

*GASTROCOPTA* IN BRITISH COLUMBIA  
(MOLLUSCA: PULMONATA: VERTIGINIDAE)

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**Abstract:** *Gastrocopta holzingeri* (Sterki, 1889), previously known in British Columbia, Canada, by unpublished 40-year-old museum records, was rediscovered in southeastern B.C. in 2002, and its habitat is described. References in the literature to *G. pentodon* (Say, 1822) in British Columbia are thought to be in error.

In North America, the vertiginid genus *Gastrocopta* Wollaston, 1878, occurs mainly in the central or eastern United States (Pilsbry 1948; Hubricht 1985). A few species extend north into Canada from the Atlantic provinces, through southern Quebec, Ontario and the prairies to at least the Rocky Mountain foothills in Alberta (Oughton, 1948; La Rocque, 1953). From west of the continental divide in the northwestern United States and in British Columbia, records of *Gastrocopta* are very scarce.

La Rocque (1953) included British Columbia within the known range of *Gastrocopta pentodon*, likely because of Pilsbry (1898) who recorded it from "Laggan, B.C." Taylor (1893, 1895) wrote that this species was collected from "a few miles to the west of Laggan" and may be the basis of Pilsbry's data. This locality is now named Lake Louise and was not in British Columbia but rather was in what now is the province of Alberta, even if a "few miles" up the Bow River valley in a generally northwest direction are considered. (Harris [1978] also found *G. pentodon* in the Bow River valley.) The community of Lake Louise is only ca 7.5 km from the Alberta-British Columbia border (at the closest point), and although the actual site where the specimens were collected was west of here, there are no documented records for this species from British Columbia.

Another record of interest of *Gastrocopta pentodon* because of its proximity to the British Columbia border was noted by Berry (1948). He recorded a specimen

from a small pond about 2 miles SE of Northport, along the Columbia River, Washington. Although he was describing the contents of pond marl, Berry (1948:772) remarked that "... the terrestrial specimens ... are quite fresh in appearance and evidently represent species now living on the surface of the deposit or on the slopes immediately surround it ...." The village of Northport is ca 9 km south of the British Columbia-Washington border.

Other than the spurious distribution for *Gastrocopta pentodon* brought on by an unfortunate misplacement of the Laggan locality, there are no published records of the genus in British Columbia. However, the close proximity of both Northport and Lake Louise to British Columbia suggests that *G. pentodon* could be also present in the southeastern part of the province. Another species, however, is confirmed for British Columbia.

During the preparation of a field guide to the land snails and slugs of this province (Forsyth, in press), two lots of *Gastrocopta holzingeri* (Sterki, 1889) were located in museum collections (Canadian Museum of Nature, Aylmer, Quebec [CMN] and Field Museum of Natural History, Chicago [FMNH]). Subsequently, based on these previous records' data, *G. holzingeri* was re-collected and confirmed for British Columbia (Royal B.C. Museum, Victoria [RBCM]). These records are the most western known occurrences of any species of *Gastrocopta* in Canada, and are among the scattered few localities for the genus in northwestern North America.

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### British Columbia records of *Gastrocopta holzingeri*

- Canada: British Columbia: Kootenay Land District: east shore of Columbia Lake: Canal Flats Provincial Park, ca 2.25 km NNW of the community of Canal Flats (50°10.67'N, 115°49.112'W); leg. R. Forsyth, 20 August 2002 (RBCM 002-00169-002, 52 specimens).
- Canada: British Columbia: Kootenay Land District: Canal Flats (50°09'N, 115°49'W); leg. K.W. Reid, 16 June 1967 (CMN 43557, 2 specimens).
- Canal Flats SE [50°09'N, 115°49'W]; leg. K.W. Reid, 16 June 1967 (FMNH 157173, 15 specimens).

### Discussion

The shell of *Gastrocopta holzingeri* is more or less cylindrical in form and has a large angulo-parietal tooth that is forked in front and well-developed palatal teeth and callus (Figure 1). It is among the smallest species of *Gastrocopta* in North America. Among adult shells studied, lengths range from 1.57 mm to 1.88 mm. The majority of snails are ca 1.7 mm long.

Pilsbry (1948) gave the range of *G. holzingeri* as Ontario and western New York, west to Montana and south to Illinois, Kansas and New Mexico. There is, however, an early western Canadian record mentioned by Taylor (1895) and subsequently by other authors (e.g., Dall 1905) from drift of the Red Deer River, Alberta. The species seems first recorded from Montana by Sterki (1890) and Squyer (1894; Mingsville, now Wibaux, eastern Montana). The species has a more scattered distribution in the eastern U.S and Ontario than in the prairies (Hubricht 1985; Grimm 1996).

Although the locality data is imprecise, the British Columbia records of *Gastrocopta holzingeri* collected in 1960 (CMN and FMNH) were likely derived from a single collection effort. These previous records were unpublished and the presence of this species in British Columbia has been overlooked for some time, and the new record for *G. holzingeri* in British Columbia was the result of an attempt to relocate this species.

In August 2002, under significant time restraints, one site was sampled on the shore of Columbia Lake. Canal Flats Provincial Park was chosen because of its relative easy accessibility. Once searching by hand through leaf litter confirmed presence of this species at the site, additional leaf litter was collected and bagged. A volume of ca 2 L was gathered, dried, coarse material removed by passing the sample through a series of wire mesh screens. The remaining fine material was then hand-sorted under a dissecting microscope for *G.*

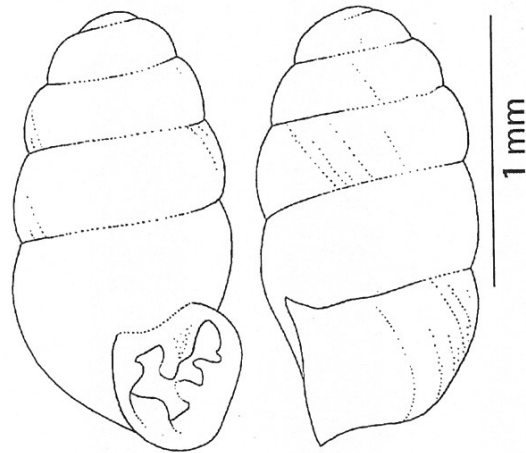


Figure 1. *Gastrocopta holzingeri*. Canal Flats, British Columbia, Canada; FMNH 157173.

*holzingeri* and other land snail species. The Canal Flats Park collection yielded 52 specimens, of which 29 had the adult condition of fully developed apertural dentition. (The smallest specimens were little over one whorl, or 0.05 mm in breadth; consequently, not all the litter was searched for specimens of this size.)

*Gastrocopta holzingeri* is a calciphile living in woodlands, limestone ledges, alvars, talus slopes and hill prairies (Oughton, 1948; Leonard, 1950; Hubricht, 1985; Grimm, 1996; Theler, 1997). Grimm (1996) characterizes it as xerothermic. The 1960 records of this species from British Columbia lack any ecological data, but the recent record offers more information.

At Canal Flats Provincial Park (elevation ca 810 m a.s.l.), *Gastrocopta holzingeri* was found on a slope adjacent to an in-filled area, developed for heavy recreational use as a picnic site and boat launch. Vegetation consisted of *Populus tremuloides*, *Betula papyrifera*, *Amelanchier alnifolia* and *Rosa* sp. Ca 5 m up-slope, the vegetation included *Pseudotsuga menziesii* var. *glauca*, *Symphoricarpos albus*, *Juniperus scopulorum* and *Shepherdia canadensis* and is more characteristically drier. Snails were found in litter sampled from a narrow, slightly wetter zone near the base of the otherwise dry slope. Other species of snails found with *Gastrocopta pentodon* at this site were *Euconulus fulvus* (Müller, 1774) and *Zonitoides arboreus* (Say, 1816).

The very small size of *Gastrocopta holzingeri* probably results in it often being overlooked during field surveys. But given the general scarcity of records for all

species of *Gastrocopta* in British Columbia, Alberta and Washington, *G. holzingeri* may be rare in British Columbia and warrant conservation measures. In British Columbia, *G. holzingeri* may be relict from warmer times, as postulated by Harris (1978) for *G. pentodon* in Alberta. Further surveys, in the general area around the known locality, and farther afield in likely habitats, are desirable to determine the area occupied by *G. holzingeri* in British Columbia.

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