

# The Red-browed Amazon

## REPRODUCTIVE METHODOLOGY AND DEVELOPMENT

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### IN THE WILD

#### Distribution

The Red-browed Amazon *Amazona rhodocorytha* is endemic to Brazil, occurring in small populations in eastern Brazil in Alagoas, and from Bahia south to Rio de Janeiro and São Paulo. Their habitat extends from humid, coastal lowland rainforests to highland forests of the interior, including *Serra do Mar*, up to altitudes of 900 metres (Hoyo *et al* 1997; Sick 1997).

#### Status

Once found in large flocks in forest treetops, the Red-browed Amazon is now listed as endangered under Appendix 1 of CITES, due mainly to illegal trapping for the bird trade and the destruction of its natural habitat through deforestation and human encroachment (Hoppe 1992). Hoppe describes the species as quiet in the wild, making it a desirable pet. This characteristic may have increased its threat of capture for the pet trade.

#### Wild Ecology

Little is known about the wild ecology of this species. They feed in the forest canopy on seeds, berries, buds and fruits. Breeding apparently occurs in September–November. Hoyo *et al* (1997) mention clutches of four eggs being laid and an incubation period of 24 days. During the breeding season pairs defend their nest sites, which are cavities in rainforest trees.



Red-crested  
Cardinal.

**Red-browed Amazon pair**

**HISTORY IN CAPTIVITY**

In Brazil, little research has been carried out on this species in captivity. Low (1986) mentions that Brazilian bird breeders had little interest in the species until the 1980s and that the first specimen in captivity was born in the UK in 1980. She reports that every year after the first birth, offspring were produced, sometimes two clutches a year when the chicks were handreared. The chicks weighed 13.24–14.50 grams at hatch and became independent at 100 days of age.

Robiller (1990) reports a clutch of 2–3 eggs in 1982 at a breeding facility in the Dominican Republic. Only one breeding pair was housed in a planted enclosure, measuring 4 metres long x 1 metre wide x 2 metres high, with a sheltered enclosure measuring 1 metre long x 1 metre wide x 2 metres high. There have also been reports of captive breedings in the USA and Germany as well.

**BRAZILIAN CAPTIVE BREEDING PROGRAM**

In 2005, Rostan Bird Breeder—established in 1992 under the auspices of IBAMA’s CTF (Brazilian Environment and Renewable Natural Resources Institute’s Federal Technical Register)—initiated a captive breeding program for the Red-browed Amazon. The facility, situated at 1030 metres above sea level in Nova Friburgo, a mountainous region of the state of Rio de Janeiro, boasts a well-equipped artificial incubation room and nursery.

The breeding stock consists of 17 pairs of Red-browed Amazons that had not previously reproduced. Initially, all the pairs were housed in individual suspended cages—some measuring 2 metres long x 90cm wide x 1.2 metres high, at 1.10 metres above the ground, and some measuring 2 metres long x 1 metre wide x 1.5 metres high, at 75cm above the ground. Two types of nestboxes have been used—an L-shaped nestbox measuring 65cm long x 40cm wide x 65cm high and a Z-shaped nestbox with a 40cm x 30cm base x 60cm high.

The diet consists of pellets, specifically formulated for parrots, a seed mix and fruits

*A typical pellet and seed mix fed daily.*



*The central flight area is linked to smaller enclosures.*

and vegetables in season.

On 25 August 2005, after a thorough physical examination of the breeding stock, including laparoscopic tests, two groups (A and B) of six pairs and one group (C) of five pairs were formed and transferred to three larger, grassed flights. The central area of each flight is 5.3 metres long x 6.8 metres wide in its larger part, 4 metres wide in its smaller part, x 3.7 metres high. The central area is linked, by means of small doors, to six smaller enclosures measuring 2.5 metres long x 1.3 metres wide x 2.8 metres high. Initially, the doors, measuring 1 metre high x 60cm wide, were kept open in order to facilitate the passage of any specimen from the larger flight to the smaller enclosure. In each of the smaller enclosures there were two perches, food and water containers and a Z-shaped nestbox with an external inspection door. The nestboxes are attached to brickwork, providing privacy from humans and neighbouring birds.

Once pairs were established and egg laying had commenced, the doors to the small enclosures were closed. At the end of the breeding season the doors were re-opened.

**Results**

Although apparently healthy, 43% of the specimens, six cocks and nine hens, exhibited problems related to obesity and stress. Soon after their release into the large central flights, some birds were observed to have difficulty flying. However, as the parrots grew more confident with their surroundings and with their ability to fly, within a week or so they began to adapt well to the new flight. Interestingly, the colour of the birds’ plumage also intensified a few





**Chicks at 15 and 9 days of age.**



**Chicks at 37 and 45 days of age.**

days after being released into the communal flights.

Twenty-seven days after the transfer, two pairs in group A commenced egg laying. Five infertile eggs and one dead-in-shell were recorded in two different nests.

The pairs in group C began the egg-laying phase 36 days after the transfer, with seven infertile eggs recorded from three different nests. On 22 November, a second round of egg laying in three different nests produced a further seven infertile eggs, two dead-in-shell and one fertile egg which was removed for artificial incubation. This fertile egg, weighing 17.1 grams, had probably been laid several days earlier. Its air cell was a little enlarged, and it had lost 14% humidity during incubation. The embryo died.

On 4 October, after 40 days in the large flight, pairs in group B commenced egg laying. From four different nests, seven infertile eggs and two dead-in-shell were recorded. In early December, a hen that had previously produced dead-in-shell, began laying again. Three fertile eggs were removed from the nest for artificial incubation. The hen then laid again. The one fertile egg was left in the nest as it appeared that it was being incubated well. However, after several days, it was observed that the embryo was dead. The cock of this pair is 10 years of age. We do not know the age of the hen. This pair—not paired together in the suspended cages—bonded when they were released into the large communal flight.

When the three eggs were removed for artificial incubation they initially weighed 23.3 grams, 22.6grams and 22.9 grams respectively. They were incubated at a temperature of 37.4°C with 55%

humidity. They lost 13%, 13.3% and 13.5% moisture respectively during incubation. The incubation period lasted 25, 25 and 28 days, the chicks hatching on 26 and 30 December 2005 and 3 January 2006 with weights of 14, 15 and 15 grams respectively.

The second chick died at 12 days of age, weighing 33 grams. However, the other two chicks developed well, as noted in the table below.

	Chick One	Chick Three
Week 1	19	24
Week 2	34	39
Week 3	50	68
Week 4	81	100
Week 5	132	160
Week 6	186	232
Week 7	247	316
Week 8	335	330
Week 9	370	359
Week 10	380	415
Week 11	401	410
Week 12	380	390

The chicks were handreared using Kaytee Exact Hand Feeding Formula™ and were leg-banded at 18 days of age. DNA sexing determined that both chicks were cocks. The weaning process began when the chicks were 8–9 weeks of age. They were fully weaned at 12 weeks of age.

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Chicks at 52 days of age.



Chicks at 80 days of age.

## Conclusions

In captivity this species shows a tendency towards obesity and stress. When confined in small cages, these problems were aggravated, hindering the functioning of several vital organs. After being transferred to larger communal flights that allowed the birds more room to fly, they apparently lost fat and gained muscle, their flying ability visibly enhanced.

Another relevant issue to be evaluated was an increase in aggression as pairs instinctively attempted to protect their territory in the communal flight. Minor squabbling and dominant behaviour were observed. These behaviours, however, did not have serious consequences as the large flights provided enough room for pairs to avoid their aggressors—and plenty of food and water containers.

Hoyo *et al* (1997) states that, in the wild, the Red-browed Amazon can be found at an altitude of up to 900 metres. We can confirm that, even at an altitude of 1030 metres, the species can reproduce. The breeding season, as recorded by Hoyo *et al*, was confirmed, despite having been extended to December in this case. On the other hand, the incubation period was a little longer than the one reported by them.

During the artificial incubation process, we can define a 13% loss of total moisture as favourable to hatch. This is the case if the egg is removed for artificial incubation the day that it has been laid. The group-C egg, which was removed for incubation some days after it had been laid, had already lost a little moisture before the incubation started and the loss of moisture should have been less during the artificial incubation process. The monitoring of the eggs and the individual analysis of each one is extremely relevant to the success of the incubation process.

Although we began with unproductive breeding stock, in the first year 53% of the pairs laid eggs, with some pairs producing a second clutch. Using first-time breeders may be the reason for so many infertile or dead-in-shell eggs—due to faulty

natural incubation.

The young handreared birds became extremely tame, calm, quiet and interacted well with their human carers—reinforcing observations of them in the wild (Hoppe 1992). Their quiet nature makes them suitable as companion birds. Further research into the keeping and breeding of these birds in captivity will hopefully reduce the pressure on their capture in the wild, in the medium term.

Finally, I believe that breeding the Red-browed Amazon in suspended cages is not appropriate. For the mental and physical health of this species, colony aviaries appear to be ideal. Large, communal aviaries will encourage the birds to fly, reducing their tendency to obesity and stimulating competition among individuals. However, attached mating enclosures—similar to the suspended cages traditionally used—with secluded nestboxes, should also be provided. After the egg laying has ceased, the pairs must be re-released into the communal aviary so that they do not become obese and are able to continue to defend their partner and their territory.

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Recommended reading **Amazon Parrots—Aviculture, Trade and Conservation.**

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