

BATTLE FOR OUR BIRDS: INTERACTIONS AMONG PEST CONTROL, ALTITUDE, AND MAST SEEDING

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Predation is a leading cause of native species declines in New Zealand forests. There are many examples of successful pest management efforts in New Zealand that have benefited native bird populations, yet the responses of birds and mammals to pest control are still difficult to predict because there are numerous interacting factors that affect outcomes. Previous studies have shown that the benefits of stoat (*Mustela erminea*) and ship rat (*Rattus rattus*) control can vary greatly with altitude where some bird species demonstrate significant increases or decreases in a particular altitudinal range. However, other factors such as mast seed crops also interact with altitude and pest control. Here I investigate the effects of aerial 1080 application, beech (*Nothofagus* spp.) masting events, and varying levels of ground control, on ship rat and bird abundance at different altitudes in New Zealand beech forests at four treatment sites and one non-treatment site in Nelson Lakes and Kahurangi National Parks. At these sites, bird and mammal abundance has been monitored with tracking tunnels and 5MBCs (five minute bird counts) for 4-18 years and at various altitudes (~450 – 1450 m a. s. l.). The four treatment sites have received varying degrees of on-going ground-based pest control then all were treated with aerial 1080 in 2014's "Battle for our Birds" in response to a heavy beech mast. Using long standing tracking tunnel data for ship rats and bird count data for the 10 most common bird species detected at these five sites I am quantifying the effect of altitude under a variety of conditions during pest control operations with the hopes that these findings will help to guide future management operations.