

State of California

Memorandum

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Cc: Region 2 Fish Files

Subject: Sierra Nevada yellow-legged frog monitoring in Plumas County – Oliver Lake (12018).

California Department of Fish & Wildlife (CDFW) has been monitoring a small population of Sierra Nevada yellow-legged frogs, *Rana sierrae*, (SNYLF) at Oliver Lake (CA Lakes ID 12018) and a nearby pond (CA Lakes ID 12022) since 2001 (Figure 1). No SNYLF have been detected at either Oliver Lake or the pond since 2004 and CDFW believes frogs are extirpated from the area.

ENVIRONMENTAL SETTING

Oliver Lake (Figure 2) is a small montane lake in western Plumas County. It is located within Lassen National Forest at approximately 5960' elevation above mean sea level, has a maximum recorded depth of 2 meters and a 0.57 hectare surface area. A small dry streambed connects Oliver Lake to an unnamed pond (Figure 3), which has a recorded depth of 3 meters and a 0.17 hectare surface area. Both lakes sit near the summit of a nameless peak in an area that was severely burned during the 2000 Storrie Fire. Oliver Lake shows signs of becoming a meadow; it has developed a large island in its northern half and may no longer be 2 meters deep – that number was recorded during 2001 surveys. Although the unnamed pond has a recorded depth of 3 meters, it was completely dry during a 2008 survey attempt suggesting that it also may be becoming shallower.

Figure 1: Location of SNYLF and non-native trout in High Lakes Basin. SNYLF were last observed in 2004; fish data was collected in 2013. Mud, Murphy and Saddle Lakes contain brook trout only – all other named lakes in the basin contain non-native minnows in addition to trout.

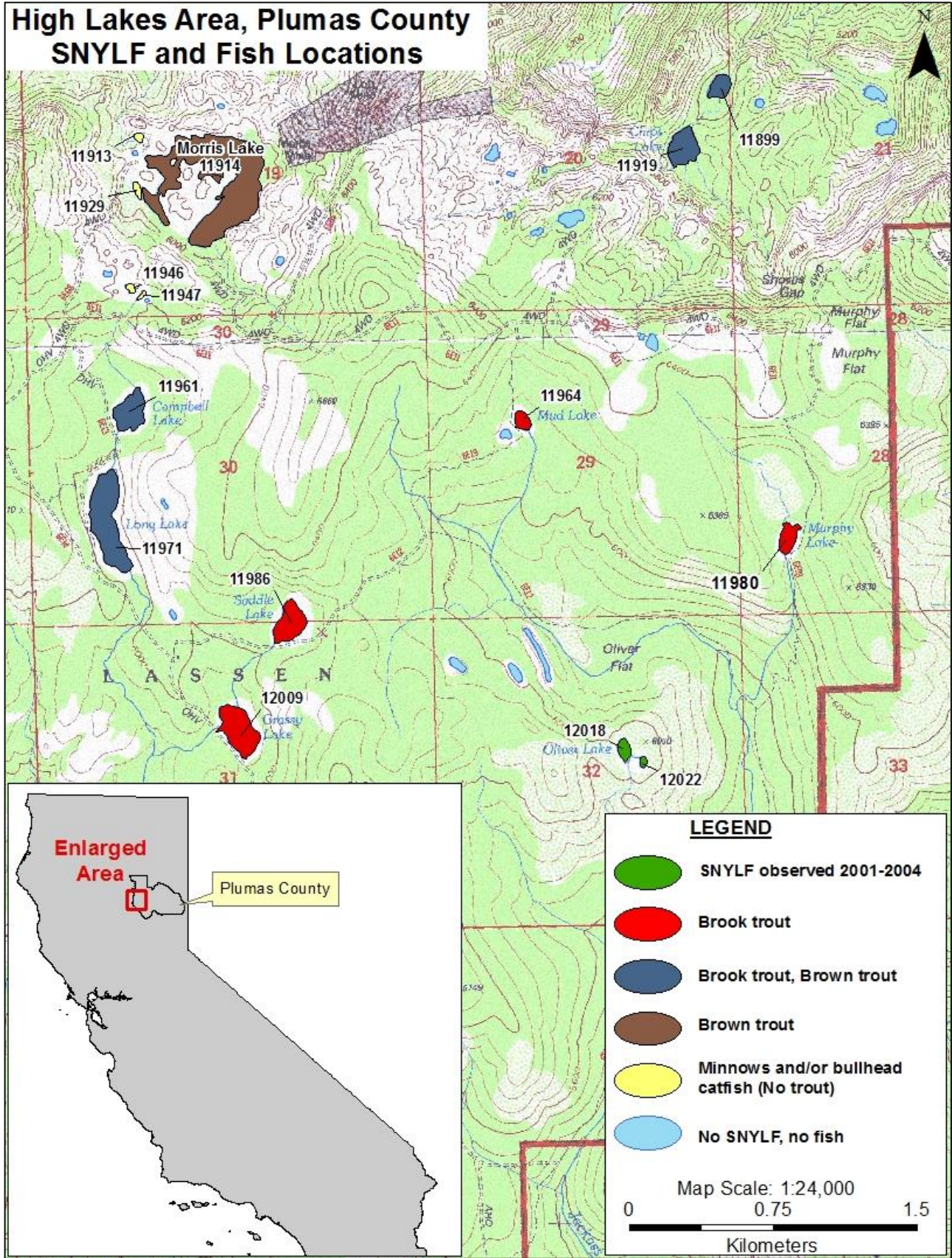


Figure 2: Oliver Lake looking west on June 7, 2013 (CDFW).



Figure 3: Unnamed pond 12022 looking west on September 22, 2003.



THREATS

- Disease – All SNYLF populations in Plumas County are believed to be chytrid fungus, *Batrachochytrium dendrobatidis*, (Bd) positive. Low numbers of animals observed have prevented CDFW from collecting samples at Oliver Lake and 12022, but Bd was detected on a sample collected from a non-native American bullfrog at nearby Morris Lake by the Forest Service in 2014 (Pope and Hardy).
- Marginal Habitats – This frog population was persisting in two small isolated ponds, neither of which is greater than 3 meters deep. Forest cover is no longer present in the area since the Storrie Fire occurred in 2000. Any additional disturbance, natural or otherwise, that threatens overwintering habitats presents a potential extirpation risk, and in fact the lakes may already be too shallow to allow overwintering SNYLF to survive.
- Introduced Fish – Oliver Lake and 12022 are fishless and fish cannot migrate into the lakes from Jackass Creek due to the presence of natural fish barriers. However, SNYLF are isolated in their current location and cannot expand downstream due in part to the presence of fish in both Jackass Creek and Chambers Creek. In addition, all deep water lentic habitats in this area are currently occupied by non-native fish (Figure 1).

POPULATION STATUS AND DISCUSSION

Twelve years of monitoring data suggest this population is extirpated (Figure 3). At most, one adult SNYLF and 7 juveniles were observed by CDFW and no SNYLF were observed in 2008 or 2013. Additionally, no SNYLF were observed during surveys conducted by Lassen National Forest in 2014 (Pope and Hardy).

Due to the shallow isolated nature of habitat at Oliver Lake and 12022 this area may not be suitable for future translocations of SNYLF.

Figure 3: VES data displayed by life stage at Oliver Lake and a nearby unnamed pond from 2001 to 2013.

Lake Name	CA Lakes ID	Survey Date	Rasi observed?	Adult	Sub-adult	Larva	Egg mass
Oliver Lake	12018	8/30/2001	RASI	1	0	0	0
	12022	8/30/2001	none				
Oliver Lake	12018	7/3/2002	RASI	1	7	0	0
	12022	7/3/2002	none				
Oliver Lake	12018	9/22/2003	none				
	12022	9/22/2003	none				
Oliver Lake	12018	7/20/2004	none				
	12022	7/20/2004	RASI	1	0	0	0
Oliver Lake	12018	9/13/2008	none				
	12022	9/13/2008	No survey - Dry				
Oliver Lake	12018	6/7/2013	none				
	12022	6/7/2013	none				

LITERATURE CITED

Pope, K. and Hardy, B., 2014. *Distribution of Sierra Nevada yellow-legged frog (Rana sierrae) and other amphibians of concern: Results of 2014 amphibian surveys conducted on portions of the Almanor and Eagle Lake Ranger Districts of the Lassen National Forest*. ISA #s R5-0506-01-14, R5-0506-00215 and #R5-0506-004. December 2, 2014.