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## ***Red-Browed Amazon Parrot - Amazona rhodocorytha* (7/1/98)**

### **Red-Browed Amazon Parrot**

#### **RED-BROWED AMAZON PARROT** Amazona rhodocorytha

**Description:** Commonly named the Red-browed, Red-topped or Red-crowned Amazon parrot, *Amazona rhodocorytha* is among the largest of Amazon parrots, adults reaching 35-40 cm in length and 450-650 g in weight. The obvious feature of the species is the red forehead and crown, which fades toward the nape to a reddish-purple tinged with blue. As with the Blue-cheeked Amazon parrot (*A. d. dufresniana*), the lores are yellow-orange with cheeks and neck blue. Other distinguishing features include a horn-colored upper mandible that becomes pink at the base, an orange-brown iris and grey legs.

**Range:** The Red-brow is locally distributed in small populations in eastern Brazil in Alagoas and from Bahia and eastern Minas Gerais south to Rio de Janeiro.

**Habitat:** Habitat preferences vary seasonally, and extend from humid lowland forests to montane forests (interior highlands to 1000 m) to estuarine mangroves, where Red-brows may be associated with Orange-wing Amazons (*A. amazonica*) during winter foraging trips. Red-brows prefer to roost and feed in the tops of primary forest trees, and at one time were found in large flocks in the forest canopy.

**Diet:** Red-brows consume fruit, seeds, berries and buds taken primarily from forest treetops.

**Social Organization:** Due to decline throughout its range, the ecology of the Red-brow is largely unknown except from anecdotal, historical accounts. In the 1930's, raucous flocks of hundreds of birds congregated in treetops along the banks of the Gongogy River near Boa Nova, Bahia during the non-breeding months. Recently, flocks of up to 49 birds have been spotted, and like other Amazon parrots, the Red-brow likely forms loose foraging groups and roosts in congregations for protection from predators. During the breeding season, males and females defend nesting sites, which are typically naturally occurring cavities in primary rainforest trees. Flocking among juveniles may occur during the breeding season, but nesting birds remain as isolated pairs until the young are fully fledged. Nest site fidelity is high in Amazon parrots, and breeding pairs and young often return to the same nest trees where they were raised.

**Conservation Status:** The Red-brow was listed as CITES Appendix I on 2 June 1970. IUCN classifies the Red-brow endangered, with a small, fragmented range and total species occurrence over less than 5000 sq. km. In addition, the Red-brow has experienced continuing decline in observed areas, and in the extent and/or quality of habitat and number of mature individuals. IUCN estimates a total Red-brow population in the wild of 250 mature individuals or less.

**Threats to Survival:** Once a common parrot in south-eastern Brazil, the Red-brow is now altogether extinct across most of its original range due to deforestation and human encroachment. Unchecked habitat destruction compounded by exploitation for the local pet trade remains the driving force behind the Red-brow's decline in the wild.

**Zoo Programs -- SSP:** Within North America, the Red-brow SSP is managed under the Conservation Program of the Zoological Society of the Palm Beaches, a joint scientific effort linking the Rare Species Conservatory Foundation and the Palm Beach Zoo at Dreher Park. The Foundation owns all of the birds in the North American population except two, confiscated by USFW and placed in the SSP. All birds are currently housed in non-public conservation centers-- one in south Florida and the other in northern Mississippi. The living U.S. population of 30 Red-brows is derived from perhaps 15 wild-caught birds brought into the U.S. during the 1970's and 1980's, most likely imported legally, but mistakenly, as Blue-cheek Amazons (*A. dufresniana*). Eleven founders remain, with the balance representing first- and second-generation domestics. All production in the North American population is derived from founder stock compiled in 1988; since 1992, 20 offspring have been raised from this group, with 18 surviving as of this writing. In Europe, the Red-brow is managed through the EEP Program, coordinated by the Loro Parque Foundation in Tenerife, Canary Islands. The European captive population, while larger (~80), mirrors the demographic and genetic profile of the North American population.

**Conservation:** The Red-browed Amazon's future is most dependent upon the protection of remnant forest areas within its historical range. Extending formal government protection to forest reserve areas is critical to stemming deforestation, and curtailing the hunting of adults for food and nest-robbing of juveniles for the pet trade. A global management plan for captive Red-brows is underway, from which reintroduction may emerge as a conservation strategy, but not without first securing sufficient habitat to sustain wild flocks.

**Education:** The exploitation of Red-brows in the wild can be reduced by education initiatives in areas where birds congregate and/or breed. Establishing a conservation ethic based upon tourism and sustainable, non-destructive forest use will ultimately benefit many species in the lowland rainforests of southeastern Brazil.

**Reintroduction:** To date, no coordinated in situ conservation assessments or mitigations have been initiated for the Red-brow in Brazil. Reintroduction potential is high, however, because the Brazilian captive population, while unquantified, is likely sizeable, and because habitat is currently being protected via other conservation programs (e.g., the International Golden Lion Tamarin Conservation Program). Although law enforcement remains a serious problem, wild Red-brow populations are officially protected by the government in at least eight reserve areas, affording the possibility of eventual release of captive-bred birds into natural social flocks.

**Research:** Major research themes include: narrowing confidence limits on relatedness estimates from fingerprinting analysis; determining the etiology of insect-borne contact dermatitis, especially as regards natural immunity; refining techniques for vaccination against avian pox virus; behavioral studies of flocking behavior; and determining mate selection in social flocks. Relatedness among founders is well understood, with five assays from mini-satellite DNA completed. "Crud," a dermal condition caused by insect bites that plagues immunologically naive birds, is controlled by exposing juveniles to mosquitoes in Florida prior to nine months of age. Avian pox virus, attenuated in lovebirds, proves to be an effective vaccine when applied via wing web trauma. Behavioral studies are ongoing, aiming to optimize breeding in newly matured birds housed in social flocks.

**Comments/Conclusions:** The Red-browed Amazon parrot is experiencing the same demise of many species within southeastern Brazil's remnant Atlantic rainforest. Vast habitat loss during the last century has fragmented the forest to insular islands, and surviving animals must struggle against further deforestation, reduced foraging sites, increased competition for nesting areas and the ever-present threat of capture for the local pet trade. Lessons from other psittacine restoration efforts (e.g., Puerto Rican Amazon parrot, Thick-billed parrot) emphasize the desperation of the current situation with Red-brows. The frailty of remnant captive populations with respect to extinction by disease outbreaks, catastrophes, sex ratio skew and other demographic curses is well-known. Stimulating breeding under artificial circumstances is a serious problem which must

be addressed before the founder animals die of old age. Imprinting, while potentially beneficial for birds to be kept and bred forever in captivity, poses obvious difficulties for reintroduction. Indeed, the general fate of captive birds is at issue, since conserving the species without preserving its native habitat is tantamount to gene banking--a long- term salvage approach with weighty ethical and financial concerns. Rosemary Low wrote in her monograph *Endangered Parrots* (1984): "Were there as many as one dozen pairs in captivity there would be some spark of hope for the future of the Red-browed Amazon. Instead, there is none."

Fourteen years following her discussion, conservation biologists find an opportunity to arrive at a different conclusion. Whereas the Red-brow's status in the wild is likely to remain endangered, prospects for captive propagation have increased considerably in just the last few years. The North American group, which in 1982 numbered only 10-12 birds, now totals 30, and 18 birds have been hatched in captivity in North America. The European EEP for Red-brows is now well established, with coordinated record keeping for birds throughout Europe and increasing rates of production. Within the next few years, the Red-brow SSP and EEP programs should yield a global masterplan for the species, with in situ conservation efforts well underway.

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