Psitta scene

PROMOTING EXCELLENCE
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AVICULTURE AND WELFARE

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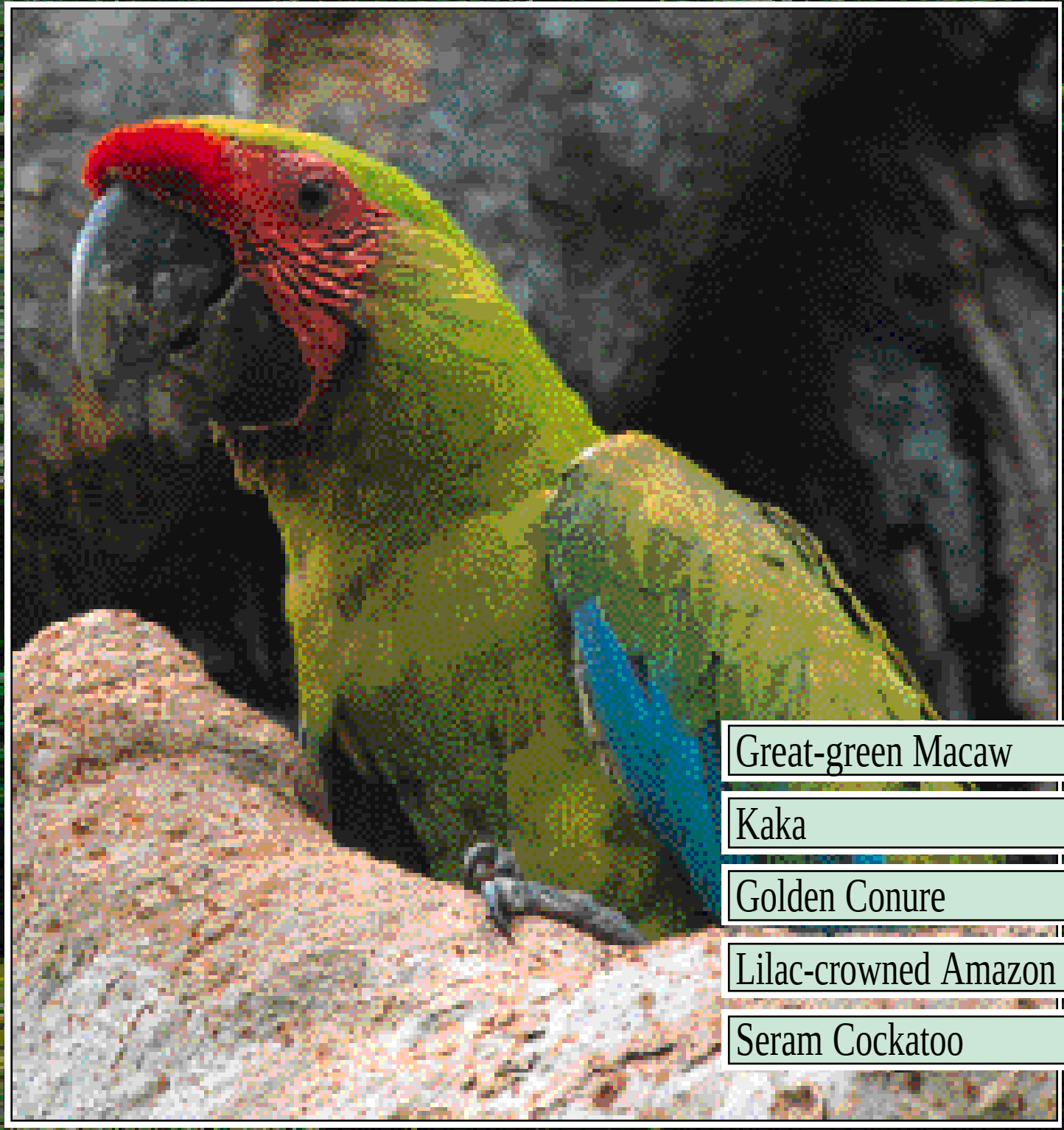

Great-green Macaw

Kaka

Golden Conure

Lilac-crowned Amazon

Seram Cockatoo

psittacine (sit'ă sîn) belonging or allied to the parrots; parrot-like

Psitta scene

Great-green macaw

Conservation in Central America

by PAMELA WRIGHT, GEORGE POWELL and SUZANNE PALMINTERI

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CONTENTS

Cover Picture

We are grateful to Steve Winter, distinguished photographer, for permission to use his shots of this important research project being conducted in Costa Rica. His close up of an adult macaw at its nest, used on our front cover, is especially notable.

Over the past 5 years, we have pursued a multi-faceted, science-based, conservation project that centres on using the endangered Great-green macaw, *Ara ambigua*, as the focus of a campaign to conserve the macaw and its habitat, a unique lowland Atlantic forest assemblage, in Costa Rica. This lowland rainforest ecosystem, which is distinguished by a high density of almendro (*Dipteryx panamensis*), is not represented in Costa Rica's conservation areas and is rapidly being eliminated due to a high demand for the wood of the almendro tree. As a direct consequence, the Great green Macaw is threatened by habitat loss and is currently recognised internationally as an endangered species. (It is on CITES' List 1, the classification of species in the most serious condition).

Pamela Wright examining macaw chick.

Given its endangered status and its large and complex habitat requirements, we have selected the Great-green macaw as a 'focal species' for identifying and publicising priorities for conservation action in the region that will lead to the macaw's conservation. Our objective is to establish a nucleus of protected natural forest that is interconnected with surrounding ecosystems as required to sustain a viable population of macaws. Our working hypothesis is that protecting habitat required by the Great-green macaw will also result in the conservation of a viable population of almendro and other biodiversity that is unique to the area.

Radio-telemetry study

To set minimum conservation goals for maintaining the viability of the Great-green macaw and its habitat, we have been pursuing a radio-telemetry-based study. We developed techniques for capturing and radio-tagging adult macaws and then monitoring their movements through the lowland rainforest habitat. We are developing a database on the nesting ecology (nest site selection, nesting success, habitat use, overlap among breeding pairs), fledgling survival through the first year, foraging behaviour including diet, habitat use during the non-breeding season, and adult survival. We are also monitoring fruit production of the tree species used most heavily by the macaws.

To collect these data, we have developed a research team with major participation by Latin American pre- and post-graduate students who join the project as interns for 3-6 months. We have found this to be an excellent opportunity to provide hands-on training in applied conservation biology for young scientists who wish to dedicate their skills to conserving the biodiversity of their respective countries. The students gain hands-on learning experience while providing the project with a highly motivated field staff. The project has already involved students from 10 countries.

'Local pride' program

Our research findings have already produced specific results. We helped initiate a regional environmental awareness program, implemented by former Costa Rican field assistant Mario Rivera, that was developed around the theme of building local pride in the macaw. This program has heightened awareness of the plight of the macaw and its habitat among school children and the general public. A National Great-green macaw Commission was formed as a result of our discovering and publicising that

Pamela and chick with Erika Delgado (Mexico) and Guisselle Monge (Costa Rica). Photo: Steve Winter

Radio-tracking Great-green Macaws, Tana Wood (USA) and Virginia Zeledon (Nicaragua). Photo: Steve Winter

the macaw and the tree it uses predominantly as nesting and feeding substrate are close to being eradicated from Costa Rica. This organisation is made up of eighteen governmental and non-governmental organisations with the common objective of protecting the macaw and sustainably managing its habitat. One of the commission's first accomplishments was to establish a legal decree that limits the extraction of the almendro, *Dipteryx panamensis*, a threatened tree species that is heavily used by the macaw during the nesting season.

Current goals

Our current goals are: 1) to fully determine minimum breeding habitat requirements of the Great-green macaw; 2) to identify post-breeding migratory habitat and major food species; 3) to develop a proposal for the establishment of a national park to protect macaw habitat; 4) to publish our research findings to date; and 5) to continue the intern training program. We will continue to encourage and facilitate the innovative individual projects of staff and interns that have already resulted in a wide array of activities and impacts.

While the primary aim of this project is developing and implementing science-based conservation objectives, a secondary goal is training Latin Americans in these skills. We have assumed this priority in recognition of the fact that there are few opportunities for Latin Americans to obtain hands-on training in applied conservation biology and conservation. We also recognise the importance of training non-Latin Americans who are able to cover their own transportation costs. Demand from both Latin Americans and others interested in participating in our training program far exceeds our capacity to absorb them.

The project's data collections, analysis and write-ups have been and continue to be carried out almost entirely by young professionals starting their careers in conservation, with direction from Dr. George V N Powell a senior conservation scientist with the World Wildlife Fund (Powell donates all of his time to the project). All current staff members participated in the intern program, the Costa Rican and Canadian women acting as incoming co-directors are replacing a former US intern turned director who is leaving after 4 years to pursue a doctoral degree in Conservation Biology.

Ulises Aleman (Costa Rica), a vital member of the team since the beginning, lowers a macaw for examination. Photo: Steve Winter

Pamela Wright receives the chick. Photo: Steve Winter

New research project

Former interns are applying their experience in jobs and master's degrees programs in conservation related fields, a few examples follow. Virginia Zeledon, a Nicaraguan master's student, participated as an intern, is implementing her own research of the Great-green macaw in Nicaragua, where the habitat is pristine, but the distribution and density of the macaws is poorly understood. Erika Delgado, a recent Mexican intern is performing an assessment of the current situation and efforts on behalf of the Scarlet Macaw in Mexico for her thesis. Toa Kyle, a former Canadian intern, is continuing his tropical conservation interest with a master's thesis studying vertebrate use of clay licks in Peru. Toby Query, a former US intern, continued studying the space requirements of endangered birds by joining the field team using telemetry to study the Western spotted Owl. Additionally, we provided guidance in study design and are providing unpublished baseline data to Costa Rican master's student, Marco Hidalgo, studying the distribution of Great-green macaw, foraging species, and the chemical makeup of the seeds.

In addition to the explicit research goals of the project, interns and assistants are encouraged to expand on their experience by continuing with individual projects. Our encouragement has included finding funding for some initiatives, as in the case of a previous Costa Rican field assistant, Mario Rivera. Mario has been implementing a regional multi-faceted education program with support from the USFWS, RARE Centre for Tropical Studies and Fundacion AMBIO. This program has heightened awareness of the plight of the macaw and its habitat among school children and the general public while stimulating a feeling of pride for these natural resources.

Involvement of local entities

Local people participate in the project as intermittent volunteers, more formerly as interns and as staff after having been trained through previous intern experience. Our interns interact with local individuals and groups that have been spawned as a result of Fundacion AMBIO's environmental awareness campaign and other macaw conservation efforts in the area.

Information is provided to local groups such as community environmental committees, community development associations and schools upon request and at annual presentations of recent results. Our central field station is an old rental house in the small frontier town of Boca Tapada. This site is not only conveniently located in the centre of the current breeding population of Great-green macaws in Costa Rica, but also assures constant interaction with members of the local communities on a less formal basis at the grocery store, public phone, festivals etc. Our second field site is strategically located in the foothills of the Central Volcanic Range where the macaws migrate in the non-nesting season. This second site is located near the Sarapiqui Conservation Learning Centre, which provides access to the local community for informal outreach. Although the value of these informal interactions is hard to measure, in the past it has resulted in people reporting nests, poachers, illegal logging and requesting advice on forest protection, reforestation and the placement and design of artificial nests.

WPT has previously part funded a 4WD vehicle for this project, and wants to do more. Any reader who would like to help in Costa Rica, please email Mike Reynolds at worldparrottrust@compuserve.com, or write to the UK office.

Kaka population re-established

Releases in Mount Bruce area

by GLEN HOLLAND and ROSE COLLEN

The kaka (*Nestor meridionalis*) is a forest-dwelling parrot endemic to New Zealand. There are North Island and South Island kaka sub-species. The North Island kaka was once widespread throughout the North Island and outlying islands, but numbers have dwindled on the mainland to the extent that the only secure populations are on offshore islands. The main reasons for the decline of kaka on the mainland are habitat loss through deforestation, and introduced predators such as mustelids and possums. Kaka were locally extinct from Mount Bruce reserve for nearly fifty years, until a bold new initiative to return them to the area. The reserve surrounds the Mt Bruce National Wildlife Centre, which is dedicated to the captive breeding of New Zealand's rare and endangered species for release into the wild. The initial goal of the project was "To determine whether or not the release of juvenile kaka is an effective tool in the restoration of kaka to mainland ecosystems". Three groups of juveniles from different origins were released in 1996 and 1997, and following the success of these another release was undertaken in 1999, comprising adult males.

The first release group consisted of five wild-origin (Kapiti Island, Wellington) and four hand-reared juvenile kaka. The Kapiti Island birds were captured and transferred to Mount Bruce in May 1996, and put into two aviaries with the hand-reared juveniles. Five were held in a large aviary with two captive adult kaka, and four were held in a small temporary aviary at the release site. During a one-month quarantine period, cloacal swabs and faecal samples were collected from all nine kaka, to screen for salmonella, yersinia, chlamydia and internal parasites including coccidia. All tests returned clear results. The birds were fitted with transmitters (weighing 6% of the bird's body weight and with a 27-month life span) and individual colour leg band combinations.

Kaka after release. Photo: Jenny Jones

Use of feed stations

In order to encourage the birds' natural feeding behaviour the aviaries were supplied with fresh natural forage including berries and rotting logs which contained invertebrates. An aluminium feedstation identical to three feedstations which were to be set up at the release site, designed for ease of cleaning, was set up in each aviary so that the kaka would become familiar with feeding from them. A diet of nectar, fruit, vegetables, seeds and nuts was supplied at the feedstations daily. The feedstations each consisted of a circular body divided into four feeding compartments, surrounded by pipe for the birds to perch on. Each feed station at the release site was secured 2 metres off the ground at the top of a metal pole, and could be easily lowered for cleaning. Food was supplied daily at 3pm to the wild birds from the release date onwards.

The first release of nine birds occurred in June 1996. The juveniles spent the night before release all together in the temporary aviary at the release site. The following morning the front mesh wall of the aviary was removed, freeing the birds. A morning release gave the birds time to investigate their surroundings before nightfall. Once the birds became accustomed to the daily 3pm restocking of the feedstations, all but 2 wild-origin birds became regular feeders. Of the wild origin birds one was recaptured at the point of origin and a second disappeared. A second release group, of five parent-reared captive-bred juveniles, was assembled and held at Mount Bruce in May 1997. These birds were prepared for release under the same protocols as the previous groups, with a quarantine, transmitter and band fitting and feedstation set-up. They were held in the temporary aviary at the release/feedstation area for the three days prior to release, then released in June 1997 at the afternoon feed time. This meant that the 1997 release juveniles would see the resident wild birds using the feedstations. There was no difference in survival between the birds released in the morning and those released at the afternoon feed time.

Telemetry monitoring

All release groups were monitored using telemetry equipment during the six-month periods following release. Researcher Raelene Berry wrote her Masters thesis on the birds' behaviour and survival, and found very little difference between the three release groups. All survived the six-month post-release monitoring period, and all remained within the Mount Bruce reserve, within approximately 1km of the release site. Two of the three sample groups had the benefit of parent rearing to learn their natural foraging techniques, however the hand-reared juveniles showed equal natural foraging abilities. All birds spent most of their feeding time chewing into wood for invertebrates, and were observed feeding on sap, fruits and nectar. The survival and site fidelity result showed there was little difference between the captive-bred and wild-origin juveniles, apart from less inclination from the wild-origin birds to use the artificial feedstations.

The pre-release aviary situated near the supplementary feed station.
Photo: National Wildlife Centre

Public and birds at the supplementary feed station.
Photo: Rose Collen

Breeding attempts

The summer of 1998 saw the first breeding attempts by the released kaka, at the ages of 2 and 3 years. This was a surprise, as it was thought that kaka did not start breeding until they were 4 years of age. The first clue was when one female, three-year-old hand-reared "Mel" stopped feeding from the feedstations each afternoon, which was unusual for her. Her signal was tracked some way up the hill and she was located at a nest site with a male in attendance. The site was in a leaning hollow tree, not safe for the female as it provided easy access for predators. Staff attempted to predator-proof the tree by placing metal sheets around the base to prevent climbing predators, and setting baited fenn traps around the site. Within a week the bird was attacked on the nest and her eggs preyed on - she was injured but recovered and did not make another nesting attempt. Two other females soon disappeared, and to the dismay of staff were both found dead on the same day at nest sites. Bite marks and broken eggshells suggested that a ferret and a stoat were responsible. After this disappointing start to the unexpected breeding season, monitoring of the females was stepped up to ensure any further nests were found quickly with the aim of protecting them from predators.

Soon another hand-reared female, "Yakka" was found nesting in a rotten tree stump. The entrance hole was considered low enough to provide access to jumping predators, so the nest was closed over with wire mesh to prevent Yakka going back to this dangerous site. However this determined bird chewed the mesh away and went back in to finish laying her clutch of four eggs. Staff then decided to predator proof the nest as well as possible, by clearing the surrounding vegetation, attaching smooth metal sheets to the tree and placing 20 fenn traps around the site. Hand-reared Yakka was very tame and unafraid of people, but while nesting all the protective/aggressive instincts were there. After 25 days incubation, four chicks hatched, and at 55 days of age it was time to take them from the nest and fit transmitters and leg bands to them before they fledged at 65 days, so that their survival could be monitored once they left the nest. Due to aggression towards staff, Yakka was captured and held temporarily in a box. The chicks were then returned to the nest, Yakka allowed back to them, and all four fledged the following week.

Two of the two-year-old females bred as well. One chose a very good site - a tall tree in a semi-clearing. The surrounding vegetation was trimmed and the tree banded; no traps were necessary. Unfortunately her mate died due to a bill injury (suspected fighting), and lacking backup and feeding from the male she deserted her nest with three fertile eggs.

Persistent two-year old Kaka female fledges chicks

The other two-year-old, "Cleo" laid in an artificial nestbox in which starlings had already constructed a new nest - she laid and incubated in the cup of the starling nest! She was unpartnered (due to a shortage of available males) and the infertile eggs were removed. Her second nesting attempt was in a stump very low to the ground, so her eggs (also infertile) and the stump were removed. She went on the try a third clutch (amazing for a two year old and first time breeder), and by this time she had a mate. The chosen site was a tree by the edge of one of the service roads, making predator proofing easy. Cleo fledged two chicks from this nest, which were also banded and fitted with transmitters. The season started with 3 males and 9 females. It ended with 2 males, 5 females and 2 juveniles (unfortunately 1 juvenile died accidentally and 3 were killed by predators at independence). Two females disappeared and radio transmitter contact was lost. At the end of the season, despite some disappointments, we felt that we had the necessary knowledge and skills to support successful breeding.

Fitting a transmitter.
Photo: Glen Holland

A third release, in September 1999, involved a fourth sample group. Inaccurate sexing of the Kapiti Island birds back in 1996, was due to their age. Current methods for assigning sex based on measurements are only accurate for adults, had lead to an unexpected skew towards females in the Mount Bruce population, and more adult males were needed to increase the number of pairs. Four males, aged from 3 to 11 years, were brought to Mount Bruce from other captive holders, and prepared for release as with the previous groups. They were all captive bred and having spent their entire lives in captivity

were very tame and accustomed to people. They were released at the feedstations at the afternoon feed time and observed interacting with the resident wild kaka almost straight away. Over the following weeks the four relied on the food supplied at the feedstations, but were observed foraging for natural foods more over time.

This release group proved just as successful as previous releases, with 100% survival and site fidelity. One bird even paired with a resident female over the 1999/2000 season, however no offspring were produced. Interestingly only a handful of birds on the North Island attempted to breed that season and none were known to have been successful. It has also been interesting to observe the lack of mate fidelity from one season to the next and promiscuity amongst the birds even when paired in a season.

Following the success of the reintroduction project, the new goal is "To establish a viable, self-sustaining kaka population at Mount Bruce". The first step is to support nesting pairs with intensive nest site management as with the first season, until the population reaches 10 pairs. Once 10 pairs are present, the focus of predator control will move to a system of predator trapping over the main 50 hectare breeding area.

A hand raised chick at 7 days. This bird has slightly deformed legs – note the tape between the legs which resulted in full recovery. Photo: Karen Barlow

A hand raised chick at about 2½ weeks. Photo: Karen Barlow

Significant success, nationally and internationally

The project has been significant nationally and now provides a method for the re-establishment of birds into areas where they are extinct. The soft-release method described is currently the only one known for mainland sites, and kaka had never before been successfully translocated to establish a new population. Internationally this project also offers techniques, which may be able to be successfully applied to other psittacine species. Likewise, this is the first time that captive-bred parrots (including hand-raised birds) have successfully been re-established to an area from which they had become extinct. Apart from the conservation benefits for this species, which this project has produced, a number of other species such as kiwi, kokako, robins and more are likely to benefit from re-introductions after the future predator control. The reintroduction of kaka to the Mount Bruce reserve has provided excellent advocacy and education opportunities. The supplementary feeding not only supports the birds and enables easy monitoring, but is also a very good advocacy tool. Up to 50 visitors a day attend the daily kaka feed, and Department of Conservation staff give a talk about the reintroduction project. This also offers the opportunity to tell members of the public about problems other species face in New Zealand and the efforts required for their restoration. There are currently approximately 50 kaka in captivity in New Zealand with only selected birds allowed to breed so that their offspring's genetic variability is maximised. Re-introductions such as this are likely to be replicated elsewhere in New Zealand and give good reason for future captive breeding to supply birds for release.

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Predator proofing a natural nest site. We use aluminium sheeting and surround the nest site with 20 predator trap boxes. Photo: National Wildlife Centre

Kaka drinking nectar from a

Zuni Indian Tribe

Parrot and Macaw Feathers

by STEVEN ALBERT

The Zuni Indian Tribe in New Mexico, United States is seeking assistance in obtaining parrot and macaw feathers for religious ceremonies.

Zuni is the largest and most remote of the 19 New Mexico Indian Pueblos. Aboriginal Zuni land once stretched across nearly 25 million acres in New Mexico and Arizona. Today, the 700,000 acre Zuni Reservation encompasses a land of deep canyons, tall mesas, forests, woodlands, and wetlands in a remote corner of the American Southwest. Perhaps because of this remoteness, Zuni has also remained one of the most traditional and orthodox tribes in North America. The Zuni language is the primary language spoken here, and the vast majority of people still practice the Zuni religion.

Like many Native American religions, wildlife play a vital part in its practice. Not only do Zunis revere wildlife, but many species of animals are sacred and some are considered to be incarnations of Zuni ancestors. One of these is the parrot or macaw (in Zuni ethno-ornithology, they are very similar). Many aspects of the Zuni religion call for the use of parrot and macaw feathers, which are used for offerings and to decorate dance costumes. The feathers used in offerings are used in such a way that they cannot be re-used. All religiously active males make many prayer offerings per year, and each offering requires a different assemblage of feathers, depending on the specific ceremony or time of year. Thus there is a constant demand for parrot, macaw, and other types of feathers. Many ceremonies pray for rain and prosperity not just for the Zuni people, but for all humankind.

It might reasonably be asked, "how did a tribe in the American Southwest come to rely on parrot and macaw feathers?" After all, the only native parrot even close to this part of the country is the Thick-billed parrot (*Rhynchopsitta pachyrhyncha*), and that is found hundreds of miles to the south. The closest native macaw is the Military macaw of southern Sonora and Chihuahua, Mexico.

Zunis, along with the other New Mexico Pueblo Tribes and the Hopi of Arizona, are the descendants of early Puebloan People, a well-known group of Indians who lived in the American Southwest for centuries, farming and inhabiting the famous cliff dwellings of Chaco Canyon, Mesa Verde, Canyon de Chelly, and many other sites. (Sometimes referred to by others as the "Anasazi", Puebloan People no longer use this term, as its derivation and meaning are uncertain and possibly offensive). While most of the villages grew corn and hunted wild game for subsistence, early Puebloan civilization depended on well-established trade routes to every point on the compass, including the Great Plains, the Pacific Coast, and Mesoamerica. Trade items were varied but generally consisted of salt, turquoise and buffalo robes going from the Zuni area in return for shells, coral, cotton, and parrot and macaw feathers. Parrots and macaws were also occasionally brought alive into the region and kept as pets for the molted feathers. The ruins at Chaco Canyon and other sites unearthed great numbers of macaw feathers and macaw skeletons, still in their cages. Many of the macaws and parrots made their way from Mexico and Central America to Casas Grandes in present day Chihuahua, Mexico. There, a massive parrot and macaw breeding and holding facility was set up to supply the Tribes to the north.

There is a story that's told in Zuni that describes Zuni's relationship with the tribes in Mesoamerica or "the land of everlasting sunshine". As Zunis were wandering the Southwest searching for "The Middle Place" which was their destiny, a decision was made to split the people into two groups, with one group going south and the other group continuing to search for the Middle Place. An elaborate plan was devised on how to divide the Tribe. During their previous wanderings in a large arc across the region, they had procured two eggs, a handsome egg and a rather dull colored egg. The men and women were separated into two even groups and each group chose an egg. Elaborate prayers and ceremonies were undertaken and the eggs were hatched. It was then discovered that the handsome egg was a crow egg, so that group went north and continued to search for the middle place. The dull colored egg was the parrot egg, so that group went south to the land of everlasting sunshine. Though the Puebloan cultures departed their cliff dwellings in the 14th century, possibly because of drought or other factors, their descendants moved to villages at Hopi, Zuni, and the New Mexico Pueblos along the Rio Grande.

In Zuni, cultural and religious practices still dictate the need for parrot and macaw feathers. Unfortunately, these items are very hard to come by. Occasionally, a vendor will set up a roadside stand to sell legally-obtained articles, but with one tail feather of a Military macaw costing nearly $100, few members of the community can afford it.

That's why we're calling on members of the aviculture community to send us all the parrot and macaw feathers that you possibly can. Any species from anywhere in the world will suffice. Also, feathers from all parts of the bird are needed, even down to the smallest body feather. Larger feathers are used for dance costumes. Again, the feathers are used in one-time offerings, so there is a constant demand.

Contact: Steven Albert, c/o Zuni Fish and Wildlife Department, Bldg. 2, Route 301 North, P.O. Box 1473, Zuni, NM., 87327. If you have any questions, please contact us at: phone (505) 782-5851, fax (505) 782-2726, email skalbert@hotmail.com.

Elahkwa (Thank you)

WARNING: FEATHERS FROM CITES APPENDIX I SPECIES CANNOT BE SENT TO ANOTHER COUNTRY WITHOUT THE CORRECT PAPERWORK

Zuni Tribe

The Golden Conure in danger

WPT funded research reveals new insight on behaviour and threats

by RICHARD HARTLEY

It is ironic that in the country named after the Brazil Hardwood tree (*Caesalpinia echimatta*), that species nearly went extinct before measures were taken for its rescue. If current trends continue, such a hapless fate could befall another Brazilian species, the beautiful Golden Conure (Guaruba guarouba). With its yellow and green markings, the country's national colours, this popular parrot's habitat is being ravaged in a region currently weathering the bulk of Amazon rainforest destruction. Accentuating the bird's plight is its rapacious trapping by smugglers who feed the illicit market demand this species still creates. This parrot's future in the wild is at best precarious; it will require courageous and innovative conservation efforts to ensure that at least some bands are able to continue to live and prosper in their natural habitat.

An adult Golden Conure feeding in a croton tree.

An area that has been selectively logged, removing large trees essential to the conures.

Given the dearth of information on the bird's behavioural and reproductive patterns, the World Parrot Trust resolved to fund new research, spear-headed by one of Brazil's premier parrot experts, Dr. Carlos Yamashita. In his two months of research, based out of Paragominas, Pará, Dr. Yamashita set out to identify and map nesting trees (or snags), observe and document group behaviour and analyse blood samples to determine the degree of relatedness among members of bands (small flocks) identified in specific snags.

The range of Golden Conures extends far westward into the Amazon basin reaching all the way to the right bank of the Madeira Rio in Amazonas state; the bird reaches as far east as the Gurupi in Maranhão state. It is found in much higher density (almost ten times) within the confines of the study area. This coincides almost directly with the heaviest deforestation zones.

Devastated landscape

The town of Paragominas, at the heart of the region, is now surrounded by a devastated landscape. Over the past several years, two thirds of the town's lumber mills have ceased to operate, indicating an exhaustion of local wood sources. This means the forests that provide food for the local fauna are likely to be razed in the very near future.

The rural social conditions spawned by this boom-bust cycle of timber tend to be abominable, presenting a further obstacle in the bird's struggle to survive. A group of the birds were encountered near a community of "sem-terras", landless peasants who receive plots to farm through a controversial government agrarian reform program. Completely isolated and neglected, the hygienic conditions were so dreadful that malaria had permeated the community. It was simply good fortune that none of Yamashita's team contracted any grave illnesses.

During the period of study, Dr. Yamashita located 13 nesting snags within a 90 kilometer radius of Paragominas, all of them located in cleared areas either next to or at maximum 3 kilometers from intact rainforest patches. This does not mean that cleared areas are able to sustain populations of Golden Conures; merely that many of the forest patches nearby have been selectively logged and therefore lack snags large enough to support the birds. These snags in open areas are much more vulnerable to winds and often will topple, causing the birds to seek other suitable nesting sites and exposing the flocks to further dangers. In addition, the fact that these snags are not within the

Golden Conures drinking from a fork in a large tree.

The logging activity that threaten the future of Brazil's 'national bird'.

protective labyrinth of the forest facilitates the work of the local trappers.

A fascinating aspect of the Conure's behaviour is the presence of "helpers" and their supporting role in the life of breeding pairs. Loyal to one pair, as yet it is undetermined whether the helper is the direct offspring of the pair, or a member of the group incapable of reproducing. Another interesting behavioural trait is the group living situation. Roosting groups are between 6 and 8 individuals, but up to 30 individuals can be concentrated in a feeding ground. What has yet to be determined, however, is whether these communities are all related or whether the clan loyalty extends beyond blood-lines.

The birds are extremely social and spend a lot of time preening. They lay between one and three eggs in November, and on average two chicks fledge. It is difficult to know which falcons or hawks are their main predators since they tend to nest deep inside the tree. But like so many other basic behaviour questions, we are still at a speculative stage. Analysis of the blood samples gathered by Dr. Yamashita will shed some light on this spectacular species, but much more needs to be known about the birds' wild habits.

No room for complacency

The fact that the bird reproduces relatively well, unlike other highly endangered species such as Lears Macaws, tends to inure a certain complacency since numbers in captivity are relatively abundant. But for this symbolic bird to become extinct in the wild would inculpate both Brazilian authorities and the conservation community in general. The challenge is therefore to find viable ways to protect specific wild groups which bring some kind of material improvement to the local population that coexists in the birds habitat.

A conservation tool with proven effectiveness is ecotourism. In the case of the Golden Conures, its rarity and aesthetic beauty is appreciated by a wide range of serious bird watchers and nature enthusiasts. Indeed, despite the extensive destruction of primary forests, the secondary forest re-growth still harbours impressive biodiversity. A mere 40 kilometers from Paragominas, and over a period of two hours, the author saw four types of parrots, including a group of five Golden Conures, a pair of Hawk-headed Parrots, pairs of Green-winged and Scarlet Macaws as well as three King Vultures, all in a degraded forest patch. The mind boggles as to what it must have been like before the destruction began.

Conservation strategy

There are a series of indigenous reserves within the region. While wood extraction is taking place in some areas, other tribes leave their forests intact. Dr. Yamashita believes the best conservation strategy, therefore, would be to buy forested land that hosts some birds and abuts the reserves where wood extraction is absent or minimal. Once the land was secured by the BioBrasil Foundation, a Brazilian environmental NGO that already owns 10,000 acres of Hyacinth Macaw habitat in another region of the country, a program to set up a guaranteed animal attraction would be implemented.

Given the magnitude and elevated pace of destruction in the eastern Amazon, people tend to throw up their hands in despair. But such a defeatist outlook obscures the fact that there it is still possible to implement measures to ensure the protection of at least some of the region's flora and fauna. Such a positive attitude should be adopted by those who wish to see the Golden Conure continue and survive in the wild.

The World Parrot Trust and BioBrazil will continue their efforts to save this threatened species.

Golden Conure Survival Fund

Useful progress to report

In our issue of *PsittaScene* for November 1999 we launched this special fund for the Golden Conure Guaruba (Aratinga) guarouba. The fund was introduced by Glenn Reynolds of Springfield, Virginia, USA, who described our hopes for this fund, and the very beautiful T-shirt that has turned out to be very popular.

Glenn also mentioned Grant Hacking, a South African wildlife artist who now lives in the USA. Grant has now completed his painting of Golden Conures, and you will see from the illustration here what a superb piece of work it is. With Grant's approval, we have decided to sell a limited edition of 250 prints, using a new technique that prints the painting onto canvas. The result is indistinguishable from the original! Both the original and the prints are 30" by 20". The price of the prints is $165 plus $10 for post and packing, or £110 plus £7. Please send orders to our UK or USA administrators (see page 19). After the (expensive) prints are paid for, ALL PROFITS will go directly to the Golden Conure Fund, and you will be in possession of a wildlife masterpiece.

As for the original painting, offers are invited in excess of $8,000, and may the most conservation-minded connoisseur win! Grant has generously said that 50% of the eventual sale price will be donated to the Golden Conure Fund.

We must express WPT's great appreciation of the work done by Glenn Reynolds, who has put in hundreds of hours for this fund, which now stands at $15,000. (Glenn takes great pains to acknowledge the help he gets from supporters - in an email to WPT-UK he said 'Kim Strong was the person responsible for the Tennessee Valley Exotic Bird Club's donations to the Golden Conure Fund. To me this is what it is all about. People realizing that they are helping and feeling good about it.') Many bird clubs in the USA have contributed to the fund, perhaps a recognition of how highly this species is prized in aviculture. A first donation from the fund of $10,000 has been sent to Biobrasil (a Brazilian NGO based in Salvador, Bahia) to be used by Dr. Carlos Yamashita to fund his study of this highly endangered bird. But we all know that much larger sums will be needed to create a situation that will allow this bird to survive in the long term. Our original target was $20,000, but with this wonderful new painting and our on-going t-shirt, we have raised the target to $35,000.

A proposal from Dr. Charles A. Munn III for the work needed was included in our introductory article in the November 1999 PsittaScene, and readers may like to refer to that for more information. In the meantime, PLEASE CONSIDER ORDERING THIS OUTSTANDING PICTURE. Anyone who keeps or simply cares about the Golden Conure will enjoy it, and it would make a superb Christmas present.

Lilac-crowned Parrot

Area requirements and regional movements

by KATHERINE RENTON

Katherine Renton

The Lilac-crowned Parrot (Amazona finschi) is endemic to the Pacific coast of Mexico, and has suffered severe pressure from capture for the pet-trade, being one of the most traded parrot species in Mexico during the early 1980's. The Lilac-crowned Parrot is now considered a threatened species and this year was highlighted as a priority species for conservation actions by the Mexican government. Tropical dry deciduous forest along the Pacific Coast of Central America is also one of the most threatened forest types and a priority for conservation. It is estimated that less than 2% of the original extent of tropical dry forest now remains in a relatively intact state, with only 0.09% having official conservation status.

The conservation research project being conducted in the Chamela-Cuixmala Biosphere Reserve is the first study to determine the area requirements and daily and seasonal movements for a mainland Amazon parrot in the Neotropics. The study has also obtained the first evidence that parrot populations make altitudinal migrations during the dry season, travelling from the Chamela-Cuixmala reserve to the Sierra Cacoma, near to the Sierra Manantlan Biosphere Reserve. In addition, juvenile parrots make latitudinal dispersions of up to 60km from the reserve. This has considerable implications for conservation and the design of protected areas, demonstrating the potential for developing connectivity between the Chamela-Cuixmala and the Sierra Manantlan reserves, as well as biologically important areas such as the Tomatlan dam, through the implementation of biological corridors which permit movements by animal populations.

The project is also collaborating with the Sub-committee of Psittacids of the Mexican government Department for the Environment, Natural Resources, and Fisheries (SEMARNAP) to develop the 'National Plan for the Conservation of Psittacids in Mexico'. The results of the parrot study being conducted in the reserve provide solid and scientific bases for the conservation of threatened parrot species.

Three Lilac-crowned Parrot chicks are among the lucky few which survive to fledge from their nest. Only 30-40% of wild nests are successful, the majority are lost to predation or poaching.

During 1998 and 1999 research on reproduction provided the following information:

- Data on nestling growth demonstrated that Lilac-crowned Parrot nestlings exhibit flexibility in growth rates which may be influenced by environmental factors, parental behaviour and injury.
- Analysis of breeding success demonstrated that Lilac-crowned Parrots have low nest success with only 30-40% of wild nests producing fledged young, resulting in an average reproductive output of 1.0 fledglings per breeding pair of parrots.

Parrot Diet and Habitat Use

- Diet observations demonstrate that immature seeds form 80% of the diet, and Parrots have been observed feeding on at least 33 species of tree.
- Analysis of nestling diets demonstrated that seeds of Astronium graveolens (Culebro), and Comocladia engleriana (Incha huevos) are important food plants for parrot nestlings.
- Data on fruiting phenology, and observations on feeding behaviour of parrots demonstrated that semi-deciduous forest is a key habitat type in the dry season, providing food resources for parrots at a time of scarcity.
- Deciduous forest is important in providing abundant food resources for parrots at the end of the rainy season, prior to the breeding season and egg-laying.

Area requirements and regional movements

- Analysis of juvenile survival demonstrated a 25% mortality of fledgings after leaving the nest, giving an overall reproductive output of 0.85 juveniles in the adult flock per breeding pair.
- Roost sites and foraging sites utilised by parrots within the reserve were identified.
- Data on area requirements indicate that once independent of the parents, juvenile parrots may use an area of almost 8,900 hectares.
- The first data was obtained on the altitudinal migration undertaken by parrots at the end of the dry season, travelling 46-50km from the Chamela-Cuixmala Biosphere Reserve to the Sierra Cacoma, adjacent to the Sierra Manantlan Biosphere Reserve.
- The first data was also obtained on juvenile dispersal demonstrating that parrots hatched in the Chamela-Cuixmala Biosphere Reserve may disperse at least 60km from the reserve to areas such as the Tomatlan dam and Rio Purificacion.

Future Aims: Year 2000-2002

With the support from the World Parrot Trust, American Bird Conservancy and the Cuixmala Ecological Foundation the study aims to compare area requirements, habitat use and movements between resident adults and dispersing juveniles. Such information will be of value for management of the Chamela-Cuixmala Biosphere Reserve and in developing connectivity between key habitats and protected areas, to facilitate parrot movements and maintain healthy ecosystems.

The research also hopes to implement genetic studies to determine the percent of male and female juvenile parrots which are dispersing from the reserve. The project will also investigate the factors limiting reproductive output of the wild parrot population, determining in particular the influence of environmental variability on the growth and survival of parrot nestlings. In this way, the study aims to evaluate the role of the Lilac-crowned Parrot as an indicator species in reserve management.

For information please contact:
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Believe it or not, Katherine Renton has no transport. If she had, she could extend her valuable work to a larger area. WPT-USA has allocated $5,000 towards a fund to buy her a good used Toyota truck in USA, but needs a further $10,000 to achieve this. Donations of any size would be welcome – or even a suitable vehicle! Mike Reynolds.

Over-production of parrots

Giant implications for parrot welfare

by ROSEMARY LOW

Peter Them from Denmark wrote to us in July regarding a problem which all parrot breeders need to face up to. In his opinion:

"In recent years there has been a great revolution in aviculture in the European Union, as well as globally. Modern technology and new knowledge in the hands of bird breeders has resulted in many parrots and other birds, including species which formerly seldom bred in captivity, being bred in large numbers – enough to supply the avicultural and pet trades.

"There is now an oversupply of many parrot species in aviculture and there is no need to take more birds from the wild. With the dramatic increase in captive breeding, aviculture has become self-sufficient. The prices of most parrots and other birds have crashed in recent years. Many breeders tell me that they are not allowing their parrots to breed this season, as they cannot sell or give away the young birds. The parrot market, local as well as national and global, has come to a standstill. Sales are poor and prices have dropped tremendously over the past few years. People are desperately trying to get rid of their parrots at very low prices. Should aviculture continue to mass-produce parrots and other birds?"

It is very obvious that the answer to this question is: NO. Or perhaps I should qualify this with the suggestion that it is very obvious to those who care about parrot welfare and the plight of individual birds, yet a subject to which the commercial breeder hardly gives a thought. His only concern is profit. When trade is in living creatures ethics should play a very strong part.

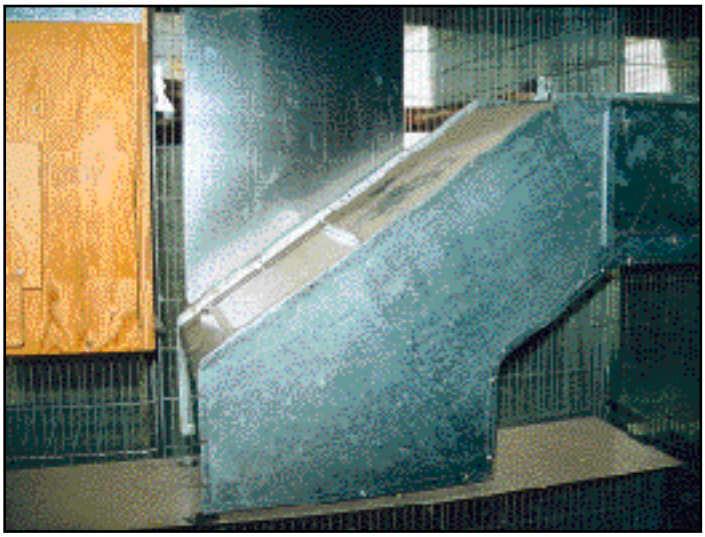
Alas, this is not the case.

I have seen parrot breeding go full circle, from being a rare event to a mass-production trade, in which thousands of parrots are kept and bred in conditions little better than those of commercial poultry. I find this immensely disturbing, partly because parrots have such awareness and intelligence that close confinement in an unstimulating environment is a thoughtless form of cruelty.

But this is not giving a direct answer to the question of whether aviculturists should continue to mass produce parrots. My answer is no because:

1. Demand for all species with the exception of the Grey Parrot, has declined dramatically. This has led to wide availability of many species at very low prices. The result is that many members of the parrot family become the subject of impulse buying. Cheap birds are inadequately housed because a spacious cage costs perhaps ten times as much as the bird. Cheap birds are not valued and are given away or even liberated when they become too much trouble or when the family goes on holiday.
2. When breeders cannot sell their young or obtain a realistic price they are, as Peter Them states, desperate to get rid of them. They will sell them or give them away without a thought about their future. They don't care where they go. As the more expensive species become harder to sell, the same applies. In this case, many are sold before they are weaned, even to people who have absolutely no experience in feeding and weaning a young parrot.
3. If parrot production in Europe ceased tomorrow, it would take years to find good homes for all the unwanted and ill-treated parrots which even now desperately need to be with sympathetic people. By producing more and more young, breeders are creating a problem which has become apparent only in the past five years or so, and which is set to escalate to very serious proportions. I refer to unwanted birds and those which are not unwanted but are kept in totally unsuitable conditions. The day before I wrote this article I was told about a pair of Long-tailed Parakeets and a pair of Patagonian Conures which had been kept in a flat, each pair in a Sonya cage (a pet type cage measuring 24in x 15in x 25in high - 61cm x 38cm x 63cm) with a nest-box attached to the side. Sadly, as in the case of cats and dogs, there will always be people who keep their pets in a totally inappropriate way, usually out of ignorance. Bird magazines do not reach these

Parrots in pet store in Spain. Clearly the space given is inadequate.



Mass production leads to Greys and other parrots being bred in tiers of cramped, dark cages.

people and aviculturists and informed pet owners may never have any contact with them. I believe that over-production of parrots results in more birds getting into the hands of such people, often through auctions where no information on care is available at the time of purchase.

4. It is a myth that captive-breeding of parrots lessens the demand for imported birds. The two issues are unrelated. Importation occurs not because there is a demand for imported parrots but because there are exporters and importers who can make money from the exercise. They care not that a large proportion of these imported birds are dead within a few weeks. Importers and some retailers know that they can sell imported Greys and Orange-winged Amazons, for example, because they are half the price of captive-bred birds.

5. Mass production, and sometimes even production by the back garden breeder who has only a few aviaries, results in many birds being kept in appalling conditions. The week before I wrote this I was in Europe and visited a breeder who had 100 pairs of Grey Parrots. They were kept in dark conditions in cages no more than one metre wide. He told me that they bred better that way. In fact his results from so many pairs were very poor indeed. If he had kept one third the number of pairs in cages three times as large he would have bred as many young, if not more.

6. The desire to mass-produce has resulted in most of the larger parrots being hand-reared for pets. Many end up in pet shops and because they are so tame and appealing they are bought by people who would not otherwise have considered owning a parrot. Too often they are ignorant of the time and commitment needed to give such a bird a good quality of life. Especially with cockatoos, the outcome more often than not is a young bird which is sold before it is weaned. The stress and anxiety that the forced weaning it usually suffers, affects its pet potential. Its screaming or whining results in many cockatoos having four or five homes before they are one year old. Many end up stressed and plucked in rescue centres. Parent-rearing is seldom permitted because maximum production is the aim and cockatoos will lay multiple clutches in one season. (Sometimes it is because the breeder does not have the skill to provide the conditions which enable a pair to rear their young to independence.)

Peter Them stated that many breeders are not permitting their parrots to breed this year. He must know breeders with a sense of responsibility. At least in the UK, I seldom encounter parrot owners who make a conscious decision not to permit their birds to breed. The problem of being unable to sell the young is usually dealt with by selling the breeding pair.

I now limit the number of young I breed to a total of four or five a year, of which perhaps only two or three are sold. Some of my birds are past breeding age. With others I remove eggs so that they are only permitted to rear one chick as I believe it is unfair and stressful to some birds to stop them breeding. Some pairs greatly enjoy the experience of rearing young (and I do mean to fledging) and it gives them a purpose. It is always a joy to see the young one with its parents in the aviary.

With some species, and this includes lories, the most humane way of preventing birds from breeding is to leave the young one in the aviary and to remove the nest-box. Last year my Stella's Lorikeets produced a young male of the melanistic form. As the latter is not as popular as the red Stella's, I could not find anyone who wanted him. He has formed a very strong bond with his father. They spend hours rolling around in play on the aviary floor. His presence prevents the male from trying to mate with the female. Of course, if the young one had been a female this solution would not have been possible.

As a last resort, the best method of preventing production is to replace a female's eggs with infertile eggs of approximately the same size, or with plastic eggs. Removing the nest-box can be very stressful and might result in the male attacking the female. The strategy should vary according to the circumstances of each pair.

At the end of the day, it is the breeder who controls the number of young parrots available. He controls the supply but not the demand. If the demand is not there, breeders must act with the interests in mind of the young they have or could produce. If the market is not there, mindlessly allowing the birds to breed year after year only exacerbates the problem of low prices and reduced demand. The consequences for individual birds is appalling. That is why so many parrot rescue centres have come into existence during the past five years or so.

The breeder who says he must sell young to pay for the upkeep of his other birds, is in a Catch 22 situation, especially as parrots and parakeets are so long-lived. The only responsible answer is to stop breeding and look after the birds until they die or can be found suitable homes. Unfortunately, not many people are prepared to do this.

A sense of responsibility and a commitment for life to the birds which people keep is so often lacking. Sadly we live in a throw-away society.

NOTE: We intend to discuss the whole subject of parrot welfare, including 'rescue and rehabilitation', in our November issue. Please send any comments or proposals to the editor.

Stella's Lorikeets bred by Rosemary Low.

Parrots, Politics, Spices and Guns

Seram Cockatoo

by MARGARET F. KINNAIRD, Wildlife Conservation Society - Indonesia Programme

The tattooed man stared at me from his stall in the market and laughed, exposing his near toothless gums, then pointed to his companion - a stunning Seram Cockatoo. He stroked the bird's head and pulled upward to expose the abundant, rich salmon-coloured feathers. The bird squawked unappreciatively and hopped to the end of the broken broomstick to which it was chained and drank from a ragged-edged aluminum beer can. "Seratus ribu rupiah saja!" the trader spat out, quoting his price of a mere 100,000 Indonesian Rupiah - approximately USD 38 - for one of the rarest parrots in Asia.

Seram or Moluccan Cockatoo in Indonesia.

I had just arrived on the Indonesian island of Ambon, in the heart of the Moluccas, the legendary Spice Islands. Ambon is a small droplet of land nestled just below the much larger Seram Island - my ultimate destination. I was here to initiate a year long research project on the remaining wild relatives of this beautiful bird that stood chained before me curiously cocking its head, critically inspecting me and my colleagues. My organisation, the Wildlife Conservation Society, together with BirdLife International, were joining forces to determine the current status of what was rumored to be a bird in critical danger of extinction. Parrot lovers, ecologists and conservationists alike feared that extremely high levels of trade and habitat destruction were driving the population to perilously low numbers. Our job was to find out if the situation was as dire as reported and if so, recommend ways in which the Indonesian government might improve the parrot's plight.

The Seram Cockatoo (*Cacatua moluccensis*), also known as the Moluccan or Salmon-crested Cockatoo, is found only on the island of Seram and a few small, neighbouring islands. The Seram Cockatoo is the largest and without a doubt the most striking of Indonesia's white cockatoos. The large, backward-sweeping crest of deep salmon-pink that the market vendor was stroking, and the clean white and pale-pink plumage distinguish the Seram cockatoo from all others. Good looks coupled with comical but lovable behaviours have made it a well-known and popular pet - and in the end, may spell its demise.

Like the man in the market, the people of the Moluccas have been trading parrots for hundreds of years. Although today Seram and Ambon are considered backwater islands, they were once the focus of colonial struggles among the Portuguese, Spanish, British and Dutch for control of their precious spices.

As the golden days of the spice trade subsided and the Moluccas joined - somewhat reluctantly - the Indonesian Republic, trade in spices, birds and timber continued but at slower and probably sustainable levels. In the 1970s however, Seram began to draw the attention of developers, timber barons, and mining operators. The Indonesian government also opened transmigration schemes to relieve the human population pressures on the crowded islands of Java and Bali. As the population grew in response to this development, more people discovered the parrots of Seram and a lucrative domestic and international trade developed.

Between 1983 and 1990 alone, more than 63,000 cockatoos were legally exported from Indonesia. Many more were certainly captured and either died, were smuggled illegally, or were sold as pets in Indonesia. In 1991, Seram Cockatoos were listed on Appendix I of the Convention for Trade in Endangered Species (CITES), and since that time the export of Seram Cockatoos has been illegal. The species is also protected from hunting and trade under Indonesian law. But like many laws in Indonesia, this one is generally disregarded and only sporadically enforced. As I witnessed in the market today, Seram cockatoos are sold openly in the markets of Ambon, and elsewhere in Indonesia.

In the wee hours of the following morning we board a ferry that shuttles passengers across the narrow straits between Ambon and Seram. As the sun rises, I am startled by the dramatic landscape unfolding in front of me. Steep, rugged mountains carpeted in thick forests emerge from the sea. The island has a wild, mysterious and unexplored feel to it, even at a distance. My intuition would prove to be correct.

To count Seram Cockatoos one would ideally like to cover every valley and ridge top that loomed ahead of me. But to survey the entire island would require years, not to mention dozens of well-trained teams. Given the urgency of the situation, we chose to sample representative parts of the island, including logging concessions, protected areas and lowland and highland sites. Based on landuse maps, we chose 14 sites, 7 each on the eastern and western halves of the island. By estimating cockatoo numbers at these sample sites and evaluating habitat quality, we can expand our numbers to estimate the entire population.

First, we needed to locate the survey sites and evaluate logistics. Then my counterparts and I would train teams of young biologists and forestry officials in techniques for surveying parrots and evaluating habitats. Our plan was to have the teams out for a full year, not only collecting data on cockatoos and their habitat but also interviewing villagers about the parrot trade, and monitoring as secretly as possible, the illegal movement

of cockatoos off the island.

After leaving the ferry, we hop in a car and head north across the island on the "Trans Seram Highway" - a rather grand name for a narrow two-lane road. At the top of the first hill, the driver pulls over (a needless gesture as we seem to be the only vehicle on the road) and we scan the hillsides from the road's shoulder. Within minutes we hear the telltale squawk of a parrot. We all looked at each other as if to ask, "Did you hear that too? The call has the raspy, strident quality of a cockatoo!" All doubts were erased as a flash of brilliant white appeared to our right. The cockatoo settled in the top of an emergent tree and was soon joined by three others.

On our way to Roho village on the outskirts of Manusela, Seram's only national park, we see signs of Southern Cassowarys, sight several species of fruit doves and pigeons and spot 5 species of parrots, including Moluccan Red Lorys, Rainbow and Red-flanked Lorikeets, Eclectus parrots, and King parrots. Finally, we top the list with a flock of 6 Seram Cockatoos roosting in a tree just next to a small foot trail.

Later, while resting and gorging ourselves on wild Durian fruits, we experience the darker side of Seram. There, on a long horizontal branch above my head are remains of a glue trap. Trappers apply glue to high branches, and then use decoy birds to lure wild cockatoos to a sticky demise. Here was direct evidence of the continuing illegal trade in this coveted bird.

Survey accomplished, we set about training our teams for the more detailed work. This involved training in census techniques, orienteering, call identification, practice at estimating distances (sounds easy until you try it!) and development of computer skills. Our teams were in the field for 6 grueling months - fording flooding rivers, climbing mountains, establishing and breaking camps, cutting transects for observation, fighting bouts of malaria, and of course, collecting data. None of the hardships experienced in the forests however could possibly compare with what was to greet them when they returned to Ambon for a brief rest.

Civil strife. Religious unrest. Warfare. Ethnic cleansing. These are all terms that don't seem to fit a description of Seram, or anywhere else in the Moluccas for that matter. The Moluccas have always been held up as a symbol of religious harmony. Unlike the rest of the country which is 90% Muslim, the Moluccas are evenly divided between Christian and Islamic followers. For years, church bells chimed in tune with the call of the Muezzin. Under Suharto's New Order government however, church bells fell silent and outsiders, primarily Muslim transmigrants, were encouraged to move to the Moluccas. The government also assigned to Moluccas government officials, police and military from outside the region, upsetting what may have been a delicate balance (and a peoples ability to represent themselves). As the Suharto regime fell and Indonesia plunged into a deep economic crisis, the resentment that had been brewing unseen in the Moluccas for over 32 years erupted overnight. To date, thousands of people have been killed.

Our Indonesian teams were forced to leave the island and BirdLife International shuttered their office and left. These were hard decisions, but neither WCS nor BirdLife wished to put our staff at risk. Luckily, we had finished the entire western half of the island - enough to make a very good stab at cockatoo numbers.

After entering all the hard-earned data in the computer, we applied some of the newest and most sophisticated software packages to estimate cockatoo densities. We also used satellite-based maps of Seram's lowland forests to estimate remaining cockatoo habitat - an important variable in determining cockatoo numbers. The answers were surprising but very encouraging. Seram Cockatoo densities across the western half of the island are approximately 8 birds/km2, or a population of around 55,000 individuals. If we assume that densities remain constant across the island, the total Seram Cockatoo population exceeds 100,000 birds!

Degraded habitat

These estimates however are based on the assumption that all lowland forest provides adequate habitat for cockatoos - an unlikely condition. Our data indicate that cockatoos are surprisingly tolerant of degraded habitat but they still need nesting trees and have a penchant for areas with lots of large strangling figs. With the help of our collaborators at the Ministry of Forestry, we secured information on the number and extent of logging concessions operating on Seram during the last 10 years. We then created two scenarios: First, we assumed that all 12 logging concessions have logged at maximum intensity over the last decade (10 km2/year/concession) and that logging was conducted in a conventional manner (generally resulting in 70% damage to canopy). This scenario results in a reduction of 1,200 km2 of lowland forest habitat for cockatoos, and a revised population estimate for cockatoos still hovers between 90,000 and 100,000 birds. Next, following a similar scenario for continued logging and habitat loss during the next decade, we projected the population size would decline by another 10 percent. These estimates are conservative because many concessions are not working at full capacity, and may very well underestimate cockatoo population sizes. On the other hand, our estimates ignore additional losses due to hunting for the pet trade - the very parameter that we found most difficult to evaluate.

Typical scene in a bird market.

The good news is that unless the situation changes dramatically in the near future, Seram Cockatoos will very likely be flying free and in healthy numbers across the Seram landscape for some time to come. Overall, habitat loss on Seram has not reached a level where it can be perceived as a serious threat to cockatoos. Eighteen percent of the island is set aside in protected areas - a large cut of the pie relative to other Indonesian islands.

The bad news is that Seram's cockatoos remain under threat and we cannot become complacent. Illegal trade in cockatoos continues and birds are being reported in markets as far-flung as Medan, Sumatra, Singapore and Bangkok. If the trade is allowed to grow and flourish beyond today's levels, Seram Cockatoos may face a bleak future.

And what of the effects of the civil unrest? While we cannot say with certainty how the birds are faring, we suspect that the violence has temporarily stopped development such as logging, agricultural schemes and mining. This is all good for cockatoos. Unfortunately, soldiers have a weak spot for parrots and we suspect that the heavy military presence has led to a rise in cockatoo trade. Ultimately, the fate of Seram's cockatoos will not be known until peace is achieved and biologists can return to the forest. In the meantime, we are compiling our results and developing recommendations for future management. We hope that we will soon be able to return to the Moluccas and put our knowledge into practice.

Psitta news

Protecting the Parrots of Papua New Guinea

The Guiye Waiye Environment and Conservation Group is a non-profit, community based organisation that promotes conservation of the environment through creating public awareness education among local people. It is based in Simbu Province. The organisation will train and educate people on issues such as soil degradation and destruction of water catchment areas (resulting in dried-up creeks and streams), logging, mining, hunting of birds of paradise and cockatoos, fishing, bush fires and river pollution. It was founded in 1997 in Ouna Village by Alfi Umba and Peter Gundu.

They plan to protect the following parrots species:

- Pesquet's Parrot (*Psittrichas fulgidus*)
- Papuan Lorikeet (*Charmosyna papou*)
- Blue-eyed Cockatoo (*Cacatua ophthalmica*) (on New Britain)
- Birds of Paradise

In the coastal provinces such as Madang, Morobe, Daru (southern coast), and west New Britain, people hunt mainly white Cockatoos and Eclectus Parrots, while in the highlands they hunt Birds of Paradise, Pesquet's Parrots and Papuan Lorikeets. The group will travel to these provinces to educate people not to hunt these birds.

The budget for the programme is Kinar 50,000 (about £14,368) and we are seeking financial help. We also need advice on conservation education methods.

The main reason for the establishment of the group is the many logging activities in our area. Papua New Guinea has one of the few remaining virgin forests in the world. It is quickly disappearing for short-term economic gain offered by the loggers. The local inhabitants believe that we should benefit more from our resources. Logging also destroys plants for medicinal use which have been used for generations before the introduction of modern medicines. Wildlife either migrates or declines towards extinction as their habitat is logged.

The organisation hopes to involve many people in the long-term conservation of the forest, by creating eco-tourism and by carrying out research on plants. As an organisation pressure can be put on local leaders.

For further information please contact: Peter K Gundu, PO Box 463, Kundiawa, Simbu Province, Papua New Guinea, South Pacific.

Massive Dam Project Threatens Key Habitat of Jaguar and Scarlet Macaw

US campaign to save Belize's Macal river valley

Two North American energy companies are the moving forces behind a proposed dam and reservoir that would flood 22 miles of the Macal River valley in Belize, obliterating one of the most vital wildlife habitats in all Central America.

The threatened area, unmatched for its tropical floodplain biodiversity, lies inside the Chiquibul Forest Reserve and includes part of the Chiquibul National Park. It contains the only known nesting site in all Belize for the largest subspecies of Scarlet Macaw, which numbers less than 250 individuals. The colourful birds, which mate for life, raise their young in the hollows of trees along the river. The Macal River also boasts some of the continent's best remaining jaguar habitat, a swath of rainforest considered a key piece of a plan to save the jaguar for future generations.

Other rare animals, some of them classified as endangered by international treaty that depend on this remote and undisturbed ecosystem include the ocelot, the Central American river otter, the Morelet's crocodile, the Central American spider monkey, and the tapir, the national animal of Belize. Many of these species are already extinct in other American habitats, where logging and development have decimated once lush tropical river ecosystems. A recent archaeological expedition, filmed by National Geographic, has also documented the presence of four Maya ruins in the area to be flooded by the proposed dam.

The Chalillo hydroelectric dam project is a joint venture of the Belizean government and Fortis, Inc, a billion dollar Canadian corporation that owns real estate, hotels and utilities. Duke Energy International, based in North Carolina, also stands to reap big gains. "Fords and Duke Energy are trying to do in Belize what they could never do here at home. Sacrifice a wildlife Eden for the sake of corporate profit", says Jacob Scherr, Director of NRDCs International Programme. "Their plan is not only ecologically disastrous, it's economically senseless." The huge costs of building the $30 million dam is predicted to raise electricity rates for Belizeans. The country recently paid $40 million to connect to Mexico's power grid, a source of inexpensive electricity. The main purpose of building the Chalillo dam is to increase water storage capacity and year-round water flow, thereby making the existing Mollejon dam downstream more profitable. Duke Energy owns the Mollejon dam and is widely expected to sell that dam to the owners of the Chalillo dam. The Belizean government will judge the environmental effects of the proposed dam in which it is a financial partner. It recently delayed the application to build the dam due to completely inadequate environmental studies.

But there is concern among Belizean citizens and local communities that financial interest may overwhelm environmental considerations. The Belize Zoo and Tropical Education Center, a prominent Belizean nonprofit organisation, recently asked NRDC to alert the US public to the plight of the Macal River and to help persuade Fortis and Duke Energy to abandon the dam project. "We have a moral obligation to hold US and Canadian companies accountable for their environmental behaviour around the world," said Ari Hershowitz, an NRDC scientist and one of the key players in the recent victory over Mitsubishi on behalf of the Grey Whale Nursery. "We told Mitsubishi, a Japanese company, they didn't have the right to destroy a World Heritage Site in Mexico. We're not going to stand by now and let two North American companies endanger a world-class wildlife habitat because it happens to be in Belize. Fortis and Duke Energy cannot ignore an outcry from US and Canadian citizens." This month NRDC is undertaking a mail and web-based campaign aimed at saving the Macal River by alerting millions of North Americans to the destructive dam project and bringing massive public pressure to bear on Fortis and Duke Energy. "We can save the Macal and its wildlife," says Scherr, "if enough environmentalists make their voices heard now".

Take Action Now

Urge Fortis, Inc. to show good corporate citizenship by canceling the Chalillo dam project and saving the Macal's vital wildlife habitat. Tell them you'll avoid patronising their hotels if the dam project goes forward. Write to:

H. Stanley Marshall,
President & CEO, Fortis Inc.,
PO Box 8837, Fortis Building,
Suite 1201, 139 Wate Street,
St. Johns, NF, Canada A1B 3T2.

Zoological Bird Keepers Email List

I am a bird keeper at Disney's Animal Kingdom. I have recently created a new email list for bird keepers in a zoological setting, as well as other individuals with an involvement in aviculture. Interested individuals may join the list by sending a blank message to birdkeepers-subscribe@egroups.com or by going to http://www.egroups.com/group/birdkeepers.

I welcome you to join my list. Let's work together to ensure that the birds we are responsible for are getting the best possible care.

Thanks
Jeremy Taylor

Note: This list is an independent undertaking and is in no way associated with Disney

Logging Stopped in Mexico and New Zealand!

Protection for Mexican Thick-bill

It took two years to reach an agreement regarding the protection of a nesting site of great importance. Logging of the Mexican Thick-billed Parrot's prime nesting site in Bisaloachic was planned for 2002. At last a 15 year moratorium has been placed on the area. It holds about 10% of the entire population of this endangered species. In a project masterminded by the Wildlife Preservation Trust and Monterrey Tech, several organisations will pay the local community rent for the forest. This will eventually total 50% of the net value of the timber that could have been harvested from the area. These organisations, which include Pronatura (Noreste), Naturalia and The Wildlands Projects, will monitor the forest and provide technical advice on forest certification. They will also promote ecotourism and rural development. Hopefully the local community will eventually be aware that their pristine forest is worth more to them in the long-term than the short-term gains from cutting timber.

Kaka will benefit

Almost 1,000 square km of beech forest on the west coast of New Zealand's South Island will now be protected. The Government elected last year announced that the lowland forest will not be logged as projected. The Royal Forest and Bird Protection Society has spent more than 25 years lobbying to protect these forests, of which less than 15% of the original (pre-1840) forest has survived. Among the threatened species which occur here are the Kaka, whose numbers have declined drastically in recent years.

The promoter of the beech logging scheme, the government-run company Timberlands, is to be wound up. This is an important step towards ending all indigenous forest logging on public land in New Zealand. Some would say that it has come too late for some species. Such selective logging reduces the number of large trees, thus having a serious impact on hole-nesting species, especially those which are already endangered.

Fundraising Ideas in Australia

Our valued member Anne Morrison in Alice Springs has done it again! She never stops thinking up new ways of raising money for the Trust. This time she has been making bookmarks using moulted feathers, such as the crest feathers from Major Mitchell's Cockatoos. These are mounted on card and laminated. She also makes gift cards and "dreamcatchers". (She did not enlighten us regarding these!) Fifty percent of the income is

donated to WPT. Anne has a shop entitled Pioneer Pottery in Todd Mall - so any members visiting Alice Springs should be sure to visit her. Anne says that selling the items she has made is an opportunity to spread the word about The World Parrot Trust. Thank you, Anne!

Charity Slides

A new company run by Paul Cato called Charity Slides supplies a professional photographic slide service to all World Parrot Trust members, other Charities and deserving causes worldwide at drastically discounted prices. If you have any photos, bitmaps, jpegs or powerpoint files of parrots or anything else and require them to be copied onto slide or CD-Rom for either an exhibition, presentation or for publication etc. then contact Paul for a quote. Please give your WPT membership number when making enquiries for any services that you may require. For reasonable rates, quick turnaround and quality 24hr service please contact:

Paul Cato
Charity Slides International
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PE22 0TU, UK
Tel 44 (0)1205 750009
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Email cato@charityslides.co.uk
Web www.charityslides.co.uk

Thank You

We would like to say a big Thank You to Aviation Cargo (UK) Ltd (Aviacargo) for helping us with the flight and contributing to some of the payment for a large courier shipment of equipment. for our ongoing Echo Parakeet project this month.

New Zealand Bird Tour

Glen Holland is leading a bird tour next year, from March 7 - March 25. Four parrot species are among those which might be observed. For further information contact Glen Holland at National Wildlife Centre, RD1 Masterton, New Zealand
Home Tel: (06) 375 8332
Work Tel: (06) 375 8004
Fax: (06) 375 8003
Email: wildlife@winz.co.nz

WPT Benelux Symposium

This will take place on 4th November, 2000 at Kasteel Brasschaet, Brasschaat, Belgium. For more information, please contact Ruud Vonk, Tel: (31) 168472715 or Romain Bejstrup Tel: (32) 32526773.

First Echoes Leave Mauritius

For the first time ever, a small group of Echo Parakeets will leave Mauritius. There is a surplus of male birds, and six of them have been sent to be quarantined at the Jersey Zoo. In September, three will be sent to Paradise Park, Cornwall, UK, to be exhibited so as to assist fundraising for this vital and ground-breaking project. Among the three birds will be 'Pablo', one of the first to be hand-reared, and a remarkably tame bird. He is expected to take part in Paradise Park's 'Free Flying Bird Show', an outstanding show that has been thrilling visitors to the park this summer. We will keep readers informed on how these birds settle in.

WPT Leaflet Printed in Brazil

'How to have a Happy Healthy Parrot' leaflet has been translated into Portuguese for use in Brazil. What is more, it has been supplied with full colour illustrations instead of the black and red pictures used in our UK and USA versions. WPT is grateful to the person responsible, a Brazilian member, Paulo Machado of Vale Verde, and he has kindly sent us a CD of the colour pictures. This means that anyone else wanting to print a new version of our leaflet is free to use these very attractive colour pictures. We have previously printed Danish, Italian and Dutch versions, but perhaps the time is right for a Spanish version? Anyone interested should contact the UK office.

Working for Parrot Conservation and Welfare Worldwide

The World Parrot Trust was founded in 1989 as UK Registered Charity No. 800944. International expansion has been rapid and the Trust now has linked charities and support groups in Africa, Australia, Belgium, Canada, France, Germany, Holland, Italy, Scandinavia, Spain, Switzerland and the USA.

Funds raised for the parrots have now reached £1,000,000 ($1.6M) and have been used to initiate and support conservation and welfare projects in 20 countries for 37 species of parrot. Despite this wide-ranging activity, the Trust is run on a volunteer basis, with only two part time administrators worldwide. This uniquely cost-effective approach is made possible by substantial financial and logistical support donated by Paradise Park, the UK home base of the World Parrot Trust.

The objective of the Trust is to promote the survival of all parrot species and the welfare of individual birds. It pursues these aims by funding field conservation work, research projects and educational programmes. The Trust seeks to promote the concept of 'responsible aviculture' where the interests of the parrots themselves are given priority over commercial, political, career or other human concerns. The World Parrot Trust and its members wish to be recognised as the 'True Friends of the Parrots', and to win over the majority of aviculturists, pet owners and scientists to its point of view. The task is huge – our resources are limited. We need the commitment of everyone in the 'parrot community': those who keep, breed, study and protect the parrots. Beyond those special interests, we look for support from everyone who understands the crisis facing the world through the loss of biodiversity. We aim to continue using the special charm of the parrots to win the hearts and minds of thoughtful people everywhere.

Michael Reynolds
Founder and Hon. Director
World Parrot Trust

Mike Reynolds meets 'Pablo', a hand-reared Echo Parakeet released to join critically endangered wild Echoes in Mauritius.

Join us

If not already a member, please join. Receive our PsittaScene newsletter, know that you are actively contributing towards our aims and projects.

Help fund our Projects

We are currently supporting parrot conservation, education and welfare projects in 20 countries. Your generosity towards the parrots could help us expand current schemes and start new ones.

Aims of the Trust

The survival of parrot species in the wild, and the welfare of captive birds.
These aims are pursued by:
Educating the public on the threats to parrots.
Opposing trade in wild-caught parrots.
Preserving and restoring parrot habitat.
Studying the status of parrot populations.
Encouraging the production of aviary-bred birds.
Creating links between aviculture and conservation.
Promoting high standards in the keeping of parrots.
Supporting research into veterinary care of parrots.

YES, I WANT TO HELP SAVE THE PARROTS OF THE WORLD

SUBSCRIPTION RATES (please tick)

- ☐ UK and Europe (Single) £15
- ☐ UK and Europe (Joint) £20
- ☐ Fellow (Life Member) £250/US$400 Corporate (Annual)
- ☐ All overseas Airmail £17/US$25 (or equivalent currency, payment by Visa/Mastercard preferred)
- ☐ Plus donation of £/US$ .....

Name.....
Address.....
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.....
.....
.....Zip/Postcode.....
Please charge my Mastercard/Visa No.
Exp. date ..... Amount £/US$.....
Signature .....
OR:
I enclose a cheque made payable to the WPT ☐

Or join us on our website: www.worldparrottrust.org

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Tel: (33) 2 38 43 62 87 Fax: (33) 2 38 43 97 18

Switzerland
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Tel: (41) 31 922 3902

Germany
Representative needed –
Call WPT-UK

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Cristiana Senni, email: wpt.italia@flashnet.it
Freddie Virili, via Matarus 10, 33045 Nimis, Udine.

Australia
Mike Owen, 7 Monteray St., Mooloolaba,
Queensland 4557.
Tel: (61) 7 54780454 email: mowen@powerup.com.au

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Tel:(34) 91 6425130 email: anamatesanz@airtel.net

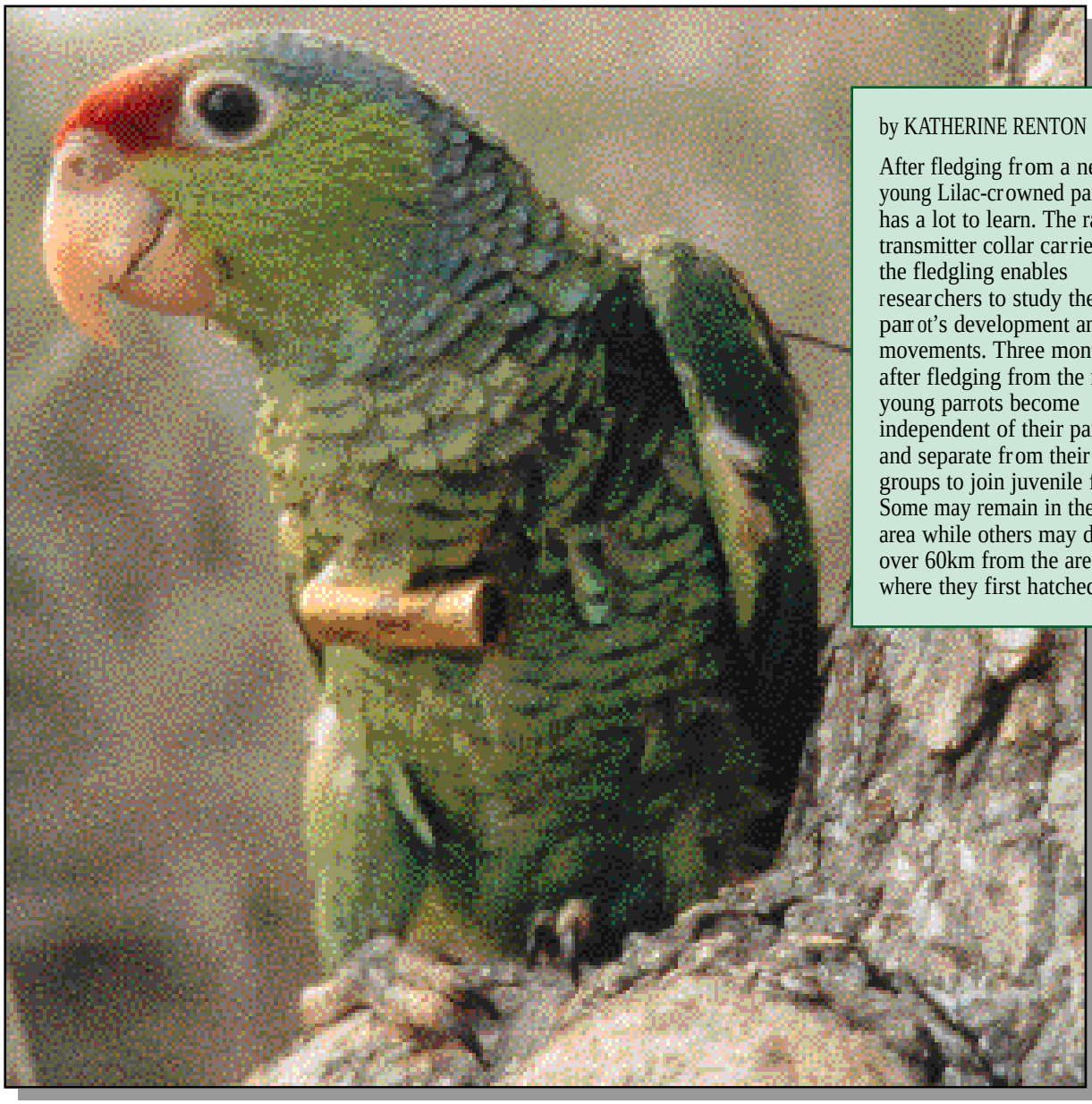
WPT Web Sites:
Central: http://www.worldparrottrust.org
Canada: http://www.cwparrot@canadianparrottrust.org
Italy: http://www.mediavillage.it/wpt
Denmark: http://www.image.dk/fpewpt

Parrots in the Wild

Psitta scene

Lilac-crowned Parrot

Amazona finschi



by KATHERINE RENTON

After fledging from a nest, this young Lilac-crowned parrot has a lot to learn. The radio-transmitter collar carried by the fledgling enables researchers to study the parrot's development and movements. Three months after fledging from the nest, young parrots become independent of their parents, and separate from their family groups to join juvenile flocks. Some may remain in the local area while others may disperse over 60km from the area where they first hatched.

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