


# ECHOS COME BACK )))

By Jason Malham



The sound of wing flapping in the leafy canopy reveals Echo Parakeets bathing in the wet foliage. At first just one or two birds are visible. But as the eye becomes accustomed to their amazing camouflage, more and more parakeets materialise until fifteen or twenty birds can be seen. Their method of bathing is rather comical to observe - in one fluid movement they dip their head down under the outer tips of the leaves, allowing the water to run down over the head and neck, then the chest and belly is thrust down onto the foliage and rubbed along the leaves whilst flapping the wings simultaneously. The birds systematically work their way around the tops of selected, nice bushy trees becoming absolutely bedraggled in the process.

Not very long ago such a sight was only a dream...



Just over a decade ago the Echo Parakeet was  
considered the Rarest Parrot in the world.

It was a moment of great excitement to see  
a single Echo fly over this same clearing.



Photo: © Dennis Hansen

The clearing is Plaine Lievre, known to many as "camp." It is the largest field station managed by the Mauritian Wildlife Foundation and the location of the first efforts to save the Echo Parakeet from extinction. Camp is still the main location of Echo work, and it has been an integral part of the amazing success story that is the Echo Parakeet Programme...

Since those dire first years there has been huge progress in the recovery of this species. Just this year we have achieved one of our major goals with the announcement that the Echo Parakeet (*Psittacula eques*) has been down-listed from Critically Endangered to Endangered! Never has a parrot gone from the world's rarest to being down-listed - and in less than 10 years at that. With a current population estimate of 330 birds, the programme has surpassed many people's expectations - even our own. This success certainly didn't happen overnight. It has been due to years of hard work by many passionate and dedicated people. Without the team effort of the field staff, hand-rearing and release staff, office support staff etc., success would not have been forthcoming. Every person that has been

involved with Echos over the years deserves a big pat on the back, and we should all feel proud of what has been achieved!

Success aside, it's important to remember that the Echo Parakeet is still very much endangered. Three hundred and thirty birds is really not that many. The recent emergence of Psittacine Beak and Feather Disease (PBFD) in the Echo population has been a major complicating factor in their recovery. The disease has been visibly prevalent in the Echo Parakeet population since the beginning of the 2004/2005 breeding season when five or six released birds were observed with initial clinical signs of the virus. Screening the population is now a major priority of the Echo programme.

We are in a very unique situation in terms of disease research. Eighty percent or more of the birds are individually colour ringed. We know the ancestry of most of these birds and many can be studied over the longer term. We have been monitoring the



Photo: © Simon Tollington

"Achilles," an Echo Parakeet with severe PBFD.

development of PBFD since its apparent outset. There is a long list of questions we want to answer, such as:

- What proportion of the population is encountering the disease?
- For how long has the virus been in the population?
- Are Ring-neck Parakeets a source or reservoir for the virus?
- What is the mortality rate?
- What happens long-term to birds that overcome the disease?

A major component of the research this season is testing the Ring-necked Parakeet population for prevalence of PBFD. We aim to test 50+ birds.

At this stage we are not certain what the long term impact of the virus will have on the species. However, we are learning more each season as we obtain more test results and continue long-term observations of individuals. The provision of supplementary food has been a huge aid in our aim to closely monitor as many birds as possible. More than 50% of the population now takes supplementary food and many birds can be seen on a daily basis.

While PBFD in the Echo population may seem all bad news, there are some good notes. There are a number of birds which have developed yellow feathers and then recovered after the following seasons moult. The majority of these birds have been shown to carry antibodies. We had one female which had yellow feathers and some feather deterioration, testing PCR positive with the active virus. A year later she had recovered and now looks completely normal! So it definitely appears that some birds, including fully infected individuals, are overcoming the virus. This is great news.

Having worked on the Kakapo (*Strigops habroptilus*) in New Zealand, I joined the Echo

team as Programme Coordinator in August 2001. Back then I was saying, "Yeah, I am just gonna do the one season and then move on..." Then halfway through that first season the Echos were definitely getting under my skin. I started thinking, "Well, ok, I'll come back next season and *then* I'll move on..." And so it went - my catch cry became - "Yep, this is my last season...honest..." Six years later I am still here. But, this season (2007/08) is my last season, and I will leave with many great memories and feeling very happy with what we have achieved during my time here.

I joined the programme at a great time because many of the intensive management techniques had already been tried, rat prevention measures and supplementary feeding procedures were well developed. The first nest box had been used by an Echo and cavity modifications had been developed to good effect. Also, recruits from the previous seasons were just beginning to reach breeding age. We capitalised on all of this and made additional small improvements and over the next few seasons the Echo population pretty much skyrocketed.

## Never has a parrot gone from the world's rarest to being down-listed - and in less than 10 years at that.

We were able to cease the very intensive management of the breeding birds after 2004/05 because there were enough birds breeding and enough chicks fledging to ensure the continued growth of the population. In 2005/06 the programme moved into the less intensive "minimal management" regime. This had been a medium term goal but we achieved it about one season earlier than expected. Minimal management focuses only on protecting nest sites, providing nest boxes, and providing supplementary food. All clutches and broods are left intact. Chicks doing poorly are not rescued and there is no hand-rearing or releasing.



## The Echo Parakeet

- Is the last of 4-7 *Psittacula* parakeet species that once existed on Western Indian Ocean Islands. Now found only on Mauritius, they once lived on the islands of Seychelles, Reunion and Rodrigues as well.
- Is most closely related to the Indian Ring-necked Parakeet. The Echo is slightly larger, a darker green and has more rounded wings and a shorter broader tail.
- Breeds from August to January. It usually lays a clutch of 2-4 eggs that hatch after 22-23 days. The young leave the nest after about 50-70 days. One or two young typically fledge from successful (unmanaged) nests.

After centuries of habitat destruction only about 1.27% of Mauritius' native forest remains. The remaining native forest is degraded as a result of past forestry practices and by the invasion of exotic plants. The degraded forest has had two major impacts on Echos. A reduction in

abundance and variety of fruiting endemic trees has meant a shortage of food during the chick rearing period in some years. In addition, slow regeneration of trees has lead to a decrease in the number of old trees which the birds rely on for nesting cavities.

Predation of Echo nests by highly arboreal Ship Rats (*Rattus rattus*) and Crab-eating Macaques (*Macaca fascicularis*) has had a significant impact. Indian Mynahs (*Acridotheres tristis*) predate eggs and chicks and aggressively take over nest sites. The introduced Indian Ring-necked Parakeet (*Psittacula krameri*) is exceedingly common on Mauritius (possibly numbering more than 30,000!) and competes with Echos for nesting sites and probably food. Ring-necked Parakeets are a potential source of PBFD and we are currently researching the relationship between the incidence of the virus in Echos and the abundance of Ring-necks.





Photo: © Jason Malham

There are problems facing Echos from almost every angle, all of which contributed to the massive population decline in the first place. In the late 1980's it was blatantly obvious to people like Project Leader Carl Jones that unless something was done immediately, the species was on the fast road to extinction. Conservation efforts to recover the Echo

Parakeet were actually initiated by the Forestry Service & International Council for Bird Preservation in the early 1970s and intensified by the Mauritian Wildlife Foundation (MWF) and the Mauritius Conservation Unit in 1987. During the early years the recovery programme focused on learning why the species was so rare and why it was not breeding well. From the mid-1990's management was intensified and techniques such as double clutching were attempted.

the first released Echo to breed in the wild). The next year four birds laid eggs in boxes. During that period the nest boxes were huge. They leaked and were very heavy and difficult to erect. Over the next few years (2003-05) we developed a new nest box design which is light, compact, water and monkey-proof and very attractive to Echos. Up to twenty new boxes have been placed in the field every season since 2001/02. Boxes are placed in easily accessible areas to aid our management.



Photo: © Christopher Kaiser

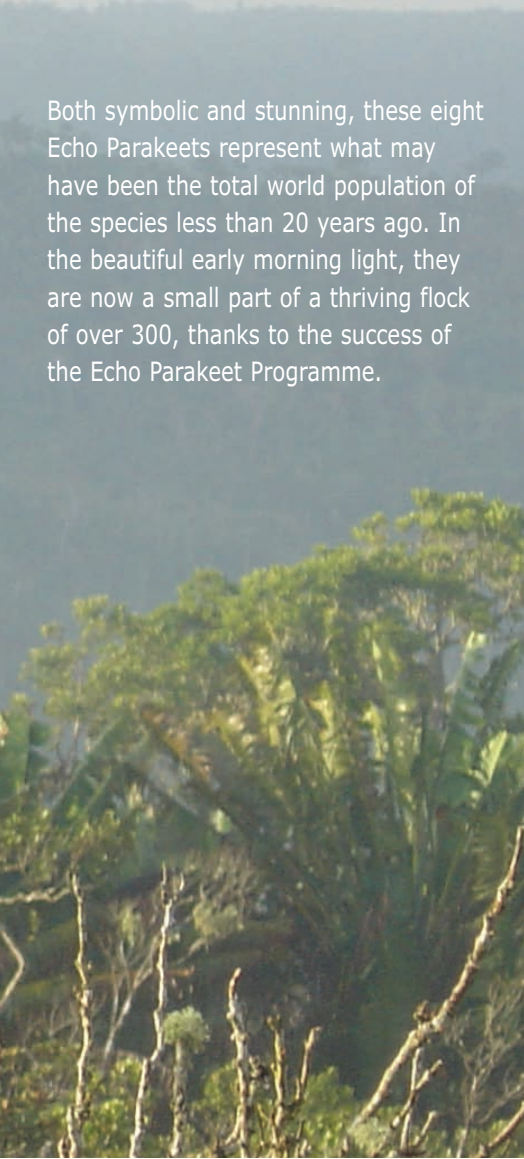
Re hydration for a rescued malnourished chick was sometimes required.

By 1997 the management regime focused on addressing the major problems facing Echos. Initial emphasis was placed on protection of nest sites (from predators, competitors and weather); manipulation of wild broods (downsizing and upsizing); regular examination of active nests and weighing of chicks; rescuing sick or underweight chicks; provision of supplementary food; hand-rearing and releasing juveniles back to the wild. Nest boxes were tried with little success at first. Then in 2000/2001 a bird named Gabriella became the first Echo in history to use an artificial nest box (she was also

The number of breeding birds has risen significantly in the last few seasons as new recruits reach breeding age. In the 2001/02 season 16 females laid 40 eggs, and 21 birds fledged in the wild. We also released 18 birds into the wild that season. Fast forward to the 2006/07 season where we did no intensive management - no rescues, fosters, hand-rearing or releasing. There were 60 nesting attempts by 57 females (three birds recycled after losing their first clutch), with 160 eggs laid and 72 chicks fledged! There has been a corresponding increase in the use of nest boxes. In 2006/07



Both symbolic and stunning, these eight Echo Parakeets represent what may have been the total world population of the species less than 20 years ago. In the beautiful early morning light, they are now a small part of a thriving flock of over 300, thanks to the success of the Echo Parakeet Programme.



we had 65 boxes in the field, and 41 were used (eggs laid) by Echos!

A small captive breeding population is maintained at the Gerald Durrell Endemic Wildlife Sanctuary in Black River township. At the peak of intensive management up to 14 chicks were produced there in a season. Some of these were used in brood manipulations in the wild (e.g. fostering in nests where infertile eggs had been laid) but most of them were released to boost the wild population.

As the Echo population has grown there has been a logical increase in the number of known nesting attempts. With minimum management (no chicks rescued and hand-reared), the proportion of nests that fledged at least one chick has remained relatively consistent (50-65%). However, fewer chicks are fledging per nest attempt because those that would have been rescued in the past now die within the nest. A very interesting bonus of minimal management has been that some pairs (all but one being supplementary fed), have been able to

fledge more chicks than in the past. In the last two seasons we have had several pairs fledge three chicks each. Last season we had an exceptional case of a pair fledging four healthy chicks! This is probably the first time such an event has occurred for hundreds of years - since the arrival of predators and the degradation of the forest. In the early years of intensive management, broods of more than two chicks were downsized without question, so there was never an opportunity for more than two to fledge.

The 2004/05 season was our last year of intensive management. It was a culmination of everything we knew about manipulating nests and maximising the survival chances of as many fertile eggs as possible. Some of the techniques we used included:

- Re-hydrating malnourished chicks for 24-48 hrs in the hand-rearing nursery before placing them in nests in the wild or captivity.
- Downsizing broods from 3 to 2 or 1.
- Swapping broods to ensure siblings within the nest were a more even size.
- Bringing eggs that were developing poorly into the hand-rearing nursery so they could be monitored and assisted through hatching.
- Giving females with poor or infertile eggs dummy eggs to keep them broody until chicks were available for them to foster.

The chick transfer techniques we used during this period were highly refined. Using the Curfew brooder (kindly provided by the WPT) some chicks were kept for 6 or more hours before being placed in new nests. All chicks being transferred were given regular feeds of warmed Lactated Ringers solution to aid their hydration.

Taking tiny helpless chicks in our care for fostering was always very satisfying for staff. Transferring the chicks often involved a crazy journey sometimes including a two hour jeep ride followed by an hours walk into the remotest most rugged parts of the Black River Gorges to a nest. Once there we waited until the female exited, allowing us to place the new addition into her nest. Only strong healthy chicks were fostered and we were successful in almost every attempt. The only unsuccessful foster attempt I remember was with a female who, having laid infertile eggs, was well past her normal incubation term (25 days) and lost her broodiness. She didn't accept the chick. Fortunately we had a second female to use and it just meant the chick spent an afternoon being toured around some of the national park en route to its new home! The second female readily accepted it. One of our aims was to fledge plenty of parent-reared chicks and fostering helped ensure this goal was met.



Photo: © Shane McPherson

Supplemental feeding sometimes results in large healthy clutches that would not have survived in the past. Still, this rare nest with four chicks was an unexpected treat.



## The recovery and down-listing of the **ECHO PARAKEET** is a tribute to the memory and vision of **MIKE REYNOLDS**

By Carl G. Jones  
Scientific Director, Mauritian Wildlife Foundation

When I first started working on the Echo Parakeet in 1979 it was so endangered and its problems seemed so intractable that conservationists refused to fund its conservation. I was repeatedly told that the species was un-saveable. In the early 1980s we knew of only 8-12 birds, of which only two or three were females. The population was breeding very poorly and in most years no young birds were fledged. At this time we did not know what was limiting the population and we suspected that the remaining birds were old. The situation was desperate.

It was Mike Reynolds and the World Parrot Trust that came to the rescue. Mike thought the Echo Parakeet was an ideal species for the Trust to work on, to pursue the ideals of parrot conservation. He told me these were the sorts of cases that the World Parrot Trust was set up to help.

Not just content to provide money to help run the conservation work, Mike and his whole family took a real interest in the work. He and Audrey visited the project to see first-hand how the project functioned and how the Trust could help more effectively. Their son Nick came out to help with the field work as did Kirsty and Dale from Paradise Park. They also sent Pete Haverson who spent many years working on our conservation programmes and headed the Echo Parakeet field work for awhile. When we had problems with the health of our captive birds, Mike arranged for Vet (and World Parrot Trust trustee) Andrew Greenwood to visit as our veterinary consultant. Andrew not only sorted out our veterinary problems but helped upgrade our management and hand-rearing. The World Parrot Trust also provided some support for Emma Ridgeway who analysed much of the data we collected on the parakeets.

An important lesson we have learned is that there is no quick fix when it comes to saving species like the Echo Parakeet. We are grateful to Mike Reynolds for the vision and commitment to begin and to the World Parrot Trust for the long-term support to continue. The down-listing of the Echo Parakeet is a great achievement in the history of parrot conservation and holds many lessons for the future.



I have too many great memories from our "intensive management days" to write about them all, but a few stories give you an idea of the kind of work we did over those years.

Zoe is one of my favourite Echos. She is a release bird and a Camp resident with a nest box on the edge of the clearing, only 20m from the hoppers (feeders). She is a rather staunch bird around the hoppers, quite happily sending any other Echos trying to use "her" hopper on their way. And yet with people she is lovely - very passive and gentle. One day I was weighing her chicks which were only a few days old. We always wait for the female to leave the nest, usually to be fed by the male, before we access the clutch or brood. I was hanging in my harness, in front of the nest box, with Zoe being fed by Cassidy in the branches only a few metres away. The little Echo chicks are normally pretty vocal and as I weighed the first one Zoe could hear it grumbling in my weigh container. She was very curious and hopped down the branch and up onto my shoulder. My first thought was "Argh she's gonna nail my ear!" but I gave the chick its routine health check while Zoe stayed perched on my shoulder, making soft mewing calls and peering down at the chick! There was no sign of aggression towards me or agitation. It was a really nice moment for me.

A few of us have fond memories of the day a couple of the team went to the Styx cavity (we name all our nest sites and chicks based on various themes) to discover two dead chicks and one very cold abandoned egg. An introduced African Land Snail (*Achatina spp*) had gotten into the nest (8 m - 26 ft - up a tree) and smothered the chicks, asphyxiating them with slime. The female, Lagavulin, abandoned the nest. We thought the cold egg was a goner, but decided to take it to the hand-rearing nursery just in case. I took the brooder in the jeep and met Anna and Shiva on the main road nearest the nest site. Anna excitedly told me about how the egg had become a little warmed as they carried it to meet me and that it was beginning to hatch! What a surprise. We all made the one hour



The Echo Parakeet Team in 1997.





Protecting natural nests, aiding chicks and providing food hoppers and nest boxes has helped the Echo population rebound dramatically.

Photos: © Shane McPherson



drive to Black River and then watched in amazement as Ryan, the hand-rearing coordinator, assisted the chick from the egg in a matter of minutes. Despite this ordeal the chick was fine. Four years later Brimstone, as we named her, is breeding for the second time.

I always loved watching the males come into the nest sites down in the gorges. When the Echo chicks are young there is often a wait of 4 or more hours between feeds, when the male comes in to feed the female. Sometimes you would wait for hours to access the nest and weigh the chicks. So it was always a feeling of relief to hear "wack...wack...wack..." (My impersonations of calls are not good! But it's a little like a duck quack only a bit higher in pitch) as the male came in. But the best part was actually watching him. He would come in at great speed from way up the hill, wings folded back and doing a huge high speed spiral down to the nest tree. Only at the last second would he flare out to land in the canopy. I love watching birds fly and it's always a thrill to see such displays of mastery.

The techniques that we used to restore the Echo Parakeet are transferable to endangered parrots elsewhere. It is therefore no surprise that personnel who have worked on the Echo Parakeet project have worked, or are now working, on Kakapo, Spix Macaw, Lear's Macaw and some of the endangered Caribbean amazons. By consulting widely and encouraging a free exchange of information between projects, new techniques are more easily developed and refined. While species like the Echo Parakeet are going to require some long-term help, their story is a success and an inspiration. During a time when more and more species are becoming rarer, this is an encouraging example that bucks the trend.

The conservation of the Echo Parakeet has been a collaborative effort. None of the great success the programme has experienced would have been possible without funding and logistical support. We are indebted to the many supporters over the years.



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