

Surveys for Special-Status Species Along the Middle Fork American River Adjacent to Mammoth Bar Off-Highway Vehicle Area (OHVA)

Prepared for:
Mike Lynch
Supervising State Park Ranger
Mammoth Bar OHVA/Auburn State Recreation Area
501 El Dorado St.
Auburn, CA 95603

Prepared by:
Brian D. C. Williams
Wildlife & Conservation Ecologist
Williams Wildland Consulting, Inc.
8200 Turner Dr.
Granite Bay, CA 95746
916-791-1240; bwcal@sprynet.com

EXECUTIVE SUMMARY

We conducted surveys for foothill yellow-legged frogs and other semi-aquatic or riparian-dependent special-status species along the Middle Fork American River adjacent to Mammoth Bar OHVA. We found no yellow-legged frogs, but breeding yellow warblers and yellow-breasted chats were common and appeared to occupy all suitable habitat. These findings are probably best explained by the altered flow regime of the Middle Fork: frogs have probably declined due to unpredictable (unnatural) flows, while riparian specialists have benefited from the reduced frequency of scouring flows and stabilization of river bars. None of these species appear to be significantly impacted by operation of Mammoth Bar OHVA.

INTRODUCTION

The Mammoth Bar OHVA is located in the Auburn State Recreation Area (ASRA) in the canyon of the Middle Fork American River. Concern about the effects of OHV use in the canyon and its potential impacts to wildlife resulted in the initiation of a Wildlife Habitat Protection Plan (WHPP) (California Department of Parks and Recreation and Williams 2002). This plan recommended an inventory of special-status and other potentially sensitive species, including species that may only occur along the Middle Fork of the American River.

METHODS

STUDY AREA

Surveys were conducted along a 3.15 mile segment of the Middle Fork of the American River adjacent to Mammoth Bar OHVA, Placer County (Fig. 1). Although OHV use approaches the river only at Mammoth and Hoosier Bars, we defined the survey area as the entire reach of river adjacent to the immediate watershed boundary of the Mammoth Bar OHVA. We restricted surveys to the north shore, as this was the only side that could be reasonably impacted by OHV use. River elevations ranged from approximately 580 feet at the drainage immediately east of Limestone Ridge (a conspicuous marble ridge on the north side of the river) (Wilderness Conservancy 1989) to 650 feet at an unnamed drainage north of Buckeye Bar. The Middle Fork is a regulated river with several dams that regulate flows throughout the year. The reach is generally a relatively low-gradient river dominated by stabilized cobble bars interspersed with bedrock and boulder fields. Most bars had substantial subsurface flow that emerged near the tail of the bar before re-entering the river. All bars had a varying amount of riverside and upland vegetation (Figs. 2-12).

SURVEYS

We surveyed for semi-aquatic and riparian-associated herpetofauna and birds on 14 June, 3 July, 22 August, 3 October, and 19 & 20 October 2002. The foothill yellow-legged frog (*Rana boylei*) was the primary target, but we also targeted six other species identified in the WHPP: western pond turtle (*Clemmys marmorata*), Osprey (*Pandion haliaetus*), belted kingfisher (*Ceryle alcyon*) (see below for updated status), willow flycatcher (*Empidonax traillii*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*). We surveyed the river and off-channel pools and seeps by carefully looking and listening for animals while moving along or near the water's edge and waving or tapping a dip net – an effective technique for finding foothill yellow-legged frogs. Areas inaccessible on foot were surveyed by floating or swimming near shore and waving or tapping the bedrock or by scanning with binoculars. The only area that we could not completely survey was the giant boulder field near Murderer's Bar rapid (Fig. 1). More surveys were initially proposed in May-September, but an ankle injury severely limited my mobility from May-July. This delay did not compromise the effectiveness of the frog surveys, nor the general findings of the bird surveys (see Results & Discussion). Given the paucity of well-documented or accessible information on wildlife distribution in the area, we also recorded other wildlife observed during our surveys (Table 1 and Table 2), except for the July survey conducted by David Foxworthy who was trained and qualified to survey only for frogs, turtles, and garter snakes.

RESULTS & DISCUSSION

SPECIAL-STATUS SPECIES

Foothill Yellow-legged Frog

We did not find any yellow-legged frogs or any other species of ranid (Genus: *Rana*) frog. A small number of treefrogs (*Pseudacris regilla*) (Fig. 12) were the only species observed during our surveys. There is suitable habitat structure for yellow-legged frogs along most of the surveyed reach, but the altered flow regime of the Middle Fork probably severely limits their occurrence (e.g. (Lind et al. 1996). This is supported by an August 2002 study (B. Williams, unpubl. data) in which 203 frogs were found along 11.7 miles (>17 frogs/mile) of the unregulated North Fork but only eight frogs were found along 9.0 miles (<1 frog/mi) of the Middle Fork – none of which were found along 4.4 miles of river surveyed between Ralston Reservoir and Ford's Bar (approx. 9.5 river miles upstream from the upper end of the reach surveyed here). Although I suspect frogs were formerly fairly common along the lower Middle Fork, I could find only one record of occurrence: a specimen at the California Academy of Sciences (CAS 218322) collected from the North Fork at the Middle Fork confluence in 1953.

Although I have found frogs in mid-October along the South Fork American River, I had some concern that the validity of mid-October surveys could be questioned given the relatively late date and potential inactivity of frogs. Consequently, I checked frog activity at the North Fork (near Ponderosa Way, river elevation 820 feet) immediately after the October 20th survey and found six active juvenile and sub-adult frogs in exactly 10 seconds; thus frogs were clearly still active in October and our Middle Fork surveys were valid.

Western Pond Turtle

We did not observe any pond turtles during our surveys, although any underwater turtles would have not been detected. A single turtle was found on the Middle Fork at African Bar (about 10 miles upstream) in August 2002 (Brad Cavallo, unpubl. data), but turtles are uncommon in the American River canyons and the Middle Fork probably offers marginal habitat given the altered flow regime (Reese and Hartwell H. Welsh 1998).

Osprey

I observed a single Osprey perched over the river at Kennebeck Bar on 22 August. This was almost certainly a post-breeding migrant, but I cannot eliminate the small possibility of nesting at or near Mammoth Bar OHVA. No Osprey nests were observed during our surveys, but they are better surveyed by a targeted search for nesting raptors.

Belted Kingfisher

We observed kingfishers on three surveys: one at Brown's Bar on 14 June and 22 August, and a male near at the "rapid" below Wildcat Canyon on 19 October. No nest sites were located, but I suspect 1-2 pairs may nest along or near the reach. This species is no longer considered a "special-status" species, as it has been recently removed as a candidate for the California Department of Fish and Game's Bird Species of Special Concern designation (web address: <http://www.prbo.org/BSSC/index.htm>).

Willow Flycatcher

I heard a semi-liquid "whit" call from a possible Willow Flycatcher on the south side of the river across from Mammoth Bar on 14 June, but never saw the bird. Willow Flycatchers are regular late spring (mid-May to mid-June) migrants, and this bird – if it was a Willow Flycatcher – was undoubtedly a migrant. Nesting at this elevation in the Sierra foothills has no recent precedent.

Yellow Warbler

We found nine adult warblers in breeding habitat on 14 June: five at Mammoth Bar, and four at Texas Bar. One territorial male was conspicuously active in and near the large cottonwood at the northeast end of the OHV track. Another was seen carrying food to riparian habitat on the south side of the river, presumably to a nest. Yellow warblers seemed to occupy all available habitat at fairly high densities and were the most numerous bird observed. This high density is somewhat unexpected, as a previous survey did not record them and the deep canyons do not often offer quality riparian habitat. Two seen at Hoosier Bar on 22 August were probably migrants but were present in likely breeding habitat.

Yellow-breasted Chat

We found seven chats on 14 June: two at Mammoth Bar, three at Texas Bar, and one on the south side of Brown's Bar. The first bird at Mammoth Bar was foraging and singing near the mouth of Murderer's Gulch and the riparian habitat adjacent to the Mammoth Bar OHV track. Another chat heard at Hoosier Bar on 22 August was probably a lingering breeder but could have been a migrant. Chats appeared to occupy all suitable habitat, but their density along this reach may have been slightly lower than the yellow warblers because the dense understory vegetation (*Rubus* sp., mostly *Rubus discolor*) that chats prefer is only intermittent.

OTHER NOTABLE SEMI-AQUATIC, RIPARIAN SPECIES OBSERVED**Sierra Garter Snake (*Thamnophis couchii*)**

We found snakes on three of the six surveys: two on 3 July, four on 22 August and two on 3 October. On 3 July, David saw one near the boulder field at the entrance to Murderer's Bar Rapid, and another near the upper end of Murderer's Bar. On 22 August, one adult was at the downstream end of Hoosier Bar where subsurface flow re-entered the river, one was at Texas Bar (Fig. 13), and two juveniles (8-12 in) were along Mammoth Bar. I saw an adult and juvenile (~12-15 in) together in the massive boulder field below Murderer's Bar Rapid in October.

Compared with the North Fork, garter snake populations along the lower Middle Fork may be depressed because of a lack of frogs – a potentially significant food source. For comparison, the maximum density during our surveys was 2.8 snakes/mi over 0.7 miles, whereas I found 5.3 snakes/mi along 4.7 miles of the North Fork American River on 29 August 2002.

Canada Goose (*Branta canadensis*)

We saw two adults with four young across from Brown's Bar on 14 June. The age of the juveniles strongly suggested local nesting. This may be a common phenomenon, but I am not aware of it.

Spotted Sandpiper (*Actitis maculata*)

On 14 June we flushed a spotted sandpiper from suitable riverside nesting habitat near the upper end of Texas Bar. A brief search revealed a nest with two incubated eggs, and two additional eggs (cold) a few feet downslope from the nest. The nest was next to a log on a vegetated bar about 15 feet from the water. Spotted sandpipers are fairly common and assumed breeders the three forks of the American ((Wilderness Conservancy 1989)), but this provides a definite nest record.

American Dipper (*Cinclus americanus*)

We observed two adults attending two fledglings directly across from the Mammoth Bar OHV track on 14 June. I also found a nest (these are reused) at the westernmost extreme of the boulder field below of Murderer's Bar Rapid (3 October). Foraging dippers were associated with the few distinct rapids or high-velocity riffles that occur along the surveyed reach.

River Otter (*Lutra canadensis*)

We did not directly observe otters during the survey, but we found sign of otters in several places, primarily crayfish-filled scat (Fig. 14) on flat-topped boulders adjacent to deep-water pools. At one site on Kennebeck Bar we also found a worn haul-out path in the soil between a favored boulder and deep-water pool.

OTHER NOTABLE WILDLIFE**Western Whiptail (*Cnemidophorus tigris*)**

I observed two adult whiptails on the sandy upland of Texas Bar on 14 June. Although Papenfuss (Papenfuss 1980) considered this lizard to be a chaparral indicator (he found them near Foresthill Bridge), it is probably just as common on the sparsely-vegetated sandy uplands of various river bars.

Striped Racer (*Masticophis lateralis*)

I observed an adult "whipsnake" on the River Bar Trail above Kennebeck Bar on 22 August. Papenfuss (1980) documented them near Foresthill, but there are relatively few specimen records of this species from Placer County or the northern Sierra foothills. As a snake of the chaparral/woodland interface (Sullivan 1981, Stebbins 1985), the Auburn SRA is probably the stronghold for this species in Placer County.

Mountain Quail (*Oreortyx pictus*)

I saw two (at least) off the River Bar Trail above Kennebeck Bar (800 feet) on 19 October. Mountain quail are known to move downslope in the Sierra Nevada in winter (Belding 1903, Gaines 1992), but this is the lowest-elevation sighting I'm aware of in Placer County. No mountain quail have been recorded in Placer County during the 23 years of the Auburn Christmas Bird Count (unpublished data on file), which extends east to include the Foresthill Bridge area and Clipper Gap. Mountain quail often breed at similar elevations in the chamise chaparral of the inner coast range and may occur at some Sierran locations down to 2,000 feet (San Miguel 1985, Gaines 1992), but I have not observed this in the Sierra. Potential breeding should be considered.

Black Bear (*Ursus americanus*)

I photographed fresh bear prints and scat (Fig. 15) near Kennebeck Bar on 19 October. A track was first noted at two locations along the River Bar Trail, then again in the sand at Kennebeck Bar. Numerous scats were in the area, and these were filled with the remains of wild grapes. A prominent track at the bar led to a large grape vine where the vegetation had been recently trampled. I mention this observation because black bears are not widely known from this relatively low elevation.

CONCLUSIONS / MANAGEMENT CONSIDERATIONS

There is no obvious impact of OHV use on any special-status species restricted to riverside or riparian habitats on the Mammoth Bar OHVA. This is probably because OHV use and associated users do not heavily impact the shoreline of Mammoth Bar (which appears to be visited at least as frequently by general recreationists and river rafters). The absence of yellow-legged frogs adjacent to Mammoth Bar is almost certainly unrelated to any recreational use, but is instead is a consequence of unnatural flows.

Other special-status species, namely yellow warblers and yellow-breasted chats, occurred at Mammoth Bar in higher than expected densities. I expected the footprint and noise associated with the OHV track to reduce habitat capability for a couple pairs of yellow warblers and yellow-breasted chats, but I was somewhat surprised to observe both species in riparian habitat immediately adjacent to the OHV track. It is possible that the predictability made possible by the defined OHV track as well as and day- and time-use restrictions have reduced the impact of OHV use on these species. This possibility, of course, is unknown, as is the potential impact of OHV use on the birds' breeding success. It is difficult to evaluate the site potential of the river bar in the absence of the OHV track, but I would estimate that potential vegetation would support no more than a single additional pair of each species.

The largest potential impact of OHV use on the river bars would be to species that specialize on the upland portion of the river bar. The whiptail lizard may be the primary specialist of this habitat type, but they have no special status. Horned lizards (*Phrynosoma coronatum*) are also possible, but their occurrence is unknown (see WHPP for discussion).

LITERATURE CITED

- Belding, Lyman. 1903. The fall migration of *Oreortyx pictus plumiferus*. Condor 5: 18.
- California Department of Parks and Recreation, and Brian D. C. Williams. 2002. Mammoth Bar Off-Highway Vehicle Area Wildlife Habitat Protection Plan. Unpublished report on file at Auburn State Recreation Area,
- Gaines, David. 1992. Birds of Yosemite and the east slope. Artemisia Press, Lee Vining, CA
- Lind, Amy J., Hartwell H. Jr. Welsh, and Randolph A. Wilson. 1996. The effects of a dam on breeding habitat and egg survival of the Foothill Yellow-legged Frog (*Rana boylei*) in northwestern California. Herpetological Review 27: 62-67.
- Papenfuss, Theodore. 1980. Sierra Nevada foothills amphibian and reptile survey. Report prepared for the Bureau of Land Management, Folsom, CA.
- Reese, Devin A., and Jr. Hartwell H. Welsh. 1998. Habitat use by western pond turtles in the Trinity River, California. Journal of Wildlife Management 62: 842-853.
- San Miguel, George L. 1985. Lower elevation breeding in the Sierra foothills. Western Tanager 52(2): 1-3.
- Stebbins, Robert C. 1985. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston, MA.
- Sullivan, Brian K. 1981. Distribution and relative abundance of snakes along a transect in California. Journal of Herpetology 15: 247-248.
- Wilderness Conservancy. 1989. The American River: North, Middle, and South Forks. Protect American River Canyons (PARC), Auburn, CA

Fig. 1 – Study area.

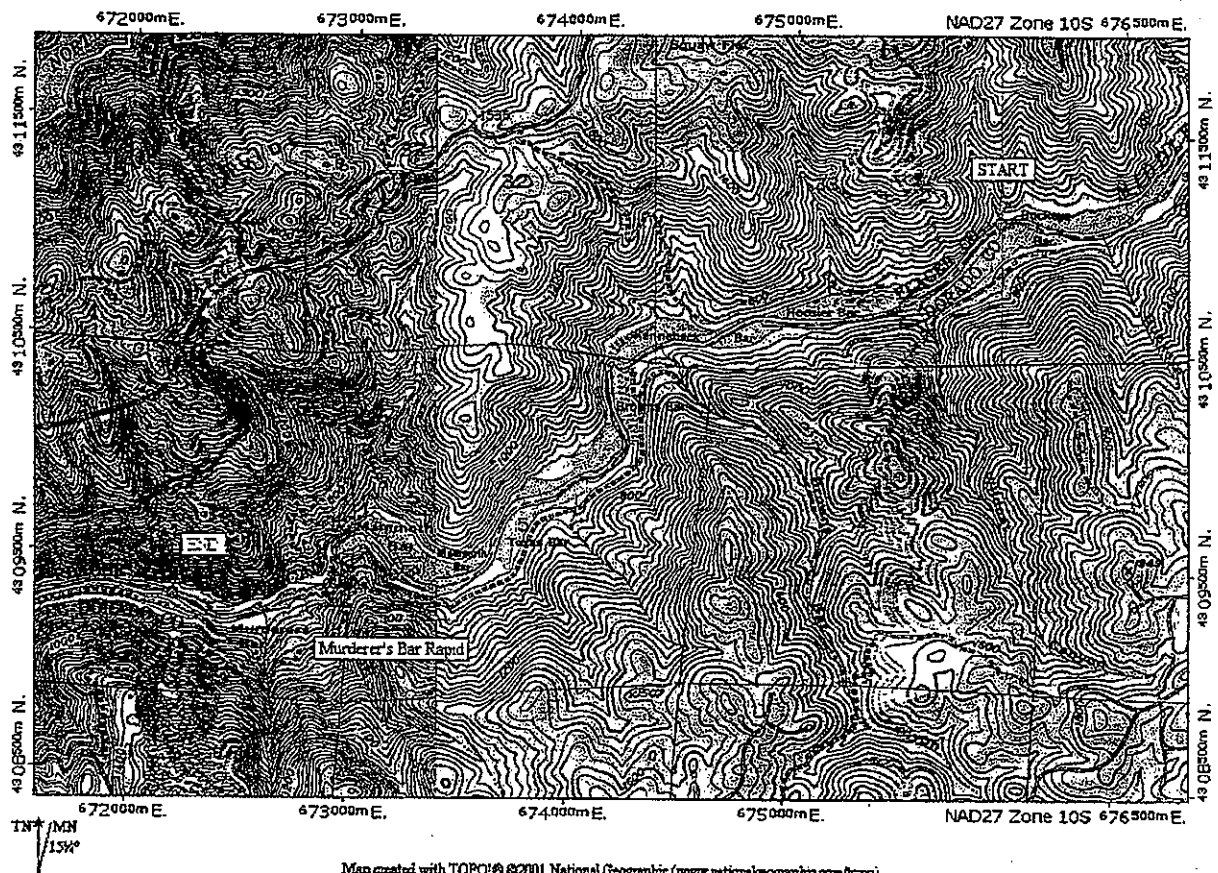


Fig. 2 – Upper end of survey reach (22 Aug 2002, looking across river to north – BW)

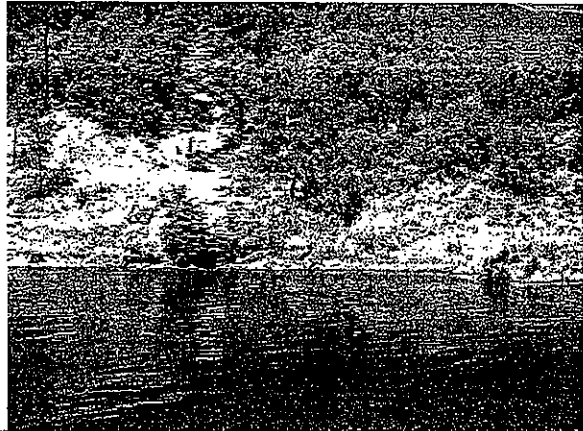


Fig. 3 – Head of Hoosier Bar to Wildcat Canyon (22 Aug 2002, looking downstream - BW)

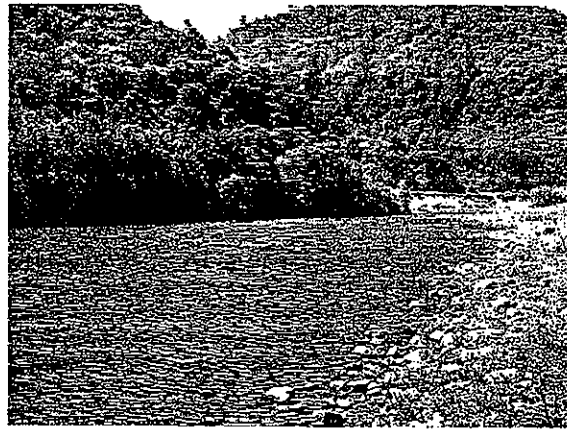


Fig. 2 – Off-channel pool at head of Hoosier Bar (19 Oct 2002, looking upstream - BW)



Fig. 3 – Wildcat Canyon “rapid” and cobble of Hoosier Bar (19 Oct 2002. - BW)

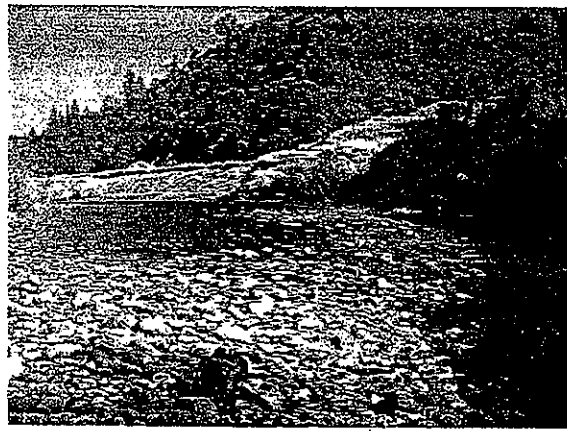


Fig. 4 – Willow scrub at Hoosier Bar, at site with substantial subsurface flow (19 Oct 2002 - BW)

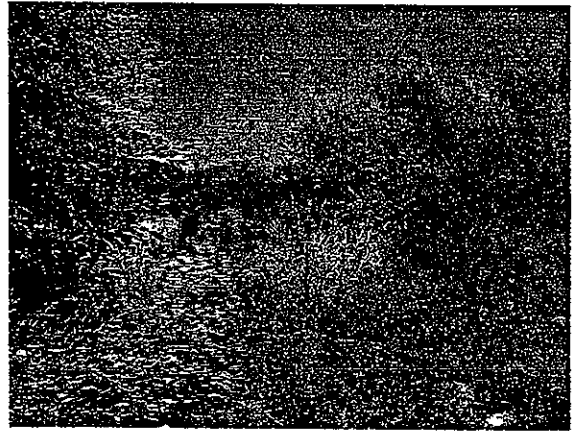


Fig. 5 – Rapid and stabilized channel of Kennebeck Bar (22 Aug 2002, looking upstream - BW)



Fig. 6 – View upstream of Brown's Bar (lower right), Kennebeck Bar (middle left & right), and Hoosier Bar (upper left) (19 Oct 2002 - BW)

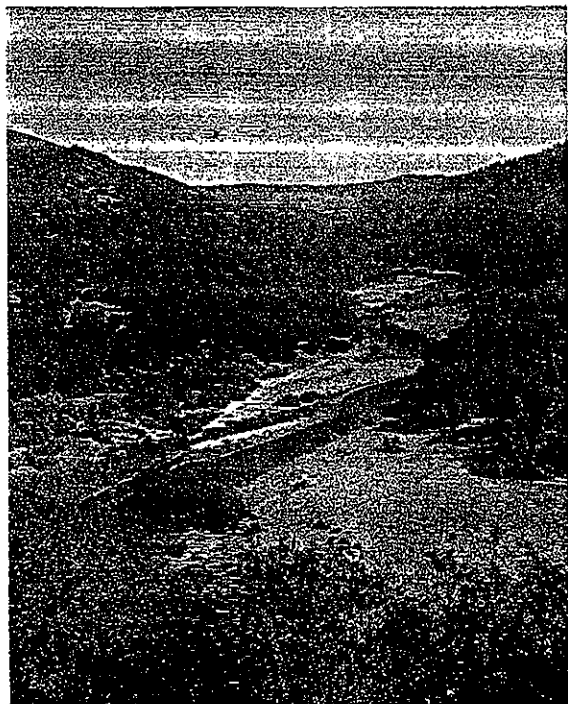


Fig. 7 - Reach immediately below Mammoth Bar. Murderer's Gulch marked by larger trees, left-center (3 Oct 2002, looking upstream - BW)

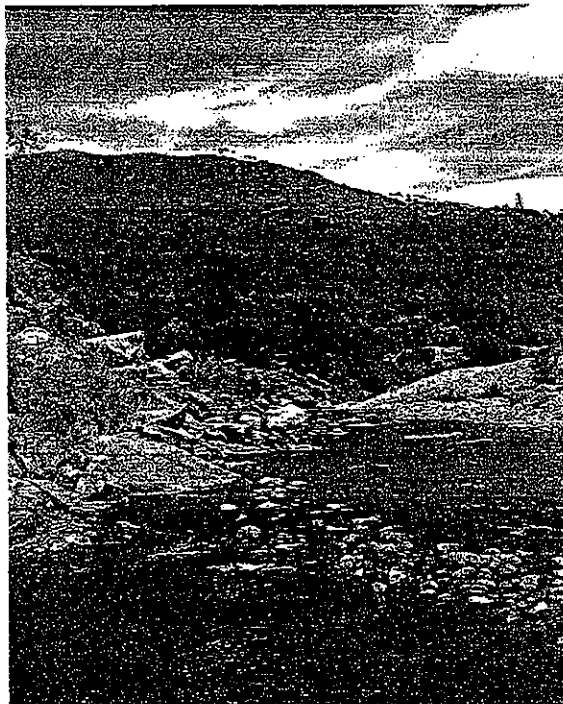


Fig. 8 – Cobble habitat across from Murderer's Bar (3 Oct 2002, looking upstream - BW)



Fig. 9 – Limestone (marble) ridge on right marks lower end of survey reach (3 Oct 2002, looking downstream - BW)



Fig. 10 - Pacific tree frog (*Pseudacris regilla*) – the only frog detected (19 Oct 2002 - BW)

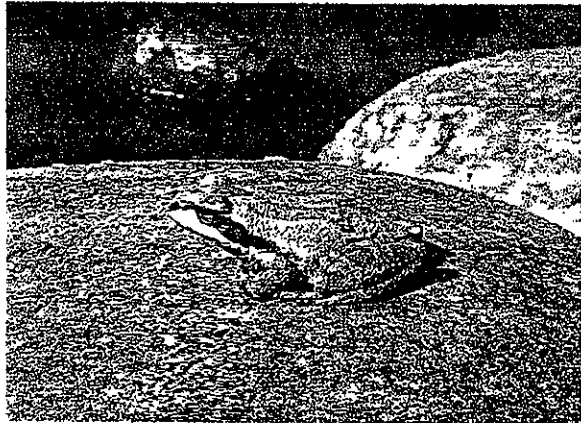


Fig. 11 - Sierra garter snake (*Thamnophis couchii*) juvenile at Texas Bar (22 Aug 2002 - BW)



Fig. 12 - Probable river otter (*Lutra canadensis*) scat just above Kennebeck Bar (19 Oct 2002 - BW)



Fig. 13 - Black bear (*Ursus americanus*) scat at Kennebeck Bar (19 Oct 2002 - BW)

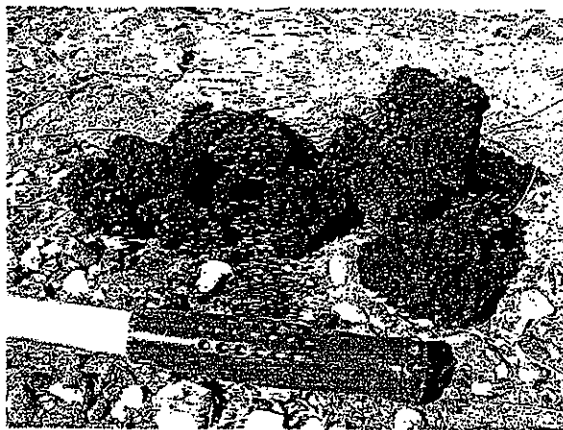


Table 1. Species observed during riverine surveys. Those observed only on the south side of the river in El Dorado County are denoted "ELD".

	14-Jun	3-Jul	22-Aug	3-Oct	19-Oct	20-Oct
Reach ¹ :	MB-BrB	Start-End	Start-MB	MB-End	KB-Start	MB-End
Distance (mi):	1.26	3.1	2.45	0.69	1.22	0.55
Start Time:	0630	?	1220	1455	1300	1300
End Time:	1130	?	1615	1628	1515	1415
Surveyor ² :	BW, DF, ML	DF	BW	BW	BW	BW
Invertebrates						
crayfish				x	x	3
Fish						
Sacramento pikeminnow	x		x	x	x	x
Sacramento sucker						20
Amphibians & Reptiles						
Pacific tree frog		nr		1	1	
Western whiptail	2	nr				
Western fence lizard	x	nr	x	5	x	x
Sierra garter snake		2	4	2		
Birds						
Great blue heron		nr			1 ELD	
Canada goose	2 ad., 4 juv.	nr				
Common merganser	6 ad.	nr	2			1
Sharp-shinned hawk		nr				1 imm.
Cooper's hawk	1 ad.	nr				
Red-tailed hawk	1	nr				
California quail		nr	x		x	
Killdeer	1	nr		2	1	
Spotted sandpiper	1	nr				
Mourning dove	2	nr				
White-throated swift	1	nr			1 dead	
Rufous/Allen's hummingbird		nr	1			
Belted kingfisher	1	nr	1		1	
Lewis' woodpecker		nr		poss. ELD		
Acorn woodpecker	2	nr	1			
Nuttall's woodpecker		nr				1
Northern flicker		nr		2	4	3
Willow flycatcher	1 poss. ELD	nr				
Pacific-slope flycatcher	1 ELD	nr				
Black phoebe	4	nr	2	1	2	2
Ash-throated flycatcher	3	nr				
Cassin's vireo	1 ELD	nr				
Steller's jay		nr			1 ELD	
Western scrub-jay		nr	2			
Violet-green swallow	1	nr				
N. Rough-winged swallow	2	nr				

	14-Jun	3-Jul	22-Aug	3-Oct	19-Oct	20-Oct
Cliff swallow	1	nr				
Oak titmouse	3	nr				
Bushtit	x	nr			x	10
Rock wren		nr				2
Canyon wren		nr		1		
Bewick's wren		nr		1		1 ELD
American dipper	2	nr	3	2	2	3
Ruby-crowned kinglet		nr				1
Blue-gray gnatcatcher	1	nr				
Hermit thrush		nr			1 ELD	
Wrentit	2	nr		2	x	2
Orange-crowned warbler	2	nr				
Yellow warbler	9	nr	1			
Yellow-rumped warbler		nr			1	
Black-throated gray warbler	5	nr				
Yellow-breasted chat	7	nr				
Western tanager	3	nr				
Lazuli bunting	2	nr	2			
Spotted towhee	4	nr		2		
Rufous-crowned sparrow	2	nr	5	3	2	3
Fox sparrow		nr				1 ELD
Song sparrow	2	nr	2	1	3	
Golden-crowned sparrow		nr		2	3	2
White-crowned sparrow		nr			3	2 ELD
Brown-headed cowbird	2	nr				
Lesser goldfinch	1	nr				
Mammals						
Raccoon	sign	nr	sign	sign	sign	sign
Ringtail		nr		sign?		
River otter	sign	nr	sign	sign	sign	sign
Mule deer	sign	nr	2	sign	sign	sign

¹ Reaches: Brown's Bar (BrB), Buckeye Bar (BuB), Kennebeck Bar (KB), Mammoth Bar (MB)

² Surveyors: David Foxworthy (DF), Marin Lemieux (ML), Brian Williams (BW)

Table 2. Other wildlife observed at Mammoth Bar OHVA – excluding the riverine surveys. These were typically recorded while walking on trails to various access points to the river.

Species	14-Jun	3-Jul	22-Aug	3-Oct	19-Oct	20-Oct
Amphibians & Reptiles						
Western fence lizard	na	na		2		
Striped racer	na	na	1			
Birds						
Turkey vulture	na	na	5			
Osprey	na	na	1			
California quail	na	na	7			
Mountain quail	na	na			2+	
Band-tailed pigeon	na	na	5			
Northern pygmy-owl	na	na			1	
Anna's hummingbird	na	na	3			
Acorn woodpecker	na	na			x	
Hairy woodpecker	na	na	1			
Northern flicker	na	na			x	
Hutton's vireo	na	na	2			
Oak titmouse	na	na	4		x	
Bushtit	na	na	10		x	
Rock wren	na	na		1		
Bewick's wren	na	na	2			
Ruby-crowned kinglet	na	na			x	
Blue-gray gnatcatcher	na	na	1			
Hermit thrush	na	na				x
Wrentit	na	na	2		x	
Yellow warbler	na	na	2			
Yellow-breasted chat	na	na	1			
Western tanager	na	na	1			
Spotted towhee	na	na	2	1	x	x
California towhee	na	na				
Rufous-crowned sparrow	na	na	2		x	
Fox sparrow	na	na				x
White-crowned sparrow	na	na			x	
Dark-eyed junco	na	na				x
Lesser goldfinch	na	na	3 nest w/Y		x	
Mammals						
Black bear	na	na			sign	
Raccoon	na	na			sign	
Ringtail	na	na			sign?	
Mule deer	na	na			sign	
Western gray squirrel	na	na			sign	
Botta's pocket gopher	na	na		sign		