

Better lures for rat and possum control

The search for pheromone lures for detection and eradication at low and invading densities

- Rats and possums harm native animals and plants, and are the most detrimental pests in NZ
- Both are primary vectors for Salmonella, Leptospirosis and bovine Tuberculosis
- The damage caused by rats and possums and their involvement in spreading diseases causes large ecological and economic problems
- Current methods to detect and trap at low and invading densities are expensive and inefficient



Figure 1: Rats and possums are among the most detrimental pests for NZ's native birds and plants

Synopsis

Researchers from five different disciplines at Victoria University are collaborating to pinpoint the make-up of rat and possum urine and use the knowledge to create bait that will more effectively attract rats and possums. The cost of current control measure is very high and increased bait efficiency, and reduced trap or bait number is needed.

Sexual attractants (pheromones), as found in the urine of many animals, target neophobic (trap- or bait-shy) and invading, reproductively active animals. Using pheromones as bait is therefore the most likely way to trap at low densities when food is plentiful. Researchers at Victoria are trying to identify attractants in rat and possum urine, as well as the proteins that bind and stabilize these volatile pheromones. Using a combination of proteins and volatiles would mean that traps using them will remain active for a long time.

In collaboration with Goodnature, a local company manufacturing humane self resetting traps for possums and rats, potential baits are being tested in the field. Ultimately, the team hopes to be able to produce a long-lasting substance that will lure rats and possums into traps, allowing the Department of Conservation to accurately gauge numbers in a given area and put appropriate control programs in place.

VUW students Grace Paske and Harry Thomas work on identification of pheromones and their binding proteins, and perform testing of potential attractants in the lab and the field.



Figure 2: Self resetting traps with long-life lures reduce the cost of trapping



Figure 3: Y-maze used to test potential attractants for rats

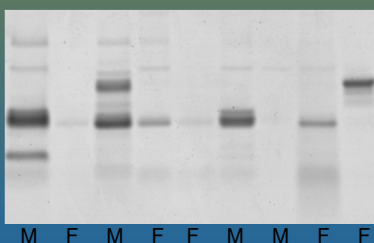


Figure 4: Variable protein expression in wild ship rat urine shows differences between males (M) and females (F).