Stoats make a splash

September 16 2013

Ten stoats from Lincoln University, were put into a water-filled flume with a continuous current flowing through it, to watch how far they could swim.

Stoats are generally considered capable of swimming up to about 1.5km, but the discovery of a stoat on Rangitoto Island (3 km offshore) in 2010, and another on Kapiti (5 km offshore) in 2011 suggested they may be able to get their little legs paddling for much greater distances.

Experiment on the distance a stoat can swim

University of Waikato Associate Professor Carolyn (Kim) King and a team from the Faculty of Science and Engineering decided to find out just how far.

So she bought ten stoats from Lincoln University, flew them to

Hamilton, allowed them to jump into a water-filled flume with a continuous current flowing through it, and watched them go.

One female – clearly the Lauren Boyle of the stoat world – covered 1.8km in nearly two hours non-stop swimming, while three others swam strongly for more than an hour and another four chalked up between 20 and 40 minutes paddling.

Results

Only one struggled with the swimming, having the stoat equivalent of a panic attack after about ten minutes in the water while the other was suffering from a respiratory infection, so was retrieved after a few minutes. After their swimming efforts, the stoats were taken for blood tests to measure their blood glucose. Those which swam longest had consistently lowered blood glucose levels, consistent with hypoglycaemia induced by intense exercise.

While the results were not conclusive, the study did show that stoats were capable of swimming much greater distances than previously thought, a fact which has implications for offshore island wildlife sanctuaries once believed to be at little or no risk of invasion by stoats.

About 250 of New Zealand's offshore islands are reserves, and many of them shelter various threatened and endangered native species.

Issue of reinvasion on offshore reserves

More than 100 islands have been cleared of invasive mammals, but the problem of reinvasions from the mainland remains a serious issue.

Maud Island in the Marlborough Sounds is only 900m from the mainland

and has been reinvaded by pregnant female stoats three times since 1982, while stoats long ago populated Chalky Island in Fiordland, which is 2.5km from the mainland but accessible via three intermediate islands.

The generally accepted risk-zones around islands 1.5km offshore "have been seriously underestimated," Associate Professor King says.

While her tests showed that at least one captive stoat could swim 1.8km in nearly two hours, "a fit and active wild stoat free to choose its own time, motivation and swimming speed might swim much further, especially given the added buoyancy of salt water".

One stoat in the tests also showed an ability to rest while floating, which could extend their range even further, Associate Professor King says. Favourable currents, floating logs or stepping stone islands would also increase their range.

Females, though smaller than males and invariably pregnant, showed no signs of being inferior swimmers, and posed a "special risk" to islands they reached through their ability to start a new population through sibling breeding – as happened on Kapiti.

The team concluded the tests, plus independent modelling, show islands less than 3.5km offshore should still be considered at risk of invasion by stoats and the common assumption that permanently maintained traplines on such islands were not necessary was "a false economy".

Associate Professor King's research is due to be published in the academic journal *Biological Invasions*. She will also deliver a talk about her study at the Ecological Society conference in Auckland in November.

Provided by University of Waikato