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### Lake Alpine Amphibian Survey

On July 16, 2019, California Department of Fish and Wildlife (Department) completed an amphibian survey at Lake Alpine. The purpose of the survey was to determine if any special status amphibian taxa were present, and to use these data to determine if stocking Lake Alpine would result in impacts to special status species, specifically Sierra Nevada yellow-legged frog (*Rana sierra*, SNYLF).

Lake Alpine is a 173-acre lake in Alpine County located at 38.476891 N, 119.998519 W, situated at 7,305 feet above mean sea level. The shoreline is a mix of bedrock, sand, and conifer forest (Figure 1). The lake bottom appears mostly mud and various sized rock substrate (Figure 2). When Lake Alpine spills, water drains into Silver Creek and into the North Fork Stanislaus River. The lake receives water from rain and snowmelt runoff from the immediate area and multiple small tributaries. The lake historically has received stockings of brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) and brown trout (*Salmo trutta*). The last recorded stocking was in 2019 with rainbow trout.



Figure 1. Lake Alpine, Alpine County (July 16, 2019).



Figure 2. Lake Alpine, Alpine County (July 16, 2019).

One Department fishery biologist conducted a visual encounter survey (VES) at Lake Alpine. The surveyor slowly circumambulated the lake looking for diurnal amphibians and reptiles (Fellers and Freel 1995). The VES began at 11:25 and ended at 12:43 with a total survey duration of 55 minutes. The air temperature was 67°F (19.4°C) at 11:23 under partly cloudy skies. Water conditions were relatively clear, with visibility to about 10 feet. There was a light breeze on the water, producing relatively flat water conditions and intermittent impeded views into the water. Water temperature was 62°F (16.7°C) at 11:30. Due to the large size of Lake Alpine, the surveyor focused on the southern and southeastern shoreline in order to maximize the likelihood of observing SNYLF, with the transect surveyed in red in the attached map (Figure 3).



Figure 3. Lake Alpine Visual Encounter Survey Transect (7/16/2019).

This portion of Lake Alpine's shoreline is the closest to known populations of SNYLF. SNYLF have been observed one mile southeast of Lake Alpine around Duck Lake (CNDDDB 2019). SNYLF have also been observed approximately 2.5 miles south of Lake Alpine, just north of Utica Reservoir (CNDDDB 2019). The western and northern shoreline is either adjacent to a major highway, next to a campground (Figure 4), or not safe to survey due to steep bedrock. No amphibians were observed.



Figure 4. Lake Alpine, Alpine County (July 16, 2019)

Due to the absence of special status amphibian species and the presence of a recreational salmonid population, Lake Alpine is suitable to stock. The Department will stock catchable-size rainbow and possibly brown trout to create a put and take fishery for recreational anglers along the heavily used Highway 4 corridor.

#### Literature Cited:

1. California Natural Diversity Database. 2019.
2. Fellers, G. M. and K. L. Freel. 1995. A standardized protocol for surveying aquatic amphibians. National Biological Service Cooperative Park Studies Unit, University of California Division of Environmental Studies, Davis, CA. Technical Report No. NPS/WRUC/NRTR95-01 (UC CPSU TR # 58).





