



THE BIGGER THEY ARE THE HARDER THEY FALL, OR how body size affects the conservation status of new world parrots

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Editor's Note:

This article is based on a paper presented by Dr. Munn at the IAS Convention, Orlando, FL in January 1995.

I. Summary

Forty of the New World's 150 species of parrots are seriously endangered or declining. All of these species are threatened principally by 1) systematic, nonsustainable harvest by trappers or hunters, or 2) conversion of their habitat for agriculture and grazing. Here I describe how large parrots are much more likely to suffer from trapping and hunting than are small parrots. Conversely, I also discuss how small parrots are much more likely to suffer from habitat destruction than are large ones. Finally, I point out that aviculturists often have claimed mistakenly that they are rescuing large parrots from rainforest that is about to be cut. In fact, the only parrots that could in some situations benefit from being rescued from forest patches about to be destroyed are the small, often relatively dull-colored species that are in such low demand by aviculturists and pet owners as to be economically worthless to trappers and dealers.

For aviculturists to realize their full potential as responsible

conservationists, they need to face up to the fact that every last one of the species of large parrots, endangered or not, that they desire (and acquire) for their collections still have sufficient wild habitat to permit them to survive in substantial or even huge numbers in the wild. Furthermore, all of the large species of threatened New World parrots are in danger now principally because of the demand for pets and breeding stock that is fueled substantially by aviculturists themselves and by pet owners who are the aviculturists of the future.

In this paper I describe briefly some projects that successfully have neutralized the two principal threats to the survival of viable populations of wild New World parrots.

The take-home message from these projects should be that conserving parrots in the wild not only is theoretically possible, but has been shown to be the most practical and cost-effective method for guaranteeing viable future populations of these beautiful birds.

Bearing in mind the previous points, I would like to suggest six golden rules: 1) continue to take good care of and breed your birds; 2) never buy anything other than sustainably-produced, aviary-bred birds; 3) read about the real conservation situation of different parrot species in the wild; 4) become a member of the World Parrot Trust (WPT), International Aviculturists Society (IAS), and other groups working successfully to conserve wild parrots; 5) participate in trips to key field projects; and 6) inform your local bird club and avian veterinarian about the work of WPT and IAS,



The sheer beauty of the Hyacinth Macaw is its downfall.

Photo: Bonnie Jay.

“psittacine
(sit à sîn) Belonging
or allied to the
parrots; parrot-like”



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Hyacinth Macaw in the wild. Numbers reduced from around 100,000 forty years ago to perhaps 3,000 to 5,000 today.

and work with them to develop fundraising campaigns to support specific field projects.

II. How body size correlates with type of threat. How and why large, colorful, talkative species disappear first from intact habitat (often decades before the habitat is in any danger).

Of the 40 threatened species of New World parrots, 12 are Amazons and six are macaws. All 18 of these species are large, colorful, and prized as pets. These attractive parrots are endangered by trapping for pets, secondarily by hunting for meat and feathers, and thirdly (and to a much lesser extent) by habitat destruction. Sixteen of the remaining 22 smaller endangered species suffer principally from advanced habitat destruction in two heavily-deforested, particularly biologically diverse regions of high endemism in southeastern and coastal Brazil, and the tropical Andes of Colombia, Ecuador, and, to a lesser extent, Peru. Six other small, endangered parrot species suffer primarily from trapping. Two of these species are from coastal Brazil, while two others are from Mexico, and the two remaining ones from the Eastern Amazon of Brazil and from Cuba.

Large, colorful, talkative parrots often disappear from intact habitat around the world decades before the habitat is any danger. They disappear because poor, roving bird trappers respond to buy orders put out by unscrupulous urban middlemen. These trappers roam intact forests from Mexico to Argentina systematically seeking out these large, coveted birds and selling them at very low prices to the middlemen. As the trappers never own the forests in which they trap, they have no incentive to manage the parrot resource sustainably. Instead, they compete among themselves to mine the unprotected populations of large

parrots. This rush to snatch up large parrots is a classic tragedy of the commons that, if unchecked, results inevitably in local, national, and eventually global, extinction of these spectacular birds. The urban middlemen in the tropical countries and the bird importers in the consuming countries are willing accomplices in the mining to extinction of large parrots in the Latin American countries.

Looking at this unsustainable harvest at the local level, trappers hack open nest cavities or fell nest trees to collect nestlings. As trees with large, secure cavities naturally are rare even in virgin forest and appear to limit severely the number of breeding pairs, this nest destruction is devastating to the reproductive output of wild macaws and Amazons. Over the past decade in northern Argentina, for instance, trappers felled more than 100,000 nest trees of Blue-fronted Amazons. In that part of Argentina, therefore, a similar number of pairs of adult birds have been deprived of nest cavities, a resource that regenerates extremely slowly (on the order of centuries). As Amazons live for several decades, one possible result of this massive destruction of nests is that the species may still appear common when in fact it is just a matter of time before old birds die and the population crashes. In many areas, trappers also capture adult birds, thereby reducing stocks of reproductive-aged birds.

From point of capture through transhipment to final retail sale, mortality of captured parrots is enormous. For each wild parrot that reaches a pet store in the industrial world, often 2-10 others die brutally in transit.

As most large New World parrot species still have plenty of intact habitat, trappers are the most serious single threat to their survival. From 1975-1984, for instance, trappers nearly eliminated large macaws from a California-sized region of

completely intact natural habitat of rainforest, dry forest, and savannah-forest mosaic in lowland Bolivia. Bird export was outlawed in Bolivia in 1985. When in 1992 I questioned several former trappers in Bolivia's remote, nearly completely forested Amazonian state of Pando, they each readily stated (without cuing) that the reason for the rarity of large macaws was that they had systematically over trapped and nearly extirpated the birds.

In 1992 the former president of the now-defunct Association of Bird Exporters of Bolivia told me that he and his fellow bird exporters (the middlemen who placed standing orders country-wide for unlimited numbers of large macaws) exported approximately 500 large macaws every two weeks for ten years—a total of roughly 130,000 birds. Who knows how many birds died and how many nest cavities were destroyed before the bird exporters even got ahold of these birds? He also admitted that the exploitation had been indiscriminate, predatory, and non-sustainable, and that capture rates had been dropping by the time the government finally outlawed the trade in 1984. Will the combined efforts of the most industrious aviculturists of the world ever produce enough captive-bred large macaws to equal the 130,000 birds exported during those ten years from Bolivia alone, not to mention the similar or greater number that died in transit?

In 1987, two observations of the mechanics of local trade in Hyacinth Macaws were particularly illuminating. In that year the Brazilian government requested that I collaborate with leading Brazilian field biologist Carlos Yamashita to conduct a two-month-long field survey of populations of Hyacinth Macaws in Brazil, Bolivia, and Paraguay. At one location in Paraguay near the Brazil/Paraguay border, we spoke with a poor, industrious bird trapper who told us that he only crossed into Brazil to trap Hyacinths after receiving specific buy orders and down payments from a wealthy European living in Asuncion, the capital of Paraguay. The European would fly by small plane to the trapper's town and place the order complete with down payment. They then agreed on a date weeks or months later when the European would return by plane, this time filled with cages, to pick up the macaws. The buy orders typically varied from 20 to 40 birds, but in another situation I heard of a firm order for 100 Hyacinth Macaws! The local trapper told us that he was paid approximately 40 dollars per bird, which at that time was roughly 0.75% (three quarters of one percent) of the final retail price in

the U.S. and Europe. He indicated that he normally asked Brazilian ranch owners for permission to trap birds on their lands, whereupon he systematically would trap all the birds on the property (typically a few dozen per property).

In talking to ranch owners just across the border in Brazil, we found that many felt that they had been tricked by bird trappers, who innocently asked to trap a few birds but then cleaned out all their Hyacinths. Several ranch owners told us in 1987 that they only recently had become aware of the uniqueness and extreme rarity of that macaw and that they resented foreign middlemen sending bird trappers to trap out all their birds. They added that they enjoyed watching these spectacular blue birds fly confidently around their property and did not want to see them disappear. Since 1987, most ranch owners in the Brazilian Pantanal who are lucky enough still to have some Hyacinths on their property guard them jealously and will not let bird trappers anywhere near their lands.

In another case in 1987, we ran across a young, middle-class landowner in extreme eastern Bolivia who did not have Hyacinths or Hyacinth habitat on his property but had heard that smuggling Hyacinths was easy and lucrative. Accordingly, he had invested modestly in hiring and outfitting some poor bird trappers. He instructed them to cross into Brazil, sneak onto private ranches, capture about 20 Hyacinths, and bring them back to Bolivia. He hoped to sell the birds at a large profit to well-known middlemen that he had heard operated in

major Bolivian city. When Carlos Yamashita and I came across this budding macaw middleman, he complained bitterly that his investment had gone wrong. He drove us out to his ranch in his new model pickup truck to get a first hand look at the discouraging results. Sitting about 30 yards behind his ranch house in a large dead tree in a field were 17 bedraggled, wing-clipped adult Hyacinths that appeared to be in poor condition. His ranch hand occasionally remembered to feed them a miserable diet of rice, bananas, and a few palm nuts. The rancher reported that several had died, but what seemed to worry him more was that they also were molting and so might soon be able to fly to freedom. Already a few had tried to escape by flying a few dozen yards before finally sinking to the ground in exhaustion. The ranch hand then would clip the new wing feathers of these bold birds to make sure they wouldn't try it again. If the dead tree hadn't been so tall and dangerous to climb, the ranch hand would have been able to climb the tree to recatch each bird and clip its wings further. Of course, each time he tried to climb to grab them, the terrified birds climbed to the tips of the tallest branches. The frustrated smuggler told us that he had discovered too late that none of the former macaw middlemen from the big city were interested in breaking the new wildlife laws to buy his illegal birds. Although the situation looked bad for these unfortunate birds, at least it appeared that the new Bolivian laws were working well enough to discourage future speculative investments in

Hyacinths by people such as this greedy, irresponsible ranch owner.

In the case of the Hyacinth Macaw, an area of about 100,000 square miles in the Brazilian Pantanal has intact habitat for these birds, but only perhaps 20-30% of the territory still has Hyacinths at all. The reason for this is trapping.

A final fact to recall with regard to the intactness of macaw habitats is that even today, less than ten percent of the forests of the Amazon Basin have been cleared for agriculture and grazing. The remaining 90% of the Amazon is intact forest with plenty of trees and vines that produce lots of natural food for large macaws. The Amazon Basin is roughly the same size of the entire 48 lower U.S. states. Unfortunately, poor, local macaw trappers have systematically eliminated or sharply reduced populations of large macaws in approximately 50-60% of this huge region. These birds were not rescued from forest destruction, but selectively located and removed from intact forest that even today is not in danger of being cleared.

In the remotest regions of the vast, game-poor Amazonian rainforests of South America, large macaws, in particular, do face another type of threat that is easier to deal with subsistence hunting. Local hunters in these regions often kill large macaws for the family stew pot and also for their feathers, which are used widely on tourist trinkets (beware!). The threat posed by low densities of subsistence hunters can be neutralized in some large, important portions of the Amazon by using a combination of park creation and development of locally-owned ecotour lodges featuring wild, free-flying large macaws as photogenic tourist attractions (see January 1994 cover story in National Geographic Magazine or October 1994 cover story in International Wildlife Magazine).

Thus, I hope that we finally have laid to rest the old myth that forests are being cut out from under the large macaws and Amazon parrots. But it may surprise many of you (it certainly surprised me) to learn that the habitat of each and every one of the large, threatened species of New World parrots is still intact enough to permit them to survive in the wild in populations of hundreds, thousands, and even tens of thousands or more. In all but the case of the Spix's Macaw, all they need are three elements that Paul Butler of RARE Center for Tropical Conservation in partnership with the World Parrot Trust and Noel Snyder, James Wiley, and their colleagues (in

Puerto Rico) have shown to be both feasible and replicable):

1) protection from trapping and subsistence hunting; 2) a halt to further destruction of their forests; and 3) artificial nest boxes and/or supplementation or improvement of natural cavities for nesting. This statement is true even for the endangered Amazon parrots of the Caribbean and of southeastern Brazil, as well as for the Lear's, Hyacinth, Red-fronted, and Blue-throated Macaws. If Spix's Macaw were not in the predicament of requiring some assistance from the very collectors and aviculturists that pushed it to the brink of extinction, there still is enough natural food and intact dry thorn forest in NE Brazil to support 100-300 of these birds in the wild. I am not saying that it would not be preferable if much more of the wild habitat of the rarest large parrots were still intact. Rather, the point is that there still is more than enough habitat to support extremely viable wild populations of all the endangered species of large parrots of the New World.

III. What can be done to stop habitat destruction from driving to extinction small species of New World parrots?

The principal approaches to protecting endangered small species of New World parrots are creating well-protected reserves of the best patches of remaining habitat. The best approaches or justifications for creating and protecting such reserves are one or both of the following: 1) watershed protection to protect water supplies or to avoid landslides, floods, and siltation of hydroelectric reservoirs, all of which benefit downhill or downstream urban or agricultural communities and road systems; or 2) public-relations-oriented promotion of protection and viewing of a larger, often mammalian flagship species, such as a beautiful monkey (e.g. the Golden Lion Tamarin or the Woolly Spider Monkey, both of SE coastal Brazil, or the Spectacled Bear in parts of the Colombian Andes). Of course in many situations, larger parrots like Amazons and large macaws could make excellent flagship species for conservation projects for forest reserves in otherwise deforested parts of the tropical Andes or southeastern or coastal Brazil, but unfortunately, these large species usually disappeared entirely from even large patches of remaining forest decades before the reserve or the small parrots in it were in direct danger of destruction. This can be seen clearly in the twin parks of the Iguassu Falls National Parks of Brazil and adjacent northern Argentina. The Green-winged



Red-tailed Black Cockatoo. This bird should be in Australia, but was smuggled into Britain as an egg, hatched, reared, and then confiscated by the authorities.

Macaw went extinct in those twin reserves 40-50 years ago, even though the combined size of the reserve is over 500,000 acres. Now, monkeys and jaguars are the flagship species in campaigns to protect those parks.

While habitat destruction is a secondary threat for large New World (and Old World) parrots, it represents the principal threat for the majority of species of small New World parrots. Parrot-rich areas of the New World that also are heavily-deforested by dense populations of humans pose particularly difficult problems for conservation. Once again, Paul Butler of RARE Center for Tropical Conservation in partnership with WPT has shown that even on small Caribbean islands that have limited remaining forest, most local people, no matter how poor, can be taught rapidly to become proud and protective of their endemic Amazon parrots. On these islands, Butler and his colleagues have mobilized public opinion to convince the national governments on these islands to: 1) create large new forest reserves to protect the parrots and their remaining forest habitat; and 2) crack down on smuggling by strengthening wildlife laws and bolstering enforcement of the laws.

On these islands, conservationists are lucky to have the large Amazons to use as flagship species to protect the rest of the habitat. As mentioned above, many of the most important reserves left in the tropical Andes and in southeastern and coastal Brazil no longer have large parrots left on which to base public relations campaigns for park protection.

Overall, the highest priority areas for parrot conservation in the New World are the Andes of Colombia and Ecuador (and to a lesser extent Peru), and the southeastern and coastal forests of Brazil. In these two key mainland regions it also may be possible to protect remaining forest using Butler-style conservation projects for rare mainland Amazon parrots or smaller, but spectacularly beautiful, parrots such as the Yellow-eared Parrot *Ognorhynchus icterotis*. So far, however, with the exception of the ecotourism-oriented macaw projects that my colleagues and I started in southeastern Peru and lowland Bolivia, I don't believe that there yet has been any coordinated attempt at such parrot-oriented conservation projects in mainland South American sites. Because smaller species of endangered parrots are not as spectacular as large ones, it is hard to raise public money for their conservation either in the wild or in captivity. Private conservationists interested in helping wild parrots tend to target their donations to projects that help the rare large parrots that they know best—namely the ones that they own at home, see on TV and in the print media, and photograph during trips to such New World countries as Costa Rica, Belize, Venezuela, and Peru. While an encouraging number of people are starting to support efforts on behalf of large, rare parrots, it is important for donors to learn about and to support new efforts to conserve the lesser-known, but equally deserving, small parrots of the Tropical Andes and of coastal Brazil.

Of course, pragmatism

nevertheless dictates that whenever possible, habitat conservation efforts should try to focus on large, attractive species of parrots or other wildlife as flagship species to attract funding and to capture the imagination and good will of the public. Funding for protection of the habitat of small, endangered parrots is more likely to come from large governmental or international funding agencies interested more in the protection of watersheds or ecosystems than in the rare parrots protected therein. Of course, it would be ideal if some of the profits generated by ecotourism projects that focus on large parrots could be directed to help protect the habitat of smaller parrot species.

It of course is economically and biologically preferable to conserve parrots in the wild rather than in captivity. The cost per bird of protecting them in the wild is much less even over the short term, and the birds are healthier and maintain the wildness that is essential to their long-term survival. Finally, protecting parrots in the wild means conserving intact forest and the millions of species of animals and plants in that forest.

IV. What the International Aviculturists Society, World Parrot Trust, and Wildlife Conservation Society have done with your contributions in 1994 to stop the decline of some of the world's rarest and most beautiful large macaws.

The most crucial conservation action that is required for endangered large New World parrots to maintain or recover to safe population levels is to restrict the activities of roving trappers and hunters, and that is exactly what your contributions have allowed us to do. You should be proud to learn that your contributions at the January, 1994, IAS meeting in West Palm Beach made it possible for your field biologists (who include me and several university-trained Bolivians and Brazilians) to stop the trapping of rare macaws by local bird trappers in Bolivia and Brazil. In both countries, your teams went undercover to find the most energetic, ambitious, hard-working local bird trappers. In both countries, your teams negotiated and recently hammered out agreements with these skilled trappers to pay them modest monthly salaries to protect the very same rare macaws that they used to trap for unscrupulous urban middlemen.

Surprisingly and encouragingly, these rural trappers in each case have turned out to be very poor, hard-working bird lovers not unlike you or me in terms of their

fascination with birds, particularly parrots. I found that these trappers demonstrated an extraordinary depth of knowledge about the ecology and behavior of these birds. And also not unlike you and me, they love to watch and handle birds, especially parrots. Now that I have gotten to know these poor rural trappers, I am totally convinced that if these men had grown up in the U.S. with the educational and travel opportunities enjoyed by most middle class students, they almost certainly would have ended up in wildlife-oriented careers such as aviculture, veterinary medicine, field biology, wildlife management, park management, ecotourism, wildlife photography, or others. But when these men were born, such careers did not exist in the dirt-poor parts of Bolivia and Brazil. In those regions, ironically, the only way a wildlife enthusiast could make enough money even to pay for a diet of beans and rice was to work as a rural wildlife trapper for wealthy and unscrupulous urban middlemen.

With your help, we have broken this vicious cycle of parrot destruction and made it possible for local parrot trappers to become parrot protectors. They now earn steady salaries of between 170 and 400 dollars per month (depending on the region and their work responsibilities). These salary levels may sound very low, but in fact, they have proven to be more than adequate to allow these humble, hardworking men to add to their family's diet adequate amounts of fresh fruit, vegetables, and cheese as well as occasional, tough goat meat or beef. With these salaries they also can now afford to pay the 5-10 dollars per month that each of their children needs for school supplies and clothes.

As part of the conversion of local parrot trappers to parrot protectors, we have recently purchased a used dirt bike to be used by one of our new parrot protectors for patrolling key points along 100 miles of dirt roads in Bolivia. Our parrot protector, whom WCS converted from trapper to protector two-and-a-half years ago with excellent results, is a very rugged and determined field man who is more than happy to earn a living by protecting active nests of Blue-throated Macaws. Recently a parrot smuggler who is a well-known middleman in a major Bolivian city contacted our macaw guard and tried to convince him to capture and sell the Blue-throated Macaws under our man's protection. Our man rebuffed the offer and told the smuggler to give up on any attempts to locate, trap, or buy birds of this species. The smuggler threatened our man, telling him that he might have an



Blue-throated Macaws. Quite well established in aviaries, with numbers that may equal those in the wild.



Blue-eyed Cockatoo. Very few in captivity. Hopefully still safe in its remote habitat in New Britain and New Ireland.

unfortunate accident if he tried to block him (the smuggler) from getting Blue-throated Macaws. Our man, who is a burly, field-hardened, bearlike fellow with a gentle disposition, replied calmly that the smuggler could say what he wanted, but he would never get near the wild birds. Our man informed me that this urban middleman is absurdly scared of the rain forest and certainly would not be able to locate or threaten any wild birds as long as he was on the job protecting them and patrolling. Furthermore, our man has many family members and friends in the towns and villages in the region that includes the macaw nests. Thus, no-one suspicious can visit the area without our man being tipped off immediately. Finally, the owners of the various gigantic properties on which the macaws are nesting are co-operating fully with our man, who can drive his dirt bike anywhere on their lands to protect the macaws.

In addition to the salary that our man receives for protecting the Blue-throated Macaws in intact habitat in Bolivia, he also recently has begun to make some substantial money as a consultant on macaw biology (recently for a group from Earthwatch that hired him during the non-nesting season to help them with radio tracking of small, non-endangered macaws) and as a sophisticated macaw guide for specialized birdwatching tours from Victor Emanuel Nature Tours of Austin, TX. This company so far has sent two groups of birders to central Bolivia in large part to see the Blue-throated Macaw in the wild. When our man witnessed tour participants weep, jump up and down, fall on the ground, and hug him frantically

immediately after seeing the macaw, he became completely convinced that the survival of these rare macaws is essential to the continued growth of this sort of specialized tourism.

The sort of successful conversion from trapper to protector that we have witnessed in the case of our man in central Bolivia is really just a variant of similarly dramatic conversions that WCS macaw projects have brought about over the past ten years with former loggers, agriculturists, and meat hunters in the nearly completely intact forests of southeastern Amazonian Peru. In the case of these Peruvian projects, however, the conversion happened even more dramatically in that from one month to the next loggers and hunters switched to ecotourism as soon as they saw that it would bring them a more comfortable and less dangerous lifestyle.

In the most dramatic case of all in Peru, a young, poor Quechua Indian from a violence-racked tropical valley in the central Andes of Peru came as a refugee to the tranquil Manu National Park in 1984. He started working for biologists as a laborer in 1984, joining my WCS macaw project in 1985 as a low-level assistant (he had a very good ear for identifying parrot calls). By late 1985 he told me that he couldn't believe that anyone could make a living by having so much fun studying and protecting animals. At that point he rejected a chance to return to his home valley to take up the farming of four acres of chocolate trees owned by his mother. Instead, he elected to intensify his work learning more about birds and the lowland rainforest of Manu. By

1989, he had learned English and could identify by sight and sound with their English and scientific names all of the 550 species of birds of the lowlands of the Manu Park. I advised him to leave my project, for he could earn more money guiding tourists to Manu than I could pay him with my modest WCS budgets. In that same year he teamed up with three other Quechua Indian friends who also were refugees from the violence of his home valley. They formed a small nature tour company and for an application fee of \$400 were awarded by the nearest office of the Peruvian Ministry of Agriculture an exclusive, infinitely renewable timber concession for 2,500 acres of virgin forest adjacent to the Manu National Park. They paid about \$200 per year in taxes for the rights to the timber, but in fact, they extracted no wood, but rather used their concession to keep other timber cutters, trappers, and hunters away from the area. The reason they chose that area is that my macaw research previously had identified there a clay river bank that was eaten daily by more than 100 Green-winged Macaws and 500-800 other macaws and smaller parrots of up to seven species. These men then built a small lodge and opened trails to permit tour groups to gain access to different types of virgin forest within their lands. Now, their project has a 20-bed lodge and a steady flow of tourists. As a result, thousands of poor people in southeastern Peru now look at these men, who were no different from them ten years ago, as models to be emulated. Nature conservation suddenly is on the lips of even the poorest local Indian and jungle colonist. Their project, and several other projects like it that also are spin-offs of my WCS macaw projects have captured the imagination of many of the people of the Manu region, and a surprisingly large percentage of the local population now takes nature conservation seriously. Macaw projects in Bolivia and in Brazil can have the same catalytic effect on the conservation consciousness of the local people in gigantic wild areas in Bolivia, Brazil, and anywhere else in the world where large parrots are accessible and still in sufficient numbers to provide guaranteed spectacles for visiting nature tourists.

The projects that IAS, WPT, and WCS are developing in Brazil still are in delicate stages of negotiation and planning, but every indication is that the projects there will demonstrate many of the successful elements of the Peruvian and Bolivian projects. I will describe in my talk as much of the latest Brazilian work as seems

appropriate at that time, and I hope that in 1996 and beyond I will be able to share with you all the details of our ongoing work in Brazil.

One aspect of the Brazilian work funded by IAS and WPT in 1994 that I can discuss fully at this point is that of the production of palm seedlings to transplant to benefit wild Lear's Macaws. We purchased and delivered to our palm nursery in NE Brazil a full container-load of 50,000 plastic citrapots, which are durable, inexpensive pots in which to grow and transport small palms prior to their final transplanting on co-operating ranches in the areas used by the macaws. Our first experimental germination of seeds of these crucial palms yielded an initial two thousand seedlings. In 1995 we hope to germinate between 10 and 20 thousand seedlings, but this will depend on our experimenting with different germination methods until we can settle on the most efficient technique. As this palm has never been studied systematically for commercial production, there are no existing data on the best methods for its cultivation. Therefore we are learning as we go. Nevertheless, we remain certain that it is of critical importance to forge ahead with palm germination and cultivation until we have secured a more concentrated, safe, long-term nut supply for this spectacularly acrobatic macaw.

V. Conclusions: What each parrot lover can do to help wild parrots.

The principal recommendation for each of us should be to generate support for projects that help conserve our favorite parrot species in the wild. Of course, there are different ways to generate this support. Obviously, the most direct method is by making as large a donation as possible of cash or appreciated stocks and by remembering in your will the World Parrot Trust, the International Aviculturalists Society, and other groups working effectively to protect endangered wild parrots. Of course, not everyone who loves parrots may be able to afford to make large donations to their favorite group, but everyone can help further by talking with birdloving friends, bird clubs, garden clubs, zoos, avian veterinarians, theme parks, businesses, and other potential sources of support about organizing fundraising events for specific WPT or IAS projects. Please feel free to approach any IAS or WPT representative about helping your favorite species. We all will be glad to help in designing fundraising programs that match your opportunities and interests.

SCARING MACAWS TO SURVIVE

By Corey J. A. Bradshaw, Amy E. Lightfoot, Victor M. Acedo
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Although many pet owners marvel at the sight of an exotic bird, few consider the consequences that purchasing these birds have on natural populations. It is difficult for most of us to conjure up images of the tropical rain forest and the roaming flocks of parrots in the forest canopy when we see a personable, well-kept bird in captivity. Many larger parrots seem content and perfectly adapted to life with humans. However, ecological integrity depends on preserving healthy stocks of natural bird populations in their original habitat. In the spotlight is the impressive Scarlet Macaw *Ara macao*, perhaps one of the most extraordinary avian species. Renowned for its beautiful plumage and intelligence, this species is now considered threatened in many parts of its Central American range. Extensive deforestation combined with poaching for the pet trade are primarily responsible for recent declines in numbers.

In Guatemala, special efforts to increase declining macaw populations, as well as those of other tropical birds and mammals, are being spearheaded by the Asociacion de Rescate y Conservacion de Vida Silvestre (ARCAS). Because the rain forests of northern Guatemala contain considerable areas of suitable macaw habitat, these areas are often targeted by poachers who smuggle the birds into other countries (mostly to Mexico and eventually the United States) for sale on the market. ARCAS, established in 1989, has constructed a rehabilitation and breeding center near Flores, Peten on land owned by the Ortiz family (concerned local residents). Their

main goal is to provide a suitable location to keep macaws and other species confiscated by the Guatemalan Wildlife Service (CONAP) or donated by individuals and businesses, and then breed or rehabilitate these animals for eventual release into the rain forest.

Scarlet macaws received by ARCAS are first brought to the Rehabilitation Center's quarantine compound where they remain for 45 days. After this period of special care, including any necessary medical treatment, ARCAS officials must decide the fate of their temporary residents. There are a few options for the macaws depending on their condition: they can be rehabilitated and released into the wild, used as breeding stock or remain at the Rehabilitation Center to act as behavioral models.

REHABILITATION AND RELEASE

The challenge when dealing with the young macaws confiscated during transport is their rehabilitation and re-introduction to an entirely wild existence. Many pet-trade poachers target chicks because of their relative ease of transport and the consumer demand for young birds; these are the birds that eventually make it to the Rehabilitation Center. Although most would require extensive hand feeding, human contact would be kept to an absolute minimum. For a successful release, a type of survival "training" must begin almost immediately upon arrival. In order that they learn their true position in the forest canopy fledged chicks will be placed in cages suspended at different heights above the forest floor.



Sleeping quarters for researchers and volunteers at ARCAS.

Once fledged and able to fly well on their own, groups of juveniles will be released into areas already occupied by wild macaws.

A greater challenge is the rehabilitation of older macaws placed in the Center. Birds that have never experienced the inherent dangers of living in a rain forest must learn to associate certain visual stimuli with danger. ARCAS personnel have just begun the first stage of the predator recognition program. This simple, yet effective, plan involves the use of a resident jaguar at the Center. A system of corridors interspersed among macaw cages will connect several jaguar cages in order that the jaguar may move freely in full view of the macaws. As mentioned previously, the macaw cages will be suspended above the jaguar corridors using a simple pulley system in order to raise and lower the cages for feeding purposes. Plans are also underway to construct a similar apparatus for a

resident boa constrictor. It is hoped that the sight of a natural predator will instill a fear of animals prowling around the forest floor. Once able to recognize a potential predator, macaws released back into the forest will have a greater chance of surviving and reproducing.

BREEDING PROGRAM

Some macaws are no longer capable of surviving on their own in the wild. These include birds who have spent too much time in captivity and have imprinted on humans, and those that are too old or debilitated to survive in the wild. Their dependence on humans for food and protection precludes them from an entirely free existence. These animals, if deemed in adequate physical condition, are likely candidates for the breeding program. The breeding facility, though in its infancy, is based in the Villa Maya Hotel only a few kilometers from



Scarlet Macaws eating decaying limestone & soil on a hill at the Villa Maya Hotel.

the Rehabilitation Center. Several bonded pairs have already produced some eggs, with varying degrees of success, but efforts are continuing to increase the output of young macaws.

Once chicks are fledged by their parents and able to fly on their own, the intention is to release groups of juveniles into forest areas already occupied by wild macaws. In this manner, it is hoped that the minimal human contact during fledging will enable these young birds to adapt easily to survive in their natural habitat and identify with existing macaw populations.

Long-term plans for the breeding program include decentralization of the main breeding area to outlying breeding centers and private owners. ARCAS hopes to increase the output of young macaws for eventual release by educating private owners and other breeding centers on macaw diet, social and nesting requirements, and by matching birds in different areas to form permanently bonded pairs throughout Guatemala (and perhaps beyond). "Amigos de la Guacamaya" (Friends of the Scarlet Macaw) is a group of concerned Guatemalans, Canadians, Americans and English whose goal is to monitor and educate macaw owners on the specific needs of these beautiful birds. It is through such groups that extensive breeding networks can be formed to replenish the once macaw-abundant forests.

BEHAVIOR MODELS

As an alternative to being used in the macaw breeding program,

unreleasable birds may continue to serve a vital role at the Rehabilitation Center. These macaws will be used as resident "trainers". As animals accustomed to the design of the predator corridors and able to recognize potential dangers, trainers demonstrate the proper response to predators. In this manner, it is hoped that these behaviors will be learned by the new arrivals, thus hastening the rehabilitation process. To avoid habituation to the predators, longer-term macaw trainers will be rotated among the different predator enclosures.

Although simple in theory, ARCAS strives to implement a reasonably new approach to wildlife rehabilitation. With the increasing efficiency of local and foreign government authorities in breaking up pet-smuggling networks, more and more rare birds are in need of rehabilitation and release. ARCAS is fulfilling the roles of both a rehabilitation and breeding facility in order that the impact of poaching and deforestation may be lessened through a successful release program. Moreover, ARCAS is expanding its conservation efforts to include environmental education. By educating local residents in the Peten area about the importance of maintaining sufficient numbers of all living creatures, ARCAS hopes to instill a greater respect for these extraordinary species. As resources become more and more accessible, local training and education programs can begin.

Of course, these efforts require monetary support and donations of building materials in order to be



Amazons in conditioning cages prior to release.

successful. Wire mesh used to build cages is an easily-available commodity in most developed countries; however, in this remote area of Central America, such materials are non-existent. ARCAS urgently needs donations of such material, as well as pulleys, cable, tools and other necessities often taken for granted. Monetary donations are also required to support the resident staff and to buy food and clinical supplies. Help ARCAS today in re-establishing what is unquestionably one of this planet's most majestic creatures - the scarlet macaw.

ACKNOWLEDGEMENTS

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Ford and the Columbus Zoo, Hartman Aviaries, Mid -American Exotic Bird Society, Miami Valley Bird Club, Classic Feathers, Central Indiana Cage Bird Club, Firelands Exotic Bird Club, Golden Crescent Cage Bird Club, Janine Cianciolo, Tennessee Valley Exotic Bird Club, Worthington Steel Corporation, Susan Bondelier, Elaine Gotovich, Thomas Klein, John Wathon, and other anonymous supporters. We also thank our staff and the numerous volunteers that have expressed interest in this project.

MACAWS AT SOTHEBY'S

The summer exhibition hosted by Sotheby's to celebrate the completion of 'Macaws' - an exceptional limited edition of hand-coloured etchings by Elizabeth Butterworth - will now take place at 34/35 New Bond Street, London W1, from **Monday 17 to Friday 28 July**, one month later than originally planned.

Opening hours:

Monday to Friday 9.00am to 4.30pm.

One of the most ambitious publishing projects of the century, 'Macaws' is the result of twelve years of preparatory work and this exhibition will include a selection of the artist's original sketches and watercolours.

The edition of 50, priced at £25,000 each, consists of twelve life-size etchings of the whole genus, depicted in perfect ornithological detail, and has been produced by specialist publisher and ornithologist, Rodolphe d'Erlanger. Profits from this project will be donated to the Friends of the Peruvian Rainforest, who aim to

secure one million acres of Peruvian rainforest in order to maintain the habitat of macaws and other wildlife in perpetuity.

Roger Pasquier, President of 'Friends of the Peruvian Rainforest', has written:-

'The wild macaws that have inspired this spectacular publication live in tropical rainforests that are being colonised, cut, and burned. Few areas remain where large populations of macaws survive undisturbed. The Friends of the Peruvian Rainforest are grateful for Mr. d'Erlanger's generous contribution of a share of the proceeds from sales of MACAWS. We are working with Peruvian conservationists to secure millions of acres that will remain pristine for macaws and all wildlife. Purchasers of MACAWS will have the additional satisfaction of knowing they are helping to preserve living beauty in the wild, as well as the pleasure of seeing these splendid works of art at home.'



A page from 'Macaws' by Elizabeth Butterworth.

THE ECOLOGY AND CONSERVATION OF THE PARROTS OF SUMBA, INDONESIA

By Stuart J Marsden (Dept. of Biological Sciences, Manchester Metropolitan University, UK).



Citron-crested Cockatoo, bred at Paradise Park, UK.

The island of Sumba is situated in the Lesser Sundas, Indonesia. The Portuguese named it 'Sandelwood Island' because up until the late 19th century Sandelwood (now very rare) was one of Sumba's main exports. The climate is dry and seasonal and there is evidence to suggest that there may never have been total forest cover on the island. What is clear, however, is that since man's arrival, much of the original forest cover has been destroyed through grazing of livestock (Sumba's main export), and clearance for agriculture.

Deforestation has been particularly rapid during this century, with forest cover declining by 60% since 1927. Now, fragmented forests cover only about 10% (around 1,250 km²) of the island and none of the forest areas are completely protected.

Sumba is home to five parrot species. Probably the best-known is the Yellow-crested Cockatoo which is represented by an endemic subspecies, known as the Citron-crested Cockatoo *Cacatua sulphurea citrinocristata*. Three other species, Eclectus Parrot *Eclectus roratus cornelia*, Great-billed Parrot *Tanygnathus megalorhynchus sumbensis* and Rainbow Lorikeet *Trichoglossus haematodus fortis* are also endemic subspecies on Sumba. The Sumba sub-species of Red-

cheeked Parrot *Geoffroyus geoffroyi floresianus* is not endemic, but is found only in the Lesser Sundas chain.

In 1989 and 1992, Dr Martin Jones at the Manchester Metropolitan University, UK led expeditions to Sumba. The aims of the expeditions were to gather

information on Sumba's forests, birds and butterflies, to support a strategy for their conservation. A major component of the programme was the study of the island's parrots, and this article gives some of the major findings of the parrot study.

Ecology

The first step in the study was to find out how many of each species remained. The problem with this is that it takes a long time to do, and even after two months of concentrated effort, the population figures that we came up with were still only very rough. It was estimated that in 1992, the total population of *C. sulphurea* lay between 1,000 and 3,000 individuals. Populations of Eclectus and Great-billed Parrots were also estimated to be fairly low (between 3,000 and 10,000), while the Rainbow Lorikeet and Red-cheeked Parrot appear to be much more numerous (numbers are likely to exceed 30,000 in both species). As well as gaining an idea of total populations, we were able to calculate local parrot populations in individual forest patches. These data are of obvious

use in the decision as to which forest areas are of highest priority for protected status. The most striking finding here was that Sumba's rarest parrot, the cockatoo, is thought to have local populations exceeding 100 birds in only four forest patches.

Perhaps more important than the total population estimates were parrot density estimates in different habitats. The density estimates for the majority of species were higher in primary forests than they were in more disturbed forests. For example, the cockatoo may occur at densities of around 2 birds per km² in primary forests and around 0.6 per km² in secondary forests. Densities of all species were very much higher in any forests than in heavily altered habitats such as agriculture mixed with scrub, or parkland (grassland with scattered trees).

While it was clear that the parrots required wooded areas, a major part of our work was to find out more specifically which sorts of forests were preferred by each species. We used a 'multivariate' analysis to find the habitat features which were shown by the



Typical nest-trees: Both trees hold more than one parrot cavity.



Photo: Stuart Marsden.

areas in which parrots were seen, but not by the areas where parrots were absent. All three large parrots were found to prefer low altitude areas. Within the lowlands, the cockatoos seem to prefer primary forest in valley bottoms, while Eclectus Parrots prefer secondary evergreen forests, and Great-billed Parrots rather open evergreen woodlands. One thing the parrots (except Red-cheeked) had in common was that they were strongly tied to areas which contained some very large old trees.

With these results in mind, I set up in 1992 a project which concentrated on the nesting requirements of Sumba's parrots. With the invaluable help of local parrot catchers, I was able to locate 122 parrot nests. Over 85% of parrot nests were in tree cavities, which were almost always at the site of dropped branches. All the parrots, apart from Red-cheeked Parrot (which usually nested in dead trees or stumps) nested in enormous trees. The trees the parrots selected averaged over 35 m tall and were usually the largest trees in the area. The parrots also selected the few deciduous trees that occur in Sumba's mainly evergreen forests. Most striking, however, was the parrots choice of trees of one particular genus (*Tetrameles*), which although uncommon on the island (less than 1% of all trees looked at), held over 60% of parrot nests.

The importance of these enormous nest-trees is multiplied since some trees contained up to five parrot nests. These nests could belong to any of the parrot species except Red-cheeked Parrot (which was always found to nest 'alone'). The hole-nesting Sumba Hornbill *Rhyticeros everetti* also joined these nesting aggregations, and one nest cavity of this species was found to be less than two metres from a cockatoo nest. One tree had four active Eclectus Parrot nests, while another had a hornbill nest and nests of three different parrot species. It seems that the parrots on Sumba are far from territorial (as other parrots may be), and may in contrast actually prefer to nest close together.

The data on nest characteristics were then used to calculate how many nest-sites might be available to the parrots in a given area in each of the forest patches surveyed. These figures were then related to the density of each parrot species occurring in each forest patch. The results were the most important of the study. The more nest-sites there were in a forest patch then the more parrots the forest patch would hold. The relationship between nest-site availability and bird density was as



Illegal Jakarta-bound cockatoos impounded at Sumba's airport.

Photo: Stuart Marsden.

strong in the heavily traded species as it was with the little-caught ones.

Parrot trade

Although most time was spent studying parrots in the wild, some useful information was gathered on the trade in Sumba's parrots. By far the most importantly traded species was, and probably still is the Citron-crested Cockatoo. We estimate that at least 2,000 cockatoos were exported legally from Sumba in 1989 alone. Although a moratorium on trade in the species started in 1992, cockatoos were still arriving in the island's capital during our stay in 1992. Twenty-six birds were confiscated at the airport, by our friends from the Indonesian Directorate General of Forest Protection and Nature Conservation (PHPA). We found a further two in a box under one of the seats of a bus our expedition members had actually chartered!

Despite it being illegal by Indonesian law to trade in Eclectus Parrots, this species is Sumba's second most captured species. It is, however, perhaps not the volume of trade that is of most concern (and it's being illegal we will probably never know how many are exported) it is that the much more attractive, red females are traded more than the green males. During our fieldwork we certainly recorded an 'unnatural' ratio of males to females (less than one in three were females), although our data is perhaps not conclusive since females seem to spend a lot of time in their nest holes (and hence are not so easily seen).

Species conservation

The data, to a large extent speak for themselves as to what must be done to safeguard the future of Sumba's parrots. Of course, the moratorium on trade in Citron-crested Cockatoo must be welcomed. A glance at the trade and population figures from the past few years more or less confirm this as an appropriate short-term conservation measure. Whether or not the long term health of the wild population will be ensured in this way, is less clear.

Most important for all parrot species, and the majority of Sumba's other wildlife is, not surprisingly, the protection of the island's dwindling forest resource. Just as important as the extent of forest coverage, is forest quality. Ten km² of primary forest will protect more cockatoos or Great-billed Parrots than the same area of secondary forest. The same is true for forests at low altitudes, and each species' preferred forest-type or area of the island. The most specific need, however, is to preserve, within these protected habitats, the nest-sites of parrots. In areas where there are many enormous deciduous trees with cavities, there are many parrots. Where such trees are absent or rare, then the parrots are also rare. As clear as the need to protect the parrots' present nesting trees is the need to ensure the development of the next generations of nest-trees.

This article was taken from; Marsden, S. J. (1995). *The Ecology and Conservation of the Parrots*

of Sumba, Buru and Seram, Indonesia. *Unpublished PhD thesis*. Manchester Metropolitan University.

Jones, M. J., Linsley, M. and Marsden, S. (in press). Population sizes, status and habitat associations of the restricted-range bird species of Sumba island, Indonesia. *Bird Cons. International*.

EVERY MEMBER OF THE WORLD PARROT TRUST IS BOUND TO HAVE SOMEONE IN THEIR CIRCLE WHO SUPPORTS THE AIMS OF THE TRUST, BUT HAS NOT YET JOINED US.

PLEASE ASK THEM TO JOIN THE WORLD'S MOST EFFECTIVE AND RESPECTED PARROT CONSERVATION ORGANISATION.

COPY PAGE 19 AND GIVE IT TO YOUR FRIENDS

BREEDING THE CAPE PARROT AT PALMITOS PARK

By Rosemary Low

The Cape Parrot is a species which is very near to my heart and African parrots have received very little attention where conservation is concerned.

Thus when, in 1993, the Trust received a proposal for a research project concerning this species, I enthusiastically recommended that we should support it. In the November 1994 issue of *PsittaScene*, Olaf Wirminghaus, the project researcher from the University of Natal, reported on the progress of the project to date. He also asked that aviculturists with experience of this species, should submit to him such information as clutch sizes and weights of young in the nest. I spent several hours working on my record sheets to compile the information provided here, which I hope will be of interest to other aviculturists, as well as to Mr Wirminghaus and his team. I am extremely pleased that, at last, something is being done for this fascinating parrot and that the Trust is playing a part in this. I would urge other members who have bred this species to submit their data to Olaf Wirminghaus at the Dept. of Zoology and Entomology, University of Natal, PO Box 375, Pietermaritzburg, 3201 South Africa. Aviculturists have a responsibility to provide information on endangered parrots which can be of use to those working in the field with the same species. "Collate and publish", with reference to all relevant information, should be the motto of all responsible breeders. Let WPT members set an example!

Because of the close proximity of the Canary Islands to The Gambia, Cape Parrots were quite often imported into the Canaries until about 1990 (when Spain started to implement CITES, which it joined in 1986). The sub-species *fuscicollis* has been exhibited in the park since well before then and has been reared in the breeding centre since 1988. Cape Parrots have long been one of my favourite species. I was the first person (with R H Grantham) to record breeding this species *race suahelicus* in the UK (Low, 1982).

When I became curator of the breeding centre at Palmitos Park in 1989 I was pleased to "inherit" one breeding pair. On exhibit in the park were three males and a female. In March 1990 a male and a

female were moved to the breeding centre to give us two breeding pairs. In this article I will describe their results from 1990 to early 1995.

The Cape Parrot is the largest member of the genus, measuring about 32cm (12in) and weighing approximately 300g.

Sexual dimorphism

In adult birds of the sub-species *fuscicollis* and *suahelicus* sexual dimorphism is pronounced. The female is more colourful. She has the forehead and the forepart of the crown orange - as do all immature birds. (Females of the nominate race have less orange on the head and the plumage there is browner). It is of interest that pair number 3 at Palmitos Park (see

below) produces some females which, in nest feather, have almost the entire head orange. They are extremely beautiful. The orange forehead is lost at the age of about six months at the first partial moult. Females start to regain the orange feathers almost immediately, although one female did not do so until she was eight or nine months old. Males lose the orange forehead permanently. Beak size is a subtle indication of sex when a comparison can be made of two or three young in a nest. Males usually have slightly larger beaks, even at this early age. It is more evident in most adults. In relation to body size, the Cape Parrot has one of the most powerful beaks of any parrot, with a very curved upper mandible, culminating in a narrow tip, and a powerful lower mandible.

Wild-caught birds

Wild-caught birds tend to be shy and nervous and importations (in small numbers) have always included far more males. I never gave a lot of thought to this fact as it is true of many parrot species, until I came across a most interesting reference to Cape Parrots in The Gambia. Hans Anderssen (1984), who had lived in West Africa for 16 years, sometimes found dead *fuscicollis* beneath the roosting trees. They were nearly all females. He carried out autopsies on them and noted that they all "had a very badly infected ovary and oviduct and the spleen was black and enlarged on all."

Captivity breeding

This lack of females among captive birds is one reason why breeding successes have not been numerous - in Europe, the USA or anywhere else (except in the Canary Islands, at Loro Parque as well as Palmitos Park). In my experience, this is not a difficult species to breed. However, today's trend to use suspended cages is not one which will encourage the breeding of nervous wild-caught parrots such as Capes. The young are a different matter; they tend to be nervous but adapt well to suspended cages. I have looked after breeding pairs of Cape Parrots in three different locations: in my own collection just outside London, at Loro Parque, Tenerife and at Palmitos Park, Gran Canaria. In each place, this species has given me a great deal of pleasure. When I started to keep it in the late 1970's

no one was interested in this species. I was given a male and obtained for a low price a female which had been passed around among dealers. I am pleased to say, however, that interest in this species has increased greatly during the past two or three years.

Breeding aviaries

At Palmitos Park the two breeding pairs are kept in aviaries which measure about 3m (20ft) long, 90cm (3ft) wide and 2m (6ft) high. (Enclosures of almost similar size were used in the other two locations mentioned). One side wall of each aviary is solid and the other is half solid and half welded mesh. On this side is a small space between the next aviary in which grows hibiscus or some other flowering shrub. The roof is made of welded mesh at the front and is solid at the back, giving more privacy and less light where the nest-box is situated.

A food "cage" made of welded mesh projects from the front of the aviary. It measures 39cm long and 20cm deep. The food tray is placed within from outside the aviary so that the latter is entered only briefly two or three times a week for cleaning. Most of the food debris falls into the service passage in front of the aviary. This, and the aviary floors, are made of concrete. Aviaries are painted a soft shade of green; white is too harsh in the strong light of the Canary Islands. Also, for African parrots, which seldom breed in brightly lit aviaries, white paint would make the aviary too light.

Behaviour

In voice and behaviour, Cape Parrots have some similarities with Grey Parrots (*Psittacus erithacus*); for example, courting males drop their wings in the same way. (I have often wondered if hybrids could be produced between these two species, especially after seeing a male Cape trying to feed a Grey Parrot in our aviary for African Parrots in the park). If frightened, Greys and *Poicephalus* make a growling sound and try to get into a corner, or to hide their heads away from the danger. Greys and Capes have pleasant voices and make melodious whistling sounds.

Female dominance

In species of the genus *Poicephalus* females are dominant and bolder. Males are more gentle. One must



Young male *fuscicollis* bred at Palmitos Park.

Photo: Rosemary Low.



Young female produced by the pair whose female offspring have the head nearly all orange in nest feather (here aged 49 days).
Photo: Rosemary Low.



The same female 24 days after leaving the nest, i.e. at 106 days.
Photo: Rosemary Low.

avoid keeping two adult females together. I learned the hard way with two female Red-bellied Parrots *P. refiventris* which were placed together in one cage for quarantine. One soon killed the other. There is no problem in keeping male *Poicephalus* together. Indeed, I recall a breeding pair of *robustus* on exhibit at Vogelpark, Walsrode, in the 1970's. An extra male was kept in the same cage as a breeding pair. Only once have I ever known aggression to occur between male and female. In this instance the female was killed by the male, probably because he was ready to breed and she was not.

Diet

In the wild, Cape Parrots include the fruits of *Podocarpus* and olive trees in their diet. In captivity I think they need a fairly high fat diet, which includes sunflower seed, walnuts and, if available, pine nuts. Orange seems to be their favourite fruit and nuts are their favourite food. When the *Arecastum* palms are fruiting, I give them the oily orange fruits, which they love. The centre contains a hard, shiny stone which they cannot crack; they will keep it in the beak for hours, turning it around and around. Their diet is the same year round, except that fruits in season vary. Their basic mixture consists of sunflower seed,

cooked beans and maize and chopped fruits and vegetables. The latter vary but fresh corn is preferred.

Ringling

Nuts and palm fruits provide much needed occupation which diverts them from working on their closed rings. We ring all our young parrots and the Cape is the only species in which rings sometimes cause a problem. Because their beaks are large in proportion to their body size, they can destroy any ring, except a stainless steel one. They work away at it until one section is so thin they can squeeze it. It can then cut into the flesh and could cause the loss of the leg. A constant watch must be kept for this if the birds are ringed. If acceptable to the authorities, micro-chipping is preferable for this species. I fit chicks with 9.5mm rings when they are aged between 16 and 24 days, according to their development, but usually at 18 to 20 days.

Excellent parents

The Cape Parrot is a delightful bird to work with. Unlike Amazons or macaws, for example, it is not aggressive towards the keeper when breeding. Our nest-boxes are inspected from the service passage of the next block - never from inside the aviary. I tap gently on the nest-box door and the birds will

leave quietly, one of them waiting on the nest-box perch until I close the door. Then they return at once. Females incubate assiduously and male and female are excellent parents. Given the fact that they are sexually dimorphic as well, they could be considered the perfect parrot to breed! They can be faulted only in pair number 2, who pluck their chicks' crown and nape, commencing when they are aged about 42 to 54 days. Fortunately, the feathers grow again very quickly.

Egg-laying periods

African parrots in captivity are often winter breeders; however, a glance at Table 1 shows that our pairs breed at different times of the year. One female has laid only between January and June and the other only between September and December, that is, one female is apparently stimulated by the conditions when the days are starting to lengthen and the other when the daylight hours are noticeably reduced. This is interesting because they are kept under identical conditions, about 11m (36ft) apart.

TABLE 1

Months in which eggs are laid (each x = 1 egg)

	♀ of Pair 1/2	♀ of Pair 3
Jan	xxx xxx	
Feb		
Mar	xxx	
Apl	xxx	
May	xxx	
June	xxx	
July		
Aug		
Sept		xxx
Oct		xxx
Nov		xx
Dec		xxx xx

To summarise the breeding information given in Table 2, the normal clutch size of our females is three. The first egg in the clutch hatches after about 32 days and it seems that full incubation does not commence until the second egg is laid as the first two eggs hatch on

successive days or even on the same day. The second and third eggs in the clutch usually hatch after 29 or 30 days - one of the longest incubation periods of any parrot.

Table 4

This shows the weights of 12 parent-reared young from two pairs on selected days (not including the above data). It also shows the average weights of the young from two pairs, those from Pair 2 (the pair whose chick weights are recorded above) being higher. Space precludes its publication here but I will gladly send a copy to anyone who sends me an addressed envelope (to Palmitos Park, Apto 107, Maspalomas, 35109 Gran Canaria).

Development of young

Newly hatched chicks usually weigh between 10g and 12g, although one was recorded at 9g. They have a very pink appearance, with sparse white down, white nails, pinkish beak and white egg tooth. The ears start to open and the eyes to slit between nine and 14 days and the ears seem to be completely open between 15 and 17 days and the eyes fully open a little later. At 14 days chicks are covered in little white blobs of erupting second down; before this they are covered in dense snowy-white down. At 21 days the forehead is tinged with orange and at 24 days the orange head feathers and the green wing feathers are starting to erupt. By 28 days their appearance is quite beautiful with the white down contrasting with the green wings and orange head. At 35 days the feathers of the tail and the underparts are just breaking free of the quills. At this young age some chicks will start to climb on the ladder inside the nest-box! They are starting to become a little nervous and by 45 days they are less easy to handle.

Leaving the nest

When the young leave the nest, they tend to sit quietly and a little nervously on the food tray at the front of the aviary. They are not as nervous as their fathers. They usually fledge between 10 and 11 weeks or up to 82 days. Youngest recorded age was 68 days and in the only instance over 83 days, the two young fledged at 91 and 92 days. Young remain with their parents for two months at least or much longer. They can breed at three years of age.

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Brother and sister *fuscicollis* aged 10 months, the female (on the right) does not yet have the full amount of orange on the forehead.
Photo: Rosemary Low.



Chicks aged 2 and 4 days and, the chick on the right, newly hatched. Photo: Rosemary Low.



Chicks aged 20 and 21 days. All the young depicted are parent reared. Photo: Rosemary Low.



Chick hatched 25/11/94 aged about 31 days. Photo: Rosemary Low.

TABLE 2

Results from two pairs of *Poicephalus robustus fuscicollis* in the breeding centre at Palmitos Park, Gran Canaria

Eggs Laid	Inc. period (Days)	Hatched	Remarks	Days in nest
PAIR 1				
5/3/90	32	6/4/90	hand-reared	-
8/3/90	30	7/4/90	left nest 22/6	76
11/3/90	30	10/4/90	left nest 24/6	75
Male died.				
PAIR 2 Same female as pair 1. Put together 25/3/91.				
9/6/91			infertile	
12/6/91	30?	12/7/91	left nest 11/10/91	91
15/6/91	30?	15/7/91	left nest 15/10/91	92
23/1/91	31?	23/2/92	left nest 11/5	78
26/1/92		25/2/92	left nest by 19/5	c83
by 29/1/92		27/2/92	left nest by 19/5	c81
by 19/4/93	32	21/5/92	left nest 8/8	79
22/4/93	29	21/5/92	left nest 9/8	80
26/4/93	29	25/5/93	left nest 10/8	77
by 19/5/94		12 or 13/6/94	died 5/7	
?/5/94		15/6/94	died 17/6 (temp. about 40°C)	
?/5/94		by 21/6/94	hand-reared	
by 7/1/95		31/1 or 1/2/95	still in nest	
by 7/1/95		2/2/95	still in nest	
8/1/95		4/2/95	still in nest	

Summary:

female laid 18 eggs in five years, 17 were fertile and all hatched. Two chicks died very young, two were hand-reared and the rest were parent-reared.

PAIR 3 Put together 16/3/90

Eggs Laid	Inc. period (Days)	Hatched	Remarks	Days in nest
14/11/90	32	16/12/90	left nest 8/3	82
18/11/90			did not hatch	
1/12/91	?	3/1/92	left nest 12/3	68
4/12/91	31?	4/1/92	left nest 25/3	80
7/12/91	30?	6/1/92	died 14/1/92	
17/9/92	31	18/10/92	hand-reared	
20/9/92	29	19/10/92	left nest 3/1/93	76
23/9/92	29	22/10/92	died 2/11, kidney failure	
24/12/93			outcome unknown - author absent	
26/12/93			outcome unknown - author absent	
25/10/94			hatching dates left nest 24/1/95	
28/10/94			unknown left nest 26/1/95	
by 31/10/94			(author absent) died at about 10 days	

The female laid 13 eggs in five seasons, all of which were fertile. Ten hatched, six were reared by the parents, one by hand and three chicks died at an early age.

Daily weights of three parent-reared chicks in one nest

The weights of three chicks from pair No 2 were recorded daily until they were 45 to 41 days old when they became more difficult to handle, then they were weighed on two more occasions. The date of hatching of the first chick was January 31 or February 1 but for the purpose of these records is assumed to be January 31. The other chicks hatched on February 2 and 4. Chicks were weighed at approximately 10am daily and the amount of food in the crop was noted using the following abbreviations: vfc = very full crop; fc = full crop; nf = nearly full; fic = some food in crop; e = empty.

TABLE 3

Age in days	Chick No 1	Chick No 2	Chick No 3
H	-	-	9 fic
1	-	16 ne	10 fic
2	-	18 ne	13 ne
3	20 ne	22 fic	14 ne
4	23 fc 24 fic 21 nf		
5	27 fc	31 fc	24 nf
6	30 fc	36 fic	28 nf
7	39 vfc	44 fc	37 fc
8	44 fc	51 nf	41 nf
9	50 nf	58 nf	45 fic
10	57 fic eyes slit eyes slit	69 nf	56 nf eyes slit, ears just open
11	70 ne	74 nf	60nf
12	75 fc	80 nf	70 nf
13	81 fc	89 nf	76 nf
14	90 fc eyes not fully open	97 ff	84 fc
15	100 nf	105 fc	92 fc
16	111 fc	114 fc ringed	105 fc
17	121 fc ringed	124 nf	110 fc ringed
18	129 nf	133 fc	120 fc
19	137 fc	144 fc	127 nf
20	154 fc	153 fc	139 fc
21	166 vfc feet tinged	163 fc	147 fc
22	170 fc grey	171 fc	154 fc
23	188 fc	187 f	164 fc
24	193 fc	188 fc	165 fc
25	200 fc	197 fc	178 fc
26	211 fc	195 fc	187 fc
27	223 fc	207 fc	196 fc
28	223 fc	219 fc	204 fc
29	229 fc	229 fc 204 fic	
30	244 fc	231 fc 210 fc	
31	248 fc	239 fic 215 fc	
32	264 fc	246 fc 228 fc	
33	265 fc	239 fc ** 228 nf	
34	270 fc	259 fc	234 fc tail erupting
35	263 fc **	254 fc 236 fc	
36	282 fc	262 fc 230 e *	
37	279 fc	263 fic 246 fc	
38	276 nf	254 fic * 248 nf	
39	280 fic	265 nf 250 fc	
40	281 fic *	272 nf 245 nf	
41	285 nf	277 fc	253 fc plucked on head
42	295 fc	274 nf	-
43	297 fc	277 fic	-
44	294 fc	-	-
45	307 nf	-	-
47	-	-	268 nf
49	-	297 fc	-
51	315 nf	-	271 fic
53	-	303 fc	-
55	310 fc	-	-

* Food mixed with vitamins in error - not accepted by parents, therefore crops not as full as normal at 10am.

** first green feathers of the underparts erupting h=day hatched

PUERTO RICAN PARROT CAPTIVE BREEDING PROJECT. The Río Abajo Aviary

By José Rodríguez-Velez.

Introduction

The Puerto Rican Parrot *Amazona vittata* is a critically endangered species endemic to the island of Puerto Rico. It exists in the wild as a single population of less than 50 individuals concentrated at the eastern section of the island within the Caribbean National Forest. Two captive populations have been established, one within the habitat currently occupied by the species and another within the Río Abajo Forest; a former range historically occupied by the species until 1928.

The wild population has slowly increased from a low of 13 parrots in the 1970's to about 50 in 1989, the year hurricane Hugo reduced the wild population to about 25 individuals. Despite relatively good reproductive success in the wild, unexplained low recruitment of fledglings suppress overall population gains to only a few parrots annually.

The Río Abajo Aviary is administered by the Puerto Rican Department of Natural and Environmental Resources (DNER) under a cooperative agreement with the United States Fish and Wildlife Service (USFWS). The breeding facility is located within the Río Abajo Commonwealth Forest, a karst region of rugged limestone hills and sinks. It is believed the main reasons for extirpation of the Río Abajo population were deforestation, hunting, nest robbing and the hurricanes of 1928 and 1932, which severely affected the area.

The Río Abajo Aviary began operation in the summer of 1990, going through a trial period of three breeding seasons with Hispaniolan parrots *Amazona ventralis*. These parrots were utilized as sentinels to help in the detection of local avian diseases, for the selection of future surrogates and to allow management resources to identify and correct logistics problems. The Aviary was designed to be self-inclusive, comprising a main operations building, staff residences, volunteer quarters, quarantine/isolation and parrot holding structures, as well as an emergency generator and own water source. The main operations building houses separate areas for kitchen, nursery, artificial incubation, workshop, offices and a fully equipped hospital. A resident

staff of three, including a veterinary technician and two biologists, all with previous avicultural experience, provide for the direct care of the flock.

The Río Abajo management employs the closed aviary concept for breeding parrots in captivity. A non-intrusive, stress and risk reducing approach helps instill an added sense of security and well being to the breeders. The fully equipped hospital which includes both surgical and X-ray equipment serves in providing needed care on location. A veterinarian provides his services on an on-call basis. Access is strictly restricted and official visitors are not allowed to enter breeding areas or to be in contact with the parrots.

Project Objectives

1. Enhance preservation of existing genetic diversity by means of providing optimal breeding conditions for all available Puerto Rican Parrots of breeding age.
2. Provide demographic and genetic security by maintaining a genetically redundant gene pool as protection against catastrophic loss.
3. Serve as a production facility to support future reintroduction attempts by emphasizing numeric increase of the species in accordance with modern avicultural practices and sound husbandry techniques.

1994 Breeding Season

In the summer of 1992 the DNER requested USFWS to begin the process for the transfer of the first group of twelve Puerto Rican Parrots from the USFWS aviary to the Río Abajo facility. On April 30, 1993 a total of 10 unpaired parrots (5♂:5♀) were transferred by USFWS to Río Abajo. The demands of quarantine, pairbonding, adjustment to the new environment and routine precluded a breeding season that year. A fertile pair, retained by USFWS until after the breeding season, was transferred August 26, 1993.

Most of the Puerto Rican Parrots showed behavioural patterns usually associated with stressful environment, human imprinting, lack of parrot socialisation experiences and chronic compulsive habits, some appeared unreasonably aggressive. More than half showed some degree of



Puerto Rican parrots at Río Abajo.

feather damage ranging from mild to severe loss of feather cover not associated with the PBFV viral disease. Their history profiles included mate incompatibility, young age, egg destruction, only one male had produced an offspring before and a non-breeding 20+ years old unrepresented founder.

The 1994 breeding season began with a total of five pairs of Puerto Rican Amazons, four paired at our facility and the fertile pair transferred by the USFWS. The breeding pairs are placed in suspended wire cages measuring 4x4x8 feet, equipped with up to two types of previously tested nest structures, a plywood box and/or a hollowed palm log. The birds are fed at daybreak, with a supplement given in mid-afternoon. Nest checks are conducted weekly.

Results

Given the relatively short time the Puerto Rican Amazon pairs had to acclimate themselves to their new surroundings, cagemates and routine, results were better than expected. A total of six fertile eggs were produced by three pairs, two of which hatched and fledged successfully under the surrogate care. One pair, in which the female had not yet reached sexual maturity, showed strong pairbonding behaviour, frequently copulating throughout the breeding season. The fertile pair transferred by the USFWS produced two fertile eggs which ceased development after the first week of

the natural incubation. However, this pair was given two fertile Hispaniolan Amazon Eggs that were successfully incubated, hatched and reared. This was the first time either of these parrots had hatched and fledged chicks. The pair from which the season's two Puerto Rican chicks were successfully obtained is formed by an 11 year old hen which had 3 mates within the past 5 years and an 8 year old captive reared male of wild origin which had no previous breeding history. The hen of this pair has a feather chewing habit causing her to look almost featherless. She has also chewed her mate's feathers, leaving undamaged only the flight and tail feathers.

Future Plans

Obtain further founder representation from the Luquillo captive flock in order to achieve the goal of genetic diversity and increase suitable mate options for those birds that may be unwilling to accept the most genetically optimal mate. Evaluate, design and test cage design options and suitable locations to help reduce potentially disruptive territorial conflicts between pairs, and interactions caused by sensitive or human imprinted pairs. Make all possible attempts at obtaining progeny from birds of older age with low mean kinship values.

"PARROTELEPATHY"

By Bonnie Jay

Since the beginning of time we have gazed at birds, marvelling at their gift of flight. We wonder at their variety of shapes and sizes and kinds, their heart-stopping colours. How mysterious they are and how we yearn to join in their serial ballets.

And then there are the parrots. True, parrots are birds, but Oh! what special birds are these. From the tiniest parrotlet to the largest macaw the parrot stands alone with its sense of humour, its ability to play for the sheer joy of it and its remarkable intelligence.

When I look into my parrot's eyes I can see there's someone in there looking back at me. A conscious, thinking being. There's no doubt or question about this. Its a matter of fact for every pet bird owner the world over. And there are a lot of us - birds are second only to cats as the preferred pet in the US.

As I write this, Mattie, my Moluccan Cockatoo, is furiously trying to get my attention by standing on the floor near my chair, alternately flapping her wings, calling "Hello? Hello?", hopping in circles and staring at me. She can't bear it that Reemie, my crippled Belize Amazon is sitting on my desk with me. Rivalry has no bounds with some birds.

Reemie. My wonderful, courageous and beautiful Amazon. When she first came to live with me, I spent a lot of time just watching her. Reemie was the first of the larger parrots that I had ever had and she was the most fascinating creature I had ever come in contact with. I watched Reemie all the time, overtly and surreptitiously. She amazed me with her tenacity and made my heart ache with her tenderness. If only I could communicate with her.

After a few months, I felt as though I could sense what Reemie wanted or needed at any particular time, but my only confirmation was to do whatever I thought she wanted done and see if she liked it or would go along with it. I needed to speak with Reemie. I had a million questions to ask and a million things to say. I wanted to be just like Dr Doolittle. I always did.

Years and years ago I had heard about Beatrice Leidecker, who was one of the first people to publicly reveal that she was able to communicate telepathically with animals. More recently I had heard

about Penelope Smith. But what chance had I of ever meeting her and having a conversation with Reemie? About two years ago I learned that Penelope Smith would be lecturing and giving personal interviews in Southern California. I made an appointment immediately. Here was my chance. I'd been mentally speaking to Reemie for years, not knowing if she was receiving any of it or not and I certainly didn't think that I was understanding much from her. But now ...

I went with Reemie and Mattie, my Moluccan who had been with me about a year, and a list of questions, some of which I already knew the answers to. When Penelope gave me the same answers to those questions, I knew we were onto something and proceeded to ask away.

Penelope said Reemie was a Buddha being. A spirit who would be just as content, just as serene, just as cheerful and loving, no matter what form she might be in. Penelope also told me that Reemie said we talked all the time, and loved how I always listened to her. I didn't get every detail, but I got most of her commentary Reemie told us. I also asked Reemie if we had known each other before and Reemie said, "You and I have done many turns of the wheel together, as friends and lovers, don't you know?" Then Penelope said Reemie was showing her a picture of two people walking hand in hand. My heart was aflutter. I knew that my connection to this little bird was far beyond what I would consider common. But here was the bird telling me why. Reemie also told of her dreadful capture in the forest and how her bones came to be so badly broken.

We asked Mattie if she knew I loved her and she said, "Everybody loves me." If you knew Mattie, you would know exactly how appropriate that answer is. We also asked Mattie why she doesn't eat very much. Mattie replied, "I'm a young bird and I can live on the air and love." We asked Reemie what she thought of Mattie and Reemie said, "Stupid, just because she does tricks, so what?" Clearly, Reemie doesn't think too highly of Mattie. We asked Mattie how she felt about Reemie and her response was, "Reemie is my friend. She teaches me things. Some of the things you think are bad habits, like not eating vegetables, she taught me. She said they aren't good food, don't eat

those things. But I don't like her." This was not a surprise. Once when she was hopping across the living room floor, she stepped onto Reemie's back, went over her and kept right on going.

My meeting with Penelope was an extraordinary experience and one that I don't really question. It's well known that human twins often know one another's thoughts and anyone who has ever had a companion animal of any kind, is familiar with that inner knowing that tells us what our friend may want or need. How do you think this happens? It's certainly not our imaginations.

Perhaps telepathy grew out of early man's need to survive in an environment dominated by animals. Certainly Native Americans have always spoken to the animals with whom they share their world. They speak both to honour and to seek counsel. So the ability is not new.

According to Penelope, we are able to practice and refine this innate capacity. Since meeting Penelope, I've read her books, listened to her tapes and practiced a little less than I should. I've learned to think about things from the perspective of my birds. I constantly observe them in order to connect very particular behaviours with very particular meanings. For example, when I have a guest in the living room and Mattie walks around on the floor with her head leaning sideways, I know this is not a good thing. She's getting ready to bite my guest on the ankle. Now that I know this, her aggressive behaviour is not allowed to begin

and the guest is saved from a ritualistic bite - usually. The longer we're together, the easier it gets. With Reemie, I just keep fine tuning.

I learned early in life that unconditional love is possible and available between people and the creatures of this sphere. My greatest dream is that people everywhere, all over this earth, understand that animals are beings with whom we can, and must, share and communicate. They have feelings and they have rights. They are spirits who deserve to be respected and honoured. We share this space together - we must share it with caring, with compassion and with love.

Editor's Note

Bonnie Jay's communication with her pet parrots is clearly exceptional, but she is far from being alone in feeling she has a special relationship with them. This is apparent in her outstanding photography, with which she helps the World Parrot Trust.



Left, Csilla, right, Sasha.

Photo: Bonnie Jay.

IF I HAD A MILLION

By Michael Reynolds, Hon. Director, World Parrot Trust

'If you had a million pounds to give away, what would you do with it?' This is an intriguing question, and one which, if answered genuinely, challenges the imagination, integrity and common sense of the writer. The first thing to say is what I would not do with it, and that is, give it to any charity other than the World Parrot Trust.

Most charities are respectable and sincere in pursuing their objectives, but reports of the misuse of funds are not infrequent, and anyone considering a donation to charity should be cautious and somewhat sceptical. When confident that a charity is well run, the next question a potential donor should ask is: 'how valid is its objective?' Funds raised for the relief of human suffering are always in the forefront, and rightly so. If however, we take a pace back from the contemplation of today's catastrophes and consider the appalling disasters that await our children and grandchildren, different priorities emerge.

How can we halt the explosive growth of our human population, the pre-eminent threat to our planet? If I thought that, perhaps, half of my million pounds could be used effectively to persuade the human race to restrict its reproduction to one child per couple, I would gladly make that investment. But such a trifling sum would add nothing of any consequence to the vast international expenditure on the crucial matter of population control.

To save the planet for our descendants we need to save what is left of the natural world. I regret to say that much of the funding that reaches animal charities is ill considered. Kind-hearted people give millions every year towards the welfare of domestic animals, but does it really make sense to spend millions to keep, for example, five thousand donkeys in unproductive comfort? Entire ecosystems could be saved from destruction by a tiny percentage of such expenditure. A case in point is the protection of hundreds of square miles of Peruvian rainforest by Dr Charles A Munn III of the Wildlife Conservation Society, using a budget which is a fraction of the largesse bestowed on the donkeys.

The task of preserving the world's remaining forests and

wetlands is so vast, so awesome, that we all have a duty to contribute to it in whatever way we can. To quote Edmund Burke: 'Nobody make a greater mistake than he who did nothing because he could only do a little.' When I founded The World Parrot Trust six years ago I had a vaguely defined feeling that the parrots had a special role to play in the future of the planet we share with them and countless millions of other life forms. As the Trust has progressed, and received the support of thousands of like-minded people around the globe, that feeling has intensified and become clearer. The parrot, more than any other exotic creature, has established an extraordinary role in perhaps fifty million households around the world. The parrot's owner (does anyone really 'own' a parrot?) may see it as a companion, a 'prestige pet', a part of his hobby, a potential goldmine, or simply an inherited liability, but I would suggest that every parrot is a kind of undercover agent, subtly reminding us that there is a whole kaleidoscopic world of nature that must be considered.

By displaying its colour, voice, intelligence and personality, the parrot refuses to be ignored. Many of the 330 species are used as 'flagship species' to draw attention to conservation concerns, and it has to be noted that parrots are frequently featured by advertisers. Our experience is that business people are happy to exploit the parrots, but very slow to contribute towards their survival and well-being. One day I hope a cheque will arrive to prove me spectacularly wrong.

I hope the reader will accept my premise that the parrots occupy a unique niche in our world: they occur naturally in a wide band around the tropics, and have been transferred - without their being consulted - to virtually every site of human habitation. It follows therefore, that we have an opportunity to use those fifty million squawking, subversive undercover wildlife agents to alert their human associates to the essential task of aiding the survival of the parrots in the wild.

This can only be done by preserving the habitats within which the parrots have evolved their survival skills over millions of years. Other flagship species have been used successfully to



Is this bird a 'subversive undercover wildlife agent'?

Photo: Mike Reynolds.

highlight the need to save the forests and the oceans, but there is one essential difference: tigers, apes and whales don't live in our houses. The parrots do, and that gives them their special value as educators and potential lightning conductors for the flash of realisation, understanding and sympathy that our species urgently needs to receive if it is to ensure its own survival.

That is why The World Parrot Trust will receive every penny of my (hypothetical) million pounds. It has the ability to make better use of it than any other charity I know about. With its volunteer spirit, it is probably the world's most cost-effective charity. The million pounds would be split into three equal amounts: one third to

be invested to give the trust a sound financial base and provide income over the long term; one third to fund many of the important and urgent projects we currently seek to support; and one third to a new educational programme which would feature the parrots as the most logical spokespersons for the preservation of our natural world.

Only one thing remains to be said: I don't happen to have a million pounds. If you have, or can help us raise significant funds, please get in touch. My phone number is (UK) 01736. 753365, the fax is (UK) 01736. 756438.



INTERNATIONAL NEWS ROUND-UP



CANADA

Veterinary Student Sponsored

The Canadian World Parrot Trust, in conjunction with the Parrot Association of Canada and concerned Canadian Parrot Clubs, is sponsoring a second-year veterinary student from the University of Guelph, Ontario, in her summer project of assisting Dr. Charles Munn in Peru, Bolivia and Brazil.

Catherine Soos will study the habits of the Blue-and-Yellow, Red-and-Green, Scarlet, and Blue-throated macaws in Bolivia, including the nesting behaviour of the Blue-throated macaws. She will search for and document concentrations of Hyacinth macaw nests, including the documentation of the nesting behaviours of Hyacinth macaws in the Pantanal, Brazil area. Catherine will also research the feasibility of taking groups of aviculturists or other interested parties to south-eastern Peru and Bolivia for the purposes of studying/observing parrot species in their native habitat.

World Parrot Trust Does Internet

The Canadian World Parrot Trust is in the process of constructing a World Parrot Trust Home Page on the Internet World Wide Web. The Home Page will contain information on the World Parrot Trust, its goals and objectives and current projects. Administered by the Canadian World Parrot Trust, the Home Page will also contain links to pages containing information on all International World Parrot Trust Branches, The Parrot Association of Canada, and Canadian Parrot Clubs. It is anticipated that other links to avicultural information will also be incorporated.

For further information contact Canadian World Parrot Trust on the Internet at "cwparrot@wchat.on.ca".

ITALY

Our thanks to Freddie Virili who is setting up the Italian branch of WPT and has introduced many new members. He recently persuaded the owner of Parco Zoo Punte Verde to join the Trust as a Life Member and she is kindly setting up an exhibition about WPT in the zoo.

PERU

James Gilardi, a graduate student in Evolution and Ecology at UC Davis, is trying to zero in on the reasons that parrots feed on clay at licks in southeastern Peru. His research is being conducted in conjunction with Dr. Charles Munn of the Wildlife Conservation Society, who has been studying parrots in Peru for over 17 years. James spent three seasons there observing feeding behaviour and collecting samples of the foods the parrots eat, as well as samples of the clay from seven licks.

James has documented some 15 different species of animals eating the clay. The parrots range from the recently discovered Amazonian Parrotlet to the large macaws (Scarlet, Blue-and-Green). In addition to parrots, he has seen cracids and pigeons feeding at the licks, as well as mammals, such as tapirs, capybaras and squirrel monkeys. Many parrots feed year round at licks in some locations, like Tambopata Reserve, but stop for several weeks at others, like Manu National Park, where no birds are seen at licks at the end of the breeding season in May and early June. James has also reported observations of chicks being fed clay by their parents. Most of the species he has observed eating clay are also found in habitats where no licks have yet been reported, but field biologists are finding that clay licks are more common than once thought.

Various theories have arisen to explain the clay eating behavior. It

has even been documented in human cultures, where it has been said to provide minerals needed by pregnant women or to improve the digestibility of certain foods like potatoes that may be toxic if eaten raw. James is in the process of analysing samples of parrot food and clay for their mineral levels. He then hopes to determine if the clay might provide for any possible mineral deficiencies in the diet. He has also analysed samples from 70-80 favoured nuts, seeds, bark and fruits for protein, lipid and carbohydrate levels. He has found the macro-nutrients to be highly variable among the various foods.

James is also considering the hypothesis that clay consumption allows the birds to forage on a wider variety of foods, ones that might be toxic without the ameliorating effect of the clay in their systems. This would be a particularly useful strategy during times of the year when prime food sources may be scarce, as during the dry season. He is currently testing this theory with captive quail and parrots from the Psittacine Research Project.

James' studies belong to the growing research area of nutritional ecology, which combines field work with laboratory research to explain behavior observed in the wild. By combining the nutritional research with his development of censusing techniques and studies of foraging behavior, he hopes to answer some broader questions of habitat use and social behavior of Peruvian parrots.



Parrots at the Tambopata clay lick.

USA

(Edited extract from "The Times Union")

Smugglers of prized cockatoo eggs sentenced for feathering their nests.

With the same savvy smuggling techniques of international drug runners, crooks are sneaking out of the Australian outback with an exquisite commodity that commands up to \$13,000 on the American black market: bird eggs.

These aren't just any bird eggs, of course.

Rather, they are the prized eggs of the cockatoo, a colourful bird adorned with a white plumage tinged with pink, red or yellow. Cockatoos are similar to a parrot but prettier, and thrive in the Southern Hemisphere. But some species, much in demand by bird lovers and private zoos, are endangered, creating a profitable business opportunity for people like Malcolm Delacorte, Joseph F DeMaio and Matthew Pisciotta.

On Friday apparently in the first case of its kind in this area, the three Ulster County men were sentenced in Albany for smuggling cockatoo eggs.

Delacorte, a wealthy 67-year old man guilty of repeated Australian smuggling "eggscursions", drew a five-month jail term, despite ill-health, plus five months of home detention and was fined \$5,000. DeMaio, 24, and Pisciotta, 27, both of whom already did six months in an Australian prison for what authorities say was their first and only egg-running effort, got off with probation and 150 hours of community service. They also have to pay the Australian government about \$1,000 each in fines.

What the prosecution and the sentences handed out for misdemeanors show is that the government is taking a hard and dim look on people who, in the eyes of some animal lovers, are raping the Australian wilderness in the name of greed.

"I consider these very serious crimes", the sentencing judge, US Magistrate Ralph W. Smith said in court. "I have done research ... that points out the consequences that could result."

Among those consequences are extinction of the Australian species. Roughly 80% of the birds die in transit, according to some

estimates and may cause the introduction of new diseases into this country.

Some of the smugglers, including Delacorte, rationalise their crime as a humanitarian effort. Judge Smith, however, was less than impressed with Delacorte's explanation and said he wasn't even remotely hesitant about sending the man to jail.

Parrot Smuggling Suspects Indicted

Tony Silva, an exotic bird expert who was charged in December with smuggling endangered parrots into the U.S., was indicted Tuesday on additional tax and perjury charges.

Silva and his mother, Gila Daoud, who was also charged in the smuggling, each were indicted on four counts of concealing income from the IRS from 1986

through 1990, according to Assistant U.S. Atty. Sergio Acosta.

Silva, formerly of North Riverside, was also accused of lying to the grand jury last August when he responded negatively to the question: "Have you ever smuggled birds into the United States?"

From August 1989 through January 1992 Silva was curator at Loro Parque, Tenerife.

Thanks

Special thanks are due to Diana Holloway, a member who is actively raising funds for the World Parrot Trust USA by speaking at bird clubs and selling goods. She raised over \$500 in the last month. Well done Diana and thank you very much for working so hard.

WORLD PARROT TRUST - Benelux

WORLD PARROT TRUST BENELUX HOLDS 10TH PARROT SYMPOSIUM

The splendid marble hall of Antwerp Zoo was the scene for the 10th annual parrot symposium held on 29th April 1995. To celebrate this important anniversary, a committee under the leadership of Ruud Vonk create a 'Lustrum Book' containing the proceedings of all ten symposia, plus additional articles from distinguished authors including Christoph Imboden, Rosemary Low, Roger Sweeney, Gerry Dorrestein, Roland van Bockstaele and others.

The production of this limited edition was kindly funded by P Sluis & Co. Copies are available from our Benelux or UK addresses at a cost of £20 or Dfl.50. Many articles are printed in both English and Flemish.

The attendance at the symposium was very satisfactory and the membership of WPT Benelux continues to grow. Outside the Antwerp Zoo, a remarkable vehicle could be seen. This was a WPT van spectacularly decorated with parrots and tropical plants. This

vehicle will be used for educational purposes and was painted by a group of 'young offenders'. Interestingly, the previous use of the van was moving large amounts of cash for a security service. The day after the symposium, the World Parrot Trust held an informal meeting at Antwerp Zoo to discuss progress and long term plans. Present were Han Assink, John van Betteray, Romain Bejstrup, Pierre Claassens, Juim Fiege, Stella Roomans and Ruud Vonk of WPT Benelux, Line Wadum and Michael Iversen of WPT Denmark and Michael Reynolds of WPT UK. Subjects discussed were finances and fundraising, in situ conservation projects, educational activities, research into pet parrot welfare, a new parrot action plan and other related matters. The meeting agreed that, as emphasised in Mike Reynolds' talk at the symposium, the World Parrot Trust's strength lies in its complete independence, its roots in responsible aviculture and its commitment to the survival and well-being of the parrots themselves.



The back end of the bus



Speakers at the symposium receive copies of the Lustrumbook from Ruud Vonk.



John van Betteray with the WPT Benelux bus.

BEE SUITS DONATED

The family firm of B J Sherriff from Falmouth in Cornwall has generously responded to our appeal for bee suits and supplied two complete outfits. A member from Fakenham in Norfolk has also donated a second hand suit, gloves and veil. These items were taken out to Peru by Hilary French at Christmas and are now in use by field workers during their inspection of nests, providing protection against the haircutter bees.

Hilary writes to say:

"Everyone at Tambopata was delighted with the suits. They were light and very comfortable to work in, plus most importantly, they kept the bees out! From a safety point of view the head covering/protection allowed plenty of room for a safety helmet.

I am sure that these suits will enjoy an active life!"



Bee suit in action.

MARATHON SUCCESS

Eleanor McMahon, one of our many enterprising members, has raised £300 for the Trust in the London Marathon. She gathered sponsors, donned her World Parrot Trust T-shirt, and set out. As an inexperienced runner, she found it quite a challenge, but reached the finishing line in five hours twenty minutes. She said "It was very interesting asking people to sponsor me. Most think of parrots in cages and not as free flying wild birds. So I had to do quite a bit of education".

Well done Eleanor

PRAISE FOR MALCOLM ELLIS PRINT

Having received her painting of the Cuban Amazon by Malcolm Ellis, Mrs Sarah Reynolds from Norfolk writes:

Dear Mrs Venning

I am now writing to you to thank you very much for sending the painting of the Cuban Amazon by Malcolm Ellis which I have just received. The painting is absolutely lovely, somehow even more beautiful than I had imagined and I am thrilled with it and feel grateful and privileged to be the proud owner! Mr Ellis is an artist of considerable talent and he has caught the general Amazon character perfectly and the oil paint is most appropriate for the unusual bloom and iridescence of the Psittacine plumage. I really do think this is a work of art and I do hope you will pass on my feelings and thanks to Mr Ellis and tell him that his work is very much appreciated and the work has a very good home. In time a great many people will see the painting, but for the moment it will remain hidden until my husband's birthday!



Malcolm Ellis & Cuban Amazon painting.

It is also particularly gratifying to know that the painting was done specially for the Trust, and that proceeds from the sale will go towards your work. I see that Mr Ellis would be prepared to paint other parrots on a commission basis and I may well take him up on this in due course; we "own" a most beautiful male Blue-fronted Amazon and a painting of this species would go very well with the one I have and make a perfect pair!

Yours sincerely
Mrs Sarah Reynolds

WHO'S A LUCKY BOY THEN - IN DANISH

Notes from Michael Iversen of WPT Denmark:-

"For most people parrots are attractive because of their ability to talk and act in a human way. They are special because we feel that we can communicate with them. When World Parrot Trust - Denmark was launched in 1992 we were aware that communication is what it takes to spread out the word about parrot conservation. To communicate you have to speak peoples' language. Therefore it has been our aim from the beginning to translate the English WPT material into Danish. Today we have more or less achieved our aims including the almost complete translation of PsittaScene. On top of this, we were attending a bird exhibition in Copenhagen in December '94 where we had our stand next to a pet food distributor. We made such good contact with him that he offered to fund production of a Danish version of the leaflet "Who's a Lucky Boy Then?" just like that. We learned from this that sometimes it is worth it to be straight forward with people and get the message out. Now it is easy to feel the changes from when we started with all our material in Danish. Even though we work hard

on translation which takes time and energy we have been paid back with a steady flow of new members, not only from Denmark but from Sweden and Norway as well who are joining the World Parrot Trust because we have been able to communicate with them. Let us hope this is only the beginning also for our fellow World Parrot Trust branches, good luck".

HVEM ER
EN HELDIG
PAPEGØJE?



En guide til hjælp, så du kan give din papegøje et godt, sundt og tilfredsstillende liv, her er nogle få retningslinier.

Verdens Papegøje Fonden

5 ENDANGERED BIRDS FROM OUR PARROT PORTFOLIO

St Vincent Parrot *Amazona guildingii*

In 1993 the Trust sent the third of its Caribbean 'parrot buses' to St Vincent. It has also funded a report by Andrew Greenwood MRCVS into the breeding programme in the government aviaries on St Vincent, and the improvements and avicultural support which will follow.



Hyacinth Macaw *Anodorhynchus hyacinthinus*

The World Parrot Trust has funded biological studies of this species by Dr. Charles Munn and his Brazilian colleagues. Further field work is now under way, and our



HYACINTH FUND needs help.

Echo Parakeet *Psittacula echo*

The World Parrot Trust is in partnership with Jersey Wildlife Preservation Trust in a longterm programme to save this parakeet, which is the world's rarest parrot with only about 30 remaining.



Red-tailed Amazon *Amazona brasiliensis*

Only 1,000 birds remain and many chicks are taken from nests for the pet trade. We are working with the Brazilian biologists, Dresden Zoo and ZGAP to protect them.

Red-tailed Black Cockatoo

Calyptorhynchus banksii graptogyne

The Trust has a six year commitment to help preserve an endangered sub-species of this cockatoo in Victoria and South Australia.



PLEASE GET IN TOUCH IF YOU WOULD LIKE TO HELP THE SURVIVAL OF ANY OF THESE BIRDS.

AIMS 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.

1. By educating the general public on the threat to parrot survival, and seeking their interest, concern and support.
2. By action to protect and preserve the natural habitats of parrots.
3. By gathering and disseminating information on the status of parrot populations in the wild and in captivity.
4. By advocating effective controls on the international trade in wild-caught parrots, and its replacement by captive-bred birds.
5. By encouraging co-operation in the breeding of parrots by aviculturists and zoological institutions and better liaison between the captive breeding community and conservation bodies, with the aim of creating self-sustaining populations of endangered species.
6. By promoting high standards in the keeping of parrots as pets.
7. By encouraging research projects, i.e. the veterinary care of parrots and the preservation of genetic diversity.
8. By any other means that may be appropriate.

Members receive our quarterly newsletter *PsittaScene* with news about parrot conservation, aviculture and welfare.

Please send your completed form to:

UNITED KINGDOM
World Parrot Trust, Glanmor House,
Hayle, Cornwall TR27 4HY

UNITED STATES OF AMERICA
PO Box 341141, Memphis, Tennessee 38184,
U.S.A.

CANADA
Mike Pearson, PO Box 29, Mount Hope, Ontario LOR 1W0, Canada.

BENELUX
Mrs. J Fiege, Graafseweg 37, 54 51 NA-MILL Netherlands.

FRANCE
M et Mme Prin, 55 Rue de la Fassiere, 45140 Ingre, France.

DENMARK
M Iversen, Alsikemarken 48 2860 Søborg, Denmark.



HELP SAVE THE PARROTS OF THE WORLD

Please join the Trust, or encourage friends to join.

SUBSCRIPTION RATES (please tick)

- UK and Europe (Single) £15
- UK and Europe (Family) £20
- Fellow (Life Member) £250/US\$400
Corporate (Annual)
- All Overseas Airmail £17/US\$25
(payment by Access/Visa preferred)
- Additional donation of £/US\$

Name.....

Address.....

.....

.....

.....Zip/Postcode.....

Please charge my Access/Visa Acc/No.

□□□□□□□□□□□□□□□□

Exp. date.....Amount £/US\$.....

Signature.....

OR: I enclose cheque payable to the WPT.

I heard about the World Parrot Trust from.....

PARROTS IN THE WILD



TURQUOISE PARROT (*Neophema pulchella*)

One of Australia's many endemic parrots, the Turquoise Parrot has undergone a remarkable recovery over the past 60 years. Considered abundant during the middle of the last century, its numbers dramatically declined early this century; so much so that it was regarded as close to extinction.

This sudden deterioration to its population was probably due to extensive areas of preferred habitat being cleared for agriculture and stock grazing. Coupled with several years of severe drought which further depleted the food supply, Turquoise Parrots rapidly disappeared.

In the 1940's their numbers gradually increased due to a decrease in grazing and later the dedication of several national parks and other reserves from which domestic animals were removed.

Turquoise Parrots occur in undulating eucalyptus woodland from south-eastern Queensland, through New South Wales and into north-eastern Victoria. Favoured areas are woodlands and forests adjoining clearings and farmlands. They feed on the ground, foraging for seeds of various native and introduced grasses, composites and other ground plants. Seeds and fruits are also extracted from low shrubs.

They nest in hollows in trees; the preferred site having a vertical entrance. Typical locations are hollows in fence posts, tree stumps or the vertical trunk of a tree from which the top has broken away. Four to six eggs are normally laid.

Several years ago Len Robinson initiated the provision of artificial nest-sites by locating suitable hollow logs in favoured nesting areas in north-eastern Victoria. When this proved most successful he elicited the help of friends so that close to an additional 200 potential nest-sites have been provided over the past ten years.

Fortunately today, Turquoise Parrots once more grace most of their former haunts in increasing numbers.

Photo and text: Len Robinson

We intend to continue this series of 'Parrots in the Wild', and would welcome suitable photographs from readers.