last it through a summer day. It should need to feed for longer in winter because of the colder temperatures, but honeydew would still be a good source of energy.

Competition from Wasps

There are two main species of introduced social wasp in New Zealand: the German wasp and the common wasp. These wasps build up to very high numbers in beech forests with honeydew trees, and hundreds of wasps can be seen crawling over each honeydew tree in late summer and autumn. The wasps take so much of the honeydew at this time of the year that there is not enough left for the kaka. Kaka are rarely seen in the honeydew areas when wasps become numerous. In its natural state, a beech forest contains very few flowering or fruiting plants. The introduction of possums and deer has reduced the variety even further.

Possums, for instance, have killed many of the mistletoes you would normally expect to find in beech forests, yet kaka feed on the fruit and flowers of these plants in areas that possums have not yet reached. Now, when wasps drive the kaka away from the honeydew, there are few alternative foods for them to turn to as a source of energy.

The sap of trees is one option, and kaka do feed on sap, but it is harder to get and probably not as rewarding as honeydew. It seems likely that kaka have to scratch a living from a combination of insects, sap, and seeds when they are available. Unfortunately, the worst time comes in autumn when the birds need to build up their reserves of fat. If kaka are short of energy reserves in winter, then by spring they may not have the extra energy they need in order to breed.

Lack of Breeding

It is of great concern to us that in four years of fieldwork we have not found a single successful kaka nest. One pair we were observing attempted to breed three times, but the eggs never got any further than the incubation stage. They were all eaten by rats, but we think this happened only after the kaka had abandoned the nest. The birds stayed on the nest until well after the eggs should have hatched, but without any success.

The female does all the incubating, and has food brought to her by the male, with at least one other kaka helping him. It is possible that these "helpers" at the nest are part of a family group, but information on the social organisation of kaka would take many years to collect — especially since they breed so infrequently.

Colin O'Donnell and Peter Dilks of the Department of Conservation have been assessing the birdlife of forests in South Westland since 1983. They have not found any kaka breeding in their study areas. Combine this with the lack of successful nesting we have found, and the future of South Island kaka looks bleak.

Nobody knows how long kaka live for, but parrots in general have a long life span. Kaka can probably live for longer than 20 years, so if a kaka population was not producing any young then it would be many years before a decline in the number of birds was noticeable. In other words, the kaka populations in some or all of our forests could be made up solely of elderly birds, and if we were only to count the number of kaka present, then we would probably not notice the problem until it was too late.

The solution for kaka may lie with active management of the beech forests of North Westland, Nelson and Marlborough. The introduction of a wasp parasite may be one answer, and is currently being looked at by DSIR under contract to the Department of Conservation. It may also be necessary to provide extra food for kaka at certain times of the year — perhaps by planting a food source that is not attractive to wasps.

What is needed now is more research, aimed at finding out whether our theories about the lack of breeding are correct, and determining how widespread the problem is. It is easier to help save the kaka now, before their numbers have become critically low and we are faced with yet another endemic species requiring "emergency treatment". Preventative medicine is always the better option.

Jacqueline Beggs and Peter Wilson are scientists working for DSIR Ecology Division in Nelson. *The author's work has been part funded by recent grants from the J.S. Watson Trust and The Native Forest Restoration Trust.*

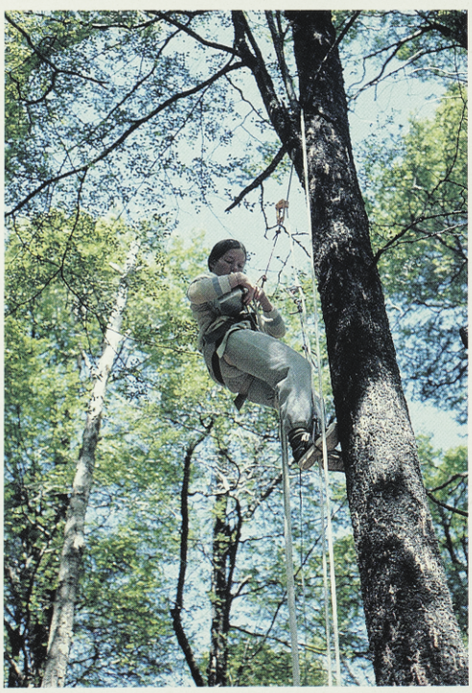
No Forests — No Kaka

Forest logging and clearance pose the greatest threat to the kaka. Scientific work by Colin O'Donnell and Peter Dilks shows that selective extraction of rimu and beech trees and a long-term logging rotation cycle in South Westland would be devastating for rare birds like the kaka. Despite the evidence, the logging option is favoured by the majority of the Working Party on South Westland including DSIR, Forestry Corporation, Ministry of Forestry, West Coast United Council and the Maori representatives.

The loss of primary forest and the decline of kaka is best illustrated in the North Island. Here viable kaka populations, probably survive only on the larger Hauraki Gulf islands, Kapiti and a few large mainland forest blocks (Urewera-Whirinaki, Pureora, North Taranaki and beech forests of the axial ranges) which continue to be reduced in area by logging of private forest.

The survival of South Island kaka will be ensured if the World Heritage forests of South Westland are protected and woodchipping in Southland, Marlborough, Nelson and North Westland ceases.

But the North Island kaka may become an island exile, if forestry companies like Carter Holt Harvey continue to log away the last kaka strongholds in North Taranaki and NZ Forest Products woodchip more tawa forests of the central North Island.



Above: *We climbed beech trees so we could compare the energy value of honeydew at the top and bottom of the tree. Kaka collect most drops from the canopy level, as the drops there contain more energy.* Photo: Peter Wilson

Right: *Big Bush State Forest (foreground) adjoins the Nelson Lakes National Park to form a large area of forest habitat suitable for kaka. Unfortunately, the edges of these forests — in private ownership — are still being clear-felled, so the lower-altitude forest containing the large trees suitable for nesting are being lost, as well as the red and hard beech trees that are the source of honeydew.* Photo: Tim Fitgerald