

20

WILLY STEIN ~~0773~~

Fish Remains from an Archaic al Site
along the Verde River
Yavapai County, Arizona

0773

W. L. MINCKLEY and NORMAN T. ALGER
Department of Zoology and Department of Anthropology
Arizona State University, Tempe

Abstract: Five species of fishes, *Pantosteus clarki*, *Catostomus insignis*, *Xyrauchen texanus*, *Gila r. robusta*, and *Ptychocheilus lucius*, were identified from a Pueblo IV Indian site near Perkinsville, Yavapai County, Arizona (Arizona State University Site N-4-2, ca. 1300-1400 A.D.) Discussion of the ecological requirements of each fish is given. Three of the species still live in the Verde River near Perkinsville, and two are no longer present. Probable historic changes in the river are outlined.

INTRODUCTION. Despite intensive archaeological work in Arizona, few reports have appeared on fish remains from aboriginal sites. Miller (1955) reported on bones of humpback sucker, *Xyrauchen texanus* (Abbot), Colorado River squawfish, *Ptychocheilus lucius* Girard, and humpback chub, *Gila cypha* Miller, from the now-undated Catchlaw Cave, adjacent to the Colorado River in Mohave County. He also identified squawfish from Quiburi, a historical site along the San Pedro River near Fairbank, Cochise County (see also, Di Peso 1953). Haury's chapter on "Food" (in Gladwin, et al., 1937) recorded remains of "Acipenser" (sturgeon) and unidentified vertebrae from Snaketown, Pinal, and Maricopa counties. These records were discussed by Miller (1955) who assigned them most likely to squawfish and humpback sucker.

For the past few years, field parties from the Department of Anthropology at Arizona State University (ASU) have studied a series of Indian sites on the upper Verde River near Perkinsville, Yavapai County, Arizona. This paper reports on remains of fishes taken from three of the five rooms excavated from at least 43 rooms present in ASU Site N-4-2. Five kinds of fishes are represented in the 129 bones and bone fragments identified. A total of 194 pieces was recovered, but 65 are fragmented, non-diagnostic, or otherwise unidentified. All the fish remains are deposited in the collection of fishes, Department of Zoology, Arizona State University, as are comparative materials used in identification.

Plateau 40: 91-97
1968

Mrs. Nick Perkins of Perkinsville, Arizona, provided information on habitats of the Verde River in the late 1800s and early 1900s, based on observations of her acquaintances and family who settled the area. Mr. Ben Perkins has allowed and supported field work on his property. Dr. Robert R. Miller, University of Michigan, assisted in identification of some of the remains. Collections of comparative materials from the Verde River and elsewhere in Arizona were made possible by grants to Minckley from the University Research Committee, Arizona State University, and from the Sport Fishing Institute.

ACCOUNTS OF SPECIES

Pantosteus clarki (Baird and Girard)

This species, the Gila sucker, presently is widespread in most flowing streams of the Gila River basin, Arizona and New Mexico. In larger habitats, such as the Verde River, specimens more than 350 mm. in standard length and 0.5 kgm. in weight are not uncommon. Smaller fish, less than 300 mm. are most abundant, and live in shallow, swift riffles over boulder-gravel bottoms. Larger individuals move into deep channels and flowing pools. Spawning occurs in shallow, fast-moving water, and probably at night.

Gila suckers used by the aboriginal people at Site N-4-2 ranged from 100 to perhaps 250 mm. long, as determined by comparisons of remains with skeletons of known-sized specimens from the Verde and Salt Rivers. Bones of the skull and of the pectoral girdle-anterior vertebral complex of this species are readily distinguished from those of the following forms by their relative massiveness, dorso-ventral compression, and heavy sculpture. Other bones, such as vertebrae, are less reliably determined. Smith (1966) has discussed and illustrated the fundamental osteological features of *Catostomus* and *Pantosteus*.¹

The following bones or bone fragments, totaling 53 pieces (42 percent of the total identified) were found: dentary (2), hyomandibular (2), interopercle (1), subopercle (1), proatlas (3), anterior vertebral complex (15), cleithrum (17), pelvic girdle (3), thoracic vertebra (5), and caudal vertebra (4). They are cataloged as a lot, ASU 2491(S).

¹ For reasons to be given elsewhere, I (Minckley) retain the generic name *Pantosteus* for the western mountain suckers.

Catostomus insignis (Baird and Girard)

This species, commonly called the Sonora or coarse-scale sucker, averages larger than *P. clarki*. The largest specimen known to us exceeds 500 mm. in length and weighs more than one kgm. Remains of this sucker were slightly less common in the sample than those of the Gila sucker, and the fish represented probably ranged between 150 and 350 mm. in length. Forty-seven pieces, comprising 37.7 percent of the identified material, were studied. Bones of this species are more fragile than those of *P. clarki*, and breakage was high. Following are those identified (ASU 2492[S]): maxilla (1), frontal (1), endopterygoid (5), hyomandibular (2), urohyal (1), proatlas (1), neural complex (3), anterior vertebral complex (11), pharyngeal bone and teeth (broken) (5), cleithrum (11), and pelvic girdle (6).

Coarse-scale suckers occupy about the same range in the Gila River basin as *P. clarki*, with the exception of headwater streams where pool habitats are lacking. This species tends to remain in the deepest water available, seeking concealment beneath cut banks and debris. Unlike the Gila sucker, which remains quiescent on the bottom much of the time, *C. insignis* tends to remain a few cm. off the bottom and to move about regularly. Spawning by *C. insignis* is also on riffles, or immediately below swift waters on gravel bars.

Xyrauchen texanus (Abbott)

A single bone, ASU 2493(S), is identified as remains of the humpback sucker. This bone, the tripus of the Weberian apparatus, is highly diagnostic of *Xyrauchen* (Nelson 1948; Miller 1955); perhaps some of the unidentified fragments also represent this form. Illustrations of skeletal parts of *X. texanus*, from prepared skeletons and from Catclaw Cave, were published by Miller (1955). *Xyrauchen texanus* was formerly widespread in the Gila River basin (Miller and Lowe 1964), but has not been collected anywhere in that system during intensive work between 1963 and 1967. No preserved specimens of the species are known from the Verde system.

Humpback suckers live in large, strongly-flowing rivers. The possible presence of the fish in the Verde River headwaters in times past, as indicated by the tripus, must indicate substantial differences in habitat then and now.

Gila robusta robusta (Baird and Girard)

The following bones of roundtail chub were determined: dentary

(1), parasphenoid (3), subopercle (1), proatlas (2), pharyr bone and teeth (some broken) (8), cleithrum (1), thoracic vebra (2), and caudal vertebra (4) (ASU 2495[S]).

The remains are referred to *G. r. robusta*, the same subspecies now living in the mainstream of the Verde River, on the basis of the long and slender inferior ramus of the pharyngeal bones (Miller 1955), and an intermediate angle of neural and haemal spines to centra of the caudal vertebrae. Other chubs that now or once lived in the Gila basin, *G. elegans* (Baird and Girard) and *G. r. intermedia* (Girard), both have the inferior ramus of the pharyngeal arch short and thickened. The vertebral spines of *G. elegans* lie almost parallel to the axis of the centra in the caudal peduncle (Gehlbach and Miller 1961), and in *G. r. intermedia* they project at an angle of about 45° to that axis.

One pharyngeal arch from the site is quite large, probably from a fish near 375 mm. in standard length; *G. r. robusta* rarely attains that size. Most remains are of fish ranging between 150 and 200 mm. long. Roundtail chubs live in deep pools or channels throughout their range, avoiding small creeks on one hand and extremely turbulent waters on the other.

Ptychocheilus lucius Girard

Six thoracic vertebrae, all of similar size and condition, are tentatively identified as squawfish (ASU 2494[S]). Only one vertebra is relatively undamaged. The bones were found together, along with remains of *P. clarki* and *Gila*, in a burial that contained three infants (Room 3). The fish was about 300 mm. long (the vertebrae are identical in size to those of ASU 2310, 290 mm. in standard length).

Habitat and present status of *Ptychocheilus* in Arizona are similar to that of humpback sucker. No preserved specimens from the Verde are known to us; however, older residents of Camp Verde, about 30 airline km. down the river from Perkinsville, definitely knew the species (as "salmon") and attest to its occurrence there in the early 1900s.

DISCUSSION AND SUMMARY

The Perkins Pueblo Site N-4-2 was inhabited between 1300 and 1400 A.D. as tentatively determined by pottery identification (Jeddito Black-on-yellow and Prescott Black-on-gray) and architec-

tural similarities to the Pueblo IV component of 5000 Ruins, also on the Verde River about 16 miles downstream near Clarkdale, Yavapai County, Arizona (Caywood and Spicer 1935). Confirmation of these dates awaits tree-ring studies.

Three of the five species of fishes from the site still occur abundantly in the Verde River at Perkinsville (*Pantosteus clarki*, *Catostomus insignis*, and *Gila r. robusta*). The other two, *Ptychocheilus lucius* and *Xyrauchen texanus*, to our knowledge, have not been collected from the Verde drainage, though they must have ascended the larger, lower parts in historic times. The last two species are poorly represented in the remains; six squawfish vertebrae were identified and a single Weberian ossicle is of humpback sucker. Perhaps they were brought to the site from downstream. Shells of marine molluscs were present, attesting to travel or trade by the inhabitants. The small, non-distinctive bones of the fishes are, however, unlikely as trade items. The fishes were undoubtedly used as food, yet few, if any of the bones are charred. Rostlund (1952) notes that aboriginal peoples of the lower Colorado River dried fishes for later use. Perhaps the fishes of the Perkins Pueblo were dried, in the manner of Paiute Indians near Pyramid Lake, Nevada (Snyder 1917), then cooked in water.

The Verde River near Perkinsville now occupies an eroded channel, flowing between cut banks in relatively stable areas, but meandering widely and forming extensive gravel bars in other places. According to Mrs. Nick Perkins (personal communication), the floodplain of the river was quite stable in the 1890s, and Yavapai Indians were using canals to irrigate their crops along banks of the stream. The river flowed slowly, impeded by many beaver dams, and extensive marshes occupied the floodplains. Cottonwood and other large trees were uncommon, as was mesquite, and the dominant tree was desert willow on terraces and along tributary washes. A large island was present in the river near the present site of Perkinsville. Livestock driven to the island would not leave it because of deep, surrounding waters; at present the average depth of water in the area is scarcely more than a foot, except in occasional holes near obstructions. Perhaps the same erosion cycle of the later 1800s and early 1900s which has been documented in southern Arizona and included entrenchment of streams, drainage of marshes, invasion of banks by mesquite and cottonwood, and so on (Miller 1961), occurred along the Verde River.

Squawfish and humpback sucker are characteristic of large, strongly flowing streams (Miller 1961; Miller and Lowe 1964), although the latter also lives in lakes and larger swamps. Pounded, marshy waters as described by Mrs. Perkins seem an unlikely habitat for either fish. Canyons above and below the Perkins Pueblo Site may have afforded suitable habitat, however, when water levels were higher.

The method of capture of fishes by aboriginal inhabitants of Site N-4-2 is indeterminable. If canals were in use it is possible that many fishes were harvested by simply blocking and drying a channel. All five of the species are, or have in the recent past, occurred abundantly in canals of the Phoenix area (Minckley 1965). Hooks and specialized spear points were absent from the site. A few woven artifacts could have been used for catching fishes, but they are too fragmentary and few in number to be positively determined as such.

REFERENCES CITED

- GAYWOOD, L. R. and E. H. SPICER
1935 Tuzigoot, the excavation and repair of a ruin on the Verde River near Clarkdale, Arizona. U.S. Nat. Park Serv., Berkeley, Calif., 119 pp., 18 pls., processed.
- DI PESO, C. C.
1953 The Sobaipuri Indians of the upper San Pedro River Valley, Southeastern Arizona. Amerind Found., No. 6: i-xii, 1-285, 92 pls.
- GEHLBACH, F. R. and R. R. MILLER
1961 Fishes from archaeological sites in Northern New Mexico. *SW Naturalist*, 6, 1: 2-8.
- GLADWIN, H. W., E. W. HAURY, E. B. SAYLES, and N. GLADWIN
1937 Excavations at Snaketown. I. Material culture. *Medallion Papers*, No. 25: 1-xviii, 1-305, 215 pls.
- MILLER, R. R.
1955 Fish remains from archaeological sites in the lower Colorado River basin, Arizona. *Papers Michigan Acad. Sci., Arts, and Lett.*, 40: 125-136, 5 pls.
1961 Man and the changing fish fauna of the American Southwest. *Ibid.*, 44: 365-404.
- MILLER, R. R. and C. H. LOWE, JR.
1964 Annotated check-list of the fishes of Arizona. In Lowe, C. H. Jr., *The Vertebrates of Arizona*. Univ. Arizona Press. Pp. 133-151.

MINCKLEY, W. L.

- 1965 Native fishes as natural resources. In Gardner, J. L. (Ed.), "Native Plants and Animals as Resources in Arid Lands of the Southwestern United States." Contr. 8, Comm. Desert and Arid Lands Res., SW and Rocky Mtn. Div., A.A.A.S. Pp. 48-60.

NELSON, E. M.

- 1948 The comparative morphology of the Weberian apparatus of the Catostomidae and its significance in systematics. *Jour. Morph.*, 83, 2: 225-251, 3 pls.

ROSTLUND, E.

- 1952 Freshwater fish and fishing in native North America. *Univ. Calif. Publ. Geogr.*, 9: 1-x, 1-313.

SMITH, C. R.

- 1966 Distribution and evolution of the North American catostomid fishes of the subgenus *Pantosteus*, genus *Catostomus*. *Misc. Publ. Mus. Zool., Univ. Michigan*, 129: 1-132, 1 pl.

SNYDER, J. O.

- 1917 The fishes of the Lahonton system of Nevada and Northeastern California. *Bull. U. S. Bur. Fish.*, 35: 33-86.