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INCIDENCE OF THE LEECH HELOBDELLA STAGNALIS
ON THE COLORADO RIVER IN WEST CENTRAL COLORADO

Mitra Malek¹ and Gary McCallister¹

ABSTRACT.—Fifty-seven fish of three genera were taken from the Colorado River in west central Colorado and examined for external parasites. No external parasites were found on Ictalurus. Seven percent of the Hybognathus and 100 percent of the Catostomus were infected with a Hirudinean of the species Helobdella stagnalis.

The Colorado River is a major drainage of the American Southwest. One of the first large tributaries to join the Colorado is the Gunnison River, which drains the south central Colorado Rocky Mountains. These two rivers join on the southwest edge of the city of Grand Junction, Colorado, in a large valley. In this area there are a number of rapids alternating with deeper, still channels to give a variety of habitats.

Of the 44 species of freshwater leeches in the United States (Pennak 1978), only the Piscicolidae generally attack fish. They attach to fish periodically, take a blood meal, and then abandon the host for a time. Their life cycles are not well known, and fish host specificity appears to be lacking (Hoffman 1970).

METHODS

In this study, 57 fish were caught by seineing from the Colorado River in west central Colorado, on the outskirts of Grand Junction, Colorado. Samples were taken only during the months of April and May in 1982 and 1983, and all samples were captured close to the shore, as spring currents are treacherous. The surface of each fish was examined with a dissecting microscope at magnifications of 4X. The number of leeches on each fish were recorded and the fish host identified.

Leeches were placed in the lid of a petri dish in a small amount of water. The inverted bottom of the dish was then placed over the leech to keep it flattened. Seventy percent ethanol was gradually added until movement ceased, usually 15 to 30 minutes. Specimens were then washed in 70% overnight, then stored in vials of 80% ethanol. A few specimens were fixed in Schaudinn's fluid overnight and then washed in two changes each of 50% and 70% ethanol, for 30 minutes in each change. The specimens were stained with borac carmine overnight; then destained in 70% acid alcohol. Dehydration of the specimen was accomplished by passage through 70, 80, 90, and 100% ethanol, then cleared in xylene and mounted in permount.

RESULTS

Fifty-seven fish belonging to three species were examined (Table 1). The smallest sample was of Ictalurus metas, a catfish. All specimens of this species were relatively small, averaging 4 cm in length, and none were found to have leeches attached. The largest group of fish was of the Silvery Minnow (Hybognathus nuchalis), of which 3 of

Table 1. The hosts, numbers collected, percent infected, and the mean number of leeches per host for fish collected from the Colorado River in west central Colorado.

<table>
<thead>
<tr>
<th>Host (Genus)</th>
<th>Number sampled</th>
<th>Number infected</th>
<th>Percent infected</th>
<th>$$\text{Leeches/}\text{host}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catostomus</td>
<td>11</td>
<td>11</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>Hybognathus</td>
<td>43</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Ictalurus</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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43 (7%) were infected. Each infected fish of this species had only one external parasite. The 11 *Catostomus latipinnis* (suckers) were all (100%) infected and averaged 3 leeches per host (varying from 1 to 8 each). All leeches on the 14 infected fish were identified as *Helobdella stagnalis*. Tentative identification was made by the authors and then confirmed by Dr. Bruce Bauerle, Biology Department, Mesa College, Grand Junction, Colorado.

**Discussion**

The water arriving at the Colorado River from the Gunnison River tributary somewhat changes the volume and nature of the Colorado River below the confluence. The Gunnison has crossed a 40-mile stretch of exposed lowland and has warmed slightly prior to joining the Colorado River. On the days of seining, there was a 3 C difference in temperature between the two rivers. The added turbulence, volume, food supply, and temperature may create habitats that do not exist upstream in the Colorado River.

*Helobdella stagnalis* appears to be a cosmopolitan and common Hirudinea (Pennak 1953, Young and Ironmonger 1980). It usually makes its way in the world as a scavenger, or predator of small invertebrates such as oligochaets, chironomids, and gastropods (Young and Ironmonger 1980). It occasionally is reported on fish or amphibians, and will rarely take blood from man. Its geographic presence in Colorado is not surprising because of its cosmopolitan nature. Its uniform presence on *Catostomus* in these samples is unusual. This appears to be the first report of *Helobdella stagnalis* in the upper Colorado River drainage and also the first report of this leech on *Catostomus*.

**Literature Cited**

