

Breeding Red Shining Parrots

(*Prosopeia tabuensis*)

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The islands of the tropical Pacific Ocean have always captured the imagination of the European and American visitors, and are still the subject of daydreams about turquoise blue lagoons, coconut palms, white sandy beaches — just paradise. This paradise is home to some of the most beautiful and spectacular birds, which are almost unknown in our civilized countries. So little is known about the splendid Silktail (*Lamprolia victor-iae*), the gorgeous Flame Dove (*Ptilinopus victor*), the peculiar Tooth-billed Pigeon (*Didunculus strigirostris*), or the unique Cagou (*Rhyno-*

chetus jubatus).

Some of the most beautiful parrots live on these legendary islands. The first among them is the Ultramarine Lorikeet (*Vini ultramarina*) whose array of blue colors rivals the tones of the most spectacular lagoons of its island home. Another gem from the islands is the Red Shining Parrot (*Prosopeia tabuensis*), feathered in dark burgundy red, while the wings and the tail shine in the brightest blue and green colors imaginable.

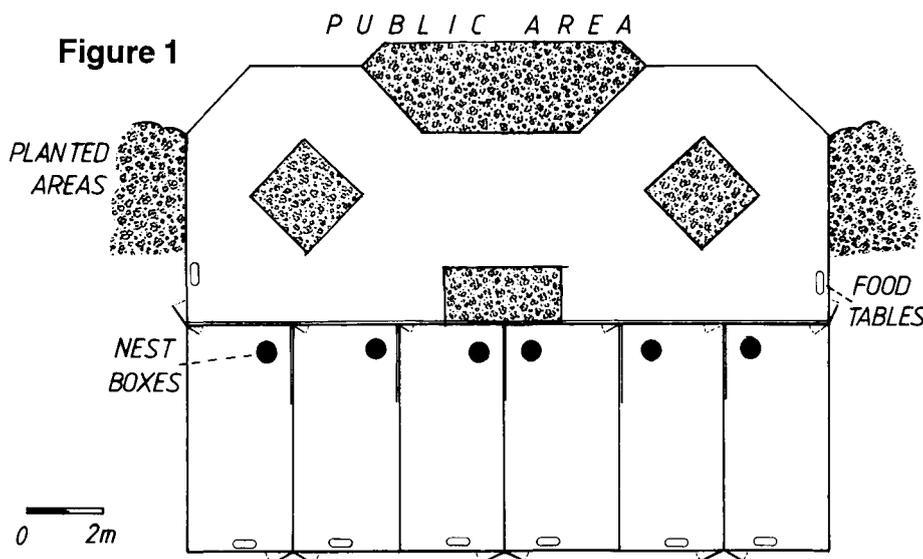
But paradise has its problems, and with these situations the situation of many species of island creatures has

changed dramatically. Hunting, introduced predators and habitat destruction has resulted in the extinction of birds the extent of which is unmatched in other parts of the world. A number of birds which have survived this wave of destruction are now facing a very uncertain future.

In 1989, the Brehm Fund for International Bird Conservation initiated a conservation program for endangered Pacific Island species, the Brehm Fund South Seas Expedition, based in the Kingdom of Tonga. This program includes island surveys, translocation of threatened species, captive breeding, and education. Among the species which receive special attention within this program is the Red Shining Parrot (called Koki in the islands) which is threatened by loss of habitat, and potentially by trade. The Koki has become the flagship species for wildlife conservation in Tonga. A flock has been established in captivity and now I am reporting about their successes after two breeding seasons.

The Captive Flock

The captive flock of Red Shining Parrots was established since the end of the wild parrots' breeding season in 1989. Most of the captive birds were received from people on 'Eua, the only Tongan Island where the Red Shining Parrot occurs in the wild. Considerable numbers of young parrots are taken from nests every year and kept as pets in tiny wire cages. Most of them die after a short period of time.



Ground plan of the aviary complex.

Some are eaten and their feathers are used to decorate traditional mats.

We visited villages in October, 1989 and 1990, and collected most of the captive birds. Only a few people refused to give us their parrots, and these birds were kept under better conditions than those which we could obtain. Some farmers use traps, baited with coconuts, on their plantations year round. They capture Banded Rails (*Gallirallus philippensis*), Purple Swampheens (*Porphyrio porphyrio*), feral chickens and, occasionally parrots. Instead of eating these birds immediately, some were offered to us. From this our captive flock slowly increased to 30 birds.

All of these parrots were put into a large aviary with side-quarters. They acclimatized very well and I observed very little aggression. Most newcomers were also integrated into the flock without problems. The most aggressive birds were those which had been in captivity for more than one year (mostly under bad conditions) before we obtained them. They did not integrate into the flock very well and did not establish bonds with other parrots.

The aviary also housed four Purple Swampheens and three Pacific Grey Ducks (*Anas superciliosa*). Some of the parrots "played" with these birds, "diving down" on them and chasing them around in the aviary. The hand-raised birds which had been taken from nests remained tame, and flew towards the visitors who fed them with berries and peanuts.

Aviary Design and Diet

The idea to build a complex aviary where the birds can choose either to join the flock or separate from other parrots (which parrots do in the wild during their breeding seasons) resulted from my field studies of Red Shining Parrots on the Tongan island of 'Eua. Other field studies of parrots also had an important input, as well as the often frustrating results of parrot breeders with so-called aggressive species. I had not heard nor read about a successful natural breeding of the Red Shining Parrot in captivity. The young birds had to be hand-raised because their fathers became too aggressive, attacking the newborn chicks (and even the hens).

This happens in many parrot species. My hypothesis was that if the par-



Triplets, one, three and five days old.



Young parrots at about 23 days of age.



A Red Shining Parrot eating fruit of *Coccinia grandis*, a *Cucurbitaceae*. This picture was taken with a flashlight. It shows why the birds are called shining parrots.

rots had the choice between flock and breeding territory, the aggression of the male would not be directed towards the mate (and the chicks). As a result, the birds should then successfully breed and rear their own chicks.

The layout of the aviary is given in Figure 1. The walls between the flock aviary and the side-quarters are of solid wood, as well as half of the walls between the side-quarters. Passage from the flock-aviary to each side-quarter is by a small triangle, which can be closed if necessary. The flock aviary has some "islands" (fenced-out area) with fast growing plants — a concession to the visitors of the bird park. The parrots benefited from these "islands" because they could chew the branches when they grew through the wire.

Each side-quarter has a nest box built from a hollow tree. We cut hollow trees into pieces about 40 inches (1 meter) long, nailed a piece of plywood to the bottom and to the top, and then cut an entrance opening and inspection door just above the nesting chamber (lockable, for control reasons). Some pieces of soft wood were then placed in the box as "nesting materials." The nest was then fixed to a post. In the first two years, we also placed boxes within the flock aviary.

While writing this report, we are building a second aviary of similar design. This building is not accessible to the public. The number of birds in the flock seems too high now. This may be the reason a number of established pairs did not start to breed. The idea of birds in each aviary should be six pairs (to match the number of side-quarters).

Living in a remote island nation has many advantages in parrot husbandry. The climate is favorable for the birds. A number of tropical fruits (which would not be offered to them in temperature regions because of their high costs) are available. On the other hand, a variety of seeds must be imported.

Our parrots get a diet of mixed fruit and seeds with the emphasis being on fruit. Pawpaws and bananas are available year round. Mangoes, soursop (*Annona reticulata*), guavas, lychees, berries of *Cordyline* and wild figs are seasonal. The parrots prefer the seeds of most of these fruits. Another seasonal Tongan fruit is the Tahitian chestnut (*Inocarpus fagiferus*), the

large seeds of which are a favorite. Locally grown fresh maize and peanuts are fed regularly, while imported sunflower seed, mung beans, wheat (the latter two offered only when sprouted) and the flesh of green coconuts are given twice a week.

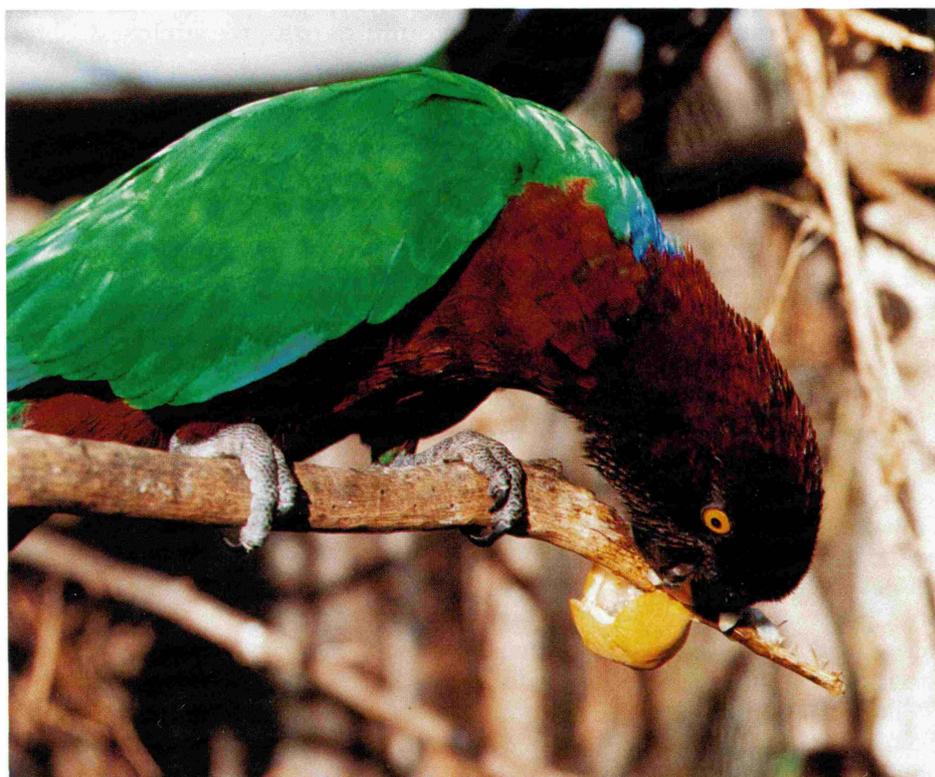
Other fruits and seeds are offered whenever they are available most of which are rather irregular. The parrots also get fresh branches of *Hibiscus*,

Abelmoschus (a relative of *Hibiscus*), maniok, and *Macaranga harveyi*. The soft wood and green bark of these branches are chewed and stripped into bits and pieces. This not only provides minerals and vitamins to the parrots, but also serves as entertainment. In addition, a mixture of vitamins and minerals is added to the pawpaws three times a week.

While hand-raised birds are very



Partial view of the aviary, as seen from the visitor's part.



A Red Shining Parrot enjoys a passionfruit.

explorative and accept new food easily, the few wild-caught birds in our aviary were very reluctant to take anything unknown. The latter also chewed wood to a much lesser degree than do hand-raised birds.

Breeding

The nest boxes were set up in the beginning of 1991 and in April of that year some birds began to investigate them. However, I did not find any evidence of breeding activity until the end of July. The breeding season in the wild starts in June and July, so I did not control the boxes thereafter. I am aware of the fact that most parrots need quite a long time to adapt to captivity, so I did not expect them to breed in their first year of captivity.

In September, however, I repeatedly observed the female parrots appearing from within their nest boxes. To my great surprise, I discovered four active nests, two containing one egg each, one having two eggs and the fourth containing two chicks. One of the one-egg clutches produced a chick, but the other eggs were destroyed after four (the two-egg clutch) and 21 days (the second one-egg clutch) respectively. The latter egg had a fully developed embryo which must have died shortly before its time to hatch.

The young parrots developed perfectly and fledged after a nestling period of 61 (two chicks) and 67 days (one chick). This is a bit longer than the time between hatching and fledging in the wild, which I found to be about eight weeks.

Because it was the first success of breeding Red Shining Parrots in the aviaries of the Brehm Fund in Tonga, I did not want to disturb the breeding parrots too much. As a result, I did not collect very much data on the development of the youngsters.

After the young parrots had fledged, I found the nest boxes filled with moth larvae which must have lived from the feces of the young parrots. Consequently, the parrots and the nests were very clean. The only change in food during this period of breeding was adding hard-boiled egg mixed with a dried insect food to their food once every day.

The young parrots differ greatly from the adults. They have a duller plumage, a black bill with yellowish markings and a brown iris. The latter

changes to bright orange around six months.

In 1992, the first evidence of preparations to breed began in April. The pieces of wood in one box were chewed into smaller parts. I found further signs that the parrots were interested in the boxes during the following weeks, but only in June was the wood chewed into sawdust in some boxes. I found the first clutch (three eggs) on the 16th of June, the others on June 25 (two eggs), July 14 (three eggs), July 16 (two eggs), and August 14 (two eggs). The eggs are laid at intervals of two days. The hatching results were three, one, three, zero and two chicks respectively.

The development of the young parrots is documented by the photos. The parrots fledged between 60 and 66 days. The sexes can be identified very early by using sliding calipers to measure the differences in the width of the bill. These differences are obvious in young fledged parrots as well as the adult birds.

One fledgling was lost immediately after it left its nest box. A male parrot killed it by biting off its beak. This male had young chicks in his box. Another fledgling was attacked by its own father, but I interfered and removed the father from its side-quarter. In order to avoid further losses, the side-quarters with the other young parrots were closed before fledging, leaving each mother alone with her chicks.

Surprisingly, no moth larvae were found in the nests in 1992. The remaining three nest boxes also had signs of beginning breeding activity. I am, therefore, confident that more pairs will breed next season, when half of the flock has been moved into the new aviary.

The pair which successfully raised one chick in 1991 reared three in 1992. The father is an old wild-caught bird, while the mother was hand-raised. The other successful pair of 1991 contained a very tame male which had been kept in a tourist resort (and was given to us because it destroyed electric cables) and a tame hand-raised female. These two became separated early in 1992. The male had hierarchy problems within the flock, falling in rank during several disputes in early 1992. As a result, he became very depressed, not even welcoming visi-

tors any more. This had been his main activity in the past. Later he was paired with a wild-caught female and they raised the single chick. His 1991 mate did not breed in 1992.

Implications For Breeding Parrots in Captivity

Most remarkably, these parrots, which are considered rather aggressive, bred and reared their chicks successfully despite being kept in a flock. Or should I say, because of being kept in a flock.

The hypothesis, which I mentioned before, seems to have been proven, although it is too early to generalize. I will have to find the optimum number of parrots per aviary complex, and, more importantly, have to observe carefully the interactions between fledging parrots and the non-related members of the flock. By doing this, losses of fledglings caused by the attacks of other parrots should be avoided. A great advantage of a flock is that parrots have the chance to choose their mates. This avoids years of failure, by offering different mates to a parrot through the years until he finally accepts one.

Meanwhile, our Blue-crowned Lorikeets successfully raised chicks in a similar aviary complex indicating that this method may also be successful in other parrot species. I propose that parrot breeders make experiments with keeping their parrots in flocks: macaws, Amazon parrots and cockatoos. Intensified captive breeding is of great importance in order to satisfy the demands of parrot fanciers. This would also greatly reduce the wild parrot trade.

The aviary design of a flock aviary and separate side-quarters can be modified, especially with regard to areas which guarantee privacy (some species may need an area where they cannot see any other parrot). I appeal to the ingenuity of all parrot breeders. Using an aviary complex may overcome the problems with some species which are known to be difficult to breed (the Puerto Rican Parrot being one of the best examples).

Acknowledgements

The Brehm Fund South Seas Expedition receives its main funds from the Bird Park of Walsrode, Germany, and Effem Co. (Trill Bird Food), Germany. Thanks to Mr. Frank Ferkin, captain of the research vessel of the Brehm Fund, for upgrading my English wording.

A German version of this article has been published in the magazine "Papageien," published by Thomas Arndt.