State of California
Department of Fish and Wildlife

M e m o r a n d u m

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Subject: North Fork American River Snorkel Survey July 31 – August 1 2013

The North Fork American River begins at an elevation of 7900 feet in the Tahoe National Forest and flows freely until it is dammed by North Fork Dam which creates Lake Clementine. It is the longest tributary of the American River watershed at 88 miles and due to its unregulated nature and remote canyon wilderness setting it is a designated National Wild and Scenic River System river. It is also a designated Wild Trout Water under the Department's Heritage and Wild Trout Program from its confluence with Palisade Creek downstream to the Iowa Hill Bridge. Much of the Department's effort to evaluate fisheries resources has been focused on the Wild Trout section above Iowa Hill with less effort on the downstream reaches which are largely too warm to support a significant wild trout fishery.

In 2013 fisheries biologist Kenneth N. Kundargi and scientific aides Shawn Cox and Adam Koons conducted a first phase general fish survey via direct observation snorkeling survey on two sections of the North Fork American River. The first section from Yankee Jim to Ponderosa was surveyed on July 31, 2013 and the second section from Ponderosa to Lake Clementine was surveyed on August 1, 2013 (Figures 1 and 2). In addition to fisheries surveys, amphibians and reptiles observed were enumerated. The purpose of this first phase sampling effort is to gather basic fisheries and herpetology information at low cost an effort which will guide fisheries managers in making management decisions if adequate or guide further research and assessment efforts if necessary.

Fish observed where identified to species and size category. Size categories were 0-6 inches, 6-12 inches, 12-18 inches, and 18+ inches. Amphibians where identified to species or unknown and by life stage. Life stages were larvae (tadpoles), metamorphs, juveniles, and adults.

Based on the results of the snorkel surveys the Yankee Jim to Lake Clementine section of the North Fork American River provides habitat for significant and diverse populations of native and non-native species (Tables 1-5). Non-native smallmouth bass (*Micropterus dolomieu*) dominated the fishery in terms of number and distribution throughout the reach with 990 fish observed with the 0-6 inch size being the most prevalent with 708 fish observed (Table 3). Other non-native fish species observed were bluegill (*Lepomis macrochirus*) (97 fish) and green sunfish (*Lepomis cyanellus*) (3 fish).

The native fish assemblage includes pikeminnow (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), Sacramento sucker (*Catostomus occidentalis*), riffle sculpin (*Cottus gulosus*), and rainbow trout (*Oncorhynchus mykiss*). While more pikeminnow (2009) were observed than smallmouth bass, many of these were juvenile pikeminnow (1750) observed in the Ponderosa to Lake Clementine section with most observed at a single location aggregated near an instream fallen tree (Tables 2 and 3). Rainbow trout were not abundant with only six observed due to the unregulated nature of the North Fork which results in higher downstream temperatures not suitable to rainbow trout. Observationally, rainbow trout were recorded in cold water seep microhabitat. Hardhead (24 fish) and Sacramento sucker (17 fish) were present but not abundant (Table 3). Riffle sculpin were not enumerated as this species is not readily visible in the water column and generally found under cobble boulder habitat. Regular checks for this species were taken throughout the total survey reach by overturning rocks periodically and it appears that the species is well distributed throughout the reach.

Foothill yellow-legged frogs (Rana boylii), pacific chorus frogs (Pseudacris regilla), aquatic garter snake (Thamnopsis couchii), bullfrog (Rana catesbeiana), and western pond turtle (Actinemys marmorata) were all observed and enumerated with foothill yellow-legged frogs appearing to be abundant species. Care must be given to interpretation of the observation data as they were collected as incidental observations and do not represent the result of rigorous survey methodology or protocols.

The basic conclusions that can be drawn from the Yankee Jim to Lake Clementine snorkel survey are that:

- Smallmouth bass provide an underutilized recreational fishing opportunity,
- Foothill yellow-legged frogs are abundant and the population appears to be stable but is likely impacted by non-native smallmouth bass by predation,
- Non-native bullfrogs are present and represent a threat to foothill yellow-legged frog populations, and
- The native west slope Sierra Nevada non-game fish assemblage is present but is likely impacted through predation and competition by non-native smallmouth bass.

The North Fork American River between Yankee Jim and Lake Clementine presents management challenges and opportunities. Eradication of non-native smallmouth bass

and bullfrog populations is not feasible and mechanical control of these species is cost and labor prohibitive particularly due to the remote nature of this stretch of the river. While smallmouth bass are non-native they provide a fast action fishery for small fish with a trophy fish component. Due to the unregulated stream flow conditions and resulting warm water conditions there is no potential for quality angling for native rainbow trout. Liberalized angling regulation to promote harvest of smallmouth bass could result in increased size of the remaining specimens; therefore, this action is recommended for this fishery. Bullfrogs represent a threat to native foothill yellow-legged frogs; however, attempts to eradicate this species could result in unpredictable compensatory effects. Therefore, the recommendation is to complete a protocol level amphibian survey and periodically monitor amphibian resources for increases in bullfrog populations and declines in foothill yellow-legged frog populations and to formulate and implement appropriate actions as necessary.

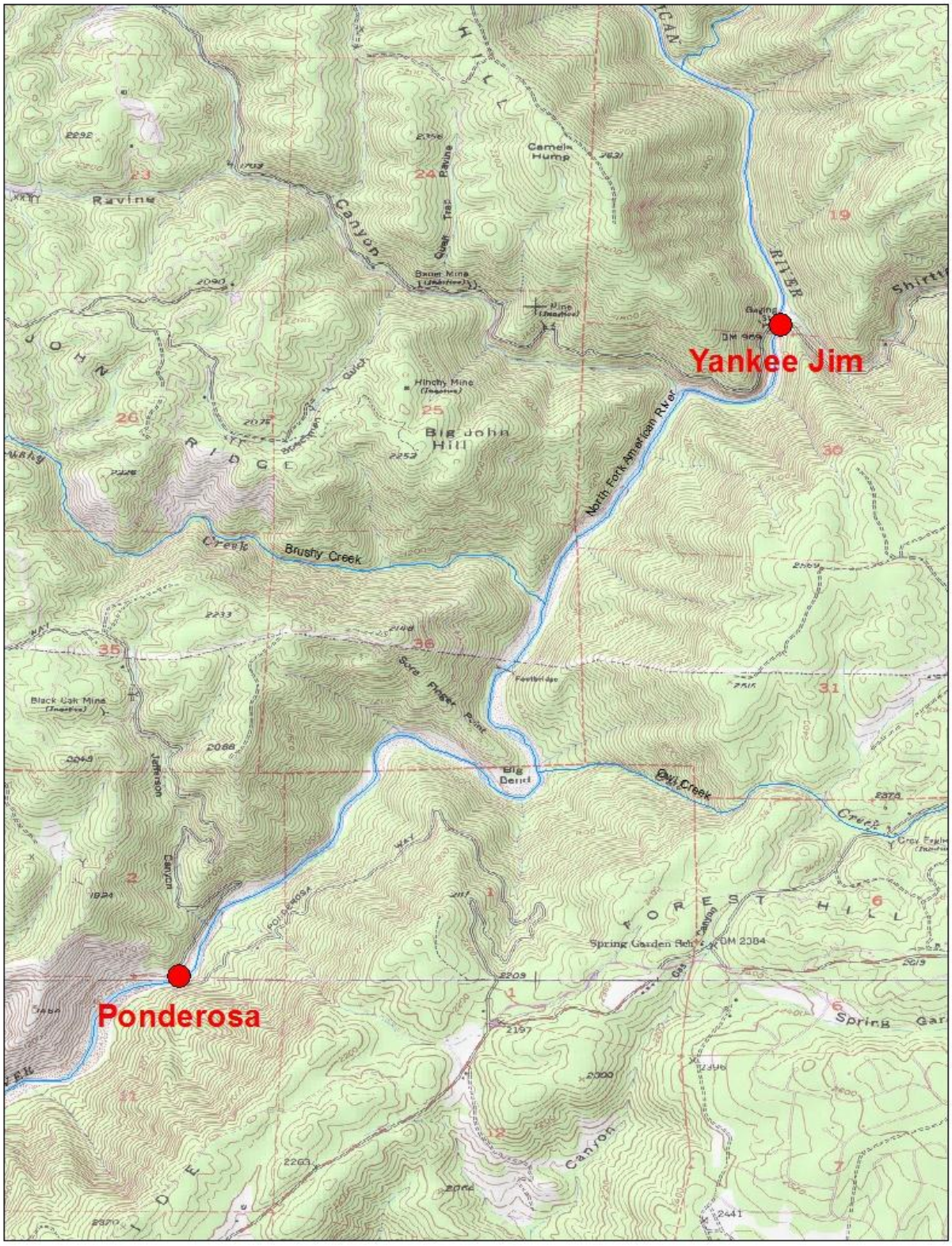

Figure 1. Location of the Yankee Jim to Ponderosa section North Fork American River snorkel survey July 31, 2013.

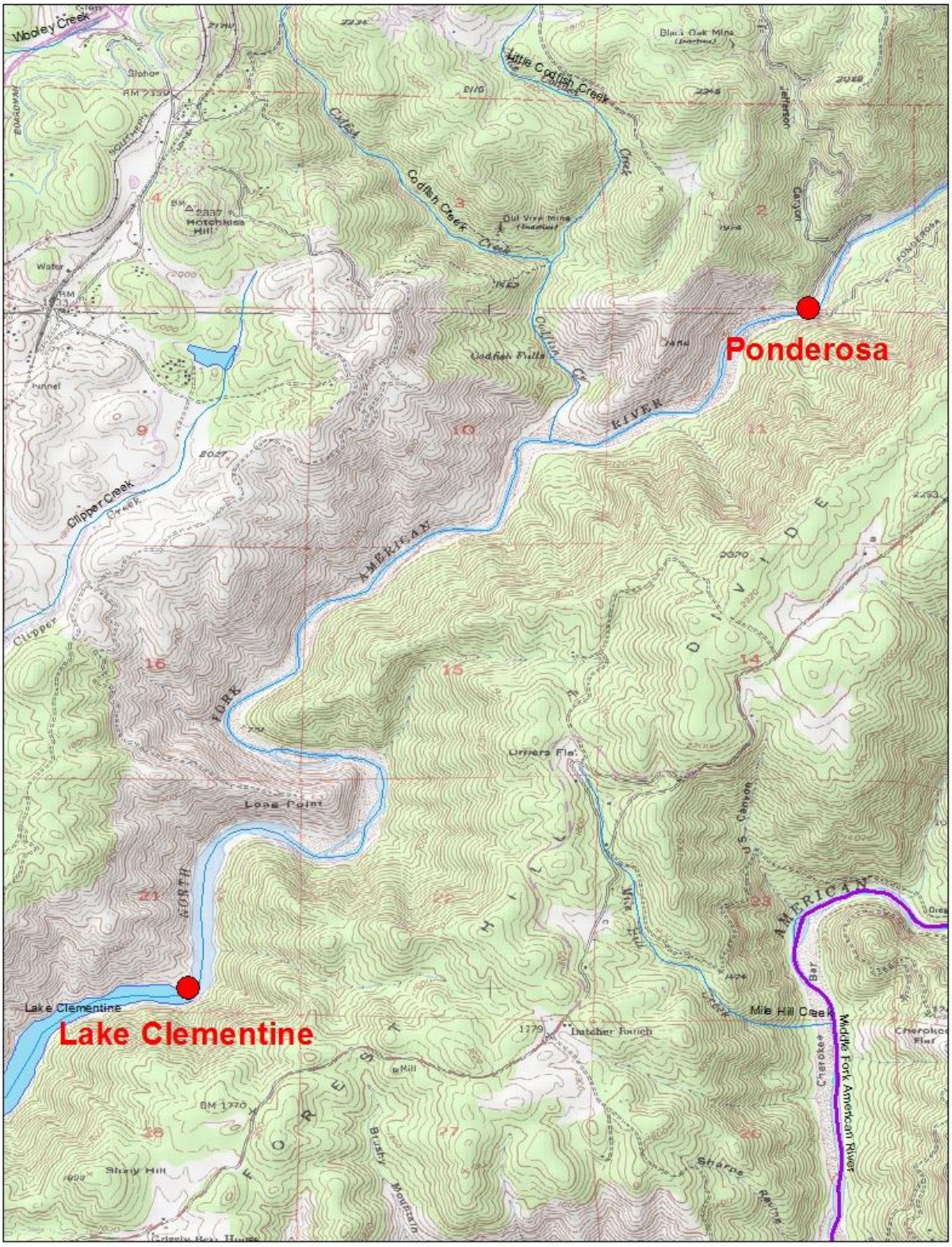

Figure 2 Location of the Ponderosa to Lake Clementine section North Fork American River snorkel survey August 1, 2013.

Table 1 Fish species by size class and total Yankee Jim to Ponderosa snorkel survey July 31, 2014.

Species	0-6	6 to 12	12 to 18	18+	Totals
Smallmouth Bass	500	161	55	1	717
Hardhead	1	8	7	0	16
Sacramento sucker	0	2	6	2	10
Riffle sculpin	Abundant	0	0	0	N/A
Rainbow trout	0	3	2	0	5
Pikeminnow	33	27	9	0	69
Bluegill	2	0	0	0	2

Table 2 Fish species by size class and total Ponderosa to Lake Clementine snorkel survey July 31, 2014.

Species	0-6	6 to 12	12 to 18	18+	Totals
Smallmouth Bass	208	61	4	0	273
Hardhead	0	7	1	0	8
Sacramento sucker	2	1	3	1	7
Riffle sculpin	Abundant	0	0	0	N/A
Rainbow trout	0	1	0	0	1
Pikeminnow	1750	163	25	2	1940
Bluegill	95	0	0	0	95
Green sunfish	3	0	0	0	3

Table 3 Fish species totals Yankee Jim to Lake Clementine snorkel survey July 31, 2014 and August 1, 2014.

Species	Grand Totals
Smallmouth Bass	990
Hardhead	24
Sacramento sucker	17
Riffle sculpin	N/A
Rainbow trout	6
Pikeminnow	2009
Bluegill	97
Green sunfish	3

Table 4 Amphibians and reptiles observed by life stage Yankee Jim to Ponderosa snorkel survey July 31, 2014.

Species	Larvae	Metamorph	Juvenile	Adult
Foothill yellow-legged frog	49	5	162	7
Chorus frog	Abundant	0	Abundant	0
Aquatic garter snake	0	0	0	1
Western pond turtle	0	0	0	2
Bullfrog	54	0	0	0
Unknown frog	74	0	25	29

Table 5 Amphibians and reptiles observed by life stage Ponderosa to Lake Clementine snorkel survey July 31, 2014.

Species	Larvae	Metamorph	Juvenile	Adult
Foothill yellow-legged frog	209	6	85	2
Chorus frog	0	0	26	0
Aquatic garter snake	0	0	0	1
Western pond turtle	0	0	0	0
Bullfrog	282	2	4	2
Unknown frog	0	0	17	1