

## OCCURRENCE OF THE SWAMP LYMNAEA, *Lymnaea stagnalis* (GASTROPODA: PULMONATA) IN ATLANTIC CANADA

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The occurrence of the swamp lymnaea, *Lymnaea stagnalis* (Linnaeus 1758), a large, distinctive, pulmonate snail, has been documented in Atlantic Canada for the first time. It is unclear if the populations reported here are relictual, or whether *L. stagnalis* has been introduced into Atlantic Canada.

On a signalé pour la première fois, dans le Canada atlantique, la présence de la grande lymnée des étangs, *Lymnaea stagnalis* (Linné, 1758), un gros escargot pulmoné caractéristique. On ne sait pas si les populations signalées sont relictuelles ou si *L. stagnalis* a été introduit au Canada atlantique.

### INTRODUCTION

#### *Lymnaea stagnalis*

In North America the swamp lymnaea, *Lymnaea stagnalis* (Linnaeus 1758), a pulmonate snail, occurs south of the tree line from the St. Lawrence watershed to the Mackenzie and Yukon watersheds, and south to Colorado and the Mississippi system in North Dakota, Ohio, and Illinois (Jokinen 1992). Although *L. stagnalis* has a wide circumpolar distribution, Athearn (1961), LaRocque (1961) and Davis (1990), do not list the species for New Brunswick or Nova Scotia. Clarke (1981) confirms that this mollusc is absent from Atlantic Canada. With the exception of an undocumented historical record from Maine (Tryon 1865), the swamp lymnaea is not known to occur in New England north of New York (Jokinen 1992). Nylander (1943) reported that *L. stagnalis* was abundant in post-Pleistocene marl deposits at Houlton, Maine and Bonaventure East, on the north side of the Bay of Chaleur, Quebec and commented that the species was conspicuous by its absence from northern New England.

There is, however, an unpublished historic record for *L. stagnalis* in New Brunswick that came to light recently during development of the

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New Brunswick Museum (NBM) mollusc collections database. Three *L. stagnalis* shells, which appear to have been collected as drift, bear the label "*Limnaea stagnalis*, lake near Campbellton, 1889, Harry Hall" (NBM 6737). Campbellton is located in northern New Brunswick at the head of the Bay of Chaleur. Two of the specimens are unbroken and are 34.5 mm and 38.1 mm in total length. The current status of any possible northern New Brunswick population is unknown since the precise location of collection remains uncertain.

### Sampling area

Rockwood Park was established on 120 hectares in Saint John, New Brunswick in 1896; the Arches consist of four interconnected lakes and ponds created by damming a stream and by excavation between 1904 and 1906. The Park now consists of about 890 hectares of mostly undeveloped forestland within the Acadian Forest zone in the Southern Uplands physiographic region and is one of the largest in-city parks in North America. A series of low, discontinuous hills dominate the Park, with the region underlain primarily by limestones and dolomites. The Park receives about 250,000 visitors annually, including a significant number of campers from the eastern United States and elsewhere in eastern Canada (Watson 2003).

Here we document the presence of *L. stagnalis* in this park and comment on the status of the species' occurrence in the region.

## COLLECTION AND IDENTIFICATION

On 23 July 2002 we collected nine specimens of *L. stagnalis* from two small mesotrophic ponds in Rockwood Park, The Second and Third Arches (45° 17.662 N 66° 03.517 W; NBM 4631). The nine specimens range in length from 33.8 mm - 41.6 mm (mean = 38.1 mm). Identification was confirmed by DFM using Clarke (1981) and reference material from Ontario, Manitoba and Michigan available in the NBM collection. New Brunswick specimens match the illustrations of *L. stagnalis jugularis* provided in Clarke (1981), but as McDonald (1969) notes the species is highly variable and the recognition of distinct geographic races in this species is questionable.

Further searches of the Arches in 2003 and 2004 specifically for *L. stagnalis* failed to reveal the species, as did investigations of the following nearby lakes within Rockwood Park in 2003: Lily Lake, Fisher Lakes, Crescent Lake, Harrigan Lake, Owen Lake, and Long Lake.

## CONCLUSIONS

The apparent lack of persistence of *L. stagnalis* in Rockwood Park, coupled with its restriction to a man-made water body near a campground that hosts large numbers of visitors annually from within the documented range of the species, suggests that the nine individuals collected may have been introduced. Also, Matthew & Stead (1903) reported on preliminary investigations of freshwater molluscs collected in Saint John, including some from Rockwood Park, but they did not list *L. stagnalis*, a large and distinctive species.

McDonald (1969) reported that adult *L. stagnalis* "typically" range from 38-52 mm, while Boag & Pearlstone (1979) first observed oviposition at 30 mm. All New Brunswick shells reported here therefore appear to be those of mature or near mature animals. Although not precluding the introduction of juvenile or even adult *L. stagnalis* on exotic plants, the literature on age and size at sexual maturity suggests that the New Brunswick specimens reported here were at least in their second summer, and possibly their third (Berrie 1965, McDonald 1969, Boag & Pearlstone 1979). Further study will be required before it can be determined whether the occurrences documented here are relictual or whether *L. stagnalis* has been periodically introduced into Atlantic Canada, but with populations perhaps proving to be ephemeral.

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