



Big Valley Rancheria & Climate Change

Although the Big Valley Band of Pomo Indians of the Big Valley Rancheria does not have a formal Climate Change Plan, it does consider climate change impacts in both their Tribal Environmental Plan, as well as their Integrated Solid Waste Management Plan. Some of the plans and documents can be found on the Tribe's website at www.bvrancheria.com/epa

During the last ten years, the Environmental Protection Department has documented many points of discussion and consideration to how climate change may affect the Rancheria, as well as the surrounding Clear Lake Basin. These results come from surveys by the Tribe at the 2014 and 2017 Tule Boat Festivals, as well as various presentations and discussions about resources and impacts noted by Elders and other members of the community.

Points of discussion

- **Potential Water Quality Impacts:**
 - Higher flows will increase sedimentation and erosion (could affect fish, increase in cyanobacteria blooms, erosion of road along the lake).
 - Lower flows will reduce dilution, concentrate pollutants, and reduce dissolved oxygen (which will contribute to more cyanobacteria blooms).
 - Changing temperatures can affect distribution and habitat of fish (especially warm water vs cold water species).
 - Could lead to a possible increase in microbes and pathogens in the environment, potentially affecting public health. Drinking water sources could be impaired - with 17 water purveyors pulling water from the lake, the increased cost will be passed to the consumer.
 - Increased salinity can influence distribution of marine and estuarine species; freshwater coastal wetlands could become saltwater wetlands.
- **Impact on Native Species:**
 - Warmer, dryer winters lead to less weather control over invasive species, which then have a longer time to increase their foothold. The Pine Bark beetle is affecting the native pines of Lake County and causing large areas

of dead trees. This leads to an increase in the fuel loading in the county (this could affect Pinon trees, a food source).

- Tules also already at risk: Water primrose has taken over where many tules used to grow on Clear Lake's shoreline. Cooler winters in the last decade lead to the reduction of the invasive. Warmer winters allow the plants to flourish during every season. 85% of the shoreline tules have been lost already, as documented by California Department of Fish and Wildlife in their review of the Clear Lake hitch.
- Invasive species:
 - Invasive species frequently take advantage of unoccupied niches within ecosystems. These niches can exist either as naturally unfilled roles in the ecosystem, or as the products of external pressures. In some cases, invading species will create the conditions for their own survival by disrupting existing food webs.
 - However, of greater significance are human activities responsible for habitat and biodiversity loss. Climate change has created shifting conditions for species and created new opportunities for invasive species in what were previously unfavorable climatic regions.
- Collaboration:
 - Trying to care for areas of Tribally important species both on and off the Rancheria is difficult because there are few protection measures in place. Need to increase protection measures/collaboration with other Tribes and with local jurisdictions.

Survey results

During the 2017 Tule Boat Festival a climate change survey was conducted by the Environmental Protection Department which collected responses from Tribal members representing 13 Tribes from California, Alaska, and Oregon, as well as members of the general public.

The 82 respondents answered questions about their familiarity with climate change, their sources of information, and first-hand and second-hand information of past and present conditions as they related to climate change. Though responses varied, the overall trend was a reported decline in the availability of natural resources, and observed change in weather and warming trend compared to previous conditions.

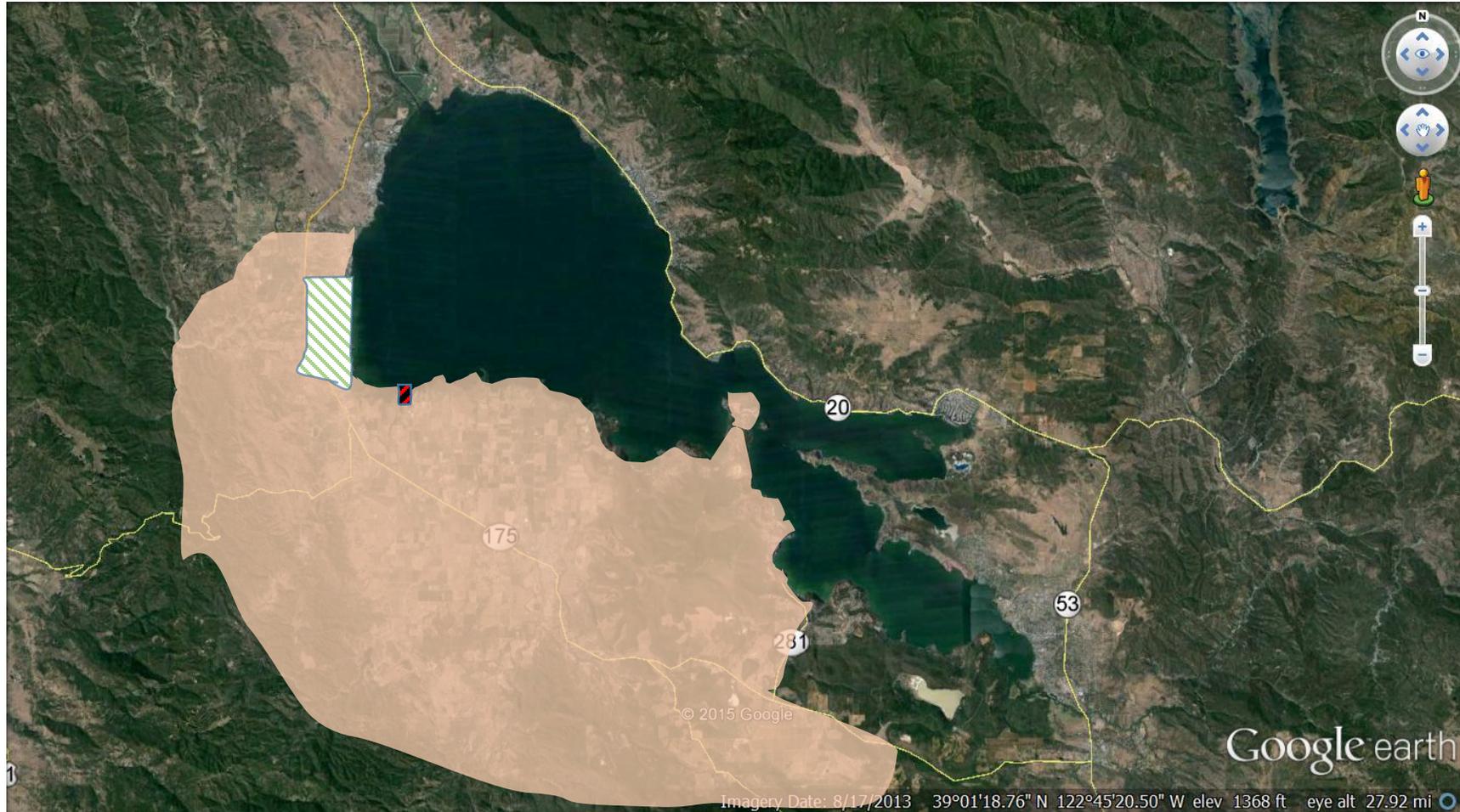
Specifically, many respondents reported seeing less wildlife than in previous years, as well as changing wildlife. Changes in water flow and water quality in Clear Lake and surrounding creeks were also noted. Respondents also viewed lake and water conditions as being worse than in the past.

Land Resources and Associated Environmental Concerns in the Clear Lake Basin, 2014.

The Tribe has identified some of the major natural resource concerns in the attached 2014 map. Environmental issues in the Clear Lake Basin directly affecting Big Valley Rancheria and its resources of concern include erosion, loss of native species, poor drainage from roads and houses, wetlands protection, leaking septic tanks, invasive species, and pesticide drift issues.



Natural Resources and Associated Environmental Concerns in the Clear Lake Basin



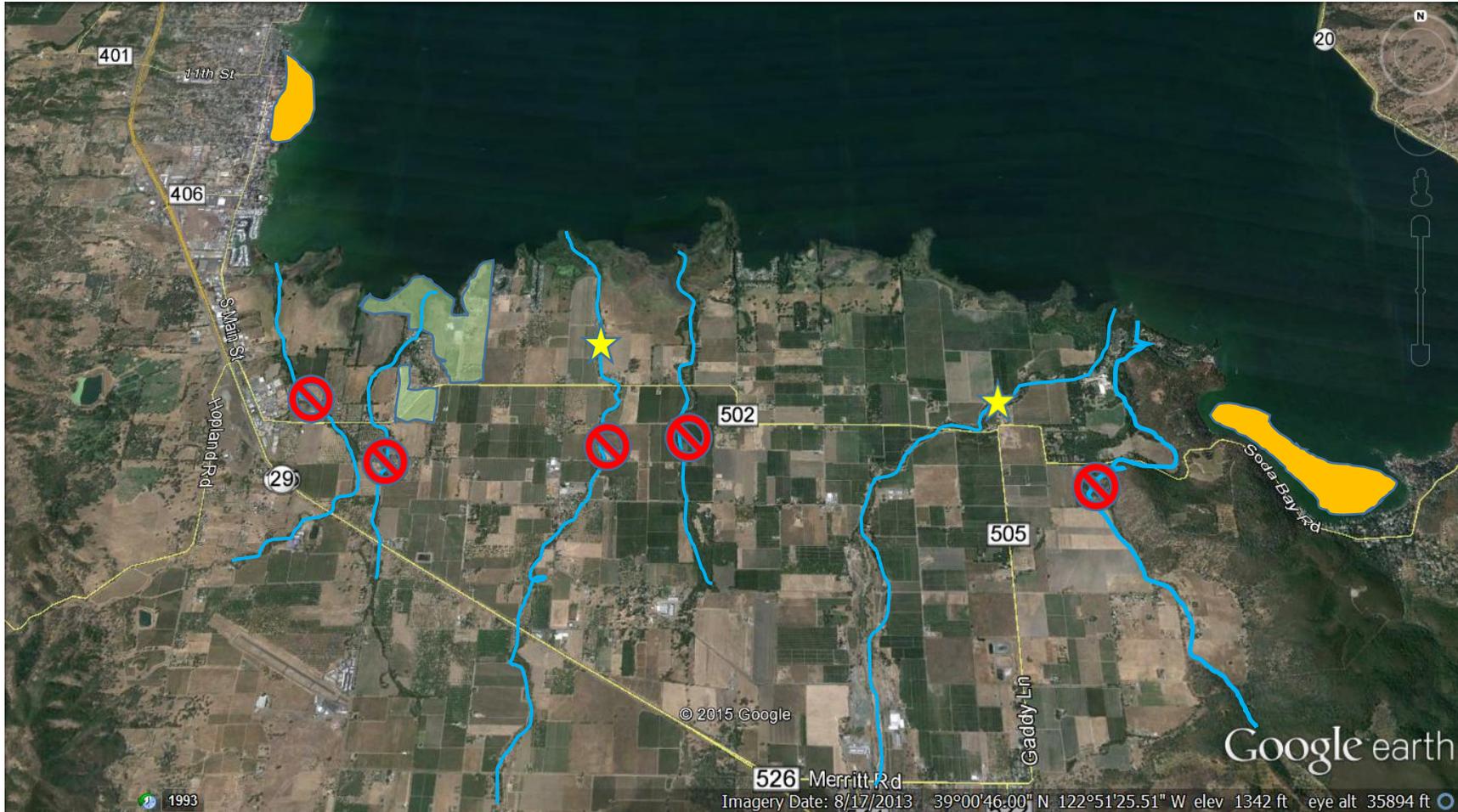
 General area of Big Valley involvement regarding natural resource protection. Connected with ancestral boundaries of the Tribe

 City of Lakeport

 Big Valley Rancheria



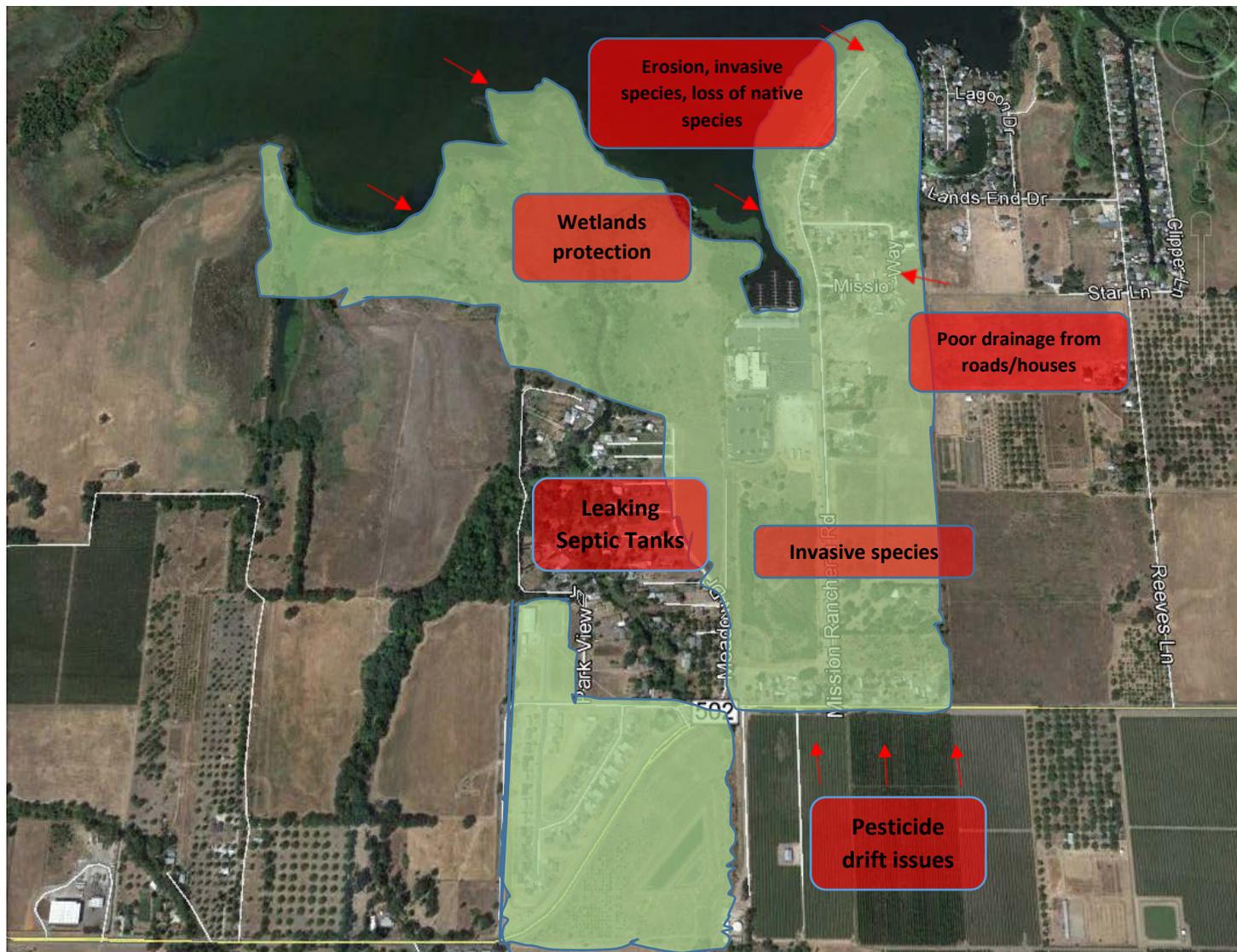
Natural Resources and Associated Environmental Concerns in the Clear Lake Basin



-  Big Valley Rancheria Tribal lands
-  Creeks of the Big Valley subbasin, from left to right (Manning, Thompson, Adobe, McGaugh/Hill, Kelsey, Cole creeks)
-  Hitch running creeks, 2014
-  Creeks running dry earlier than historical averages
-  Cyanobacteria blooms, 2014



Natural Resources and Associated Environmental Concerns in the Clear Lake Basin



-  Environmental issues of concern on or adjacent to Big Valley Rancheria
-  Big Valley Rancheria boundaries