

## *Acroloxus coloradensis* (Henderson), a Rare North American Freshwater Limpet

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The freshwater limpet family Acroloxiidae (Basommatophora) contains seven species, all in the genus *Acroloxus*. One, *A. lacustris* (Linnaeus), is common in lentic habitats of much of Europe and parts of Asia. Five species, *A. improvisus* (Polinski), *A. macedonicus* (Hadzisce), *A. kobelti* (Dybowski), *A. sibiricum* (Gerstfeldt), and *A. troscheli* (Dybowski), appear to be endemic to a few ancient lakes (e.g., Lake Ochrid and Lake Baikal) of Yugoslavia and U.S.S.R. (Clarke, 1973). Only one species, *A. coloradensis* (Henderson), is found in North America. It is readily distinguished from other freshwater limpets by its spine-like apex, which is directed posteriorly towards the left margin (figure 1). *Acroloxus coloradensis* has hitherto been reported from only seven North American localities. Four of the records are from Rocky Mountain lakes: Colorado (Walker, 1925), Alberta (Mozley, 1930), Montana (Russell and Brunson, 1967), and British Columbia (Clarke, 1981). The other three records are from ponds in Ontario and Quebec (Clarke, 1970).

We recently collected *Acroloxus coloradensis* specimens from one location of the Beaver River in Alberta, Canada. Voucher specimens are deposited in the Canadian Museum of Nature, Ottawa, Ontario, Canada, catalog number #92900. This is the first report of *A. coloradensis* collected from a stream and apparently the first report of any of the seven *Acroloxus* species from a lotic habitat. The Beaver River runs through the southern limit of mixed boreal forest and the northern limit of agricultural activity in northeastern Alberta and is a tributary of the Churchill River, which empties into Hudson Bay.

We sampled various sites of the Beaver River, but *Acroloxus coloradensis* was collected at only one location: where the Beaver River is crossed by a small road bridge south of Highway 55 (54°32'N, 111°52'W). Specimens were collected to a depth of about 0.8 meters. Samples were collected between 30 May and 2 August 1989 by kick samples taken with a dip net (mesh size: 500  $\mu$ m) and by inspecting substratum taken from the river. The width of the Beaver River at the collecting site was 17.5 m; water temperatures ranged from 17 °C on 30 May 1989 to 25 °C on 20 July 1989. There were

no riffle regions in the vicinity, and current velocity was undetectable using a Price AA current meter. Free-floating and submergent macrophytes were common at the sampling site. The river's substratum immediately upstream and downstream of the collecting site (the bridge) consisted of mud and plant detritus with rooted macrophytes near the banks of the river. However, *A. coloradensis* was collected only where the bridge crossed the stream, and here the substratum consisted of gravel, peb-

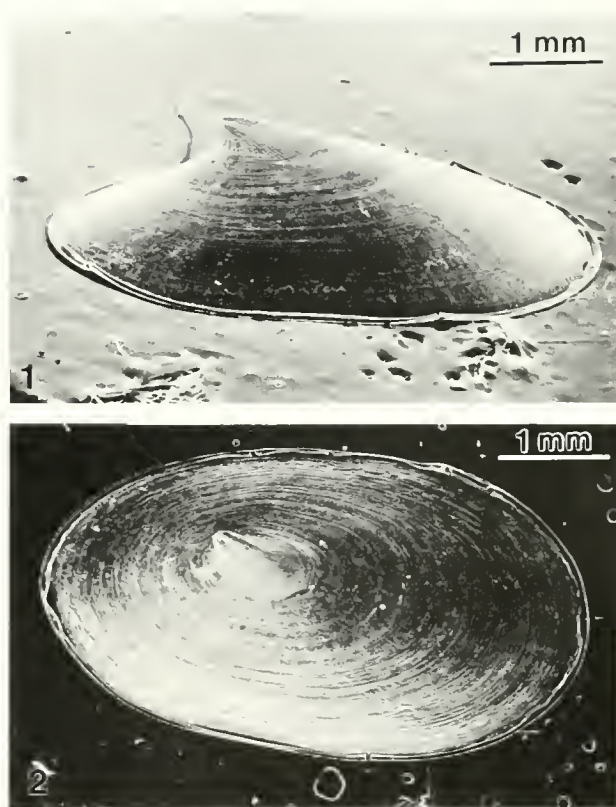


Figure 1. Scanning electron micrographs of *Acroloxus coloradensis* from the Beaver River, Alberta, Canada. 1. Side view. 2. Top view.

bles and large cobbles; presumably the large substrata was introduced when the bridge was constructed. Other gastropods collected from this location were *Valvata sincera helicoidea* Dall; *Menetus cooperi* Baker, *Promenetus exacuus exacuus* (Say), *Armiger crista* (Linnaeus), *Lymnaea stagnalis jugularis* (Say), *Stagnicola* spp., *Helisoma* spp., and *Gyraulus* spp.

Bryce (1970) postulated that *Acroloxus coloradensis*, based on its known distribution at that time, was a cold-water stenotherm, limited to Rocky Mountain lakes. More recent records of the limpet in Ontario and Quebec (Clarke, 1970), Colorado (Wu 1989), and our finding indicate that *A. coloradensis* is not restricted to Rocky Mountain lakes. The large temperature variations (17°–25 °C) experienced over the summer by *A. coloradensis* in the Beaver River indicate that it is not a cold-water stenothermal species.

Clarke (1973) and Burch (1982) suggest *A. coloradensis* might be a rare species with a relic distribution. Its discovery in the Beaver River is not inconsistent with this idea, and we can only speculate on its occurrence in the Beaver River of Alberta, Canada. Possibly *A. coloradensis* will eventually be recorded from Saskatchewan and Manitoba, indicating a wide but rare distribution across Canada on both sides of and in the Cordillera. The southerly populations of *A. coloradensis*, e.g., in Montana and Colorado, might now be restricted to in and near the Cordillera.

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