





nests and more open robin and Chatham Island tomtit nests. Warblers, robins, and tomtits proved to be unusually tolerant at all stages of the nesting cycle. European dunnocks, however, were prone to desertion and so were unsuitable. Robin, warbler and tit could be induced to incubate for almost twice their normal incubation periods and would accept eggs and nestlings of other small passerines. Poorly sited or insecure nests of all three species could be secured with string, or in the case of the robin and tit nests, transferred into the safety of a nest-box. It was even possible to move nests a metre or two in stages to more sheltered or accessible positions. A poorly constructed or damaged nest could even be replaced with a fresh nest.

Although warblers were able to hatch and care for robin eggs and nestlings, they proved incapable of raising robin nestlings beyond 10 days of age. It was thus a major breakthrough to discover in 1981 that tits were capable of hatching and fostering robin chicks through to independence.

Tits, however, did not occur on Mangere Island and so eggs and nestlings for fostering had to be transported 15 km by sea to South East Island. A portable incubator and brooder were developed to help transfer eggs and nestlings between the two islands. No heli-

copter is based in the Chatham Islands so for transport we were entirely dependent upon the few local fishermen – without their help the programme could not have taken place. At 44 degrees south the Chatham Islands are within a zone of constant strong winds – the infamous "roaring 40s" - so that any boat trip entailed days of planning to co-ordinate weather conditions, availability of a fishing boat and stage of development of eggs or nestlings. Transfers took 2-5 hours to accomplish. During the course of the cross-fostering programme approximately 40 robin eggs, 10 nestlings and 25 independent birds were transferred between the two islands - without loss.

Turning Point

In 1983 permission was granted to establish a robin population on 219 ha-South East Island where extensive areas of scrub and forest exist. Two pairs of robins were transferred to South East Island in 1983 and this event proved to be a turning point in the species recovery, for the major population is now found there. Furthermore, the need to transport eggs and birds between islands diminished.

Throughout the course of the programme, techniques and procedures have been constantly reviewed and refined, so that those

used in the final years were very effective. The following is a summary of the management strategy used in the final years of the programme.

About 30 pairs of tits breeding on South East Island were managed each spring so as to ensure a continuity of secure foster nests was available throughout the robin breeding season. More advanced pairs were induced to re-nest, and those nests selected for fostering transferred into nest-boxes. Here they were more easily manipulated, and were safe from interference from other birds and adverse weather – in a species whose numbers were so critically low, survival of every egg and chick was vital.

Plastic mesh with holes just large enough for tits to pass through was placed over the entrances of the nest-boxes so as to exclude white-faced storm petrels, broad-billed prions and starlings, which breed on the island in immense numbers and which otherwise enter and destroy some nests. Management of each clutch was carefully planned before it was in fact laid.

We closely watched breeding robins. Any that did not build their nests in nest-boxes were transferred into boxes during laying. First and often second clutches were removed and fostered to tits for incubation, but