

THE PLIGHT OF PARROTS IN SOUTHERN ECUADOR

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Since 1990 the parrots of Podocarpus National Park have been the focus of the 'Parrots in Peril' expeditions. The expeditions based from Imperial College, London, chose Ecuador in north-west South America as of the forty-plus parrot species known to Ecuador, six are classified as threatened in ICBP/IUCN's Threatened Birds of the Americas (Collar et al. 1992). Parrots in Peril selected to study three of these species which occur in Podocarpus National Park.

Podocarpus National Park (PNP) straddles the Andes of southern Ecuador covering approximately 146,000 ha in the provinces of Loja and Zamora-Chinchi. The park was established in 1982 and is named after Ecuador's only native conifer tree genus. The park's climate has resulted in the creation of several vegetation zones. On the east side of the Andes there are tropical forests (1000-1500m). As the terrain gains in altitude, subtropical forest and cloud forest are encountered between 1000-1500m. The park's trees stop growing between 3000-3200m. Above this level there is a harsh climate of low temperatures, strong winds and low clouds where paramo grassland and stunted chaparral forests are encountered. On the western slope of the Andes the park is mainly composed of montane forest (2500-3000m) and paramo. As a consequence of these different habitats the park is an area of high biodiversity. It is estimated that the park contains between 3000 and 4000 plant species, many of them endemic to this region. One plant found in the park, "the feverbark tree" *Cinchona officinalis* is famous for its use in the treatment of malaria. The park may also be one of the last refuges for many endangered species of animals: These include the Spectacled Bear *Tremarctos ornatus*, Mountain Tapir *Tapirus pinchaque* and Woolly Monkey *Lagothrix lagotricha*. Prior to our work one study on the park's avifauna was completed. The results suggest that the park could hold in excess of 600 bird species (Bloch et al. 1991). This would represent over 40% of the bird species known to Ecuador and over 5% of the species known to the world.

The expedition's objectives reflected BirdLife International's

requirements in the development of a parrot conservation programme and the need to assess the status of the park. Specifically:

- 1) Attempt to substantiate Podocarpus National Park as a key site for the effective conservation of three Red Data Book species of parrot: the "endangered" Red-faced Parrot (*Hapalopsittaca pyrrhops*), the "vulnerable" golden-plumed Parakeet (*Leptosittaca branickii*) and the "insufficiently known" White-breasted Parakeet (*Pyrhura albipectus*) (Collar et al. 1992).
- 2) Assess the effectiveness of Podocarpus National Park as a protected area by studying threats to its integrity, notably gold mining.
- 3) Gather basic biological information pertinent to the conservation of the parrots. In addition, the expeditions aimed to compile bird species inventories at all sites visited for parrot activity.

The Parrots of the Park

The Parrots in Peril team visited the park on three occasions; August-September 1990, briefly in November 1991 and March-June 1992. From these trips information

was collected on the status, biology and conservation of the three main study species and the other parrots inhabiting the park. What follows is a summary of these results with additional information on individual parrot species distributional ranges from standard references (Forshaw 1989; Fjelds  and Krabbe 1990).

The Red-faced Parrot is probably the rarest parrot in southern Ecuador and was recently judged to fall in the IUCN category "endangered" and listed with other birds "for which urgent action is needed" (Collar et al. 1992). Prior to our work *pyrrhops* had only been seen once at Cajanuma and its distribution and use of the park were unknown. *Pyrrhops* inhabits the montane, cloud forests of southern Ecuador along the Andean range south to northern Peru and north to southern Columbia. These forests in Loja province are under severe threat of clearance for farming. This makes PNP the most important area in southern Ecuador for the parrot's long term future. During our visit in 1990 we were unable to locate *pyrrhops* in the park, but in 1992 a flock were encountered at the Cajanuma field station (Toyne et al. unpubl.). Surveys here were very difficult due to the impenetrable vegetation and steep nature of the

Cajanuma valley and we still do not have a good idea on *pyrrhops* occurrence in the park. In an attempt to assess the parrot's status outside the park the expedition visited the remaining temperate forests surrounding Saraguro in 1992.

Our surveys found them in four of the five forests visited (Toyne et al. unpubl.data). They were normally seen in small flocks of up to six individuals and in two forests detailed information on the parrot's biology: breeding data, vocalisation, roosting habitat requirements, and diet were collected. On several occasions juveniles were observed in flocks and being fed by adults. This suggested breeding in Loja province occurred in the preceding months of February and March.

Threats to *pyrrhops* around Saraguro was mainly the clearance of the temperate forests for pasture. The planned 1994 expedition will investigate the feasibility of purchasing the reserve where *pyrrhops* were found in high densities and presumably bred. This reserve would also provide a refuge for other threatened birds species such as the Bearded Guan (*Penelope barbata*), Gray-breasted Mountain-Toucan (*Andigena hypoglauca*) and the Golden-plumed Parakeet



A view of Podocarpus National Park

Photo: E. P. Toyne

(*Leptosittaca branickii*) and could be managed by local environmental agencies such as Promusta and Arcoiris.

The Golden-plumed Parakeet is the park's largest parrot. It is poorly understood but thought to be rare and nomadic (Fjeldså and Krabbe 1990; Collar et al. 1992). In 1990 and 1992 the expeditions failed to locate this parakeet in the park. Instead we found it further north in the temperate forests surrounding Saraguro in Loja province in May 1992. Here a flock of five were encountered flying at tree height across a clearing. Within the park, *branickii* have been recorded near Cajanuma by one expedition member in late 1992. They have also been recorded further south near Yangana (Bloch et al. 1991), all sightings are within the altitudinal range of 2400-3400m. *Branickii* have also been found in scattered localities further north in Ecuador and in neighbouring Colombia and Peru.

The parakeet's main threat in Loja province is the logging of temperate forests within these altitudes. Unfortunately there is no information on the bird's home range and habitat requirements, making it difficult to assess how threatened this parakeet really is or how important the park is for its continued existence in the area. If the importance of *Podocarpus* cones in *branickii*'s diet can be confirmed then the southern area of the Park with its high concentration of these conifers might be seasonally important to them. Indeed, the scarcity of records of the parakeets' use of the park might reflect this seasonality.

The White-breasted parakeet (*Pyrhura albipectus*) is endemic to

South-east Ecuador where it is found in three general areas; Cordillera de Cutucú in Morona Santiago province north of Podocarpus, Cordillera del Condor in Zamora-Chinchiipe province East of Podocarpus and the Podocarpus National Park locality. In the latter location the expeditions in 1990 and 1992 frequently encountered this parakeet in the upper and subtropical zones of the east side of the park (Toyne et al. 1992). Here they were a common resident and from our observations of juveniles in early September it is thought to breed within the park during May to July.

The expeditions found *albipectus* in new locations around the park, extending the parakeet's known range. The White-breasted Parakeet appeared to be fairly adaptable in its use of habitat as they were found in the partially degraded forest on the edge of the park and only once were they recorded using the pristine forest near the gold mining area of San Luis in the park. But our surveys were biased to the more accessible areas of the park, which due to their easier access had been colonised and therefore, the habitat disturbed. At the Bombuscara field centre the parakeet were commonly observed in flocks of up to nineteen individuals. At this location and the forests of nearby El Limon they fed on seeds, fleshy fruits, berries and flowers of the following families: Tilliaceae, Moraceae, Melastomataceae, Asteraceae and Euphorbiaceae (Toyne et al. 1992).

Around the Bombuscara study area the parakeets were encountered flying fast, just above the canopy. Whilst flying they would call a constant series of



White-eyed parakeet.

Photo: E.P.Toyne

rapid "squawks". Whilst foraging they gave repetitive one note calls of either "skee" or "week" with them occasionally combining the two to give a "skee week" contact call. Prior to leaving a "food" tree one individual in the foraging flock would start calling and the rest would join in, so a clamour of accelerated foraging calls was heard and then they would suddenly fly off. This clamour lasted no longer than a few seconds (Toyne et al. 1992).

Albipectus's current status is "insufficiently known" as reviewed by the IUCN with "further protection desirable". The expedition's findings suggest that they are fairly common in the park and that the park is an important protected area for this species. However, populations in the park should be monitored to assess what the effects of habitat destruction from gold mining and illegal colonisation have on their numbers.

The park is home to seven other species of parrot, many of which are wide ranging species and not local to this area. They are:

The White-eyed Parakeet (*Aratinga leucophthalmus*) which is the most wide-ranging *Aratinga*

species in South America (Ridgely 1981). The subspecies *callogenis* is found in Ecuador and also occurs in the neighbouring Amazonian areas of south-eastern Colombia, north-eastern Peru and north-west Brazil. Within the park *callogenis* inhabits the eastern lowland tropical forests. Here we have always encountered this parakeet flying high, never perched in trees. This parakeet is also a common pet found in the nearby towns of Zamora and Loja.

The Barred Parakeet (*Bolborhynchus lineola*) was classified as a near-threatened species (Collar and Andrew 1988) but not listed in the recent Threatened Birds of the Americas (Collar et al. 1992) as new populations, particularly in Ecuador have been found. The Cajanuma valley (2500-2900m) of PNP was the southern most record of this species in Ecuador (Bloch et al. 1991) until we recorded this species on the east side of the park within the gold-mining concessions of San Luis. The parakeet is also found in three other regions: Central America (southern Mexico to Panama), north-west South America (north-western Venezuela and the Andes of Colombia and



White-breasted parakeet.

Photo: E.P.Toyne

north-west Ecuador) and Central Peru.

Dusky-Billed Parrotlet (*Forpus sclateri*) has been recorded on the east side of the park using the degraded forests that exist near Zamora and Romerillos (Bloch et al. 1991). Within the park *sclateri* occupies the sub-tropical forests (1500-1800m) which are higher than previously recorded for this species which is primarily a parrot of the lowland Amazonian basin (500-1000m) found in Bolivia, Colombia, Peru, Venezuela, Brazil and French Guinea.

Red-Billed (*Pionus sordidus*) and Blue-headed Parrots (*Pionus menstruus*) are common on the eastern side of the park, inhabiting the upper and subtropical forests within the elevational range 1000-1800m. Both species are wide ranging. The expedition collected information on both species breeding in April 1992. The Blue-headed Parrot nested in a disused woodpecker's nest in a dead tree and a pair of Red-billed Parrots used the deep hollow of a rotting stump (Toyne and Jeffcote 1994). The former nest was robbed with two nestlings taken prior to fledging for sale in nearby towns and the latter nest contained three well-developed nestlings who were close to fledging.

The Speckled-faced Parrot (*Pionus tumultuosus*) was fairly common in both subtropical and temperate forests on both sides of the Andean ridge and frequently encountered at the forest edge. It is currently thought that this species and the White-headed Parrot (*Pionus seniloides*) are probably the same, if so their range follows the Andes from Venezuela to northern Peru.

The Scaly-naped Parrot (*Amazona mercenaria*) is the park's only *Amazona* species. Here it is found in the upper-tropical, subtropical and temperate zones of the park on both sides of the Andes. Very little is known about this parrot despite its wide distribution along the Andes from north-western Venezuela to northern Bolivia. Reports from most countries suggest *mercenaria* to be common and not threatened.

Threats to the Park and the Parrots

Threats to the status of many of these parrots are the very same that will affect the future of the park. Although several of the above parrots are wide ranging the park is an important refuge for the three rare parrots which were of most interest to the expeditions, not to mention other wildlife. The park also provides the main watershed area for Loja province and is therefore very important to the local human populations.

Threats to the status of the White-breasted Parakeet in the Park

were mainly from illegal colonists who move into the park and clear areas for cattle ranching or agriculture. Despite finding *albipectus* in degraded habitat the situation needs to be monitored to see if populations decline or adapt to these changes. Habitat degradation in both Loja and Zamora-Chinchipe provinces is one of the greatest threats to parrot populations in this area and makes the park very important if its legal status is respected.

The collection of parrots for the pet trade appears to be local and small scale. Several parrots were encountered in the villages bordering the park, including one *Pyrrhura albipectus* which was offered for sale to us, but no evidence was found of collection for export to other areas or countries.

The greatest threat to the park is gold mining and its resulting impacts (Vallée et al. in press). Some gold mining concessions are up to 11% of the park's area. Concessions include much of the Romerillos to San Luis area, where *albipectus* was seen (Toyne et al. 1992). A successful international campaign which used data collected by our expeditions led to the removal of international gold mining companies in 1993 from San Luis. However, since the discovery of gold in the park and due to interest shown by international companies up to 1000 artisanal miners (*petroleros*) have been illegally prospecting at the San Luis location. They bring basic tools and food with them for stays of up to three weeks. They also supplement their diet by hunting the wild animals of the park, including parrots.

The *petroleros* are illegal but still continue to pan the rivers and dig into the hillsides for gold. Once the sediments are sorted they use mercury to extract the gold particles and form an amalgam. They then burn this to recover the gold without any recovery of the mercury vapour. This vapour is inhaled by the miners and also absorbed by the local environment. The waste liquid mercury from the amalgamation process is thrown into the nearby rivers. Some of these rivers serve the densely populated cities and small towns on the outskirts of the park, providing them with their potable water. This uncontrolled use of mercury together with unsatisfactory disposal could poison the wildlife of the area and the human populations. In 1992 the expedition carried out a preliminary environmental impact assessment of gold mining activities in the park. The results of mercury contamination in dust and soil sediment samples revealed alarmingly high levels. It was estimated that at one site, San Luis,



Red-billed parrot.

Photo: E.P. Toyne

55 kg of mercury were lost to the environment each year. Mercury levels in local stream sediment ranged from 4.6 - 61.2 µg/g, 10 to 100 times higher than usual background levels. Mercury contamination is also high in Loja (1.75 - 4.45 µg/g) where some gold-gold amalgam was burnt (Valée 1992 and Vallée in press). Such data highlight the danger to both the local wildlife and people from small-scale mining operations in the park, furthermore the dispersal and effects of mercury in a tropical ecosystem are worryingly unknown.

Despite all these threats to the park it does have a future. The Loja based environmental group Arcoiris have led an environment awareness campaign informing the local communities of the value of the park. They have also acted as watchdogs carefully monitoring mining developments and other threats the park suffers from. Our expeditions and other scientists have placed a high importance in working with Arcoiris and it is through such collaborations that within the last five years the scientific evidence has built up to substantiate the park's local, national and global importance. The ministry officials in Ecuador will at least have this information to consider when deciding whether gold mining in this area is in the country's national interest or whether the area should be left as a unique refuge for the numerous flora and fauna that it supports. This collaboration between scientists and Arcoiris led to the removal of the small-scale miners in March 1993 by the military police. However, the future of gold

mining within the park is still being decided and members of the World Parrot Trust are urged to write to the following organizations stating your support for the removal of mining operations and insist that the park's protected status should be respected.

Ministerio de Defensa Nacional
Gral. de Ejército José Gallardo Román
La Recoleta
Quito, Ecuador, South America.

Ministerio de Agricultura y Granjería
Ing. Mariano González
Av. Amazonas y Eloy Alfaro
Quito, Ecuador, South America

INEFAN
Ing. Dipl. Jorge Barba
Av. Amazonas y Eloy Alfaro
Quito, Ecuador, South America

Fundación Arcoiris
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