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THUNDER BAY FIELD NATURALISTS

Risky Business

Animals searching for food do so at their peril. During each foraging bout, an individual must balance the risk of encountering a predator, or competing individual, against its need for energy and nutrients. The trade-off between safety and food is played out daily by Meadow Voles (*Microtus pennsylvanicus*) in Northwestern Ontario.

The Meadow Vole ranges from Mexico to Alaska and is one of the most abundant mammals living near Thunder Bay. Meadow Voles are the primary food for many predators—sustaining hawks, owls, foxes, ermine and numerous other northern carnivores. Meadow Voles can be found in many habitats, but are most abundant in grassy areas such as road margins, hayfields, and abandoned farmland which provide forage for these small 30-40 g herbivores.

Much of a Meadow Vole's behavioural repertoire evolved in the context of avoiding predation while still finding enough food to survive and reproduce. These suites of stable and repeatable behaviours are often described as the animal's personality. Personality research has blossomed in recent years because it promises novel insights into the intersecting interests of behavioural and evolutionary ecologists. So we asked whether understanding the personalities of Meadow Voles would deepen our knowledge of how these and other animals choose between safety and food.

Students in our evolutionary ecology research team helped us capture Meadow Voles in fields and young forest plantations on the outskirts of Thunder Bay. We moved the Voles to our field laboratory, the Lakehead University Habitron, where we regularly conduct experiments on habitat selection in large outdoor wildlife enclosures. We used a camera to record two short five-minute bouts of vole behaviour in a hole-board arena—a box marked with a grid pattern with holes drilled in the bottom. This type of behavioural assay allowed us to classify personality by summarizing differences in movement, time spent in different locations, and

exploration of the drilled holes. Two axes described Meadow Vole personality. One axis ranged from latent and indifferent voles to those that are active and curious. The other axis ranged from fearful to courageous. Each vole's personality lies somewhere within these extremes.



A portion of the Lakehead University Habitron

Photo by Douglas Morris

We expected that Meadow Voles with these different personalities would also differ in how they trade-off food for safety. So we marked a subset of the voles with radio-frequency identification (RFID) tags, released them in the Habitron, and monitored their foraging remotely with antennae placed in safe and risky habitat patches. Although we need to corroborate our results with more data, it appears that courageous and active-curious voles took greater risks than others while foraging. Our finding suggests that voles with different personalities also differ in their use of space, potentially explaining why multiple personality types can be sustained within a single population.

We conducted a second test of some interest. We did so with reference to John Gray's summary of differences between male and female humans: "Men are from Mars, Women are from Venus"¹. Do male and female voles also originate from different planets in our solar system? Our analysis
(cont'd on next page)

Hiding in Plain Sight

The native Purple Clematis vine is not uncommon in the area, but can be overlooked when not in flower. Although I was sure I would notice purple blooming plants while routinely driving on my country road, after a January snow I noticed white snow caps among the bushes across the road from the mailboxes. Yes, here were several stems twining through the shrubbery that I did not know were growing there. A month or so later, when I stopped on the road a few kilometers further to look at a Jack Pine recently being made a meal of by a porcupine, here were more clematis plants in the surrounding shrubs.



Photo by Erika North

The scientific name of the Purple Clematis has suffered under the hands of taxonomists. The name used to be *Clematis verticillaris* and referred to the eastern North American plant. However, it is now conjoined with the western Purple Clematis and the resulting name is *Clematis occidentalis* var. *occidentalis*. (In Latin “occidentalis” means “western” and although this variety refers to the previous eastern North American distribution, this now literally translates as “Western Clematis, western variety.”)

The clematis seeds stay as a fluffy ball through most of the winter, before disintegrating into individual seeds with fluffy tails to aid in some dispersal. Although I have tried several methods to germinate these seeds, I have had no success so far. A number of years back there was some planned

Risky Business (cont'd from previous page)

suggests not. We detected no difference in personality between male and female Meadow Voles.

Studies of animal personality have until now constituted a small component of our research team's efforts to better understand the ecological and evolutionary interactions played out in Darwin's lyrical tangled bank. We intend to give them more attention in future as we continue to ponder how simple beginnings yield “endless forms most beautiful and wonderful”.²

- Denon Start, Biology Thesis Student, and Douglas Morris, Professor, Lakehead University

¹Gray, J. 1992. **Men are from Mars, Women are from Venus**. Harper Collins, New York.

²Darwin, C. 1859. **On the origin of species**. John Murray, London.



Photo by Erika North

brush clearing of a right-of-way where clematis were growing in their typical habitat of rocky soil. I did try transplanting, but it was difficult to get sufficient roots and my efforts were unsuccessful. Here is a plant that does its own thing and relies on some seed dispersal to establish new plants when the shrubbery it is clambering on ceases to be a viable support.

- Erika North