

STATUS OF THE MODOC SUCKER (CATOSTOMUS MICROPS) PICES: CATOSTOMIDAE

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Abstract. The range of the Modoc sucker (Catostomus microps) a rare California catostomid, was found to include four streams from which it previously had not been recorded in Modoc County. The total number of Modoc suckers is probably less than 5,000. It is recommended that the Higgins Flat area of Johnson Creek be managed for Modoc suckers.

INTRODUCTION

The Modoc sucker, Catostomus microps, is a small (usually less than 25 cm SL) fine-scaled catostomid of the upper Pit River system. It is uncommon enough so that it has been listed officially as "endangered" by the International Union for Conservation of Nature and Natural Resources, "rare" by the California Department of Fish and Game (Leach, Brode and Nicola, 1974), and "threatened" by the Bureau of Sport Fisheries and Wildlife, Office of Endangered Species (1973). This paper describes studies on its distribution and population size, carried out in conjunction with life history studies (Moyle and Marciochi, in preparation). The project was originally suggested by Stephen J. Nicola, California Department of Fish and Game, and carried out as a cooperative study by the University of California, Davis, and the Department of Fish and Game. Alan Marciochi conducted most of the field work assisted at various times by myself, Bruce Bachen, David Dettman, Kent Cagle, William Markley, Stephen Nicola, Almo Cordone, and Hiram Li. The study would not have been possible without the cooperation of personnel of the U. S. Forest Service (Modoc National Forest, Adin), especially George Harper, Michael Carmichael, and Helen Walters, and from numerous landowners in Modoc and Lassen counties, particularly Raymond and Audrey Monge, Glenn Kresge, Wayland Stevenson and Paul Downey.

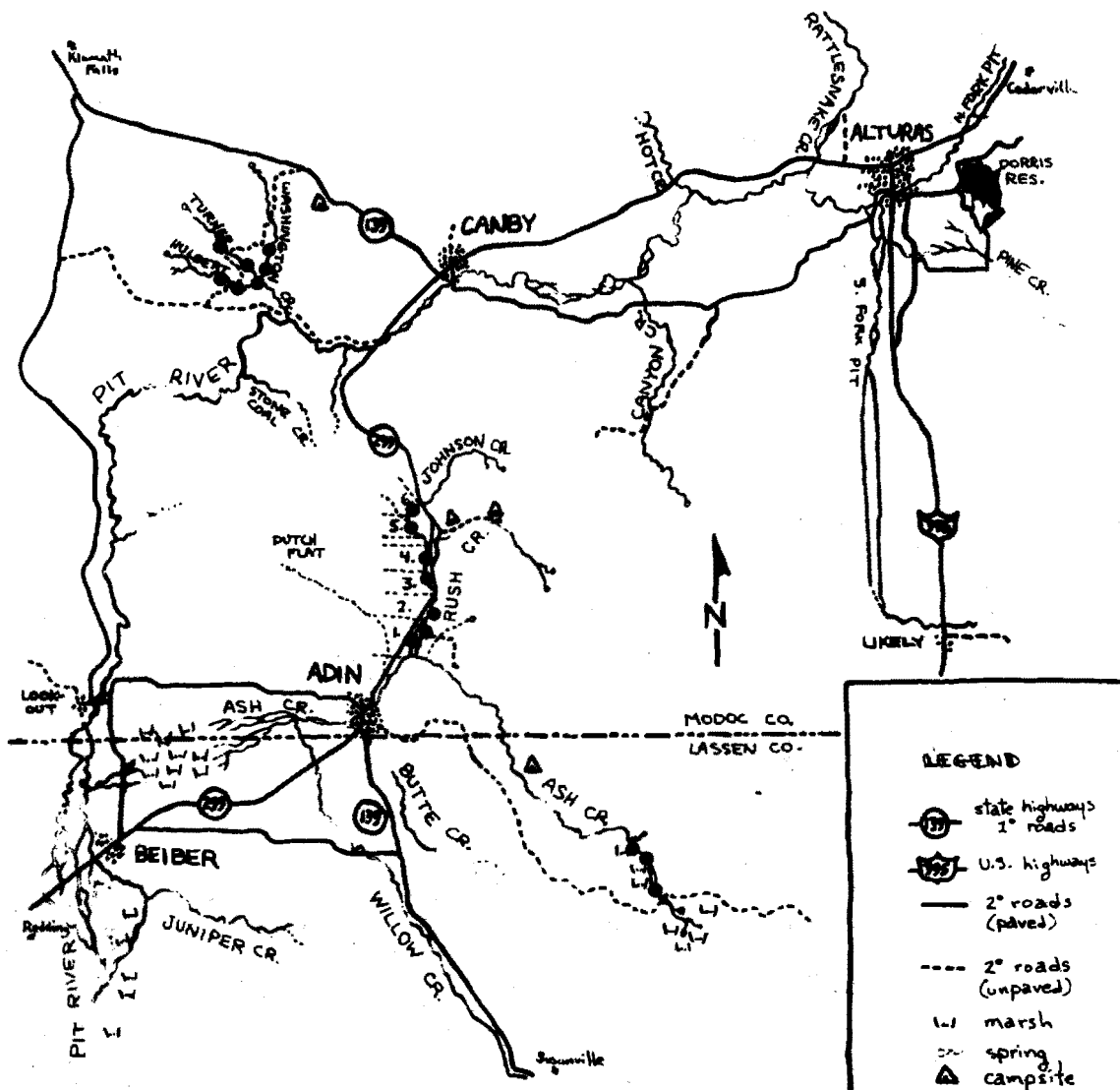


Figure 1: Map of upper Pit River System showing distribution of Modoc suckers and main sampling stations.

METHODS

Tributaries to the Pit River in Modoc and Lassen counties were sampled with a Smith-Root Type V electrofisher. The numbers of Modoc suckers and other fish species captured were recorded, along with detailed habitat notes as discussed by Moyle and Nichols (1973). Between April 1 and July 31, 1973, 124 stream sections were sampled. Most of the sections were 33 m long, but a few were longer or shorter due to the nature of the area sampled. Sixty-seven of the sections were on Rush Creek, Modoc County, the type locality for the Modoc sucker (Rutter, 1908) and the main stream they were known to inhabit. In order to estimate the size of the Modoc sucker population, Rush Creek and its main tributary, Johnson Creek, were divided into sections of similar habitat (Table 1). Each stream section was measured by pacing on foot or by measuring its length on a map. The number of suckers was estimated by extrapolating from the numbers found in the 33 m sample sections and correcting for the efficiency of the electrofishing unit (75%). The efficiency was determined by blocking off with seines three 33-m stream sections, removing all suckers taken in a normal sampling time, and then resampling the section and counting all suckers missed the first time. In other streams, too few samples were taken to make even the crude estimates outlined above, so rough estimates were made by visual observations of all of the sucker habitat and estimating numbers from the available samples.

RESULTS

Modoc suckers were found to be more widely distributed than previously suspected (Figure 1). Particularly significant were the extensions of their range upstream in the Rush Creek drainage to Johnson Creek, and to three distant tributaries to the Pit River: Washington, Turner and Hurlburt creeks, Modoc County. Previously, Modoc suckers were known only from the lower reaches of Rush Creek, Ash Creek and Dorris Reservoir on the Pit River (Leach, Brode, and Nicola, 1974), although the latter record is unconfirmed.

The largest population of Modoc suckers is in Rush and Johnson creeks (Table 1). An additional 150-200 suckers are probably present in side channels and irrigation ditches of Rush Creek that we were unable to sample quantitatively. Outside of the Rush Creek drainage, there are probably less than 300 Modoc suckers in Ash Creek, and less than 100 in Hurlburt, Turner and Washington creeks combined. Therefore the total number of suckers in the known populations is unlikely to exceed 5,000 individuals.

CONCLUSIONS

The small number of Modoc suckers, coupled with their concentration in Rush and Johnson creeks, clearly shows they deserve their classification as a rare (threatened) and fully protected species. We were unable to adequately sample the main Pit River so populations may exist in some parts of it, especially considering the wide separation of the two tributary drainage basins (Ash-Rush Creek, and Turner-Hurlburt Creek) known to contain the sucker. However, our life history studies (Moyle and Marciochi, in preparation) indicate that they are most successful in small, relatively undisturbed, pool-dominated streams from which Sacramento suckers (*C. occidentalis*) are absent, and that channelization eliminates most suitable habitat for the species. The best way to assure their survival as a species is to manage the Higgins Flat area of Johnson Creek for them, since the area contains large populations of the sucker and is controlled by the U. S. Forest Service. In particular, cattle grazing in the area should be restricted to prevent further trampling of the stream banks, and care will have to be taken to avoid dewatering the stream for any purpose in the dry summer months. Further channelization of Rush and Johnson creeks should be prevented, if at all possible.

LITERATURE CITED

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Table 1. Estimated numbers of Modoc suckers in six sections of Rush and Johnson creeks, Modoc County. No Modoc suckers were present upstream from the sections listed in either creek.

Description	Section length(m)	No. samples	No. Modoc suckers	Standard deviation
Lower Rush Creek: partially channelized, mostly pastureland	1686	25	82.97	137.68
Rush Creek: about 25% channelized, pasture and some woodland	2477	13	131.78	415.42
Rush Creek above Highway 299: heavily wooded	1163	9	129.93	128.38
Rush Creek: channelized	1611	9	15.00	2.14
Johnson Creek: Higgins Flat area, big pools, wooded pasture	2438	9	3074.24	4280.55
Johnson Creek: above Higgins Flat to Highway 299	<u>762</u>	<u>2</u>	<u>89.19</u>	<u>61.82</u>
TOTAL	10137	67	3523.11	5025.99