

PROCEEDINGS
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NOTES ON THE FISHES OF CRAB CREEK, WASHINGTON, WITH DESCRIPTION OF A NEW SPECIES OF TROUT.*

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Reports having come to the Bureau of Fisheries from time to time of the presence of a peculiar and interesting trout in Crab Creek, Washington, it was decided to secure specimens of it whenever a suitable opportunity presented itself.

In the summer of 1908, while Mr. Nichols was engaged in studying the operation of the salmon wheels on the Columbia River, advantage was taken of his presence in that part of the country to visit Crab Creek, make a study of the local conditions and collect specimens of the trout and other fishes inhabiting that stream. Accordingly on July 29 Mr. Nichols, accompanied by Mr. Ruskin Lhamon as temporary assistant, drove from Ritzville northward about 12 miles to Rocky Ford where Crab Creek was examined and collections made. The road from Ritzville is through a very dusty rolling grain country. At the point visited Crab Creek runs in the bottom of a coulée apparently cut by a much larger stream. Along its immediate banks is a green strip of small trees and shrubs, willows, poplars and alders, but the rocky slopes and ledges of the coulée rise toward the upland, uncultivated and scantily clothed with grey-green, rank-smelling sage brush, dazzling to the eye under the desert sun. The water of the stream was clear and cold, about 53° Fahrenheit. Its shallows were overgrown with water crowfoot in flower.

Several species of wading birds were observed, such as kildeers

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which were especially common and noisy, and kingfishers which were much in evidence.

Crab Creek has its rise near the western line of Spokane County, Washington. Its general course is westerly until it reaches the vicinity of the lower end of the Grand Coulée. It then turns southward toward Moses Lake. At the little town of Odessa, again just below the mouth of Wilson Creek (its principal northern tributary), and probably at other places, the creek sinks, usually to reappear further down. During high water it sometimes reaches Moses Lake, though it is said usually not to do so. At the lower end of Moses Lake are great sand dunes and sandy wastes placed across the old drainage channel of the creek. Through these the water seeps to reappear on the surface at intervals between the dunes and the Columbia which the waters finally reach. Although it is quite certain that at one time previous to the late pleistocene, Crab Creek flowed into the Columbia, it evidently has not done so for many years.

In its upper reaches the water is pure and sweet, but just above Moses Lake, according to Lieut. Symons,* it becomes somewhat alkaline. That of Moses Lake is stagnant alkaline, and unfit for drinking. Below the lake the water is alkaline, filled with organic matter, and unpalatable.

The water of the creek stood in deep, still pools the largest of which was thirty feet or more across and ten feet or so in depth. Between the pools were shallows where the current was not very strong, and only a few miles up stream from the largest pool, the creek became a mere rill which one could almost step across. Persons living in the neighborhood said that varying volume from point to point along its course was characteristic of Crab Creek.

Trout were found in considerable abundance but, probably owing to an abundant food supply, they did not take the fly or baited hook with any avidity. Young trout two to three inches long were abundant in the creek and some were found in an irrigating ditch which received its water from the creek.

Three days were devoted to an examination of the creek and only four species of fishes were obtained.

* Report of an examination of the Upper Columbia River by Lieut. Thomas W. Symons, Ex. Doc. 186, 47th Cong. 1st Session.

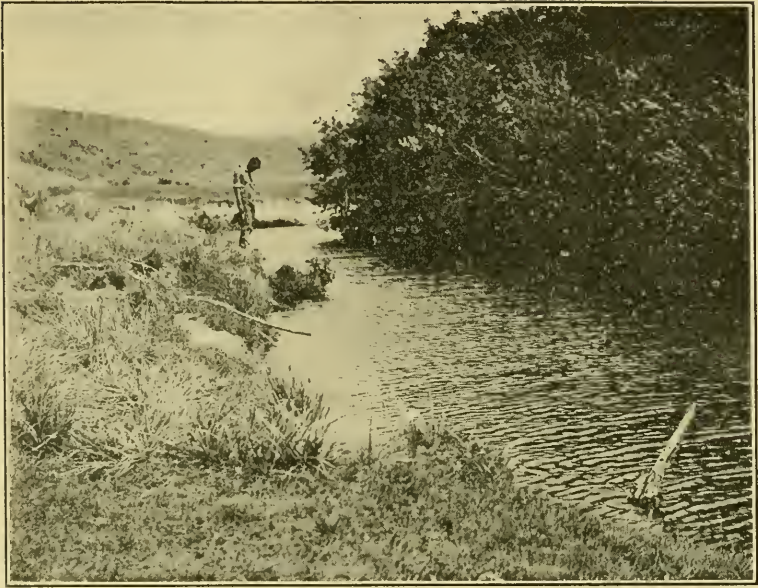


Fig. 1.



Fig. 2.

Figs. 1 and 2. Crab Creek near Rocky Ford, 12 miles north of Ritzville, Wash.
Type locality of *Salmo eremogenes* Evermann and Nichols.

The list is as follows:

1. **Catostomus catostomus** (Forster).

LONG-NOSED SUCKER.

Head 4.5 in length; depth 4.4; depth of caudal peduncle 2.9 in head; eye 6.5; snout 2.2; interorbital width 2.4; dorsal 12; anal 7; scales 18-110-13, between occiput and dorsal about 60.

Width of mouth about 2.8 in length of head; upper lip with about 4 rows of papillae; lower lip with two rows between apex of cleft and border of lip, and 4 or 5 rows on its lobes.

Ventrals 1.3 in head; pectoral 1.2; origin of dorsal slightly nearer tip of snout than base of caudal; anal reaching past base of outer caudal ray; lateral line complete.

Color (in life).—Above dull yellowish, irregularly blotched with darker; belly white; fins russet brown.

Only one small example (6.3 inches long) was obtained. It agrees perfectly with young of this species from other places.

2. **Leuciscus balteatus** (Richardson).

Common, but only a few young individuals retained.

3. **Salmo eremogenes** Evermann & Nichols, sp. nov.

Type, No. 62960, U. S. N. M., a specimen 10 inches long, obtained by R. Lhamon, in Crab Creek at Rocky Ford, north of Ritzville, Washington, July 30, 1908.

Head 4.3 in length; depth 3.6; eye 5.2 in head; snout 4.2; maxillary 1.95; mandible 1.6; least depth of caudal peduncle 2.5; longest dorsal ray 1.75; longest anal ray 1.9; ventral 1.8; pectoral 1.6; adipose fin 5; caudal 1.4; dorsal rays 11; anal 10; pectoral 15; ventral 9; scales 32-165-32; gillrakers 19; branchiostegals 12 or 13. Teeth on jaws, palatines and vomer, and large teeth on tongue.

Body robust, the back rather strongly elevated; head large, snout blunt, lower jaw slightly projecting; maxillary long and rather broad, its middle under pupil; eye large; caudal peduncle stout.

Color (in life).—Above dark olive; caudal peduncle with numerous close-set roundish black spots of moderate size, these spots becoming less numerous anteriorly, there being only a few in front of dorsal and none on head; dorsal and caudal fins with black spots, other fins immaculate, the spots on anterior part of body more nearly round than those on caudal peduncle; cheek and opercle olive yellowish, tinged with pink; lower part of side from base of pectoral to anal more or less pink, the color showing a little on pectoral and more on ventrals; ventral surface whitish; pectoral green; anal olive with more or less reddish tint; ventrals more or less olive, tinged to a considerable extent with the pink of the flanks; red on lower jaw quite distinct.

In spirits the pink or rosy of sides and the red on lower jaw have faded.

A cotype, No. 5370, Bureau of Fisheries, 7 inches long, and taken at same place, agrees essentially with the type. Scales about 175.

Color (in life).—Olive, becoming golden on lower part of side which is tinged with silvery; back, dorsal and caudal with large black spots becoming fewer towards head; pectoral, ventral and anal reddish olive, a bright brick-red streak on lower jaw; belly white.

Another cotype, 5.75 inches long, from same place had the scales about 33-174-31.

Color (in life).—Olive green above, a bright red stripe along lower jaw; about 4 roundish red blotches near the center of lateral line; black spots on back, dorsal and caudal, becoming fewer towards head, the spots not so numerous as in the other cotype, pectorals yellow; ventrals dull yellow with a white outer edge; anal with a reddish and olive tint and white front outer margin.

A small example, 2.15 inches long from same place, gives the following measurements:

Head 3.7 in length; depth 4.2; eye 2.6 in head; snout 4.5; maxillary 2; least depth of caudal peduncle 2.5. Anal rays 10.

Color (in life).—Olive above with small black spots; belly white; pectoral, ventral, anal, and caudal fins dull yellow; about 8 or 9 rather broad parr marks; caudal dusky at base; yellow stripe at base of branchiostegals; dorsal dull yellowish, somewhat marked with dusky at base, tip and front margin; adipose fin pale dull yellowish with a dark tip and fine dark punctulations.

We note with great interest that fingerling fish (the colors of one of which were carefully noted and a number of which were examined for this mark) have the red cut-throat mark of the adult already indicated as a yellow streak at the base of the branchiostegals.

The Crab Creek trout is evidently a species of the cut-throat series. Red marks on throat are very distinct, and the scales are small, there being 165 to 175 in a longitudinal series.

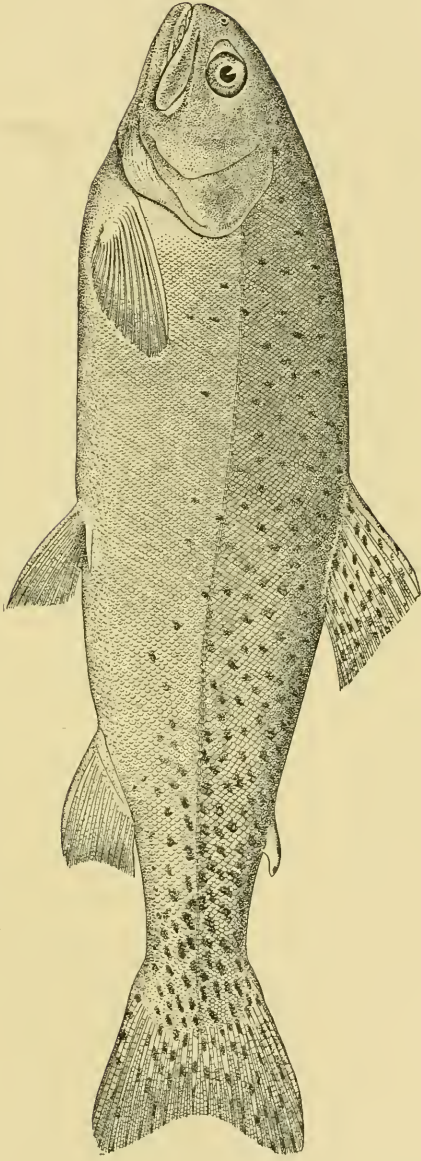
As regards coloration, the Crab Creek fish have the spots, which are large, and vary in abundance, much the most abundant caudally. The spots are mostly on the caudal peduncle, the back as far forward as the first dorsal fin, and the dorsal and caudal fins. In each specimen, however, few spots occur in the front part of the body.

In the number, size and arrangement of the spots, this species most resembles *Salmo stomias*, the trout of the headwaters of the Platte and Arkansas. It differs from that species, however, in the shorter snout, larger eye and the somewhat larger scales. The Waha Lake trout (*S. bouvieri*) differs from the Crab Creek species in the entire absence of black spots anteriorly.

4. *Cottus punctulatus* (Gill).

WESTERN BLOB.

Very abundant, though only a few small specimens were secured.



Salmo cerymognus Evermann & Nichols. Type.