

Possum home range and movement behaviour on Mahia Peninsula

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Peter Sweetapple, Dave Latham
Manaaki Whenua – Landcare Research

Introduction

Whakatipu Mahia–Predator Free Mahia is part of Predator Free Hawke’s Bay. One component of that initiative is the eradication of possums from the Mahia Peninsula. This will be done primarily using an intensive network of wireless monitored leghold traps and, secondarily, bait stations. To achieve an optimal placement (i.e., one that provides a high chance of catching all possums while minimising costs) of these control devices requires knowledge about possum home ranges and movement behaviour, particularly of survivors. To address this need Manaaki Whenua – Landcare Research is studying changes in possum home range and movement patterns following initial possum knockdown on Mahia Peninsula.

Progress to date

Twenty adult possums were fitted with GPS-collars programmed to take 8 positional fixes per night and released in May 2019. A further 7 adult possums were fitted with VHF-radio transmitting collars to measure long-range dispersal if it occurred. Possums were collared in three habitats (farmland, exotic forest, native forest; see 2019 report for details). Ground-based telemetry searches were made in June and September 2019 to relocate all collared possums and remotely download GPS data.

No dispersal events were recorded. Sufficient GPS data to calculate home ranges (>30 days of data) were recovered from 16 possums. Home ranges were calculated as minimum convex polygons after locations with dispersion-of-precision (DOP) values >5 were removed (Figure 1). These averaged 18.9 ha. Male home ranges (29.3 ha, N = 9) were larger than for females (8.1 ha, N = 7), and home ranges on farmland (40.3 ha, N = 4) were much larger than in continuous forest (10.8 ha, N = 12). The mean relocation distance (distance from May capture site when relocated in September) for the 7 VHF-collared possums was 162m. Assuming that distance equates to the home range radius gives an estimated home range size of 8.2 ha.

Next steps

Initial possum knockdown is behind schedule and has yet to be completed across the study area. All collars are now past their expected battery capacity. Therefore, a new sample of possums will need to be captured and collared once knockdown has been completed to measure post-control possum movement patterns. This is now scheduled for the 2020/2021 year.

Once we have GPS data from a sample of possums post-control, we will begin comparative analyses assessing home range sizes and movement behaviour over the two periods (pre-intensive control and post-intensive control).

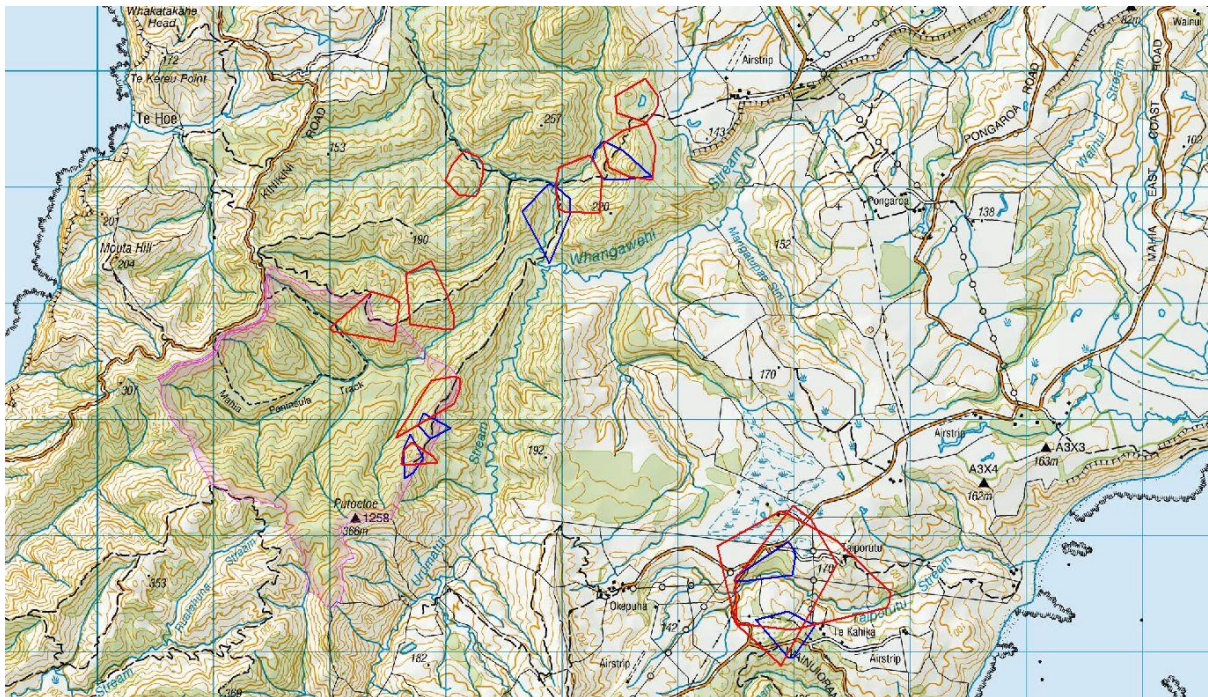


Figure 1. May-September home ranges (blue and red polygons) for 16 GPS-collared adult possums on Mahia Peninsula. Some polygons were coloured blue to distinguish them from home ranges they overlapped.