Stock fencing and electric fence exclosures to prevent trampling of Chatham Island oystercatcher *Haematopus chathamensis* eggs, Chatham Island, New Zealand

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SUMMARY

To protect Chatham Island oystercatcher *Haematopus chathamensis* eggs from being trampled, stock fencing and electric fencing was applied. Only one nest was trampled by cattle, however, 13 of 19 nests that were video recorded were predated by cats *Felis catus*.

BACKGROUND

The Chatham Islands are situated 800 km east of New Zealand. Although the Chatham Islands are very remote they have a small human population with associated sheep and cattle. In some areas which are grazed, livestock has access to beaches. The Chatham Island oystercatcher *Haematopus chathamensis* (Photo 1) is an endangered, endemic beach-nesting shorebird. It excavates its shallow nest scrape just above the high tide mark amongst tidal debris which helps conceal its eggs. The eggs and hatchlings are also very well camouflaged.

Photo 1. Chatham Island oystercatcher, South East Island, Chatham Islands, January 2000 (Photo: Don Merton, courtesy of Department of Conservation).

When livestock or people come down to the beach they may inadvertently trample on oystercatcher eggs or their hatchlings. In view of the oystercatchers great rarity (142 birds in 1999) and as part of the Chatham Islands Oystercatcher Recovery Plan (Moore & Davis 2005, Moore 2005a, Moore 2005b) it was decided to create some areas on beaches safe from livestock encroachment by erecting fences and thereby preventing loss of eggs to trampling.

ACTION

Management areas and local engagement: Management areas were established along 14 km of the north coast of the main Chatham Island. A key step was to engage the support of the landowners who farmed the land adjacent to the coast. Whereas in the past they would use the beach to drive their stock or vehicles, they became aware of the risk to the oystercatcher eggs during the summer breeding season and thus kept clear of the beach. Interpretation signs were placed at beach access points to alert other visitors.

Fencing and exclosures: Along some of this coast, existing stock fences behind the foredunes prevented most sheep and cattle reaching the beach. However, certain access points were still present and these were identified. In one area stock was prevented from getting along the beach into the protected sites by building a fence extension out onto a tidal rock platform. Where such fencing was not possible, small exclosures were created by erecting electric fences powered by batteries or solar panels around individual nests. These exclosures were approximately 10 x 10 m long

and 1 m high (the standard electric fence specifications), with the nest scrape situated approximately in the middle.

Video monitoring: Video monitoring was set up to establish the causes of nest failure both in the managed zone and in areas where the nests were left unprotected.

CONSEQUENCES

Effectiveness of fencing and exclosures: The stock control and beach protection was an important part of the oystercatcher recovery plan, which also involved predator control (Moore 2005b), movement of nests away from the high tide zone (Moore 2005a), removal of introduced marram grass *Ammophila arenaria*, and reversion of dune cover back to native vegetation. The electric fences effectively deterred the cattle and sheep from directly approaching oystercatcher nests, and beaches that could be fenced, in combination with information signs, were made safe from accidental stock and human trampling.

Video monitoring: Video monitoring showed that only one nest (out of the 19 that were recorded over three summers of filming) was destroyed by stock in an unmanaged area. Most of the remainder was destroyed by predators, particularly cats *Felis catus* which were responsible for the loss of 13 nests (Moore 2005b). This indicated that stock trampling was not the main threat to eggs but it was non-the-less another factor worth removing in order to boost oystercatcher productivity.

Additionally, video-monitoring revealed disturbance by livestock, as well as direct trampling, to be a problem. One unmanaged area with three oystercatcher pairs was particularly prone to disturbance by sheep that milled around eating seaweed. Being curious, they often checked out the oystercatcher nests and nuzzled the incubating birds. The sheep were oblivious to any attempts the birds made to scare them away and many times the eggs were close to being trampled. Some of video footage showed a small flock of sheep sleeping around a nest despite the birds' frantic efforts to protect their eggs.

Disturbance in general was much higher in unmanaged areas with people fishing, driving vehicles, or walking (sometimes with dogs) on the beach. When disturbed by such activity, the birds abandoned their eggs for up to an hour or more until the perceived threat had past. During this time the eggs were vulnerable to opportunistic predators such as silver-billed gull *Larus scopulinus* and weka *Gallirallus australis* (the latter introduced to the island in the early 1900s). The eggs in one of the recorded nests were taken by a gull and three by wekas after the oystercatchers had left their nests for unknown reasons (not seen on the film). Other disturbed nests temporarily abandoned by birds were sometimes covered in sand on windy days.

Overall success of the Chatham Island Oystercatcher Recovery Plan: The combined management plan was so successful that the desired target of increasing the bird population to 250 was achieved well before scheduled. The 2005 global population stands at 320 birds (88 breeding pairs). In the managed areas of northern Chatham Island the number of breeding pairs increased from 16 to 35 over 6 years. Management will now be focused for a number of years on Pitt Island (another island in the Chatham Islands group) in order to boost oystercatcher numbers and productivity there.

REFERENCES

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