DO DIFFERENCES IN GASTROPOD COMMUNITIES POTENTIALLY ACCOUNT FOR THE PRESENCE OR ABSENCE OF *Umingmakstongylus pallikuukensis*?

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Interim Report:

Do Differences in Gastropod Communities Potentially Account for the Presence or Absence of *Umingmakstongylus pallikuukensis*?

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Introduction:
Gastropod community similarities between Victoria Island and the central Arctic mainland near Kugluktuk, Nunavut, suggest that if *Umingmakstongylus pallikuukensis* is introduced on Victoria Island, the protostrongylid may establish itself in the muskox population (Kutz 1999). The lack of muskox migrations from the mainland to the Victoria Island may explain why the protostrongylid are not present. However, the geographic distribution of *U. pallikuukensis* is also disjunct on the mainland and the Coppermine River appears to act as a natural barrier to this parasite. It is unclear why *U. pallikuukensis* is not present east of the Coppermine River.

The major objective of this research is to determine if gastropod communities differ between mainland areas where *U. pallikuukensis* in known to occur, and where it has not been observed or recorded. Major gastropod community differences are not expected between the two study area. A secondary objective of this research is to document arachnid species incidentally gathered while sampling for gastropods.

Methods:
Gastropod communities were systematically sampled at 50 predetermined sites in each of two areas on the central Arctic mainland near Kugluktuk, NU: (1) east of the Coppermine River (Fig. 1); and (2) northeast of Rae River (Fig. 2). The sites were sampled by helicopter between August 2 and 12, 2007. The crew consisted of the pilot, a data recorder, and an assistant to collect the samples. Four previously defined habitat classifications (Kutz 1999) were used: Wet Sedge Meadows (WSM); Mesic Sedge Meadows (MSM); River Banks (RB); and Lake Shores (LS).

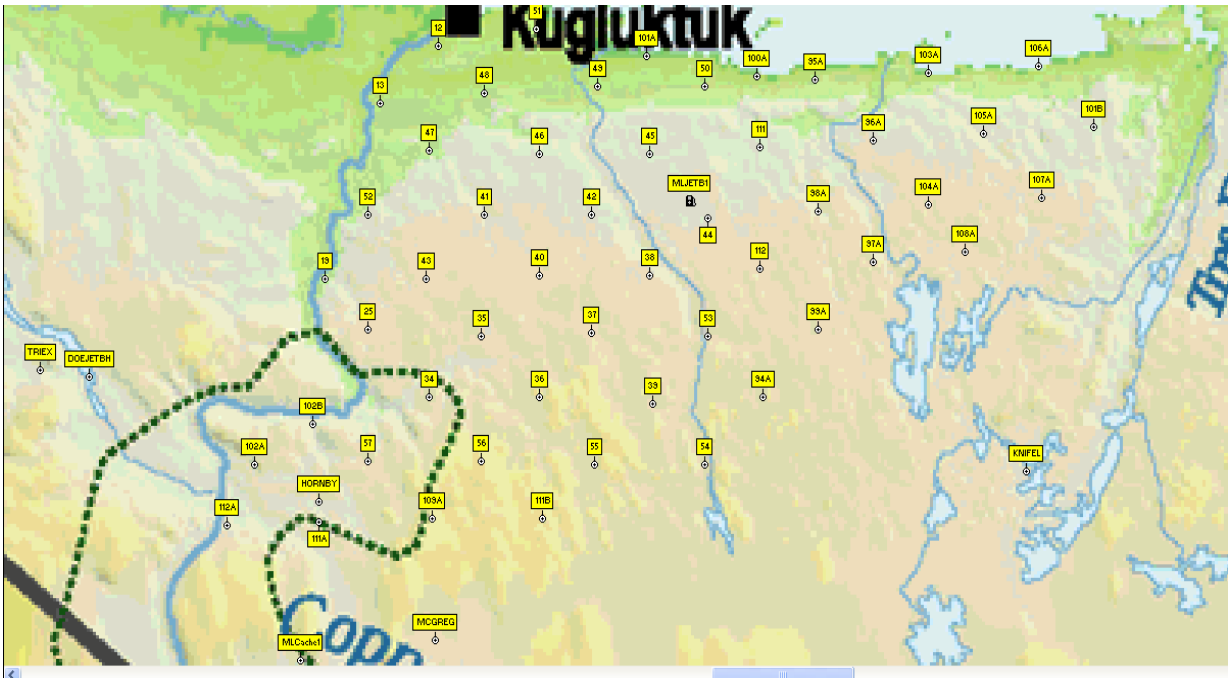

Fig. 1: Predetermined sod sampling sites for gastropod survey east of Coppermine River.

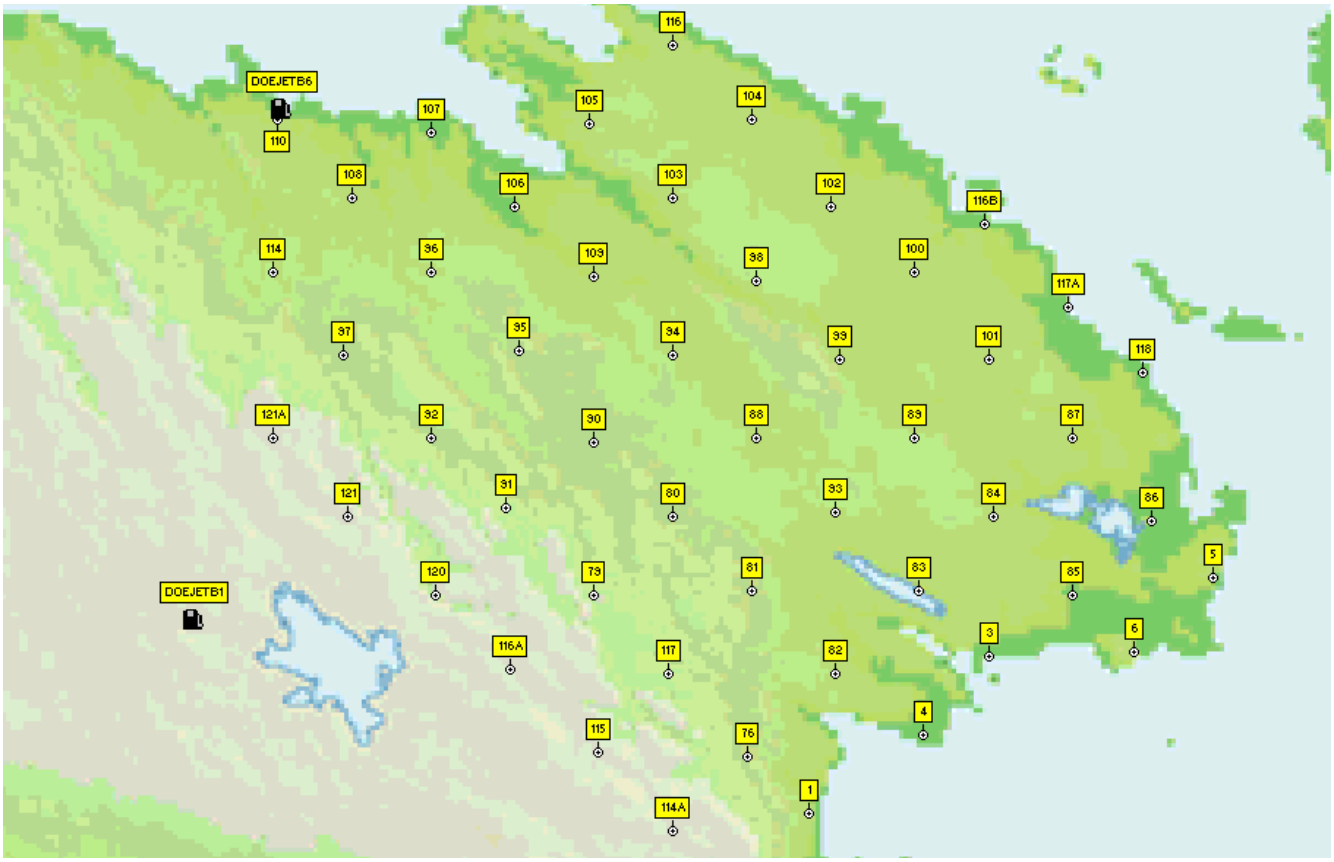

Fig. 2: Predetermined sod sampling sites for gastropod survey northeast of Rae River.

In each area, 15 samples of WSM and MSM, and 10 samples of RB and LS were collected in the vicinity of the predetermined site, and a waypoint location was recorded at the actual sampling site. Two sod plugs 10 cm in diameter and 10 cm deep were extracted 2 m apart by shovel at each sampling site and sealed in 2.4 L pails. At RB and LS sites, sod plugs were collected perpendicular to the bank or shore. The pails were identified with waypoint and ID numbers, and were returned to the lab and stored at 4˚ C to conduct the gastropod surveys.

Gastropods were surveyed between August 16 and September 5 using a water bath technique. The pails with sod samples were left at room temperature for a minimum of 8 hours. Three to 4 cm of water was added to the pails and the lid was secured for 24 hours. On the following day the pail lids, pail sides and vegetation were examined for gastropods. The pails were filled with additional water to 1 to 1.5 cm below the brim and the lid was secured for an additional 24 hours. On the third day, gastropods were surveyed again and the sod was subsequently discarded. Arachnids were opportunistically collected during the gastropod survey. All specimens were collected and preserved in a 70% ethyl alcohol / 5% glycol solution. Gastropods will be sent to Sue Kutz's lab at the University of Calgary for species identification.

Preliminary Results and Discussion:

Gastropods were collected from 19 of 50 sites east of the Coppermine River and 6 of 50 sites northeast of Rae River. At least 3 different species were surveyed in each study area. A minimum of 2 species were present at both study areas (*Deroceras laeve* and *Vertigo* cf *modesta*, Fig. 3 and 4, respectively), and *D. laeve* is a suitable host for *U. pallikuukensis*. As with Victoria Island, *U. pallikuukensis* may establish itself in muskox populations east of the Coppermine River if it is introduced.

Fig. 3: *Deroceras leave*

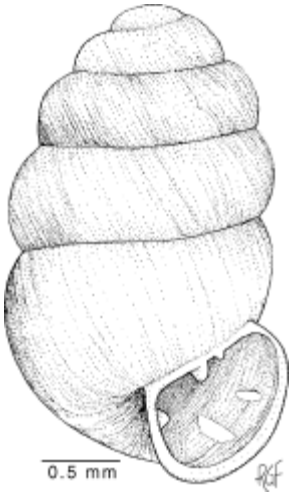

Fig. 4: *Vertigo* cf *modesta*

Arachnids were more evenly distributed in the 2 study areas. Specimens were collected from 23 of 50 sites east of the Coppermine River and 22 of 50 sites northeast of Rae River. Specimens will be sent to a specialist for species identification.

References Cited:

Kutz, S. J. 1999. *Umingmakstongylus pallikuukensis* in Muskoxen. PhD Dissertation, University of Saskatchewan, Canada.