

**Conserving Cracids:  
The most Threatened Family of Birds  
in the Americas**



**Edited by Daniel M. Brooks**

**Miscellaneous Publications of  
The Houston Museum of Natural Science, Number 6**

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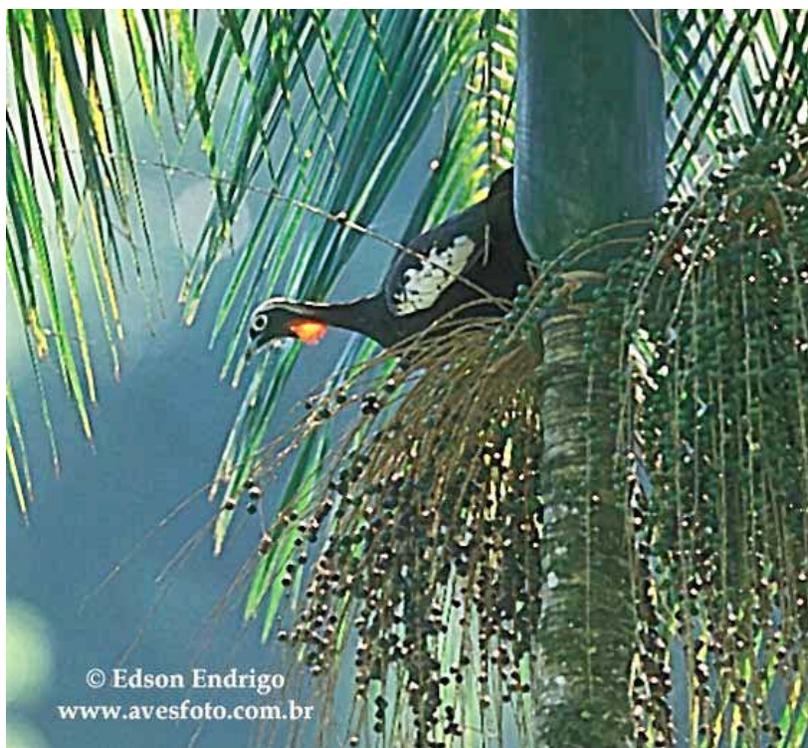
Cover artwork of Alagoas Curassow (*Mitu mitu*) by Jose Merizio

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Black-fronted Piping Guan (*Aburria jacutinga*) photo by E. Endrigo

### Brazil

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The threatened species of cracids listed below are found in Brazil. This country contains many endemic species, including the Alagoas Curassow (*Mitu mitu*) which is now extinct in the wild yet surviving in captivity, as well as the Red-billed Curassow (*Crax blumenbachii*), Chestnut-bellied Guan (*Penelope ochrogaster*), White-browed Guan (*P. jacucaca*), Buff-browed Chachalaca (*Ortalis superciliaris*) and White-crested Guan (*P. pileata*). Other species include the Black-fronted Piping-guan (*Aburria jacutinga*), restricted to fragments of the South Atlantic forest, and the more wide-ranging Bare-faced Curassow (*Crax fasciolata*) and Wattled Curassow (*C. globulosa*), with the latter species restricted to Varzea habitat.

<i>Mitu mitu</i>	Alagoas Curassow	EW
<i>Aburria jacutinga</i>	Black-fronted Piping-guan	EN - A2c,d; A3c,d
<i>Crax blumenbachii</i>	Red-billed Curassow	EN - B1a+b(i,ii,iii,v); C2a(i); D1
<i>Crax globulosa</i>	Wattled Curassow	EN - A2b,c,d; A3b,c,d; C2a(i)
<i>Penelope ochrogaster</i>	Chestnut-bellied Guan	VU - B1a+b(i,ii,iii,iv,v); C2a(i)
<i>Penelope jacucaca</i>	White-browed Guan	VU - A2b,c,d; A3b,c,d
<i>Ortalis superciliaris</i>	Buff-browed Chachalaca	NT - C2a(i)
<i>Penelope pileata</i>	White-crested Guan	NT - C2a(i)
<i>Crax fasciolata</i>	Bare-faced Curassow	NT - A2c,d; A3c,d

## Reserves

The possibility to expand the National Park limits in Bahia for *Crax blumenbachii* needs to be evaluated, as well as stimulating establishment of private reserves, including for forest remnants within the distribution of *C. blumenbachii*. It is essential to incorporate the need to preserve wild *C. blumenbachii* populations by establishing indigenous reserves and/or agricultural settlements, especially within areas of potential *C. blumenbachii* occurrence (e.g., National Parks in southern Bahia State, where economic-ecological zoning is needed), aiming to reduce hunting activities and deforestation, while promoting connectivity among forest fragments in the region.

Expansion of protected areas needs to take place in other areas as well. Protection of deciduous forest remnants in the Urucuia, Paracatu and Preto River valleys (São Francisco basin), as well as habitat in the Paranã River valley is urgent for *Penelope ochrogaster* considering land use changes and current pressure. A conservation unit is also needed in the Arinos region of northwest Minas Gerais for *P. ochrogaster*, and an immediate international campaign is needed to reestablish Araguaia National Park, showing its importance to *P. ochrogaster* and other endangered Brazilian species. Brazil contains the highest population concentrations of *Crax globulosa* in South America due to the greater concentration of varzea, especially in regions such as Mimiraua; it is imperative that appropriate reserves are afforded for this species. Additionally, if *Crax fasciolata pinima* populations are found during intensive surveys, multi-tiered reserve building programs for newly identified populations need to be recommended and facilitated.

It is essential to have effective protection in all reserves within *Crax blumenbachii* distribution (especially Una Biological Reserve, Pau Brasil and Descobrimento National Parks), establishing reserve infrastructure, guard corps, land ownership regularization and removal of former human occupants. It is also important to consolidate existing conservation units and indigenous reserves within the ranges of *Penelope pileata* (especially in the east, where it is most threatened), *Crax fasciolata* (in the Gurupi Biological Reserve and western Maranhão) and *Ortalis superciliaris*.

Habitat restoration is also an important component to reserve conservation. Regarding habitat restoration and protection for *Mitu mitu*, it is important to guide and intensify IPMA's action on forest fragment recovery (i.d., seedling plantation and corridor establishment). The possibility of vegetation restoration in larger forest fragments (Usina Serra Grande and Usina Leão) as potential reintroduction sites needs to be evaluated. Finally, oriented vegetation restoration management techniques need to be evaluated by establishing corridors among forest fragments within the area of *M. mitu* distribution. Habitat recovery is also needed for *Penelope ochrogaster* in the Pantanal, where deciduous forest must be protected on ranches since upland areas are increasingly deforested for pastureland. Additionally, use of fire should be controlled, avoiding upland habitats (especially along the Transpantaneira).

## Research

Broad surveys are needed to locate historical and currently unknown cracid populations. Surveys of historical *Crax blumenbachii* sites are needed to investigate occurrence considering patterns of vegetation distribution and integrity, while searching for new wild populations to determine population size and habitat use. Surveys are also needed to locate, census, assess habitat and determine ranges at both historical and new sites for *Aburria jacutinga* (Atlantic forests of Rio Grande do Sul, Santa Catarina and Parana states), *Penelope ochrogaster* (São Francisco basin and in poorer known areas of the Pantanal along the right bank of the Paraguay River and the Bolivian border), *P. pileata* (southern limits), *Ortalis superciliaris* (eastern limits in Piauí and adjoining Ceará where it is most threatened) and *C. fasciolata pinima*.

Censuses of *Penelope ochrogaster* are needed at Araguaia National Park and other protected areas (including recently created conservation units in the São Francisco basin) to assess current population size. A population dynamics study of *P. ochrogaster* is urgently needed at SESC RPPN in the Pantanal, as populations showed potential for recovery after creation of the reserve; translocation experiments to recolonize *P. ochrogaster* populations in suitable habitat elsewhere might be possible once proper protection measures are met. Populations of *Aburria jacutinga* need to be monitored in known strongholds, including Intervales and Carlos Botelho State Parks; Population Viability Analyses need to be conducted for those localities where censuses have been conducted, and population size is available.

Field research is needed to understand more about general natural history, conservation status and threats for species such as *Penelope jacucaca*, *P. pileata* and *Ortalis superciliaris*. Projects are needed investigating ecology of *Crax blumenbachii* in the Linhares/Sooretama Biological Reserves complex, Una Biological Reserve and Descobrimento National Park. Studies are needed to validate if *Aburria jacutinga* depend on *Euterpe edulis* palms to survive. Reproductive data and a dietary inventory are needed for *P. ochrogaster*.

Taxonomic studies are needed for *Ortalis superciliaris* in its western limits where it may come in contact with *O. motmot ruficeps*. Additionally, taxonomic studies are also needed to determine the status of the Carajás population of *Crax fasciolata*, as well as *C. fasciolata pinima*.

Maps of *Aburria jacutinga* distribution and occurrence need to be developed, highlighting altitudinal gradients of occurrence and areas needing translocated or reintroduced populations.

### **Legal Protection**

It is important to review and modify law enforcement (e.g., hunting, capture, illegal trade and deforestation) to stronger penalties as they relate to *Crax blumenbachii*. Additionally, more effective anti-poaching measures for *Aburria jacutinga* need to be developed at key strongholds by involving indigenous people in the conservation.

### **Education and Outreach**

In relation to public awareness for *Mitu mitu*, it is important to expand the environmental education program, establishing a Visitor's Center at one of the educational sites, as well as producing educational material (papers, folders, lectures, campaigns) and workshops. Additionally, promoting environmental education as it relates to shifting hunting patterns of local people is essential.

Hunting is a scattered yet serious threat because cracids are prized game. Environmental education programs are needed for human communities focusing on change of illegal hunting activities, especially within conservation units (e.g., surrounding the National Parks in Bahia for *Crax blumenbachii*). Local people must be taught that certain cracids are rare species endemic to Brazil, and their presence is potentially profitable for the local economy since birdwatchers want to see rare cracids.

### **Captive Breeding**

Regarding the captive breeding program for *Mitu mitu*, curassows need to be transferred to new breeding centers to increase biological security and increase reproductive chances. It is also

mandatory to insure rigorous segregation of hybrid birds to maintain pure stock, and the use of artificial insemination should be investigated. Finally, creation of both a studbook and captive management protocol is needed to develop standardized methods among separate institutions.

Regarding the captive breeding program for *Crax blumenbachii*, genetic analysis of founder individuals is needed to determine lineages that could orient future pairings, as well as improving genetic diversity of captive populations. Additionally, a new studbook is needed, and private breeders and zoos holding the species need to be integrated by facilitating specimen exchanges following studbook recommendations, and establishing a captive management protocol based on CRAX-Brazil's experience.

A reintroduction protocol needs to be developed for *Crax blumenbachii*, including blood sample collection, and long-term monitoring of released curassows. New reintroduction sites for *C. blumenbachii* need to be evaluated and selected based upon sound viability studies, with several areas in four states recommended: Rio de Janeiro (União and Poço das Antas Biological Reserves, Guapiaçu Biological Station and Desengano State Park); Minas Gerais (Rio Doce State Park and surroundings of Doce river); Espírito Santo (Córrego Grande Biological Reserve) and Bahia (surroundings of Una Biological Reserve, Vera Cruz Station and other private reserves). Protection for all potential reintroduction sites needs to be promoted, while privately owned sites should be upgraded to Private Reserves of Natural Heritage. Ecological, demographic and monitoring studies are needed for reintroduced *C. blumenbachii* populations in Minas Gerais.