ECHO PARAKEET NEWS 1993-'94 SEASON

By Tim Lovegrove and Line Wadum (World Parrot Trust & Mauritius Wildlife Fund)

The 1993-94 season has been an eventful one for the Echo Parakeets. Although there was no successful breeding in the wild population of five known pairs, an Echo pair bred successfully in captivity for the first time. Three of the five wild pairs attempted to breed between October and December 1993, but their nests all failed for various reasons. On 10 February 1994 cyclone "Hollanda" struck Mauritius causing much damage. It was the most severe cyclone for about 20 years. Post-cyclone surveys suggest that some of the Echos may be missing.

The conservation programme for the 1993-94 season began in mid September when Line Wadum and I arrived in Mauritius (from Denmark and New Zealand respectively). We started with surveys to check the known pairs and management work at several nest sites. When Kevin Duffy left Mauritius in April he had confirmed the presence of five pairs in the Macchabe Forest - Black River Gorges area, and a number of other birds, perhaps 16-22 in total. Jonathan Blount, who followed Kevin as the Echo Manager, also observed the five pairs and all were still present when Line and I started on the project.

Thus, at the start of the season, with five known females there was a chance that we might have up to five nests. Pair 2 was the first to show signs of breeding and both birds, especially the female, spent much time near their traditional nest site (a hole 6m up in a large *Labourdonnaisia glauca*) from early October onwards. However this was not the first pair to lay. I found Pair 5's nest (with the female already incubating) on 29 October - a good site 12m above the ground in an immense Tambalacoque *(Sideroxylon grandifolia)*. This is a massive tree, 2m in diameter at the base and over 25m high. The nest cavity could only be reached with special climbing gear. We do not know how long this cavity has been used by Echos, but it would not surprise us if it is a traditional site which has been used for many years.

Pair 5 apparently laid only one egg. It hatched on about 18 November and when inspected on 25 November, the nest contained a healthy chick. The female was very attentive and her mate visited frequently to provision her. On 30 November on a routine (daily) check, the female was seen at the nest hole in the late afternoon but did not go in. Just before dark she flew away - our vigil continued till after dark, but she did not return. Something was wrong. We climbed the tree next morning and found the cavity empty. There was no sign that a rat had eaten the chick and a young bird this size (12 days old) would have been too large for a ship rat to have carried from the nest. Normally rats would feed on young this size in the nest, and leave characteristic feeding signs - gnawed bones and fragments of skin, bill, feet and feathers. There was none of this. The only other potential nest robber would be a macaque (and these monkeys are present in the area). However, the hole was not an easy one for a monkey to reach. Around the nest entrance the trunk is massive (still over 1m in diameter), smooth and without limbs - few monkey handholds. Thus the loss of this apparently healthy chick remains something of a mystery.

Meanwhile the Pair 2 female was incubating 3 eggs (the first laid on 4 November). The first egg hatched on 1 December and the second on 3 December. The other egg, perhaps the first-laid, did not hatch and showed no signs of development when handled. The two young were inspected every second day with a torch and mirror. Both adults were very attentive at the nest and the young grew normally. When checked on 21 December they looked fine, but on 23 December we found them dead. When removed from the nest we found that they were yellow-looking and anaemic and small scars indicated that they had probably succumbed to an infestation of tropical nest fly *(Passeromyia heterochaeta)*. The larvae of this fly live in the nest lining and migrate upwards (usually at night), to feed on the blood of the nestlings. They are not usually visible during a casual examination, however, close inspection reveals the small lesions on the skin, possibly even larvae in the nostrils and overall anaemic appearance. Nest fly has been reported before in wild Echo nests on Mauritius and in some of the captive birds, it is endemic and widespread in Southern Africa and many lost species have been reported.

Clearly in our nest the two young died quite quickly. (It is more usual for the young to succumb rather gradually - thus alerting the observer that something may be wrong). In our nest there was no indication that anything was wrong until it was too late, and the adults behaved as if everything was normal. Obviously in future more rigorous and frequent checks of nestlings are needed, (i.e. up to twice daily), and they should be removed from the nest and examined closely. The nest material should also be treated with a suitable insecticide. This was done routinely at all nests (with mite powder) before the birds laid (with the exception of Pair 5's nest). However, the protection afforded by this probably declines quite quickly and frequent applications are needed. We need to find a suitable insecticide for this - (can anyone help with suggestions?). Since it is likely that some of the material will inevitably be ingested by both adults and young we need something proven to be absolutely safe. Ideally this should be mixed well through the powdery rotted wood which forms the nest base. Fortunately, the Echos seem to be quite amenable to disturbance at their nests and do not seem to be upset by frequent nest visits and manipulations.

With the loss of Pair 2's nest, (which was the last active one of the season) our hopes of some productivity amongst the wild Echos were dashed. Pair 3's nest - the only other one active during December had already failed about a week earlier.

Although Pair 3 lost their nest they did make history by being the first wild Echos to use an artificial nest cavity. They nested in a huge old tree stump which Kevin Duffy and Jon Blount had cleverly modified to create an "ideal" Echo nesting cavity. They opened up the side of this (already hollow) tree

Line and Tim busy preparing rat bait containers.

Tim Lovegrove refills a supplementary feeding station for the wild Echo parakeets.

and "improved" the cavity by adding an upper and lower inspection door and a new entrance hole. The side was then closed in with fibreglass and timber and finally camouflaged with pieces of rotted wood and bark. It looked superb - (the Echos obviously thought so too!). Two eggs were laid (the first on 25 November). Unfortunately the nest was abandoned on 18 to 19 December during a spell of very stormy weather when Cyclone "Cecilia" brushed Mauritius. During incubation, the behaviour of the female was a little unusual in that she occasionally spent long periods (30 - 50 minutes) off the nest, apparently feeding. Her mate provisioned her at approximately hourly intervals at the nest entrance, but this cannot have been sufficient.

At the time we were not too concerned about the eggs chilling because the Aviary Echo pair, which had begun nesting several weeks earlier, had similar behaviour and both their eggs hatched successfully. In the Aviary pair the long spells off the nest appeared to be thermoregulatory. In retrospect it appears that the Pair 3 female was hungry. We rescued the abandoned eggs and brought them to the aviaries where they were placed under a female Ring-neck Parakeet. They did not hatch. However, both eggs showed advance development so they were clearly fertile. The message here is that eggs should be removed much earlier if females show any inattentiveness during incubation.

A major achievement this season (and the only known productivity in the Echo population) was the successful breeding of the young Echo pair at the Black River Aviaries. Two young hatched from the two eggs laid. One chick died young (the egg it came from was smaller). The other is now independent and is doing well. The discovery of high levels of pathogens in the local water supply at the Aviaries may help to explain poor survival of captive Echos in recent years. Of 20 brought into captivity since the 1970's only 3 remain. All captive Echos now receive bottled water.

One might question our management policy this last season and question why weren't Echo eggs/young brought into captivity much earlier, and indeed why wasn't double clutching a routine part of management. (Echos are known to recycle in about three weeks if clutches are removed early). There was good reason for leaving the wild birds to it this year. Psittacine Polyoma virus has been found in the Black River Aviary Ring-neck population and as yet the distribution of this virus (which is often fatal if young birds contract it) is unknown in Mauritius. It may already be endemic in wild Ring-neck and Echo parakeets. However, until the question about the spread of Polyoma is answered, we have decided not to bring further Echos into captivity unless absolutely necessary. In January and February we collected faecal samples from five wild Echos (3 females, 2 males), from many of the wild Ring-necks which roost communally in the Black River Gorges, and from the captive Echos and Ring-necks at the aviaries. The samples have gone to the U.K. for analysis and we are now awaiting the results. If the virus proves to be wide-spread then we will have no problems bringing more Echos into captivity nor releasing captive-reared Echos. However should the virus be confined to the captive Ring-necks (and perhaps Echos), then we will have to keep the captive population separate.

If Polyoma is found to be widespread our approach next season will be to remove all first clutches from wild nests early and bring these to Black River for captive husbandry - either to be raised by Ring-necks or hand-reared. The wild Echos should recycle and a similar level of management (with some improvements) will be undertaken as last season. Rats will be poisoned and trapped as before, nests will be guarded and checked frequently, and nestlings will be examined closely for possible nest fly attacks.

We will also persevere with the supplemental feeding trials. There was very little success with this during the 1993-94 season, and no food has been taken at all in the Mare Longue Plot where Kevin Duffy fed birds quite regularly between 1991 and 1993. Pair 1, which nests in the Mare Longue Plot, didn't even attempt to breed this last season, despite supplemental food and suitable nest cavities being available. Shortly, we will erect a feeding platform in the Pair 3 territory in the hope that Pair 3 might benefit.

Further management of nest cavities will be done to facilitate access for checking broods and placing fresh nest material. New nest sites will also be built. Last season a storm-damaged cavity reconstructed in timber by Jon Blount, was completed by adding a layer of ferro-cement. This material has considerable potential for constructing nest sites. These will incorporate inspection doors and a drawer in the base (containing the nest). Replacing the nest material will be simply a matter of pulling out the drawer and transferring the nest contents into a new one containing fresh "treated" nest material. A similar technique was employed by Don Merton's team in New Zealand with Black Robin nest boxes, where soiled nests were regularly exchanged for clean ones. Such measures all help to reduce disease and enhance survival.

On 10-11 February, Mauritius was struck by the most severe cyclone in about 25 years. "Hollanda" did considerable damage. Although the native forest is mostly all still standing, and in places looks hardly altered, there was much canopy loss and considerable loss of flowers and fruit. It appears that we may have lost some Echos as well, although our post-cyclone surveys are continuing and as the weeks pass, more of our "lost" birds are reappearing. The head count is made all the more difficult at this time of year because they may form loose post-breeding flocks (hence confusion between pairs is possible), and they also range widely for other food sources, such as the starfruit trees in the lower Black River Gorges. The post-cyclone survey has emphasised the difficulty of identifying birds individually. It is imperative that we colour-band as many Echos as possible. At present, there are no banded Echos and banding and individual recognition are essential tools in endangered species management. There is also considerable scope for radio telemetry.

We are optimistic that we will relocate most of the birds and are encouraged by the very high survival of the Pink Pigeons and Mauritius Kestrels.

Last year a few Echos were seen in the forest at Bel Ombre on the southern slopes of Mauritius. A recent post-cyclone survey indicates birds are still present, but we don't know how many. More surveys will be conducted. It is possible a small population, separate from that in the Gorges, exists there.

Where do we go from here? Although there have been setbacks much has been learned about management of the Echo. We know that double-clutching is possible, so a quick expansion of the captive population is feasible. We know that nests can be protected from rats and how quickly young can succumb to nest fly. The first successful nesting of Echos in captivity has been a breakthrough. While we still have some pairs there is obviously some hope - we only need to look at what was achieved with species such as the Mauritius Kestrel and the Black Robin to see what can be done.

Echo parakeets in the wild are elusive and difficult to photograph. This is one of Line's better shots.