CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

December 1995

Report from the workshop held
1-3 October 1994

Edited by
Stuart Strahl, Susie Ellis, Onnie Byers, Chelle Plasse

Compiled by the Workshop Participants

A Collaborative Workshop

Birdlife Int'l/World Pheasant Association/IUCN/SSC Cracidae Specialist Group

AZA Cracid Taxon Advisory Group

EEP Cracid Taxon Advisory Group

IUCN/SSC Conservation Breeding Specialist Group

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CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS AND CHACHALACAS (GALLIFORMES: Cracidae)

Executive Summary

Over the past 20 years, the Family Cracidae has become a focal group for conservation efforts throughout the Neotropics. This family of 50 large, ecologically important primary forest birds is particularly susceptible to human disturbance (both hunting and habitat destruction), and now is considered the most threatened avian group in the region (Strahl, in press). Because of their ethnobiological importance, guans and curassows are primary candidates for use as bio-indicators for monitoring and management of protected areas throughout Latin America, as well as flagship species for the conservation of Neotropical rainforests (Strahl & Grajal, 1991).

Beginning in 1981, a series of three international symposia were held to discuss the status of the Cracidae and to coordinate field investigations and captive management efforts to improve conservation programs for these species (Mexico City, Mexico 1981, Caracas, Venezuela 1988, Houston, Texas, USA 1994). In total, more than 300 attendees participated at these three conferences in establishing conservation guidelines for the Cracidae. As a result of these initiatives, the Cracid Specialist Group (CSG) was formed in 1990 under the auspices of the World Pheasant Association, BirdLife International and the Species Survival Commission of IUCN - The World Conservation Union.

From 1989-1994, the CSG has operated under the guidelines of a draft Action Plan (a result of the Venezuelan Cracid Symposium). More than 20 field surveys and investigations were undertaken during this period, and the resultant data has indicated further emphases for action as well as the need for a Conservation Assessment and Management Plan (CAMP). With the draft Action Plan as a working document for the process of long-range planning, key members of the CSG and the North American and European Cracid Taxon Advisory Groups (of AZA and EEP, respectively) met in the fall of 1994 to critically review the CSG Plan and to undertake the CAMP process.

This document is a result of the conservation workshops held at the Third International Cracidae Meeting, coupled with the data compiled at the first CAMP for the Cracidae. Held in Houston from 28 September - 3 October 1994, the meeting was sponsored by the Houston Zoological Gardens, the Zoological Society of Houston, Stichting Crax of Holland, the Cracidae Specialist Group, and the North American Cracid TAG with support from White Oak Plantation. A total of 48 participants from 12 countries reviewed available data for the Cracidae and discussed the status of wild and captive populations of these species. Considerable emphasis was placed on in-situ programs, and the development of regional networks among Latin American researchers.

Plenary sessions in the meeting concerned updates on the status and biology of the Cracidae in the field, and on new techniques in their conservation. Highlights of the first day included:

* Educational programs to reduce poaching in Venezuelan National Parks (José Lorenzo Silva);
* Preliminary results from DNA phylogenetic studies (Patricia Escalante - Mexico);
* Detailed field studies of curassow life histories (Marcela Santamaría, Anna María Franco, Marisol Escaño - Colombia);
* Extensive surveys of Cracidae in Bolivia (Guy Cox), Venezuela (José Lorenzo Silva) and Costa Rica (Rodrigo Avila, Cecilia Pacheco);
* Successful reintroduction pilot studies for an endangered Brazilian curassow, *Crax blumenbachii* (Roberto Azeredo and James Simpson);
* Species accounts and conservation programs for *Penelope albipennis* (Victor Raúl Díaz, Gustavo del Solar), *Oreophasis derbianus* (Fernando Gonzalez-García, Santiago Billy) and others;
* Restoration ecology and translocations of *Ortalis vetula* in Texas (Gary Waggerman).

Of paramount importance were the applications of advanced technology to conservation of cracids by Latin American scientists. The DNA work begun by Patricia Escalante in Mexico will establish firm guidelines for the much-disputed taxonomy of the Cracidae. Reintroduction studies in Brazil by members of the Crax Foundation with support from Stichting Crax have pioneered new techniques for future *in-situ/ex-situ* interventions for endangered species.

On the second and subsequent days, the participants broke up into working groups for Mesoamerica, Northern South America, Southwestern South America, and Brazil to discuss regional emphases for threatened species and conservation programs. The results of these sessions included estimates of status and threats affecting each subspecies of cracid, as well as recommendations for field and captive research. Regional groups met several times in plenary sessions to review common issues and to engage in discussions of species priorities and global concerns. The CAMP process was undertaken on the last two days of the meeting as a collaborative workshop between members of the CSG, the AZA Cracid TAG, the EEP Cracid TAG, Stichting Crax, and the Crax Foundation of Brazil and facilitated by Susie Ellis and Onnie Byers of the IUCN/SSC Conservation Breeding Specialist Group.

The results of the meeting and the CAMP underline the need for further collaborative efforts to conserve guans, curassows and chachalacas. The deteriorating conservation status of several species, even during the brief six-year period since the last symposium, emphasized the need for immediate action. The participants reached consensus that efforts to conserve these species should focus on field programs, and that additional information on cracid ecology and ethnobiology are of vital importance. However, these studies should not be undertaken to the exclusion of captive management programs

aimed at improving the condition of endangered species, particularly when such programs complement field initiatives. In addition to the growing expertise in husbandry techniques, reintroduction/translocation efforts for the Cracidae have been successfully implemented in several countries. These should become the focus of collaborative projects in coming years.

Summary of CAMP Recommendations

One hundred twenty-nine distinct cracid taxa (subspecies or species if no subspecies are contained therein or regional populations of species or subspecies) were considered by the Cracid Conservation Assessment and Management Plan. Of the 129 taxa, 59 (46%) were assigned to one of three categories of threat, based on the New IUCN Red List criteria:

Extinct in Wild	1 taxon
Critical	12 taxa
Endangered	15 taxa
Vulnerable	34 taxa
Low Risk	55 taxa
Data Deficient	5 taxa

Taxa within each of the threatened categories were:

Critical

Ortalis vetula deschauenseei
Penelope perspicax
Penelope albipennis
Penelope jacucaca
Pipile pipile
Pipile jacutinga
Oreophasis derbianus
Crax rubra griscomi
Crax alberti
Crax fasciolata pinima
Crax globulosa
Crax blumenbachii

Endangered

Ortalis erythroptera
Penelope obscura obscura
Penelope argyrotis colombiana
Penelope barbata
Pipile cujubi nattererei
Pipile jacutinga
Aburria aburri
Chamaepetes unicolor
Penelopina nigra

Pauxi pauxi pauxi
Pauxi pauxi gilliardi
Pauxi unicornis koepckeae
Crax rubra rubra
Crax globulosa

Vulnerable.
Pauxi unicornis
Crax daubentoni
Crax fasciolata
Pauxi unicornis unicornis
Crax rubra rubra
Penelope barbata
Mitu salvini
Pipile cujubi nattererei
Aburria aburri
Chamaepetes goudotii sanctaemarthae
Pipile cujubi cujubi
Penelope obscura bronzina
Penelope dabbenei
Penelope ochrogaster
Penelope montagnii atrogularis
Penelope ortoni
Penelope pileata
Ortalis guttata squamata
Ortalis guttata araucuan
Mitu salvini
Ortalis superciliaris
Ortalis motmot ruficeps
Penelope argyrotis albicauda
Penelope purpurascens aequatorialis
Penelope purpurascens purpurascens
Penelope obscura obscura
Penelope superciliaris major
Crax globulosa
Ortalis wagleri
Chamaepetes goudotii rufiventris
Penelope purpurascens brunnescens
Pipile cumanensis grayi
Crax fasciolata fasciolata
Pipile cumanensis cumanensis
(* Note: because taxa were evaluated on a population basis, some are listed under two categories. Refer to working group reports in the CAMP document.)

Fourteen of the 129 taxa (11%) were recommended for Population and Habitat Viability Assessment (PHVA) workshops. Tentative or "pending" PHVA workshops were

recommended for 24 taxa (19%).

Recommendations for Research Management reflected the scarcity of field data regarding cracids:

Monitoring	94 taxa
Survey	89 taxa
Life history research	86 taxa
Taxonomic research	52 taxa
Habitat management	42 taxa
Limiting factors management	32 taxa
Limiting factors research	27 taxa
Translocation	10 taxa
Husbandry research	7 taxa

For many taxa, more than one type of research management was recommended. It was the consensus of the workshop participants that field investigations and management programs to aid conservation of cracid species *in situ* should be the highest priority among all activities recommended by the CAMP. We especially lack data from the field: surveys, ecological studies and applied investigations of cracid biology (including ethnobiological investigations of hunting and habitat modification pressures affecting guans, curassows and chachalacas) are of paramount importance. Monitoring of cracid populations is also a high priority, particularly when undertaken in conjunction with larger scale programs to monitor the status and ecological health of protected areas and other natural habitats.

Sixty-eight of the 129 Cracid taxa (53%) were recommended for one of three levels of captive programs (based in part on New IUCN Red List criteria):

Level 1	32 taxa
Level 2	11 taxa
Level 3	25 taxa

Captive programs for 24 taxa were listed as "pending," meaning that recommendations for such would be postponed until further information was available, either from survey, a PHVA, or from sources which need to be queried. Thirty-five taxa were identified as not requiring captive programs.

The participants in the Third Cracidae Symposium and the CAMP meeting wish to emphasize that we do not view the recommendations of this document as "stand-alone" initiatives. Rather, the reader is encouraged to see these activities as components of the overall need for the conservation of Neotropical ecosystems. The Cracidae are excellent candidates (as bio-indicators, key species or flagships) to help facilitate larger-scale conservation programs. We therefore urge their inclusion in the planning stages of

projects related to research, monitoring and management of Neotropical rainforests, protected areas and other natural ecosystems.

Stuart D. Strahl, Chair
Cracid Specialist Group

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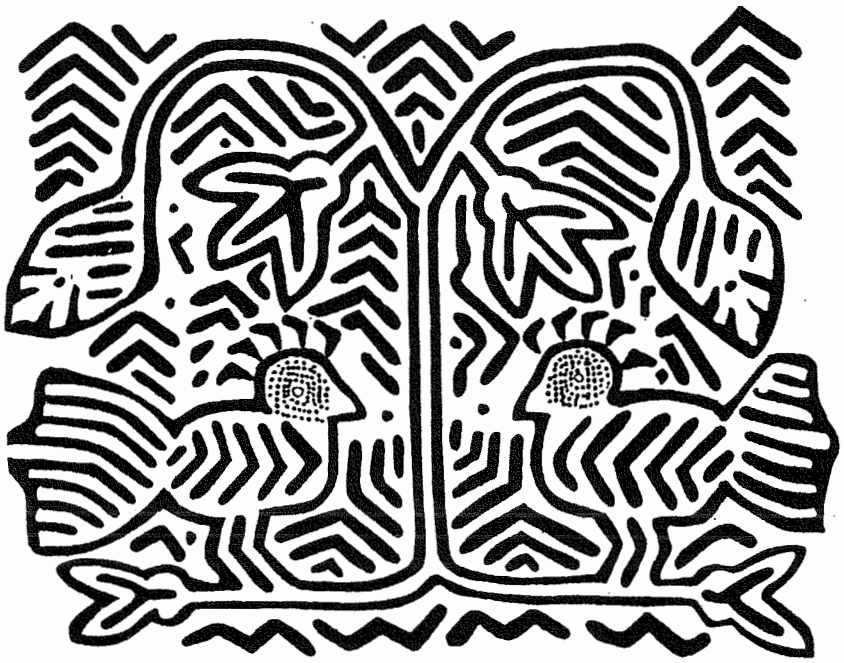

SECTION 1

WORKSHOP SUMMARY AND RECOMMENDATIONS

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

Introduction

Reduction and fragmentation of wildlife populations and habitat are occurring at a rapid and accelerating rate worldwide. For an increasing number of taxa, this results in small and isolated populations at risk of extinction. A rapidly expanding human population, now estimated at 5.25 billion, is expected to increase to 8 billion by the year 2025. This expansion and concomitant utilization of resources has momentum that cannot be stopped, the result being a decreased capacity for all other species to simultaneously exist on the planet.

In Latin America, habitat destruction and the overexploitation of wildlife have become increasing threats to the survival of natural environments. As wildlife populations are diminished through hunting and fragmentation, their ecological roles in ensuring a well-balanced, regulated and sustainable ecosystem are also reduced. Still, most conservation actions are directed toward the protection of habitat and reserves, rather than the conservation and management of the wildlife components which are critical to the long-term survival of Neotropical ecosystems.

Wildlife biologists realize that management strategies must be adopted that will reduce the risk of species depletion in order to ensure viable ecosystem functions. These strategies will be global in nature and will include habitat preservation, intensified information gathering in the field, investigations regarding the ecological roles of key species, the development of improved biological monitoring techniques, and in some cases, scientifically managed captive populations that can interact genetically and demographically with wild populations.

The successful conservation of wild species and ecosystems necessitates development and implementation of active field preservation and management programs by people and governments living alongside that ecosystem. The recommendations contained within this document are based on conservation need only; adjustments for political and other constraints are the responsibility of regional governmental and non-governmental agencies charged with the preservation of flora and fauna within their respective countries.

Conservation Assessment and Management Plans (CAMPs)

Within the Species Survival Commission (SSC) of IUCN-The World Conservation Union, the primary goal of the Conservation Breeding Specialist Group (CBSG) is to

contribute to the development of holistic and viable conservation strategies and management action plans. Toward this goal, CBSG is collaborating with agencies and other Specialist Groups worldwide in the development of scientifically-based processes, on both a global and regional basis, with the goal of facilitating an integrated approach to species management for conservation. One tool used in this process is called Conservation Assessment and Management Plan (CAMP).

CAMPs provide strategic guidance for the conservation of threatened taxa. This may include recommendations for field investigations and improved data-gathering methods, as well as the application of intensive management techniques that are increasingly required for survival and recovery of threatened taxa. The CAMP process ensures an objective overall view of the status of the taxa in question with the intent of improving the effectiveness and synergy of conservation efforts. CAMPs are also one means of testing the applicability of the New IUCN Red List criteria for threat (Mace et al., 1994) as well as the scope of its applicability. Additionally, CAMPs are an attempt to produce ongoing summaries of current data for groups of taxa, providing a mechanism for recording and tracking of species status.

CAMP recommendations are broad-based: of paramount importance are those recommendations related to field surveys, applied investigations and *in situ* conservation and management programs. Ultimately, the survival of taxa in the wild will depend on the availability of field data regarding the status of natural populations, the ecological role of the species (and its interdependence on other taxa), life history parameters, and applied investigations related to management and conservation. Where such data are lacking, a primary recommendation of the CAMP will be to stimulate their collection.

In addition to management of taxa in their natural habitat, conservation programs leading to viable populations of threatened species may sometimes need a captive component. In general, captive populations and programs can serve several roles in holistic conservation:
1) as genetic and demographic reservoirs that can be used to reinforce wild populations either by revitalizing populations that are languishing in natural habitats or by re-establishing by translocation populations that have become depleted or extinct; 2) by providing scientific resources for information and technology that can be used to protect and manage wild populations; and 3) as living ambassadors that can educate the public as well as generate funds for *in situ* conservation.

Captive management programs should only be developed in conjunction with ongoing field investigations and conservation initiatives. This document does not intend to promote the establishment of captive programs in isolation from *in situ* programs. Rather, it is proposed that, when captive populations can assist species conservation, captive and wild populations should, and can be, intensively and interactively managed

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together. For instance, with the development of appropriate techniques, interchanges of animals between captive and wild populations can be undertaken as needed and as feasible to maintain genetic and demographic viability of the species in the field.

Captive populations should be a support, not a substitute for wild populations. There may also be problems with interchange between captive and wild populations with regard to disease, logistics, and financial limitations. In the face of the immense extinction crisis facing many taxa, these issues must be addressed and resolved immediately.

An Overview of the Family Cracidae

Taxonomy and Genetics. Taxonomy serves to identify populations of animals on the basis of their similarities and differences. Thus, a correct classification of taxa is an important instrument for conservation. The systematics of the Cracidae deserves further attention, to different extents according to the various taxa.

As described in the draft Cracid Action Plan (Strahl, in press) and emphasized at this workshop, the genetic relationships between genera, species and subspecies of cracids are in urgent need of clarification. This information is necessary to determine the most suitable long-term management plan for the Family as a whole. Workshop participants were in agreement that although many of these classifications need to be reviewed and supported by genetic analyses, the taxonomic reference list presented in Appendix I was the most appropriate.

Over the past 25 years there has been considerable debate over the taxonomy of the family Cracidae. The most recent of these, which has not been incorporated into this document, separates the entire family (along with the megapodes) into the separate order Craciformes (Sibley et al., 1988). Meanwhile, the extensive works of Vaurie (e.g., 1968) have been widely revised by a number of authors. The most radical divergences from Vaurie come from Delacour and Amadon (1973), whose classification has remained somewhat controversial.

Little work has been carried out on the taxonomy of this group since the publication of Delacour and Amadon's book, however, and there remains a great deal of variation in the use of cracid genera, species, and subspecies in the literature. There is a strong need for standardization of the taxonomic classification of the Cracidae, especially in light of their endangered status throughout Latin America.

The classification adopted within this document (as well as within the draft Cracid Action Plan) is a compilation of cracid nomenclature, roughly following Sibley and Monroe (1992), Blake (1977), Vaurie (1968), and to a lesser degree, Delacour and Amadon (1973). This classification is intended to be somewhat conservative to ensure

that proper attention is given to unique forms whose status is uncertain. However, with one or two exceptions, we have not diverged greatly from recognized authorities on this subject. Although some authors heavily favor merging species and genera within the family (e.g., Delacour & Amadon, 1973), such taxonomic mergers obscure the biological/genetic diversity of distinctive evolutionary and ecological groups. Furthermore, the 'lumping' of these groups has not been fully accepted by ornithologists.

This classification is presented more fully in the Cracid Action Plan and has been modified through discussions and input from international experts on the Cracidae during and after the Second and Third International Cracid Symposia, and reflects the opinions of the majority of reviewers.

Status. It has been estimated that roughly 400 of the 3,800 avian species found in the Neotropics are threatened or endangered, representing nearly 11% of the avifauna of the region (World Resources Institute, 1988; Collar & Andrew, 1988; Collar et al., 1992). These alarming figures are the direct results of the increasing rates of habitat destruction and other forms of human intervention that currently plague the region. A disproportionately large number of endangered species are found within several avian groups due to their reliance on the disappearing primary forest habitat and/or their local use as food by subsistence and market hunters.

The family Cracidae (guans, curassows, and chachalacas) illustrates such a group. This endemic Neotropical family of large, forest-dwelling, primarily frugivorous birds is the most endangered avian taxonomic group in the region. In addition to being dependent on primary forest for their survival, the majority of Cracid species are heavily hunted throughout Latin America as the primary avian source of bush meat.

Threats to Cracids

Mesoamerican region. The greatest threat for Cracidae in the Mesoamerica region is the continuing loss and widespread fragmentation of their habitat. The continued reduction in the extent and continuity of Central American rainforests due to the encroachment of agriculture, cattle ranching and invasion by colonists using slash-and-burn farming techniques has severely reduced cracid populations. In the Central American countries, there are few protected areas larger than 20-40,000 hectares. Most of the remaining natural areas outside of such reserves are too small to sustain demographically and genetically viable populations, and those which do house potentially-viable populations of cracids are coming under increasing pressure from human disturbance. Even within existing parks and reserves, hunting pressures have reduced cracid populations to very low densities.

There is a need to conduct some taxonomic studies on several species and subspecies in

the Mesoamerican region to determine if the current taxonomy is accurate and whether several species and subspecies are valid separate taxonomic units. These determinations will impact the priorities for their conservation through captive breeding, reintroduction potentials, and the needs for protecting habitats.

Northern South America - Colombia, Venezuela, Ecuador, the Guianas. The taxonomic forms of the family Cracidae in the northern South America region face a considerable range of threats, especially from hunting and loss of habitat. The former is attributed mainly to people from indigenous and other local communities who engage in subsistence and/or market hunting. Within the region, widespread loss of habitat has been due to commercial logging, clearance for agriculture, small-holdings and urbanization, and gradual colonization through new routes of access into pristine areas. In addition to an absolute reduction in the area of suitable habitats, these same forces have caused substantial fragmentation of these habitats, especially along the Andean slopes and river valleys of Colombia, the north of Venezuela and the Pacific slope and Andean regions of Ecuador. Thus, the cracid species with geographical distributions corresponding to these areas are those most seriously affected by this process.

Other less serious factors affecting the Cracidae in Northern South America include human interference and disturbance (distinct from hunting and habitat clearance). Dangers also are present to field workers in certain areas due to the presence of guerrillas and/or drug-related activities. These sometimes limit field investigations and management which could aid the conservation of the species concerned.

Within a region with such a wide range of topographies, altitudes and ecosystems, the potential for taxonomic distinctiveness is great. Unfortunately, for several reasons (including previous absence of techniques for genetic differentiation) our state of knowledge on the differentiation of Cracidae taxa, mainly at the subspecies level, is insufficient. This renders it more difficult to delimit the geographical ranges, population sizes and also the effects of the creation of sub-populations through the process of habitat fragmentation.

Southwestern South America - Peru, Bolivia, Argentina and Paraguay. The major threat to Cracids in Peru, especially in lowland areas, and Bolivia, is hunting. In Peru, Cracids are widely hunted by subsistence farmers and colonists, and the area affected by hunting is far greater than associated habitat alteration for agriculture. In coastal areas and western Andean slopes of Peru, loss of habitat is of equal importance as hunting. In Bolivia, hunting by logging crews and colonists is probably the major cause of population reduction in the more remote and uninhabited areas, but subsistence and market hunters also make use of Cracids for food in these regions.

Hunting was identified as secondary to habitat loss as a threat to cracid populations in

Argentina. Loss of habitat is most acute in Misiones in northeastern Argentina. Argentinian hunters take mainly *Crax fasciolata* (the largest Argentinian cracid), which is not known to occur in any protected area in that country. Threats to Paraguayan cracids were not fully known, but include loss of habitat to agriculture and flooding of riparian forest as a result of dam construction.

Other threats to cracids in southwestern South America include the ineffectiveness of protected areas to secure populations against human incursion and hunting, colonization of forested areas resulting in conversion to agricultural uses, development projects opening roads to previously inaccessible areas, and the conversion of forested areas to large-scale agricultural production.

Brazil. Cracids in Brazil are faced with a number of serious threats including hunting for food and rural markets, habitat loss, fragmentation due to human interference, and the collection of live specimens for trade. In the eastern and northeastern portions of the country, much cracid habitat already has been severely altered. It is in these regions that the majority of threatened forms are found. Vast areas of forest in other sections of Brazil also are coming under pressure for colonization and development, and there is increasing impact on remaining primary habitat for the Cracidae throughout the country.

As in other regions, there is a chronic lack of reliable field data on the Cracidae of Brazil from which conservation recommendations can be implemented. This has resulted in delays in the initiation of the proper species and habitat management measures. The taxonomic status and actual ranges of certain subspecies, such as *Ortalis spp.*, *Penelope spp.*, and *Pipile spp.* are poorly documented. There is little reliable population data on which to make population estimates, resulting in the utilization of indirect information, such as remaining available habitat on which to base population estimates.

This meeting was an important first step in the development of a cohesive conservation effort for the Cracidae in Brazil, especially the more threatened taxa. Considering that the only cracid species that is extinct in the wild is (was) endemic to Brazil (*Mitu mitu*), it was felt that the Brazilian government and scientific community should take an active role in the development of a conservation plan for its endangered cracids and their habitats.

The Cracid CAMP Process

The CAMP process assembles expertise on wild and captive management for the taxonomic group under review in an intensive and interactive workshop format. The purpose of the Cracid Conservation Assessment and Management Plan (CAMP) workshop was to assist in the further development of a conservation strategy for Cracids. On 1-3 October 1994, 28 individuals met in Houston, Texas to review, refine, and

develop further conservation strategies for Cracidae. This workshop was held in conjunction with the Third International Cracid Meeting. Participants in the workshop are listed in Appendix III.

Participants worked together to: 1) determine best estimates of the status of all Cracidae; 2) assign each taxon to a New IUCN Red List category of threat; and 3) identify areas of action and information needed for conservation and management purposes. Much of this information was presented in the draft BirdLife International/World Pheasant Association/ IUCN/SSC Cracid Action Plan, which was used extensively as a reference during the CAMP process.

Participants in the CAMP divided into regional workshops for Mesoamerica, Northern South America, Southwestern South America and Brazil. These groups met periodically in plenary sessions to compare results and consolidate information. The assessments and recommendations of the working group were circulated to the entire group prior to final consensus, as represented in this document. Summary recommendations concerning research management, field initiatives, assignment of all taxa to threatened status, and captive breeding were supported by the workshop participants.

CAMP Workshop Goals

The goals of the Cracid CAMP workshop were:

1) To review the population status and demographic trends for Cracidae, to test the applicability of the New IUCN Red List criteria for threat, and to discuss management options for Cracid taxa.

2) To provide recommendations for *in situ* management, research and information-gathering for all Cracid taxa, including: field investigations; surveys, population monitoring and investigation of limiting factors; taxonomic studies; recommendations for PHVA workshops; more intensive management in the wild; or other specific research.

3) To provide recommendations for *ex situ* management and research for the Cracidae, including husbandry, maintenance of viable captive populations of the more threatened species (where feasible and desirable) and the development of collaborative captive/field programs.

4) Produce a discussion draft Conservation Assessment and Management Plan for Cracidae, presenting the recommendations from the workshop, for distribution to and review by workshop participants and all parties interested in Cracid conservation.

The New IUCN Red List Categories

The threatened species categories now used in IUCN Red Data Books and Red Lists have been in place, with some modification, for almost 30 years (Mace et al., 1994). The Mace-Lande criteria (Mace & Lande, 1991) were one developmental step in an attempt to make those categories more explicit. These criteria subsequently have been revised and formulated into New IUCN Red List Categories (Mace *et al.*, 1994), which are being tested in the CAMP process.

During the Cracid CAMP, all Cracidae taxa were evaluated on a taxon-by-taxon basis in terms of their current and projected status in the wild to assign priorities for conservation action or information-gathering activities. Data used in this evaluation were on a best-estimate basis as gathered by workshop participants, and are subject to further review by other experts in the field.

The New IUCN Red List Categories provide a system which facilitates comparisons across widely different taxa, and is based both on population and distribution criteria. Like the Mace-Lande criteria, the new criteria can be applied to any taxonomic unit at or below the species level, with sufficient range among the different criteria to enable the appropriate listing of taxa from the complete spectrum of taxa, with the exception of micro-organisms.

The categories of Critical, Endangered, and Vulnerable are all nested (i.e., if a taxa qualifies for Critical, it also qualifies for Endangered and Vulnerable). The New IUCN Red List Categories are:

EXTINCT (EX)
A taxon is **Extinct** when there is no reasonable doubt that its last individual has died.

EXTINCT IN THE WILD (EW)
A taxon is **Extinct in the Wild** when it is known only to survive in cultivation, in captivity, or as a naturalized population (or population) well outside the past range.

CRITICAL (CR)
A taxon is **Critical** when it is facing an extremely high risk of extinction in the wild in the immediate future as defined by the criteria listed in Table 4.

ENDANGERED (EN)
A taxon is **Endangered** when it is not Critical but is facing a very high risk of extinction in the wild in the near future, as defined by the criteria listed in Table 4.

VULNERABLE (VU)
A taxon is **Vulnerable** when it is not Critical or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by the criteria listed in Table 4.

CONSERVATION DEPENDENT (CD)
Taxa which do not currently qualify under any of the categories above may be classified as **Conservation Dependent**. To be considered **Conservation Dependent**, a taxon must be the focus of a continuing taxon-specific or habitat-specific conservation program which directly affects the taxon in question. The cessation of this program would result in the taxon qualifying for one of the threatened categories above.

LOW RISK (LR)
A taxon is **Low Risk** when it has been evaluated and does not qualify for any of the categories Critical, Endangered, Vulnerable, Susceptible, Conservation Dependent, or Data Deficient.

DATA DEFICIENT (DD)
A taxon is **Data Deficient** when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.

NOT EVALUATED (NE) A taxon is **Not Evaluated** when it has not yet been assessed against the criteria.

Definitions of these criteria are based on population viability theory. In assessing threat according to New IUCN Red List criteria, workshop participants also used information on the status and interaction of habitat and other characteristics (Table 1). Information about population trends, fragmentation, range, and stochastic environmental events, real and potential, also were considered.

To assist in making recommendations, participants in the workshop were encouraged to be as quantitative or numerate as possible for two reasons: 1) CAMPs ultimately must establish numerical objectives for viable population sizes and distributions; 2) numbers provide for more objectivity, less ambiguity, more comparability, better communication, and, hence, cooperation. During the workshop, there were many attempts to estimate if the total population of each taxon was greater or less than the numerical thresholds for the three Mace-Lande categories of threat. In many cases, current population estimates for Cracid taxa were unavailable or available for species/subspecies within a limited part of their distribution. In all cases, conservative numerical estimates were used. **When population numbers were estimated, these estimates represented first-attempt, order-of-magnitude educated guesses that were hypotheses for falsification. As such, the workshop participants emphasized that these estimates should not be authoritative for any other purpose than was intended by this process.**

Table 1. NEW IUCN RED LIST CATEGORIES - FEBRUARY 1994

ANY of the following criteria may be used to assign categories:	CRITICAL	ENDANGERED	VULNERABLE
Population reduction	≥ 80% decline in last 10 yrs based on:	≥ 50% decline in last 10 yrs or 2 generations based on:	≥ 50% decline in last 20 yrs or 5 generations based on:
	a) direct observation OR b) decline in area of occupancy, occurrence and/or habitat quality OR c) actual or potential levels of exploitation OR d) introd. taxa, hybridization, pathogens, pollutants, competitors or parasites		
	OR	OR	OR
	≥ 80% decline/10yrs predicted in near future	≥ 50% decline/10 yrs or 2 generations predicted in near future	≥ 50% decline/20 yrs or 5 generations predicted in near future
Extent of occurrence	Est. <100 km^2 or area of occupancy est. <10 km^2, AND TWO of the following:	Est. <5,000 km^2 or area of occupancy est. <500 km^2, AND TWO of the following:	Est. <20,000 km^2 or area of occupancy est. <2,000 km^2, AND TWO of the following:
	Severely fragmented OR single location.	Severely fragmented OR ≤ 5 locations	Severely fragmented OR ≤ 10 locations
	Decline in ANY of the following: a) extent of occurrence b) area of occupancy c) area, extent, and/or quality of habitat d) # of locations or subpopulations e) # of mature individuals		
	Extreme fluctuations in ANY of the following: a) extent of occurrence b) area of occupancy c) # of locations or subpopulations		
Population estimates	Est. <250 mature indivs. AND:	Est. <2,500 mature indivs. AND:	Est. <10,000 mature indivs. AND:
	Decline ≥25% within 3 yrs or one generation, whichever is longer	Decline ≥15% within 5 yrs or 2 generations, whichever is longer	Decline ≥20% within 10 yrs or 3 generations, whichever is longer
	OR	OR	OR
	Decline in mature individuals AND population structure EITHER a) no pop. w/>50 mature indivs. OR b) all indivs. in single subpop.	Decline in mature individuals AND population structure EITHER a) no pop. w/>250 mature indivs. OR b) all indivs. in single subpop.	Decline in mature individuals AND population structure EITHER a) no pop. w/>1,000 mature indivs. OR b) all indivs. in single subpop.
# of mature individuals	Est. < 50 mature individuals	Est. < 250 mature individuals	Est. < 1,000 mature individuals
Probability of extinction	≥ 50% within in 5 yrs or 2 generations, whichever is longer	≥ 20% within 20 yrs or 5 generations, whichever is longer.	≥ 10% within 100 yrs

New IUCN Red List categories for the 129 taxa examined during this CAMP exercise are presented in Table 2. Specific taxa within each New IUCN Red List category are presented in Tables 5-10 in Section 2. Table 11 in Section 2 shows the New IUCN Red List categorization and recommendations for all Cracid taxa.

Table 2. Threatened Cracid Taxa - New IUCN Red List Categories of Threat.

NEW IUCN RED LIST CATEGORY	NUMBER OF TAXA	PERCENT OF TOTAL
Extinct in Wild	1	1
Critical	12	9
Endangered	15	12
Vulnerable	34	27
Conservation Dependent	7	5
Low Risk	55	43
Data Deficient	5	3
TOTAL	129	100

Recommendations for Intensive Management and Research Actions

Although threat processes and their gross effects on cracids are evident, the amount of information available for the Cracidae throughout the Neotropics from field study and management is scarce. For this reason the recommendations for most species reviewed in this workshop include surveys, monitoring and life-history studies, along with ethnozoological investigations of the extent of human-wildlife conflicts and hunting pressure. However, for those endangered and vulnerable species which may be more negatively affected we recommend additional measures. These include the management and protection of habitat, as well as research and management aimed at controlling or eliminating the factors that limit cracid populations. Because of the uncertainty of taxonomic status, studies directed at resolving such limiting factors are strongly recommended.

We have identified the need for the development of coordinated efforts with rural assistance and land management programs throughout the region so that the negative

effect on wildlife populations due to subsistence hunting for food, habitat destruction and the introduction of exotic animals can be reduced. Combined with these, community-based environmental education programs can be a useful tool to augment the effectiveness of conservation initiatives. As large "flagship" species, cracids may be particularly useful in community-based education programs oriented towards the conservation of Neotropical ecosystems.

Workshop participants attempted to develop an integrated approach to management and research actions needed for the conservation of all Cracid taxa. In all cases, an attempt was made to make management and research recommendations based on the various levels of threat impinging on the taxa. For the purposes of the CAMP process, threats were defined as "immediate or predicted events that are or may cause significant population declines."

With only partial understanding of underlying causes for decline in some taxa, it was sometimes difficult to clearly define specific management actions needed for the conservation. Therefore, "research management" must become a component of conservation and recovery activities. Research management can be defined as a management program which includes a strong feedback between management activities and an evaluation of the efficacy of the management, as well as response of the Cracid taxa to that activity. Seven basic categories of research management activities were identified: survey (e.g., search and find); monitoring; translocation; taxonomic research or clarification; management of limiting factors; limiting factors research; and life history research. The frequent need for survey information to evaluate population status, especially for those taxa listed as Critical, emphasizes the need to quickly implement intensive survey methodologies. Research management recommendations are summarized in Table 3. Additional detail on specific research and management recommendations can be found in the Draft Cracid Action Plan and Strahl (in press).

For all taxa, recommendations were generated for the kinds of intensive action necessary, both in terms of management and research, that were felt to be necessary for conservation. These recommendations, summarized in Table 3, were: *in situ* management and research; Population and Habitat Viability Assessment (PHVA) workshops; and captive programs. PHVA workshops provide a means of assembling available detailed biological information on the respective taxa, evaluating the threats to their habitat, development of management scenarios with immediate and 100-year time-scales, and the formulation of specific adaptive management plans with the aid of simulation models. In many cases, workshop participants determined that the current level of information for a taxa was not adequate for conduction of a PHVA; in those cases, recommendations are listed as "PHVA Pending."

Table 3. Research management recommendations for Cracids.

NEW IUCN RED LIST CATEGORY	PHVA	PHVA PEND	SURV	MON	LIFE HIST RES	LIM FAC RES	LIM FAC MGT	HAB MGT	TAX RES	TRLC	HUS
Extinct in Wild	1	0	0	0	0	0	0	1	1	1	1
Critical	6	5	8	11	8	4	7	10	6	3	1
Endangered	7	7	12	14	10	4	7	8	8	2	0
Vulnerable	0	12	30	32	21	15	10	15	11	4	2
Conservation Dependent	0	0	2	7	3	0	4	5	0	0	0
Low Risk	0	0	32	29	44	4	3	3	23	0	3
Data Deficient	0	0	5	1	0	0	1	0	3	0	0
TOTAL	14	24	89	94	86	27	32	42	52	10	7

Captive Program Recommendations

For a few of the Cracidae taxa, it was determined that a captive component would be necessary to contribute to the maintenance of long-term viable populations. It is proposed that, when captive populations can assist species conservation, captive and wild populations can and should be intensively and interactively managed with interchanges of animals occurring as needed and as feasible. There may be problems with interchange between captive and wild populations with regard to disease, logistics, and financial limitations.

Today, as more and more species are threatened with population declines, cooperative recovery programs, including both zoos and the private sector, may provide a major avenue for survival. This cooperation must include support for field research, habitat conservation, as well as public education.

There is a demonstrated need to coordinate and review *in situ* and *ex situ* programs for the cracid species which are considered critical, endangered, or vulnerable. Captive populations of species considered in any of the threatened categories should generally be obtained from areas where the birds and/or the habitats can not be protected sufficiently to preserve the species. This may mean collecting, salvaging, or even purchasing birds for the captive program only if such activities will not have a further detrimental affect on the wild population, or the attitudes of local people or governments.

Obtaining additional birds from the wild to augment a captive population should only be sought after a careful review of the captive population has been made and there is a

demonstrated management or genetic need for additional birds. Such birds must be obtained from locations and in ways that do not further threaten the species or any local populations (unless such a local population is destined to be destroyed by other activities which can not be controlled).

When *ex situ* management was recommended, the "level" of captive program was also prepared, reflecting status, prospects in the wild, and taxonomic distinctiveness. The captive program levels used during the Cracid CAMP are defined below.

> **Level 1 (1)** - A captive population is recommended as a component of a conservation program. This program has a tentative goal of developing and managing a population sufficient to preserve 90% of the genetic diversity of a population for 100 years (90%/100). The program should be further defined with a species management plan encompassing the wild and captive populations and implemented immediately with available stock in captivity. If the current stock is insufficient to meet program goals, a species management plan should be developed to specify the need for additional founder stock. If no stock is present in captivity then the program should be developed collaboratively with appropriate wildlife agencies, SSC Specialist Groups, and cooperating institutions.
>
> **Level 2 (2)** - Similar to the above except a species/subspecies management plan would include periodic reinforcement of captive population with new genetic material from the wild. The levels and amount of genetic exchange needed should be defined in terms of the program goals, a population model, and species management plan. It is anticipated that periodic supplementation with new genetic material will allow management of a smaller captive population. The time period for implementation of a Level 2 program will depend on recommendations made at the CAMP workshop.
>
> **Level 3 (3)** - A captive program is not currently recommended as a demographic or genetic contribution to the conservation of the species/subspecies but is recommended for education, research, or husbandry.

Other captive recommendations include:

> **No (N)** - A captive program is not currently recommended as a demographic or genetic contribution to the conservation of the species/subspecies. Taxa already held in captivity may be included in this category. In this case species/subspecies should be evaluated either for management toward a decrease in numbers or for complete elimination from captive programs as part of a strategy to accommodate as many species/subspecies as possible of higher conservation priority as identified in the CAMP or in SSC Action Plans.

Pending (P) - A decision on a captive program will depend upon further data either from a PHVA, a survey, or existing identified sources to be queried.

During the CAMP workshop, all Cracid taxa were evaluated relative to their current need for captive propagation. Recommendations were based upon a number of variables, including: immediate need for conservation (population size, New IUCN Red List status, population trend, type of captive propagation program), need for or suitability as a surrogate species, current captive populations, and determination of difficulty as mentioned above. Based on all of the above considerations, in addition to threats and population trends, recommendations for captive programs were made. These recommendations, by category of threat, are presented in Table 4. Recommendations for levels of programs are presented in the spreadsheets in Section 2.

Table 4. Captive program recommendations for Cracids by New IUCN Red List category.

DRAFT IUCN RED LIST CATEGORY	Level 1	Level 2	Level 3	Pending	No
Extinct in Wild	1	0	0	0	0
Critical	11	1	0	0	0
Endangered	9	2	0	4	0
Vulnerable	10	5	2	11	4
Conservation Dependent	0	1	0	2	4
Low Risk	1	2	23	4	25
Data Deficient	0	0	0	3	2
TOTAL	32	11	25	24	35

A Conservation and Assessment Management Plan (as derived from a CAMP workshop) is intended to recommend a variety of actions, structured in order of priority that best aid the conservation of threatened taxa. These actions can be recommended in stages, starting with the more general and leading to the more specific. For a variety of reasons, most notably that CBSG maintains the lead role for providing captive breeding advice

and guidelines within IUCN, the focus of progression to the more detailed and specific has been with captive programs, which can form a component of overall conservation and recovery programs.

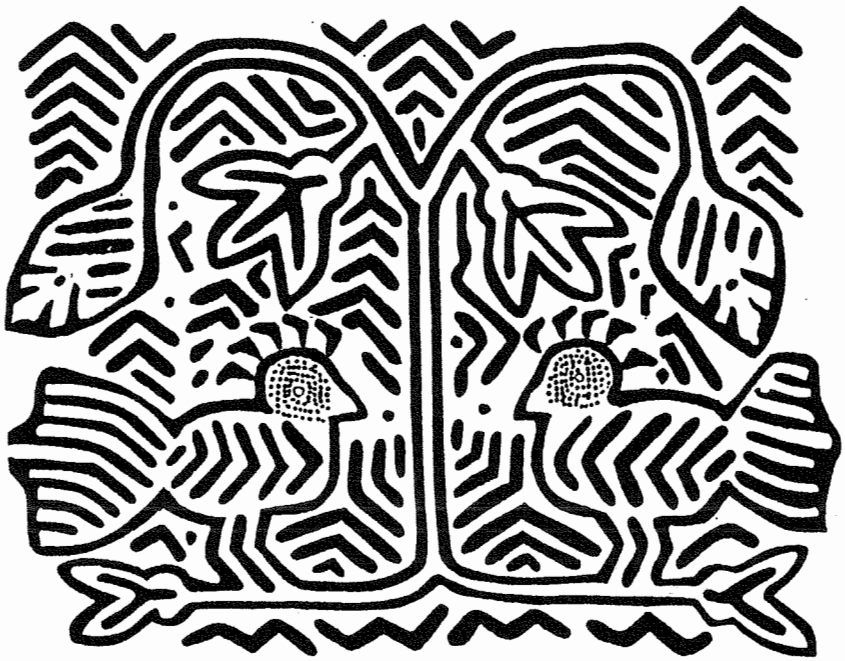
The participants in the Third Cracidae Symposium and the Camp meeting wish to emphasize that we do not view any of the recommendations of this document as "stand-alone" initiatives. Rather, the reader is encouraged to see these activities as components of the overall need for the conservation of Neotropical ecosystems. The Cracidae are excellent candidates (as bio-indicators, key species or flagships) to help facilitate larger-scale conservation programs. We therefore urge their inclusion in the planning stages of projects related to research, monitoring and management of Neotropical rainforests, protected areas and other natural ecosystems.

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

December 1995

Report from the workshop held
1-3 October 1994



SECTION 2

SPREADSHEET CATEGORY DEFINITIONS
AND SPREADSHEET FOR ALL CRACID TAXA

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN (CAMP) SPREADSHEET CATEGORIES 1 OCTOBER 1994

The Conservation Assessment and Management Plan (CAMP) spreadsheet is a working document that provides information that can be used to assess the degree of threat and recommend conservation action. The first part of the spreadsheet summarizes information on the status of the wild and captive populations of each taxon. It contains taxonomic, distributional, and demographic information useful in determining which taxa are under greatest threat of extinction. This information can be used to identify priorities for intensive management action for taxa.

TAXON
SCIENTIFIC NAME: Scientific names of extant taxa: genus, species, subspecies.

WILD POPULATION
RANGE: Geographical area where a species and its subspecies occur.

EST #: Estimated numbers of individuals in the wild. If specific numbers are unavailable, estimate the general range of the population size.

DQ (Data Quality):

1 = Recent (<8 years) census or population monitoring
2 = Recent (<8 years) general field study
3 = Recent (<8 years) anecdotal field sightings
4 = Indirect information (trade numbers, habitat availability).

Any combination of above = different data quality in parts of range.

SUB-POP: Number of populations within the taxonomic unit. Ideally, the number of populations is described in terms of boundary conditions as delineated by Mace-Lande and indicates the degree of fragmentation. If a population is fragmented, an "F" may be entered.

TRND: Indicates whether the natural trend of the species/subspecies/population is currently (over the past 3 generations) increasing (I), decreasing (D), or stable (S). Note that trends should NOT reflect supplementation of wild populations. A + or - may be indicated to indicate a rapid or slow rate of change, respectively.

AREA: A quantification of a species' geographic distribution.

AAA: > 5,000 sq km; geographic island
AA: < 5,000 sq km; geographic island
AA-1: < 1,000 sq km; geographic island
AA-2: < 100 sq km; geographic island
AA-3: < 10 sq km; geographic island
A: < 5,000 sq km
B: 5,000 - 9,999 sq km
C: 10,000 - 49,999 sq km
D: 50,000 - 99,999 sq km
E: > 100,000 sq km
F: 500,000 - 999,999 sq km
G: > 1,000,000 sq km

IUCN: Status according to New IUCN Red List criteria.
CR = Critical
EN = Endangered
VU = Vulnerable
CD = Conservation Dependent
LR = Low Risk
DD = Data Deficient
NE = Not Evaluated

THREATS: Immediate or predicted events that are or may cause significant population declines.
A = Aircraft
C = Climate
D = Disease
F = Fishing
G = Genetic problems
Hf = Hunting for food
Hs = Hunting for sport
Ht = Hunting for trophies (or decoration)
Hyb = Hybridization
I = Human interference or disturbance
Ic = Interspecific competition
Ice = Interspecific competition from exotics
Il = Interspecific competition with domestic livestock
L = Loss of habitat
La = Loss of habitat because of exotic animals
Lf = Loss of habitat because of fragmentation
Lp = Loss of habitat because of exotic plants
M = Marine perturbations, including ENSO and other shifts

P = Predation
Pe = Predation by exotics
Ps= Pesticides
Pl= Powerlines
Po= Poisoning
Pu= Pollution
S = Catastrophic events
Sd: drought
Sf: fire
Sh: hurricane
St: tsunami
Sv: volcano
T = Trade for the life animal market
W = War

PHVA: Is a Population and Habitat Viability Assessment Workshop recommended? Yes or No? NOTE**A detailed model of a species' biology is frequently not needed to make sound management decisions.

Yes or No OR Pending: pending further data from surveys or other research

Research/Management:

It should be noted that there is (or should be) a clear relationship between threats and subsequent outlined research/management actions. The "Research/Management" column provides an integrated view of actions to be taken, based on the listed threats. Research management can be defined as a management program which includes a strong feedback between management activities and an evaluation of the efficacy of the management, as well as response of the bird species to that activity. The categories within the column are as follows:

T	=	Taxonomic and morphological genetic studies
Tl	=	Translocations
S	=	Survey - search and find
M	=	Monitoring - to determine population information
H	=	Husbandry research
Hm	=	Habitat management - management actions primarily intended to protect and/or enhance the species' habitat (e.g., forest management)
Lm	=	Limiting factor management - "research management" activities on known or suspected limiting factors. Management projects have a research component that provide scientifically defensible results.

Lr = Limiting factor research - research projects aimed at determining limiting factors. Results from this work may provide management recommendations and future research needs

Lh = Life history studies

CAPTIVE PROGRAMS

NUM: Number of individuals in captivity (according to ISIS and other information, when available).

DIFF: This column represents the level of difficulty in maintaining the species in captive conditions.

1 = **Least difficult.** Techniques are in place for capture, maintenance, and propagation of similar taxa in captivity, which ostensibly could be applied to the taxon.

2 = **Moderate difficulty.** Techniques are only partially in place for capture, maintenance, and propagation of similar taxa in captivity, and many captive techniques still need refinement.

3 = **Very difficult.** Techniques are not in place for capture, maintenance, and propagation of similar taxa in captivity, and captive techniques still need to be developed.

REC: Level of Captive Program.

Level 1 (1) - A captive population is recommended as a component of a conservation program. This program has a tentative goal of developing and managing a population sufficient to preserve 90% of the genetic diversity of a population for 100 years (90%/100). The program should be further defined with a species management plan encompassing the wild and captive populations and implemented immediately with available stock in captivity. If the current stock is insufficient to meet program goals, a species management plan should be developed to specify the need for additional founder stock. If no stock is present in captivity then the program should be developed collaboratively with appropriate wildlife agencies, SSC Specialist Groups, and cooperating institutions.

Level 2 (2) - Similar to the above except a species/subspecies management plan would include periodic reinforcement of captive population with new genetic material from the wild. The levels and amount of genetic exchange needed

should be defined in terms of the program goals, a population model, and species management plan. It is anticipated that periodic supplementation with new genetic material will allow management of a smaller captive population. The time period for implementation of a Level 2 program will depend on recommendations made at the CAMP workshop.

Level 3 (3) - A captive program is not currently recommended as a demographic or genetic contribution to the conservation of the species/subspecies but is recommended for education, research, or husbandry.

Other captive recommendations include:

No (N) - A captive program is not currently recommended as a demographic or genetic contribution to the conservation of the species/subspecies. Taxa already held in captivity may be included in this category. In this case species/subspecies shod be evaluated either for management toward a decrease in numbers or for complete elimination from captive programs as part of a strategy to accommodate as many species/subspecies as possible of higher conservation priority as identified in the CAMP or in SSC Action Plans.

Pending (P) - A decision on a captive program will depend upon further data either from a PHVA, a survey, or existing identified sources to be queried.

Table 5. Spreadsheet for Critical taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
3	ORTALIS	VETULA DESCHAUENSEEI	UTILA ISLAND (HONDURAS)	<100	1	1	D	AA2	CR	Hf, Lf	NO	M,T, Hm,Lm	1	1	
38	PENELOPE	PERSPICAX	CAUCA VALLEY (COLOMBIA)	<1,000	3	1F	D+	A	CR	Lf, Hf, I	Yes	S, Lh, Lm, M, Hm	1	2	3
39	PENELOPE	ALBIPENNIS	NW PERU	±350	1/2	F	D	PA-1	CR	I,L,P,G	YES	M,Hm, Lr	2	2	60
52	PENELOPE	JACUCACA	NE BRAZIL	500-1,000	3/4	3	D+	B	CR	Hf,L,Lf,T	P	S,M, Hm,Lr, Lh	1	2	<50 (Br)/ <54
72	PIPILE	PIPILE	TRINIDAD	<250 (prob. <100)	1/3	>3F	D+	AA-2	CR	G, Hf, Lf	Yes	T, Hm, Lm, Lh	1	1	0
78	PIPILE	JACUTINGA	SE BRAZIL	1,000-2,000	2/3 /4	5	D	C	CR	T,Hf,L,Lf	P	T,S,M,H,L h,Lr	1	2	<100 (Br) <10
88	OREOPHASIS	DERBIANUS	S MEXICO, W GUATEMALA	<1,000	1/2	F	D	AA2	CR	Hf,La,Lf, G,I	YES	TI,M, Hm	1	1	54
102	CRAX	RUBRA GRISCOMI	COZUMEL I (MEXICO)	<50	1/3 /4	F?	D+	AA2	CR	H,L,G	P	M,T,S,Hm, Lm	1	1	0?
103	CRAX	ALBERTI	N COLOMBIA	1,000-2,500	3/4	>5F	D+	C	CR	Lf, Hf	Yes	S, M, Lm, Hm, Lh	1	1	27
110	CRAX	FASCIOLATA PINIMA	NE BRAZIL (NE OF PARÁ AND W MARANHÁO)	<1,000	4	F	D+	C	CR	Hf,L,Lf,T	P	T,S,M, Hm,Lh, Lr	1	2	<10 (Br)/ <17

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
112 A	CRAX	GLOBULOSA	N BOLIVIA, E PERU	<50?	3/4	F?	D	F	CR	Hf,L	YES	Tl,S,M, Lm,Lh	1	1	<135
113	CRAX	BLUMENBACHII	E BRAZIL	<300	1/4	6	D+	AA	CR	Hf,T,L, Lf,G	P	S,M,Lh, Hm,P,Tl,T, Lm	1	1	400 (Br)/ <441

** NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 6. Spreadsheet for Endangered taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
19	ORTALIS	ERYTHROPTERA	W ECUADOR, EXT SW COLOMBIA	<5,000	1	>5F	D+	B?	EN	Hf, I, Lf	Yes	M, Lm, Lh	1	2	2
19A	ORTALIS	ERYTHROPTERA	NW PERU	<5,000	3	1	D	B	EN	Hf,L	P	M,Lr,Lh	1	1	2
58	PENELOPE	OBSCURA OBSCURA	S BRAZIL (RIO GRANDE DO SUL)	<1,000	4	F	D	B	EN	Hf,L,Lf	NO	T,TI,S,M,Lr,Lh, Hm	1	2	<10 (Br)/ <10
64	PENELOPE	ARGYROTIS COLOMBIANA	STA.MARTA (COLOMBIA)	<10,000	4	1F	D	A	EN	Hf,Lf	P	S, M, Hm, Lm, Lh	P	1	0
65	PENELOPE	BARBATA	S ECUADOR	<10,000	1/2 /3	3F	D	A	EN	Hf,Lf,I	Yes	S,M,Lh, Lm,T	1	1	6
77A	PIPILE	CUJUBI NATTERERI	NE BOLIVIA	1,000-2,000?	1/2	1	D?	B	EN	Hf	P	T,M,S	P	1	23
78A	PIPILE	JACUTINGA	SE PARAGUAY, NE ARGENTINA	2,000?	3	F	D	C	EN	Hf,Lf,I	YES	S,M,Lm,T	1	1 ?	+
79	ABURRIA	ABURRI	N COLOMBIA, E VENEZUELA	2,500-5,000	1/3 /4	>5F	D+	D	EN	Hf, Lf	P	T, S, M, Hm, Lm, Lh, Lr	P	1 / 2	25
86	CHAMAEPETES	UNICOLOR	COSTA RICA, PANAMA	<2,000	2/3	5	D	B	EN	Hf,L,Lf,P	YES	M,Hm, Lh	2	3	15
87	PENELOPINA	NIGRA	S MEXICO, GUATEMALA, ELSALVADOR, HONDURAS, NICARAGUA	<5,000	3	F	D	A	EN	La,Lf	YES	S,M,Hm	1	2	67

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
95	PAUXI	PAUXI PAUXI	W VENEZUELA, E COLOMBIA	<2,000	1/3 /4	>5F	D+	C	EN	Hf, Lf	Yes	S, M, Hm, Lm, Lh, T	1	1	<512
96	PAUXI	PAUXI GILLIARDI	NW VENEZUELA, NE COLOMBIA	<1,000	1/3 /4/	2F	D+	A	EN	Hf, Lf	Yes	S, M, Hm, Lm, Lh, T	1	1	100
99	PAUXI	UNICORNIS KOEPCKEAE	C PERU	<2,500	4	1	?	A	EN	?	P	S	P	1 ?	0
101	CRAX	RUBRA RUBRA	MEXICO-PANAMA	5,000	2/3	F	D	C	EN	Hf,Lf,L	P	Hm,T, Tl,M,S	2	2	797
112	CRAX	GLOBULOSA	E ECUADOR, SE COLOMBIA	<2,500	1/2 /3/ 4	1	D+	E	EN	Hf	P	S, M, Lh, Lr	1	1	<135

** NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 7. Spreadsheet for Vulnerable taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
97	PAUXI	UNICORNIS	BOLIVIA & PERU	<5,000?	1/2	2?	D?	D?	VU	Lf,Hf,I	P	S,M,Lh,Lm	P	1	18 Estudio
107	CRAX	DAUBENTONI	N VENEZUELA, NE COLOMBIA	10,000-40,000	1	>5F	D+	F	VU	Hf,Hs,Lf	NO	M, Hm, Lm	NO	1	150
108 A	CRAX	FASCIOLATA	PARAGUAY & BOLIVIA	>10,000	3	2	S/D	F	VU	Hf,I,L	NO	M,S	2/3	1	203
98	PAUXI	UNICORNIS UNICORNIS	BOLIVIA	<5,000?	1/2	2?	D?	D?	VU	Lf,Hf,I	P	S,M,Lh,Lm	P	1	2
101 A	CRAX	RUBRA RUBRA	COLOMBIA, ECUADOR	<5,000	2/3 /4/	>5F	D	D	VU	Hf, Lf	P	S, M, Hm, Lm, Lh	P	1	797
65A	PENELOPE	BARBATA	NW PERU	1,500 ?	2	F?	D?	B	VU	Hf,I,L	P	Lr,Lh,MT, S	P	1	6
92A	MITU	SALVINI	NC PERU	<10,000	3	1	D	D	VU	Hf,I,L	P	S,M,Lr	P	1	?
77	PIPILE	CUJUBI NATTEREREI	S & W AMAZONIA (MATO GROSSO)	10,000-20,000	3/4	1	D	D	VU	Hf,L,Lf	NO	S,M,Lr,Lh, H, T	1	2	<15 (Br)/ 23
79A	ABURRIA	ABURRI	SC PERU	<10,000	2/3	1F	?	E	VU	I,L,Hf	P	S,M,Lr,Lh	P	1	25
82	CHAMAEPETES	GOUDOTII SANCTAEMARTHAE	SANTA MARTA MTNS	<5,000	3/4	1	D	A	VU	Hf, L	P	S, M, Hm, Lr	1	1 / 2	0
76	PIPILE	CUJUBI CUJUBI	NC BRAZIL	<5,000	4	1	D	D	VU	Hf,I	NO	S,M,H, T,TI	1	2	<10 (Br)/ 16

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
60	PENELOPE	OBSCURA BRONZINA	SE BRAZIL + NE ARGENTINA	5,000-10,000	3/4	F	D	C	VU	Hf,L,Lf,T	NO	T,Tl,M,Hm,Lr,S Lh	1	1	<500 (Br)/ <523
51	PENELOPE	DABBENEI	CHUQUISACA & TARIJA, (BOLIVIA), & CERRO CALILEGUA IN JUJUY & SALTA (NW ARGENTINA)	10,000 ?	2/3	1	S	D	VU	Hf,Lf	NO	S,M,Lh	P	1	0
49	PENELOPE	OCHROGASTER	C BRAZIL	<2,000	3/4	4	D	C	VU	Hf,L,Lf	NO	S,M,Lr,Lh	1	2	<10 (Br)/ <10
68	PENELOPE	MONTAGNII ATROGULARIS	SW COLOMBIA, W ECUADOR	<5,000	3/4	>5F	D	C	VU	Lf, Hf	NO	S, M, Lm, Hm, Lh	NO	1	1
40	PENELOPE	ORTONI	W COLOMBIA, NW ECUADOR	5-10,000	3	2F	D	C	VU	Hf, Lf, I	P	S, Hm, Lm, Lh, M	2	1	1
50	PENELOPE	PILEATA	BRAZIL	5,000-10,000	4	1	D-	D	VU	Hf,L	NO	S,M,Lr,Lh	3	2	<100 (Br) <167
27	ORTALIS	GUTTATA SQUAMATA	S BRAZIL (LITORALS OF SAO PAULO AND SE OF MINAS GERAIS (?))	<2,000	3/4	2	D	C	VU	Hf,L,Lf, T	NO	T,S,M,Hm, Lr, Lh,Tl	1	1	<100
26	ORTALIS	GUTTATA ARAUCUAN	E BRAZIL (SE PERMANBUCO,E. ALAGUAS,S.BAHIA ,N.ESPIRITU SANTU,& E. OF MINAS GERAIS)	2,000-5,000	4	F	D	A	VU	Hf,L,Lf,T	NO	T,S,M, Hm,Lh, H,Tl,Lr	1	1	<30 (Br)/ <45

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
92	MITU	SALVINI	SE COLOMBIA, E ECUADOR, NC PERU	>50,000	1/2	1F	D+	D	VU	Hf, Lf	P	M,Hm, Lm,S	P	1	0
29/ 30	ORTALIS	SUPERCILIARIS	N BRAZIL (NE OF PARÁ, MARANHÁO, W OF PIAURA(?)	,000-5,000	4	F	D	C	VU	Hf,L,Lf,I	NO	S,M, Hm,Lr, Lh	1	1	<20 (Br)/ S<28 SS=6
33	ORTALIS	MOTMOT RUFICEPS	N BRAZIL (PARÁ, S TO ____ AMAZONAS)	5,000-20,000	4	2	D	C	VU	Hf,L,Lf	NO	S,M,T, Lr,Lh	3	1	<10 (Br)
63	PENELOPE	ARGYROTIS ALBICAUDA	PERIJA (VENEZUELA)	<20,000	3/4	1	D	B	VU	Hf,L	NO	M, S, Hm, Lm	2	1	0
36	PENELOPE	PURPURASCENS AEQUATORIALIS	S NICARAGUA, COSTA RICA, PANAMA	5,000-10,000	2	5 (CR)	D	D	VU	Hf,La,P, L,Lf	P	M,Hm	2	1	>50
35	PENELOPE	PURPURASCENS PURPURASCENS	MEXICO, GUATEMALA, BELIZE, HONDURAS, N NICARAGUA	<50,000 TOTAL <3,000 (Guat.pac.cst. forest) >10,000 (AtIntc cst.forest)	3	F	D	C	VU	Hf,La,L, Lf	P	M,Hm	1	1	572
58A	PENELOPE	OBSCURA OBSCURA	E PARAGUAY, NE ARGENTINA	<3,000	2/3	F	D?	D	VU?	Hf,Lf,I	NO	S,M	P	1	<10
56	PENELOPE	SUPERCILIARIS MAJOR	E PARAGUAY, NE ARGENTINA	>10,000	3	F	D	E	VU?	Hf,Lf,I	NO	S,Lm	P	1	<10
112 B	CRAX	GLOBULOSA	BRAZIL	<5,000	4	1	D-	E	VU?	Hf,T	P	S,M,Lh,Lr	1	2	<50 (Br)/ <135

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
13	ORTALIS	WAGLERI	NC MEXICO	<200,000	3	?	D	D	VU?	Hf,Lf	NO	S,M,Hm,T	2	1	11
85	CHAMAEPETES	GOUDOTII RUFIVENTRIS	EC PERU + W BOLIVIA	10,000?	2/3	F?2?	S?	E?	VU?	I,L,Hf	NO	S,M,Lr, Lh	P	1 ?	?
37	PENELOPE	PURPURASCENS BRUNNESCENS	NE COLOMBIA, NW VENEZUELA	?	1/4	1F	-	C	VU?	Hf, Lf, I	NO	S, T, Lh,Lm, Hm	P	1	6
74A	PIPILE	CUMANENSIS GRAYI	BOLIVIA, NE PARAGUAY	<10,000	1/2	1?	S/D	F	VU?	Hf,I, L	NO	T,M,S, Lh	NO	1	119
109 A	CRAX	FASCIOLATA FASCIOLATA	PARAGUAY, ARGENTINA	>5,000	4	1?	D	E	VU?	Hf,I,L	NO	M,S	2	1	<569
73B	PIPILE	CUMANENSIS CUMANENSIS	NE PERU	<10,000	2/3	?	D	F	VU?	Hf,I,L	NO	M,Lh, Lr,T	NO	1	177

NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 8. Spreadsheet for Conservation Dependent taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
55	PENELOPE	SUPERCILIARIS JACUPEMBA	BOLIVIA	±5,000	2	1	S?	E	CD	Lh,Hf,I	NO	M,Lh	2	1	6
62	PENELOPE	ARGYROTIS ARGYROTIS	COLOMBIA, VENEZUELA	<50,000	1/2 /3	5+F	D	D	CD	Lf, Hf	NO	M, Hm, Lm	NO	1	16
67	PENELOPE	MONTAGNII MONTAGNII	VENEZUELA, E COLOMBIA	5-10,000	1/2	10F	D-	D	CD	Hf, Lf, Sv	NO	M, Lh, Lm, Hm	P	1	14
69	PENELOPE	MONTAGNII BROOKI	SE COLOMBIA, E ECUADOR	>5,000	3/4	>5F	D	C	CD	Lf, Hf	NO	S, M, Lm, Hm, Lh	NO	1	0
83	CHAMAEPETES	GOUDOTII FAGANI	SW COLOMBIA, W ECUADOR	>5,000	1/2 /4	>5F	D	C	CD	Lf, Hf	NO	M, Hm	NO	1 / 2	0
84	CHAMAEPETES	GOUDOTII TSCHUDII	EC ECUADOR	>5,000	3/4	>5F	D	C	CD	Hf, Lf	NO	S, M, Hm, Lm	NO	1 / 2	0
111	CRAX	FASCIOLATA GRAYI	E BOLIVIA	>5,000	2	1	S?	E	CD	Hf,L	NO	M	2	1	47

*NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 9. Spreadsheet for Low Risk Cracid taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
2	ORTALIS	VETULA VETULA	MEXICO, GUATEMALA, BELIZE, HONDURAS, NICARAGUA	>100,000	3/4	?	S	E	LR	Hf	NO	T,Lh	3	1	125
4	ORTALIS	VETULA MCCALLII	USA (TEXAS), MEXICO	>100,000 (Mex)/ 20,000 (Tex)	3/4 2	?	S	D / C	LR	Lf,Hf	NO	T	3	1	
5	ORTALIS	VETULA PALLIDIVENTRIS	N YUCATAN (MEXICO)	>100,000	3/4	NO	S	C	LR	Hf,L	NO	T,M	3	1	
6	ORTALIS	VETULA INTERMEDIA	QUINTANA ROO (MEXICO)	10,000 - 50,000	3/4	NO	S	C	LR	Hf,L	NO	T,M	3	1	
8	ORTALIS	GARRULA GARRULA	NW COLOMBIA	>10,000	>8 yrs old	1F	S?	D	LR?	Lf	NO	S,Lh	P	1	2
9A	ORTALIS	CINEREICEPS	NW COLOMBIA	>20,000	>8	1F	S?	C	LR?	Hf,Lf	NO	S,Lh	NO	1	63 (entire range)
9	ORTALIS	CINEREICEPS	HONDURAS, NICARAGUA, COSTA RICA, PANAMA	>100,000	3/4	?	S	C	LR	Hf,Lf	NO	T,M,S	3	1	63 (entire range)
11	ORTALIS	POLIOCEPHALA POLIOCEPHALA	S MEXICO	>100,000	3	?	S	D	LR	Hf,Lf	NO	T	3	1	23
12	ORTALIS	POLIOCEPHALA LAJUELAE	C MEXICO	>100,000	3	?	S	C	LR	Hf	NO	M	3	1	12

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
14	ORTALIS	LEUCOGASTRA	MEXICO, GUATEMALA, EL SALVADOR ?, NICARAGUA	>10,000	3	F	D	C	LR	Hf,L,Pe	NO	S,M,Hm	3	1	123
16	ORTALIS	RUFICAUDA RUFICAUDA	N VENEZUELA, E COLOMBIA	>100,000	1/3	1F	S	F	LR	Hf, I, Lf, Sf	NO	M, T, Lh, Lm	NO	1	70
17	ORTALIS	RUFICAUDA RUFICRISSA	NW VENEZUELA, NE COLOMBIA	-	-	1F	-	-	LR?	Hf, Lf, I	NO	S, T, Lh, Lm	NO	1	1
20A	ORTALIS	CANICOLLIS	BOLIVIA, ARGENTINA, PARAGUAY	>100,000	2	2	S	G	LR	L,I,Hf	NO	Lh	NO	1	191
21	ORTALIS	CANICOLLIS CANICOLLIS	SE BOLIVIA, PARAGUAY, ARGENTINA	>100,000	3	1	S	G	LR	--	NO	Lh	NO	1	0
22	ORTALIS	CANICOLLIS PANTANALENSIS	S BRAZIL (PANTANAL)	100,000 - 200,000	3/4	1	S	E	LR	--	NO	S,Lh	3	1	<50 (Br) >20
22A	ORTALIS	CANICOLLIS PANTANALENSIS	BOLIVIA, PARAGUAY						LR	--	NO	Lh,S	NO	1	>20
23A	ORTALIS	GUTTATA	PERU, N. BOLIVIA	>100,000	2/3	2	S	G	LR	Hf	NO	Lh	NO	1	13
24B	ORTALIS	GUTTATA GUTTATA	PERU, N BOLIVIA	>100,000	2/3	1?	S	G	LR	Hf	NO	Lh	NO	1	18
24A	ORTALIS	GUTTATA GUTTATA	BRAZIL (C + W AMAZONIA)	50,000-100,000	4	1	S	E	LR	--	NO	S,Lh,T	3	1	<10 (Br)/ 18
24	ORTALIS	GUTTATA GUTTATA	COLOMBIA, ECUADOR	>50,000	-	1	S	E	LR	Lf,Hf,I	NO	T, S, Lh	NO	1	0

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
25	ORTALIS	GUTTATA SUBAFFINIS	E BOLIVIA	>50,000	3	1	S?	E	LR	--	NO	M,Lh	NO	1	8
32A	ORTALIS	MOTMOT MOTMOT	BRAZIL (N. AMAZONIA TO RIO NEGRO)	50,000-100,000	4	1	S	E	LR	--	NO	S,Lh,T	3	1	<10 (Br)/ 30
32	ORTALIS	MOTMOT MOTMOT	SE VENEZUELA, GUYANA, SURINAM, FRENCH GUIANA, COL.	>30,000	1/2 /3	1	S	E	LR	Hf, Lf, I	NO	M	NO	1	30
36A	PENELOPE	PURPURASCENS AEQUATORIALIS	COLOMBIA, ECUADOR, VENEZUELA	>60,000	1	1F	D	C	LR	Hf, Lf, I, Sf	NO	M, Lh, Lm, T	NO	1	>50
42	PENELOPE	MARAIL MARAIL	FRENCH GUIANA, SURINAM, GUYANA, VENEZUELA	>100,000	2/3	1	S	G	LR	Hf	NO	S, M	NO	1	47
43A	PENELOPE	MARAIL JACUPEMBA	N BRAZIL (N OF AMAZONIA, ___ TO RIO NEGRO)	20,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	1	<10 (Br)/ <10
43	PENELOPE	MARAIL JACUPEMBA	SE VENEZUELA	>10,000	4	1	S	E	LR	Hf	NO	S, Lh	NO	1	10
44A	PENELOPE	JACQUACU	PERU, BOLIVIA	30,000	2/3	2F	S	G	LR	Hf,L	NO	M,Lh	3	1	18
45A	PENELOPE	JACQUACU JACQUACU	COLOMBIA, ECUADOR	>500,000	1	1	S	G	LR	Hf	NO	S, M, Lh	NO	2	34
45	PENELOPE	JACQUACU JACQUACU	N BRAZIL (AMAZONIAS, WC)	20,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	1	<10 (Br)/ 44

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
45B	PENELOPE	JACQUACU JACQUACU	PERU, BOLIVIA	20,000	2/3	F	S	G	LR	Hf,L	NO	M,Lh	3	1	44
46	PENELOPE	JACQUACU ORIENTICOLA	E COLOMBIA, VENEZUELA, GUYANA	>200,000	1	1	S	F	LR	Hf	NO	S, M, Lh	NO	1	<85
46A	PENELOPE	JACQUACU ORIENTICOLA	N BRAZIL	10,000-20,000	4	1	S	D	LR	--	NO	S,Lh	3	1	<10 (Br)/ <85
47	PENELOPE	JACQUACU GRANTI	SE VENEZUELA, GUYANA	>50,000	1	1	S	E	LR	Hf	NO	S, M, Lh	NO	2	137
48	PENELOPE	JACQUACU SPECIOSA	C & E BOLIVIA	>10,000	2/3	1	D-	C	LR	Hf,L	NO	M	P	1	77
53	PENELOPE	SUPERCILIARIS (ALL SUBSPECIES-BRAZIL)	BRAZIL	>100,000	3/4	1	S	G	LR	Hf,L	NO	T,S,M, Lr,Lh	3	1	<300 (Br)/ <322
59	PENELOPE	OBSCURA BRIDGESI	S BOLIVIA, NW ARGENTINA	>100,000	2	1	S	E	LR	Hf,I	NO	M,Lh	NO	1	20
70	PENELOPE	MONTAGNII PLUMOSA	E PERU	?	?	?	?	?	LR	Hf	NO	S,Lh	P	1 ?	?
71	PENELOPE	MONTAGNII SCLATERI	S PERU, BOLIVIA, NW ARGENTINA	?	3	?	?	?	LR	Hf	NO	S,Lh	P	1 ?	?
73	PIPILE	CUMANENSIS CUMANENSIS	THE GUIANAS TO C COLOMBIA, ECUADOR	>100,000	1	1	S	G	LR	Hf	NO	Lh,T	NO	1	177
73A	PIPILE	CUMANENSIS CUMANENSIS	W BRAZIL	10,000-50,000	4	1	S	E	LR	--	NO	S,Lh,H, T	3	2	<30 (Br)/ 177

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
74	PIPILE	CUMANENSIS GRAYI	SW BRAZIL (PANTANAL)	<5,000	3/4	1	S	C	LR	--	NO	S,Lh,H, T	3	2	<10 (Br)/ 119
81	CHAMAEPETES	GOUDOTII GOUDOTII	COLOMBIA	>100,000	3/4	1F	D	C	LR	Hf, Lf	NO	S, M, Hm, Lm, Lh	NO	1 / 2	10
89A	NOTHOCRAX	URUMUTUM	W BRAZIL	30,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	2	<80 (Br) 421
89B	NOTHOCRAX	URUMUTUM	NE PERU	>50,000	3	F?	S	E	LR	I,L,Hf	NO	S,M,Lr, Lh	2/3?	1	421
89	NOTHOCRAX	URUMUTUM	SW VENEZUELA, E COLOMBIA, E ECUADOR,	>50,000	3/4	1	S	G	LR	Hf	NO	S, M, Lh	NO	1	421
91A	MITU	TUBEROSA	C BRAZIL (S OF AMAZONIA)	50,000-100,000	3/4	1	S	F	LR	--	NO	S,Lh,T	3	2	<150 (Br)/ <299
91	MITU	TUBEROSA	SE COLOMBIA	>10,000	1/3	1	S	C	LR	Hf	NO	M,Lh	NO	1	<299
91B	MITU	TUBEROSA	E PERU, E BOLIVIA	>100,000	1/2 /3	1	S/D	G	LR	Hf,I,L	NO	S,Lr,Lh, M	2/3	1	<299
93	MITU	TOMENTOSA	GUYANA, S VENEZUELA, E COLOMBIA	>100,000	1/3	1	S	G	LR	Hf	NO	M, Lh	NO	1	<112
93A	MITU	TOMENTOSA	NW + NC BRAZIL	<30,000	4	1	S	D	LR	--	NO	S,Lh,H	3	2	<30 (Br)/ <112

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
104 A	CRAX	ALECTOR	BRAZIL (N OF AMAZONIA)	<50,000	4	1	S	E	LR	--	NO	T,S,Lh	3	2	<100 (Br)/ <174
105	CRAX	ALECTOR ALECTOR	FR. GUYANA, SURINAM, GUYANA, N BRAZIL, SE VENEZUELA	>100,000	1/3	1	S	F	LR	Hf	NO	M,T,Lh	NO	1	>114
106	CRAX	ALECTOR ERYTHROGNATHA	SW VENEZUELA, E COLOMBIA, N BRAZIL	>100,000	2/3 /4	1	S	F?	LR	Hf	NO	M, Lh, T	NO	1	20
109	CRAX	FASCIOLATA FASCIOLATA	BRAZIL	<50,000	3/4	F	D-	F	LR	Hf,L,Lf,T	NO	T,S,M, Hm,Lh, Lr	1	1	<500 (Br)/ <569

** NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 10. Spreadsheet for Data Deficient Cracid taxa according to New IUCN Red List criteria

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
18	ORTALIS	RUFICAUDA LAMPROPHONIA	NE COLOMBIA	-	-	-	-	-	DD	Hf,L,Lf	NO	T,S,M	NO	1	--
23	ORTALIS	GUTTATA		-	-	-	-	E	DD	Hf, Lf, I,L	NO	T, S	P	1	13
28	ORTALIS	GUTTATA COLUMBIANA	N COLOMBIA	-	-	2F	-	C	DD	Hf,Lf, L,T	NO	T, S, Lm	NO	1	10
81A	CHAMAEPETES	GOUDOTII GOUDOTII	PERU	?	2/3	?	?	?	DD	Hf	NO	S	P	2	10
84A	CHAMAEPETES	GOUDOTII TSCHUDII	N PERU	?	?	?	?	?	DD	Hf	NO	S	P	2	?

** NOTE: Captive population numbers for Brazil are listed with number of individuals in Brazilian zoos first with global totals following

Table 11. Spreadsheet for all Cracid taxa

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
	GALLIFORMES														
	CRACIDAE														
1	ORTALIS	VETULA													104
2	ORTALIS	VETULA VETULA	MEXICO, GUATEMALA, BELIZE, HONDURAS, NICARAGUA	>100,000	3/4	?	S	E	LR	Hf	NO	T,Lh	3	1	125
3	ORTALIS	VETULA DESCHAUENSEEI	UTILA ISLAND (HONDURAS)	<100	1	1	D	AA2	CR	Hf, Lf	NO	M,T, Hm,Lm	1	1	
4	ORTALIS	VETULA MCCALLII	USA (TEXAS), MEXICO	>100,000 (Mex)/ 20,000 (Tex)	3/4 2	?	S	D / C	LR	Lf,Hf	NO	T	3	1	
5	ORTALIS	VETULA PALLIDIVENTRIS	N YUCATAN (MEXICO)	>100,000	3/4	NO	S	C	LR	Hf,L	NO	T,M	3	1	
6	ORTALIS	VETULA INTERMEDIA	QUINTANA ROO (MEXICO)	10,000 - 50,000	3/4	NO	S	C	LR	Hf,L	NO	T,M	3	1	
7	ORTALIS	GARRULA	NW COLOMBIA												
8	ORTALIS	GARRULA GARRULA	NW COLOMBIA	>10,000	>8 yrs old	1F	S?	D	LR?	Lf	NO	S,Lh	P	1	2
9	ORTALIS	CINEREICEPS	HONDURAS, NICARAGUA, COSTA RICA, PANAMA	>100,000	3/4	?	S	C	LR	Hf,Lf	NO	T,M,S	3	1	63 (entire range)

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
9A	ORTALIS	CINEREICEPS	NW COLOMBIA	>20,000	>8	1F	S?	C	LR?	Hf,Lf	NO	S,Lh	NO	1	63 (entire range)
10	ORTALIS	POLIOCEPHALA													
11	ORTALIS	POLIOCEPHALA POLIOCEPHALA	S MEXICO	>100,000	3	?	S	D	LR	Hf,Lf	NO	T	3	1	23
12	ORTALIS	POLIOCEPHALA LAJUELAE	C MEXICO	>100,000	3	?	S	C	LR	Hf	NO	M	3	1	12
13	ORTALIS	WAGLERI	NC MEXICO	<200,000	3	?	D	D	VU?	Hf,Lf	NO	S,M,Hm,T	2	1	11
14	ORTALIS	LEUCOGASTRA	MEXICO, GUATEMALA, EL SALVADOR ?, NICARAGUA	>10,000	3	F	D	C	LR	Hf,L,Pe	NO	S,M,Hm	3	1	123
15	ORTALIS	RUFICAUDA													19
16	ORTALIS	RUFICAUDA RUFICAUDA	N VENEZUELA, E COLOMBIA	>100,000	1/3	1F	S	F	LR	Hf, I, Lf, Sf	NO	M, T, Lh, Lm	NO	1	70
17	ORTALIS	RUFICAUDA RUFICRISSA	NW VENEZUELA, NE COLOMBIA	-	-	1F	-	-	LR?	Hf, Lf, I	NO	S, T, Lh, Lm	NO	1	1
18	ORTALIS	RUFICAUDA LAMPROPHONIA	NE COLOMBIA	-	-	-	-	-	DD	Hf,L,Lf	NO	T,S,M	NO	1	--
19	ORTALIS	ERYTHROPTERA	W ECUADOR, EXT SW COLOMBIA	<5,000	1	>5F	D+	B?	EN	Hf, I, Lf	Yes	M, Lm, Lh	1	2	2
19A	ORTALIS	ERYTHROPTERA	NW PERU	<5,000	3	1	D	B	EN	Hf,L	P	M,Lr,Lh	1	1	2
20	ORTALIS	CANICOLLIS													--

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
20A	ORTALIS	CANICOLLIS	BOLIVIA, ARGENTINA, PARAGUAY	>100,000	2	2	S	G	LR	L,I,Hf	NO	Lh	NO	1	191
21	ORTALIS	CANICOLLIS CANICOLLIS	SE BOLIVIA, PARAGUAY, ARGENTINA	>100,000	3	1	S	G	LR	--	NO	Lh	NO	1	0
22	ORTALIS	CANICOLLIS PANTANALENSIS	S BRAZIL (PANTANAL)	100,000 - 200,000	3/4	1	S	E	LR	--	NO	S,Lh	3	1	<50 (Br) >20
22A	ORTALIS	CANICOLLIS PANTANALENSIS	BOLIVIA, PARAGUAY						LR	--	NO	Lh,S	NO	1	>20
23	ORTALIS	GUTTATA		-	-	-	-	E	DD	Hf, Lf, I,L	NO	T, S	P	1	13
23A	ORTALIS	GUTTATA	PERU, N. BOLIVIA	>100,000	2/3	2	S	G	LR	Hf	NO	Lh	NO	1	13
24	ORTALIS	GUTTATA GUTTATA	COLOMBIA, ECUADOR	>50,000	-	1	S	E	LR	Lf,Hf,I	NO	T, S, Lh	NO	1	0
24A	ORTALIS	GUTTATA GUTTATA	BRAZIL (C + W AMAZONIA)	50,000-100,000	4	1	S	E	LR	--	NO	S,Lh,T	3	1	<10 (Br)/ 18
24B	ORTALIS	GUTTATA GUTTATA	PERU, N BOLIVIA	>100,000	2/3	1?	S	G	LR	Hf	NO	Lh	NO	1	18
25	ORTALIS	GUTTATA SUBAFFINIS	E BOLIVIA	>50,000	3	1	S?	E	LR	--	NO	M,Lh	NO	1	8
26	ORTALIS	GUTTATA ARAUCUAN	E BRAZIL (SE PERMANBUCO,E. ALAGUAS,S.BAHIA ,N.ESPIRITU SANTU,& E. OF MINAS GERAIS)	2,000-5,000	4	F	D	A	VU	Hf,L,Lf,T	NO	T,S,M, Hm,Lh, H,Tl,Lr	1	1	<30 (Br)/ <45

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
27	ORTALIS	GUTTATA SQUAMATA	S BRAZIL (LITORALS OF SAO PAULO AND SE OF MINAS GERAIS (?))	<2,000	3/4	2	D	C	VU	Hf,L,Lf, T	NO	T,S,M,Hm, Lr, Lh,TI	1	1	<100
28	ORTALIS	GUTTATA COLUMBIANA	N COLOMBIA	-	-	2F	-	C	DD	Hf,Lf, L,T	NO	T, S, Lm	NO	1	10
29/ 30	ORTALIS	SUPERCILIARIS	N BRAZIL (NE OF PARÁ, MARANHÁO, W OF PIAURA(?)	2,000-5,000	4	F	D	C	VU	Hf,L,Lf,I	NO	S,M, Hm,Lr, Lh	1	1	<20 (Br)/ S<28 SS=6
31	ORTALIS	MOTMOT		>100,000											8
32	ORTALIS	MOTMOT MOTMOT	SE VENEZUELA, GUYANA, SURINAM, FRENCH GUIANA, COL.	>30,000	1/2 /3	1	S	E	LR	Hf, Lf, I	NO	M	NO	1	30
32A	ORTALIS	MOTMOT MOTMOT	BRAZIL (N. AMAZONIA TO RIO NEGRO)	50,000- 100,000	4	1	S	E	LR	--	NO	S,Lh,T	3	1	<10 (Br)/ 30
33	ORTALIS	MOTMOT RUFICEPS	N BRAZIL (PARÁ, S TO ____ AMAZONAS)	5,000- 20,000	4	2	D	C	VU	Hf,L,Lf	NO	S,M,T, Lr,Lh	3	1	<10 (Br)
34	PENELOPE	PURPURASCENS													22

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
35	PENELOPE	PURPURASCENS PURPURASCENS	MEXICO, GUATEMALA, BELIZE, HONDURAS, N NICARAGUA	<50,000 TOTAL <3,000 (Guat.pac.cst. forest) >10,000 (AtInte cst.forest)	3	F	D	C	VU	Hf,La,L, Lf	P	M,Hm	1	1	572
36	PENELOPE	PURPURASCENS AEQUATORIALIS	S NICARAGUA, COSTA RICA, PANAMA	5,000-10,000	2	5 (CR)	D	D	VU	Hf,La,P, L,Lf	P	M,Hm	2	1	>50
36A	PENELOPE	PURPURASCENS AEQUATORIALIS	COLOMBIA, ECUADOR, VENEZUELA	>60,000	1	1F	D	C	LR	Hf, Lf, I, Sf	NO	M, Lh, Lm, T	NO	1	>50
37	PENELOPE	PURPURASCENS BRUNNESCENS	NE COLOMBIA, NW VENEZUELA	?	1/4	1F	-	C	VU?	Hf, Lf, I	NO	S, T, Lh,Lm, Hm	P	1	6
38	PENELOPE	PERSPICAX	CAUCA VALLEY (COLOMBIA)	<1,000	3	1F	D+	A	CR	Lf, Hf, I	Yes	S, Lh, Lm, M, Hm	1	2	3
39	PENELOPE	ALBIPENNIS	NW PERU	±350	1/2	F	D	PA-1	CR	I,L,P,G	YES	M,Hm, Lr	2	2	60
40	PENELOPE	ORTONI	W COLOMBIA, NW ECUADOR	5-10,000	3	2F	D	C	VU	Hf, Lf, I	P	S, Hm, Lm, Lh, M	2	1	1
41	PENELOPE	MARAIL													4
42	PENELOPE	MARAIL MARAIL	FRENCH GUIANA, SURINAM, GUYANA, VENEZUELA	>100,000	2/3	1	S	G	LR	Hf	NO	S, M	NO	1	47

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
43	PENELOPE	MARAIL JACUPEMBA	SE VENEZUELA	>10,000	4	1	S	E	LR	Hf	NO	S, Lh	NO	1	10
43A	PENELOPE	MARAIL JACUPEMBA	N BRAZIL (N OF AMAZONIA, ___ TO RIO NEGRO)	20,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	1	<10 (Br)/ <10
44	PENELOPE	JACQUACU													
44A	PENELOPE	JACQUACU	PERU, BOLIVIA	30,000	2/3	2F	S	G	LR	Hf,L	NO	M,Lh	3	1	18
45	PENELOPE	JACQUACU JACQUACU	N BRAZIL (AMAZONIAS, WC)	20,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	1	<10 (Br)/ 44
45A	PENELOPE	JACQUACU JACQUACU	COLOMBIA, ECUADOR	>500,000	1	1	S	G	LR	Hf	NO	S, M, Lh	NO	2	34
45B	PENELOPE	JACQUACU JACQUACU	PERU, BOLIVIA	20,000	2/3	F	S	G	LR	Hf,L	NO	M,Lh	3	1	44
46	PENELOPE	JACQUACU ORIENTICOLA	E COLOMBIA, VENEZUELA, GUYANA	>200,000	1	1	S	F	LR	Hf	NO	S, M, Lh	NO	1	<85
46A	PENELOPE	JACQUACU ORIENTICOLA	N BRAZIL	10,000-20,000	4	1	S	D	LR	--	NO	S,Lh	3	1	<10 (Br)/ <85
47	PENELOPE	JACQUACU GRANTI	SE VENEZUELA, GUYANA	>50,000	1	1	S	E	LR	Hf	NO	S, M, Lh	NO	2	137
48	PENELOPE	JACQUACU SPECIOSA	C & E BOLIVIA	>10,000	2/3	1	D-	C	LR	Hf,L	NO	M	P	1	77
49	PENELOPE	OCHROGASTER	C BRAZIL	<2,000	3/4	4	D	C	VU	Hf,L,Lf	NO	S,M,Lr,Lh	1	2	<10 (Br)/ <10

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
50	PENELOPE	PILEATA	BRAZIL	5,000-10,000	4	1	D-	D	VU	Hf,L	NO	S,M,Lr,Lh	3	2	<100 (Br) <167
51	PENELOPE	DABBENEI	CHUQUISACA & TARIJA, (BOLIVIA), & CERRO CALILEGUA IN JUJUY & SALTA (NW ARGENTINA)	10,000 ?	2/3	1	S	D	VU	Hf,Lf	NO	S,M,Lh	P	1	0
52	PENELOPE	JACUCACA	NE BRAZIL	500-1,000	3/4	3	D+	B	CR	Hf,L,Lf,T	P	S,M, Hm,Lr, Lh	1	2	<50 (Br)/ <54
53	PENELOPE	SUPERCILIARIS (ALL SUBSPECIES-BRAZIL)	BRAZIL	>100,000	3/4	1	S	G	LR	Hf,L	NO	T,S,M, Lr,Lh	3	1	<300 (Br)/ <322
54	PENELOPE	SUPERCILIARIS SUPERCILIARIS	N BRAZIL												31
55	PENELOPE	SUPERCILIARIS JACUPEMBA	BOLIVIA	±5,000	2	1	S?	E	CD	Lh,Hf,I	NO	M,Lh	2	1	6
56	PENELOPE	SUPERCILIARIS MAJOR	E PARAGUAY, NE ARGENTINA	>10,000	3	F	D	E	VU?	Hf,Lf,I	NO	S,Lm	P	1	<10
57	PENELOPE	OBSCURA													
58	PENELOPE	OBSCURA OBSCURA	S BRAZIL (RIO GRANDE DO SUL)	<1,000	4	F	D	B	EN	Hf,L,Lf	NO	T,TI,S,M,L r,Lh, Hm	1	2	<10 (Br)/ <10
58A	PENELOPE	OBSCURA OBSCURA	E PARAGUAY, NE ARGENTINA	<3,000	2/3	F	D?	D	VU?	Hf,Lf,I	NO	S,M	P	1	<10

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
59	PENELOPE	OBSCURA BRIDGESI	S BOLIVIA, NW ARGENTINA	>100,000	2	1	S	E	LR	Hf,I	NO	M,Lh	NO	1	20
60	PENELOPE	OBSCURA BRONZINA	SE BRAZIL + NE ARGENTINA	5,000-10,000	3/4	F	D	C	VU	Hf,L,Lf,T	NO	T,TI,M,Hm,Lr,S Lh	1	1	<500 (Br)/ <523
61	PENELOPE	ARGYROTIS													24
62	PENELOPE	ARGYROTIS ARGYROTIS	COLOMBIA, VENEZUELA	<50,000	1/2 /3	5+F	D	D	CD	Lf, Hf	NO	M, Hm, Lm	NO	1	16
63	PENELOPE	ARGYROTIS ALBICAUDA	PERIJA (VENEZUELA)	<20,000	3/4	1	D	B	VU	Hf,L	NO	M, S, Hm, Lm	2	1	0
64	PENELOPE	ARGYROTIS COLOMBIANA	STA.MARTA (COLOMBIA)	<10,000	4	1F	D	A	EN	Hf,Lf	P	S, M, Hm, Lm, Lh	P	1	0
65	PENELOPE	BARBATA	S ECUADOR	<10,000	1/2 /3	3F	D	A	EN	Hf,Lf,I	Yes	S,M,Lh, Lm,T	1	1	6
65A	PENELOPE	BARBATA	NW PERU	1,500 ?	2	F?	D?	B	VU	Hf,I,L	P	Lr,Lh,MT, S	P	1	6
66	PENELOPE	MONTAGNII													27
67	PENELOPE	MONTAGNII MONTAGNII	VENEZUELA, E COLOMBIA	5-10,000	1/2	10F	D-	D	CD	Hf, Lf, Sv	NO	M, Lh, Lm, Hm	P	1	14
68	PENELOPE	MONTAGNII ATROGULARIS	SW COLOMBIA, W ECUADOR	<5,000	3/4	>5F	D	C	VU	Lf, Hf	NO	S, M, Lm, Hm, Lh	NO	1	1
69	PENELOPE	MONTAGNII BROOKI	SE COLOMBIA, E ECUADOR	>5,000	3/4	>5F	D	C	CD	Lf, Hf	NO	S, M, Lm, Hm, Lh	NO	1	0

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
70	PENELOPE	MONTAGNII PLUMOSA	E PERU	?	?	?	?	?	LR	Hf	NO	S,Lh	P	1 ?	?
71	PENELOPE	MONTAGNII SCLATERI	S PERU, BOLIVIA, NW ARGENTINA	?	3	?	?	?	LR	Hf	NO	S,Lh	P	1 ?	?
72	PIPILE	PIPILE	TRINIDAD	<250 (prob. <100)	1/3	>3F	D+	AA-2	CR	G, Hf, Lf	Yes	T, Hm, Lm, Lh	1	1	0
73*	PIPILE	CUMANENSIS													
73	PIPILE	CUMANENSIS CUMANENSIS	THE GUIANAS TO C COLOMBIA, ECUADOR	>100,000	1	1	S	G	LR	Hf	NO	Lh,T	NO	1	177
73A	PIPILE	CUMANENSIS CUMANENSIS	W BRAZIL	10,000-50,000	4	1	S	E	LR	--	NO	S,Lh,H, T	3	2	<30 (Br)/ 177
73B	PIPILE	CUMANENSIS CUMANENSIS	NE PERU	<10,000	2/3	?	D	F	VU?	Hf,I,L	NO	M,Lh, Lr,T	NO	1	177
74	PIPILE	CUMANENSIS GRAYI	SW BRAZIL (PANTANAL)	<5,000	3/4	1	S	C	LR	--	NO	S,Lh,H, T	3	2	<10 (Br)/ 119
74A	PIPILE	CUMANENSIS GRAYI	BOLIVIA, NE PARAGUAY	<10,000	1/2	1?	S/D	F	VU?	Hf,I, L	NO	T,M,S, Lh	NO	1	119
75	PIPILE	CUJUBI													
76	PIPILE	CUJUBI CUJUBI	NC BRAZIL	<5,000	4	1	D	D	VU	Hf,I	NO	S,M,H, T,TI	1	2	<10 (Br)/ 16

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
77	PIPILE	CUJUBI NATTERERI	S & W AMAZONIA (MATO GROSSO)	10,000-20,000	3/4	1	D	D	VU	Hf,L,Lf	NO	S,M,Lr,Lh, H, T	1	2	<15 (Br)/ 23
77A	PIPILE	CUJUBI NATTERERI	NE BOLIVIA	1,000-2,000?	1/2	1	D?	B	EN	Hf	P	T,M,S	P	1	23
78	PIPILE	JACUTINGA	SE BRAZIL	1,000-2,000	2/3 /4	5	D	C	CR	T,Hf,L,Lf	P	T,S,M,H,L h,Lr	1	2	<100 (Br) <10
78A	PIPILE	JACUTINGA	SE PARAGUAY, NE ARGENTINA	2,000?	3	F	D	C	EN	Hf,Lf,I	YES	S,M,Lm,T	1	1 ?	+
79	ABURRIA	ABURRI	N COLOMBIA, E VENEZUELA	2,500-5,000	1/3 /4	>5F	D+	D	EN	Hf, Lf	P	T, S, M, Hm, Lm, Lh, Lr	P	1 / 2	25
79A	ABURRIA	ABURRI	SC PERU	<10,000	2/3	1F	?	E	VU	I,L,Hf	P	S,M,Lr,Lh	P	1	25
80	CHAMAEPETES	GOUDOTII	COLOMBIA, ECUADOR & PERU												7
81	CHAMAEPETES	GOUDOTII GOUDOTII	COLOMBIA	>100,000	3/4	1F	D	C	LR	Hf, Lf	NO	S, M, Hm, Lm, Lh	NO	1 / 2	10
81A	CHAMAEPETES	GOUDOTII GOUDOTII	PERU	?	2/3	?	?	?	DD	Hf	NO	S	P	2	10
82	CHAMAEPETES	GOUDOTII SANCTAEMARTHAE	SANTA MARTA MTNS	<5,000	3/4	1	D	A	VU	Hf, L	P	S, M, Hm, Lr	1	1 / 2	0
83	CHAMAEPETES	GOUDOTII FAGANI	SW COLOMBIA, W ECUADOR	>5,000	1/2 /4	>5F	D	C	CD	Lf, Hf	NO	M, Hm	NO	1 / 2	0

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
84	CHAMAEPETES	GOUDOTII TSCHUDII	EC ECUADOR	>5,000	3/4	>5F	D	C	CD	Hf, Lf	NO	S, M, Hm, Lm	NO	1 / 2	0
84A	CHAMAEPETES	GOUDOTII TSCHUDII	N PERU	?	?	?	?	?	DD	Hf	NO	S	P	2	?
85	CHAMAEPETES	GOUDOTII RUFIVENTRIS	EC PERU + W BOLIVIA	10,000?	2/3	F?2?	S?	E?	VU?	I,L,Hf	NO	S,M,Lr, Lh	P	1 ?	?
86	CHAMAEPETES	UNICOLOR	COSTA RICA, PANAMA	<2,000	2/3	5	D	B	EN	Hf,L,Lf,P	YES	M,Hm, Lh	2	3	15
87	PENELOPINA	NIGRA	S MEXICO, GUATEMALA, ELSALVADOR, HONDURAS, NICARAGUA	<5,000	3	F	D	A	EN	La,Lf	YES	S,M,Hm	1	2	67
88	OREOPHASIS	DERBIANUS	S MEXICO, W GUATEMALA	<1,000	1/2	F	D	AA2	CR	Hf,La,Lf, G,I	YES	TI,M, Hm	1	1	54
89	NOTHOCRAX	URUMUTUM	SW VENEZUELA, E COLOMBIA, E ECUADOR,	>50,000	3/4	1	S	G	LR	Hf	NO	S, M, Lh	NO	1	421
89A	NOTHOCRAX	URUMUTUM	W BRAZIL	30,000-50,000	4	1	S	E	LR	--	NO	S,Lh	3	2	<80 (Br) 421
89B	NOTHOCRAX	URUMUTUM	NE PERU	>50,000	3	F?	S	E	LR	I,L,Hf	NO	S,M,Lr, Lh	2/3?	1	421
90	MITU	MITU	E BRAZIL (ALAGOAS)	0	1	0	--	AA3	EW	--	YES	T,TI,H,Hm	1	2	<30 (Br)/ <30
91	MITU	TUBEROSA	SE COLOMBIA	>10,000	1/3	1	S	C	LR	Hf	NO	M,Lh	NO	1	<299

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
91A	MITU	TUBEROSA	C BRAZIL (S OF AMAZONIA)	50,000-100,000	3/4	1	S	F	LR	--	NO	S,Lh,T	3	2	<150 (Br)/ <299
91B	MITU	TUBEROSA	E PERU, E BOLIVIA	>100,000	1/2 /3	1	S/D	G	LR	Hf,I,L	NO	S,Lr,Lh, M	2/3	1	<299
92	MITU	SALVINI	SE COLOMBIA, E ECUADOR, NC PERU	>50,000	1/2	1F	D+	D	VU	Hf, Lf	P	M,Hm, Lm,S	P	1	0
92A	MITU	SALVINI	NC PERU	<10,000	3	1	D	D	VU	Hf,I,L	P	S,M,Lr	P	1	?
93	MITU	TOMENTOSA	GUYANA, S VENEZUELA, E COLOMBIA	>100,000	1/3	1	S	G	LR	Hf	NO	M, Lh	NO	1	<112
93A	MITU	TOMENTOSA	NW + NC BRAZIL	<30,000	4	1	S	D	LR	--	NO	S,Lh,H	3	2	<30 (Br)/ <112
94	PAUXI	PAUXI													
95	PAUXI	PAUXI PAUXI	W VENEZUELA, E COLOMBIA	<2,000	1/3 /4	>5F	D+	C	EN	Hf, Lf	Yes	S, M, Hm, Lm, Lh, T	1	1	<512
96	PAUXI	PAUXI GILLIARDI	NW VENEZUELA, NE COLOMBIA	<1,000	1/3 /4/	2F	D+	A	EN	Hf, Lf	Yes	S, M, Hm, Lm, Lh, T	1	1	100
97	PAUXI	UNICORNIS	BOLIVIA & PERU	<5,000?	1/2	2?	D?	D?	VU	Lf,Hf,I	P	S,M,Lh,Lm	P	1	18 Estudi lo
98	PAUXI	UNICORNIS UNICORNIS	BOLIVIA	<5,000?	1/2	2?	D?	D?	VU	Lf,Hf,I	P	S,M,Lh,Lm	P	1	2
99	PAUXI	UNICORNIS KOEPCKEAE	C PERU	<2,500	4	1	?	A	EN	?	P	S	P	1 ?	0

	TAXON		WILD POPULATION										CAPTIVE PROGRAM		
	SCIENTIFIC NAME		RANGE	EST#	D Q	SUB POP	TRND	AREA	NEW IUCN STS	THRTS	PVA	RSCH MGMT	REC	D I F	NUM
100	CRAX	RUBRA													
101	CRAX	RUBRA RUBRA	MEXICO-PANAMA	5,000	2/3	F	D	C	EN	Hf,Lf,L	P	Hm,T, Tl,M,S	2	2	797
101 A	CRAX	RUBRA RUBRA	COLOMBIA, ECUADOR	<5,000	2/3 /4/	>5F	D	D	VU	Hf, Lf	P	S, M, Hm, Lm, Lh	P	1	797
102	CRAX	RUBRA GRISCOMI	COZUMEL I (MEXICO)	<50	1/3 /4	F?	D+	AA2	CR	H,L,G	P	M,T,S,Hm, Lm	1	1	0?
103	CRAX	ALBERTI	N COLOMBIA	1,000-2,500	3/4	>5F	D+	C	CR	Lf, Hf	Yes	S, M, Lm, Hm, Lh	1	1	27
104	CRAX	ALECTOR													
104 A	CRAX	ALECTOR	BRAZIL (N OF AMAZONIA)	<50,000	4	1	S	E	LR	--	NO	T,S,Lh	3	2	<100 (Br)/ <174
105	CRAX	ALECTOR ALECTOR	FR. GUYANA, SURINAM, GUYANA, N BRAZIL, SE VENEZUELA	>100,000	1/3	1	S	F	LR	Hf	NO	M,T,Lh	NO	1	>114
106	CRAX	ALECTOR ERYTHROGNATHA	SW VENEZUELA, E COLOMBIA, N BRAZIL	>100,000	2/3 /4	1	S	F?	LR	Hf	NO	M, Lh, T	NO	1	20
107	CRAX	DAUBENTONI	N VENEZUELA, NE COLOMBIA	10,000-40,000	1	>5F	D+	F	VU	Hf,Hs,Lf	NO	M, Hm, Lm	NO	1	150
108	CRAX	FASCIOLATA	BRAZIL, PARAGUAY & BOLIVIA												203

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WORKING DRAFT

December 1995

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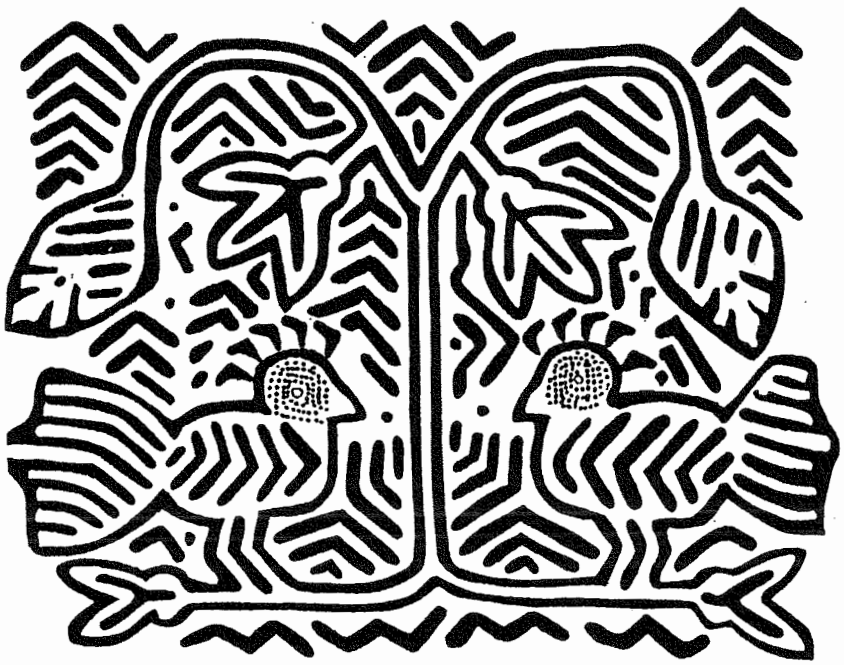

SECTION 3

TAXON DATA SHEETS FOR MESOAMERICAN TAXA

CAMP TAXON REPORT

SPECIES: *Ortalis vetula* Plain Chachalaca

STATUS:
CITES: Appendix III (Guatemala and Honduras) 4/23/81
IUCN: Low Risk (species)

Taxonomic status: species and five subspecies

Distribution: Mexico, Guatemala, Belize, Honduras, Nicaragua, Costa Rica

Wild Population: stable with >500,000

Field Studies: none known at present

Threats: Hunting for food, Loss of habitat due to introduction of exotic animals.

Comments: In Costa Rica the population is low and restricted to North Pacific coast.

Recommendations:
Research management: Taxonomy, Life history studies

PHVA: No

Captive Population: $\pm$ 225 for the species and subspecies

Captive Program Recommendation: None

CAMP TAXON REPORT

SPECIES: *Ortalis vetula vetula* Plain Chachalaca

STATUS:
CITES: Appendix III (Guatemala and Honduras) 4/23/81
IUCN: Low Risk (species)

Taxonomic status: subspecies

Distribution: Mexico, Guatemala, Belize, Honduras, Nicaragua to Costa Rica

Wild Population: +/-500,000

Field Studies: none known

Threats: Hunting for food

Comments: found in low numbers in Costa Rica along Northern Pacific slope. Found in three separate subpopulations in Costa Rica.

Recommendations:
Research management: Taxonomy, Life history

PHVA: No

Captive Population: 104 for all subspecies

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis vetula deschauenseei* Utila Island Chachalaca

STATUS:
CITES:
IUCN: Critical (based on extent of occurrence criteria)

Taxonomic status: subspecies

Distribution: Utila Island, Honduras

Wild Population: <100

Field Studies: S. Midence, 1988, 1990 unpublished report

Threats: Hunting for food and habitat loss

Comments: Greatly reduced habitat in mangrove areas found by Midence.

Recommendations:
Research management: Survey, Monitoring, Taxonomy, Habitat management, Limiting Factors Management

PHVA: No

Captive Population: none at present

Captive Program Recommendation: level 1

CAMP TAXON REPORT

SPECIES: *Ortalis vetula macallii* Plain Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: subspecies

Distribution: Texas and northeastern Mexico

Wild Population: +/-500,000 in Mexico; +/-20,000 in Texas

Field Studies: W. Marion (1970's in Texas); recent reintroductions and habitat restoration programs by G. Waggerman (S Texas).

Threats: Hunting for food, habitat loss (fragmentation)

Comments: None

Recommendations:
Research management: Taxonomy

PHVA: No

Captive Population: Some of the 104 present in captivity may be this subspecies.

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis vetula pallidiventris* Plain Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: subspecies

Distribution: N Yucatan, Mexico

Wild Population: reasonable numbers in suitable dry habitat $\pm$ 100,000

Field Studies: none known

Threats: Hunting for food

Comments: None

Recommendations:
Research management: Taxonomy, Monitoring

PHVA: No

Captive Population: This subspecies may be part of the 104 captive population for the species.

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis vetula intermedia* Plain Chachalaca

STATUS:
CITES:
IUCN: Low Risk ?

Taxonomic status: subspecies but uncertain

Distribution: Quintana Roo (Mexico) may extend to coastal Belize

Wild Population: 10,000 to 50,000 +-?

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food, habitat loss

Comments: None

Recommendations:
Research management: Taxonomy, Monitoring

PHVA: No

Captive Population: Some of this subspecies may be part of 104 for species

Captive Program Recommendation: None at present

CAMP TAXON REPORT

SPECIES: *Ortalis cinereiceps* Grey-headed Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: Species

Distribution: Honduras, Nicaragua, Costa Rica, Panama to NW Columbia

Wild Population: <200,000

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food, habitat fragmentation

Comments: Populations may be fragmented over much of range.

Recommendations:
Research management: Taxonomy, Monitoring, Surveys

PHVA: No

Captive Population: 63 (entire range)

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis poliocephala poliocephala* West Mexican Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: subspecies

Distribution: S. Mexico

Wild Population: >100,000

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food and loss of habitat because of fragmentation

Comments: None

Recommendations:
Research management: Taxonomy in relation to distribution

PHVA: No

Captive Population: 23 (Mexico)

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis poliocephala lajuelae* West Mexican Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: subspecies

Distribution: C. Mexico

Wild Population: >100,000

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food

Comments: None

Recommendations:
Research management: Monitoring

PHVA: No

Captive Population: 10-12 Mexico

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis wagleri* Wagler's Chachalaca

STATUS:

CITES:

IUCN: Vulnerable (based on population estimate criteria; population decline of 20% + in the last ten years)

Taxonomic status: species

Distribution: NC Mexico

Wild Population: +/-200,000 (no quantifiable data)

Field Studies: Unaware of specific recent efforts

Threats: Loss of habitat due to fragmentation, hunting for food

Comments: Taxonomic questions related to the status of *O. poliocephala*

Recommendations:

Research management: Survey, Taxonomy, Monitoring, Habitat management

PHVA: No

Captive Population: +/-10

Captive Program Recommendation: Level 2; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Ortalis leucogastra* White-bellied Chachalaca

STATUS:
CITES:
IUCN: Low Risk

Taxonomic status: species

Distribution: Mexico, Nicaragua, possibly in Guatemala and El Salvador

Wild Population: >10,000

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food, loss of habitat, pesticides

Comments: Populations are secure in Mexico and declining in Guatemala and Nicaragua

Recommendations:
Research management: survey, monitoring, and habitat management

PHVA: No

Captive Population: 123

Captive Program Recommendation: Level 3; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Penelope purpurascens purpurascens* Crested Guan

STATUS:
CITES: Appendix III Honduras 1/13/87
IUCN: Vulnerable (based on population reduction criteria)

Taxonomic status: species with three subspecies

Distribution: Mexico, Guatemala, Belize, Honduras, N Nicaragua

Wild Population: Total population < 50,000 and quite fragmented
Guatemalan Pacific coastal forest <1000, Atlantic coastal forest >10,000

Field Studies: Study of population pressure due to local hunting in local villages is needed. A study of game bird status in Uaxactun (Peten) in Guatamala has been carried out.

Threats: Hunting for food, Loss of habitat because of exotic animals and fragmentation

Comments: None

Recommendations:
Research management: Monitoring, Habitat management

PHVA: Pending

Captive Population: 572

Captive Program Recommendation: Level 2, Difficulty 1

CAMP TAXON REPORT

SPECIES: *Penelope purpurascens aequatorialis* Crested Guan

STATUS:

CITES:

IUCN: Vulnerable (based on population reduction criteria, extent of occurrence criteria)

Taxonomic status: subspecies

Distribution: S Nicaragua, Costa Rica, Panama, quite fragmented

Wild Population: < 5,000 - 10,000

Field Studies: Cecilia Pacheco has conducted field study in Santa Rosa National Park, Costa Rica.

Threats: Hunting for food, loss of habitat because of fragmentation, loss of habitat because of exotic animals, and predation.

Comments: fragmented habitat and declining populations

Recommendations:

Research management: Monitoring, Habitat management

PHVA: Pending

Captive Population: >50

Captive Program Recommendation: Level 2, Level 1

CAMP TAXON REPORT

SPECIES: *Chamaepetes unicolor* Black Guan

STATUS:

CITES:

IUCN: Endangered (based on population reduction and extent of occurrence, and probability of extinction criteria) Population estimates of 1000 or less.

Taxonomic status: species

Distribution: Costa Rica, Panama

Wild Population: Costa Rica 800 to 1000, Panama Very fragmented.

Field Studies: Current survey by Carlos Guindon in La Amistad and Monteverde (Costa Rica)

Threats: Hunting for food, loss of habitat, loss of habitat because of fragmentation, predation

Comments: None

Recommendations:

Research management: Monitoring, Habitat management, Life history studies

PHVA: yes

Captive Population: 15, but all from one pair

Captive Program Recommendation: Level 2, Difficulty 3

The current captive population is not viable because of limited genetic material. This captive population should be expanded as possible if any birds can be obtained from habitats which can not be protected.

CAMP TAXON REPORT

SPECIES: *Penelopina nigra* Highland Guan

STATUS:

CITES: Appendix III Guatemala 4/23/81
IUCN: Endangered (based on extent of occurrence criteria and population reduction criteria - severe fragmentation of the habitat and a decline in habitat by 50% or more in the last ten years. Also more than a 20% chance of extinction within the next 20 years.)

Taxonomic status: species

Distribution: S Mexico, Guatemala, Honduras, and very small population in El Salvador and Nicaragua

Wild Population: <5,000

Field Studies: Study by Jay Vannini started five years ago on the slopes of Volcano Santiaguito and Volcano Santa Maria (Pacific slope) in Guatemala

Threats: Habitat loss because of fragmentation, Loss of habitat because of exotic animals

Comments: None

Recommendations:

Research management: Monitoring, Habitat management, Survey

PHVA: Yes

Captive Population: 67

Captive Program Recommendation: Level 1; Difficulty 2

CAMP TAXON REPORT

SPECIES: *Oreophasis derbianus* Horned Guan

STATUS:

CITES: Appendix I 7/1/75
IUCN: Critical (based on population reduction and probability of extinction criteria)
Other: Possible genetic problems

Taxonomic status: species

Distribution: S Mexico and W Guatemala

Wild Population: < 1000

Field Studies: Biologist Fernando Gonzales, Parque Nacional el Triunfo, Chiapas, Mexico. Ecology, Santiago Billy 1983, Volcan San Pedro, Volcan Acatenango, 1993 Tecpan, Guatemala.

Threats: Hunting for food, Loss of habitat, Loss of habitat because of exotic animals, Genetic problems, human interference and disturbance (potential inbreeding).

Comments: Commercial traffic to Guatemala City and private farm on Pacific slope (20 individuals) and export to Mexico from Guatemala (region of San Marcos) more than 30 individuals in last eight years. (Possibly) Chicks which do not leave the nest during the first day may be due to yolk sac problem potentially due to inbreeding.

Recommendations:

Research management: Taxonomy as to whether the isolated populations are taxonomically distinct. there should be DNA work done on the separate populations to determine if they are distinct subspecies. Monitoring, Habitat management

PHVA: yes

Other: Studies are needed of potential inbreeding of the captive collections. A coordinated program for captive breeding is needed.

Captive Population: 54 (at least 40 in Mexico and 8 in Guatemala)
Captive Program Recommendation: Level 1; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Crax rubra rubra* Great Curassow

STATUS:

CITES:

IUCN: Endangered (based on population reduction and extent of occurrence criteria) May be critical in some locations and only vulnerable in others.

Taxonomic status: species (one subspecies)

Distribution: Mexico to Panama, Colombia. Probably no longer exists in Ecuador. Greatly reduced in El Salvador and Honduras. Only in national parks in Costa Rica. Sustainable populations may exist in forests of S. Yucatan, Mexico, and Peten of Guatemala.

Wild Population: $\pm$ 5000

Field Studies: In Costa Rica by Rodrigo Morera; in Guatemala studies have been carried out in region of Uaxactun (Peten)

Threats: Hunting for food, loss of habitat, loss of habitat due to fragmentation

Comments: None

Recommendations:

Research management: Translocation, Monitoring, Taxonomy, Habitat management, Surveys throughout range

PHVA: Pending need in other areas

Captive Population: 797 (>500 in Mexico). Possible hybrids in captive population.

Captive Program Recommendation: Level 2; Difficulty 1

CAMP TAXON REPORT

SPECIES: *Crax rubra griscomi* Cozumel Island Curassow

STATUS:

CITES:

IUCN: Critical (if it is a distinct subspecies) - (based on population reduction and extent of occurrence as well as probability of extinction criteria)

Taxonomic status: There is question whether this subspecies is distinct. Main differences appear to be size and possibly coloration of females.

Distribution: Cozumel Island, Mexico

Wild Population: probably <1000

Field Studies: Survey by Martha Suarez (1990); additional survey planned for 1995 by Patricia Escalante (Universidad Nacional Autonoma de Mexico)

Threats: habitat loss, hunting for food, genetic problems

Comments: Greatly reduced population, restricted to remnant forest

Recommendations:

Research management: Survey, Monitoring of population and threats, Taxonomic research (possibly check with DNA work), Habitat Management, Limiting Factors Management

PHVA: Pending outcome of taxonomic work and survey

Captive population: none known

Captive program recommendation: 1; difficulty level 1

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December 1995

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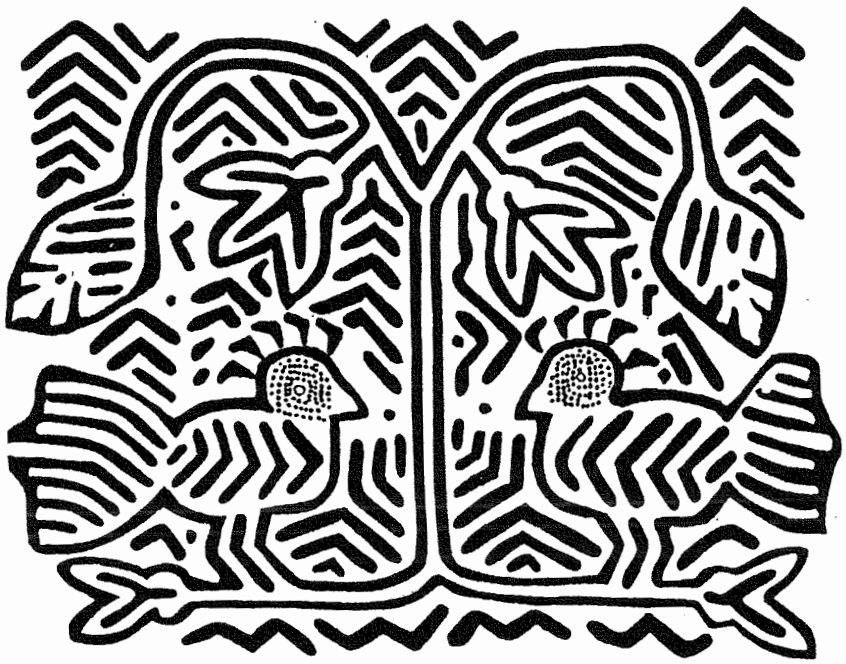

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SECTION 4

TAXON DATA SHEETS FOR NORTHERN SOUTH AMERICAN TAXA

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

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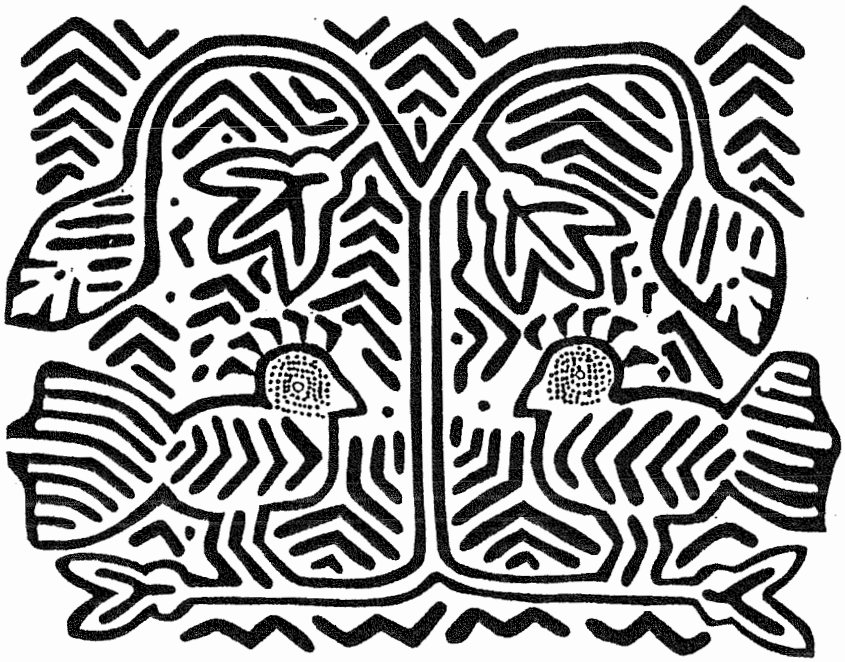
1-3 October 1994



SECTION 4

TAXON DATA SHEETS FOR NORTHERN SOUTH AMERICAN TAXA

CAMP TAXON REPORT

SPECIES: *Ortalis garrula garrula* Chestnut-winged Chachalaca

STATUS:

CITES: Not listed
IUCN: Low Risk?
Other: The species is protected by a law that prohibits hunting of wildlife in protected areas.

Taxonomic status: Species; one subspecies

Distribution: NW Colombia

Wild Population: >10,000. A conservative estimate of density is 10 birds per km2 (based on experience with *Ortalis ruficauda)*

Field Studies: Not aware of specific efforts

Threats: Habitat fragmentation

Comments: Very little known about the conservation status of the species; no information available on trend. Population is fragmented. The population is thought to be stable, because of the apparent adaptability of the species to secondary habitat.

Recommendations:

Research management: Survey, life history studies, ethnobiological studies.

PHVA: No

Captive Population: 1.1 (Cali Zoo); not known if any in other institutions

Captive Program Recommendation: Pending; level 1 difficulty BUT *Ortalis garrula* may be different than other *Ortalis* that are currently present in captivity.

References: Hilty & Brown (1986)

CAMP TAXON REPORT

SPECIES: *Ortalis cinereiceps* Grey-headed Chachalaca

STATUS:

CITES: Not listed
IUCN: Low Risk?
Other: The species is protected by a law that prohibits hunting of wildlife in protected areas.

Taxonomic status: Species

Distribution: NW Colombia (only)

Wild Population: >20,000. A conservative estimate of density is 10 birds per km^2 (based on experience with *Ortalis ruficauda)*

Field Studies: Unaware of specific recent efforts.

Threats: Hunting for food, loss of habitat (fragmentation)

Comments: Of the distribution, the northern half is much more disturbed than the southern half. The population is thought to be stable, because of the apparent adaptability of the species to secondary habitat. The species is found within Parque Nacional Natural Los Katios; there is a possibility that a road may be built through the park which may affect the species through increased human disturbance.

Recommendations:

Research management: Survey, life history studies

PHVA: No

Captive Population: 63 (23 in North American zoos)

Captive Program Recommendation: No; level 1 difficulty BUT *Ortalis cinereiceps* may be different than other *Ortalis* that are currently present in captivity.

References: Hilty & Brown (1986)

CAMP TAXON REPORT

SPECIES: *Ortalis ruficauda ruficauda* Rufous-vented Chachalaca
STATUS:

CITES: Not listed
IUCN: Low Risk
Other: Occurs in national parks (listed below) where hunting of wildlife is prohibited. In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.'

Taxonomic status: Subspecies

Distribution: N. Venezuela, E. Colombia

Wild Population: >100,000. A conservative estimation of density is 10 birds km^2. The subspecies range is estimated to be 650,000 - 700,000 sq. km.; the area occupied is estimated to be between 300,000 - 400,000 sq. km.

Field Studies: José Silva and Stuart Strahl (Wildlife Conservation Society) conducted field work (1985-1989) in Parque Nacional Guatopo, P.N. Henri Pittier, P.N. San Esteban, P.N. Terepaima, P.N. Yacambu, and Hato Masaguaral (a private ranch) in Venezuela. Angela Schmitz (MS. 1991) in North central Venezuela carried out a study on the effects of human impact on this species.

Threats: Hunting for food, poaching, habitat loss because of fragmentation, human interference, fire. These are human activities that do not appear to have a significant effect on the population at the moment, but this may change with increasing intensity. The species is highly adaptable to disturbed habitat and suburban areas.

Comments: The species is thought to be stable.

Recommendations:

Research management: Monitoring, limiting factors management (stop/control hunting), taxonomic studies, life history studies,

PHVA: No

Captive Population: 70 globally [32 (Europe); 38 (Venezuelan zoos)]; assume are *O.r. ruficauda*

Captive Program Recommendation: No program recommended; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis ruficauda ruficrissa* Rufous-vented Chachalaca

STATUS:

CITES: Not listed

IUCN: Low Risk?

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: NW Venezuela, NE Colombia

Wild Population: Unknown, probably stable, fairly large.

Field Studies: Recent efforts in the Sierra de Perija by Rosana Calchi and Nayibe Pérez of the University of Zulia conducted from 1988-1991 in Venezuela.

Threats: Hunting for food, habitat loss because of fragmentation, and human interference, but the species is highly adaptable.

Comments: Very little is known about this subspecies. Protected in P. N. Sierra de Perijá
and probably Sierra de Los Motilones in Colombia.

Recommendations:

Research management: Survey, limiting factors management (stop/control hunting), life history studies, taxonomic studies.

PHVA: No

Captive Population: 1 in Chorros de Milla Zoo in Mérida (Venezuela)

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis ruficauda lamprophonia* Rufous-vented Chachalaca

STATUS:
CITES: Not listed
IUCN: Data Deficient
Other:

Taxonomic status: Subspecies

Distribution: NE Colombia, apparently restricted to the area of the Santa Marta Mountains

Wild Population: Unknown

Field Studies: Juan Meyer (Fundación pro Sierra) may have data; conducting some studies in the P. N. Sierra de Santa Marta in Colombia.

Threats: Unknown

Comments: This subspecies is poorly known; taxonomic status uncertain.

Recommendations:
Research management: Taxonomic studies, survey, monitoring.

PHVA: No

Captive Population: Unknown

Captive Program Recommendation: No; level 1 difficulty

CAMP TAXON REPORT

SPECIES: *Ortalis erythroptera* Rufous-headed Chachalaca

STATUS:

CITES:

IUCN: Endangered (based on probability of extinction and population estimate criteria)

Other: Severe habitat destruction throughout range.

Taxonomic status: Species

Distribution: W. Ecuador, possibly SW Colombia.

Wild Population: <5,000

Field Studies: Brinley Best has carried out field work for BirdLife International with CECIA (Ecuador) (Best, 1992); Ridgeley and Greenfield - Status and Distribution in Ecuador; Bloch et al. carried out a survey of the montane forest avifauna in the Loja Province, southern Ecuador (ICBP report 1991). El Proyecto Subir (Fernando Ortiz and Paul Greenfield) has data from NW Ecuador.

Threats: Hunting for food (may not pose a high level of threat), human interference, and habitat loss because of fragmentation.

Comments: The population is declining rapidly but does receive some protection within several reserves and one National Park (Bosque Protector Cerro Blanco, Parque Nacional Nachalilla, Cacera de Bilsa [Jatunsacha], Cerro Mutiles [Reserva Jardin tropical], Rio Palengue and jauneche (Ridgely & Greenfield, 1994 and Conservation International, 1991). This species is very sensitive to environmental disturbance, more so than other *Ortalis* species, and is mostly found in small isolated sub-populations. According to Neils Krabbe and Paul Greenfield, the status may be Vulnerable.

Recommendations:

Research management: Monitoring, limiting factors management, life history studies

Support CECIA's efforts to declare and manage protected areas in Molleturo.

PHVA: Yes

Captive Population: 2

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Ortalis guttata* Speckled Chachalaca

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species; needs taxonomic clarification.

Distribution: Colombia (only)

Wild Population: Probably >>50,000

Field Studies: Unaware of specific recent efforts

Threats: Habitat loss because of fragmentation, hunting for food, and human interference.

Comments: The comments here include the two subspecies which occur in Colombia, *O. g. guttata* and *O. g. colombiana.* This is a generally wide-ranging, tolerant species.

Recommendations:
Research management: Survey, taxonomic studies, life history studies

PHVA: Pending

Captive Population: 13

Captive Program Recommendation: Pending

CAMP TAXON REPORT

SPECIES: *Ortalis motmot motmot* Little Chachalaca

STATUS:

CITES: Not listed
IUCN: Low Risk
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: SE Venezuela (only)

Wild Population: >>30,000. A conservative estimate of density is 4 birds per km2. One population.

Field Studies: Studies carried out by J. Silva and S. Strahl in Urbani, Rio Nichare, R.F. el Caura; Taren Barú, Canaima Bolivar; and Rio Ocamo, Amazonas (Silva & Strahl, 1991) Venezuela.

Threats: Hunting for food, habitat loss because of fragmentation, and human interference.

Comments: The population is thought to be stable, and has a broad range largely unaffected by habitat destruction. Adapts to disturbed habitats.

Recommendations:

Research management: Monitoring.

PHVA: No

Captive Population: 30

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope purpurascens aequatorialis* Crested guan

STATUS:

CITES: *P. purpurascens* is listed on Appendix III (Honduras)
IUCN: Low Risk
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: Colombia, Ecuador, Venezuela (only)

Wild Population: >60,000. Density estimates in P.N. San Esteban and P.N. Guatopo in Venezuela average 10-15 birds per km^2. According to J. Silva these estimates correspond only to one area within each of these parks. However, populations are undergoing increasing habitat destruction and fragmentation, and hunting pressure.

Field Studies: Studies carried out by J. Silva and S. Strahl throughout Venezuela.

Threats: Hunting for food, poaching, habitat loss because of fragmentation, human interference, and fire.

Comments: One population, which is fragmented. The population is declining.

Recommendations:

Research management: Monitoring, life history studies, limiting factors management, taxonomic studies

PHVA: No

Captive Population: >50 *P. purpurascens* of which an unknown proportion are *P. p. aequatorialis*

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope purpurascens brunnescens* Crested Guan

STATUS:

CITES: *P. purpurascens* is listed on Appendix III (Honduras)
IUCN: Vulnerable? (based on the extent of occurrence criteria)
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: NE Colombia, NW Venezuela

Wild Population: Unknown

Field Studies: Unaware of specific recent efforts.

Threats: Hunting for food, habitat loss because of fragmentation, and human interference

Comments: There is one population, which is fragmented. The population is thought to be declining. Outside of the National Park of Santa Marta (N Colombia), there has been a lot of habitat destruction; the whole area is under a great deal of pressure and is the focus of many conservation efforts. There is a great deal of social instability in the area; in the whole of NE Colombia there has been a great reduction in habitat.

Recommendations:

Research management: Survey, habitat management, limiting factors management, taxonomic studies, life history studies.

PHVA: No

Captive Population: 6

Captive Program Recommendation: Pending; difficulty level 1

References: See Hilty & Brown, 1986.

CAMP TAXON REPORT

SPECIES: *Penelope perspicax* Cauca guan

STATUS:

CITES: Not listed

IUCN: Endangered (based on population estimates, probability of extinction and extent of occurrence).

Taxonomic status: Species

Distribution: Cauca Valley in Colombia (± 100,000 ha)

Wild Population: <1,000

Field Studies: Nadachowski (in press) reports a density of 31 birds per km^2., which may be an exceptionally high estimate.

Threats: Habitat loss because of fragmentation, hunting for food, and human interference.

Comments: The single population is very fragmented and is thought to be declining. The three areas in which the bird is found have problems with poaching, and are small in overall area.

Recommendations:

Research management: Survey, monitoring, limiting factors management, habitat management, life history studies

PHVA: Yes

Captive Population: 3

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope ortoni* Baudó Guan

STATUS:

CITES: Not listed

IUCN: Vulnerable (based on probability of extinction criteria)

Taxonomic status: Status

Distribution: W. Colombia, W to S Ecuador (El Oro)

Wild Population: 5,000 - 10,000

Field Studies: Recent efforts; Eduardo Velasco (W Colombia), Centro de Datos para la Conservación en Cooperación Valle Caucana (CDC-CVC), El Proyecto Subir in R. E. Cotacachi-Cayapas, Ecuador, Ridgley and Greenfield - status and distribution in Ecuador.

Threats: Habitat loss because of fragmentation, hunting for food, human interference

Comments: 3+ subpopulations which are each fragmented; declining. Data from Ecuador indicate severe reduction in numbers and populations. Protected populations in Ecuador (Cotacachi-Cayapas and Molleturo). This species may range to the border of Panama (E. Alvarez, C. Marquez, pers. comm.).

Recommendations:

Research management: Survey, habitat management, limiting factors management, life history studies, monitoring

PHVA: Pending

Captive Population: 1

Captive Program Recommendation: Level 2; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope marail marail* Marail Guan

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: French Guiana, Surinam, Guyana, Venezuela

Wild Population: >100,000

Field Studies: Muriel Held conducted a field study on *P. marail* in Surinam in the mid-1980s; see also L. Sanite (1988) regarding French Guiana.

Threats: Hunting for food

Comments: The population is thought to be stable and not fragmented.

Recommendations:

Research management: Monitor, survey (in southern Guyana and Venezuela)

PHVA: No

Captive Population: 47

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope marail jacupemba* Marail Guan

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: SE Venezuela (only)

Wild Population: >10,000

Field Studies: Unaware of specific recent efforts.

Threats: Hunting for food

Comments: Population is thought to be stable.

Recommendations:

Research management: Survey, life history studies, ethnobiological studies.

PHVA: No

Captive Population: 10

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu jacquacu* Spix's Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Colombia, Ecuador (only)

Wild Population: >500,000

Field Studies: In Ecuador (Arlyne Johnson, Mike Hedemark, and Ruth Garcés) and in Colombia (Sarah Defler).

Threats: Hunting for food

Comments: One population which is only slightly fragmented on its western edge; population stable.

Recommendations:
Research management: Survey, monitor, life history studies

PHVA: No

Other: Ethnobiological research

Captive Population: 34 (thought to be not only this subspecies)

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu orienticola* Spix's Guan

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: E. Colombia, Guyana, Venezuela (only)

Wild Population: >200,000. Density estimate range is 9-28 birds/km^2 in R.F. el Caura (Silva and Strahl, 1991).

Field Studies: Studies carried out by J. Silva and S. Strahl in Eastern Venezuela, R.F. el Caura, Bolivar (Silva & Strahl, 1991), and Rio Ocamo, Amazonas (Silva & Strahl, 1991).

Threats: Hunting for food

Comments: One population, not fragmented. Population trend is stable.

Recommendations:

Research management: Survey, monitoring, life history studies, ethnobiological studies.

PHVA: No

Captive Population: <85

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu granti* Spix's Guan

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: SE Venezuela, Guyana

Wild Population: <50,000. Density estimate is 5 birds/km^2 in Parque Nacional Canaima (Silva and Strahl, 1991).

Field Studies: Studies carried out by J. Silva and S. Strahl in Urbani (Venezuela); Taren Barú, Canaima Bolivar (Silva & Strahl, 1991) in Venezuela.

Threats: Hunting for food

Comments: One population, not fragmented and thought to be stable.

Recommendations:

Research management: Survey, monitoring, life history studies

PHVA: No

Other: Ethnobiological studies

Captive Population: 137

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope argyrotis argyrotis* Band-tailed Guan

STATUS:

CITES: Not listed
IUCN: Conservation Dependent
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: Colombia, Venezuela

Wild Population: <50,000 (see Silva & Strahl 1991, 1994)

Field Studies: Studies carried out by J. Silva and S. Strahl throughout N Venezuela (Silva & Strahl, 1991).

Threats: Habitat loss because of fragmentation, hunting for food and for sport

Comments: More than five subpopulations (fragmented). Population is declining. National Parks programs in Colombia and Venezuela are keeping the subspecies from threatened status (populations are all in parks or forest preserves). Habitat outside of the parks has been or is being destroyed. In Colombia the forests of the Andean slope are rapidly disappearing.

Recommendations:

Research management: Monitoring, habitat management, limiting factors management

PHVA: No

Captive Population: 16

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope argyrotis albicauda* Band-tailed Guan

STATUS:

CITES: Not listed

IUCN: Vulnerable (based on population estimates and extent of occurrence criteria)

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: Parque Nacional Perija (Venezuela)

Wild Population: <10,000

Field Studies: Unaware of specific recent efforts. Rosana Calchi and Nayibe Pérez conducted studies from 1988-1990 in area.

Threats: Hunting for food and habitat loss

Comments: One population which is declining. The survival of the population depends on the existence of the national park and the protection that the subspecies receives therein.

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors management

PHVA: No

Captive Population: No

Captive Program Recommendation: 2; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope argyrotis colombiana* Band-tailed Guan

STATUS:
CITES: Not listed
IUCN: Endangered (based on extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: Santa Marta (Colombia)

Wild Population: <10,000

Field Studies: Juan Meyer (Fundación pro Sierra) may have data; conducting some studies in the P. N. Sierra de Santa Marta in Colombia.

Threats: Hunting for food and habitat loss because of fragmentation

Comments: One fragmented population which is declining.

Recommendations:
Research management: Survey, monitoring, habitat management, limiting factors management, and life history studies

PHVA: Pending

Captive Population: No

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope barbata* Bearded Guan

STATUS:
CITES: Not listed
IUCN: Endangered (based on extent of occurrence criteria)

Taxonomic status: Species

Distribution: N. Peru & S. Ecuador (only)

Wild Population: <10,000

Field Studies: Study by Galo Medina (1992) in Ecuador. T. Parker, and Bloch, et al. (ICBP, 1991) in Ecuador.

Threats: Hunting for food, loss of habitat because of fragmentation, possible genetic problems

Comments: Three subpopulations which are very fragmented and declining. Largest potentially viable populations are in Parque Nacional Podocarpus, Cordillera de Chilla and the Andean region in southern Azuay in Ecuador. Estimate of the total Ecuadorian population is in the range of 500-3,000 pairs (Bloch, et al, 1991).

Recommendations:
Research management: Monitoring, habitat management, limiting factors management, taxonomic studies.

PHVA: Yes

Captive Population: None

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope montagni montagni* Andean Guan

STATUS:

CITES: Not listed

IUCN: Conservation Dependent

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: Venezuela, E. Colombia

Wild Population: 5,000 - 10,000 (Luis Miguel Renjifo, personal communication based on field studies in Alto Quindio, Colombia 1994)

Field Studies: Luis Miguel Renjifo is conducting field research in Alto Quindio, Colombia.

Threats: Habitat loss because of fragmentation, hunting for food, hunting for sport, volcanic eruptions (Colombia).

Comments: At least 5 - 10 subpopulations, fragmented and declining slowly. The subspecies is protected in national parks; without this protection it would be threatened.

Recommendations:

Research management: Monitoring, limiting factors management, habitat management, life history studies.

PHVA: No

Captive Population: 13 (Europe); 1 (Venezuela)

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope montagnii atrogularis* Andean Guan

STATUS:
CITES: Not listed
IUCN: Vulnerable (based on population estimate criteria)

Taxonomic status: Subspecies

Distribution: SW Colombia, W Ecuador

Wild Population: <5,000

Field Studies: El Proyecto Subir has a component that carries out biological monitoring in Cotocachi-Cayapas (western Ecuador). El Proyecto Subir may also until recently have been monitoring this species in the Reserva Ecológocia Cayambe-Cayapas. The Western Foundation of Vertebrate Zoology (Juan Manuel Carrión) has also worked in that area. The Academy of Sciences in Philadelphia also is working in Ecuador.

Threats: Hunting for food (although this may not be a major threat) and habitat loss because of fragmentation

Comments: More than five subpopulations, fragmented and declining. Greenfield and Krabbe suggest that this subspecies may not be Vulnerable and may be more accurately assigned to the Low Risk category of threat.

Recommendations:
Research management: Survey, monitoring, limiting factors management, life history studies, and habitat management

PHVA: No

Captive Population: None

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope montagnii brooki* Andean guan

STATUS:
CITES: Not listed
IUCN: Conservation Dependent

Taxonomic status: Subspecies

Distribution: SE Colombia, E Ecuador

Wild Population: >5,000

Field Studies: El Proyecto Subir may also until recently have been monitoring this species in the Reserva Ecológocia Cayambe-Cayapas. Celia Pacheco has conducted field studies in Bosque Protector Pasochoa. The Western Foundation of Vertebrate Zoology (Juan Manuel Carrión) has also worked in that area.

Threats: Habitat loss because of fragmentation and hunting for food

Comments: More than five subpopulations, fragmented and declining. The subspecies is found in protected areas from north to south central Ecuador, including Cayambe-Coca, Antisana, Sangay, all of which have indigenous and colonist populations hunting within them. The vast majority of populations are within these areas; these areas have different pressures but some areas have just opened to commercial logging. There are other isolated populations that do not have continuous habitat between them.

Recommendations:
Research management: Survey, monitoring, habitat management, limiting factors management, life history studies

PHVA: No

Captive Population: None

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile pipile* Trinidad Piping Guan

STATUS:

CITES: Appendix I

IUCN: Critical (based on population estimates, number of mature individuals, extent of occurrence and probability of extinction).

Taxonomic status: Subspecies

Distribution: Trinidad

Wild Population: <250 (probably <100)

Field Studies: James and Hislop (1988); another study ongoing in forestry department in Trinidad

Threats: Habitat loss because of fragmentation, genetic problems, and hunting for food

Comments: More than three subpopulations, declining and fragmented, heavy poaching.

Recommendations:

Research management: Taxonomic research (DNA samples); habitat management, limiting factors management, life history studies

PHVA: Yes

Captive Population: None

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile cumanensis cumanensis* Common Piping Guan

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: Venezuela, Guianas, Colombia, Ecuador (only)

Wild Population: >100,000

Field Studies: Studies carried out by J. Silva and S. Strahl in Urbani, R.F. el Caura; Canaima Bolivar (Silva & Strahl, 1991); and Rio Ocamo, Amazonas (Venezuela). Also Strahl (unpublished) study in Rio Nichare. There is also information from Johnson, Hedemark, and Garcés from Amazonian Ecuador where the subspecies is also abundant. I. Goldstein also has conducted nutritional studies.

Threats: Hunting for food

Comments: One population which is stable.

Recommendations:

Research management: Life history, taxonomic and ethnobiological studies.

PHVA: No

Captive Population: 177 (*Pipile cumanensis cumanensis)* [at least 104 Europe, 42 N. American zoos, 27 N. American private sector, 1 Venezuelan zoos]. Strong recommendation that *P. c. cumanensis* be replaced by *P. pipile* in zoos. *P. c. cumanensis* populations currently in captivity are highly hybridized.

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Aburria aburri* Wattled Guan

STATUS:

CITES:

IUCN: Endangered (based on population estimate criteria)

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general, with a specific decree that protects this species.

Taxonomic status: Species

Distribution: N Colombia, E Venezuela, E & NW Ecuador (only)

Wild Population: 2,500 - 5,000 (Silva & Strahl, 1994; Ridgely & Greenfield status and distribution in Ecuador; Carrión, general field study in Ecuador)

Field Studies: Silva and Strahl have conducted surveys throughout N Venezuela (1985-present).

Threats: Hunting for food, habitat loss because of fragmentation

Comments: More than five subpopulations, fragmented and declining rapidly throughout range. Range runs through several protected areas in Ecuador - CayambeCoca, Podocarpus, NW Ecuador: Mindo, where also protected, Ridgely and Greenfield status and distribution.

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors management, limiting factors research, taxonomic studies

PHVA: Pending

Captive Population: 25: at least 3 Venezuelan zoos, 2 Venezuelan private sector

Captive Program Recommendation: Pending; difficulty level 1/2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii goudotii* Sickle-winged Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Colombia

Wild Population: >100,000

Field Studies: Unaware of specific recent efforts.

Threats: Hunting for food and habitat loss because of fragmentation

Comments: One population, fragmented and declining.

Recommendations:
Research management: Survey, monitoring, habitat management, limiting factors management, life history studies

PHVA: No

Captive Population: 10: at least 1.4 in Cali Zoo - unknown subspecies

Captive Program Recommendation: No; difficulty level 1/2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii sanctaemarthae* Santa Maria Sickle-winged Guan

STATUS:

CITES: Not listed

IUCN: Vulnerable (based on population estimate and extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: Santa Marta mountains (NE Colombia)

Wild Population: <5,000

Field Studies: Juan Meyer (Fundación pro Sierra) may have data; conducting some studies in the P. N. Sierra de Santa Marta in Colombia.

Threats: Hunting for food and loss of habitat.

Comments: One population, declining. There is guerilla activity in the area which makes it difficult to carry out field research and management.

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors research

PHVA: Pending

Captive Population: None

Captive Program Recommendation: Level 1; difficulty level 1/2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii fagani* Sickle-winged Guan

STATUS:
CITES: Not listed
IUCN: Conservation Dependent

Taxonomic status: Subspecies

Distribution: SW Colombia and W Ecuador

Wild Population: >5,000

Field Studies: Luis Miguel Renjifo is conducting field research in Alto Quindio (Colombia).

Threats: Loss of habitat because of fragmentation and hunting for food.

Comments: More than five subpopulations, fragmented and declining. The largest populations are contained within protected areas.

Recommendations:
Research management: Monitoring, habitat management

PHVA: No

Captive Population: None

Captive Program Recommendation: No; difficulty level 1/2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii tschudii* Sickle-winged Guan

STATUS:
CITES: Not listed
IUCN: Conservation Dependent

Taxonomic status: Subspecies

Distribution: E central Ecuador (only)

Wild Population: >5,000

Field Studies: El Proyecto Subir may until recently have been monitoring this species in the Reserva Ecológocia Cayambe-Cayapas. The Western Foundation of Vertebrate Zoology (Juan Manuel Carrión) has also worked in that area. Also Hernandez and Rodriguez (1988).

Threats: Habitat loss because of fragmentation, hunting for food

Comments: More than five subpopulations, fragmented and declining. The species is more able to survive in fragmented and edge habitats than other species. Large portions of range is within protected areas (Cayambe-Coca and Podocarpus). Krabbe and Greenfield suggest that the category of threat should be Low Risk.

Recommendations:
Research management: Habitat management, survey, monitoring

PHVA: No

Captive Population: None

Captive Program Recommendation: No; difficulty level 1/2

CAMP TAXON REPORT

SPECIES: *Nothocrax urumutum* Nocturnal Curassow

STATUS:

CITES: Not listed.

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Species

Distribution: SW Venezuela, E Colombia, E Ecuador (only)

Wild Population: >50,000

Field Studies: Unaware of specific recent efforts. Defler and Defler (1988) Rio Apaporis in Colombia; T.A. Parker III in S. Venezuela; Johnston, Hedemark, Garcés (1990-92) in Ecuador.

Threats: Hunting for food

Comments: One population, stable.

Recommendations:

Research management: Survey, monitoring, life history studies

PHVA: No

Captive Population: 429 - at least 29 in Europe

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Mitu tuberosa* Razor-billed Curassow

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: SE Colombia (only)

Wild Population: >10,000 (SE Colombia only)

Field Studies: Defler and Defler (1988) contains information on *M. tuberosa* in E. Ecuador (?). Contact M. Kelsey (BirdLife International) for further information.

Threats: Hunting for food

Comments: One population, stable.

Recommendations:
Research management: Monitoring, life history studies

PHVA: No

Captive Population: <299: at least 98 in Europe, 15 in N. American zoos, 17 in N. American private sector

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Mitu salvini* Salvin's Curassow

STATUS:
CITES: Not listed
IUCN: Vulnerable (based on population reduction criteria)

Taxonomic status: Species

Distribution: SE Colombia and E Ecuador (only)

Wild Population: <50,000

Field Studies: Marcela Santamaria, Ana Maria Franco, and Marisol Estano have been conducting studies in Colombia in Rio Duda. Also Johnson, Hedemark, and Garcéz in Amazonian Ecuador. El Proyecto Subir has a component that carries out biological monitoring in R. E. Cayambe-Coca (Ecuador) and P. N. Yasuni. Ecociencia is also working in those areas and in R. P. F. Cuyabeno. Ecuambiente (Ecuador) has a component that is monitoring impact in Maxus Project (Ridgely, Krabbe, Canaday, 1994).

Threats: Habitat loss because of fragmentation and hunting for food

Comments: One population, fragmented and declining rapidly; heavy hunting pressure.

Recommendations:
Research management: Survey, monitoring, limiting factors management, habitat management.

PHVA: Pending.

Captive Population: None

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Mitu tomentosa* Crestless Curassow

STATUS:

CITES: Not listed
IUCN: Low Risk
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Species

Distribution: Guyana, S Venezuela, E Colombia (only)

Wild Population: >100,000

Field Studies: See Silva and Strahl (1991)

Threats: Hunting for food

Comments: One population, stable.

Recommendations:

Research management: Monitoring, life history studies

PHVA: No

Captive Population: <112: at least 5 in Europe, 9 in N. American zoos, 7 in N. American private sector, 1 in Venezuelan zoos, 1 in Colombian zoo

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pauxi pauxi pauxi* Northern Helmeted Curassow

STATUS:

CITES: Appendix III (species level)
IUCN: Endangered (based on population estimate criteria)
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general. There are also legal decrees (added to these laws) that permanently prohibit the hunting of this species.

Taxonomic status: Subspecies

Distribution: W Venezuela, NE Colombia

Wild Population: <2,000

Field Studies: See Silva and Strahl (1991, 1994).

Threats: Hunting for food, poaching, illegal sport hunting, habitat loss because of fragmentation

Comments: More than five subpopulations, declining rapidly and fragmented; populations within national parks are rare; may not be demographically or genetically viable.

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors management, life history studies, taxonomic studies.

PHVA: Yes

Captive Population: <512: 55 (Europe), 29 (N. American zoos), 4 (N. American private sector), 7 (Venezuelan zoos), 2 (Cali Zoo, Colombia)
Need to determine subspecies of any *P. pauxi* in all collections (DNA work) and rule out possible *P. pauxi/P. unicornis* hybrids.

Captive Program Recommendation: Level 1; difficulty level 1 (very aggressive)

CAMP TAXON REPORT

SPECIES: *Pauxi pauxi gilliardi* Northern Helmeted Curassow

STATUS:

CITES: Appendix III (species level)
IUCN: Endangered (based on extent of occurrence and population estimate criteria and probably population reduction criteria)
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general. There are also legal decrees (added to these laws) that permanently prohibit the hunting of this species.

Taxonomic status: Subspecies

Distribution: NW Venezuela, NE Colombia

Wild Population: <1,000

Field Studies: Nayibe Perez and Rosana Calchi conducted studies from 1988-1990 (Venezuela).

Threats: Hunting for food, hunting illegally for sport, and habitat loss because of fragmentation

Comments: Two subpopulations, fragmented and declining rapidly. Area is very heavily hunted and has much drug-related activity inhibiting conservation action.

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors management, life history studies, taxonomic studies.

PHVA: Yes

Captive Population: $\pm$ 100?. Need to determine subspecies of any *P. pauxi* in captivity (DNA work)

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax rubra rubra* Great Curassow

STATUS:

CITES: Appendix III (Costa Rica, Colombia, Guatemala, and Honduras)
IUCN: Vulnerable (based on population estimate and probability of extinction criteria).

Taxonomic status: Subspecies

Distribution: Colombia and NW Ecuador (only)

Wild Population: <5,000

Field Studies: Contact El Proyecto Subir for information in Ecuador; they have a component that carries out biological monitoring in Cotocachi-Cayapas but the presence of the species there has not been recorded (Berg, 1994). Ridgely and Greenfield have been studying status and distribution in Ecuador.

Threats: Hunting for food and habitat loss because of fragmentation.

Comments: One population, fragmented and declining, with heavy hunting pressure. Possibly Endangered in Ecuador. Habitat loss in W Ecuador is c. 96%. Protected areas only in Cotacachi-Cayapas, Bilsa (Jatunsacha).

Recommendations:

Research management: Survey, monitoring, habitat management, limiting factors management, life history studies

PHVA: Pending

Captive Population: 797: at least 80 (Europe), 93 (N. American zoos), 90 (N. American private sector), 2 (Venezuelan zoos). Individuals in captive populations need to be identified with respect to subspecies as there may be some hybridization.

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax alberti* Blue-billed Curassow

STATUS:

CITES: Appendix III (Colombia)

IUCN: Critical (based on probability of extinction and extent of occurrence criteria)

Taxonomic status: Species

Distribution: N Colombia

Wild Population: 1,000 - 2,500

Field Studies: Juan Meyer (Fundación pro Sierra) may have data; conducting some studies in the P. N. Sierra de Santa Marta in Colombia.

Threats: Habitat loss because of fragmentation and hunting for food

Comments: More than five subpopulations, very fragmented and declining rapidly. There is guerilla activity in the area which makes it difficult to carry out field research. No viable populations have been identified within remaining range.

Recommendations:

Research management: Survey (especially of Parque Nacional Paramillo in the Sinú Valley, habitat management, life history studies, monitoring

PHVA: Yes

Captive Population: 27: at least 2 (Europe), 12 (N. American zoos), 6 (N. American private sector), 2 (Cali Zoo, Colombia)

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax alector alector* Black Curassow

STATUS:

CITES: Not listed
IUCN: Low Risk
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: French Guyana, Surinam, Guyana, SE Venezuela (only)

Wild Population: >100,000

Field Studies: See Silva and Strahl (1991).

Threats: Hunting for food

Comments: One population, stable. Often seen with *Mitu tomentosa,* according to J. Silva. Hilty and Brown (1986) also suggest this species is distributed in Ecuador.

Recommendations:

Research management: Monitoring, life history study, taxonomic studies, ethnobiological studies.

PHVA: No

Captive Population: >115: thought to be 96 (Europe), 21 (N. American zoos), 54 (N. American private sector), 5 (Venezuelan zoos)
Subspecies are not distinguished in this census; there may be hybridization but because in the wild the species appears to form a cline, it could be very difficult to make a determination of hybridization.

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax alector erythrognatha* Black Curassow

STATUS:

CITES: Not listed

IUCN: Low Risk

Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Subspecies

Distribution: SW Venezuela, E Colombia (only)

Wild Population: >100,000

Field Studies: Marcela Santamaria, Ana Maria Franco, and Marisol Escaño have been conducting studies in Colombia in Rio Duda.

Threats: Hunting for food

Comments: One population, stable. The area as marked on maps is more than 500,000 sq km but there is little confirmation of the actual distribution. Often seen with *Mitu salvini* according to Marcela Santamaria, Ana Maria Franco, and Marisol Escaño (Colombia). There is guerilla activity in the area which makes it difficult to carry out field research.

Recommendations:

Research management: Monitoring, life history studies, taxonomic studies

PHVA: No

Captive Population: Thought to be possibly $\pm$ 20 pure specimens. 96 (Europe), 21 (N. American zoos), 54 (N. American private sector), 5 (Venezuelan zoos) ALL UNKNOWN SUBSPECIES. Subspecies are not distinguished in captive census; there may be hybridization but because in the wild the species appears to form a cline, it could be very difficult to make a determination of hybridization.

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax daubentoni* Yellow-knobbed Curassow

STATUS:

CITES: Appendix III
IUCN: Vulnerable (based on population reduction criteria)
Other: In Venezuela, the 'Law of Protection of Wildlife' requires a hunting permit to hunt this species. Infractions are covered by the 'Penal Law of the Environment.' The 'Organic Law of the Environment' protects wildlife within Venezuela in general.

Taxonomic status: Species

Distribution: N Venezuela, NE Colombia

Wild Population: 10,000 - 40,000

Field Studies: See Silva and Strahl (1991, 1994). Gilberto Rios is conducting studies in western llanos in Venezuela.

Threats: Hunting for food and illegal sport; habitat loss because of fragmentation

Comments: More than five subpopulations, fragmented and declining rapidly. *Crax daubentoni* has a large range, but in the llanos of Venezuela and Colombia it is restricted to gallery forests and deciduous and evergreen forests in the lowlands, and into the foothills of the Andes. It is subject to heavy hunting pressures throughout its range. It is protected in the P.N. San Esteban, P.N. Henri Pittier and P.N. Aguaro-Guariquito, but there are no substantial sub-populations protected anywhere in its range. Habitat is fragmented within the gallery forests, primarily from agriculture.

Recommendations:

Research management: Monitoring, habitat management, limiting factors management, life history studies

PHVA: No

Captive Population: 150: at least 39 (Europe), 23 (N. American zoos), 14 (N. American private sector), 2 (Cali Zoo, Colombia), 23 (Venezuelan zoos).
Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax globulosa* Wattled Curassow

STATUS:

CITES: Appendix III

IUCN: Endangered (based on population estimate and probability of extinction criteria)

Taxonomic status: Species

Distribution: NE Ecuador, SE Colombia

Wild Population: <2,500

Field Studies: Garcés, Academy of Science Philadelphia (Ecuador), S. Defler (Colombia)

Threats: Hunting for food

Comments: Leticia, Colombia is an area where heavy trade in wildlife is known to occur; one (recent?) record of *C. globulosa.* No recent records from lowland Ecuador where older hunters remember it from 10-30 years ago despite extensive surveys throughout the area. Appears to have been eliminated from accessible Amazonian forests in Ecuador and Colombia because of its predilection for riverine forests. Drug traffic in SE Colombia and extreme NE Ecuador makes it difficult to carry out field research.

Recommendations:

Research management: Survey, monitoring, limiting factors research, life history research

PHVA: Pending

Other: Ethnobiological research

Captive Population: <135: at least 27 (Europe), 27 (N. American zoos), 21 (N. American private sector)

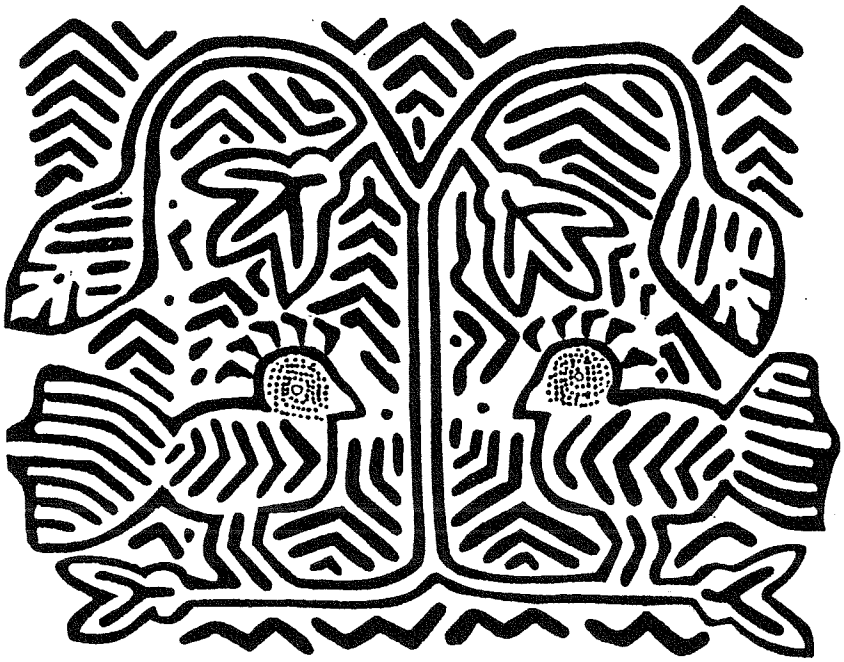
Captive Program Recommendation: Level 1; difficulty level 1

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

December 1995

Report from the workshop held
1-3 October 1994



SECTION 5

TAXON DATA SHEETS FOR SOUTHWESTERN SOUTH AMERICAN TAXA

CAMP TAXON REPORT

SPECIES: *Ortalis erythroptera* Rufous-headed chachalaca

STATUS:

CITES: Not Listed

IUCN: Endangered (based on population estimates and extent of occurrence criteria)

Taxonomic status: Species

Distribution: NW Peru

Wild Population: Peru <5,000

Field Studies: None

Threats: Hunting for food, habitat loss

Comments: In Peru, range is restricted to dry forest Biosphere Reserve. Ortiz Crespo has seen many individuals of this species in Ecuador. Greenfield and Krabbe suggest that the IUCN status may more accurately by Vulnerable. In Peru, the range is restricted to dry forest Biosphere Reserve. The species is more widespread in W Ecuador.

Recommendations:

Research management: Urgent need for population evaluation and habitat status. Monitoring, Limiting factors research and life history studies

PHVA: Pending

Captive Population: 2

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis canicollis* Chaco Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Bolivia, Paraguay, Argentina

Wild Population: >1,000,000

Field Studies: S.M. Caziani and J.J. Protomastro conducted a study of diet and fruit-eating habits of this species in the Chaco-woodland of Argentina (Manuscript in press: Wilson Bull.). A short species account in Avifauna of a Chaco locality in Bolivia, A. Kratter et al., Wilson Bull. 1993.

Threats: Loss of habitat, hunting for food (mainly in Argentina and Paraguay), human interference

Comments: Very common, no real threat to the species or its subspecies. A secondary forest species: increasing in occupancy of agricultural areas as forest is cut.

Recommendations:
Research management: Life history research

PHVA: No

Captive Population: 191: >10, in Zoological Garden of Buenos Aires.

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis canicollis canicollis* Chaco Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: SE Bolivia, Paraguay, N Argentina in Gran Chaco and adjacent areas.

Wild Population: >100,000

Field Studies: A short species account in Avifauna of a Chaco locality in Bolivia, A. Kratter et al., Wilson Bull. 1993.

Threats: None known

Comments: Common species that probably benefits, or at least is not negatively affected by small-scale agricultural activities.

Recommendations:
Research management: Life history studies

PHVA: No

Captive Population: None

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis canicollis panatanalensis* Chaco Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: E. Bolivia, Paraguay, N. Gran Chaco

Wild Population: Unknown

Field Studies: None

Threats: None known

Comments: Presumed to be common in range

Recommendations:
Research management: Survey, life history studies

PHVA: No

Captive Population: > 20

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis guttata* Speckled Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Peru, Bolivia

Wild Population: >1,000,000 (Peru and Bolivia)

Field Studies: G. Cox and J. Cox (unpublished) WCS status report.

Threats: Hunting for food

Comments: Secondary forest species: increasing occupancy of agricultural areas as forest is cut.

Recommendations:
Research management: Life history studies

PHVA: No

Captive Population: >10 (8 in Santa Cruz Zoo, Bolivia)

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis guttata guttata* Speckled Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Peru and N. Bolivia

Wild Population: >100,000

Field Studies: G. Cox and J. Cox (unpublished) WCS status report.

Threats: Hunting for food in N. Peru

Comments: Common in secondary vegetation, expanding occupancy in areas where primary forest converted for agriculture.

Recommendations:
Research management: Life history studies

PHVA: No

Captive Population: 18

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis guttata subaffinis* Speckled Chachalaca

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: E. Bolivia

Wild Population: >50,000

Field Studies: G. Cox and J. Cox (unpublished) WCS status report.

Threats: None known

Comments: Presumed to be common around habitations

Recommendations:
Research management: Determine range and status by monitoring and life history studies

PHVA: No

Captive Population: 8 in Santa Cruz Zoo in Bolivia

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope albipennis* White-winged Guan
STATUS:

CITES: Appendix I
IUCN: Critical (based on population estimates and number of mature individuals criteria)

Taxonomic status: Species

Distribution: NW foothills of the Peruvian coast. Dry forest. States: Cajamarca, Lambayeque, Piura and Tumbes?

Wild Population: +/- 350

Field Studies: Four studies have been conducted: Diaz, 1991, Cracid Newsletter; Diaz, 1992, in press; Diaz and Del Solar, 1994, in press; Pulido, 1992, In: Peruvian Red Data Book.

Threats: Human interference, loss of habitat, predation and genetic threats.

Comments: AA-1 = <1,000 sq km but NOT a geographic island. Valid information exists indicting that the wild population and range could be increased if data from Tumbes can be verified.

Recommendations:

Research management: Priority for continuous monitoring, habitat management, and limiting factors research
PHVA: Yes

Captive Population: 60 individuals all in Olmos District, Lambayeque, Peru. This includes 8 breeding pairs with good reproductive results. Contact: "Barbara D'Achille Breeding Center", Fax: 51-14-424182

Captive Program Recommendation: Level 2; difficulty level 2. Additional recommendations:
1) Start other captive breeding programs (danger of epidemics when population is all at one site).
2) Periodic supplementation with new genetic material is needed for current and future breeding programs to avoid inbreeding problems.
3) Start a reintroduction pilot program near Olmos.
4) Create a National Sanctuary for this species.

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu* Spix's Guan

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Colombia, Ecuador, Boliva, Peru, Brazil

Wild Population: >30,000 in Peru & Bolivia

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Hunting for food, loss of habitat

Comments: Kept as pets by local people.

Recommendations:
Research management: Monitoring and life history studies

PHVA: No

Captive Population: 18: at least 4 in Santa Cruz Zoo, Bolivia

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu jacquacu* Spix's Guan

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Boliva, Peru

Wild Population: 20,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Hunting for food, loss of habitat

Comments: None

Recommendations:
Research management: Monitoring and life history studies

PHVA: No

Captive Population: 44: at least 2 in "Barbara D'Achille Breeding Center", 16 as pets in Lima

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu speciosa* Spix's Guan

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Central & Eastern Bolivia

Wild Population: >10,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Hunting for food and loss of habitat

Comments: Declining slowly

Recommendations:
Research management: Monitoring

PHVA: No

Captive Population: 77: at least 4 in Santa Cruz Zoo, Bolivia

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope dabbenei* Red-faced Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable (based on population estimates criteria)

Taxonomic status: Species

Distribution: Chuquisaca and Tarija (Bolivia) and Cerro Calilegua in Jujuy and Salta (NW Argentina)

Wild Population: 10,000?

Field Studies: Only one population in one area has been studied (Fjeldsa and Meijer, 1992).

Threats: Hunting for food, loss of habitat due to fragmentation (Argentina)

Comments: Inhabits *Alnus jorullensis*, *Tabebuia lapacho* and *Podocarpus parlatorei* forests over 1500 meters. The species appears to be common within a very restricted range. Kept as pets by local people. However, habitat destruction and hunting pressures appear to be quite high in the *Alnus* - *Podocarpus* forests throughout its range according to observations by Cox (1993).

Recommendations:
Research management: Priority is population and range evaluation leading to establishment of a protected area. Survey, Monitoring, Life history

PHVA: No

Captive Population: 0

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope superciliaris jacupemba* Rusty-margined Guan

STATUS:
CITES: Not Listed
IUCN: Conservation Dependent

Taxonomic status: Subspecies

Distribution: Bolivia

Wild Population: +/-5,000 (Bolivia)

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Loss of habitat, hunting for food, human interference

Comments: Noel Kempff Mercado National park; Rivers Blanco and Negro Wildlife Reserve

Recommendations:
Research management: Monitoring, Life history

PHVA: No

Captive Population: 6: at least 2 in Santa Cruz Zoo, Bolivia

Captive Program Recommendation: Level 2; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope superciliaris major* Rusty-margined Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable? (based on population reduction criteria)

Taxonomic status: Subspecies

Distribution: E Paraguay, NE Argentina

Wild Population: >10,000

Field Studies: Comments on distribution in Chevez, J.C. 1994. Los que se van: especies argentinas en peligro. *Editorial Albatros.* Buenos Aires.

Threats: Loss of habitat, hunting for food, human interference

Comments: Survives in secondary forests and is the most common Guan in Northeast Argentina. However, this area is among the most threatened in Argentina.

Recommendations:
Research management: Survey, limiting factors management

PHVA: No

Captive Population: <10 in Argentina and Paraguay

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope obscura obscura* Dusky-legged Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable? (based on population estimates criteria)

Taxonomic status: Subspecies

Distribution: E Paraguay, NE Argentina

Wild Population: <3,000

Field Studies: A study, still in progress, was presented by Merler at the IV International Ornithological Congress (Merler, J. 1994. Dusky-legged Guan (*Penelope obscura*) habitat characterization in the Parana River Delta Islands, Argentina.) Another study has been published: Cesari, C. and P. Dominguez Alonzo, 1974. Presencia en el Delta bonaerense de la pava de monte comun *Penelope obscura obscura* Temminck. *Hornero 11:* 307-308.

Threats: Loss of habitat due to fragmentation, hunting for food, human interference

Comments: Merler has found that in the Parana River Delta the species has adapted to eat exotic fruits, especially Ligustrum.

Recommendations:
Research management: Survey, Monitoring

PHVA: No

Captive Population: < 10

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope obscura bridgesi* *Dusky-legged Guan*

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Southern Bolivia, NW Argentina

Wild Population: >100,000

Field Studies: Caziani, S. et al., Abundancia de la pava de monte y su relacion con el estado de conservacion del bosque serrano en las cuencas de los Rios Lesser y Mojotoro, Salta, Argentina. Proyecto de Investigacion en marcha, Consejo de Investigacion de la Universidad Nacional de Salta, Argentina.

Threats: Hunting for food and human interference

Comments: None

Recommendations:
Research management: Monitoring, life history studies

PHVA: No

Captive Population: 20: at least 2 in Santa Cruz Zoo, Bolivia

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope barbata* Bearded Guan

STATUS:
CITES: Not Listed
IUCN: Endangered (based on population estimates, extent of occurrence criteria)

Taxonomic status: Species

Distribution: NW Peru

Wild Population: 1,500?

Field Studies: Informal surveys by B. Best, casual observations by V.R. Diaz.

Threats: Hunting for food, Human interference, Loss of habitat

Comments: None

Recommendations:
Research management: Survey, Monitoring, Limiting Factors Research, Life History Studies and Taxonomy (also possibly a capture program for captive breeding purposes).

PHVA: Pending

Captive Population: 6

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope montagnii plumosa Andean Guan*

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: E. Peru

Wild Population: Unknown, but relatively common in high altitude forests

Field Studies: None known

Threats: Hunting for food

Comments: Terrorist activity in area has precluded detailed population analyses.

Recommendations:
Research management: Survey is a priority. Also recommend life history studies.

PHVA: No

Captive Population: ?

Captive Program Recommendation: Pending; difficulty level 1?

CAMP TAXON REPORT

SPECIES: *Penelope montagnii sclateri* *Andean Guan*

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: S. Peru, Bolivia, probably also found in Los Toldos, Salta Province in Argentina

Wild Population: Unknown, appears to be common throughout range

Field Studies: None known but see J.V. Remsen, Louisiana State Museum

Threats: Hunting for food

Comments: Sporadic sight records in humid forests of dept. Cochabamba and Santa Cruz, Bolivia. Reportedly common around villages in Yungas of La Paz Department.

Recommendations:
Research management: Survey, Life history studies

PHVA: No

Captive Population: ?

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile cumanensis cumanensis* Common Piping Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable? (based on population reduction criteria)

Taxonomic status: Subspecies

Distribution: NE Peru

Wild Population: <10,000 - appears to be declining

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food, Human interference, Loss of habitat. Has been drastically reduced along rivers in much of lowland Peru.

Comments: The genus *Pipile* requires genetic research to determine the specific status of component taxa. Limitation to riparian habitat may make it more vulnerable to threats from hunting and other forms of human disturbance.

Recommendations:
Research management: Monitoring, Life history, Limiting factors research, Taxonomic study of species limits within *Pipile*

PHVA: No

Captive Population: 177

Captive Program Recommendation: No; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile cumanensis grayi* White-throated Piping Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable (based on population estimate criteria)

Taxonomic status: Subspecies

Distribution: Bolivia, NE Paraguay

Wild Population: <10,000

Field Studies: Unaware of specific recent efforts

Threats: Hunting for food, human interference, loss of habitat

Comments: The genus *Pipile* requires genetic research to determine species boundaries and contact zones. Limitation to riparian habitat may make it more vulnerable to threats from hunting and other forms of human disturbance.

Recommendations:
Research management: Taxonomic study of species limits within *Pipile*, monitoring, life history research and survey

PHVA: No

Captive Population: 119; at least 6 in Santa Cruz Zoo, Bolivia

Captive Program Recommendation: No; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Pipile cujubi nattereri* Red-throated Piping Guan

STATUS:

CITES: Not Listed
IUCN: Endangered (based on population estimates and extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: NE Bolivia

Wild Population: 1000-2000?

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Hunting for food

Comments: The genus *Pipile* requires genetic research to determine species boundaries and contact zones. Limitation to riparian habitat may make it more vulnerable to threats from hunting and other forms of human disturbance.

Recommendations:

Research management: Taxonomic study of species limits within *Pipile*, population survey, and monitoring

PHVA: Pending

Captive Population: 23

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile jacutinga* Black-fronted Piping Guan

STATUS:
CITES: Appendix I
IUCN: Endangered (based on population estimates criteria)
Taxonomic status: Species

Distribution: SE Paraguay and NE Argentina

Wild Population: 2,000? (Paraguay and Argentina)

Field Studies: Chevez, J.C. 1994. Los que se van: especies argentinas en peligro. *Editorial Albatros,* Buenos Aires.

Threats: Loss of habitat, hunting for food, human interference

Comments: Protected areas in Argentina: Parque Nacional Iguazu, 67,600 Ha and Parque Provincial Urugua-i, 84,000 Ha.

Recommendations:
Research management: Survey is urgently required. Also recommended: Monitoring, Taxonomic study and limiting factors management

PHVA: Yes

Captive Population: At least 50; many are hybrids.

Captive Program Recommendation: Level 1; difficulty level 1. Gerardo Bretschneider at Posadas, Provincia de Misiones, Argentina has successfully bred this species and he has <5 in his collection.

CAMP TAXON REPORT

SPECIES: *Aburria aburri* Wattled Guan

STATUS:
CITES: Not Listed
IUCN: Vulnerable (based on population estimate criteria)

Taxonomic status: Species

Distribution: SC Peru

Wild Population: <10,000

Field Studies: None known

Threats: Human interference, Loss of habitat, Hunting for food

Comments: Occurs in a restricted elevational range in areas of heavy agricultural intervention. Appears to be rare throughout range.

Recommendations:
Research management: Survey, Monitoring, Limiting factors research, Life history studies

PHVA: Pending

Captive Population: 25

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii goudotii* Sicke-winged Guan

STATUS:
CITES: Not Listed
IUCN: Data Deficient

Taxonomic status: Subspecies

Distribution: Peru

Wild Population: Unknown, but occurs in areas of heavy hunting and agricultural pressures within its altitudinal range.

Field Studies: None known in Peru

Threats: Hunting for food and habitat destruction for agriculture.

Comments: None

Recommendations:
Research management: Survey (location and evaluation of wild populations)

PHVA: No

Captive Population: 10

Captive Program Recommendation: Pending; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii tschudii* *Sickle-winged Guan*

STATUS:
CITES: Not Listed
IUCN: Data Deficient

Taxonomic status: Subspecies

Distribution: N Peru

Wild Population: Unknown, but occurs in areas of heavy hunting and agricultural pressures within its altitudinal range.

Field Studies: None known in Peru

Threats: Hunting for food and habitat destruction for agriculture.

Comments: Very common as pets.

Recommendations:
Research management: Survey (location and evaluation of wild populations)

PHVA: No

Captive Population: ?

Captive Program Recommendation: Pending; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Chamaepetes goudotii rufiventris* *Sickled-winged Guan*

STATUS:
CITES: Not Listed
IUCN: Vulnerable? (tentatively based on population estimates criteria)

Taxonomic status: Subspecies

Distribution: Eastern Central Peru and Western Bolivia

Wild Population: 10,000?

Field Studies: A study was conducted by J.V Remsen and S.W. Cardiff, 1986, in department La Paz, Bolivia.

Threats: Hunting for food, loss of habitat, human interference

Comments: None

Recommendations:
Research management: Survey (location and evaluation of wild population), Monitoring, Limiting factors research, Life history studies.

PHVA: Pending

Captive Population: ?

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Nothocrax urumutum* Nocturnal Curassow

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: NE Peru

Wild Population: >50,000, common throughout lowlands

Field Studies: None known

Threats: Hunting for food, loss of habitat, human interference

Comments: None

Recommendations:
Research management: Survey, Monitoring, Limiting factors research, Life history

PHVA: No

Captive Population: 421

Captive Program Recommendation: Level 2/3?; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Mitu tuberosa* Razor-billed Curassow

STATUS:
CITES: Not Listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: E Peru and E Bolivia

Wild Population: >100,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Habitat loss, hunting for food, human interference

Comments: None

Recommendations:
Research management: Survey, Limiting factors research, Life history, Monitoring

PHVA: No

Captive Population: <299 at least 4 Santa Cruz Zoo, Bolivia; 2 in "Barbara D'Achille" Breeding Center Olmos, Peru; 4 in Parque Las Leyendas, Lima Peru.

Captive Program Recommendation: Level 2/3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Mitu salvini* Salvin's Curassow

STATUS:
CITES: Not Listed
IUCN: Vulnerable (based on population reduction criteria)

Taxonomic status: Species

Distribution: NC Peru

Wild Population: <10,000

Field Studies: None known

Threats: Habitat loss, hunting for food, human interference

Comments: None

Recommendations:
Research management: Survey, Limiting factors research, monitoring

PHVA: Pending

Captive Population: ?

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pauxi unicornis* Southern Helmeted Curassow

STATUS:

CITES: Not Listed

IUCN: Vulnerable (based on population estimates criteria and considering subspecies categorization)

Taxonomic status: Species

Distribution: Bolivia and Peru

Wild Population: <5,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Loss of habitat due to fragmentation, hunting and human interference

Comments: Recommend inclusion on CITES Appendix II.

Recommendations:

Research management: Survey, monitoring, life history, limiting factors management

PHVA: Pending

Captive Population: 18 (*Pauxi unicornis unicornis)*

Captive Program Recommendation: Pending, difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pauxi unicornis unicornis* Southern Helmeted Curassow

STATUS:

CITES: Not Listed

IUCN: Vulnerable (based on population estimates and extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: Bolivia

Wild Population: <5,000?

Field Studies: G. Cox et al., in press (BirdLife International Journal)

Threats: Habitat loss, hunting for food, loss of habitat due to fragmentation

Comments: This species is not listed as Endangered because a large part of it range is within protected areas: Amboro National Park, Carrasco National Park, Pilon Lajas (no management to date). Recommend inclusion on CITES Appendix II.

Recommendations:

Research management: Survey, limiting factors management, monitoring, life history studies

PHVA: Pending

Captive Population: 18

Captive Program Recommendation: Pending; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pauxi unicornis koepckeae* Southern Helmeted Curassow

STATUS:
CITES: Not Listed
IUCN: Endangered? (based on extent of occurrence and population numbers)

Taxonomic status: Subspecies

Distribution: Central Peru

Wild Population: <2,500, apparently very rare in natural habitat.

Field Studies: Only two confirmed sightings. Sighted most recently by a team in 1993 (Conservation International)

Threats: Unknown

Comments: Area is A but does NOT refer to a geographic island.

Recommendations:
Research management: Survey

PHVA: Pending

Captive Population: 0

Captive Program Recommendation: Pending; difficulty level 1?

CAMP TAXON REPORT

SPECIES: *Crax fasciolata* Bare-faced Curassow

STATUS:
CITES: Not Listed
IUCN: Vulnerable (based on population estimates criteria)

Taxonomic status: Species

Distribution: Paraguay, Bolivia

Wild Population: >10,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Habitat loss, hunting for food, human interference

Comments: Argentina, Formosa Province, Estacion de Crio de Animales Silvestres Guaycolec, tienen moitu, pavas de monte y charatas. Gerardo Bretschneider cria moiti hace treinta anos, Posadas, Pria. de Misiones. Sr Romano, Citybell, Pria de BS.As. cria moitu.

Recommendations:
Research management: Survey, monitoring

PHVA: Pending

Captive Population: 203 (at least 1.1 individuals at Santa Cruz Zoo, Bolivia). Possible hybrids in captive population.

Captive Program Recommendation: Level 2/3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax fasciolata fasciolata* Bare-faced Curassow

STATUS:
CITES: Not Listed
IUCN: Vulnerable? (based on population estimates criteria)

Taxonomic status: Subspecies

Distribution: Paraguay, Argentina

Wild Population: >5,000

Field Studies: Heinonnen S., Registro de furtivismo sobre *Crax fasciolata* en el Parque Nacional Rio Pilcomayo, Argentina, El Hornero (in press).

Threats: Habitat loss, hunting for food, human interference

Comments: There is no protected area for this species in Argentina.

Recommendations:
Research management: Survey, monitoring

PHVA: No

Captive Population: +. Possible hybrids in captive population.

Captive Program Recommendation: Level 2; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax fasciolata grayi* Bare-faced Curassow

STATUS:
CITES: Not Listed
IUCN: Conservation Dependent

Taxonomic status: Subspecies

Distribution: E. Bolivia

Wild Population: >5,000

Field Studies: G. Cox and J. Cox (unpublished) WCS report 1992. Conservation status survey of the Cracids of Bolivia.

Threats: Habitat loss, hunting for food

Comments: None

Recommendations:
Research management: Monitoring

PHVA: No

Captive Population: 47: at least 2 in Santa Cruz Zoo, Bolivia. Possible hybrids in captive population.

Captive Program Recommendation: Level 2; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax globulosa* Wattled Curassow

STATUS:

CITES: Appendix III (listed 9/21/88)
IUCN: Critical (based on population estimates and probability of extinction criteria)

Taxonomic status: Species

Distribution: N Bolivia, E Peru

Wild Population: <50? (Peru and Bolivia)

Field Studies: Cox and Cox 199__? searched for this species on River Beni (Bolivia) but did not locate it. A field survey in Ecuador likewise failed to locate this species.

Threats: Habitat loss, hunting for food

Comments: Recommend upgrade to CITES Appendix I.

Recommendations:

Research management: Survey (urgently needed), Monitoring, Limiting factors management, Life history, Translocation (for reintroduction).

PHVA: Yes

Captive Population: < 135

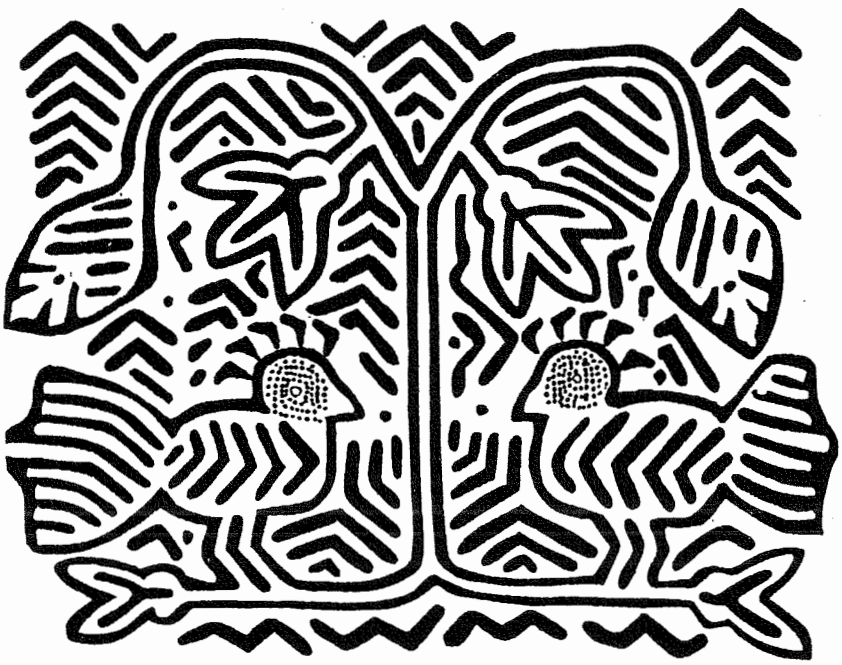
Captive Program Recommendation: Level 1; difficulty level 1

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

December 1995

Report from the workshop held
1-3 October 1994



SECTION 6

TAXON DATA SHEETS FOR BRAZILIAN TAXA

CAMP TAXON REPORT

SPECIES: *Ortalis canicollis pantanalensis* Chaco Chachalaca

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: South Central Brazil (Pantanal); area is estimated to be greater than 100,000 sq km.

Wild Population: > 200,000, population trend is stable at this time, the area is estimated to be > 100,000 sq km. Based on anecdotal field information and indirect data such as habitat availability.

Field Studies: None

Threats: None

Comments: None

Recommendations:
Research management: Survey and life history studies.

PHVA: No

Captive Population: < 20 in Brazil; <50 worldwide.

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis guttata guttata* Speckled Chachalaca

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Brazil (West and Central Amazonia, south of the Amazon and Solemões rivers. Area of distribution is >100,000 sq. km.);

Wild Population: 50,000 to 100,000. Population is stable. Data based on indirect information of habitat availability.

Field Studies: None

Threats: None at this time

Comments: None

Recommendations:
Research management: Taxonomic and morphological genetic studies; surveys and life history studies.

PHVA: No

Captive Population: 28: Probably < 10 in Brazil, very little is known about this species in captivity. Do not have any information about any in captivity outside of Brazil.

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis guttata araucuan*Speckled Chachalaca

STATUS:

CITES: Not listed
IUCN: Vulnerable - (based on extent of occurrence criteria) - estimated to be less than 20,000 square kilometers and decline of area, extent, and/or quality of habitat.
Other: Not listed

Taxonomic status: Subspecies

Distribution: Brazil (SE Pernambuco, E. Alagoas, S. Bahia, N. Espirito Santo & E. of Minas Gerais); the area is estimated to be less than 5,000 sq km.

Wild Population: 2,000 - 5,000, declining population, based on indirect information of habitat availability.

Field Studies: None known

Threats: Loss of habitat, loss of habitat due to fragmentation, hunting for food.

Comments: None

Recommendations:

Research management: Taxonomic and morphological genetic studies to clarify the taxon; survey to determine present geographical ranges north of the Sao Francisco river; monitoring; life history studies; husbandry research; habitat management (restoration); translocation (reintroduction).
PHVA: No

Captive Population: $\pm$ 75: <30 in Brazil

Captive Program Recommendation: Level 1; difficulty level 1 (based on experience with this genus)

CAMP TAXON REPORT

SPECIES: *Ortalis guttata squamata* Speckled Chachalaca

STATUS:
CITES: Not listed
IUCN: Vulnerable - (based on extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: South west of Brazil from Rio Grande do Sul to Sao Paulo and southeast of Mato Grosso do Sul. (Area is estimated to be 10,000 to 50,000 sq km.)

Wild Population: <2,000 The population trend appears to be declining, based only on anecdotal information from the field and indirect information of habitat availability estimates.

Field Studies: None

Threats: Hunting for food, loss of habitat, habitat loss due to fragmentation, trade

Comments: This is a bird that is maintained in backyards along with other birds, in cages or in backyard as pets, local trade in the species.

Recommendations:

Research management: taxonomic and morphological and genetic studies to clarify the taxon, survey to review geographical ranges, specifically in SE Mato Grosso do Sul, SW Sao Paulo and NW Parana; monitoring, habitat management, limiting factor research, life history studies, translocations/reintroductions.

PHVA: No

Captive Population: <100 in Brazil

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis superciliaris* Buff-browed Chachalaca

STATUS:
CITES: Not listed
IUCN: Vulnerable - (based on population reduction and extent of occurrence criteria)

Taxonomic status: Species

Distribution: Northern Brazil: Northeast of Para, Maranhao and West of Piaui (Area is estimated at 10,000 to 50,000 sq km.)

Wild Population: 2,000 - 5,000, population is thought to be declining. (Based on indirect information on habitat availability estimates).

Field Studies: None

Threats: Hunting for food, loss of habitat, trade, habitat fragmentation.

Comments: None

Recommendations:
Research management: survey and monitoring, habitat management, limiting factor research, life history studies.

PHVA: No

Captive Population: About 30; fewer than 20 in known locations. Also is sometimes found with gold miners, farmers, etc. It is rare in captivity.

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis motmot motmot* Little Chachalaca

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Brazil: Northern Amazon to Rio Negro river (the area is estimated to be greater than 100, 000 sq km).

Wild Population: >50,000 <100,000 Population is thought to be stable. Data based on indirect information of habitat availability.

Field Studies: None known.

Threats: None

Comments: None

Recommendations:

Research management: Survey, Life history studies, Taxonomic and morphological genetic studies.

PHVA: No

Captive Population: 30: <10 in Brazil

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Ortalis motmot ruficeps* Little Chachalaca

STATUS:
CITES: Not listed
IUCN: Vulnerable - (based on extent of occurrence criteria)

Taxonomic status: Subspecies

Distribution: N Brazil (Pará state, south of lower Amazon river); area is estimated to be between 10,000 and 49,999 sq km

Wild Population: 5,000 - 10,000 (Two subpopulations separated because of deforestation); declining population, based on indirect information on habitat availability.

Field Studies: None known

Threats: Hunting for food, loss of habitat because of fragmentation and loss of habitat

Comments: None

Recommendations:

Research management: Taxonomic and morphological and genetic studies, Survey, Monitoring, Limiting factors research, Life history studies.

PHVA: No

Captive Population: < 10 in Brazil

Captive Program Recommendation: Level 3: difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope marail jacupemba* Marail Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Northern Brazil (north of Amazonas River, until Rio Negro river); area is estimated to be greater than 100,000 sq km.

Wild Population: 20,000 - 50,000, stable at this time. (Based on indirect information of habitat availability).

Field Studies: None

Threats: None

Comments: None

Recommendations:

Research management: survey and life history studies

PHVA: No

Captive Population: $\pm$ 20: < 10 in Brazil

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu jacquacu*Spix's Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Northern Brazil (Amazonian valley, W and C); the area is estimated to be 50,000 to 100,000 sq km.

Wild Population: 20,000 - 50,000 , one stable population, (Based on indirect information of habitat availability)

Field Studies: None

Threats: None

Comments: None

Recommendations:

Research management: Survey and life history studies.

PHVA: No

Captive Population: $\pm$ 44: < 10 in Brazil

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope jacquacu orienticola* Spix's Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: Brazil: Amazonia, Northern portion, from Rio Negro, eastwards to Roraima; the area is estimated to be between 50,000 and 99,999 sq km.

Wild Population: 10,000 - 20,000, one stable population, based on indirect information on habitat availability.

Field Studies: None

Threats: None

Comments: This is a species that needs a survey as soon as possible to actually review its taxonomic status.

Recommendations:

Research management: survey and life history studies

PHVA: No

Captive Population: <85: < 10 in Brazil

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope ochrogaster* Chestnut-bellied Guan

STATUS:
CITES: Appendix III
IUCN: Vulnerable - (based on extent of occurrence criteria)
Other: Listed as Endangered on Brazilian Endangered Species List.

Taxonomic status: Species

Distribution: Brazil (Northern Pantanal, Ilha do Bananal, alto Rio Tocantins, northeast Minas Gerais). The area is estimated to be between 10,000 and 49,999 sq km.

Wild Population: <2,000 (Four subpopulations that have been separated historically); based on anecdotal field sightings and indirect information on habitat availability.

Field Studies: None

Threats: Hunting for food, loss of habitat, loss of habitat due to fragmentation.

Comments: It is of immediate priority to initiate a survey throughout the range. Some of the areas are under pressure (habitat loss) that could have an effect on the population. This species is considered to be low density. The east portion is a dry region where hunting has been a problem. Occurs in Mata Seca, dry deciduous forest.

Recommendations:

Research management: survey to identify the real situation of the populations, including a census and monitoring, limiting factor research and life history studies.

PHVA: No

Captive Population: < 10 in Brazil

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Penelope pileata* White-crested Guan, Jacu
STATUS:
CITES: Not listed
IUCN: Vulnerable (based on probability of extinction and population estimate criteria)

Taxonomic status: Species

Distribution: From Brazil to lower Amazon valley; area is estimated to be between 50,000 and 99,999 sq km.

Wild Population: 5,000 - 10,000, the population is considered to be declining, based on indirect information on habitat availability.

Field Studies: None

Threats: Hunting for food, loss of habitat

Comments: Needs to have more research on the conservation status of this species, the range distribution of this species has almost doubled in the last few years due to new data. (Sick, 1993); surveys of the species are of high priority.

Recommendations:

Research management: Survey, monitoring, limiting factors research, life history studies (especially within new geographic limits).

PHVA: No

Captive Population: < 167: < 100 in Brazil (1993 SZB census lists 4 in Brazilian zoos); >60 thought to be outside of Brazil.

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Penelope jacucaca* White-browed Guan, Jacucaca

STATUS:
CITES: Appendix III
IUCN: Critical - (based on population reduction criteria)
Other: Listed as Endangered on Brazilian Endangered Species List.

Taxonomic status: Species

Distribution: Endemic to Northeastern Brazil: Piaui, Ceará, Paraiba, Bahia, Pernambuco. The area is estimated to be between 5,000 and 9,999 sq km.

Wild Population: 500 - 1000 , 3 declining subpopulations: 1) South of San Francisco river, 2) Northeast of San Francisco River, 3) Southeast of Piaui to the west of Ceara. It appears that there is a trend towards a decline in the population, based on anecdotal field sightings and indirect information on habitat availability.

Field Studies: None known.

Threats: Loss of habitat, habitat fragmentation, trade for live animal market, hunting for food

Comments: None

Recommendations:

Research management: survey and monitoring, habitat management, limiting factor research, life history studies

PHVA: Pending (Brazilian regional workshop)

Captive Population: < 50 in Brazil

Captive Program Recommendation: Level 1; difficulty level 2. In Brazil, Crax Breeding Center in Belo Horizonte has already initiated a breeding program, breeding into the second generation.

CAMP TAXON REPORT

SPECIES: *Penelope superciliaris* Rusty-margined Guan, Jacu

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Brazil: (south, southeast, west central Brazil and eastern Amazonas state, as well as part of the northeastern region.) The area is estimated to be greater than 1,000,000 sq km.

Wild Population: < 200,000, one stable population (including subspecies), based on anecdotal field information and indirect information on habitat availability.

Field Studies: Antas, P. et. al. in progress, Southwestern Bahia state; Mikich, S. in Vila Rica State Park, Parana; Crax, ongoing research in Fazenda Macedonia, Minas Gerais.

Threats: Hunting for food and loss of habitat.

Comments: The group was very concerned with the fact that there was very little information available to determine the status on the subspecies level, primarily because of problems in assessing the geographic distribution of the subspecies. There is also the added question on the taxonomic status of the subspecies.

Recommendations:

Research management: taxonomic and morphological and genetic studies, survey, monitoring, limiting factors research, life history studies.
PHVA: No

Captive Population: <322: < 300 in Brazil (1993 Brazilian Zoo Association census lists 11);

Captive Program Recommendation: Level 3; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Penelope obscura obscura* Dusky-legged Guan, Jacu
STATUS:
CITES: Not listed
IUCN: Endangered (based on population estimates criteria)

Taxonomic status: Subspecies

Distribution: Brazil (Southern Rio Grande do Sul). The area is estimated to be 5,000 - 10,000 sq km.

Wild Population: <1,000, the population is fragmented and seems to be declining, based on indirect information of habitat availability.

Field Studies: None

Threats: Loss of habitat, loss of habitat due to fragmentation and hunting for food.

Comments: None

Recommendations:

Research management: taxonomic and morphological and genetic studies, survey, monitoring, habitat management, limiting factor research, life history studies, translocation/reintroductions.

PHVA: No

Other: Special attention to determination of taxonomic status and range, especially a clearer definition with *P. o. bronzina.*

Captive Population: <10 in Brazil

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Penelope obscura bronzina* Dusky-legged Guan, Jacuguaçu, Jauguaçu
STATUS:
CITES: Appendix III
IUCN: Vulnerable (based on population estimates criteria)
Other: Listed as Endangered on the Brazilian endangered species list.

Taxonomic status: Subspecies

Distribution: South and Southeast of Brazil and Northeast of Argentina, area is estimated to be between 10,000 and 49,999 sq km.

Wild Population: 5,000 - 10,000, the population appears to be declining based on anecdotal field data and indirect information on habitat availability.

Field Studies: Project ongoing in Fazenda Macedonia, Minas Gerais.

Threats: Hunting for food, Loss of habitat because of fragmentation and general loss of habitat, trade for live animal market, both internal and external.

Comments: There is an ongoing reintroduction program in restored habitat at Usina Hidroelectica in Paraibuna, Sao Paulo by CESP (Companhia de Energia de Sao Paulo).

Recommendations:

Research management: taxonomic and morphological and genetic studies, survey and monitoring, habitat management, limiting factor research, life history studies, translocation/reintroduction.

PHVA: No

Captive Population: <523; <500 in Brazil and < 25 outside of Brazil

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Pipile cumanensis cumanensis* Common Piping Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies, Sibley and Monroe (1993)

Distribution: Northwestern Brazil, the area is estimated to be greater than 100,000 sq km.

Wild Population: 10,000 - < 50,000, population is believed to be stable. (Based on indirect information of habitat availability).

Field Studies: None

Threats: None

Comments: None

Recommendations:

Research management: survey and life history studies, husbandry research , taxonomic and morphological genetic studies.

PHVA: No

Captive Population: 177: < 30 in captivity in Brazil

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Pipile cumanensis grayi* White-throated Piping Guan

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies, Sibley and Monroe (1993)

Distribution: Southwest Brazil , Pantanal region , the area is estimated to be between 10,000 and 50,000 sq km.

Wild Population: < 5,000, population believed to be stable. (Based on anecdotal field information and indirect habitat availability information).

Field Studies: None

Threats: None

Comments: Restricted to the flooded forests and along gallery forests

Recommendations:

Research management: Survey, life history studies, taxonomic and morphological genetic studies.

PHVA: No

Captive Population: < 10 in Brazil and < 40 outside of Brazil

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Pipile cujubi cujubi* Red-throated Piping Guan

STATUS:
CITES: Not listed
IUCN: Vulnerable (based on population estimates criteria)

Taxonomic status: Subspecies

Distribution: Brazil: from the center of Amazonia, at lower Rio Madeira, until the Northeast of Para , the area is estimated to be between 50,000 to 100,000 sq km.

Wild Population: < 5,000 , population believed to be declining, data based on indirect information based on habitat availability.

Field Studies: None

Threats: Hunting for food, human interference and disturbance.

Comments: A captive breeding program for reintroduction is recommended at this time, although it must be recognized that many of the birds held in captivity could be hybrids. It is important that each of the birds in the breeding program be evaluated, and that known and potential hybrids be removed from the breeding program. However, these birds would be valuate as foster parents for pure stock chicks. There is also a recommendation that the possibility of obtaining founder stock from the wild be evaluated.

Recommendations:

Research management: Survey and monitoring of population, captive husbandry research, translocation/reintroduction, taxonomic and morphological genetic studies.

PHVA: No

Other: Very important to define taxonomical status and range of subspecies.

Captive Population: 16: < 10 in captivity in Brazil, not known what the numbers are outside of Brazil. According to the 1993 SZB Census, there are 5 in captivity in Brazilian zoos. However, it must be taken into account that some of these are possibly hybrids.
Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Pipile cujubi natterei* Red-throated Piping Guan

STATUS:
CITES: Not listed
IUCN: Vulnerable - (based on probability of extinction criteria)

Taxonomic status: Subspecies

Distribution: South and Southwest Amazon and Mato Grosso state, the area is estimated to be between 10,000 and 49,999 sq km.

Wild Population: > 10,000 <20,000. The population appears to be declining, based on anecdotal field sightings and indirect information on habitat availability.

Field Studies: None

Threats: Hunting for food and deforestation which causes habitat fragmentation

Comments: None

Recommendations:

Research management: survey and monitoring, husbandry research, limiting factor research, life history studies, taxonomic and morphological genetic studies.

PHVA: No

Other: Very important to define taxonomical status and range of subspecies.

Captive Population: 23: < 15 in Brazil, it is estimated that there are more than 100 hybrids in captivity

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Pipile jacutinga* Black-fronted Piping Guan
STATUS:

CITES: Appendix I
IUCN: Critical (based on population reduction criteria)
Other: Listed as Endangered on Brazilian endangered species list.

Taxonomic status: Species

Distribution: Brazil: 5 subpopulations : 1) Coastal Atlantic Forest (Rio do Janeiro to Santa Catarina); 2) W Parana (Iguacu National Park), W Santa Catarina, SW Sao Paulo; 3)Espirito Santo (Linhares); 4) Bahia (Monte Pascoal); 5) Minas Gerais (Parque do Rio Doce). The area is estimated to be between 10,000 and 49,999 sq km.

Wild Population: 1,000 - 2,000 The subpopulations are declining, based on general field research information, anecdotal field data and indirect information on habitat availability.

Field Studies: Paccangnella et al. 1994; Lara, A. in report to Fundação O Boticario, 1994;

Threats: Hunting for food, trade for the live market, loss of habitat and fragmentation of habitat.

Comments: This species is relatively easy to approach, making it especially susceptible to hunting pressure and for capture for the live animal market.

Recommendations:

Research management: taxonomic and morphological and genetic studies, survey, monitoring, husbandry research, limiting factors research, life history studies, (reintroductions).

PHVA: Pending (Brazilian regional workshop)

Other: Very important to define taxonomic status and range of subspecies.

Captive Population: <100 in Brazil; < 10 outside of Brazil

Captive Program Recommendation: Level 1; difficulty level 2. There are already some initiatives on captive breeding and this creates possibilities for future reintroduction programs.

CAMP TAXON REPORT

SPECIES: *Nothocrax urumutum* Nocturnal Curassow, Urumutum

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Western Brazil, the area is estimated to be greater than 100,000 sq km and 500,000 sq km.

Wild Population: 30,000 and 50,000, population trend is stable, based on indirect information of habitat availability.

Field Studies: None known

Threats: None

Comments: None

Recommendations:
Research management: survey and life history studies

PHVA: No

Captive Population: < 60 in Brazil (1993 Brazilian Zoo Asociation Census lists 6) and < 40 outside the country

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Mitu mitu* Alagoas Curassow
STATUS:
CITES: Appendix I
IUCN: Extinct in the Wild
Other: Listed as Endangered on the Brazilian Endangered Species list

Taxonomic status: Species

Distribution: Former range NE Brazil, (SE Alagoas); the former area is estimated to be less than 10 sq km- a habitat island.

Wild Population: 0, based on census and monitoring of area.

Field Studies: Pedro Mario Nardelli; Universidade Federal de Pernambuco and IBAMA (1983/84).

Threats: Habitat destruction, hunting for food, live trade for market were all causes that contributed to the extinction of this species in the wild.

Comments: This species is extinct in the wild, although there is one captive population held at Zoobotanica Mario Nardelli, Rio de Janeiro. Those birds currently in captivity come from a small founder population which may cause genetic problems in the future.

Recommendations:
Research management: taxonomic and morphological genetic studies, reintroductions, husbandry research, habitat management.

PHVA: Yes (Brazilian regional workshop)

Other: Because of the danger of maintaining the last population at a single location, it is recommended that a management program be implemented that will include other locations.

Captive Population: 30 of pure *Mitu mitu* and at least 10 hybrids of *Mitu mitu x Mitu tuberosa* in Brazil.

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Mitu tuberosa* Razor-billed Curassow, Mutum Cavalo
STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Brazil: Southern Amazonia ; the area is estimated to be 500,000 to 999,999 sq km.

Wild Population: 50,000 - 100,000 Population is stable based on anecdotal field sightings and indirect information on habitat availability.

Field Studies: None

Threats: None, population is stable at this time.

Comments: According to Roberto Azeredo, *Mitu tuberosa* in Brazil appears to be phenotypically different from those occurring in Peru. It is recommended that this difference should be further examined from the taxonomic point of view.

Recommendations:
Research management: Survey, life history and taxonomic studies.

PHVA: No

Captive Population: < 150 in Brazil, < 50 outside of the country

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Mitu tomentosa* Crestless Curassow

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species

Distribution: Brazil: Northwest Amazonia; the area is estimated to be between 50,000 and 99,999 sq km.

Wild Population: < 30,000, population is stable, based on indirect information of habitat availability.

Field Studies: None known

Threats: None

Comments: None

Recommendations:
Research management: Survey and life history studies, husbandry studies

PHVA: No

Captive Population: <112: < 30 in Brazil

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Crax alector* Black Curassow

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Species - grouped since there was no field data to define the border between the subspecies.

Distribution: Brazil, Northern Amazon; the area is estimated to be greater than 100,000 sq km.

Wild Population: < 50,000, population is stable, based on indirect information of habitat availability.

Field Studies: A study funded by BirdLife International initiated in 1994. (get more info to Stuart Strahl on this project).

Threats: None

Comments: Taxonomic studies are recommended due to the wide variation in beak coloration.

Recommendations:
Research management: Survey and life history studies, taxonomic research

PHVA: No

Captive Population: <174: < 100 - yellow cere, < 20 red cere in Brazil / < 100 yellow, < 30 red cere outside of Brazil.

Captive Program Recommendation: Level 3; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Crax fasciolata fasciolata* Mutum, Mutum do Penacho

STATUS:
CITES: Not listed
IUCN: Low Risk

Taxonomic status: Subspecies

Distribution: West Central Brazil (Pantanal region , Southern Para, Minas Gerais, Western Sao Paulo and Parana); the area is estimated to be between 500,000 and 999,999 sq km.

Wild Population: < 50,000, thought to be declining, based on anecdotal field sightings and indirect information on available habitat.

Field Studies: None

Threats: Hunting for food, loss of habitat, loss of habitat by fragmentation, live trade pressures.

Comments: In the future this species might become more vulnerable to pressures in areas outside of the Pantanal region. Taxonomic studies are recommended because of potential confusion with *C. f. pinima.* - A reintroduction program is now being developed for reintroduction by Crax, Belo Horizonte, into areas of former range and where it has been extirpated.

Recommendations:

Research management: Surveys and monitoring, habitat management, limiting factor research, taxonomic and life history studies.

PHVA: No

Captive Population: < 500 in Brazil, and < 100 outside of the country. Possibly hybrids in captive population.

Captive Program Recommendation: Level 1; difficulty level 1

CAMP TAXON REPORT

SPECIES: *Crax fasciolata pinima* Mutum

STATUS:

CITES: Not listed
IUCN: Critical - (based on extent of occurrence and population reduction criteria)
Other: Listed on the Brazilian Endangered species list.

Taxonomic status: Subspecies

Distribution: Brazil: NE Para and W Maranhao; the area is estimated to be between 10,000 and 49,999 sq km.

Wild Population: < 1,000 The population is thought to be declining in the fragmented habitat. Data are based on anecdotal field data and indirect information.

Field Studies: None

Threats: Trade, hunting for food, loss of habitat and loss of habitat due to fragmentation.

Comments: There are some questions regarding the taxonomic validity of this subspecies. It is very important to define taxonomic status and range.

Recommendations:

Research management: Taxonomic research, survey, monitoring, habitat management, life history and limiting factor research.

PHVA: Pending (Brazilian regional workshop)

Captive Population: <17: < 10 in Brazil. Possible hybrids in captive population.

Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Crax globulosa* Wattled Curassow, Mutum
STATUS:

CITES: Not listed
IUCN: Vulnerable? (based on probability of extinction and population reduction criteria)

Taxonomic status: Species

Distribution: Brazil (SW Amazonia); the area is estimated to be between 500,000 and 999,999 sq km.

Wild Population: < 5,000. The population could be under threat and vulnerable to decline, based on indirect information on habitat availability.

Field Studies: None in Brazil, surveys in Bolivia and Ecuador

Threats: Hunting for food, live animal trade

Comments: Because of the extensive range and availability of remaining habitat of this species, it has not been considered vulnerable to extinction in Brazil. However, there are some indications that the habitat could be under pressure and should be closely monitored. Where we have experience with the species in surveys and ethnozoological studies, rapid declines have been reported in the last several decades. Surveys of Amazonia Brazil are essential. (Adding to this is the critical situation identified in Peru, Colombia and Ecuador, the final option was for Vulnerable? listing in Brazil.)

Recommendations:

Research management: survey, monitoring, life history and limiting factor research

PHVA: Pending (Brazilian regional workshop)

Captive Population: In Brazil held only in four private collections 1) Criadouro Chaparral, Recife; 2) Zoobotanica M. Nardelli , Rio de Janeiro; 3) J. Machado, Rio de Janeiro; 4) Crax, Belo Horizonte. < 50 in Brazil, and < 50 outside of Brazil. It is recommended that a managed captive breeding program be initiated for this species. It is also of note that those birds outside of Brazil (US and Europe) come from a very limited stock.
Captive Program Recommendation: Level 1; difficulty level 2

CAMP TAXON REPORT

SPECIES: *Crax blumenbachii* Red-billed Curassow, Mutum

STATUS:

CITES: Appendix I

IUCN: Critical (based on population reduction criteria and probability of extinction criteria)

Other: Listed as Endangered on the IBAMA Brazilian endangered species list.

Taxonomic status: Species

Distribution: Brazil (east of Minas Gerais, north of Espirito Santo and south of Bahia); the area is estimated to be an isolated habitat island of less than 5,000 sq km.

Wild Population: < 300, at least six subpopulations: 1) Fazenda Macedonia-Caratinga, Minas Gerais; 2) Parques Estadual do Rio Doce, Minas Gerais; 3) Linhares (Soretama/ CVRD), Espirito Santo; 4) Reserva Biologica de Una, Bahia; 5) Parque National de Monte Pascoal, Bahia; 6) Southern Bahia, information available that some large ranches in southern Bahia have populations in remaining forest fragments. The data is from a recent census of the population as well as from indirect information on habitat availability.

Field Studies: Ongoing research by staff of Crax Foundation, Sociedade de Pesquisa da Fauna Silvestre in the reintroduction program at Fazenda Macedonia, Minas Gerais.

Threats: Hunting for food, loss of habitat, loss of habitat because of fragmentation, trade for the live animal market, genetic problems

Comments: Surveys of available habitat

Recommendations:

Research management: taxonomic and morphological genetic studies, survey, monitoring, life history studies, habitat management, translocations (reintroductions), limiting factor management, genetic research and management studies in the remaining wild populations.

PHVA: Pending (Brazilian regional workshop)

Captive Population: <441: estimated at < 400 specimens in eight private breeding facilities in Brazil; there are at < 30 outside of Brazil. (1993 Brazilian Zoo Census

reports 12 birds in Brazilian zoos.)

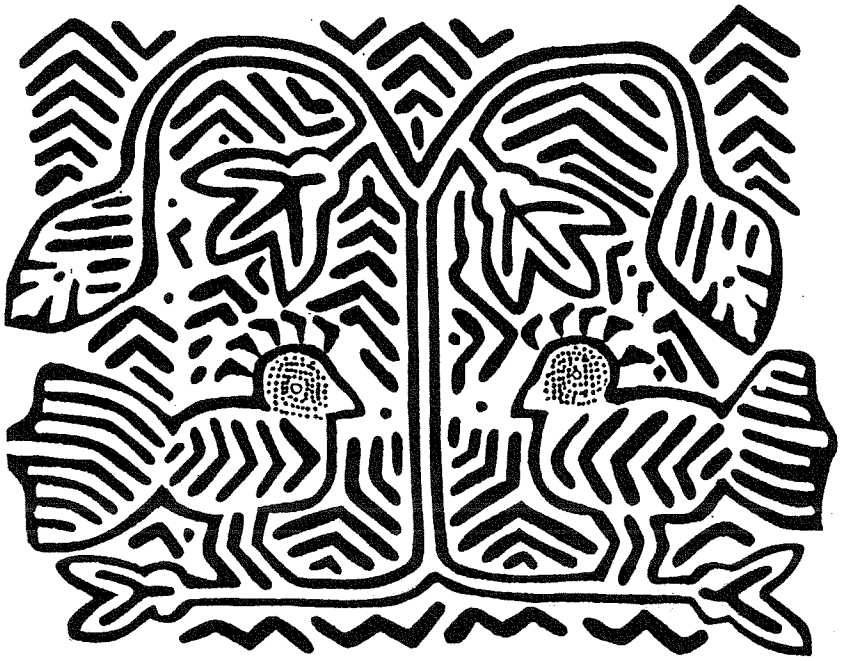
Captive Program Recommendation: Level 1; difficulty level 1. A recommendation is to implement a very closely managed plan for this species in Brazil to maintain genetic integrity. The population of *Crax* in Belo Horizonte came from seven founders that are closely managed.

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN FOR NEOTROPICAL GUANS, CURASSOWS, AND CHACHALACAS

WORKING DRAFT

December 1995

Report from the workshop held
1-3 October 1994



SECTION 7

APPENDICES

APPENDIX I.
CLASSIFICATION OF THE FAMILY CRACIDAE

ORDER: GALLIFORMES SUBORDER: CRACI

GENUS ORTALIS (Merrem 1786): 12 species

Ortalis vetula	Plain Chachalaca
Ortalis garrula	Chestnut-winged Chachalaca
Ortalis poliocephala	West-Mexican Chachalaca
Ortalis wagleri	Wagler's Chachalaca
Ortalis leucogastra	White-bellied Chachalaca
Ortalis cinereiceps	Gray-headed Chachalaca
Ortalis ruficauda	Rufous-vented Chachalaca
Ortalis erythroptera	Rufous-headed Chachalaca
Ortalis canicollis	Chaco Chachalaca
Ortalis guttata	Speckled Chachalaca
Ortalis superciliaris	Buff-browed Chachalaca
Ortalis motmot	Little Chachalaca

GENUS PENELOPE (Merrem 1786): 15 species

Penelope purpurascens	Crested Guan
Penelope perspicax	Cauca Guan
Penelope albipennis	White-winged Guan
Penelope ortoni	Baudo Guan
Penelope marail	Marail Guan
Penelope jacquacu	Spix's Guan
Penelope orhrogaster	Chestnut-bellied Guan
Penelope pileata	White-crested Guan
Penelope dabbenei	Red-faced Guan
Penelope jacucaca	White-browed Guan
Penelope superciliaris	Rusty-margined Guan
Penelope obscura	Dusky-legged Guan
Penelope argyrotis	Band-tailed Guan
Penelope barbata	Bearded Guan
Penelope montagnii	Andean Guan

GENUS PIPILE (Bonaparte 1856): 4 species

Pipile pipile	Trinidad Piping Guan
Pipile cumanensis	Blue-throated Piping Guan
Pipile cujubi	Red-throated Piping Guan
Pipile jacutinga	Black-fronted Piping Guan

GENUS ABURRIA (Reichenbach 1852): 1 species
Aburria aburri Wattled Guan

GENUS CHAMAEPETES (Wagler 1832): 2 species
Chamaepetes goudotii Sickle-winged Guan
Chamaepetes unicolor Black Guan

GENUS PENELOPINA (Reichenbach 1862): 1 species
Penelopina nigra Highland Guan

GENUS OREOPHASIS (G.R. Gray 1844): 1 species
Oreophasis derbianus Horned Guan

GENUS NOTHOCRAX (Burmeister 1856): 1 species
Nothocrax urumutum Nocturnal Curassow

GENUS MITU (Lesson 1831): 4 species
Mitu mitu Alagoas Curassow
Mitu tuberosa Razor-billed Curassow
Mitu salvini Salvin's Curassow
Mitu tomentosa Crestless Curassow

GENUS PAUXI (Temminck 1812): 2 species
Pauxi pauxi Helmeted Curassow
Pauxi unicornis Horned Curassow

GENUS CRAX (Linnaeus 1758): 7-8 species
Crax rubra Great Curassow
Crax alberti Blue-billed Curassow
Crax alector Black Curassow
Crax daubentoni Yellow-knobbed Curassow
Crax fasciolata Bare-faced Curassow
Crax globulosa Wattled Curassow
Crax blumenbachii Red-billed Curassow
Crax "estudilloi" (=viridirostris?)

APPENDIX II.

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APPENDIX III.

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Features

Draft IUCN Red List Categories, Version 2.2

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I. Introduction

The threatened species categories now used in Red Data Books and Red Lists have been in place, with some modification, for almost 30 years. Since their inception they have become widely recognized internationally, and they are now used in a whole range of publications and listings produced by IUCN as well as by numerous governmental and non-governmental organizations. The Red Data Book categories provide an easily and widely understood method for highlighting those species under higher extinction risk, so as to focus attention on conservation measures designed to protect them. The system has worked well under the existing definitions, and underlies many valuable conservation assessments and management plans. However, with the increasing recognition that the resources available for conservation are very limited and need to be allocated rationally among many different demands, the categories have been used more frequently for setting priorities for conservation action. It is this change in emphasis that has provoked recent moves to revise the category definitions.

The need to revise the categories has been recognized for some time. In 1984, the SSC held a symposium, "The Road to Extinction" (Fitter & Fitter 1987) which examined the issues in some detail, and at which a number of options were considered for the revised system. However, no single proposal resulted. The current phase of development began in 1987 with a request from the SSC Steering Committee to develop a new approach that would provide the conservation community with useful information for action planning.

The revision has several aims: to provide an explicit system that can be applied consistently by different people; to improve the objectivity by providing those using the criteria with clear guidance on how to evaluate different factors that affect risk of extinction; to provide a system which will facilitate comparisons across widely different taxa; and to give people using threatened species lists a better understanding of how individual species were classified. In this document, proposals for new definitions for Red List categories are presented. The general aim of the new system is to provide an objective framework for the classification of species according to their extinction risk. This is intended to be equally applicable across taxa, and to be useful in the planning of conservation actions.

The proposals presented in this document result from a continuing process of drafting, consultation and validation exercises, and redrafting. It is clear that the production of a large number of draft proposals has led to some confusion, especially as each draft has been used for classifying some set of species for conservation purposes. To clarify matters, and to open the way for future modifications as and when they become necessary, a system for version numbering is now being introduced as follows:

Version 1.0: Mace & Lande (1991)
The first paper discussing a new basis for the categories, and presenting numerical criteria especially relevant for large vertebrates.

Version 2.0: Mace et al. (1992)
A major revision of Version 1.0, including numerical criteria appropriate to all organisms and introducing the non-threatened categories.

Version 2.1: IUCN (1993)
Following an extensive consultation process within SSC, a number of changes were made to the details of the criteria, and fuller explanation of basic principles was included. A more explicit structure clarified the significance of the non-threatened categories.

Version 2.2: 1994 (this paper)
Following further comments received and additional validation exercises, some minor changes to the criteria have been made. In addition, the Susceptible category present in Versions 2.0 and 2.1 has been subsumed into the Vulnerable category. A precautionary application of the system is emphasized.

In future, any application of the criteria should include the appropriate version number as given above.

In the rest of this document, the proposed system is outlined in several sections. The Preamble presents some basic information about the context and structure of the proposal, and the procedures that are to be followed in applying the definitions to species. This is followed by a section giving definitions for terms used in a specific fashion within the definitions. Finally the definitions are presented, followed by the quantitative criteria used for classification within the threatened categories. It is important for the effective functioning of the new system that all sections are read and understood, and the guidelines followed.

II. Preamble

The following points present important information on the use and interpretation of the categories (=Critically Endangered, Endangered, etc.), criteria (= A to E), and sub-criteria (=a, b, etc., i, ii, etc.):

1. Taxonomic Level and Scope of the Categorization Process

The criteria can be applied to any taxonomic unit at or below the species level. The term "taxon" in the following notes, definitions, and criteria is used for convenience, and may represent species or lower taxonomic levels, including forms that are not yet formally described. There is a sufficient range among the different criteria to enable the appropriate listing of taxa from the complete taxonomic spectrum, with the exception of microorganisms. The criteria may also be applied within any specified geographical or political area although special notice should be taken of point 11 below. In presenting the results of applying the criteria, the unit and area under consideration should be made explicit. The categorization process should only be applied to wild populations reproducing naturally inside their natural range, and to populations resulting from benign introductions (defined in the draft IUCN Guidelines for Reintroductions as "...an attempt to establish a species, for the purpose of conservation, outside its recorded distribution, but within an appropriate habitat and ecogeographical area") .

2. Nature of the Categories

All taxa listed as Critically Endangered qualify for Vulnerable and Endangered, and all listed as Endangered qualify for Vulnerable. Together these categories are described as "threatened." The threatened species categories form a part of the overall scheme. It will be possible to place all taxa into at least one of the categories (see Fig. 1).

3. Role of the Different Criteria

For listing as Critically Endangered, Endangered, or Vulnerable, there are five quantitative criteria; meeting any one of these criteria qualifies a taxon for listing at that level of threat. The different criteria (A-E) are derived from a wide review aimed at detecting risk factors across the broad range of organisms and the diverse life histories they exhibit. Even though some criteria will be inappropriate for particular taxa and some taxa will never qualify under particular criteria however close to extinction they come, there should be criteria appropriate for assessing threat levels for any taxon (other than microorganisms). The relevant factor is whether any one criterion is met, not whether all are appropriate or all are met.

4. Derivation of Quantitative Criteria

The quantitative values in the criteria associated with threatened categories were developed through wide consultation, and are set at what are generally judged to be appropriate levels, even if no formal justification for these values exists. The levels for different criteria within categories were set independently but

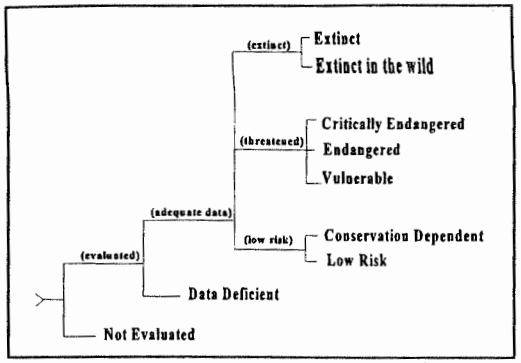

Figure 1. Structure of the Categories.

against a common standard. Some broad consistency between them was sought. However, a given taxon should not be expected to meet all (A-E) criteria in a category; meeting any one criterion is sufficient.

5. Implications of Listing

Listing in the categories of Not Evaluated and Data Deficient indicates that no assessment of extinction risk has been made, though for different reasons. Until such time as an assessment is made, species listed in these categories should not be treated as if they were non-threatened, and it will be appropriate (especially for Data Deficient forms) to give them the same degree of protection as threatened taxa, at least until their status can be evaluated.

Extinction is seen as a probabilistic or chance process. Thus, a listing in a higher extinction risk category implies a higher expectation of extinction, and over the time-frames under consideration more taxa listed here are expected to go extinct (without effective conservation action) than taxa listed in the lower risk categories. However, the fact that some taxa listed at high risk persist, does not necessarily mean their initial assessment was inaccurate.

6. Data Quality and the Importance of Inference and Projection

The criteria are clearly quantitative in nature. However, the absence of high-quality data should not deter attempts to apply the criteria, as methods involving estimation, inference, and projection are emphasized to be sufficient throughout. Inference and projection may be based on extrapolation of current or potential threats into the future and their rate of change, or on extrapolation of factors related to population abundance or distribution (including dependence on other taxa), so long as these can reasonably be supported. Suspected or inferred patterns in either the recent past, present, or near future can be based on any of a series of related factors, and these factors should be specified.

Taxa at risk from threats posed by future events of low probability but with severe consequences (catastrophes) should be identified by the criteria (e.g. small distributions, few locations). Some threats need to be identified particularly early, and appropriate actions taken, because their effects are irreversible, or nearly so (pathogens, invasive organisms, hybridization).

7. Uncertainty

The criteria should be applied on the basis of the available evidence on taxon numbers, trend and distribution, making due allowance for statistical and other uncertainties. In cases where a wide variation in estimates is found, it is legitimate to apply the precautionary principle and use the lowest *credible* estimate.

Where data are insufficient to assign a category (including Low Risk), the category of "Data Deficient" may be assigned. However, it is important to recognize that this category indicates that data are inadequate to determine the degree of threat faced by a taxon, not necessarily that the taxon is poorly known. In cases where there are evident threats to a taxon through, for example, deterioration of its only known habitat, it is important to attempt threatened listing, even though there may be little direct information on the biological status of the taxon itself. The category "Data Deficient" is not a threatened category, although it indicates a need to obtain more information on such species to determine their appropriate listing.

8. Conservation Actions in the Listing Process

The criteria for the threatened categories are to be applied to a taxon irrespective of whether conservation action is taking place. In cases where it is only conservation action that prevents the taxon from meeting the threatened criteria, the designation of "Conservation Dependent" is appropriate. It is important to emphasize here that a taxon requires conservation action even if it is not listed as threatened.

9. Documentation

All taxon lists including categorization resulting from these criteria should state the version number of the category definitions as well as the criteria and sub-criteria that were met. No listing can be accepted as valid unless at least one criterion is given. If more than one criterion or sub-criterion was met, then each should be listed. However, failure to mention a criterion should not necessarily imply that it was not met. Therefore, if a re-evaluation indicates that the documented criterion is no longer met, this should not result in automatic down-listing. Instead, the taxon should be re-evaluated with respect to all criteria to indicate its status. The factors responsible for triggering the criteria, especially where inference and projection are used, should at least be logged by the evaluator, even if they cannot be included in published lists.

10. Threats and Priorities

The category of threat is not necessarily sufficient to determine priorities for conservation action. The category of threat simply provides an assessment of the likelihood of extinction under current circumstances, whereas a system for assessing priorities for action will include numerous other factors concerning conservation action such as costs, logistics, chances of success, and even perhaps the taxonomic distinctiveness of the subject.

11. Use at Regional Level

The criteria are most appropriately applied to whole taxa at a global scale, rather than to those units defined by regional or national boundaries. Regionally or nationally based threat categories are best used with two key pieces of information: the global status category for the taxon, and the proportion of the global population or range that occurs within the region or nation. However, if applied at regional or national level it must be recognized that a global category of threat may not be the same as a regional or national category for a particular taxon. For example, taxa that were classified as Vulnerable on the basis of their global declines in numbers or range might be Low Risk within a particular region where the populations were stable. Conversely, taxa classified as Low Risk globally might be Critically Endangered within a particular region where numbers were very small or declining, perhaps only because they were at the margins of their global range.

12. Re-evaluation

As circumstances change, re-evaluation of taxa against the criteria will be necessary, and listings should indicate explicitly the taxa for which re-evaluation should occur within a short time-frame (typically within 5 years), or under some specified circumstance. This is especially important for taxa listed under Low Risk, but which are close to qualifying as Vulnerable or Conservation Dependent.

13. Transfer Between Categories

There are rules to govern the movement of taxa between categories. These are as follows: (A) A taxon may be moved from a category of higher threat to a category of lower threat if none of the criteria of the higher category has applied for 5 years or more. (B) If the original classification is found to have been erroneous (based on reanalysis of the data or new information), the taxon may be transferred to the appropriate category or removed from the threatened categories altogether, without delay (but see Section 9). (C) Transfer from lower risk to higher risk categories of threat should be made without delay.

14. Problems of Scale

Classification based on the sizes of geographic ranges or the patterns of habitat occupancy is complicated by problems of spatial scale. The finer the scale at which the distributions or habitats of taxa are mapped, the smaller will be the area that they are found to occupy. Mapping at finer scales reveals more areas in which the taxon is unrecorded. It is impossible to provide any strict rules for mapping taxa or habitats; the most appropriate scale will depend on the taxa in question, and the origin and comprehensiveness of the distributional data. However, the thresholds for some criteria (e.g. Critically Endangered) necessitate mapping at a fine scale (in units of one square kilometer or finer).

III. Definitions

Population

Population is defined as the total number of individuals of the taxon. For functional reasons, primarily owing to differences between life forms, population numbers are expressed as numbers of mature individuals only. In the case of taxa biologically dependent on other taxa for all or part of their life cycles, biologically appropriate values for the host taxon should be used.

Subpopulations

Subpopulations are defined as geographically or otherwise distinct groups in the population between which there is little exchange (typically one successful migrant individual or gamete per year or less).

Mature Individuals

The number of mature individuals is defined as the number of individuals known, estimated, or inferred to be capable of reproduction. Where the population is characterized by normal or extreme fluctuations, the minimum number should be used. This measure is intended to count individuals capable of reproduction and should therefore exclude individuals that are environmentally, behaviorally, or otherwise reproductively suppressed in the wild. In the case of populations with biased adult or breeding sex ratios it is appropriate to use lower estimates for the number of mature individuals which take this into account. Reproducing units within a clone should be counted as individuals, except where such units are unable to survive alone (e.g. corals). In the case of taxa that naturally lose all or a subset of mature individuals at some point in their life cycle, the estimate should be made at the appropriate time, when mature individuals are available for breeding.

Generation

Generation may be measured as the average age of parents in the population.

Continuing Decline

A continuing decline is a recent, current, or projected future decline whose causes are not known or not adequately controlled and so is liable to continue unless remedial measures are taken. Natural fluctuations will not normally count as a continuing decline, but an observed decline should not be considered to be part of a natural fluctuation unless there is evidence for this.

Severe Decline

A severe decline (criterion A) is a reduction in the number of mature individuals of at least the amount (%) stated over the time period (years) specified, although the decline need not still be continuing. A severe decline should not be interpreted as part of a natural fluctuation unless there is good evidence for this. Downward trends that are part of natural fluctuations will not normally count as a severe decline.

Extreme Fluctuations

Extreme fluctuations occur in a number of taxa where population size or distribution area var-

ies widely, rapidly, and frequently, with a variation greater than one order of magnitude.

Severely Fragmented
Severely fragmented is defined as the case where increased extinction risks result from the fact that most individuals within a taxon are found in small and relatively isolated subpopulations. These small subpopulations may go extinct, with a reduced probability of recolonization.

Extent of Occurrence
Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a taxon, excluding cases of vagrancy. This measure does not take account of discontinuities or disjunctions in the spatial distributions of taxa (but see "Area of Occupancy"). Extent of occurrence can often be measured by a minimum convex polygon (the smallest polygon in which no internal angle exceeds 180 degrees and which contains all the sites of occurrence).

Area of Occupancy
Area of occupancy is defined as the area within the "extent of occurrence" (see definition) which is occupied by a taxon, excluding cases of vagrancy. The measure reflects the fact that a taxon will not usually occur throughout the area of its extent of occurrence, which may, for example, contain unsuitable habitats. The area of occupancy is the smallest area essential at any stage to the survival of a taxon (e.g. colonial nesting sites, feeding sites for migratory taxa). The size of the area of occupancy will be a function of the scale at which it is measured, and should be at a scale appropriate to relevant biological aspects of the taxon. The criteria include values in km^2, and thus to avoid errors in classification, the area of occupancy should be measured on grid squares (or equivalents) which are sufficiently small (see Figure 2).

Quantitative Analysis
A quantitative analysis is defined here as the technique of population viability analysis (PVA), or any other quantitative form of analysis, which estimates the extinction probability of a taxon or population based on the known life history and specified management or non-management options. In presenting the results of quantitative analyses, the structural equations and the data should be explicit.

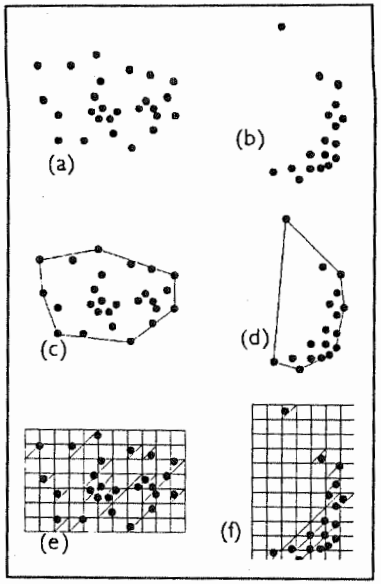

Figure 2. Two examples of the distinction between extent of occurrence and area of occupancy. (a) and (b) are the spatial distribution of known, inferred, or projected sites of occurrence. (c) and (d) show one possible boundary to the extent of occurrence, which is the measured area within this boundary. (e) and (f) show one measure of area of occupancy which can be measured by the sum of the occupied grid squares.

IV. The Categories

Extinct (EX)
A taxon is **Extinct** when there is no reasonable doubt that its last individual has died.

Extinct in the Wild (EW)
A taxon is **Extinct in the Wild** when it is known only to survive in cultivation, in captivity, or as a naturalized population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Critically Endangered (CR)
A taxon is **Critically Endangered** when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by *any of* the criteria (A to E) on page 20.

Endangered (EN)
A taxon is **Endangered** when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by *any of* the criteria (A to E) on pages 20-21.

Vulnerable (VU)
A taxon is **Vulnerable** when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by *any of* the criteria (A to E) on pages 21-22.

Conservation Dependent (CD)
Taxa that do not currently qualify as Critically Endangered, Endangered, or Vulnerable, may be classified as Conservation Dependent. To be considered **Conservation Dependent,** a taxon must be the focus of a continuing taxon-specific or habitat-specific conservation program which directly affects the taxon in question. The cessation of this conservation program would result in the taxon qualifying for one of the threatened categories above.

Low Risk (LR)
A taxon is **Low Risk** when it has been evaluated and does not qualify for any of the categories Critically Endangered, Endangered, Vulnerable, Conservation Dependent, or Data Deficient. It is clear that a range of forms will be included in this category including: (i) those that are close to qualifying for the threatened categories (ii) those that are of less concern and (iii) those that are presently abundant and unlikely to face extinction in the foreseeable future. It may be appropriate to indicate into which of these three classes taxa in Low Risk seem to fall. It is especially recommended to indicate an appropriate interval, or circumstance, before re-evaluation is necessary for taxa in the Low Risk class, especially for those indicated in (i) above.

Data Deficient (DD)
A taxon is **Data Deficient** when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. DD is therefore not a category of threat or Low Risk. Listing of taxa in this category indicates that more information is required. Listing a taxon as DD acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, or if there are reasonable chances of unreported surveys in which the taxon has not been found, or that habitat loss has had an unfavorable impact, threatened status may well be justified.

Not Evaluated (NE)
A taxon is **Not Evaluated** when it is has not yet assessed against the criteria.

V. The Criteria for Critically Endangered, Endangered, and Vulnerable

Critically Endangered (CR)
A taxon is **Critically Endangered** when it is facing an extremely high risk of extinction in

the wild in the immediate future, as defined by *any of* the following criteria (A to E):

A. Population reduction in the form of *either of* the following:

1. An observed, estimated, inferred, or suspected severe decline of at least 80% during the last 10 years or 3 generations for which data are available, based on (and specifying) **any of** the following: (a) direct observation; (b) a decline in area of occupancy, extent of occurrence and/or quality of habitat; (c) actual or potential levels of exploitation; (d) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites.

2. A severe decline of at least the rate specified in A1 that is projected, observed, inferred, or suspected to be likely to occur in the near future, based on (and specifying) any of (b), (c), or (d) above.

B. Extent of occurrence estimated to be less than 100 km^2 or area of occupancy estimated to be less than 10 km^2, *and* estimates indicating *any two of* the following:

1. Severely fragmented *or* found only at a single location.

2. Continuing decline, observed, inferred, or projected, in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) area, extent, and/or quality of habitat; (d) number of locations or subpopulations; (e) number of mature individuals.

3. Extreme fluctuations in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) number of locations or subpopulations

C. Population estimated to number less than 250 mature individuals *and either:*

1. An estimated continuing decline of at least 25% within 3 years or one generation, whichever is longer *or*

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals *and* population structure in the form of *either* (a) severely fragmented (i.e. no population estimated to contain more than 50 mature individuals); (b) all individuals are in a single subpopulation.

D. Population estimated to number less than 50 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 5 years or 2 generations, whichever is the longer.

Endangered (EN)

A taxon is **Endangered** when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by *any of* the following criteria (A to E):

A. Population reduction in the form of *either of* the following:

1. An observed, estimated, inferred, or suspected severe decline of at least 50% during the last 10 years or three generations for which data are available, based on (and specifying) *any of* the following: (a) direct observation; (b) a decline in area of occupancy, extent of occurrence and/or quality of habitat; (c) actual or potential levels of exploitation; (d) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. A severe decline of at least the rate specified in A1 that is projected, observed, inferred, or suspected to be likely to occur in the near future, based on (and specifying) any of (b), (c), or (d) above.

B. Extent of occurrence estimated to be less than 5,000 km^2 *or* area of occupancy estimated to be less than 500 km^2, *and* estimates indicating *any two of* the following:

1. Severely fragmented *or* found only at no more than five locations.

2. Continuing decline, inferred, observed or projected, in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) area, extent and/or quality of habitat; (d) number of locations or subpopulations; (e) number of mature individuals .

3. Extreme fluctuations in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) number of locations or subpopulations

C. Population estimated to number less than 2,500 mature individuals and *either:*

1. An estimated continuing decline of at least 20% within 5 years or 2 generations, whichever is longer, *or*

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals *and* population structure in the form of *either* (a) severely fragmented (i.e. no population estimated to contain more than 250 mature individuals); (b) all individuals are in a single subpopulation.

D. Population estimated to number less than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or 5 generations, whichever is the longer.

Vulnerable (VU)

A taxon is **Vulnerable** when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by *any of* the following criteria (A to E):

A. Population reduction in the form of *either of* the following:

1. An observed, estimated, inferred, or suspected severe decline of at least 50% during the last 20 years or 5 generations for which data are available, based on (and specifying) *any of* the following: (a) direct observation; (b) a decline in area of occupancy, extent of occurrence and/or quality of habitat; (c) actual or potential levels of exploitation; (d) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites.

2. A severe decline of at least the rate specified in A1 that is projected, observed, inferred, or suspected to be likely to occur in the near future, based on (and specifying) any of (b), (c), or (d) above.

B. Extent of occurrence estimated to be less than 20,000 km^2 or area of occupancy estimated to be less than 2,000 km^2, and estimates indicating *any two of* the following:

1. Severely fragmented *or* found at no more than ten locations.

2. Continuing decline, inferred, observed, or projected, in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) area, extent, and/or quality of habitat; (d) number of locations or subpopulations; (e) number of mature individuals .

3. Extreme fluctuations in *any of* the following: (a) extent of occurrence; (b) area of occupancy; (c) number of locations or subpopulations

C. Population estimated to number less than 10,000 mature individuals and *either:*

1. An estimated continuing decline of at least 20% within 10 years or 3 generations, whichever is longer, *or*

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals *and* population structure in the form of *either* (a) severely fragmented (i.e. no population estimated to contain more than 1,000 mature individuals); (b) all individuals are in a single subpopulation.

D. Population very small or restricted in the form of *either of* the following:

1. Population estimated to number less than 1000 mature individuals.

2. Population is characterized by an acute restriction in its area of occupancy (typically less than 100 km^2) or in the number of locations (typically less than 5). Such a taxon would thus be prone to the ef-

fects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming Critically Endangered or even Extinct in a very short period.

E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

VI. Some Examples of the Application of the Criteria

During the process of developing the new draft Red List categories and criteria, it has become clear that it is very hard to understand how the proposed new system actually works without seeing some worked examples of particular species. To assist in understanding the process, eight species have been chosen as examples. Most of these species are not particularly well-known, thus demonstrating that the criteria do not require large amounts of quantitative data to be available before they can be applied.

Ceratotherium simum

The white rhinoceros *Ceratotherium simum* is the least threatened of the world's five species of rhinoceros. The northern subspecies is Critically Endangered and is restricted to Garamba National Park in Zaire, where only 33 animals survive. The southern subspecies is largely confined to South Africa, where it has been increasing for many years under strict protection, and now numbers more than 6,000 individuals.

Criterion A. The species does not qualify as Threatened, since it is not in decline, nor is there any sign of breakdown in the protection system in South Africa that would result in a high level of poaching.

Criterion B. The species does not qualify as Threatened, since its area of occupancy is greater than 2,000 km^2.

Criterion C. The species does not qualify as Threatened, since although it has a population of less than 10,000 mature individuals, it is not in decline.

Criterion D. The species does not qualify as Threatened, since its population is greater than 1,000 mature individuals.

Conservation Dependent. The species certainly qualifies, since the cessation of the conservation programme in South Africa would result in the species qualifying as Threatened very rapidly.

Conclusion. List as Conservation Dependent.

Columba mayeri

The pink pigeon *Columba mayeri* is endemic to Mauritius, where it has declined to a tiny population of around 20 birds. A newly reintroduced popuation at a different site might offer the only hope for the species in the wild. Since the species obviously satisfies criterion D for Critically Endangered, it is not essential to test it against the other criteria. However, a Population Viability Analysis has been carried out on this species, which indicates a probability of extinction in the wild of 50% in two generations, hence qualifying as Critically Endangered.

Conclusion. List as Critically Endangered under Criteria D and E.

Eos cyanogenia

The black-winged lory *Eos cyanogenia* is a parrot that is restricted to the small Indonesian islands of Biak, Manim, Meos Num, Numfor, and Supiori. The species has almost certainly declined as a result of loss of forest habitat, though it is still reported to be relatively common on forested areas of Biak. International trade has accelerated since 1987, giving cause for concern for this species, especially in view of its very restricted distribution.

Criterion A. Given the number of birds reported in international trade, and the small wild population, a postulated decline of 50% in the last ten years, or a projected decline of 50% in the next ten years, is supportable. The species can therefore be listed as Endangered under criterion A.

Criterion B. The species is likely to have a distribution of less than 20,000 km^2, and is in decline, and since its distribution is severely fragmented, it satisfies this criterion at the Vulnerable level.

Criterion C. The species almost certainly satisfies this criterion at the Vulnerable level, since its population is believed to be less than 10,000 mature individuals, and its rate of decline is probably at least 20% during the last 10 years.

Conclusion. Since the species qualifies as Endangered under criterion A1c and Vulnerable under criteria B1 & B2e and C1, the former takes precedence, and it is listed as Endangered.

Eretmochelys imbricata

The hawksbill turtle *Eretmochelys imbricata* is a very widespread species, known to nest in at least 60 countries in the tropics and subtropics, but suspected to nest in more. Compared with some other marine turtle species, the total numbers appear to be quite small (a minimum of 15,000 - 25,000 females nest annually). It can be inferred that the relative rarity of the hawksbill is largely the result of prolonged over-exploitation for eggs and the international tortoiseshell trade.

Criterion A. Assuming the generation length to be 40 years, it is a supportable hypothesis that the species has declined by 50% over the last three generations (120 years), thus qualifying as Endangered.

Criterion B. The species does not qualify in view of its very wide distribution.

Criteria C and D. The species does not qualify, since more than 10,000 mature individuals survive.

Conclusion. List as Endangered under criterion A2c.

Dyscophus antongilii

This large frog is endemic to Madagascar, where it has a very small distribution in the east of the country, mainly between Maroantsetra and Andevoranto, and further south around Ambatovaky. The species favours swamps, shallow pools and water ditches, and although the status of the species is poorly known, it can be found in large concentrations. It is probably suffering from loss of habitat. The species appeared in the international pet trade prior to its listing on Appendix I in 1987.

Criteria A. It is unlikely that the decline in this species has amounted to, or will amount to, 50% in 20 years or five generations, and so does not qualify as Threatened under this criterion.

Criterion B. The area of distribution of this species is almost certainly less than 10,000 km^2. If it is assumed, probably correctly, that the species is in decline, and that its population is severely fragmented, then it would qualify as Vulnerable under criterion B.

Criteria C and D. Given that it can occur in large concentrations, the population of this species is probably greater than 10,000 mature individuals, and so the species does not qualify as Threatened under these criteria.

Conclusion. List as Vulnerable under criterion B1 & B2c.

Partula rosea

Partula rosea is a land snail that is endemic to the island of Huahine in French Polynesia. Its approximate range has been assessed by field biologists. Partulid snails have become extinct in recent years on all the surrounding islands following the introduction (either accidental or intentional) of the predatory snail *Euglandina rosea*. The last visit to the island by experts on *Partula* was in 1991, and no *Euglandina* were seen at that time. However, based on the colonisation of other islands in French

Polynesia, *Euglandina* is expected to invade during the next ten years.

Criterion A. Although currently stable, a decline of 50% over the next ten years is projected on the basis of the likely introduction of a predatory species, and the species thus qualifies as Endangered.

Criterion B. The species probably has an area of occupancy of less than 500 km², occurs at no more than five locations, and is facing a projected decline following the introduction of a predator, and thus qualifies as Endangered.

Criteria C and D. The species probably still has a large population, and so does not qualify under these criteria.

Conclusion. List as Endangered under criteria A2d and B1 & B2e.

Aztekium ritteri

Aztekium ritteri is one of the most unusual Mexican cacti, and is prized by cacti collectors. The population is estimated to number in the millions, but it is restricted to a single valley covering only 50 km². The species has probably declined somewhat, since it has been subject to heavy collecting for many years.

Criterion A. Although the species has probably declined, in view of its large population size, it seems unlikely that the collecting pressure has been sufficient to cause a decline of 50% over the last 20 years or five generations.

Criterion B. The species qualifies as Endangered under this criterion, in view of its area of occupancy of only 50 km², and the fact that it probably occurs in only one location, and is in decline.

Criteria C and D. The species does not qualify in view of its large population size.

Conclusion. List as Endangered under criterion B1 & B2e.

Paphiopedalum stonei

The species of slipper orchid is found in the limestone cliffs and hills of western Sarawak, Malaysia. It is in decline as a result of limestone quarrying and mining. It is also potentially at risk from international trade.

Criterion A. The species is believed to have declined in the past, or be likely to decline in the future, by at least 50% during 10 years or three generations, and as such qualifies as Endangered.

Criterion B. The species has an area of occupancy of less than 500 km², has a fragmented distribution, and is in decline, and so qualifies as Endangered.

Criteria C and D. The species probably has a population of more than 2,500 mature individuals, and so could not qualify as Endangered under these criteria. If its population is less than 10,000 mature individual, it would qualify and Vulnerable under criterion C.

Conclusion. List as Endangered under criteria A2b and B1 & B2c.

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Books

Books of Note

1994 IUCN Red List of Threatened Animals
Compiled by the World Conservation Monitoring Centre in association with the IUCN Species Survival Commission and BirdLife International. Edited by Brian Groombridge, 1993, 286 pp., £15.00, U.S. $30.00. Available from IUCN Publications Services Unit, 219c Huntingdon Road, Cambridge CB3 0DL, U.K.

The SSC has long been associated with the Red Data Book concept, which was originated by the former SSC Chair, Sir Peter Scott, in the mid-1960s. The Red Data Books are catalogues of information on species threatened with extinction, and they aim to focus attention on the plight of the earth's vanishing wildlife. The concept has been outstandingly successful and, over two decades later, many national, regional, and global Red Data Books have been published, while many more countries are in the process of compiling their own lists of threatened species. The information provided in national and regional compilations is inevitably more detailed than the global overview provided by SSC. The demand for a simple international list that categorizes the status of globally threatened taxa continues to grow, partly as a result of the increasing number of relevant international conventions, and it was to meet this need that the first IUCN Red List of Threatened Animals was published in 1986. Further editions appeared in 1988 and 1990, and the 1994 edition is an update of the 1990 edition. As described in detail in this issue of *Species*, the SSC is currently in the process of revising and improving the IUCN Red List categories for threatened species, and it is hoped that the next version, to be published in 1996, will be based on the new categories.

Produced from the advice of SSC members and the databases of the World Conservation Monitoring Centre (WCMC), the Red List presents, for each species, the scientific name, the English vernacular name (where possible), the IUCN Red List category, and countries of regular occurrence. There is an introductory guest essay by Georgina Mace on the development of the new IUCN Red List categories, and also a foreword by SSC Chair George Rabb. The editor, Brian Groombridge of WCMC, has included introductory material greatly expanded from previous versions, describing the nature of the information in the list and some informative summary tables.

While the increasing length of the Red List (now 5,929 taxa up from 4,477 in 1990) makes depressing reading, the information it contains should be of fundamental value to scientists, managers, and decision-makers responsible for conservation programs.

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Pigs, Peccaries, and Hippos. Status Survey and Conservation Action Plan. Edited by William L.R. Oliver, 1993, 202 pp., £12.50 , U.S. $25.00. Available from the IUCN Publications Services Unit, 219 Huntingdon Road, Cambridge CB3 0DL, U.K.

In his Preface, Gerald Durrell describes this Action Plan as a "pig *Guide Michelin.*" This seems an apt description for this collaborative effort of the Pigs and Peccaries Specialist Group and the Hippo Specialist Group as it provides both a broad overview of the status and detailed plans of action for the conservation of the 18 extant species in the sub-order Suiformes. The Plan combines the type of information found in Red Data Books, summarizing much of what is already known about the taxonomy, distribution, ecology, and behavior of each species, with individual "action plans" for each of the species.

The Plan is broken into five sections: an overview of taxonomy within the suborder; a