dollar-for-dollar, either cash or "in-kind," meaning available funds are closer to \$750,000.

Carr said the SNC has recently secured \$25,000 from the U.S. Forest Service to match SNC funding aimed at identifying and analyzing costs that can be avoided by reducing the risk of catastrophic wildfires and the damage they cause in the watersheds. This study will begin in the next few months.

Boardmember Arcularius pointed out that the term "restoration" is used differently with respect to forest roads, where it usually means decommissioning or closing off an area to public use, as opposed to watershed restoration. She wanted to be sure that the difference was made clear in future documents.

Boardmember Jiron expressed the U.S. Forest Service's gratitude to the SNC for the many opportunities to work together on this issue and with forest planning. He said SNFCI represents a great opportunity in a number of areas, in particular the use of biomass for energy and for product development. Branham noted that it was important that the SNC's federal partners were included on the SNC Board and thanked Jiron and Mike Chapel with the U.S. Forest Service for greatly improving the working relationship with the SNC.

#### C. Pacific Forest and Watershed Lands Stewardship Council Update

Branham said that the efforts have taken a few steps backwards in trying to find a solution in working with the Pacific Forest and Watershed Lands Stewardship Council (Council) to help Pacific Gas and Electric (PG&E) dispose of portions of its property as part of its bankruptcy settlement. Branham said the Council's issues are complex, but that the SNC is still willing to help.

In addition to possibly being a covenant holder for watershed lands donated to the U.S. Forest Service, which the Board discussed at a previous meeting, Branham said the SNC could work with the Council to consider assisting in a legacy project grant program.

Boardmember Burke said the BLM would like to be included with the U.S. Forest Service, with respect to land donation issues and services the SNC may provide related to the Stewardship Council's activities.

**D. Great Sierra River Cleanup**

Bob Kingman recognized the efforts of the Great Sierra River Cleanup coordinator Brittany Juergenson, who has worked hard to make the Cleanup better each year. Student Assistant Candice Heinz made a brief presentation. She stated that during the first two years 7,500 volunteers removed more than 270 tons of trash and recyclables. This year's event is to be held Sept. 17, and 50 organizations are now involved. She encouraged Boardmembers to sign up.

Heinz said the Cleanup location map on the Web site allows potential volunteers to search for a site near them by community, river, or county, and then register for the event. Sponsors include the California Ski Industry Association, PG&E, Cal Trans, the Sierra Pacific Foundation, and the Stewardship Council.

**XIII. Boardmembers' Comments**

Boardmember Mark Stopher said it was a privilege to join the Board and thanked everyone for the great work they do for the people of California.

Boardmember Dahle thanked everyone for coming to his area of the state, and invited them to come back.

**XIV. Public Comments**

Ken Brown, Modoc County resident, asked if the mechanical treatment and removal of 30,000 acres of juniper per year included both public and private lands, and how much water a juniper tree needs? Boardmember Burke said the plan is for a 47-year project, on U.S. Forest Service and BLM lands. He added that a general average of water used by a juniper tree is approximately 50 gallons per day.

Orvil Jones, resident of Modoc County, wanted to know why junipers grow in arid climates and don't do well in wetter areas. Burke explained that when junipers get a lot of water they die. He said that in arid areas, the juniper take the water away from other vegetation. He said the main issue with junipers is they thrive in areas where there is no consistent wildfire.

Jones asked if the goal is to reduce trees that take a lot of water, why not take pine trees in the higher mountain areas that use more water? Burke explained that the elevation at which junipers end is where the pine forests start in Alpine regions.

Jones then asked if people were aware that junipers provide cover and habitat for the wildlife, for instance, the deer like to eat the berries. He said he has a problem with eliminating a food source for a lot of animals and birds. Jones then asked if conservation easements were in force forever.

Boardmember Kirkwood asked the Chair if the questioning process could be directed to the member of the Board who is the expert in this area. Board Chair Kirwan asked Burke if he would be willing to answer Jones' questions after the meeting and Burke replied that he would, but that he was not an expert on easements.

Branham responded on the question of easements saying that those funded by the SNC were in effect in perpetuity, so long as the landowner agreed to the conditions of the easement at the time it was sold.

Diane Case, who described herself as a taxpayer said she did not know whether to support or oppose the SNC. She asked if the SNC was for clean water and air. Branham replied those were among the broad areas of responsibilities included in state law that authorized the formation of the SNC.

Case said she agrees with the efforts to create healthy forests, but does not understand how cutting down a lot of juniper trees would help create healthy forests. She said it seems the SNC is interested in allowing the sagebrush to proliferate, but not the juniper trees. She invited the Board to drive over to the Nevada desert to see what it looks like without juniper trees. Jones added that she thought juniper trees helped clean the air, but did not think sagebrush did.

Board Chair Kirwan asked Branham if he would provide someone to answer Jones' questions. Jones said she felt the Board should hear what she had to say, not just one person, and she thanked the Board for their time.

**XV. Adjournment**

Board Chair Kirwan adjourned the meeting at 11:52 AM.

**Background**

The Sierra Nevada Conservancy has met quarterly throughout the Region since June 2006. These meetings provide an opportunity for Boardmembers and staff to interact with communities and observe work taking place that furthers the SNC mission.

**Current Status**

Staff is proposing a schedule that would result in the SNC having held Board meetings in all 22 counties by the end of 2012.

**Next Steps**

The following schedule is proposed for 2012:

- March 7 & 8, North Central Subregion, Tehama County
- June 6 & 7, East Subregion, Inyo County
- September 5 & 6, South Central Subregion, Mariposa County
- December 5 & 6, Central Subregion, Yuba County

**Recommendation**

**Staff recommends that the Board approve the proposed schedule for 2012.**

### **Background**

We have some good news on the “freeze front.”

*Hiring Freeze* - Section 3.91 of the fiscal year 2011-12 state budget act directed reduction of overall budget appropriations by \$1.6 billion, combined from general and other funds, in order to achieve various employee compensation reductions including the hiring freeze (issued as Executive Order B-03-11 on 2/14/2011). Governor Brown has now given state departments some operational flexibility by assessing these savings as unallocated reductions, and assigning an amount reflecting the department’s relative size. For SNC that amount is \$27,000. SNC’s plan to make those budget reductions in the areas of contracts, travel and training has been approved, lifting the hiring freeze as of October 10, 2011.

*Travel Freeze* - The travel freeze initiated by Executive Order B-06-11 has also been lifted by the Governor’s Office, removing the requirement to obtain travel freeze exemptions in advance from Resources Agency. This means that, as related to travel, SNC may independently continue its critical operations in conducting Board meetings, completing grant site visits and carrying out other necessary program support activities. Although this freeze has been lifted, in light of the on-going budget constraints, the SNC will continue to be prudent in addressing travel issues.

### **Current Status – Grants Admin**

In addition to supporting the Healthy Forests grant solicitation, which is in full motion, grants administrative staff has been busy providing support to project staff in new agreement execution, old agreement close-outs and grant program policy and procedure assessment. SNC has also received two draft grantee audits from the Department of Finance, and assessment of all preliminary findings is underway. Once completed, grants admin will develop strategies to implement any procedural changes and instigate appropriate grantee actions that may be called for in the final audit reports.

### **Current Status – Budget**

In addition to the unallocated reduction of \$27,000 noted above, \$87,000 and .8 personnel year authorization has been permanently reduced from the SNC’s temporary help budget (used for retired annuitants and part-time employees), beginning with the 2011-12 fiscal year. Combined with the hiring freeze reduction, SNC’s initial baseline budget has been reduced by \$114,000, or about 2 percent.

### **Current Status – Staffing**

Unfortunately, Janet Cohen, grant writer, funding expert, strategic thinker, strategic plan staffer and all around “utility player” on our Regional Policy and Program team has announced her plans to leave the SNC. Janet will move on to greener pastures in mid-to late-November. Janet has made significant contributions to the SNC, and we wish her the best in her future efforts. The staff and management will miss her great humor and her “brilliant” accent. We thank Janet for all of her hard work and dedication to the programs of the SNC and the interests of the Sierra Nevada Region.

**Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

<b>2011-12 SNC EXPENDITURES AND ENCUMBRANCES</b>					
<b>As of October 31, 2011</b>					
<b>State Operations</b>					
<i>Personal Services</i>	<i>Budgeted</i>	<i>Expended</i>	<i>Balance</i>	<i>% Spent</i>	
SALARIES AND WAGES	1,804,955	524,576	1,280,379	29%	
STAFF BENEFITS	528,005	187,764	340,241	36%	
<b>Personal Services, Totals</b>	<b>\$2,332,960</b>	<b>\$712,340</b>	<b>\$1,620,620</b>	<b>31%</b>	
<b>Operating Expenses &amp; Equipment</b>					
	<i>Budgeted</i>	<i>Expended</i>	<i>Balance</i>	<i>% Spent</i>	
GENERAL EXPENSE	222,513	62,135	160,378	28%	
TRAVEL - IS	62,000	5,955	56,045	10%	
TRAVEL - OS	-	-	0	0%	
TRAINING	47,500	2,808	44,692	6%	
FACILITIES	259,723	79,494	180,229	31%	
UTILITIES	10,222	3,599	6,623	35%	
CONTRACTS- INTERAGENCY AGREEMENT	1,297,003	288,536	1,008,467	22%	
CONTRACTS- EXTERNAL	59,060	49,060	10,000	83%	
INFORMATION TECHNOLOGY	104,620	3,827	100,794	4%	
CONSOLIDATED DATA CENTER	-	-	-	0%	
EQUIPMENT	-	-	-	0%	
OTHER ITEMS OF EXPENSE	81,741	6,074	75,667	7%	
PRO RATA (control agency costs)	159,658	0	159,658	0%	
<b>Operating Expenses &amp; Equipment, Totals</b>	<b>\$2,304,039</b>	<b>\$501,487</b>	<b>\$1,802,552</b>	<b>22%</b>	
<b>Local Assistance</b>					
<i>Appropriation</i>	<i>Budgeted</i>	<i>Expended</i>	<i>Balance</i>	<i>% Spent</i>	
2007 Original Appropriation (reapprop 2011-12)	17,000,000	15,273,226	1,726,774	90%	
2008 Original Appropriation (reapprop 2011-12)	17,000,000	12,647,408	4,352,592	74%	
2009 Original Appropriation * (3rd yr/3 yr enc)	15,448,000	8,149,410	7,298,590	53%	
	<i>Budgeted</i>	<i>Expended</i>	<i>Balance</i>	<i>% Spent</i>	
<b>State Operations</b>	<b>4,636,999</b>	<b>1,213,827</b>	<b>3,423,172</b>	<b>26%</b>	
<b>Local Assistance</b>	<b>49,448,000</b>	<b>36,070,045</b>	<b>13,377,955</b>	<b>73%</b>	
<b>SNC EXPENDITURES, TOTALS</b>	<b>\$54,084,999</b>	<b>\$37,283,872</b>	<b>\$16,801,128</b>	<b>69%</b>	

\* Of the \$10 million awarded during the 2010-11 fiscal year, \$1.85 million remains to be encumbered.

### **Background**

The Sierra Nevada Conservancy (SNC) was allocated \$54 million in Proposition 84, passed by the voters in 2006. Approximately \$50 million of this amount was available for grant awards to eligible nonprofit organizations, public agencies and federally recognized tribal organizations. To date approximately \$40 million has been awarded to a variety of projects consistent with Proposition 84's requirements and SNC's governing statute.

At its September 2011 meeting, the Board approved Grant Guidelines for the FY 2011-12 grant cycle to support Healthy Forests as identified in the SNC's Strategic Plan. For the purposes of this grant program, Healthy Forest activities include projects that are designed to preserve or improve Sierra Nevada conifer and mixed conifer forest health by reducing the risk and impacts of large, damaging fires and/or preserving or restoring ecosystem function in forests and meadows. Approximately \$5 million dollars from Proposition 84 will be used to support this area of focus. An equal amount will be allocated in the next grant cycle for FY 2012-13 to support Preservation of Ranches and Agricultural Lands as defined in SNC's Strategic Plan (it appears as if the amount available for these two cycles will be greater than \$10 million and staff will provide an update and recommendation at the March 2012 meeting on this matter).

Staff has been actively involved with a variety of partners, including the California Fire Safe Councils, CAL FIRE, Natural Resources Conservation Service, US Forest Services, Bureau of Land Management, Resource Conservation Districts, and others to solicit pre-applications. Efforts have also been undertaken to leverage other state and federal funding sources for similar forest-related work.

### **Current Status**

Our outreach efforts have been very successful. The SNC began accepting pre-applications for grants on September 26, 2011 and received 196 pre-applications by the October 21 deadline, representing more than \$25 million in requests from 122 organizations. Of the 196 pre-applications received, 134 were for site improvement projects, while 62 were for pre-project activities. Pre-applications were received from every Subregion. Staff will provide a verbal update and printed hand-outs to the Board with the total number of invitations issued to submit full applications, at the meeting.

SNC Area Representatives are currently working with invited applicants to develop high quality projects. It is anticipated that the number of full applications submitted will be significantly less than the number of invitations, given that many organizations submitted numerous pre-applications and SNC staff will be working with them to focus efforts on the strongest projects. Completed applications are due to the SNC by January 23, 2012.

### **Next Steps**

SNC staff will be working with a panel of technical experts to evaluate and score applications following the submission deadline. Any appraisals received to support

conservation easement acquisition proposals will be reviewed by the Department of General Services. Review of environmental documents for CEQA compliance will be conducted by SNC staff, legal counsel, and professional technical consultants.

Due to the large number of pre-applications, and the likelihood of a larger than expected number of full applications, SNC staff is assessing how best to complete the evaluation and recommendation process consistent with our current plan of having recommendations for the Board at the June 2012 Board meeting.

While this continues to be our goal, our highest priority is to provide a thorough, fair and transparent evaluation process that complies with our Grant Guidelines. If it not feasible to complete such a process in time for the June 2012 Board meeting, an alternative might be to prioritize evaluation of Category 1 applications, so that those projects can be brought forward on schedule, allowing for on the ground work to occur during next year's work season. This could result in Category 2 projects, and perhaps some Category 1 projects, not being acted upon by the Board until September 2012. As staff continues to analyze the situation, other alternatives may emerge.

Because decisions will need to be made by the staff regarding evaluation prioritization prior to the March Board meeting, staff recommends a committee of the Board be appointed to assist staff in this matter, as well as addressing the amount to be awarded in each cycle, given the likely increased amount available. If any aspect of the approach chosen requires Board action, the matter will be brought to the Board at the March 2012 meeting.

**Recommendation**

**Staff recommends that a committee of the Board be appointed to consult with staff regarding the best approach to utilize as it relates to evaluation priorities and funding allocations.**

### **Background**

The South Subregion includes 58 percent of the land area of Madera, 44 percent of Fresno, 66 percent of Tulare and 26 percent of Kern Counties. This rural Subregion does not include any incorporated cities and includes a total of 82,500 residents. For the counties of Fresno, Tulare and Kern, only about 3 percent of the population lives within the SNC boundary. In Madera County that number rises to 20 percent.

County seats, media outlets and many local organizations offices are in the valley portion of this Subregion, as are most of the main transportation corridors. The highways in the Sierra trend east-west, from the major Valley arteries, with only Highway 120 in Yosemite National Park and Highway 178 in Kern County crossing the Sierra in or near this Subregion. These facts create some additional challenges to servicing the South Subregion.

The Subregion includes the watersheds of the San Joaquin, Kings, Kaweah, Tule, and Kern rivers. Elevation changes in this, the steepest portion of the Sierra, range from 600 feet in the west to over 14,000 feet on Mount Whitney's summit. All rivers south of the San Joaquin once flowed into an internal basin called Tulare Basin, historically housing five freshwater lakes, including Tulare Lake, which was the largest freshwater body of water west of the Mississippi River.

Public land dominates the South Subregion, with a low of about 50 percent in Kern County to a high of over 80 percent in Fresno County. These lands allow public access and are available for recreation thereby supporting small businesses throughout the area in close proximity to the public lands. The largest Native American tribal land holding in California is in this sub-region, the Tule River Tribe, an existing SNC partner.

In all four counties, most of the economic activity is on the valley floor, outside of the SNC area. The major economic drivers in the Subregion are cattle grazing and tourism occurring on private lands and public lands within the SNC area. Historically, significant economic activity in the South Subregion was related to natural resource extraction industries such as timber and mining but that activity has dropped dramatically in recent decades.

The SNC serves the South Subregion out of the office in Mariposa (one staff member is located in Auburn) and with a consultant located in Three Rivers.

### **Current Status**

The SNC has awarded a total of 25 grants in the South Subregion, totaling \$3,225,992. The SNC's most frequent partners in the South Subregion include Fire Safe Councils and RC&Ds, as well as the Sequoia Riverlands Trust and the Sierra Foothill Conservancy.

SNC has funded or has been a key participant in a number of other efforts throughout the South Subregion. Two of these are:

### Southern Sierra Integrated Regional Water Management Plan (IRWMP)

Prior to the SNC funding IRWMP launch grants, the Mt. Whitney portion of the Region had very few counties involved in IRWMPs and therefore no opportunity to compete for Department of Water Resources (DWR) funding. In the South, the SNC funded pre-planning work to conduct outreach to stakeholders, convene a planning committee, compile watershed data and prioritize needs. Furthermore, the SNC assisted with facilitation and coordination of the DWR Acceptance Process and convened stakeholders to negotiate shared boundaries.

### Sustainable Forests and Communities Collaborative (SFCC)

Following the Connecting the Dots Webposium in Oakhurst in October 2009, SNC realized that there was a significant interest in the area to address the issues of forest health, reduced fire risk and community economic opportunities. As a result, the following month the North Fork stakeholders were joined by others from Yosemite National Park, Mariposa and Madera Counties and parts of Fresno County to form the Sustainable Forests and Communities Collaborative. The group now includes federal, state and local government representatives, private industry, Fire Safe Councils, RC&D, and the local land trust. This group meets bi-monthly and is moving forward with several project ideas in both Madera and Mariposa Counties. The Willow Creek Planning Collaborative formed as an outgrowth of the SFCC to focus on this specific watershed in the Sierra National Forest in Madera County. This group is being facilitated by SNC staff with technical assistance from the Center for Collaborative Planning. A small, but diverse group in Tulare County is also looking towards the formation of a similar group in that area.

The SNC has also been active on a number of other projects and efforts on a Region-wide level throughout the Sierra and in this Subregion, including the Great Sierra River Cleanup and the Geotourism MapGuide Project. The SNC is participating in the Southern Sierra Partnership, a group of local and state-wide nonprofit groups and coordinating with the federal partnership to secure funds and to integrate climate change into Park and Forest management planning efforts

### Key Issues in the South Subregion

Following are a few key issues that the SNC has identified in this Subregion based on interaction with SNC partners, public input and staff observations, as well as reviewing the demographic data, reports and working directly with federal and state agencies.

#### **Air Quality**

Particulate Matter (PM) levels and ozone in the southern Sierra rank among the highest in the nation due to local and regional weather patterns such as the Fresno Eddy and heavy emissions along travel corridors (Highway 99 and Interstate 5). Summer and fall high pressure systems trap polluted air and cause a worsening air gradient upslope in

the Sierra. Ozone doesn't decline in Sierra at nights and thus, the Sierra is disproportionately affected relative to the adjacent valley.

### **Water**

Water supply is a critical issue in the South Subregion, as most of the southern Sierra consists of a fractured bedrock aquifer that is seasonally replenished. Very little information exists on the storage capacity and water quantity of this aquifer. At present, Fresno County is a leader in this subregion in connecting development decisions to water quantity, as under a new law, developers must show water supply in dry and wet years in order to gain approval for a development project.

### **Climate Change**

Climate Change is predicted to have impacts on water, ecological communities, fire, human health and various economic aspects of communities. Vegetation bands in the South Subregion are narrow and easily fragmented by various human and natural causes because of the steep gradient. For a variety of reasons, these bands are currently contracting, and scientists are predicting further contraction, causing further habitat fragmentation, under future climate change scenarios. Water yields and precipitation are higher in the northern Sierra, but the South has greater snowpack that lasts later in the season, and would be the only summer-remaining snowpack in the Sierra under numerous snowpack models. Despite the resilience of the southern Sierra to climate-induced snowpack impacts, snowmelt may still be reduced 20-50 percent. The public agencies are compiling research and developing management plans to incorporate climate change effects.

Climate change may have significant and tangible economic impacts. Sierra Summit is the only major ski area in the South, (Shirley Meadows, located in Kern County now opens very seldom, as appropriate conditions are now infrequent) and provides much needed winter economic activity in an area dominated by summer tourism. If snow pack decreases as predicted at mid elevations, this economic activity will be diminished or disappear altogether.

### **Marijuana Gardens on Public Lands**

Illegal marijuana gardens pose a tremendous threat to the health of the Sierra Nevada and its watersheds. For example, in the summer of 2009, a ten-day intensive sweep for illegal marijuana gardens in Fresno County public lands resulted in the seizure of \$1.26 billion dollars worth of marijuana plants and the arrest of 83 people. By comparison, Tulare County's leading commodity, milk, was valued at about \$1.8 billion for the entire year of 2008.

The growers on these sites utilize a large quantity of fertilizers and pesticides, some of which are illegal in the United States because of their toxicity levels. These pollutants often contaminate watersheds after the winter rains, destroying surrounding fish and harming wildlife that relies on the creek for drinking water. These gardens also significantly impact water supplies in their watersheds due to the high irrigation

Page 4

demands of the marijuana crops. Furthermore, this illegal activity has begun to change the relationship between the residents and visitors to the area and the forest. The fear of coming across an illegal garden has caused both recreationalists and even public lands staff to stay closer to marked trails and wander less into the unmarked areas. In some cases, this has caused biologists and other researchers to have to abandon forest areas that they would typically be monitoring for habitat and species, therefore limiting their monitoring efforts.

According to the California Department of Justice, for every one acre of marijuana grown, ten acres are damaged. The average cost for cleaning up one of these garden sites is \$15,000 per acre, which means that many garden busts do not necessarily result in a cleanup effort. The only SNC grant to a tribal organization to date is funding a marijuana garden cleanup in the Tule River watershed, conducted by the Tule River Tribe in Tulare County.

**Next Steps**

It is important to note that the Southern Subregional Assessment Report was the first attempt to identify the unique characteristics and trends in this area by using county data that is clipped at the SNC boundary. As a result of this, and the fact that such a small percentage of the population of most of these counties live within the boundary, SNC meets with unique challenges in serving this Subregion. Staff has developed and is further refining an outreach plan for the South Subregion that they have begun implementing which will tie collaborative processes that are focused on the valley to build interest and investment in the Sierra.

The SNC has established partnerships and working relationships in the South Subregion and outreach has been ongoing since the SNC's creation and will continue. SNC staff are interacting closely with partners in the South Subregion to help develop projects supportive of the SNC's current Healthy Forests grant program and gearing up to work in this Subregion on the 2012-13 grant cycle which will focus on the preservation of Ranching and Agricultural Lands.

**Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

### **Background**

The SNC 2006 Strategic Plan identifies the need to develop System Indicators to measure progress in improving the environmental, economic and social well-being of the Sierra Nevada Region. At its meeting in October 2008, the Board adopted a set of nineteen indicators. However, the Board approved some revisions to that original set of indicators at its March 2011 meeting to reflect the types of data that are currently available.

The data and analysis associated with the Sierra Nevada System Indicators have or will be presented to the Board in a series of five reports:

- Demographics and the Economy (approved by the Board in September 2011)
- Land Conserved and Wildlife Habitat
- Air and Water Quality and Climate
- Forest Lands
- Agricultural Lands and Ranches

This report (see Attachment A), which is the second in the series, provides an overview of the acres of lands conserved in the Sierra Nevada and the status of natural areas and changes in wildlife habitat that have occurred in the Region over time.

### **Land Conserved and Wildlife Habitat Report Highlights**

A significant portion of the Sierra Nevada Region is conserved in some way - as public lands, private lands with conservation easements, or private lands acquired in fee title for purposes of conservation. However, there is significant variation among different areas within the Region in terms of the amount of land conserved. While wildlife habitat is heavily influenced by patterns of land conservation in the Region, there are obviously a number of factors that are also important. Here are some of the key findings from this report:

#### **Acres of Land Conserved**

16.4 million acres (64% of the total acreage of the Region) are conserved within the Region with nearly 16.2 million acres (63%) in public ownership and primarily managed by three federal agencies: the US Forest Service (64.3% of the public lands within the Region), Bureau of Land Management (19.3%) and the National Park Service (10.6%), the remaining 5.8% is managed by other local, state and federal agencies.

One percent of the area of the Region is conserved in private ownership: 178,246 acres of private lands have conservation easements and 41,872 acres are in private fee title ownership for conservation. While it is understood that much of the private land in the Region is managed in a manner that provides substantial habitat values, this indicator focuses on lands owned by the public or that are required to be managed for conservation purposes.

There is a large variance among Subregions in the percentage of land conserved. The Central Subregion has the lowest overall percentage of conserved land (47.2%), and the East Subregion the highest (98.3%). The North Central Subregion has the highest percent of private lands in conservation at 8.8%, and the South Central Subregion has the lowest percent of private lands conserved (0.5%). Public lands dominate above 3,000 and private lands dominate below. In the elevation band above 3,000 feet, about three-quarters of the land is in public management (74%) whereas about three-quarters (76.5%) of the land is in private ownership below 3,000 feet.

### **Wildlife Habitat**

The California Essential Habitat Connectivity Project's<sup>1</sup> analysis of large and small natural areas as well as the wildlife corridors connecting them was used to determine the location and acreage of the most suitable areas for fish and wildlife habitat. The large natural areas identified by the connectivity report are regions with the least amount of land conversion, residential housing impacts, and road impacts that are considered to provide the greatest amount of intact habitat for wildlife. There are 11.6 million acres (49%) of large, intact natural areas in the Sierra Nevada and the distribution of these large natural areas significantly increases with elevation within the Region.

Although 74% of the land between 3,000 and 6,000 is in public lands management, only 37% is identified as large, intact natural areas due to higher average road density than higher elevations.

The land below 3,000 feet on the west side of the Sierra has experienced the greatest degree of development, habitat conversion and fragmentation. Road density is highest below 3,000 feet and the population is greatest. The lower elevations have the smallest area of land in conservation and the grasslands, oak woodland, and wetland ecosystems here have experienced reductions in size and degradation of habitat quality.

### **Next Steps**

This report establishes a baseline for additional analysis over time. Information relative to each indicator will be available on the SNC Web site and will be updated periodically, providing an opportunity to observe trends over time. We may also identify new sources of data over time, which will provide an opportunity to enhance this original analysis.

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<sup>1</sup> Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

In addition to providing information relevant to the administration of the SNC's programs throughout the Sierra Nevada Region, we hope that this information will also be useful to others located in or working in the Region as they develop and implement their own projects and programs. In some instances more detailed data are available beyond what is provided in the report. The SNC will make this more detailed information available to others upon request.

**Recommendation**

**Staff recommends the Board approve this second System Indicators report after making any revisions resulting from its review.**

# System Indicators

## Land Conservation and Wildlife Habitat



Final Draft Report

11/1/2011

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## INTRODUCTION

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For purposes of this report, “land conserved” is defined as public lands, private lands with conservation easements, or private lands acquired in fee title for purposes of conservation. A significant portion of the Sierra Nevada region is conserved in some way, which may not be surprising given that the Sierra Nevada Region is a primary source of critical resources for the state. It is *the* major source of water for the State, providing 65% of California’s developed water supply and drinking water for 23 million Californians. The Sierra and its forests, agricultural lands and rangelands serve as habitat to 60% of California's animal and 50% of California's plant species, filtrate pollutants from the air and provide numerous economic and cultural benefits. While many private lands in the Region are managed in ways that protect and enhance these benefits, for purposes of this indicator only those private lands that have a conservation easement or are owned in fee title for conservation purposes are included.

In order to provide meaningful data and analysis on the environmental, economic, and social well-being of the Region, the Sierra Nevada Conservancy is undertaking a Sierra Nevada System Indicators Project, which encompasses the collection and analysis of nineteen indicators approved by the SNC Governing Board in March 2011. This report provides an overview of the acres of lands conserved in the Sierra Nevada and the status of natural areas in the Region. It is the second in a series of five reports that have or will cover: the Economy and Demographics; Water Quality, Air Quality, and Climate; Land Conservation and Habitat; Agriculture and Ranch Lands; and Forest Lands. All of the reports will be developed and presented to the Board by June 2012.

These reports establish a baseline for additional analysis over time. Information relative to each indicator will be available on the SNC Web site and will be updated periodically as the underlying data is updated, providing an opportunity to observe trends over time. We may also identify new sources of data over time, which will provide an opportunity to enhance this original analysis.

In addition to providing information relevant to the administration of the SNC’s programs throughout the Sierra Nevada region, we hope that this information will also be useful to others located in or working in the Region as they develop and implement their own projects and programs. If you would like more detailed information regarding any of the indicators, some additional detail will be available on the SNC Web site and further detail may be available by contacting the SNC at the address and phone number provided on the last page of this report.

### Challenges and Strategies

The acres of land conserved section is sourced from GreenInfo Network’s California Protected Areas Database, which is constantly being updated to provide information about the ownership, location and acreage of privately held areas in fee title for conservation and all publicly managed lands for multiple land uses in California. As the public lands figures include lands for multiple land uses including conservation, these data cannot be analyzed to determine conservation-only acres. Data regarding the total acreage of conservation easements is a challenge to secure as no one State agency maintains consistent and up-to-date records of conservation easements statewide. The analysis in this report is based on GIS data collected

from the GreenInfo Network on conservation easements throughout California. GreenInfo received these data from land trust organizations and government agencies within California. The data set from GreenInfo Network did not include easements held by the California Department of Fish and Game (DFG); DFG provided the acreage of easements for the portion of all twenty-two counties located within the Sierra Nevada region.

Measuring changes in wildlife habitat requires evaluating differences in plant communities using consistently mapped vegetation data over multiple time periods. Since these vegetation maps were not available over multiple time period for the entire Sierra, the Fish and Game and CalTrans California Essential Habitat Connectivity Project<sup>1</sup> were used to understand the location of small and large natural areas that provide plant communities and wildlife species populations with suitable habitat in the Sierra.

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<sup>1</sup> Spencer et al. 2010

## Report Highlights

The Sierra Nevada encompasses a rich diversity of plants and animals that inhabit many distinct ecoregions including the Northwestern Basin and Range, Modoc Plateau, Southern Cascades, Sierra Nevada Foothills, Sierra Nevada, Great Valley, Mojave Desert, Southeastern Great Basin, and Mono Sections. (See Appendix A, Map of Ecoregions in the SNC)<sup>2</sup>.

Each of these ecoregions contains a number of different life zones that transition from west to east upwards in

elevation and over the crest of the Sierra and southern Cascades into the eastern Sierra and Great Basin, and change from north to south due to temperature and precipitation differences. From west to east these life zones include foothill grasslands, oak savannahs and woodlands, chaparral, foothill woodland and conifer forests, low-level montane forests, upper montane forests, and alpine communities. In the northeast area of the SNC, high desert life zones such as shrub-steppe, grasslands, and woodlands are common in lower elevations while conifer forests dominate the upper elevations. In the southeast of the SNC, desert scrub is one of the dominant life zones. Forty-seven watersheds<sup>3</sup> are either partially or wholly within the SNC boundary and provide the Region with the water needed by fish, wildlife, and people to survive.

Each ecoregion of the Sierra varies significantly in the types of habitat and species supported as well as the acres of land protected. Likewise the level of risk for maintaining these benefits, as well as the specific threats, varies throughout the Region.

Here are some of the key findings from this report:

### Acres of Land Conserved

16.4 million acres (64% of the total land in the Region) are conserved within the Region<sup>4</sup> with nearly 16.2 million acres (63%) in public ownership and primarily managed by three federal agencies: the US Forest Service (64.3% of the public lands within the Region), US Bureau of Land Management (19.3%) and National Park Service (10.6%).



Juvenile black bear in a Sierra meadow

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<sup>2</sup> Barbour and Minnich 2000

<sup>3</sup> At the hydrologic scale

<sup>4</sup> California Protected Areas Database, GreenInfo Network, June 2010.

One percent of the area of the Region is conserved in private ownership: 178,246 acres of private lands have conservation easements and 41,872 acres are in private fee title ownership for conservation.

There is a large variance among subregions in the percentage of land conserved. The Central subregion has the lowest overall percentage of conserved land (47.2%), and the East subregion the highest (98.3%). The South Central subregion has the lowest percent of private lands conserved (0.5%), and the North Central sub region has the highest percent of private lands conserved (8.8%).

Public lands dominate above 3,000 and private lands dominate below. In the elevation band above 3,000 feet, about three-quarters of the land is in public management (74%) whereas about three-quarters (76.5%) of the land is in private ownership below 3,000 feet.

### **Change in Wildlife Habitat**

There are 11.6 million acres (49% of the total land in the Region) of large, intact natural areas in the Sierra Nevada and the distribution of these large natural areas significantly increases with elevation within the Region.

Although 74% of the land between 3,000 and 6,000 is in public lands management, only 37% is identified as large, intact natural areas due to higher average road density than higher elevations. Despite low population figures, the mid-elevations of the Sierra have a growing rural development pattern, which reduces overall available habitat and fragments habitat for many wildlife species.<sup>5</sup>

The land below 3,000 feet on the west side of the Sierra has experienced the greatest degree of development, habitat conversion and fragmentation<sup>6</sup>. Road density is highest below 3,000 feet and the population is greatest. The lower elevations have the smallest area of land in conservation and the grasslands, oak woodland, and wetland ecosystems here have experienced reductions in size and degradation of habitat quality.

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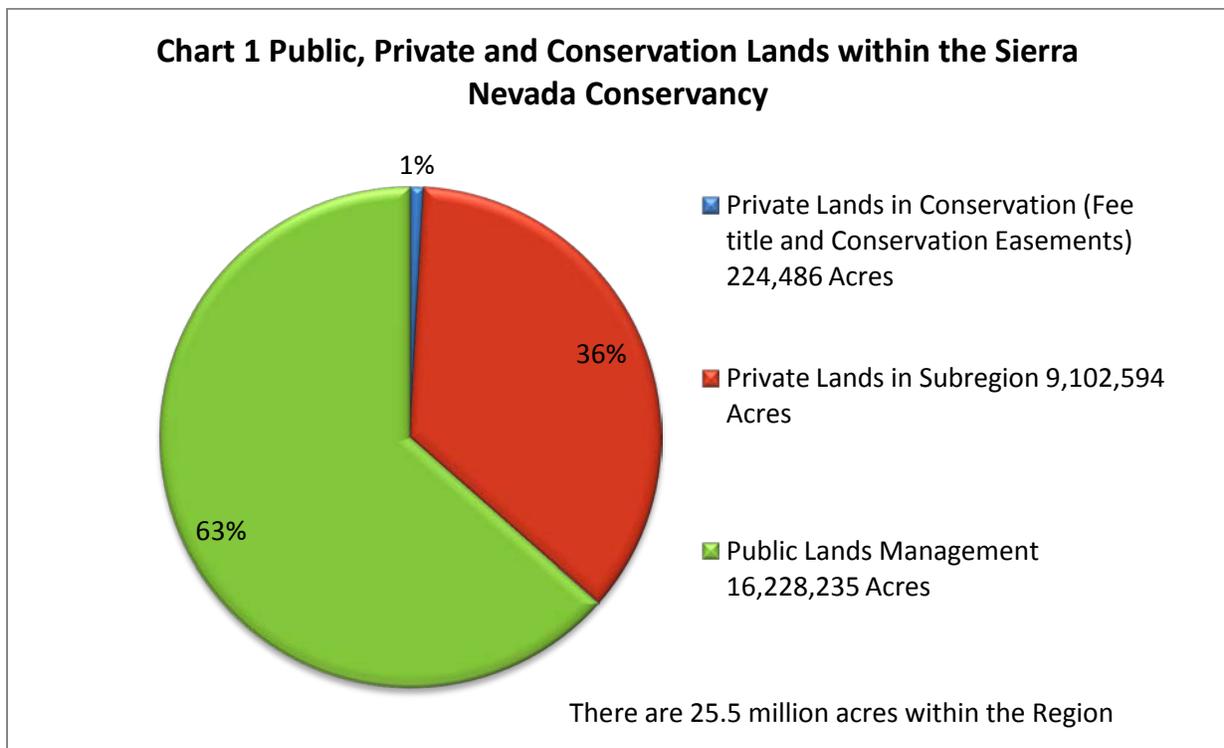
<sup>5</sup> Shilling and Givertz 2007, Laurance 2009, Terborgh 1974

<sup>6</sup> Sierra Nevada Ecosystem Project 1996

## Acres Of Lands Conserved

The acres of land conserved section includes public lands preserved for natural resource values, which may also be used for recreation, mineral extraction, grazing, and timber production. It also includes the the number of acres of private lands in conservation ownership (fee title) and conservation easement that are protected from future residential and commercial development. These lands have been set aside from development to protect natural resource and agricultural values and provide a number of environmental benefits including habitat for fish and wildlife species, greenhouse gas storage, and air and water filtration.

As shown in Chart 1, a total of 14.5 million acres of land are conserved within the Region or 56% of the total land area.<sup>7</sup> Sixty-three percent of the land area within the Region, or 16,228,235 acres, is primarily managed by three federal agencies: the US Forest Service (64.3% of the public lands within the Region), US Bureau of Land Management (19.3%) and National Park Service (10.6%) A total of 224,486 acres<sup>8,9</sup> are conserved in private ownership, which is one percent of the total land area of the Region. Of this amount, 182,614 acres of private lands have conservation easements that are managed by government agencies or nonprofit organizations. An additional 41,872 acres are in private fee title ownership for conservation.



<sup>7</sup> California Protected Areas Database, GreenInfo Network, June 2010.

<sup>8</sup> Lisa Ohara, GIS Analyst, Biogeographic Data Branch - Lands Program Department of Fish and Game, February, 2010 (32,792 acres).

<sup>9</sup> GreenInfo Network, February 2010.

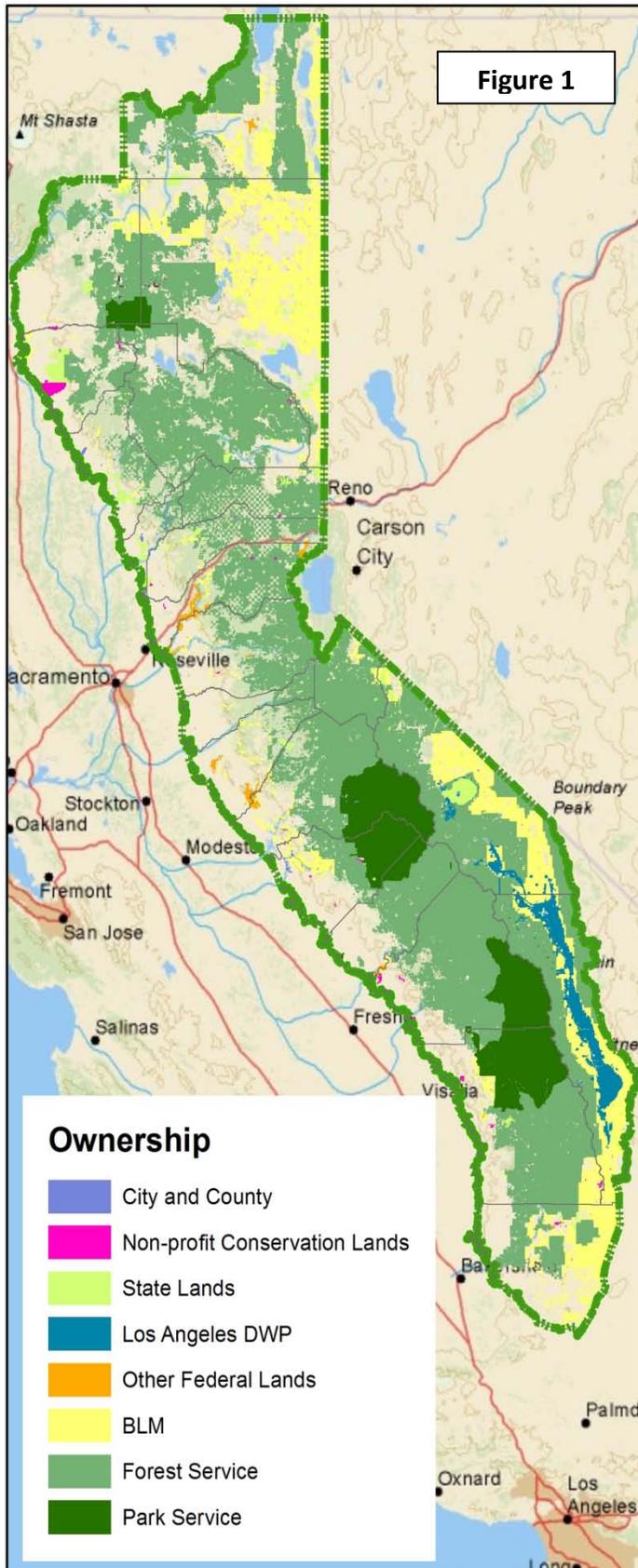
As shown in Table 1, the North Central subregion has the greatest percentage of private lands in conservation at 8.8% compared to the South Central subregion with 0.5% percent of the private lands in conservation. In the Central subregion, which has experienced the greatest conversion of land to development in the last thirty years, 1.6% of the private lands are conserved and 45.7% of lands are public, the lowest percentage of public lands among subregions. Compare that to the East subregion, which has by far the greatest percentage of public lands among the subregions with 94.2% or 3,598,991 acres. The East subregion also has the second highest percentage of private lands in conservation at 4.0% or 8,861 acres.

**Table 1 Acres of Land Conserved by Subregion and Ownership**

<b>Ownership Type</b>	<b>North Subregion</b>	<b>North Central Subregion</b>	<b>Central Subregion</b>	<b>South Central Subregion</b>	<b>East Subregion</b>	<b>South Subregion</b>
Private Lands in Conservation*	27,082	130,958	21,947	7,044	8,861	28,594
Percentage of Private Lands in Conservation	0.9%	8.8%	1.6%	0.5%	4.0%	1.6%
Other Private Lands	2,903,747	1,364,017	1,377,113	1,505,559	211,493	1,740,665
Public Lands	3,406,501	2,128,914	1,176,078	1,829,812	3,598,991	4,087,940
Percentage of Subregion in Public Ownership	53.8%	58.7%	45.7%	54.7%	94.2%	69.8%
<b>Total Acres</b>	<b>6,337,330</b>	<b>3,630,741</b>	<b>2,575,138</b>	<b>3,342,414</b>	<b>3,819,345</b>	<b>5,857,199</b>

\*Fee title and conservation easements

The majority of the public lands in the Sierra occupy the mid to upper elevations (see Figure 1.) In the elevation band above 3,000 feet, 74% or 15.1 million of the total 20.3 million acres is in public management. The lower elevation areas are dominated by private and tribal lands. Over 4 million of the 5.23 million acres (76.5%) of land in the elevation band below 3,000 feet in the SNC region is in private ownership. The majority of private conservation areas in this elevation band occur on the western side of the Sierra in the Sierra Nevada Foothills, since the bulk of land in the East Subregion is managed by public agencies.



The Sierra Nevada range has experienced a pattern of landscape change similar to many mountainous regions of the United States and the developed world. Development in the Sierra has been more widespread in the lower elevations of the Sierra closest to the productive farming environment and larger towns of the Central Valley.

Conservation easements are an important tool in preserving agricultural and ranching areas and the fish and wildlife habitat, air and water quality, economic, historical, and cultural benefits they provide to the Region and the State, especially where risk of development is greatest.

While not included under Acres of Land Conserved, another important tool in protecting ranches and agricultural lands in the Sierra Nevada is the Williamson Act, which provides an offset of property taxes for agricultural and ranch properties in exchange for ten or twenty year contracts to maintain livestock or agricultural production on the specified land. Appendix B addresses the current status of the Williamson Act in the Sierra Nevada with regards to land protection.

## Wildlife Habitat

This system indicator addresses the distribution and abundance of natural areas important to fish and wildlife species in the Sierra. The results of the California Essential Habitat Connectivity Project (Connectivity Project) conducted by CalTrans and the California Department of Fish and Game<sup>10</sup> were used to understand the location of small and large natural areas that provide plant communities and wildlife species populations with suitable habitat in the Sierra. The Connectivity Project analysis produced the most up-to-date statewide distribution and location of natural areas in California through a multi-agency, cooperative effort. The Connectivity Project used a GIS analysis to select large, intact natural areas greater than 2,000 acres and smaller natural areas less than 2,000 throughout California. The degree of land conversion, residential housing impacts, road impacts and status of forest structure (the level of canopy closure related to forests being departed from their normal fire return interval) were used to identify the large and small natural areas.

Large, intact natural areas were identified by the Connectivity Project as being the least developed and provide habitat for a variety of wildlife species including large predators such as mountain lions. Small natural areas are particularly important habitat for many smaller mammal species, birds, reptiles and amphibians. Large and small natural areas are surrounded by a matrix of land uses that can vary in the amount of wildlife habitat available and how permeable they are for wildlife to live in or move through. Areas not identified as large or small natural areas in the analysis include areas that are important to many wildlife species that are typically generalist species more adapted to the presence of humans such as the raccoon, coyote, wild turkey, mule deer, common raven and brown headed cowbirds.

The map of natural areas within the SNC boundary shows the distribution of large and small natural areas (Figure 2). In the entire 25 million acres within the Sierra Nevada, there are 11.6 million acres (49%) of large, intact natural areas. Not surprisingly based on the prior discussion of acres of land conserved, the distribution of these large natural areas significantly increases with elevation within the Region. In the elevation band below 3,000 feet, approximately 1.4 million out of a total of 5.3 million (26%) acres are identified as large natural areas (see Chart 2). Between 3,000 and 6,000 feet, there are about 4.3 million acres of large natural areas out of 11.7 million acres (37%). Above 6,000 feet, over 5.9 million of the 8.6 million total acres are large natural areas (69%). From Alpine County south to Kern County, the land above 6,000 feet is virtually a continuous, large natural area according to the Connectivity Project. This large natural area persists because 97% of the land above 6,000 feet is in public lands management, with a large majority in wilderness designation. The highest elevation areas of the Sierra are steep, rugged areas that are significantly less impacted by roads and development than lower elevation areas in the Region. Although high elevation areas represent the largest, most intact natural areas, the higher elevations typically provide habitat for fewer wildlife species and have less plant diversity and overall productivity.

A key factor in whether large intact natural areas exist is road density. Examining road density data for the Region provides insight to understand some of the results of the Connectivity

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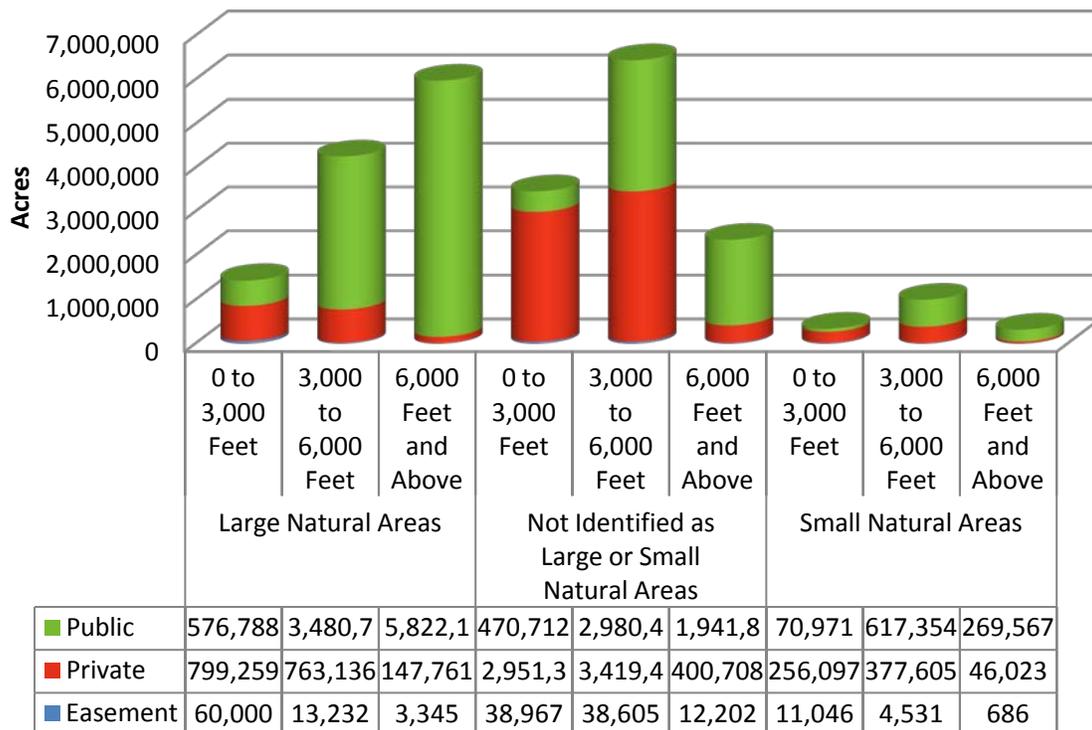
<sup>10</sup> Spencer et al. 2010

Figure 2: Map of large and small natural areas within the SNC



Project as it relates to large, intact natural areas. For example, although 74% of the land between 3,000 and 6,000 is in public lands management, only 37% is identified as large, intact natural areas as the majority of the region is traversed by roads. Although less than 200,000 people inhabit this part of the Sierra, this area has a higher average road density than higher elevations: 2.3 miles/square mile compared to 1.47 miles/square mile above 6,000 feet. The greater road density at this elevation band leads to increased habitat fragmentation, which is significant as the majority of the Sierra’s mixed conifer forest occurs within the 3,000 to 6,000 foot elevation band.<sup>11</sup> In the Sierra, forest fragmentation is exacerbated by the condition of the majority of mixed conifer forests, which are significantly departed from their normal fire return interval and impacted by forests pests and climate change.<sup>12</sup> Because of the higher road density, fragmentation, and departure from the normal fire return interval, the majority of lands at this elevation band are not identified as large, intact natural areas by the Connectivity Project analysis. This is particularly evident when viewing Figure 1 on the west side of the Sierra in the central and southern Sierra. Despite the low population figures overall, the mid-elevations of the Sierra have a growing rural development pattern, which reduces overall available habitat and fragments habitat for many wildlife species.<sup>13</sup> In addition, new development in the wildland-urban interface introduces a number of threats to wildlife persistence such as vehicular collisions, domesticated animals, disease transmission, and non-native species invasions that reduce available forage.

**Chart 2 Natural Areas by Ownership and Elevation**



<sup>11</sup> Barbour et al. 1991, Barbour and Minnich 2000

<sup>12</sup> North et al. 2009, Guarin and Taylor 2005, Beaty and Taylor 2007

<sup>13</sup> Shilling and Givertz 2007, Laurance 2009, Terborgh 1974

As shown in Chart 2 the 3,000 to 6,000 foot elevation band has the majority of small natural areas in the Sierra; small natural areas make up over 8% of the total land area or under 1 million acres. As discussed in the previous paragraph, this percentage of small natural areas is likely associated with greater fragmentation and departure from the normal fire return interval than compared with lands above 6,000 feet. Above 6,000 feet, small natural areas make up just over 3% of the total area or 316,000 acres. Below 3,000 feet, the areas not identified as small or large natural areas make up the majority of the area at 66% or over 3.4 million acres out of a total of over 5.2 million acres, as the land below 3,000 feet on the west side of the Sierra has experienced the greatest degree of development, habitat conversion and fragmentation<sup>14</sup>.

Overall, the grasslands, oak woodland, and wetland ecosystems have experienced reductions in size and degradation of habitat quality, and are at risk of continued ecosystem health declines due to temperature and precipitation fluctuations associated with climatic change. This elevation band will also be disproportionately affected by the loss of subvention payments for Williamson Act contracts to preserve agricultural and grazing lands, which support many wildlife species, as the majority of these contracts are located below 3,000 feet.

Appendix C summarizes research related to changes in distribution and abundance of fish and wildlife species that occurred in the Sierra over the last hundred years.

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<sup>14</sup> Sierra Nevada Ecosystem Project 1996

## Contact Information

For more detailed information on the individual Indicators or explanation of their development, please contact:

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## Citations

- Barbour, M. G. and R. A. Minnich. 2000. California upland forests and woodlands. In Barbour, M. G. and W. D. Billings, editors. (eds.). North American terrestrial vegetation. P 159–200. Cambridge University Press, Cambridge.
- Barbour, M., N. Berg, T Kittel, M Kunz. 1991. Snowpack and the Distribution of a Major Vegetation Ecotone in the Sierra Nevada of California. *Journal of Biogeography* 18(2): 141-149.
- Beatty, M. and A. Taylor. 2007. Fire Disturbance and Forest Structure in Old-growth Mixed Conifer Forests in the Northern Sierra Nevada, California. *Journal of Vegetation Science* 18(6): 879-890.
- Briggs, C., V. Vrendenburg, R. Knapp, and L. Rachowicz. 2005. Investigating the Population-level Effects of Chytridiomycosis: An Emerging Infectious Disease of Amphibians. *Ecology* 86(12): 3149-3159.
- Knapp, R. 2005. Effects of nonnative fish and habitat characteristics of lentic herpetofauna in Yosemite National Park, USA. *Biological Conservation* 121(2): 265-279.
- Knapp, R. and K. Matthews. 2001. Non-Native Fish Introductions and the Decline of the Mountain Yellow-legged Frog from the within Protected Areas. *Conservation Biology* 14(2): 428-438.
- Laurance, W. 2009. Beyond Island Biogeography Theory, Understanding Habitat Fragmentation in the Real World. The Theory of Island Biogeography Revisited. Editors: Josos, J. and R. Ricklefs. Princeton University Press. P. 494.
- Moritz, C. 2008. Final Report: A Re-survey of the Historic Grinnell-Storer Vertebrate Transect in Yosemite National Park, California. A report submitted to the Sierra Nevada Network Inventory and Monitoring Program, Sequoia and Kings Canyon National Parks by the Museum of Vertebrate Zoology, Berkeley, California.
- Moyle, P. and R. Nichols. 1973. Decline of the Native Fish Fauna of the Sierra Nevada Foothills, Central California. *American Midland Naturalist* 92(1): 72-83.
- Moyle, P. and P. Randall. 1998. Evaluating the Biotic Integrity of Watersheds in the Sierra Nevada, California. *Conservation Biology* 12(6): 1318-1326.
- North, M., M. Hurteau, and J. Innes. 2009. Fire suppression and fuels treatment effects on mixed-conifer carbon stocks and emissions. *Ecological Applications* 19:1385–1396.
- Perrine, J., C. Conroy, M. Tingley, C. Cicero, and R. Bowie. 2007. Lassen Transect Resurvey, 2007 Annual Report. Museum of Vertebrate Zoology-Grinnell Resurvey Project.

Shilling, F. and E. Givertz. 2007. Physical and financial barriers to implementing a nature reserve network in the Sierra Nevada, California. *Landscape and Urban Planning* 80(1-2): 165-172.

Siegel, R.B. and D.F. DeSante. 1999. Version 1.0. The draft avian conservation plan for the Sierra Nevada Bioregion: conservation priorities and strategies for safeguarding Sierra bird populations. Institute for Bird Populations report to California Partners in Flight.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Spinks, P., G. Pauly, J. Crayon, and B. Shaffer. 2003. Survival of the western pond turtle (*Emys marmorata*) in an urban California environment. *Biological Conservation* 113(2): 257-268.

Storer, T., R. Usinger, and D. Lukas. 2004. Sierra Nevada Natural History. University of California Press, Berkeley. P. 439.

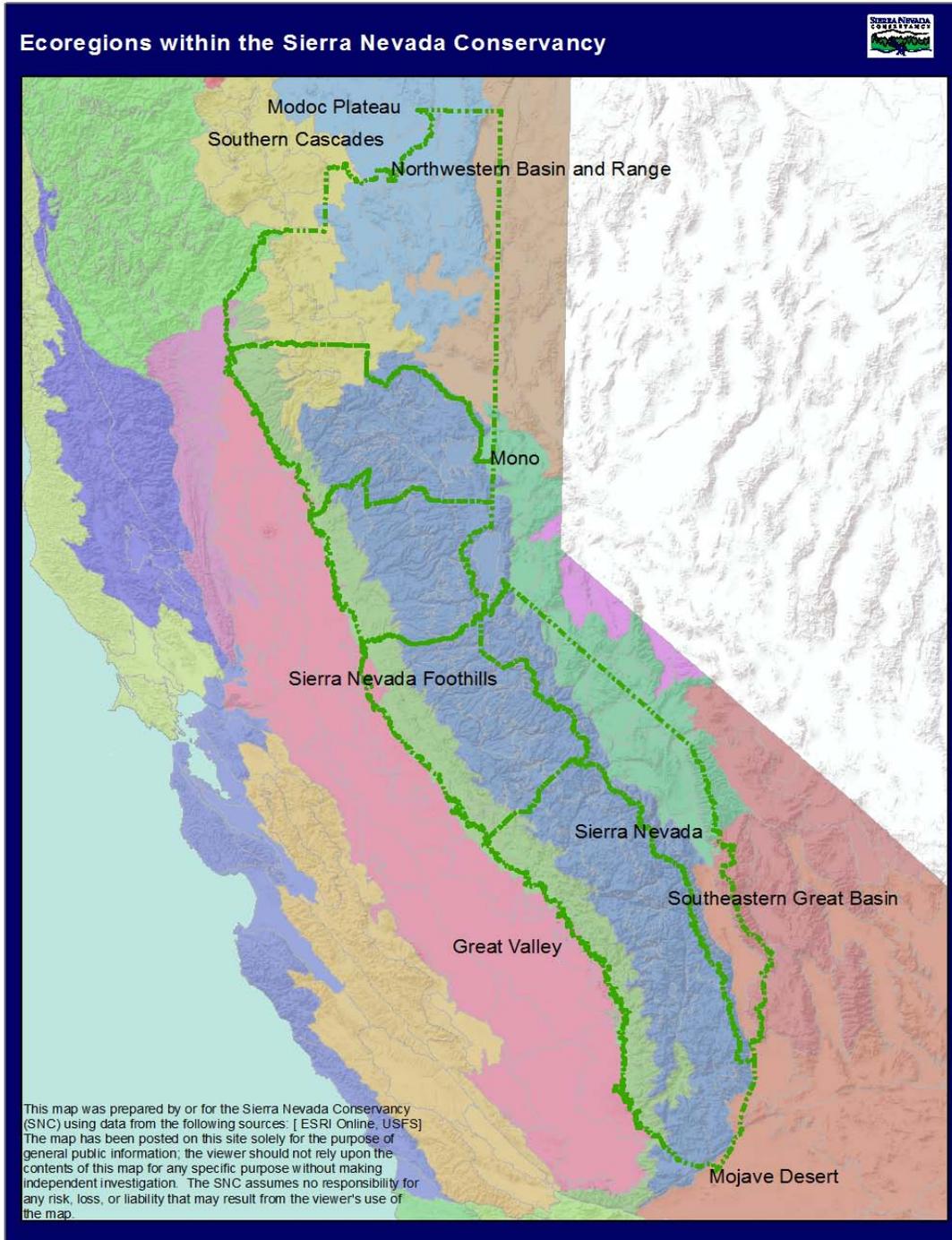
Terborgh, J. 1974. Preservation of Natural Diversity: The Problem of Extinction Prone Species. *BioScience* 24(12): 715-722.

University of California (System). Centers for Water and Wildland Resources. 1996. Sierra Nevada Ecosystem Project Final Report to Congress: Status of the Sierra Nevada (SNEP).

Villepique, J., B. Pierce, V. Bleich, and T. Bowyer. 2011. Diet of Cougars (*PUMA CONCOLOR*) Following a Decline in a Population of Mule Deer (*ODOCOILEUS HEMIONUS*): Lack of Evidence for Switching Prey. *The Southwestern Naturalist* 56(2):187-192.

Zielinski, W., R. Truex, F. Schlexer, L. Campbell, and C. Carroll. 2005. Historical and contemporary distributions of carnivores in forests of the Sierra Nevada, California. *Journal of Biogeography* (2005) 32: 1385-1407.

## Appendix A: Ecoregions of the Sierra Nevada



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<sup>15</sup> Cleland, D.T., Freeouf, J.A., Keys, J.E., Jr., Nowacki, G.J., Carpenter, C, McNab, W.H. 2007. Ecological Subregions: Sections and Subsections of the Conterminous United States [1:3,500,000] [CD-ROM]. Sloan, A.M., cartog. Gen. Tech. Report WO-76. Washington, DC: U.S. Department of Agriculture, Forest Service.

## Appendix B: Williamson Act & Land Protection

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Due to the State budget crisis, funding provided to counties to offset the loss of property tax revenues associated with the Williamson Act were eliminated state-wide in the 2009-2010 fiscal year.

As of the most recent Department of Conservation data, over 180,000 acres of agricultural land is in Williamson Act contracts (see Table 2) and more than 1.4 million acres of rangeland is in contracts in the 22 counties partially or wholly within the SNC region. With the loss of the State funding, however, some counties do not have the financial resources to support the Williamson Act contracts. As of September 2011, the County of Fresno voted to halt subvention payments to land owners in Williamson Act contracts in Fresno County, which affects private property owners managing 190,000 acres of land within the SNC portion of the County. In October 2010, UC Davis researchers published a policy brief detailing interviews with 700 ranchers in rangeland Williamson Act contracts throughout the State. Twenty-three percent of the respondents said that the loss of the Williamson Act would result in the ranchers ending their ranching enterprises. In 2009, 70% of the survey respondents made less than \$10,000, which makes ranching a vulnerable industry to the loss of an important conservation program that protects ranching, wildlife habitat and other environmental benefits.<sup>16</sup>

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<sup>16</sup> Myhe, S., I. Lacher, W. Wetzel, D. Manning, and D. Swezey. 2010. UC Davis Policy Brief: California Ranching Without the Williamson Act. <http://reach.ucdavis.edu/programs/williamsonact.html>

**Table 2 Acres of Land in Williamson Act Contracts**

<b>County</b>	<b>Williamson Act Prime Agricultural Acres</b>	<b>Williamson Act Non-prime (Rangeland) Acres</b>
Modoc County	41,003 WA, 8,607 in prime	76,654
Shasta County	86,790	127,252
Lassen County	14,472	282,488
Tehama County	3,567	227,142
Plumas County	4,544	68,756
Butte County	311	56,722
Sierra County	1,622	34,159
Yuba County	N/A	0
Nevada County	2,397 Ag Easement, 964 Mixed prime-non-prime, and 3,258 prime	0
Placer County	10799 mixed prime and non prime	2,185
El Dorado County	5,673	26,796
Alpine County	N/A	0
Amador County	324 prime acres, 14,657 mixed ag and rangeland	0
Calaveras County	4,565	N/A
Tuolumne County	12,541 unspecified	76,520
Mono County	13,165	118,974
Mariposa County	0	106,963
Madera County	27	205,492
Fresno County	3,850	168,012
Inyo County	N/A	186,646
Tulare County	8,190 prime, 680 HS, 62 HS non-renewal	367,975
Kern County	1,150 prime, 1,073 mixed prime/non-prime	312,917
<b>Totals</b>	<b>173,806 (includes some Non-prime/Rangeland acreage)</b>	<b>2,445,653</b>

## Appendix C: Detailed Discussion of Wildlife Status

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**Introduction**The natural history of the Sierra is intertwined with human history, the plants and animals of the Sierra Nevada's foothills, oak savannahs, woodlands, wetlands and conifer forests have been a vital food source and economic base of humans for thousands of years. Native Americans carefully managed the foothills and conifer forests for their resource needs through controlled burning for over 10,000 years.<sup>17</sup> Significant changes to the Sierra landscape and the plant and animal populations dependent on this region began to occur with the arrival of the Spanish missionaries in the mid 1500s. The missionaries brought annual grassland species from Mediterranean Europe that quickly colonized the coastal areas, central valley and Sierra foothills of California. These invasive grassland species are believed to have displaced an herbaceous plant cover that was dominated by wildflowers and blanketed the hills of the coast, central valley and Sierra foothills.<sup>18</sup> Many wildlife species that were dependent upon the native flora of the foothills likely declined following the invasion of the non-native, annual grasses.

Resource extraction in the Sierra grew exponentially in the mid 1800s with the initiation of the Gold Rush. Timber operations, trapping, mining, grazing, road and small community development were common in the Sierra, particularly intense on the western slope in the central Sierra, during the Gold Rush era until the 1920s.<sup>19</sup> Naturalists such as John Muir started documenting the presence of plants and animals in various parts of the Sierra Nevada in the 1860s, but these studies were not quantitative in nature. Quantitative records that describe the presence and distribution of vegetation communities and wildlife species prior to then do not exist.

The Sierra Nevada is home to over 570 species of fish and wildlife, and many of these species are endemic (native to the Sierra Nevada and southern Cascades)<sup>20</sup>. Understanding the current status of Sierra fish and wildlife species requires a look into the past to evaluate the many factors that have affected the Sierra environment. Comprehensive surveys of the vegetation communities<sup>21</sup> and wildlife presence<sup>22</sup> in the Sierra Nevada began in the 1910s after the Sierra environment had already been greatly modified by resource extraction, the introduction of non-native species, and development. Therefore, when comparing the changes to vegetation communities and wildlife habitat between historic and modern surveys, consideration must be given that the baseline natural conditions had already shifted significantly by the early twentieth century when the comprehensive surveys began. Since the historic surveys of the early twentieth century, wildlife and plant communities in the Sierra have been impacted by a set of stressors including: expansion of human development, particularly in the foothills; fire suppression in the conifer forests; the spread of invasive plant, pest and animal species; air pollution; stream diversions; and climate change.

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<sup>17</sup> Storer et al. 2004

<sup>18</sup> Minnich 2008

<sup>19</sup> Storer et al. 2004

<sup>20</sup> Bunn et al. 2007

<sup>21</sup> Comprehensive vegetation surveys of the Sierra were initiated in the 1920s by Albert Wieslander

<sup>22</sup> Joseph Grinnell and his team from the Museum of Vertebrate Biology, UC Berkeley

Evaluating the changes in fish and wildlife species habitat over the modern era is limited by a lack of Sierra-wide data for multiple time periods. Therefore, the historic and modern Grinnell surveys were analyzed for birds and mammals<sup>23</sup> in the Yosemite and Lassen areas as well as the 1999 Sierra-wide bird surveys by the Point Reyes Bird Observatory<sup>24</sup>. For fish, amphibians, and reptiles, peer reviewed, scientific journal articles were cited to document changes in species abundance and habitat. The ability of a population of a species to persist over multiple generations in response to habitat loss and fragmentation is dependent upon many factors including the extent of the habitat loss, fragmentation, and the life history of the species. Species with specialist life histories that are dependent on particular habitat types and distinct prey sources are often more sensitive to human presence<sup>25</sup> and are more susceptible to population size reductions<sup>26</sup> and extinction compared to colonizing and invasive species that are generalists.

Wildlife species that are more sensitive to human presence, intensive land uses, stream diversions, climate change, hunting and trapping and the stressors associated with them have experienced population declines in the Sierra<sup>27</sup>. Many species began disappearing from the Sierra in the 1800s and into the early 1900s and include the grizzly bear, wolverine, Sierra Nevada red fox, marten and fisher<sup>28</sup>. In the last century, a number of species such as the willow flycatcher, spotted owl, Stellar's jay, band tailed pigeon, dark-eyed junco, olive-sided flycatcher, the two species of mountain yellow-legged frog, foothill yellow-legged frog, red-legged frog, Cascade frog, and native salmon and trout fish species including Chinook salmon, steelhead, Pacific lamprey, rainbow trout (including golden trout) and cutthroat trout have significantly declined throughout the Sierra.<sup>29</sup>

### **Fish, Amphibians and Reptiles**

Significant declines in the abundance and distribution of native fish and amphibians in the Sierra are well documented<sup>30</sup>. These declines are a result of multiple factors, but the primary causes for many of these declines are aquatic habitat loss and fragmentation including stream channelization, diversions, and degradation of wetland habitats; and the introduction of non-native species that compete with or are predatory to native species.<sup>31</sup> Air pollution, specifically pesticide,<sup>32</sup> and mercury deposition<sup>33</sup> from past mining practices, along with disease outbreaks have exacerbated population declines. Scientists continue to monitor and explore the mechanisms responsible for the decline of many native, endemic species that are dependent upon freshwater habitats.

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<sup>23</sup> Moritz 2008, Perrine et al. 2007, and Zielinski et al. 2005

<sup>24</sup> Siegel and Desante 1999.

<sup>25</sup> Morrison et al. 2011

<sup>26</sup> Terborgh 1974, Laurance 2009.

<sup>27</sup> Zielinski 2005, Storer 2004, Laurance 2009

<sup>28</sup> Zielinski 2005

<sup>29</sup> Siegel and DeSante 1999, Knapp and Matthews 2001, Lawler et al. 1999, Moyle and Randall 1998

<sup>30</sup> Moyle and Nichols 1974, Moyle and Randall 1998, Knapp and Matthews 2001, and Briggs et al 2005

<sup>31</sup> SNEP 1996

<sup>32</sup> Davidson et al. 2007

<sup>33</sup> Sakai et al. 2010

Of the forty native fish in the Sierra, 19 species have stable populations (Table 1).<sup>34</sup> The remaining 21 species are either federal or state listed species (endangered or threatened) and/or the species are identified by various conservation and fish and wildlife agencies or organizations as species of concern. Anadromous species (e.g. salmon) that move from the ocean to mountain streams to reproduce have suffered significant declines in population size as well as endemic fish species of the Sierra such as the Little Kern golden trout, the Lahontan cutthroat trout and the Paiute cutthroat trout. Native fish of the foothill streams have also declined.



All of the native “true frogs” or Ranid frogs in the Sierra have declined significantly (Table 2).<sup>35</sup> The over 90% population declines of both species of the mountain yellow-legged frog in the Sierra were primarily associated with predation by stocked, non-native trout in previously fishless high elevation lakes followed by a further reduction in population sizes by the Chytridiomycosis fungal infection.<sup>36</sup> The Yosemite toad is an endemic high elevation species of the Sierra with a narrow range whose

population numbers have declined up to 50% since the 1970s; scientists are trying to better understand the factors involved in the declines.

The Sierra is home to a number of rare, endemic salamander species that are vulnerable to extinction if significant habitat loss and fragmentation occur in the foothills. Two reptile species have also declined in the Sierra. The mountain garter snake numbers dwindled due to the decline of its main prey source, mountain yellow-legged frogs.<sup>37</sup> Western pond turtles have been in decline due to the loss and degradation of upland habitat<sup>38</sup> and mortality from vehicle collisions as turtles move between aquatic habitats and upland areas.

Native aquatic species have faced significant declines in abundance and range throughout the Sierra, so much so that Viers and Rheinheimer (2009) called for the development of freshwater conservation planning in the Sierra that includes climate change forecasts on a watershed catchment scale. Table 1 provides a summary of the status of native fish species in the Sierra Nevada (SNEP 1996, CNDDDB 2011, and IUCN 2011). Table 2 lists the status of amphibians and reptiles in decline throughout the Sierra.

<sup>34</sup> California Natural Diversity Database, January 2011. International Union for Conservation of Nature Red List of Threatened Species, 2011,

<sup>35</sup> Knapp and Matthews 2001, Briggs et al 2005

<sup>36</sup> Knapp and Matthews 2001, Briggs et al 2005

<sup>37</sup> Knapp 2005

<sup>38</sup> Spinks et al, 2003, Jennings and Hayes 1994

**Table 1 Declining/Special Status Native Fish of the Sierra Nevada**

<b>Common Name</b>	<b>Drainage</b>	<b>Habitat</b>	<b>CNDDDB Status, January 2011*</b>	<b>IUCN**</b>
Kern brook lamprey ( <i>Lampetra hubbsia</i> )	Sacramento–San Joaquin	Lowlands	AFS:TH DFG:SSC	Near threatened
Pacific lamprey ( <i>Lampetra tridentata</i> )	Sacramento–San Joaquin Anadromous	Anadromous, foothills, lowlands	AFS:VU	No status
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )-Spring run	Sacramento–San Joaquin	Anadromous, foothills, lowlands	Federal Threatened, State Threatened, AFS:TH	No status
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )-Winter run	Sacramento–San Joaquin	Anadromous, foothills, lowlands	Federal Endangered, State Endangered, AFS:EN	No status
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )-Fall run	Sacramento–San Joaquin	Anadromous, lowlands	AFS:VU DFG:SSC NMFS:SC	No status
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )-Late fall run	Sacramento–San Joaquin	Anadromous, foothills, lowlands	AFS:VU DFG:SSC NMFS:SC	No status
Rainbow trout ( <i>Oncorhynchus mykiss irideus</i> )-Winter steelhead	Sacramento–San Joaquin Foothills	Anadromous, foothills, lowlands	Federal Threatened, AFS:TH	No status
Rainbow trout ( <i>Oncorhynchus mykiss aguilarum</i> ) Eagle Lake rainbow trout	Eagle Lake	Foothills, high elevations	AFS:TH DFG:SSC USFS:S	No status
Rainbow trout ( <i>Oncorhynchus mykiss gilbertia</i> ) Kern River rainbow trout	Sacramento–San Joaquin	High elevations	AFS:TH DFG:SSC	No status
Rainbow trout ( <i>Oncorhynchus mykiss whitei</i> ) Little Kern golden trout	Sacramento–San Joaquin	High elevations	Federal Threatened, AFS:EN	No status

Rainbow trout ( <i>Oncorhynchus mykiss aquabonita</i> ) California golden trout	Sacramento–San Joaquin	High elevations	AFS:TH DFG:SSC	No status
Cutthroat trout ( <i>Oncorhynchus clarki henshawi</i> ) Lahontan cutthroat trout	Lahontan	Foothills, high elevations	Federal Threatened; AFS:TH	No status
Cutthroat trout ( <i>Oncorhynchus clarki selenerisa</i> ) Paiute cutthroat trout	Lahontan	High elevations	Federal Threatened, AFS:EN	No status
Tui chub ( <i>Siphateles bicolor pectinifer</i> ) Lahontan lake tui chub	Lahontan	Lowlands, foothills, high elevations	DFG:SSC USFS:S	No status
Tui chub ( <i>Siphateles bicolor snyderia</i> ) Owens tui chub	Owens River	Lowlands, foothills	Federal Endangered, State Endangered, AFS:EN	No status
Tui chub ( <i>Siphateles bicolor ssp.</i> ) Eagle Lake tui chub	Eagle Lake	Foothills	DFG:SSC	No status
Sacramento hitch ( <i>Lavinia exilicauda exilicauda</i> )	Sacramento–San Joaquin Lowlands	Lowlands, foothills	No status	No status
California roach ( <i>Lavinia symmetricus ssp.</i> ) San Joaquin roach	Sacramento–San Joaquin Foothills	Foothills	DFG:SSC	No status
California roach ( <i>Lavinia symmetricus ssp.</i> ) Red Hills roach ( <i>Lavinia symmetricus</i> )	Sacramento–San Joaquin Foothills	Foothills	AFS:VU BLM:S DFG:SSC	No status
Hardhead ( <i>Mylopharodon conocephalus</i> )	Sacramento–San Joaquin	Lowlands, foothills	DFG:SSC USFS:S	No status
Speckled dace ( <i>Rhinichthys osculus ssp.</i> ) Owens speckled dace	Owens River	Lowlands	AFS:TH DFG:SSC	No status

Owens pupfish ( <i>Cyprinodon radiosusa</i> )	Owens River	Lowlands	Federal endangered, State Endangered, AFS:EN, DFG:FP	Endangered
*Please see <a href="http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf">http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf</a> for description of species status				
**International Union for the Conservation of Nature: Red List of Threatened Species				

**Table 2 Declining Species of Concern of Native Amphibians and Reptiles in the Sierra Nevada**

Common Name	Habitat	Threats	CNDDB Status, January 2011*	IUCN**
Foothill yellow-legged frog ( <i>Rana boylei</i> )	Pool and riffle complexes in streams, with shallow, slow moving water for breeding. Foothill species.	Stream diversions (Habitat fragmentation), non-native predatory species.	BLM:S DFG:SSC USFS:S	Near Threatened
Cascades frog ( <i>Rana cascadae</i> )	Open wetlands such as meadows, ephemeral and permanent ponds at high elevations. May be found along streams in lower elevations. Mt Lassen area species.	Habitat conversion. See Fellers and Drost (1993)	DFG:SSC USFS:S	Near Threatened
California red-legged frog ( <i>Rana draytonii</i> )	Ephemeral and permanent ponds and wetland habitats with still water. Central Valley and Foothill species.	Stream diversions (Habitat fragmentation), non-native predatory species. See Jennings and Hayes (1985).	Federal Threatened, DFG:SSC	Vulnerable to Extinction
Southern mountain yellow-legged frog ( <i>Rana muscosa</i> )	High elevation ponds, lakes, meadows, springs, and streams. High elevation species found in South Central and South Subregions.	Introduction of non-native fish in fishless habitat, Chytrid disease, pesticide exposure.	Federal Endangered, State Candidate Endangered, DFG:SSC, USFS:S	Endangered

Sierra Nevada yellow-legged frog ( <i>Rana sierrae</i> )	High elevation ponds, lakes, meadows, springs, and streams. High elevation species found in North Central Subregion south to the South Subregion.	Introduction of non-native fish in fishless habitat, Chytrid disease, pesticide exposure.	Federal Endangered, State Candidate Endangered, DFG:SSC, USFS:S	Endangered
Yosemite toad ( <i>Bufo canorus</i> )	Wet meadows species in high elevations > 4,800'	Increase in predators such as common raven, pesticide exposure, other factors unknown.	Federal Candidate, DFG:SSC	Endangered
California tiger salamander ( <i>Ambystoma californiense</i> )	Vernal pools and surrounding habitat in foothills < 3,000 ft.	Habitat loss and fragmentation in the foothills.	Federal Threatened, State Threatened, DFG:SSC	Vulnerable to Extinction
Sierra newt ( <i>Taricha torosa sierrae</i> )	Rivers and streams with pool, rift complexes. Foothill to Mid Elevation Species	Population size unknown	DFG:SSC	No Status
Sequoia slender salamander ( <i>Batrachoseps kawia</i> )	Deciduous woodlands of the Kaweah watershed.	Small population sizes and small range.	No Status	Definitely Declining
Inyo Mountain Slender Salamander ( <i>Batrachoseps campi</i> )	Riparian areas within the arid mountains of Inyo County.	Loss of desert riparian habitat, stream diversions, mining	BLM:S DFG:SSC USFS:S	Endangered
Hell Hollow slender salamander ( <i>Batrachoseps diabolicus</i> )	North facing riparian zones in chaparral and pine-oak woodland. Mariposa County.	Small population sizes, susceptible to population decline.	No Status	Definitely Declining
Gregarious slender salamander ( <i>Batrachoseps gregarious</i> )	Low to mid elevation species that inhabits oak woodlands of the South Subregion.	Habitat conversion could pose future decline.	No Status	Least Concern

Kings River slender salamander ( <i>Batrachoseps regius</i> )	Leaf litter and talus in foothill habitats in the Kings River and Kaweah Watersheds in Fresno and Tulare Counties.	Vulnerable to habitat alteration due to extremely small range. And, environmental contaminants at higher elevations.	No Status	Vulnerable to Extinction
Upper Kern slender salamander (proposed <i>Batrachoseps</i> ssp. Of Kern Plateau slender salamander)	North facing riparian zones in chaparral and pine-oak woodland. Kern County. Foothill species. Kern County	Development of water storage facilities could pose future threat to habitat.	State Threatened, USFS:S	Vulnerable to Extinction
Kern Canyon slender salamander ( <i>Batrachoseps simatus</i> )	North facing riparian zones in chaparral and pine-oak woodland. Kern County. Foothill species. Kern County	Development of water storage facilities could pose future threat to habitat.	State Threatened, USFS:S	Vulnerable to Extinction
Kern Plateau slender salamander ( <i>Batrachoseps robustus</i> )	Inhabits moist forest floor areas close to water, endemic to the Kern Plateau. Kern County	Vulnerable to habitat alteration due to extremely small range.	USFS:S	Near Threatened
Relictual slender salamander ( <i>Batrachoseps relictus</i> )	Within Kern Canyon, prefers seeps and springs within forested areas above 1,000 ft. Kern County.	Believed to be extirpated in the lower Kern River Canyon.	DFG:SSC	Definitely Declining
Limestone salamander ( <i>Hydromantes brunus</i> )	Limestone crevices, talus, and abandoned mines. Endemic to the Merced Watershed, Mariposa County.	Small range.	State Threatened, DFG:FP	Vulnerable to Extinction
Yellow-blotched salamander ( <i>Ensatina eschscholtzii croceater</i> )	Moist evergreen and deciduous forests with coarse woody debris near riparian areas. Kern County, Tehachapi Mountains.	Population size unknown	BLM:S DFG:SSC USFS:S	No Status

Large-blotched salamander ( <i>Ensatina eschscholtzii klauberi</i> )	Moist evergreen and deciduous forests with coarse woody debris. Species present in mid elevations of western slope of the Sierra.	Population size unknown	DFG:SSC USFS:S	No Status
Mount Lyell salamander ( <i>Hydromantes platycephalus</i> )	Granite talus with water seeping through in mid to higher elevations in central and southern Sierra.	Population size unknown	DFG:SSC	Least Concern
Owens valley web-toed salamander ( <i>Hydromantes platycephalus ssp.</i> )	Granite talus with water seeping through in eastern Sierra.	Population size unknown	DFG:SSC	No Status
Sierra night lizard ( <i>Xantusia sierrae</i> )	Rocky outcrops around granite station in oak woodlands and chaparral in Kern County.	Habitat conversion could pose future decline.	DFG:SSC USFS:S	No Status
Panamint alligator lizard ( <i>Elegaria panamintina</i> )	Riparian areas in rocky talus areas of Inyo county.	Limited habitat may be impacted by mining, livestock grazing, and off-road vehicle use.	BLM:S DFG:SSC USFS:S	Vulnerable to Extinction
Southern rubber boa ( <i>Charian umbratica</i> )	Interior live oak and mixed conifer forests between 5,000 to 8,000 feet.	Habitat conversion could pose future decline.	State Threatened, USFS:S	No Status
Western pond turtle ( <i>Actinemys marmorata</i> )	Streams and adjacent habitat in foothill region throughout Sierra.	Habitat fragmentation, degradation, non-native predator species, and pesticide impacts.	BLM:S DFG:SSC USFS:S	Vulnerable to Extinction

\*Please see <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf> for description of species status.

\*\*International Union for the Conservation of Nature: Red List of Threatened Species.

## Grinnell Historic and Modern Resurveys in the Sierra for Birds and Mammals

In 1908, Joseph Grinnell and his students at the University of California, Berkeley began wildlife surveys in California, including a cross section of the central Sierra from the floor of Yosemite Valley eastward over the crest of the Sierra and into the Great Basin near Mono Lake that covered 1,547 square miles an area near. Another survey was conducted in the Mt. Lassen area, a 3,125 square mile area that extended from the Sacramento River to the Nevada border. In 2003, scientists initiated the Grinnell re-surveys.

These resurveys have provided valuable data to measure the differences in bird and mammal presence and habitat use over a century. Table 3 shows the significant increasing or decreasing trends of birds in the Yosemite transect, across elevations, between the historic and modern surveys and also provides the recorded recent trends in population size changes as recorded in the 1999 Sierra-wide bird assessment<sup>39</sup>, which was conducted by the Point Reyes Bird Observatory using multiple years of Monitoring Avian Productivity and Survivorship (MAPS) data to evaluate changes in species abundance. Table 4 provides the significant increasing or decreasing trends of birds in the Lassen transect compared with the Yosemite surveys at Low, Mid and High Elevations and the Sierra-wide bird surveys.<sup>40</sup>

The Grinnell animal resurveys along the Lassen and Yosemite transects found patterns of bird and mammal migration to upper elevations in response to climate change<sup>41</sup> as well as other factors such as habitat loss, habitat fragmentation and predation. The pattern of species change observed in the historic versus the modern wildlife surveys indicates that specialist bird and mammal species are becoming less frequently detected than generalist species who are more accustomed to human presence.<sup>42</sup>

### Birds

Bird species have very mixed patterns of increases and decreases in the Sierra over time. Many bird species in the Sierra are migratory, and factors affecting their increase or decrease are tied to their wintering habitat that is outside of the Sierra. In the Region, modern surveys have shown there are 9 bird species definitely declining, three species that are definitely increasing, and 170 birds that show trends on the decline or increase (Table 3).<sup>43</sup> Of the species definitely decreasing, several species are sensitive to land use changes and the associated stressors that accompany these changes such as being parasitized by the brown headed cowbirds and predation by species associated with human presence such as cats, dogs, and raccoons.<sup>44</sup> Two species that definitely declined throughout the Sierra showed local increases within the Yosemite area such as the Stellar's jay and the American robin; therefore, local changes in species abundance may be very different from what happens within the Region overall.

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<sup>39</sup> Siegel and DeSante 1999

<sup>40</sup> Siegel and DeSante 1999

<sup>41</sup> Moritz 2008, Perrine et al. 2007, and Zielinski et al. 2005

<sup>42</sup> Zielinski et al. 2005, Moritz 2008

<sup>43</sup> Siegel and DeSante 1999

<sup>44</sup> Gates and Gysel 1979, Wilcove et al. 1986, and Askins 1995

The comparison of historic to the modern surveys of birds in the Yosemite area found that the highest elevation sites experienced the greatest increase in the number of species. These results would suggest that the large, intact natural areas above 6,000 feet are becoming refuges for species migrating to higher elevations in response to climate change. However, the change in species abundance and range (the geographic area that a species occupies) paints a more complicated picture. On average, 46% of the species observed per site were present in both the historic and modern surveys.<sup>45</sup> Low elevation sites experienced significant increases in species abundance while high elevation sites typically displayed a decrease in species abundance, even though these areas saw an overall increase in the numbers of species. Changes in species abundance were associated with specific habitat types. Overall, species abundance increases were observed in riparian (vegetation communities found along stream and river corridors). In conifer habitats, site specific increases and decreases were observed, and the decreases may be attributable to a lack of fire, particularly in conifers with drought tolerant shrubs. In conifer only habitats, increases in species abundance were observed.

Table 3 provides the change in population trends between the historic and modern Grinnell surveys for Yosemite and the Sierra-wide population trends for over a hundred bird species, and Table 4 in Appendix A details the trends in the Lassen area with the Yosemite and the Sierra-wide survey. One of the striking patterns of change is in land bird (non-aquatic) species<sup>46</sup> in the Sierra that inhabit the foothills and mid-elevation areas, many of these species have shown significant declines in both the Sierra wide survey as well as the Yosemite area (with the exception of the Stellar's jay and American robin). Several of these species are resident birds, and a few are migratory (Tables 3 & 4). Table 3 also identifies three birds that have greatly increased in the Sierra; two of the three species are highly correlated with human presence.

The Sierra-wide bird survey<sup>47</sup> assessed the status of 147 species, and 42 of these birds identified are likely declining for multiple reasons: habitat loss, degradation and fragmentation; parasitism by the Brown-headed cowbird; predation by animal species such as dogs, cats and raccoons found near human habitation; competition from non-native species, a decline in their prey base, and climate change<sup>48</sup> The factors responsible with the declines of many bird species are detailed in Tables 3 & 4.

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<sup>45</sup> Moritz 2008

<sup>46</sup> Perrine et al. 2007

<sup>47</sup> Siegel and DeSante 1999

<sup>48</sup> Siegel and DeSante 1999

**Table 3 Significant Increases and Decreases in Bird Species in the Sierra and within the Yosemite transect at Lower, Middle and High Elevations**

SPECIES	Low	Mid	High	IUCN Status*	CNDDDB Special Animals*	Population Trend in Sierra (Siegel and DeSante 1999)	Notes
American robin ( <i>Turdus migratorius</i> )	IS	DSYL	IS	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO	Resident species. Requires moist, tree-margined meadows, pastures, or lawns. The reason for the decline throughout the Sierra is not known.
Band-tailed pigeon ( <i>Columba fasciata</i> )	IS	DSYL	I	Least Concern	No status	Populations declining significantly throughout the Sierra-PRBO	Resident species. Winter food supply (primarily acorns) may be declining.
Dark-eyed junco ( <i>Junco hyemalis</i> )	DS	ISYL	DS	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO	Resident species. A forest floor species that may be affected by brown-headed cowbird parasitism, but the parasitism rate is unknown. Ground nester. Adult survivorship appears to be low, may not survive well in higher elevations with colder temperatures.
Lesser goldfinch ( <i>Carduelis psaltria</i> )	IS	DSYL	NT	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO	Migratory species. This species is dependent upon oak woodland and is a highly adaptable foothill species. The declines may be due to the Brown Headed Cowbird as well as a loss of habitat in the Sierra and in the winter habitat.

Mountain chickadee ( <i>Parus gambeli</i> )	ND	ND	ND	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO.	Resident species. Found in all conifer species except foothill pines on the west slope; somewhat less common in pinyon and juniper pines. Cavity nester. The decline is thought to be associated with the removal of large snags and a reduction in large conifers.
Olive-sided flycatcher ( <i>Contopus borealis</i> )	D	I	DS	Near Threatened	ABC:WLB CC DFG:SSC IUCN:NT USFWS:B CC	Definitely decreasing throughout the Sierra-PRBO.	Migratory species. The preferred habitat is forest edges and burned forests, found along openings such as meadows and ponds. Prefers very tall conifers. It's winter range in central and South America is being converted.
Stellar's jay ( <i>Cyanocitta stelleri</i> )	IS	ISYL	IS	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO.	Resident species. Like other resident Sierra foothill species such as Mountain Chickadee and Acorn Woodpecker, this species is also showing a decline. It is dependent on acorn and pine nuts in the winter.
Western wood-pewee ( <i>Contopus sordidulus</i> )	DS	NT	DS	Least Concern	No status	Definitely decreasing throughout the Sierra-PRBO.	Migratory species. Declining throughout the range; is sensitive to destruction of tropical forest wintering grounds.

Willow flycatcher ( <i>Empidonax traillii</i> )	DS	DSYL	ND	Least Concern	State Endangered, ABC:WLB CC IUCN:LC USFS:S USFWS:BBC	Definitely decreasing throughout the Sierra-PRBO.	Migratory species. Parasitized by brown-headed cowbird, larval fly and other predators associated with human presence. Population sizes have declined in California. Population decline in the Sierra is implicated with decline of meadow thickets associated with grazing in meadows, which provides opportunities for predation.
<u>Increasing Species</u>							
Common raven ( <i>Corvus corax</i> )	IS	ISYL	I	Least Concern	No status	Increasing tendency throughout the Sierra-PRBO	Widespread in the Sierra, prefers areas of human habitation and activity.
European starling ( <i>Sturnus vulgaris</i> )	IS	ND	ND	Least Concern	No status	Increasing tendency throughout the Sierra-PRBO	Invasive
Song sparrow ( <i>Melospiza melodia</i> )	IS	ISYS	IS	Least Concern	No status	Increasing tendency throughout the Sierra-PRBO	Found in many open habitats. Can be parasitized by BHC. PRBO Sierra Species Accounts: Increasing significantly along the western Slope of the Sierra. Should be monitored although the population appears stable. Has declined in the Central Valley, may be displacing Lincoln's sparrow. Prefers riparian habitats.

\*Please see <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf> for description of species status\*\*International Union for the Conservation of Nature: Red List of Threatened Species  
KEY: IS-Increase Significant, DS-Declining Significantly, ISYV-Increase Significant Yosemite Valley, DSYV Decrease Significant Yosemite Valley, I-Increase, D-Decrease, ND-Not Detected, and NT-No Trend

**Table 4 Lassen Bird Species Present in Historic surveys and absent in Modern Surveys compared with the Yosemite surveys at Low, Mid and High Elevations and Sierra-wide bird surveys by Point Reyes Bird Observatory.**

<b>SPECIES</b>	<b>Low</b>	<b>Mid</b>	<b>High</b>	<b>IUCN Status*</b>	<b>CNDDDB Special Animals**</b>	<b>Population Trend in Sierra (Siegel and DeSante 1999)</b>
Bell's vireo ( <i>Vireo bellii</i> )	DS	ND	ND	Near Threatened	No status	Not included in the PRBO survey data.
Burrowing owl ( <i>Speotyto cunicularia</i> )	D	ND	ND	Least Concern	BLM:S DFG:SSC IUCN:LC USFWS:BCC	Not included in the PRBO survey data.
Golden-crowned sparrow ( <i>Zonotrichia atricapilla</i> )	I	ND	ND	Least Concern	No status	Not included in the PRBO survey data.
Great horned owl ( <i>Bubo virginianus</i> )	ND	ND	ND	Least Concern	No status	Population trends unknown throughout the Sierra-Monitoring needed-PRBO
Least sandpiper ( <i>Calidris minutilla</i> )	ND	ND	ND	Least Concern	No status	Not included in the PRBO survey data.
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	DS	ND	ND	Least Concern	DFG:SSC IUCN:LC USFWS:BCC	Population trends unknown throughout the Sierra-Monitoring needed-PRBO
Ruby-crowned kinglet ( <i>Regulus calendula</i> )	ND	ND	ND	Least Concern	No status	Decreasing trend throughout Sierra-PRBO
Sage sparrow ( <i>Amphispiza belli</i> )	IS	ND	ND	Least Concern	No status	Population trends unknown throughout the Sierra-Monitoring needed-PRBO
Solitary sandpiper ( <i>Tringa solitaria</i> )	ND	ND	ND	Least Concern	No status	Not included in the PRBO survey data.
Spotted owl ( <i>Strix occidentalis</i> )	ND	ND	ND	Near Threatened	USFWS: Candidate Threatened; DFG:SSC	Populations under study.

Swainson's thrush ( <i>Cartharus ustulatus</i> )	DS	DSYL	ND	Least Concern	No status	Decreasing trend throughout Sierra-PRBO
Swainson's hawk ( <i>Buteo swainsoni</i> )	D	ND	ND	Least Concern	State Threatened	Population trends unknown throughout the Sierra-Monitoring needed-PRBO
Virginia rail ( <i>Rallus limicola</i> )	I	ND	ND	Least Concern	No status	Not included in the PRBO survey data.
Western screech owl ( <i>Otus kennicottii</i> )	ND	ND	ND	Least Concern	No status	Population trends unknown throughout the Sierra-Monitoring needed-PRBO
White-crowned sparrow ( <i>Zonotrichia leucophrys</i> )	DS	ND	DS	Least Concern	No status	Decreasing trend throughout Sierra-PRBO
White-throated swift ( <i>Aeronautes saxatalis</i> )	DS	ISYL	I	Least Concern	No status	Decreasing trend throughout Sierra-PRBO

\*Please see <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf> for description of species status

\*\*International Union for the Conservation of Nature: Red List of Threatened Species

KEY: IS-Increase Significant, DS-Declining Significantly, ISYV-Increase Significant Yosemite Valley, DSYV Decrease Significant Yosemite Valley, I-Increase, D-Decrease, ND-Not Detected, and NT-No Trend

The decline of many bird species is related to multiple factors, many of which are correlated and additive. The Brown-headed cowbird dramatically increased in the Sierra in the last century as it is associated with livestock and horse corrals, which became more widespread in the Sierra in the last century<sup>49</sup>. Non-native species such as the European starling dramatically increased in population in the Sierra between the historic and modern surveys,<sup>50</sup> and they compete for resources with many resident and migratory birds of the Sierra.

The factors responsible for bird declines are numerous and highly variable. Some species have declined due to consuming poisons associated with farming and rangeland areas (e.g. Brewer's blackbird); eating lead shot (e.g. Mourning dove); or because their prey based declined (e.g. White tailed kite, White-throated swift, and Barn owl). Others have declined due to the fragmentation of their habitat and nesting areas and because of human presence such as the Northern Goshawk.<sup>51</sup> Owls are particularly susceptible to higher mortality due to vehicle

<sup>49</sup> Moritz 2008

<sup>50</sup> Moritz 2008, Siegel and DeSante 1999

<sup>51</sup> Morrison et al 2008

collisions.<sup>52</sup> Changes in precipitation and temperature will only exacerbate the survival of many species that have already declined significantly throughout the Sierra.

The Lassen area bird surveys were compared with the Yosemite area and Sierra-wide survey data. Table 4 shows the bird species in the Lassen area that were detected in the historic surveys but were absent from all locations in the modern survey. Table 7 compares the status of these bird species that were absent from the modern Lassen survey with the Yosemite data at all three elevations and the Sierra-wide bird survey data. Overall, the birds that were not found in the Lassen survey in the modern surveys also show a declining trend in the Yosemite area and in the Sierra or throughout the range of the species. An exception is the Golden crowned sparrow, which is a winter migrant to the Sierra that is fairly common; it utilizes shrub habitat in foothill environments of the Sierra.

### Mammals and Carnivores

Mammal species in the Yosemite area showed overall declines in species ranges between the historic and modern surveys. Seventeen out of 50 species showed range contractions: 9 species had a contraction of their lower elevation range; three species experienced contractions in the upper elevation limits of their range and; four species experienced contractions of their ranges at both upper and lower elevation limits. Range contractions outnumbered expansions 2.5 to 1. The contractions were especially severe for upper elevation species. The majority of the range expansions included a movement of historically lower elevation species to mid to higher elevation areas. Two species, the Shadow chipmunk and the Bushy-tailed woodrat were abundant during the historic survey and highly detectable. However, the modern survey had limited success in detecting either species across their ranges. These survey results underscore that although large, intact natural areas are vital for the persistence of large and small wildlife species, healthy natural areas of significant size and the corridors connecting these areas must be present at all elevation ranges for wildlife to live in and move through.

With regard to carnivores, two species that were documented in the historic records were not found in the modern survey, the Sierra Nevada red fox and the wolverine<sup>53</sup>. Both species are habitat specialists and are sensitive to human presence. The Sierra red fox and the wolverine were already declining in the early 1900s due to trapping and habitat fragmentation; the fox was only observed in the high elevations of the Sierra in the historic survey and the wolverine was primarily detected in the southern Sierra. Martens were found in the modern surveys in old growth forested areas. They were not found in areas that have been most impacted by human presence such as near roads and areas under recent timber harvest. The marten presence was highly correlated to the level of conservation protection; national parks and wilderness areas were found to have a presence of marten.

The habitat generalists such as gray fox, spotted skunk, black bear, ringtail, striped skunk, and the non-native opossum changed little between the historic and modern surveys. All of these species were detected at low and mid elevations where human presence is greater, but these habitats also tend to be more productive and less-seasonal than upper elevations. Generalist

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<sup>52</sup> Jacobson 2005 and Forman et al. 2003

<sup>53</sup> Zielinski 2005

species may become increasingly more common in the Sierra as the development footprint expands in the Sierra and as populations of specialist species decline. Climate change may provide greater opportunities for generalist species to become more common and may allow invasive species a greater foothold in the Sierra.

A 2011 study by Villepique et al. evaluated the diet of cougars following a decline of mule deer to less than 25% of their former population size in the eastern Sierra. This study found that even after the mule deer population declined, there was no evidence that cougars switched to alternate prey sources<sup>54</sup>. Cougars are the keystone predator in the Sierra Nevada, and this study suggests that they may be susceptible to population declines due to a lack of prey switching, similar to other habitat specialists.

**Table 5 Mammal Species Range Changes and Conservation Status in the Yosemite Survey**

<b>SPECIES</b>	<b>Range Change</b>	<b>IUCN Status*</b>	<b>CNDDDB Special Animals**</b>
California pocket mouse ( <i>Chaetodipus californicus</i> )	Range Expansion	Least Concern	No status
California vole ( <i>Microtus californicus</i> )	Range Expansion	Least Concern	No status
Southern marsh harvest mouse ( <i>Reithrodontomys megalotis</i> )	Range Expansion	Least Concern	No status
Pinyon mouse ( <i>Peromyscus truei</i> )	Range Expansion, Western and Eastern Sierra	Least Concern	No status
Montane shrew ( <i>Sorex monticolus</i> )	Range Expansion, Western Sierra	Least Concern	No status
Ornate shrew ( <i>Sorex ornatus</i> )	Range Expansion	Least Concern	No status
Heermann's kangaroo rat ( <i>Dipodomys heermanni</i> )	Range Contraction	Least Concern	No status
Great Basin pocket mouse ( <i>Perognathus parvus</i> )	Range Contraction	Least Concern	No status

<sup>54</sup> Villepique et al. 2001

Woodrat ( <i>Neotoma cinerea</i> )	Range Contraction, Western and Eastern Sierra	Least Concern	No status
Long-tailed vole ( <i>Microtus longicaudus</i> )	Range Contraction, Western Sierra	Least Concern	No status
American pika ( <i>Ochotona princeps</i> )	Range Contraction, Western and Eastern Sierra	Least Concern	No status
American water shrew ( <i>Sorex palustris</i> )	Range Contraction, Western Sierra	Least Concern	No status
California ground squirrel ( <i>Spermophilus beecheyi</i> )	Range Contraction, Western Sierra	Least Concern	No status
Belding's ground squirrel ( <i>Spermophilus beldingi</i> )	Range Contraction, Western and Eastern Sierra	Least Concern	No status
Golden-mantled ground squirrel ( <i>Spermophilus lateralis</i> )	Range Contraction, Western Sierra	Least Concern	No status
Least chipmunk ( <i>Tamias minimus</i> )	Range contraction	Least Concern	No status
Allen's chipmunk ( <i>Tamias senex</i> )	Range contraction	Least Concern	No status
Alpine chipmunk ( <i>Tamias alpines</i> )	Range Contraction, Western and Eastern Sierra (not found in the Eastern Sierra in the modern survey)	Least Concern	No status
Western jumping mouse ( <i>Zapus princeps</i> )	Range Contraction, Western Sierra	Least Concern	No status
Pantamint kangaroo rat ( <i>Dipodomys panamintinus</i> )	No Change	Least Concern	No status

Northern flying squirrel ( <i>Glaucomys sabrinus</i> )	No Change	Least Concern	No status
Long-tailed vole ( <i>Microtus longicaudus</i> )	No Change, Eastern Sierra	Least Concern	No status
Montane vole ( <i>Microtus montanus</i> )	No Change, Western and Eastern Sierra	Least Concern	No status
Brush mouse ( <i>Peromyscus boylii</i> )	No Change	Least Concern	No status
Deer mouse ( <i>Peromyscus maniculatus</i> )	No Change, Western and Eastern Sierra	Least Concern	No status
Western heather mole ( <i>Phenacomys intermedius</i> )	No Change	Least Concern	No status
Mount Lyell shrew ( <i>Sorex lyelli</i> )	No Change	Least concern	DFG:SSC
Montane shrew ( <i>Sorex monticolus</i> )	No Change, Eastern Sierra	Least Concern	No status
American water shrew ( <i>Sorex palustris</i> )	No Change, Eastern Sierra	Least Concern	No status
Trowbridge's shrew ( <i>Sorex trowbridgii</i> )	No Change	Least Concern	No status
Belding's ground squirrel ( <i>Spermophilus beldingi</i> )	No Change, Eastern Sierra	Least Concern	No status
Golden-mantled ground squirrel ( <i>Spermophilus lateralis</i> )	No Change, Eastern Sierra	Least Concern	No status
Yellow-pine chipmunk ( <i>Tamias amoenus</i> )	No Change	Least Concern	No status
Merriam's chipmunk ( <i>Tamias merriami</i> )	No Change	Least Concern	No status
Long-eared chipmunk ( <i>Tamias quadrimaculatus</i> )	No Change	Least Concern	No status

Lodgepole chipmunk ( <i>Tamias speciosus</i> )	No Change, Western and Eastern Sierra	Least Concern	No status
Douglas squirrel ( <i>Tamiasciurus douglasii</i> )	No Change, Western and Eastern Sierra	Least Concern	No status
Botta's pocket gopher ( <i>Thomomys bottae</i> )	No Change, Western Sierra	Least Concern	No status
Mountain pocket gopher ( <i>Thomomys monticola</i> )	No Change	Least Concern	No status
Western jumping mouse ( <i>Zapus princeps</i> )	No Change, Eastern Sierra	Least Concern	No status

\*Please see <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf> for description of species status\*  
\*International Union for the Conservation of Nature: Red List of Threatened Species

## Citations:

- Askins, R. A. 1995. Hostile landscapes and the decline of migratory songbirds. *Science* 267:1956–1957.
- Bunn, D., A. Mummert, M. Hoshovsky, and S. Shanks. 2007. California Wildlife: Conservation Challenges. California's Wildlife Action Plan. California Department of Fish and Game. P 597.
- California Natural Diversity Database (CNDDB), List of Special Animals. January 2011. California Department of Fish and Game, Biogeographic Data Branch.  
<http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf>
- Davidson, C., M. Benard, H. Shaffer, J. Parker, C. O'Leary, J. Conlon, and L. Rollins-Smith. 2007. Effects of Chytrid and Carbonyl Exposure on the Survival, Growth, and Skin Peptide Defenses in Foothill Yellow-legged Frogs. *Environmental Science and Technology* 2007(41): 1771-1776.
- Fellers, G. and C. Drost. 1993. Disappearance of the cascades frog *Rana cascadae* at the southern end of its range, California, USA (1993) *Biological Conservation* 65 (2): 177-181.
- Forman, R. T. T., D. Sperling, J. A. Bissonette, A. P. Clevenger, C. D. Cutshall, V. H. Dale, L. Fahrig, R. France, C. R. Goldman, K. Heanue, J. A. Jones, F. J. Swanson, T. Turrentine, T. C. Winter. 2003. Road ecology: Science and Solutions. Island Press. 481 p.
- Gates, J. E., and L. W. Gysel. 1978. Avian nest dispersion and fledging success in field–forest ecotones. *Ecology* 59:871–883.
- International Union for the Conservation of Nature (IUCN): Red List of Threatened Species, October 2011, <http://www.iucnredlist.org/>
- Jacobson, S. 2003. Mitigation Measures for Highway-caused Impacts to Birds. 2005. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. 2005
- Jennings, M. R., and M. P. Hayes. 1985. Pre-1900 overharvest of California red-legged frogs (*Rana aurora draytonii*): the inducement for bullfrog (*Rana catesbeiana*) introduction. *Herpetologica* 41:94–103.
- Lawler, S., D. Dritz, T. Strange, and M. Holyoak. 1999. Effects of Introduced Mosquitofish and Bullfrogs on the Threatened California Red-Legged Frog. *Conservation Biology* 13(3): 613-622.
- Minnich, R. 2008. California's Fading Wildflowers: Lost legacy and Biological Invasions. University of California Press, Berkeley. P. 344.
- Moritz, C. 2008. Final Report: A Re-survey of the Historic Grinnell-Storer Vertebrate Transect in Yosemite National Park, California. A report submitted to the Sierra Nevada Network Inventory

and Monitoring Program, Sequoia and Kings Canyon National Parks by the Museum of Vertebrate Zoology, Berkeley, California.

Morrison, M., R. Young, J. Romsos, and R. Golightly. 2011. Restoring Forest Raptors: Influence of Human Disturbance and Forest Condition on Northern Goshawk. *Restoration Ecology* 19(2): 273-279.

Perrine, J., C. Conroy, M. Tingley, C. Cicero, and R. Bowie. 2007. Lassen Transect Resurvey, 2007 Annual Report. Museum of Vertebrate Zoology-Grinnell Resurvey Project.

Sakai, M., B. Martin, T. May, and C. Alpers. 2010. Mercury concentration in fish from a Sierra Nevada foothill reservoir located downstream from historic gold-mining operations. *Environmental Monitoring and Assessment*. 163(1-4):313-326.

Siegel, R.B. and D.F. DeSante. 1999. Version 1.0. The draft avian conservation plan for the Sierra Nevada Bioregion: conservation priorities and strategies for safeguarding Sierra bird populations. Institute for Bird Populations report to California Partners in Flight.

Storer, T., R. Usinger, and D. Lukas. 2004. Sierra Nevada Natural History. University of California Press, Berkeley. P. 439.

Viers, J. and D. Rheinheimer. 2009. Freshwater conservation options for a changing climate in California's Sierra Nevada. *Marine and Freshwater Research* 62(3): 266-278.

Wilcove, D. S., C. M. McLellan, and A. P. Dobson. 1986. Habitat fragmentation in the temperate zone. Pages 237–256 in M. E. Soulé, editor. Conservation biology: the science of scarcity and diversity. Sinauer Associates.

Zielinski, W., R. Truex, F. Schlexer, L. Campbell, and C. Carroll. 2005. Historical and contemporary distributions of carnivores in forests of the Sierra Nevada, California. *Journal of Biogeography* (2005) 32: 1385-1407.

### **Background**

In September 2011, the Board adopted a new Strategic Plan (Plan), which establishes objectives for the SNC within five areas of focus and lays out the strategies the organization will employ in meeting those objectives. The five areas of focus are:

- Healthy Forests
- Preservation of Ranches and Agricultural Lands
- Watershed Protection and Restoration
- Promotion of Sustainable Tourism and Recreation
- Long-term Effectiveness of the SNC

Meeting Plan objectives requires that the organization take a number of specific actions each year in support of the strategies included in the Plan. These actions are to be included in an annual Action Plan. Input received from the Board, stakeholders and staff in strategic planning workshops throughout the Region and numerous meetings held over a year-long period not only served as the basis for the new Strategic Plan, but will also serve as the basis for the Action Plans as well.

### **Current Status**

While staff had planned to have a first Action Plan in support of the new Strategic Plan ready to present to the Board at its December meeting, staff has not been able to complete the resource analysis required to develop a meaningful plan due to other pressing workloads, including soliciting and responding to a surprisingly large number of pre-applications for the 2011-12 Healthy Forests Grant Program.

However, while the staff continues our efforts to develop a thoughtful and realistic Action Plan, we will continue with a number of ongoing efforts to implement the strategies and achieve the objectives laid out in the Strategic Plan. Most of these efforts are being undertaken in accordance with prior direction given by the Board. Others are foundational and/or time sensitive in meeting Strategic Plan objectives. The key projects that will be the focus of staff time and attention between now and the presentation of the Action Plan to the Board in March are the:

- 2011-12 Healthy Forests Grant Program—staff will conduct site visits, work with grant applicants to develop full applications by the January deadline, and begin the project evaluation process.
- Sierra Nevada Forest and Communities Initiative—staff will continue to support local collaboratives and work with stakeholders at the regional level to address state and federal policy issues and research and assessment needs.
- Sierra Nevada System Indicators Project—staff will complete the System Indicators report on Water and Air Quality and Climate.
- Mokelumne Watershed Environmental Benefits Projects—staff will work on getting key parties signed onto to participate in the avoided cost analysis study, draft and circulate a Request for Proposal and hire contractors to support project implementation.

- Sierra Nevada Geotourism Project—staff will begin the second phase of marketing for the project and contract for the procurement of mobile applications for the web site.
- Pacific Forest and Watershed Lands Stewardship Council—staff may enter into the first of several agreements to serve as a covenant holder on lands donated to the US Forest Service.
- External Outreach—staff will continue to work with stakeholders to reach out to decision-makers in Sacramento and will increase outreach to those involved with ranching and agriculture in the Region in order to assess needs and aid in the development of the 2012-13 Grant Program.
- Funding Development—staff will continue to work with an outside contractor to develop opportunities to bring additional funding to the Region and the SNC.
- State Water Plan—staff will work with agencies and stakeholders to continue representing Sierra interests in two statewide water planning efforts, including developing the Mountain Counties Overlay regional report, proposed management strategies and financing options for the *California Water Plan Update 2013*, and providing input to the *Delta Plan*.
- IT Systems Improvement—staff will continue to implement improvements to SNC's information technology systems, including updating its Web site to a new state template and building additional functionality into our internal tools.

### Next Steps

Staff will continue the development of an Action Plan to bring to the Board in March 2012. The Action Plan will be a 15-month plan that covers the period from March 2012 to June 2013. Subsequent plans will be developed on an annual basis aligned with the state's fiscal year.

### Recommendation

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

### **Background**

The Sierra Nevada Conservancy (SNC) was allocated \$54 million in Proposition 84, passed by the voters in 2006. Approximately \$40 million has been awarded to date to a variety of projects consistent with Proposition 84 requirements and SNC's governing statute.

At its September 2011 meeting, the SNC Board directed staff to finalize the current Grant Guidelines and timeline for the FY 2011-12 grant cycle to support the Healthy Forests focus area, as identified in SNC's Strategic Plan.

The Board also confirmed at the June 2011 meeting that half (approximately \$5 million) of the remaining dollars available to the SNC through Proposition 84 would to be allocated in the grant cycle for FY 2012-13 to support the Preservation of Ranches and Agricultural Lands area of focus. Staff began working on formal and informal outreach with Resource Conservation Districts, agricultural landowners, land trusts and other stakeholders this past spring.

### **Current Status**

SNC staff has developed the draft timeline below and is revising the Grant Guidelines for Proposition 84 Preservation of Ranches and Agricultural Lands for FY 2012-13. These draft Grant Guidelines will include all revisions made as the result of considering comments received during the public comment period, as well additional public input and staff analysis. If approved at the June 2012 Board meeting, the final guidelines will be made available to potential applicants later that month. A companion Grant Application Packet (GAP) with necessary forms and instructions will also be available to assist applicants at that time.

The main objective of the 2012-13 program will be to assist in maintaining the viability of agricultural lands and ranches in the Sierra, with projects that lead to, or result in, protection of watersheds and the natural resources within the watershed (Proposition 84 requirements). Preliminary examples of potential projects could include, but are not limited to: removal of invasive weeds, stream restoration, riparian fencing, conservation easements and actions necessary for such easements (i.e. appraisals, surveys, etc.), as well as other eligible projects that allow current agricultural activities to continue.

### **Next Steps**

Based on Board direction, staff intends to conduct additional outreach to interested parties on project opportunities and bring back draft Grant Guidelines for Board discussion at the March 2012 meeting, with approval proposed for the June 2012 meeting. Staff will also consider the processes used for the Healthy Forests grant cycle, to determine if any other changes are necessary, with a particular focus on the pre-application process. Once the Board has approved the 2012-13 Proposition 84 Grant Guidelines, staff will conduct outreach to stakeholders to solicit potential applications.

<b>GRANT PROGRAM ELEMENTS</b>	<b>Target Date or Duration</b>
<b>DRAFT GUIDELINES REVIEW PERIOD</b>	February 13 – March 16, 2012
<b>BOARD ADOPTS GUIDELINES</b>	June 7, 2012
<b>RELEASE Preservation of Ranches and Agricultural Lands GUIDELINES AND GAPS</b>	June 18, 2012
<b>PRE-APPLICATION DEVELOPMENT AND SUBMITTAL:</b> SNC staff will be available to work with applicants on preparation of pre-applications to be submitted during this period.	June 18 – July 13, 2012
<b>FULL APPLICATION DEVELOPMENT AND SUBMITTAL:</b> Applicants who receive an invitation to submit a full application will develop and refine their full application during this period.	August 15 – October 19, 2012
<b>FULL APPLICATION EVALUATION/REVIEW:</b> SNC staff and technical evaluators will evaluate all complete applications, resulting in a score up to 100 points. Consultation with the Board Subregional subcommittees, as well as communication with affected local agencies will occur during this period.	October 22, 2012 – January 18, 2013
<b>FINAL RECOMMENDATIONS TO SNC BOARD:</b> Staff will provide recommendations based on the evaluation, including consideration of geographic distribution of projects.	March 7, 2013

**Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

### **Background**

The SNC launched the Sierra Nevada Forest and Community Initiative (SNFCI) over one year ago. This initiative fosters local and Regional collaboration to support a cohesive, economically viable, and sustainable approach to reducing fire risk, creating jobs, and protecting our valuable forest and watershed resources. SNC staff work closely with the diverse participants of regional, statewide and local collaboratives, including local governments, environmentalists, community and economic development representatives, to help achieve these goals.

The SNFCI Regional Coordinating Council focuses on Regional and statewide issues that can influence the achievement of the objectives of the Initiative. The Council also serves as a forum for issues arising in local forest collaborative efforts to be discussed and addressed. SNC Board Vice Chair Bill Nunes and former Board Vice Chair Steve Wilensky co-chair the Coordinating Council, and Boardmember Bob Kirkwood along with Boardmember Nunes are serving as the Board liaisons to the Initiative. Other members include representatives from the woods products industry, local government, environmental and conservation organizations, community groups and water interests. The primary federal land managers, the US Forest Service (USFS), Bureau of Land Management (BLM) and National Park Service (NPS), participate in an advisory role.

### **Current Status**

#### **Coordinating Council**

The fourth SNFCI Coordinating Council meeting was held in October 2011. The primary focus of the meeting was formalizing a relationship between the Coordinating Council and the US Forest Service as it relates to implementing the Region's "Leadership Intent for Ecological Restoration" and the upcoming process for revising Forest Plans throughout the Sierra. The Coordinating Council provides an important opportunity for the USFS to develop successful strategies for these efforts. The Coordinating Council has expressed a strong interest in playing this role in order to assist in increasing the pace and scale of forest restoration efforts taking place "on the ground".

The Coordinating Council, given its diverse composition provides a unique viewpoint in that: 1) the majority of active members are engaged in local forest collaboratives and on-the-ground projects, and 2) many of the members represent organizations involved in policy issues at the state and federal level. The Coordinating Council is also interested in identifying long-term funding mechanisms to restore the forested watersheds, looking beyond the traditional federal budget cycles. In addition, investment strategies and policies are supported that can increase the value of biomass materials to help pay for the cost of removal and create jobs and generate new revenue sources for local economies. Finally, there is interest in continuing to evaluate payment systems that can quantify the benefits of healthy watersheds, such as high water quality, to incentivize investment in watershed restoration.

A working group was formed to work with the USFS's Regional staff to develop an implementation plan for the Leadership Intent for Ecological Restoration that includes specific actions for both the USFS and the Coordinating Council to support this implementation. The working group will develop an action plan and present this to the full Coordinating Council during the January meeting.

#### Collaborative Efforts

For the past several years, SNC staff has been engaged in local forest collaboratives across the Sierra Nevada range. It has been important to monitor the progress of the collaboratives' work to help focus SNFCI and staff will continue to do this. Staff has also been deeply involved with a few collaboratives that integrate a triple bottom line focus: Burney-Hat Creek (Lassen National Forest), Amador Calaveras Consensus Group (Stanislaus National Forest) and Sustainable Forests and Communities Collaborative (Sierra National Forest). These three groups are representative of the challenges we face across the range by including: an area with an under-utilized wood industry with idle capacity; an area with relatively new and diverse infrastructure including a small log mill and a biomass to energy facility but in need of more utilization outlets; and an area void of any infrastructure. The groups are working with the USFS, BLM and large, private land holders to secure wood supply and existing infrastructure, conducting feasibility studies and identifying businesses to locate to the area to utilize the wood in its highest valued use, and implementing strategies to keep the new revenues local. These efforts have the potential to establish long-term restoration and wood industry economies that support local economies by employing local people.

#### Next Steps

Staff will coordinate the working group's efforts in working with USFS to develop an implementation plan for the Leadership Intent for Ecological Restoration and to identify specific actions for both the USFS and the Coordinating Council to support this implementation. The Action Plan will be presented to the full Coordinating Council during the January meeting. The Coordinating Council will continue to meet quarterly in 2012 on the last Wednesday of the month, beginning in January.

Staff will also continue to be actively involved with various collaborative efforts around the Region with a priority given to the Burney-Hat Creek, Amador Calaveras Consensus Group and Sustainable Forests and Communities Collaborative. Staff will coordinate with the Coordinating Council and State and Federal agencies to identify resources to support these collaboratives as demonstration projects.

#### Recommendation

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

**Background**

In 2009, the Sierra Nevada Conservancy (SNC) began coordinating the Great Sierra River Cleanup – a volunteer event focused on removing trash from the rivers, lakes and streams of the Sierra Nevada. This project aimed to expand upon the cleanup efforts of numerous groups and organizations by establishing and supporting cleanups in watersheds throughout the Sierra Nevada Region. The Cleanup coincides with the California Coastal Cleanup Day. During the first two years, the event attracted more than 7,500 volunteers and succeeded in removing over 270 tons of trash from more than 700 streamside miles. In both 2009 and 2010 the event received support from legislators representing the Sierra Nevada, including participation by Assemblymen Jim Nielsen, Ted Gaines, and Dan Logue at cleanups in their districts.

**Current Status**

This year more than 3,600 volunteers attended the Great Sierra River Cleanup and removed more than 251 tons of trash and recyclables from 19 different watersheds. Cleanups occurred at 162 different sites with coordination from 50 nonprofits and local agencies in the following watersheds:

Watershed	Total Number of Sites	Number of Volunteers	Pounds of Trash	Pounds of Recyclables	River Miles Cleaned
American River	15	277	5,538	205	25.25
Carson River	1	NR	NR	NR	NR
Cosumnes River	2	29	750	NR	2.00
Feather River	6	106	1,324	189	24.75
Fresno River	1	7	70	10	3.00
June Lake	1	5	80	10	NR
Kings River	1	10	50	NR	12.00
Merced River	55	1,379	4,459	411,783	20.00
Mokelumne River	4	161	2,050	390	25.50
Owens River	1	11	180	40	NR
Pit River	1	12	300	NR	2.00
Sacramento River	1	58	1,019	NR	1.50
San Joaquin River	7	293	32,500	20,000	7.90
Squaw Creek (Truckee River)	1	8	76	NR	2.00
Susan River	1	90	2,000	20	3.00
Truckee River	4	51	1,000	NR	NR
Tule River	1	285	1,640	160	17.50
Tuolumne River	5	21	110	6	5.00
Volcano Lake (Yuba River)	1	4	33	NR	0.50
Yuba River, Bear River	35	633	9,383	4,657	99.00
Lake Tahoe (Truckee River)	15	147	1,309	1,059	26.00
Indian Lake (Fresno River)	1	6	100	10	NR

Mariposa Creek (San Joaquin River)	1	16	509	4	NR
Lake Almanor (Feather River)	1	35	300	100	10.00
<b>Grand Total</b>	<b>162</b>	<b>3,644</b>	<b>64,780</b>	<b>438,642</b>	<b>286.90</b>

Sponsors for the 2011 Great Sierra River Cleanup included The California Ski Industry Association, Pacific Gas & Electric, The Pacific Forest and Watershed Lands Stewardship Council, the Sierra Pacific Foundation, the CalTrans Don't Trash California Campaign, and the California Coastal Commission. Six California legislators pledged their support for the event by becoming honorary co-chairs. Senators Ted Gaines and Doug LaMalfa and Assembly Members Jim Nielsen, Beth Gaines, Connie Conway and Alyson Huber, all of whom represent a portion of the Sierra Nevada Region, worked to promote the event to their constituents through their newsletters, Web sites, and social media sites. In addition, Assemblyman Bob Wieckowski, representing the East Bay, added his support to the effort. Senator Ted Gaines and Assemblywoman Beth Gaines also joined cleanups in their districts.

Final results and data by cleanup site can be found on SNC's Great Sierra River Cleanup web page [www.sierranevada.ca.gov/rivercleanup.html](http://www.sierranevada.ca.gov/rivercleanup.html). Photos and video have been uploaded to the Great Sierra River Cleanup Facebook fan page and to SNC's YouTube account. Media coverage for the Great Sierra River Cleanup appeared in 10 online event calendars, 12 online news sites, 3 radio stations, 22 print publications, and one in-studio interview with the KQCA morning news in Sacramento.

### **Next Steps**

Mark your calendars! Next year's Great Sierra River Cleanup will be held on Saturday, September 15<sup>th</sup>, 2012. Planning for the 2012 event is already underway. Requests for sponsorship are being prepared, outreach materials are being developed and updated, and a brand new poster is being created for 2012. Staff will be working to coordinate two training sessions for Cleanup Coordinators in the spring of 2012. We will also focus on expanding the number of cleanup sites with existing partners and groups in watersheds and communities that do not currently have established events.

### **Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

### **Background**

As part of the SNC's ongoing efforts to communicate the importance of the Sierra Nevada and justify the need for additional investment to protect and enhance the Region's resources, the SNC is actively involved in two statewide initiatives: 1) the Department of Water Resources' California Water Plan Update 2013, and 2) the Delta Stewardship Council's Delta Plan.

The California Water Plan (CWP) is a collaborative planning framework for agencies and stakeholders to develop findings, make recommendations and inform policy and management decisions for California's water future. The plan analyzes status and trend data to identify effective actions and policies for meeting water management objectives such as reducing demand, increasing supply, reducing flood risk, improving water quality, and enhancing environmental and resource stewardship. The plan is updated every five years with the goal of soliciting broad input and support for strategies and actions that meet California Water Code requirements, guide state investments in innovation and infrastructure, and advance integrated water management and sustainable outcomes into the future.

The Delta Plan is a separate, legislatively mandated effort designed to achieve State-mandated co-equal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem. This plan is being developed by the Delta Stewardship Council as a requirement of the Sacramento-San Joaquin Delta Reform Act of 2009. Because the Delta is the delivery hub for much of the State's water and is linked to so many statewide issues, the plan's scope and purview will encompass decisions pertaining to statewide water use, flood management and the Delta watershed.

By actively participating in these two efforts, the SNC has an unprecedented opportunity to provide a Regional voice, educate state and federal agencies and other decision-makers about the Sierra, and influence how the Region's issues, needs, strategies and recommendations get addressed in statewide venues. Together, these activities support objectives in the SNC Strategic Plan 2011 Focus Areas related to Watershed Protection and Restoration, Healthy Forests, and Long-term Effectiveness of the SNC.

### **Current Status**

#### **California Water Plan (CWP) Update 2013**

The SNC believes that we can be the most effective by leading the Region's participation in various components of the CWP development. To that end, we volunteered to serve as lead author of the Mountain Counties Regional Report. The Mountain Counties report is one of 12 regional reports that set the stage for the strategies included in the plan. Regional reports outline specific goals and objectives, funding needs, existing efforts, unique characteristics, challenges/opportunities and cross-cutting issues in each of the 10 hydrologic regions and overlay areas in the state (see Attachment A for map).

As lead author, we will be working with agencies and stakeholders to identify what should be included in the report, solicit content, coordinate and edit submissions, develop administrative and public review drafts, and coordinate technical and peer review. We will also be working with the Department of Water Resources to coordinate a series of regional outreach forums as a means of sharing information and soliciting local knowledge and expertise for the regional report.

The SNC is also representing Sierra interests on a number of topic-based caucus groups that work together to address issues and develop recommendations for inclusion in the plan update, including:

- Land Use – to help make the connection between land use and management decisions and their impacts on water quality and quantity;
- Sustainability Indicators – to contribute our experience and learn from others about how to develop metrics that can most effectively tell the story and measure progress in achieving our goals; and
- Finance – to work with our stakeholders and other upstream constituents to identify and develop workable financing options to support necessary work in the upper watersheds of the Sierra.

### Delta Plan

Given that the Sierra contributes half or more of the water flowing into the Delta, we felt it was important to represent the upper watershed and identify ways to work together with Delta interests to address ecosystem health and water supply concerns throughout the state.

To that end we are participating on the State Interagency Team, have consulted with the Mountain Counties Water Resources Association and others, and have contributed comment letters on multiple drafts of the plan itself. Our comments have revolved around the need to balance upstream and other public trust issues in the development, implementation and enforcement of Delta flow requirements, habitat restoration priorities and other components of the plan. In addition, we are calling for more collaboration and consultation between upstream and downstream interests and requesting that the Financial Needs Assessment include restoration and enhancement projects as well as infrastructure projects in future need projections.

The draft Environmental Impact Report on the Delta Plan is scheduled for release on November 3, 2011, with a 90-day public comment period ending February 2, 2012. The SNC will be meeting with constituents during the public comment period and leading efforts to provide meaningful input on the alternatives presented.

### Next Steps

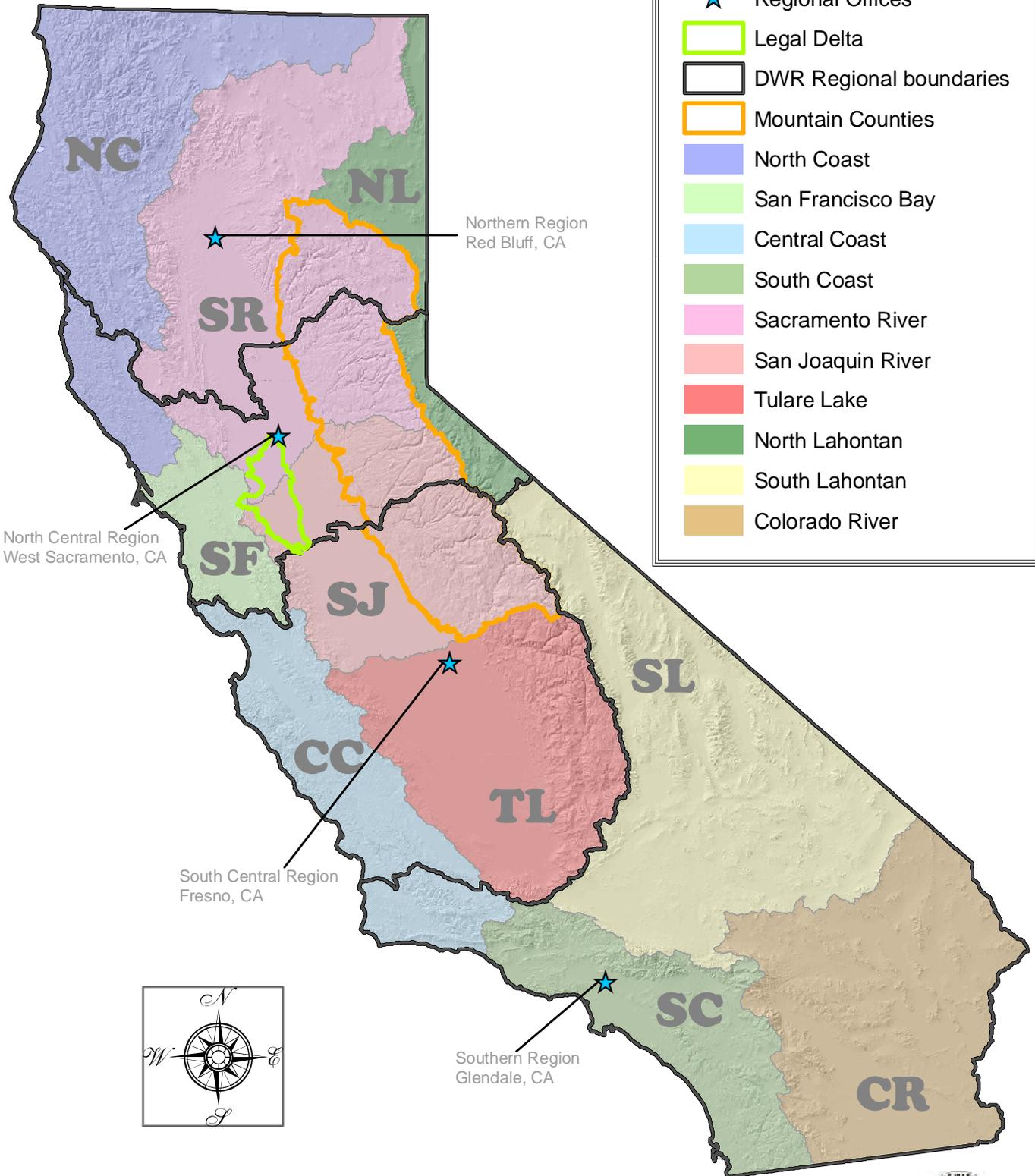
Our overall goal in both of these efforts is to make sure people – including agencies, commissions and councils – know where their water comes from, what it costs to provide a clean and reliable water supply, and the economic benefits of protecting the

source of the State's water, one of its most important resources. We also aim to work with our partners in the Region to help them recognize the two-way nature of our connection to the Delta and downstream users. We believe the best hope for truly addressing the underlying issues that have kept us at odds in the past is to foster a better understanding and appreciation of just how interrelated our issues are.

**Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Boardmembers are encouraged to share their thoughts and comments.**

# Hydrologic Regions & Overlay Areas of Interest



### **Background**

At its September 2010 meeting, the Board authorized the Executive Officer (EO) to enter into a Memorandum of Understanding (MOU) with the Pacific Forest and Watershed Lands Stewardship Council (Stewardship Council) and to establish a financial mechanism for the SNC to accept and manage reimbursement funds from the Stewardship Council for all costs associated with carrying-out the duties of the MOU and any subsequent agreements. The Board further authorized the EO to negotiate and enter into specific agreements, as needed, to perform the duties outlined in the MOU.

The MOU defines the roles and duties that may be performed by the SNC to monitor lands or easements donated to various organizations in the Sierra Nevada Region by the Stewardship Council and would guide the negotiation of specific contracts pertaining to: 1) the SNC serving as the covenant holder on watershed lands donated to the US Forest Service (USFS); and 2) the SNC carrying out certain other roles with respect to conservation easements on donated lands.

On September 16, 2010 the Stewardship Council board delegated authority to the Stewardship Council Executive Director to enter into the previously mentioned MOU with the SNC with the understanding that any subsequently negotiated contracts would be subject to Stewardship Council approval.

### **Current Status**

In September 2011, SNC staff reported to the Board that negotiations with the Stewardship Council had stalled because of technical difficulties related to the process of transferring land to federal agencies. Since September, negotiations have progressed with two (2) donations of lands to the US Forest Service. The two units currently moving forward are the Deer Creek Unit (Tehama County) of 151 Acres to the Lassen National Forest; and the Kings River Unit (Fresno County) of 100 Acres to the Sequoia National Forest. It is anticipated that additional lands will be donated to the USFS in coming months. SNC staff is continuing discussions to prepare for the role as a permanent covenant holder. This role is dependent on assurances that the amount of lands donated will be adequate to justify the SNC's involvement and that all SNC efforts will be fully compensated.

SNC staff has confirmed its authority to accept reimbursement payments from the Stewardship Council as defined in the MOU and is formalizing the necessary financial mechanisms to complete transactions.

### **Next Steps**

The SNC will continue to communicate with the Stewardship Council about progress on the pending USFS transfers and remains prepared to assist the process as outlined in the signed MOU. Any further actions will be reported to the SNC Board as they occur.

**Recommendation**

**This is an informational item only; no formal action is needed by the Board at this time, although Board members are encouraged to share their thoughts and comments.**