Effects of Possums on Native Animals

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Until recently, possums were seen as serious conservation pests mainly as a result of their effects on native plants. Although they had sometimes been seen eating birds and insects, few people previously appreciated the role possums played as a direct predator (rather than just a plant-eating competitor) in reducing populations of native birds. That has now changed following a study of the kōkako (a rare bird) in which Landcare Research filmed possums eating kōkako eggs and killing chicks. Four of 19 nests recorded on time-lapse video failed because of possum predation, and possums were probably responsible for one-third of the nests suffering predation found during this 4-year study. Possums have also been seen killing or eating eggs, chicks, or adults of at least five other native birds including kūkupa (native pigeon). During 1996 and 1997, three more sequences of possums threatening adult kūkupa and eating their eggs were filmed by night time video cameras.

Why haven't possums been recognised as predators of birds' nests until now? This predatory behaviour may be new—only a few individual "rogue" possums may be responsible. It is more likely that the new technology of time-lapse video has allowed researchers to record behaviour previously undetectable. Evidence of bird predation will not show in gut content of faecal analysis if the possums do not swallow eggshell or feathers. It seems that possums and ship rats are both important predators of forest birds.

Faecal analysis may not have detected evidence of bird predation, but has shown that possums eat native invertebrates. Possum faeces examined over a 5-year period from the Orongorongo Valley contained the remains of too many invertebrates, especially larger insects such as weta, for their consumption to be accidental. Species most at risk are small localised populations of large-bodied, relatively sluggish, nocturnal species that are easy to find. Evidence from faecal analysis that possums prey on one of our large native snails *(Powelliphanta)* has been confirmed by feeding trials. Other evidence of possums preying on native invertebrates and birds has shown up in studies that were not actually looking for possum predation.

Remarkably little is known about main causes of death in native birds and insects as appropriate study tools have not been available to scientists to use. The success of time lapse video in recording possums disturbing kōkako and kūkupa nests demonstrates the usefulness of modern electronic surveillance. Further development of electronic equipment is still badly needed, especially to enable researchers to detect when and how wild animals die. This development is occurring with assistance from both electronics experts and animal researchers.

Landcare Research has teams of scientists working on all of the issues and questions discussed here. The work is funded largely by the Foundation for Research, Science and Technology, and by the Department of Conservation.

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