Selected African Falconiformes

Conservation Assessment & Management Plan

Working Draft Report

Edited by:
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A Collaborative Initiative
Endangered Wildlife Trust Raptor Conservation Group
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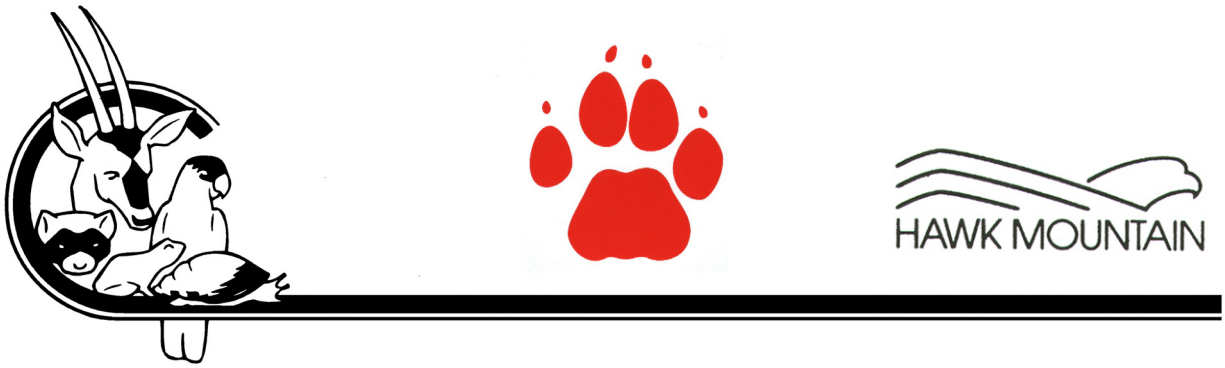

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July 2002

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Section 1
Introduction and Overview

Selected African Falconiformes
Conservation Assessment and Management Plan

Introduction

Reduction and fragmentation of wildlife populations and habitat are occurring at a rapid and accelerating rate worldwide. For an increasing number of taxa, the results are 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 utilisation of resources has momentum that cannot be stopped, the result being a decreased capacity for all other species to exist simultaneously on the planet.

In many parts of the Southern Hemisphere, habitat destruction and the over-exploitation of wildlife have become increasing threats to the survival of natural environments. As wildlife populations diminish through habitat loss, fragmentation, environmental change and other factors, their ecological roles in ensuring a well-balanced, regulated and sustainable ecosystem also are reduced. Still, most conservation actions are directed toward the protection of habitat and reserves, rather than the conservation and management of the wildlife components that also are critical to the long-term survival of ecosystems.

To ensure viable ecosystem functions, biologists and wildlife managers realise that management strategies must be adopted that will reduce the risk of extinction. 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.

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 of these tools 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 and Stuart 1994) as well as the scope of their 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 revitalising 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 interest in and funds for *in situ* conservation.

Captive management programs should only be developed in conjunction with ongoing field investigations and holistic conservation initiatives. It should be emphasised that captive breeding is not the answer to the extinction crisis and should not be viewed as a complete solution. It is one option along a continuum of strategic options for population recovery. If implemented, these programs should be part of an integrated species management plan that includes habitat management, limiting factors management, field research, and public education. A recovery effort that is not part of a holistic population management program in the wild does not have a high probability of making a meaningful contribution to conservation.

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 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 wild.

African Falconiformes – Gerhard H. Verdoorn

Africa with its amazing diversity of wildlife is blessed with a very large variety of raptors. Eagles, falcons, buzzards, kites, vultures and accipiters are well represented all over the continent while many taxa are yet to be studied to gain information on their biology and ecology. African raptors are truly birds of great splendour. The Bateleur is regarded as one of the most beautiful raptors in the world while the African Fish Eagle is best known for its wonderful call. Summer time in Africa brings large numbers of migrants such as Steppe and Lesser Spotted Eagles, kestrels, kites and buzzards to the plains to forage on the abundance of termites and other natural plagues. The Secretary Bird that is found only in Africa, is the most peculiar of the world's raptors while the Pygmy Falcon is the smallest of all raptors known to mankind.

The vast array of habitats found in Africa is perhaps the primary reason for the wide variety of raptors found on the continent. From strange goshawks found in the Afrotropical forests to the Lappet-faced Vulture that lives in the harsh Namib and Kalahari deserts, raptors are found in all countries and in all ecotypes. Many of these habitats that are critical to the survival of raptors are under serious threat. Forests are burdened by logging, grasslands give way to agriculture and savannah is often turned into urban development areas. The woodlands of Africa are rapidly being transformed into intensive agricultural land while pesticide misuse lays the ground for short and long-term impacts on raptors. Deliberate persecution, harvesting for food, illegal trade and acute poisoning add to the threats that raptors are facing. Many species have declined as a result of manmade impacts. The Bateleur, for example has virtually disappeared from the central parts of South Africa while the Cape Griffon lost its foothold in the South African Karoo. The Bearded Vulture is on its last legs in Kenya while smaller raptors are disappearing in Kenya due to deforestation.

It is of great concern that little work is being carried out in Africa for the conservation of raptors apart from efforts in Southern Africa and a few countries in central Africa. Conservation efforts must focus on investing resources in the preservation of habitat, resolving conflict and minimising pesticide impacts, and not solely on captive breeding. The present document provides an excellent platform for assessing and prioritising the conservation requirements of African raptors, and provides a basic reference for any conservationist or biologist with an interest in the conservation of raptors.

The African Falconiformes 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 African Falconiformes Conservation Assessment and Management Plan (CAMP) workshop was to assemble all relevant data on status and trends of African raptor populations in light of the threats they face and thereby to assist in developing a conservation strategy for these species.

This report is a result of several years of effort, commencing with discussions held at the 1993 Raptor Research Foundation meetings during which a Memorandum of Understanding (MOU) was signed among BirdLife International, Fonds d'Intervention Pour les Rapaces, The Hawk and Owl Trust, Hawk Mountain Sanctuary, the IUCN/SSC Conservation Breeding Specialist Group, The Peregrine Fund, The Raptor Conservation Group, The Raptor Research Foundation and the World Working Group on Birds of Prey and Owls. This MOU provided a framework for co-operation among the signatories as they work together to develop a Conservation Action Plan for the world's raptors. It was agreed that the group would collaboratively carry out a CAMP process for this taxon, as one of the first steps in the development of this Plan.

In April 1995, a group of representatives from each of the above organisations met in Badajoz, Spain to review a 500-page draft workbook Susie Ellis of CBSG had compiled based on information in the recently-published *Handbook of the Birds of the World Volume 2* (del Hoyo et al., 1994) and decided on a procedure for updating the taxon data sheets (i.e., species-by-species accounts of the conservation status of the world's raptors) that comprise the bulk of the workbook. Initially, taxon data sheets were reviewed by selected 'geographic editors' who circulated them to experts in their region for review; regional reviewers were asked to add comments and refine the draft taxon data sheets and return them to the 'geographic editors.' These editors will then send their sheets to 'taxonomic editors' who will draft the final edits. For African Falconiformes, the geographic editor was Gerhard Verdoorn, who worked diligently to compile the data assembled in this document.

CAMP Workshop Goals

The goals of the CAMP were:

1. To review the population status and demographic trends for African Falconiformes, to apply the New IUCN Red List criteria for threat.

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

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

4. Produce a Conservation Assessment and Management Plan, presenting the assessments and recommendations for distribution and review by all parties interested in raptor conservation.

The New IUCN Red List Categories

The threatened species categories previously used in IUCN Red Data Books and Red Lists were in place, with some modification, for almost 30 years (Mace *et al.* 1992). The Mace-Lande criteria (Mace and Lande 1991) were one developmental step in an attempt to make those categories more explicit. These criteria subsequently have been revised and formulated into the new IUCN Red List Categories (IUCN 1996) which currently are being used in the CAMP process. BirdLife International used a very similar version of the criteria to prepare *Birds to Watch 2* (Collar et al. 1994), from which bird listings were derived for the 1996 IUCN Red List of Threatened Species (IUCN 1996).

The African Falconiformes CAMP evaluated 20 taxa 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 based primarily on a best-estimate basis as gathered by CAMP organisers, and may be subject to further review by other experts in the field.

The New IUCN Red List Categories provide a system that facilitates comparisons across widely different taxa, and is based both on population and distribution criteria. These 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 (Mace and Stuart 1994).

Specific information on the categories (1994 version) and their use are presented in Section 2, with the complete reference found in Section 5. The New IUCN Red List Categories are: Extinct (EX); Extinct in the Wild (EW); Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Conservation Dependent (CD); Lower Risk (LR); Data Deficient (DD); Not Evaluated (NE).

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

To assist in making recommendations, taxon editors 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, co-operation. During the workshop, there were many attempts to estimate if the total population of each taxon was greater or less than the thresholds for the numeric criteria for the IUCN Categories of Threat. In some cases, current population estimates for taxa were unavailable or available for species/subspecies within a limited part of their distribution. In all cases, if presented, 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 emphasised that these estimates should not be authoritative for any other purpose than was intended by this process. The New IUCN Red List categories for the taxa examined during this CAMP exercise are presented in Table 1.

Table 1. Selected African Falconiform Taxa and IUCN Red List Categories.

Species	Common Name	IUCN Category
Aviceda madagascariensis	Madagascar Cuckoo-hawk	VU
Buteo archeri	Archer's Buzzard	VU
Aviceda cuculoides	African Cuckoo-hawk	LR
Polyboroides typhus	African Harrier-hawk	LR
Melierax metabates	Dark Chanting-goshawk	LR
Kaupifalco monogrammicus	Lizard Buzzard	LR
Melierax poliopterus	Dark Chanting-goshawk	LR
Melierax canorus	Pale Chanting-goshawk	LR
Micronisus gabar	Gabar Goshawk	LR
Urotriorchis macrourus	Long-tailed Hawk	LR
Butastur rufipennis	Grasshopper Buzzard	LR
Buteo oreophilus	Mountain Buzzard	LR
Buteo rufinus	Long-legged Buzzard	LR
Buteo auguralis	Red-necked Buzzard	LR
Buteo augur	Augur Buzzard	LR
Buteo rufofuscus	Jackal Buzzard	LR
Polemaetus bellicosus	Martial Eagle	LR
Lophaetus occipitalia	Long-crested Eagle	LR
Sagittarius serpentarius	Secretarybird	LR
Machaerhamphus alcinus	Bat Hawk	DD

Threats to African Falconiformes

Raptors should not be viewed in isolation from their environment. The situation facing these and other organisms in Africa is a foretaste of that which will be faced in the future. A variety of factors combine to make birds of prey particularly susceptible to population declines -- even extinction -- resulting from the unprecedented levels of human activity occurring today. Perhaps one of the biggest problems is simply a lack of information, both on the part of scientists as well as the general public, about the interactions of the various factors at play in the community ecosystems as well as how they affect the organisms living within that environment.

Threats to selected African Falconiformes by IUCN Category of Threat and as determined by CAMP organisers and editors are presented in Table 2.

Table 2. Threats facing selected African Falconiformes according to IUCN Red List Category of Threat.

NEW IUCN RED LIST CATEGORY	Habitat Loss	Habitat Fragmentation	Power Lines	Poison	Pesticides	Hunting for Food	Shooting	Human interference	Habitat loss to exotic animals	Habitat loss to exotic plants	War	Drought
Vulnerable	1	1	1								1	
Lower Risk	8	5	5	4	3	2	2	2	2	1		1
Data Deficient												
TOTAL	9	6	6	4	3	2	2	2	2	1	1	1

Recommendations for Intensive Management and Research Actions

There is insufficient information about many of the interactive factors affecting the survival of Falconiformes in southern Africa. For this reason, many of the recommendations for research and management activities for taxa reviewed in this CAMP process include surveys and monitoring, along with investigations into limiting factors. For many species, additional measures also were recommended. These include the management and protection of habitat, as well as research and management aimed at controlling or eliminating the factors that limit species populations.

The development of co-ordinated efforts (possibly with governmental assistance and integrated management programs) to ameliorate or even negate the effects of threats such as habitat loss need to be carried forward. Combined with these, community-based environmental education programs can be a useful tool to augment the effectiveness of conservation initiatives.

For all taxa reviewed in this Falconiform CAMP, recommendations were generated for the kinds of intensive action necessary for conservation, both in terms of management and research. Population and Habitat Viability Assessment (PHVA) workshops, to develop comprehensive and achievable management plans also were recommended for some species. 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 management plans with the aid of simulation models.

CAMP editors attempted to develop an integrated approach to the management and research actions needed for the conservation of the species under review. In all cases, an attempt was made to make management and research recommendations based on our knowledge of the various threats affecting the taxa.

With only partial understanding of underlying causes for decline in some taxa, it is sometimes difficult to clearly define specific management actions needed for the conservation. Therefore, "research management" increasingly will 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 taxa to that activity. The frequent need for survey information to evaluate population status emphasises the need to quickly implement intensive survey methodologies, especially for threatened species. Other types of research activities that can enhance our ability to manage these species in the future, such as investigation of foraging locations and ranges, also were identified. The highest priority research and management activities as identified by workshop participants for Falconiformes taxa are listed in Table 3. Longer-term priority activities are listed on the individual taxon data sheets for each species in Section 2.

CAMP editors wish to emphasise that further investigation into population status, demography, and dynamics is urgently needed and will help to develop further management activities that will minimise threats and their effects on these species. For those species that were indicated as being in need of a PHVA workshop in the near future, we wish to urge immediate planning for those evaluations.

Table 3. Research management recommendations for selected African Falconiformes by IUCN Red List Category of Threat.

NEW IUCN RED LIST ATEGORY	Monitoring	Habitat Management	Survey	Limiting Factors Research	Limiting Factors Management	Taxonomic Research	PHVA Pending	Life History Research	Education and Public Awareness
Vulnerable	2	1	2	2	1		2	2	
Lower Risk	17	10	7	2	3	3			1
Data Deficient	1	1	1	1		1	1		
TOTAL	20	12	10	5	4	4	3	2	1

Captive Breeding Recommendations

During the CAMP workshop, all 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, IUCN Red List status, population trend, type of captive propagation program), need for or suitability as a surrogate species, existing 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 for only three taxa, and these were recommended as "pending" more information or the results of a PHVA process.

CAMP Document Review

This working draft CAMP document was generated as part of the process described earlier in this introduction and summary. Further review and comment will take place after the distribution of this report to a broader audience that includes raptor biologists, wildlife managers, Specialist Group members, academic scientists, regional captive programs, and other interested parties worldwide. This document may be revised and updated as new information becomes available on the species reviewed.

Editors' Postscript

It is of great concern that there is little work being carried out in Africa for the conservation of raptors apart from efforts in Southern Africa and a few countries in central Africa. This CAMP process has provided a platform for assessing and prioritising the conservation requirements of African raptors. This document can serve as the basic reference for any conservationist or biologist with an interest in the conservation of raptors. It also is intended to be a living document to be reviewed on a regular basis in order to evaluate the success and/or failure on conservation efforts for African raptors.

The information collated in this CAMP document is an accumulation of many thousands of hours dedicated by raptor biologists, conservationists and enthusiasts from all over the world. The editors would like to express sincere gratitude to all contributors to the vast amount of scientific and anecdotal information that was essential for this initiative.

We hope that this document will be used to the benefit of African raptors and that in a few years from now the conservation status of at least a few taxa would have improved. We also recognize that the successful conservation of wild species and ecosystems necessitates the development and implementation of active 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 the various national and international agencies charged with the preservation of flora and fauna.

We wish to emphasise that we do not view any of the recommendations contained in this document as "stand-alone" initiatives. Rather, the reader is encouraged to see these activities as components of the overall, urgent need for the conservation of whole ecosystems. Many of the Falconiform species are excellent candidates (as bio-indicators, key species, or flagship species) to help facilitate larger-scale conservation programs. We therefore urge continuing and heightened levels of research, monitoring, and management of protected areas and other natural ecosystems within all range areas in which these raptors are found.

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Section 2
CAMP Taxon Data Sheet Categories

CONSERVATION ASSESSMENT AND MANAGEMENT PLAN (CAMP)
TAXON DATA SHEET CATEGORIES
20 April 1995

The Conservation Assessment and Management Plan (CAMP) taxon data sheet 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 sheet 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.

SCIENTIFIC NAME: Scientific names of extant taxa: genus and species (or subspecies where appropriate).

NEW IUCN: Tentative new status according to the New IUCN Red List criteria (1994).
- CR = Critically Endangered
- EN = Endangered
- VU = Vulnerable
- CD = Conservation Dependent
- LR = Lower Risk
- DD = Data Deficient
- NE = Not Evaluated

CRITERIA BASED ON: Indicate which of the New IUCN Red List criteria were used to assign a category of threat:
- PR = Population reduction (A1a, or A2b, etc.)
- EO = Extent of occurrence (B1, or B2a, B3c, etc.)
- PE = Population estimates (C1, or C2a, etc.)
- NM = Number of mature individuals (D)
- PX = Probability of extinction (E)

CITES: List the CITES Appendix on which the species is listed, if appropriate.

OTHER: List whether the species has been assigned threatened status in other venues, e.g., nationally or in other conservation assessments.

TAXONOMIC STATUS: This indicates the taxonomic status of the extant taxa. Taxonomic uncertainties may be discussed in this section. Subspecies not considered separately should be listed here along with their distribution.

CURRENT DISTRIBUTION (BREEDING AND WINTERING): List the geographical extent of the breeding and wintering locations of the species.

CONCENTRATED MIGRATION REGIONS: List the regions in which migration is concentrated, especially those in which the birds may face some degree of threat.

HISTORICAL DISTRIBUTION: List the historical distribution of the species

EXTENT OF OCCURRENCE: List the actual size of the area in which the species occurs, if possible. Also list the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a taxon, excluding cases of vagrancy (Figure 1). This measure does not take account of discontinuities or disjunctions in the spatial distributions of taxa. 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).

A: < 100 km2
B: 101 km2 - 5,000 km2
C: 5,001 km2 - 20,000 km2
D: larger than 20,001 km2

AREA OF OCCUPANCY: List the area within the 'extent of occurrence' which is actually 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 relent biological aspects of the taxon. The criteria include values in km2, 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 1).

A: < 10 km2
B: 11 km2 - 500 km2
C: 501 km2 - 2,000 km2
D: larger than 2,001 km2

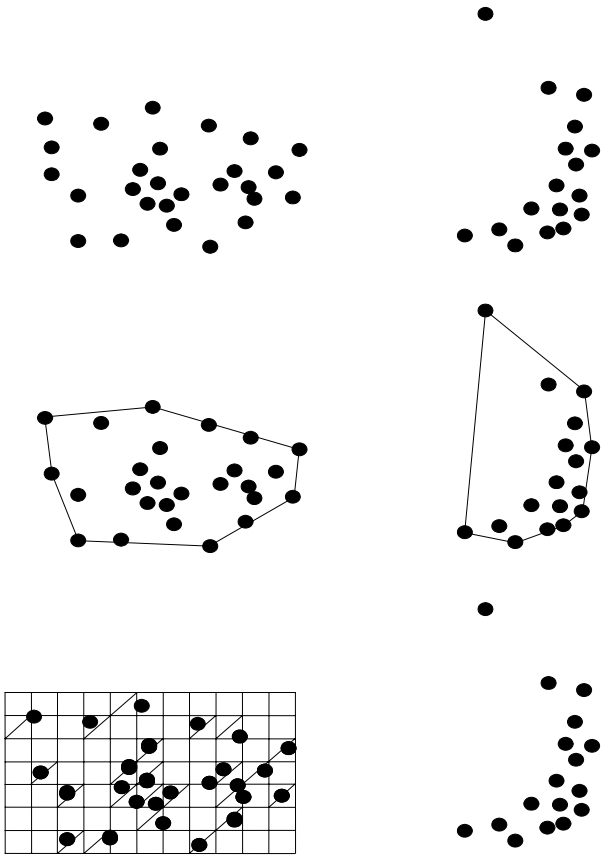

Fig. 1. Two examples of the distinction between the extent of occurrence and area of occupancy. (a) and (b) are the spatial distribution of known, inferred, or projected sites of occurrence. (c) and (d) show one possible boundary to the extent of occurrence, which is the measured area within this boundary. (e) and (f) show one measure of area of occupancy which can be measured by the sum of the occupied grid squares.

LOCATIONS: Note the number of locations in which the taxon is found. If the population is fragmented, indicate "F" after the number of locations.

POPULATION TRENDS - % CHANGE IN YEARS OR IN GENERATIONS: If possible, list the trend of the population (stable, declining, or increasing). If possible, list the percent of change over a particular time frame (e.g., 10 or 20 years) or number of generations. Specify the number of years or generations over which the decline has occurred, e.g., 10%/2g or 20%/20 yrs.

GENERATION TIME: Indicate the number of years in a generation. A generation is defined as the average age of parents in the population.

WORLD POPULATION: List the estimated numbers of pairs in the wild. If specific numbers are unavailable, estimate the general range of the population size.

REGIONAL POPULATION(S): List the estimated number of pairs in any particular region for which there are data, followed by the location.

DATA QUALITY:
List the actual age of the data used to provide the population estimates. Also list the type of data from which the estimates are provided.
1 = Reliable census or population monitoring
2 = General field study
3 = Informal field sightings
4 = Indirect information (trade numbers, habitat availability).

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

RECENT FIELD STUDIES: List any current or recent field studies, the name of the researcher and the location of the study.

THREATS: List immediate or predicted events that are or may cause significant population declines. These may include:

A = Aircraft
C = Climate
D = Disease
Dp = Decline in prey species
Dr = Drowning
F = Fishing
G = Genetic problems
H = Hunting
Hf = Hunting for food
Hm = Hunting for medicine
Ht = Hunting for trophies
Hyb = Hybridization
I = Human interference, persecution, 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 El Ni¤o and other shifts
N = Nutritional disorders or problems
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 live animal market
Tp: trade for parts, including skins
W = War

TRADE:
Was the species present in Trade according to CITES records? If so, list year(s).

COMMENTS: Note any additional information that is important with respect to the conservation of the species.

RECOMMENDATIONS:
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

O = Other (record in detail on taxon data sheet)

PHVA: Is a Population and Habitat Viability Assessment Workshop recommended to develop an intensive management/recovery plan for the species?

Yes, No or Pending further data from surveys or other research.

NOTE**A detailed model of a species' biology is frequently not needed to make sound management decisions.

CAPTIVE PROGRAM RECOMMENDATIONS:

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.

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.

LEVEL OF DIFFICULTY: What is 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.

EXISTING CAPTIVE POPULATION: Number of individuals in captivity according to the International Species Information System. Please add other information, when available, as the numbers listed consist of only a portion of the captive population.

SOURCES: List sources used for information for the above data. (Author's name, year, title of article or book, journal, issue, and page numbers).

COMPILERS: List the names of the people who contributed information for this taxon data sheet, including the author of the data for the Handbook of Birds of the World.

Selected African Falconiformes Conservation Assessment and Management Plan

Working Draft

Section 3
CAMP Taxon Data Sheets

Accipiter francesii **Frances's Sparrow Hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name

Accipiter francesii

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Frances's Sparrow Hawk

Forms superspecies with *A. badius, A.brevipes, A. butleri, and A. soloensis.* Three races of the Comoros Is. have been considered to constitute a separate species, on the grounds mainly of mush smaller size. For subspecies recognized:
A.f. francesii- Madagascar
A.f. griveaudi -Ngadzidja (Grand Comoro), Comoro Is.
A.f. pusillus –Ndzuani (Anjouan), Comoro Is.
A.f. brutus –Maore (Mayotte), Comoro Is.

2. Distribution of the Taxon Madagascar, Comoros Is.
HISTORICAL DISTRIBUTION: Same as current.
CURRENT COUNTRIES: Madagascar, Comoros Is.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km, 4 locations.
OCCUPANCY AREA:

5. Threats	**now**	**future**
	Habitat loss. Habitat fragmentation	

6. Trade Yes, 1990

7. Population (global) Unknown

8. Population trends Unknown

The commonest Acciptiter on Madagascar, but uncommon in the arid south. In the Comoros; not common on Ngazidja; once common on Ndzuani, but later (1960) rare, and now probably close to

extinction. On Maore was and still is common on the moist west side, especially at low altitude. Not recorded from Mwali.

9. Data Source
DATA SOURCE/QUALITY: -

10. Recent Field Studies: Ongoing doctoral research on the Masoala Peninsula by Lily-Arison Ren de Roland of the University of Antananarivo, Madagascar.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey, Monitoring, Habitat Management, Limiting Factors Research, Limiting Factors Management.

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population (ISIS): None

14. SOURCES: Own information.

15. COMPILERS: Jim Berkelman, Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA. 24061-0321. Tel: 540-231-5320. belkelma@vtvm1.cc.vt.edu.

Accipiter henstii **Henst's Goshawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Accipiter henstii

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Henst's Goshawk

Forms superspecies with *A. cuculoides* and possibly also with *A. jerdoni* and *A. subcristata.*

2. Distribution of the Taxon Madagascar, Comoros Is.
HISTORICAL DISTRIBUTION: Assume same as current.
CURRENT COUNTRIES: Madagascar.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km, 1 locations.
OCCUPANCY AREA:

5. Threats

now	future
Habitat loss.	
Habitat fragmentation	

6. Trade None

7. Population (global) Unknown

8. Population trends Unknown

Known from forests and east and west coasts but not from drier south. Generally rare: only seen twice during 18 months of recent fieldwork. Deserves increased conservation attention.

9. Data Source

DATA SOURCE/QUALITY: -

10. Recent Field Studies: Ongoing doctoral research on the Masoala Peninsula by Lily-Arison Ren de Roland of the University of Antananarivo, Madagascar.

11. Status

IUCN CATEGORY (Global): Near Threatened

CITES: Appendix II.

12. Research and Mangement Recommendations

Survey, Monitoring, Habitat Management, Life History Studies, Limiting Factors Research, Taxonomic Research. PHVA pending.

13. Captive Program Recommendation: Pending
Level of Difficulty: 2
Existing Captive Population (ISIS): None

14. SOURCES: Own information.

15. COMPILERS: Jim Berkelman, Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA. 24061-0321. Tel: 540-231-5320. belkelma@vtvm1.cc.vt.edu.

Aviceda cuculoides **African Cuckoo-hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name

Aviceda cuculoides

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: African Cuckoo-hawk

Forms superspecies with *A. madagascariensis* and also possibly with *A. jerdoni* and *A. subcristata*. Three subspecies recognized.

2. Distribution of the Taxon Africa
HISTORICAL DISTRIBUTION: Same as current.
CURRENT COUNTRIES: Central to Southern Africa.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats	**now**	**future**
HUMAN INTERFERENCE		
	harvest for timber	Habitat loss through cutting of forest and woodland.
NATURAL/INDUCED		
	predation	Predation by sympatric raptors, some of which may also colonize secondary habitats or plantations.

6. Trade No

7. Population (global) Unknown
Regional populations Unknown

8. Population trends Stable

Generally common around forest edges, less common in woodland. Easily overlooked and so maybe found to be more common. Found on a regular basis on the Transvaal highveld, South Africa, even as a breeding resident in urban and peri-urban environments. Population most possibly

healthy and more numerous because of its secretive habits. Breeds in eucalyptus, Transvaal (GH Verdoorn, pers. obs.). Also believed to be quite common in the northern Natal region of South Africa.

9. Data Source
DATA SOURCE/QUALITY: 3, informal sightings

10. Recent Field Studies: None known of presently.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey, Monitoring, Habitat Management

13. Captive Program Recommendation: No
Level of Difficulty: 3
Existing Captive Population (ISIS): None

14. SOURCES:

Del Hoyo, J, Elliot, A and Sargatal, J, 1994. *The Handbook of the Birds of the World,* vol.2, Birdlife International, Lynx Edicions, Barcelona.

Tarboton, WR and Allan, DG, 1984. *Transvaal Museum Monograph* No.3. Transvall Museum, Pretoria.

Brown, LH, Urban, EK and Newman, K, 1982. *The Birds of Africa*, vol.1. Academic Press, London.

15. COMPILERS: Gerhard H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parview 2122, South Africa

Aviceda madagascariensis **Madagascar Cuckoo-hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities Authority Date
Aviceda madagascariensis

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Madagascar Cuckoo-hawk

Forms superspecies with *A.cuculoides* and possibly also with *A. jerdoni* and *A. subcristata*.

2. Distribution of the Taxon: Madagascar
HISTORICAL DISTRIBUTION: Same as current.
CURRENT COUNTRIES: Madagascar.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting
OCCURRENCE AREA: > 20,000 sq km.
OCCUPANY AREA:

5. Threats: None **now** **future**

6. Trade: None

7. Population (global): Unknown

8. Population trends:

9. Data Source
DATA SOURCE/QUALITY: -

10. Recent Field Studies: Not well studied.

11. Status
ASSIGNED IUCN CATEGORY (Global): Lower Risk
BASED ON:
1996 RED LIST CATEGORY (Global): Lower Risk
CITES: Appendix II.

12. Research and Management Recommendations

Survey, life history studies, limiting factors research, monitoring, limiting factors management.

13. Captive Program Recommendations: Pending
Level of Difficulty: 2/3
Exsisting Captive Population (ISIS): None

14. SOURCES: Own Information

15. COMPILERS: Russel Thorstrom, The Peregrine Fund, 5666 West Flying Hawk Lane, Boise, Idaho, ID 83709, USA

Batastur rufipennis **Grasshopper buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Batastur rufipennis

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Grasshopper buzzard

Only African member of genus, forming superspecies with Asian *B. teesa, B. liventer*, and *B. indicus*. Monotypic.

2. Distribution of the Taxon: Africa

HISTORICAL DISTRIBUTION: same as current.

CURRENT COUNTRIES: Senegambia E to Ethiopia, migrating S to Sierra Leone, Cameroon, NE Zaire, Kenya, N Tanzania.
MIGRATION REGIONS: None, in spite of regular large scale migrations.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANY AREA:

5. Threats: **now** **future**

HUMAN INTERFERENCE
habitat loss due to grazing exotic animals
pesticides

NATURAL/INDUCED
Drought

6. Trade: Yes - 1989.

7. Population (global) Well over 10,000 pairs.
Regional Populations

8. Population trends Unknown

Locally abundant in several areas of W Africa, outnumbering all other raptors but *Milvus migrans*. Vunerable to overgrazing and drought in Sahel Zone, but nomadic to take advantage of local situations and plentiful prey. Recent decline in non-breeding visitors to Kenya.

9. Data Source
DATA SOURCE/QUALITY: 2

10. Recent Field Studies: Thiollay, Seasonal migrations W. Africa.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation:
Level of Difficulty: 2
Exsisting Captive Population (ISIS): None

14. SOURCES:
Thiollay (unpublished data).

15. COMPILERS: Jean Marc Thiollay, Ecole Normale Superier, Laboratorie d' Ecologie (UA 258 du CNRS), 46 Rue d' Ulm, 75230 Paris Cedex 05, France.

Buteo archeri Archer's buzzard

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo archeri

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Archer's buzzard

Forms superspecies with *B. augur* and *B. rufofuscus*; all three sometimes considered conspecific, but differ overall on calls and coloration, showing disjunct distribution. Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: Same as current.

CURRENT COUNTRIES: Highlands of N Somalia.

MIGRATION REGIONS: No migration

.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.

OCCUPANCY AREA: > 2,001 sq km.

5. Threats: **now** **future**

HUMAN INTERFERENCE
Habitat fragmentation
Habitat loss
War

6. Trade: No

7. Population (global) unknown

Regional populations

8. Population trends Unknown

Status uncertain. According to Del Hoyo et al., (1994), appears vulnerable because of small range and possibility of rapid degradation of habitat by cutting of trees and over-grazing. Virtually unstudied; on previous lumped with related species *B. augur and B. rufofus*cus. Not known to be affected by pesticides.

9. Data Source
DATA SOURCE/QUALITY: 4

10. Recent Field Studies: Unlikely

11. Status
IUCN CATEGORY (Global): Vulnerable
CITES: Appendix II.

12. Research and Management Recommendations
Survey Studies; life history; limiting factor research; habitat management; monitoring

13. Captive Program Recommendation: Pending

Level of Difficulty: 2

Existing Captive Population (ISIS): None

14. SOURCES:
Ash, JS and Miskell, JE. 1983. *Birds of Somolia, their habitat, status and distribution.* Scopus special supplement 1. 97pp.

Brown, LH, Urban EK and Newman KB. 1982. *The Birds of Africa, vol.1.* Academic Press, New York.

Del Hoyo, J, Elliot, A and Sargatal, J. 1994. *Handbook of Birds of the World, vol.2.* Birdlife International, Lynx Edicions, Barcelona.

15. COMPILERS: Ron R. Hartley, Falcon College, PO Box CY 346, Causeway, Harare, Zimbabwe.
Peter J. Mundy, PO Box FM424, Famona, Bulawayo, Zimbabwe.

Buteo augur **Augur buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo augur

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Augur buzzard

Forms superspecies with *B. archeri* and *B. rufofuscus*; all three sometimes considered conspecifid but differ on calls and coloration, showing disjunct distribution; limited overlap with *B. rufofuscus* in C Namibia. Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Ethiopia S to Zimbabwe and W to S Angola and N and C Namibia.
MIGRATION REGIONS: no migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: now future

HUMAN INTERFERENCE
Habitat loss

6. Trade: Yes in 1990.

7. Population (global) Unknown

Regional Populations

8. Population trends Declining

Common in E Africa with nests less than 1 km apart. Vulnerable to extensive aforestation of grassland habitat or to lowered carrying capacity through over-grazing. However, adapts well to human settlement and extends on to grassland using small exotic plantations for nesting roosting. Not known to be affected by pesticides.

9. Data Source
DATA SOURCE/QUALITY: 2

10. Recent Field Studies: None

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population (ISIS): None

14. SOURCES: Gargett, V., 1990. *The Black Eagle, A Study.*

15. COMPILERS: Peter J. Mundy, PO Box FM424, Famona, Bulawayo, Zimbabwe.

Buteo auguralis **Red-necked buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo auguralis

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Red-necked buzzard

Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Sierra Leone E to Uganda and Ethiopia and S to N Angola; outside breeding season occurs in Sahel Zone.
MIGRATION REGIONS: Extensive seasonal movement but no concentration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA:

5. Threats: **now** **future**

6. Trade: Yes – 1989, 1991-92

7. Population (global) Unknown

8. Population trends Unknown

Generally common. Ability to move in conjunction with suitable habitat conditions during both breeding and non-breeding season offers considerable flexibilty. Vulnerable to degradation of woodland but uses many secondary habitats and probably benefits from cutting of rainforest. Not known to be affected by pesticides.

9. Data Source

DATA SOURCE/QUALITY: 2-3

10. Recent Field Studies:

11. Status

IUCN CATEGORY (Global): Lower risk
CITES: Appendix II

12. Research and Management Recommendations

Monitoring

13. Captive Program Recommendation: No

Level of Difficulty: 2

Existing Captive Population (ISIS): None

14. SOURCES: Thiollay (unpublished data)

15. COMPILERS: Jean Marc Thiollay, Ecole Normale Superieure, Laboratorie d' Ecologie (UA 258 du CNRS), 46 Rue d' Ulm, 75203 Paris Cedex 05, France.

Buteo brachypterus **Madagascar Buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo brachypterus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Madagascar buzzard

Forms superspecies with *B.buteo, B. oreophisus* and possibly also with *B. jamaicensis* and *B. ventralis*. Has been considered conspecific with *B. buteo*. Monotypic.

2. Distribution of the Taxon Madagascar
HISTORICAL DISTRIBUTION: Assume same as current.
CURRENT COUNTRIES: Madagascar
MIGRATION REGIONS: no migration

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km, 1 location
OCCUPANCY AREA:

5. Threats:

now	**future**
Habitat Loss	
Habitat fragmentation	

6. Trade: Yes – 1990

7. Population (global) Unknown, third most common raptor on Madagascar, based on road counts of one bird every 56 km.

8. Population trends Unknown

Eight pairs occupied 10.2 sq. km on the Masaola Peninsula in 1991. Only uncommon on the deforested central plateau.

9. Data Source

DATA SOURCE/QUALITY: - 1

10. Recent Field Studies:

Berkelman, J. 1993. Ecology of the Madagascar Buzzard, Buteo brachypterus, in the rain forest of the Masoala Peninsula. M. Sc. Thesis. Boise State University, Idaho.

Berkelman, J. field work in 1991 and 1992.

11. Status

IUCN CATEGORY (Global): Lower risk
CITES: Appendix II

12. Research and Management Recommendations

Monitoring, habitat management.

13. Captive Program Recommendation: No

Level of Difficulty: 2/3

Existing Captive Population (ISIS): None

14. SOURCES:

Berkelman, J. 1995. Nest site characteristics of the Madagascar Buzzard in the rain forest of the Masoala Peninsula. *Condor* 97 (1): 273-275.

Berkelman, J. 1993. Ecology of the Madagascar Buzzard, *Buteo brachypterus*, in the rain forest of the Masoala Peninsula. M.Sc. thesis. Boise State University, Idaho.

COMPILERS: Jim Berkeman, Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA 24061-0321. Tel 540-231-5320. **belkelma@vtvm1.cc.vt.edu**.

Buteo oreophilus **Mountain buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo oreophilus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Mountain buzzard

Forms subspecies with *B. buteo* and *B. brachypterus*, and possibly also with *B. jamaicensis* and *B. ventralis.* Has been considered conspecific with *B. buteo*. Present species has alternatively been called *B.tachardus*. Race *trizonatus* may merit treatment as full species.

2. Distribution of the Taxon

Africa

HISTORICAL DISTRIBUTION: poorly known, apparently little different from current distribution.
CURRENT COUNTRIES: Highlands of Ethiopia S to Tanzania and Malawi and W to Uganda. S and E South Africa.
MIGRATION REGIONS: No migration known.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:

	now	future
HUMAN INTERFERENCE		
Habitat fragmentation		
Habitat loss		

6. Trade: No

7. Population (global) Unknown

8. Population trends Unknown

Common in areas of most extensive habitat (South Africa, Rwanda, Del Hoyo et al., 1994).

Vulnerable because of limited and patchy distribution of habitat, especially vulnerable to forest cutting. Adopts plantations of exotic pine and eucalypti trees for nesting and hunting, which has extended range in South Africa. Not known to be affected by pesticides.

9. Data Source
DATA SOURCE/QUALITY: 1/2

10. Recent Field Studies: None

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population (ISIS): 0-1-0 = 1

14. SOURCES:

Allan, D. *Long Distance Movements of Forest Buzzards in South Africa,* GABAR 7: 26-27.

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Brooke, RK. 1974. Buteo tachardus Andrew Smith 1830. Bull. *Brit. Orn. Club 94: 59-62.*

Brown, LH, Urban EK and Newman KB. 1982. *The Birds of Africa vol.1,* Academic Press, New York.

Britton, PL (Ed). 1980. *Birds of East Africa, their habitat, status and distribution.* East Africa Natural History Society, Nairobi.

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Dowsett, RJ and Dowsett-Lemair, F. 1979. The Mountain Buzzard Buteo tachardus in Central Africa. *Scopus* 3: 14-18.

Palmer, NG, Norton, PM and Robertson AS. 1985. Aspects of the Biology of the Forest Buzzard. *Ostrich 56*: 67-73.

Rudebeck, G. 1958. Some Additional Notes on the Buzzard, Buteo buteo trizonatus. Bull. *Brit. Orn. Club* 78: 54-56.

Siegfried, WR. 1968. The Mountain Buzzard. *Bokmakierie* 20: 58-59.

Steyn, P. 1982. *Birds of Prey of Southern Africa*. David Philip, Cape Town.

Tarboton, WR and Allan, DG. 1984. *The Status and Conservation of Birds of Prey in the Transvaal*. Transvaal Museum Monograph No.3, Tranvaal Museum Pretoria.

15. COMPILERS: Ron R. Hartley, Falcon College, PO Box CY346, Causeway, Harare, Zimbabwe.

Buteo rufinus **Long-legged Buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo rufinus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Long-legged buzzard

Forms superspecies with *B. hemilasius*, with which has been considered conspecific. Race *cirtensis* may be separate species. Two subspecies recognized. *B.r. rufinis, B.r. cirtensis.*

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current; possibly expanding.
CURRENT COUNTRIES: SE Europe and Asia Minor E through Iran and Afghanistan to NW Mongolia and S to NW India (Garbal); winters to NE Africa and N India. N Africa, from Mauritania to Egypt; Arabia.
MIGRATION REGIONS: Israel.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: **now** **future**

HUMAN INTERFERENCE
Poisoning

6. Trade: Yes – 1991-1993.

7. Population (global) Greater than 2000 pairs

8. Population trends Stable

Population sizes and trends little known. Indications from Israel is that the population is increasing. Single specimens discovered in southern Africa recently (Verdoorn, et al., unpublished results).

9. Data Source
DATA SOURCE/QUALITY: 1 census, monitoring.

10. Recent Field Studies: Migration census over Israel, 1982 to present.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey; limiting factor research; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): 3-5-1 = 9

15. SOURCES:

Del Hoyo, J, Elliot, A and Sargatal, J, 1994. *Handbook of the Birds of the World, vol.2*. Birdlife International, Lynx Edicions, Barcelona.

Brown, LH, Urban, EK and Newman, K, 1982. *The Birds of Africa, vol.1*.Academic Press, London.

Verdoorn, et al., 1995. Unpublished results.

15. COMPILERS: Gerhard H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.

Buteo rufofuscus **Jackal buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Buteo rufofuscus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Jackal buzzard

Forms superspecies with *B. augur* and *B. archeri*; all three sometimes considered conspecific, but differ in calls and coloration, showing disjunct distribution; limited overlap with *B. augur* in C Namibia. Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: South Africa, S and C Namibia, Lesotho, Swaziland, S Mozambique, S Botswana.
MIGRATION REGIONS: no migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: now future

HUMAN INTERFERENCE
Loss of habitat
Poisoning
Powerlines
Shooting
Persecution

6. Trade: Yes – 1989-1991.

7. Population (global) greater than 2000.

8. Population trends Stable

Common. Prefers areas of low human density and extensive small-stock farming. Definitely affected by pesticides. Uses large steel power pylons extensively as roosts, hunting perches and nesting sites in the Karoo and Kalahari regions of South Africa. Population may even expand in these areas due to favorable habitat.

9. Data Source
NAMES:DATA SOURCE/QUALITY: 2 field study

10. Recent Field Studies:
Abrie Maritz, Kalahari Raptor Project, Raptor Conservation Group, South Africa.
Francois D. Taljaard, Platberg-Karoo Raptor Project, Raptor Conservation Group, South Africa.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Limiting factor research; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): 4-5-0 = 9

14. SOURCES:
Brown, LH, Urban, EK and Newman, KB, 1982. *The Birds of Africa, vol.1.* Academic Press, London.

Steyn, P, 1982. *Birds of Prey of Southern Africa*, David Philip, Cape Town.

Del Hoyo, J, Elliot, A and Sargatal, J. 1994. *Handbook of Birds of the World, vol.2.* Birdlife International, Lynx Edicions, Barcelona.

15. COMPILERS: Gerhard, H. Verdoorn, Raptor Conservation Group, PO Box 72334, Parkview 2122, South Africa.
Mark D. Anderson, Northern Cape Nature Conservation Service, Privatebag X6102, Kimberley 8300, South Africa.

Dryotriorchis spectabilis **Congo Serpent Eagle**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Dryotriorchis spectabilis

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Congo Serpent Eagle

Two subspecies reported.
D.s. spectabilis-Sierra Leone E to S Nigeria and NW Cameroon.
D.s. batesi-S Cameroon E to W Uganda and S to Gabon and SC Zaire, N Angola

2. Distribution of the Taxon See above

HISTORICAL DISTRIBUTION: Same as current.

CURRENT COUNTRIES: see above

MIGRATION REGIONS: no migration known

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: unknown

5. Threats:

now	**future**
habitat loss habitat fragmentation (intolerant of secondary habitats which now predominate much of its range in W Africa.)	

6. Trade: none

7. Population (global) Unknown

8. Population trends Has been much affected by the destruction of primary forest in West Africa. Appears to be rather common in many larger tracts of forest in C. Africa but not W. Africa, judging from calls, but inconspicuous except for persistent calling.

9. Data Source
DATA SOURCE/QUALITY: - 3

10. Recent Field Studies: none.

11. Status
IUCN CATEGORY (Global): Data Deficient
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring, survey

13. Captive Program Recommendation: No
Level of Difficulty: 2/3
Existing Captive Population(ISIS): None

14. SOURCES:

Own information

15. COMPILERS: Jean Marc Thiollay, Ecole Normale Superieure, Laboratorie d' Ecologie (UA 258 du CNRS), 46 rue d' Ulm, 75230 Paris Cedex 05, France.

Eutriorchis astus **Madagascar Serpent-eagle**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Eutriorchis astus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Madagascar Serpent Eagle

Monotypic

2. Distribution of the Taxon Madagascar, originally along all moist eastern regions, but recently detected only in NE.

HISTORICAL DISTRIBUTION: Assume same as current.

CURRENT COUNTRIES: Madagscar

MIGRATION REGIONS: no migration known

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km, 4 fragmented locations.
OCCUPANCY AREA:

5. Threats:

now	future
habitat loss	
habitat fragmentation	

6. Trade: none

7. Population (global) 200-300 pairs. The Masoala Peninsula supports continuous suitable habitat for about 100 pairs.

8. Population trends Assumed to be declining with loss of eastern rain forest habitat.

Species not recorded by scientists between 1935, when two specimens were collected, and 1988, although 5 possible sightings were made by foresters over the period from 1964-1977. Only known previously from 11 museum specimens collected between 1875 and 1935 from 4 main areas, of

which 3 remain more or less intact. Recently sighted and even trapped alive. Projects run by the Peregrine fund should help to promote environmental awareness and provide more data about the species' status. Its future depends on preservation of adequate rain forest in NE of the island, especially the Marojejy, Masaola, Ambatovaky, Aahamena, and Mantadia tracts, and possibly also the Mangoro Valley tract.

9. Data Source
DATA SOURCE/QUALITY: - 4, 2 home range of 1 individual.

10. Recent Field Studies: The Peregrine Fund is presently running projects on Madagascar. One individual radio-tagged and followed during the 1994 provided home range data. At least 4 individuals detected at 4 distant locations on Masoala Peninsula in 1993, 1994, and 195, and one individual detected in Aahamena Reserve in 1995. Research done by Russell Thorstrom and Aristide Andrianarimisa.

11. Status
IUCN CATEGORY (Global): Critically Endangered
BASED ON: C1, C2a
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring, survey, life history studies, limiting factors research, limiting factors management.

13. **Captive Program Recommendation:** Pending
Level of Difficulty: 2/3
Existing Captive Population(ISIS): None

12. SOURCES:

Thorstrom, R. et al. 1995. Repeated sightings and first capture of a live Madagascar Serpent Eagle (Eutriorchis astur). *Bull. B.O.C.* 115(1): 40-45.

15. COMPILERS: Richard T. Watson and Russell Thorstrom, The Peregrine Fund, 5666 West Flying Hawk Lane, Boise, ID 83709, Tel 208-362-3716.

Haliaeetus vociferoides **Madagascar Fish-eagle**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Haliaeetus vociferoides

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Madagascar Fish Eagle

Monotypic

2. Distribution of the Taxon: Madagascar

HISTORICAL DISTRIBUTION: Originally on all west coast regions of Madagascar

CURRENT COUNTRIES: Madagscar

MIGRATION REGIONS: no migration

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km
OCCUPANCY AREA:

5. Threats:

now	future
hunting	
human disturbance	
habitat loss (degradation of water bodies through deforestation and poor agricultural practices leading to soil erosion in catchment areas.	

6. Trade: none

7. Population (global) Maximum total probably 200-300 birds.

Surveys in 1992 indicated twice the previous known density in the southern part of the range (42 birds as opposed to 10). As of 1995, 67 nesting pairs have been found, and resident pairs and individuals have been reported from 47 locations where nesting has not yet been confirmed.

8. Population trends Unknown.

Now restricted to 600km section of the northwestern coast between Antsiranana and Belo-sur-Mer. Largest remaining population on rocky islands near Nosy Be and on lakes in the Antsalova region.

9. Data Source

DATA SOURCE/QUALITY: 1

10. Recent Field Studies:

Ongoing habitat study throughout central western coast of Madagascar by Jim Berkelman of Virginia Tech.

Breeding Biology study in the Antsalova region in 1992 and 1993 by Suzanne Razafindramanana of the University of Antananarivo, Madagascar.

Population survey from 1993 to 1995 by Rivo Rabarisoa working for the Peregrine Fund in Antananarivo, Madagascar in 1993 and 1994.

11. Status

IUCN CATEGORY (Global): Critically Endangered
BASED ON: C2b

CITES: Appendix II.

12. Research and Mangement Recommendations

Habitat management; monitoring, limiting factors management.

13. **Captive Program Recommendation:** Pending
Level of Difficulty: 2/3
Existing Captive Population(ISIS): None

14. SOURCES: Own information

15. COMPILERS: Jim Berkelman, Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA 24061-0321. Tel 540-231-5320. belkelma@vtvm1.cc.vt.edu.

Kaupifalco monogrammicus **Lizard Buzzard**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Kaupifalco monogrammicus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Lizard Buzzard

Monotypic genus, probably allied to *Melierax* through plumage, behavior and yolk color; traditionally associated with sub-buteonine hawks, although interestedly race *meridionalis* was originally described in genus *Microniscus.* Two subspecies recognized. *K.m. monogrammicus*, *K.m.meridionalis.*

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: Same as current.

CURRENT COUNTRIES: Senegambia E to Ethiopia and S to Uganda and Kenya. S Kenya to N South Africa and W to Angola and N Namibia.

MIGRATION REGIONS: Few or no seasonal movements.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA:

5. Threats: now future

HUMAN INTERFERENCE
Human interference habitat loss,
but adapt to secondary habitat in the savannah zone.

6. Trade: Yes – 1989, 1992.

7. Population (global) Unknown

8. Population trends Unknown

Regional Population(s): Common in woodlands, mostly the Guinea Belt, of W Africa up to 1 pair/80 ha (this is optimal density, rarely reached now); less abundant in E, C and S Africa. Fairly

common in some parts of southern Africa (Northern Natal, Northern Transvaal in the Soutpansberg area).

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies: Thiollay, Ivory Coast.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): 0-1-0 = 1

14. SOURCES:

Thiollay, Ivory Coast. Unpublished data.

15. COMPILERS: Jean Marc Thiollay, Ecole Normale Superieure, Laboratorie d' Ecologie (UA 258 du CNRS), 46 rue d' Ulm, 75230 Paris Cedex 05, France.

Gerhard H Verdoorn, Rapter Conservation Group, PO Box 72155, Parkview 2122, South Africa.

Lophaetus occipitalis Long-crested Eagle

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Lophaetus occipitalis

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves

COMMON NAME: Long-crested Eagle
Monotypic genus, but may belong within genus *Spizaetus*. Monotypic.

2. Distribution of the Taxon Africa
HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Senegambia E to Ethiopia and S to N Namibia, N Botswana and E South Africa.
MIGRATION REGIONS: no migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: **now** **future**
HUMAN INTERFERENCE
Habitat fragmentation
Habitat loss including drainage of wetlands
Poisoning
Powerlines

6. Trade: Yes – 1990.

7. Population (global) unknown

8. Population trends Unknown. Common, especially in E Africa but often locally distributed where and when suitable moist habitat occurs. Conspicuous but not usually persecuted because of recognition of primarily rodent diet. Vulnerable to degradation of woodland and drainage of wetlands, but compensates to some extent by using exotic plantations, small agricultural clearings and other secondary forest habitats.

9. Data Source: DATA SOURCE/QUALITY: 1 census, monitoring

10. Recent Field Studies: Dorothy G. Hall, Nelspruit, South Africa

11. Status: IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): 1-0-1 = 1

14. SOURCES:

Ash, JS and Miskell, JE, 1981. Birds of Somalia, their Habitat, Status Over 50 Editions of Birds to the Somalia List including two hybrids, together with notes from Ethiopia and Kenya. *Scopus special supplement 1*. 97pp.

Bataamba, AM, 1989. The Ecology of Raptors in and Around the Impenetrable Forest, South Western Uganda. *Gabar 4*: 14-17.

Britton, PL (little ed), 1980. *Birds of East Africa, their habitat, status and distribution.* East Africa Natural History Society, Nairobi.

Del Hoyo, J, Elliot, A and Sargatal, J, 1994. *Handbook of the Birds of theWorld, vol.2.* Birdlife International, Lynx Edicions, Barcelona.

Grimes, LG, 1987. *The Birds of Ghana.* An Annotated Checklist. B. O. U. Checklist No.9, London.

Hall, DR, 1992. A Sixteen Year Study of Long-Crested Eagles In the Nelspruit District, South Africa. *Gabor 7*: 15-20.

Serle, W and Morel, GJ, 1977. *A Field Guide to the Birds of West Africa.* Collins, London.

Tarboton, WR and Allan, DG, 1984. *The Status and Conservation of Birds of Prey of the Transvaal.* Transvaal Museum Monograph No.3. Transvaal Museum, Pretoria.

15. COMPILERS: Ron R. Hartley, Zimbabwe Falconers Club, Falcon College, Esigodini, Zimbabwe.
Gerhard, H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, SouthAfrica**.**

Machaerhamphus alcinus **Bat Hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Machaerhamphus alcinus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Bat Hawk

Three subspecies recognized. *M.a. alcinus, M.a. papuanus, M.a. andersosoni*.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: Range apparently contracting in SW of Namibia.
CURRENT COUNTRIES: S. Burma, W.Thailand, Malay Peninsula, Sumatra, Borneo, NC Sulawesi, E. New Guinea, Senegambia E. to Ethiopia and S. to South Africa, Madagascar.
MIGRATION REGIONS: None.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:	**now**	**future**
HUMAN INTERFERENCE		
Powerlines		Powelines a potential threat due to nocturnal behavior

6. Trade: No

7. Population (global) Unknown

8. Population trends Unknown

Status difficult to assess because eof nocturnal habits and custom of roosting in densely foliated areas; often considered uncommon or rare. Probably at low densities, with home range of c. 250 km2 in South Africa. May be declining in Borneo. Apparently more widespread and common in tropical areas, and even in cities. Nests vulnerable to destruction by high winds. Not known to be affected by pesticides although bat prey probably susceptible.

9. Data Source
DATA SOURCE/QUALITY: 4 indirect information

10. Recent Field Studies: T Harris, J Dunning, Eastern Transvaal, South Africa; 1985-1992. Ron R. Hartley, Mutare, Zimbabwe

11. Status
IUCN CATEGORY (Global): Data deficient
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey Studies; taxonomic research; limiting factor research; habitat management; monitoring
PHVA NOTES: Pending

13. Captive Program Recommendation: Pending
Level of Difficulty: 3
Existing Captive Population(ISIS): None

14. SOURCES:

Hartley, RR, 1995. Notes on the breeding biology and productivity of a pair of Bat Hawks in Mutare. *Honeyguide 41*: 6-17.

Hartley, RR and Hustler, K, 1993. A lesser-than-annual breeding cycle in a pair of African Bat hawks Macheirampus alcinus. *Ibis 135*: 456-458.

Harris, T, Dunning, J and Hoets, D, 1990. *The darker side of Bat Hawks.*

15. COMPILERS: Tony Harris, Hon. Curator of Birds, Transvaal Museum. PO Box 1095, Groenkloof 0027, South Africa.

Melierax canorus **Pale Chanting-goshawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Melierax canorus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Pale Chanting-goshawk

Probably forms superspecies with *M. poliopterus* and *M. metabates*; sometimes considered conspecific with the former. Two subspecies recognized. *M.c. argentior, M.c. canorus.*

2. Distribution of the Taxon

Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: S Angola S and E through Namibia, Botswana, and Zimbabwe to NE South Africa in Transvaal and NW Orange Free State. S South Africa, in Cape Province, SE Orange Free State.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:	now	future
HUMAN INTERFERENCE		
Pesticides		during locust plagues
Powerlines		
Shooting		as a result of predation on domestic fowl
NATURAL/INDUCED		
Drowning		farm reservoirs

6. Trade: No

7. Population (global)

More than 10,000 breeding pairs

Regional Populations: Estimated 400-900 pairs in the old Transvaal alone. More than 1200 breeding pairs in the Northern Cape. Home range 1.5-2.5 km2 in Kenya
NAMES:(Steyn 1983). 5.4-6.7 km2 in Namibia and 3-12 km2 in Kalahari region South Africa (Maritz) km2 in Namibia.

8. Population trends

Stable

Widespread and common in semi-arid areas. Conspicuous but not often persecuted and may benefit from presence of utility poles (used for hunting from and for nesting) in desert areas.

9. Data Source

DATA SOURCE/QUALITY: 1 census monitoring; field study; (Kenya and Namibia) 2 in Kalahari Region, South Africa

10. Recent Field Studies:

Gerald Malan, Little Karoo, MSc ProjectAbrie Maritz, Kalahari Raptor Project
Dr. Harry Briggs (National Park Board, South Africa)

11. Status

IUCN CATEGORY (Global): Lower risk

CITES: Appendix II.

12. Research and Mangement Recommendations

Monitoring; limiting factor management

13. Captive Program Recommendation: No
Level of Difficulty: 3
Existing Captive Population(ISIS): 1-2-3 = 6

14. SOURCES:

Boshoff, AF, Vernon, CJ and Brooke, RK, 1980. Historical Atlas of the Diurnal Raptors of the Cape Province (Aves: Falconiformes). Annals of the Cape Provincial Museum, *Nat. Hist. 14(7)*:173-297.

Brown, LH, Urban, EK and Newman KB. 1982. *The Birds of Africa, vol.1.* Academic Press, London.

Liversidge, R. 1994. *Long-term Population Fluctuations of Large Raptors in the Southern Kalahari in Raptor Conservation Today* (WWGBP) Pica Press.

Maclean GL. 1993. *Robert's Birds of South Africa.* Credo Press. Cape Town.

Del Hoyo, et al. 1994. *Handbook of Birds of the World.* Birdlife International. Lynx Edicions. Barcelona.

15. COMPILERS: Abrie WA Maritz, Kalahari Raptor Project, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.
David G Allan, Avian Demography Unit, Department of Statistical Sciences, University of Cape Town, Rondebosch 7700, South Africa.
Mark D, Anderson, Northern Cape nature Conservation Service, Privatebag X6102, Kimberley 8300, South Africa.

Melierax metabates Dark Chanting-goshawk

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities
Melierax metabates

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Dark Chanting-goshawk

Five subspecies recognized: *M.m. theresae, M.m. neumanni, M.m. ignoscens, M.m. metabates, M.m.mechowi*. Probably forms superspecies with *M. canorus* and *m. poliopterus*.

2. Distribution of the Taxon Africa
HISTORICAL DISTRIBUTION: Same as current.
CURRENT COUNTRIES: SW Morroco, Mali E to N Sudan, SW Arabian Peninsula, Senegambia E to Ethiopia and S to NE Zaire and N Tanzania, Angola E to S Tanzania and S to N Namibia and NE South Africa.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting
OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:	**now**	**future**
HUMAN INTERFERENCE		
Habitat Fragmentation		habitat loss and fragmentation (especially small isolated populations in Morroco and Arabian Peninsula)

6. Trade: No

7. Population (global) Unknown but common

8. Population trends Unknown
At least 400 pairs estimated in Transvaal alone. Four pairs in 148 km2 in Eastern Transvaal Lowveld (Simmons, 1994.)

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies: None

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey Studies; habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): None

14. SOURCES:

Del Hoyo et al., 1995. *Handbook of the Birds of the World, vol.2*. Birdlife International, Lynx Edicions, Barcelona.

Simmons, RR, 1994. Conservation lessons from one of Africa's richest raptor reserves. *GABAR 9(2)*: 2-13.

15. COMPILERS: David G. Allan, Avian Demography Unit, Department of Statistical Sciences, University of Cape Town, Rondebosch 7700, South Africa.

Melierax poliopterus **Eastern Chanting goshawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Melierax poliopterus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Eastern Chanting goshawk

Probably forms superspecies with *M. canorus* and *M. metabates*; sometimes considered conspecific with the former, but well-separated geographically. Monotypic.

2. Distribution of the Taxon

Africa

HISTORICAL DISTRIBUTION: Taru Desert, Kenya.
CURRENT COUNTRIES: SE Ethiopia and Somalia S to E Uganda and N Tanzania.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:

	now	future
HUMAN INTERFERENCE		
Habitat loss due to exotic animals		Tree cutting and habitat destruction by elephants interspecific competition with exotics (overgrazing of semi-arid habitat).
NATURAL/INDUCED		
Interspecific competition		

6. Trade:

Yes – 1989.

7. Population (global)

Unknown but common in home range.

8. Population trends

Stable

Widespread, conspicuous, and often common in suitable habitat. Not known to be affected by pesticides.

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies: None

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 1
Existing Captive Population(ISIS): None

14. SOURCES:

Del Hoyo, J, Elliot, A and Sargatal, J, 1994. *Handbook of the Birds of the World, vol.2.* Birdlife International, Lynx Edicions, Barcelona.

Brown, LH, Urban, EK and Newman, K, 1982. *The Birds of Africa, vol.1.*Academic Press, London.

15. COMPILERS: Gerhard H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.
Laura A. Roth, 1624 Fairhills Drive, St. Louis, Missouri, MO 63146, USA

Micronisus gabar **Gabar Goshawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Micronisus gabar

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Gabar Goshawk

Often included in the genus *Melierax,* but may well be closer to Accipiter. Three subspecies recognized. *M.g. niger, M.g. aequatoris, M.g. gabar.*

2. Distribution of the Taxon

Africa

HISTORICAL DISTRIBUTION: Same as current.
CURRENT COUNTRIES: Senegambia E to N Ethiopia and SW Arabia, and S to N Cameroon, Chad, and Sudan. Ethiopian highlands S to Zaire, Zambia and N Mozambique. S Angola, Zambia, and Mozambique S to South Africa.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: now future

6. Trade: Yes – 1989.

7. Population (global) Unknown

8. Population trends

Common and widespread through a diverse range of savanna and woodland habitats, although rarely nests in plantations of exotic trees. Nests 4.3-5.8 km apart in Namibia. Bold, even colonizing urban areas, and too small to be serious threat to poultry. Often engages in co-operative hunting with Red-necked Falcons. Not known to be affected by pesticides.

9. Data Source

DATA SOURCE/QUALITY: - Poor Quality.

10. Recent Field Studies:

Abrie WA Maritz, Kalahari Raptor Project, Raptor Conservation Group, ongoing.
Kotie Herboldt, Kalahari Gemsbok National Park, early 1990's.

11. Status

IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations

Taxonomic research;monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): None

14. SOURCES:

Del Hoyo et al., 1995. *Handbook of the Birds of the World, vol.2*. Birdlife International, Lynx Edicions, Barcelona.

Malan, G and Jenkins, A, 1994. The hunting association between Rednecked Falcons and Gabar Goshawks in the Kalahari: mutualism or interspecific co-operation? *Gabar 9(1)*: 2-5.

15. COMPILERS: David G. Allan, Avian Demography Unit, Department of Statistical Sciences, University of Cape Town, Rondebosch 7700, South Africa.
Gerhard H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.

Polemaetus bellicosus Martial Eagle

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Polemaetus bellicosus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Martial Eagle

Montypic genus, but may be better placed in genus *Hieraaetus*, on the grounds of strong skeletal evidence. Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Senegambia E to Ethiopia and S to South Africa.
MIGRATION REGIONS: no migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:	now	future
HUMAN INTERFERENCE		
Habitat loss		
Hunting		Persecution
Nesting disturbance		
Poisoning		
Powerlines		
NATURAL/INDUCED		
Drowning		

6. Trade: Yes – 1989-91

7. Population (global) Unknown

8. Population trends Declining

Widespread and common in east and south Africa, less so in W Africa. Occupies many types of savanna and steppes, but occurs at low densities with home ranges of 108-302 km2. Occurs in many

large national parks, reserves, and extensive ranching areas, spreading range into treeless areas by use of power pylons. Heavily persecuted in some small-stock and free-range poultry farming areas, and extirpated from parts of South Africa, Namibia, and Zimbabwe.
Breeding immature plumage might indicate population decline, e.g., in Transvaal. Definitely affected by deliberate poisoning and accidental poisoning. May be on the increase in the Kalahari and C Karoo as a result of extensive awareness campaigns (raptor conservation group projects).

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies
Alan Kemp, Kruger National Park, South Africa.
Abrie W. A. Martiz, Kalahari Raptor Project, Raptor Conservation Group, South Africa.
Koos J. DeGoede, Southwestern Cape Raptor Project, Raptor Conservation Group, South Africa.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey Studies; taxonomic research; monitoring; public awareness; limiting factor management

13. Captive Program Recommendation: No

Level of Difficulty: 2

Existing Captive Population(ISIS): 3-3-0 = 6

14. SOURCES:

Del Hoyo, J, Elliot, A and Sargatal, J, 1994. *Handbook of the Birds of the World, vol.2*. Birdlife International, Lynx Edicions, Barcelona.

Brown, LH, Urban, EK and Newman, K, 1982. *The Birds of Africa, vol.1*.Academic Press, London.

Tarboton, WR and Allan, DG, 1984. *The Status and Conservation of Birds of Prey in the Transvaal.* Transvaal Museum Monograph No.3. Transvaal Museum, Pretoria.

15. COMPILERS: Gerhard, H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.
Laura A. Roth, 1624 Fairhills Drive, St. Louis, Missouri, MO 63146, USA.

Polyboroides typus **African Harrier-hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Polyboroides typus

FAMILY: Accipitridae LEVEL:
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: African Harrier-hawk

Relationships of genus far from clear, and variously associated with *Dryotriorchis, Spilornis*, and *Geranospiza*, but possibly closest to *Melierax*. Forms superspecies with *P. radiatus*, with which often considered conspecific. Birds form W Zaire sometimes awarded separate race, *prigoginei*. Two subspecies recognized. *P.t. pectoralis, P.t. typus*.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Senegambia E to W sudan, N to Air Mountains (NW Niger) and S to Zaire. E Sudan to Eritrea and S to Angola and South Africa.
MIGRATION REGIONS: No Migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats:	**now**	**future**
HUMAN INTERFERENCE		
Human interference		Limited cases of shooting and wing injuries in South Africa.

6. Trade: No

7. Population (global) Common

8. Population trends Stable

One of the commonest birds of prey in forests and woodlands of W and C Africa, especially where oil and Borassus palms abundant. Also abundant in southern Africa, especially central and eastern regions. Easily overlooked because of its forest/mountain habitat preference.

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies: None

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Management Recommendations
Survey Studies; taxonomic research; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 1
Existing Captive Population(ISIS): 8-5-2 = 15

14. SOURCES:

Del Hoyo, J, Elliot, A, and Sargatal, J. 1994. *Handbook of the Birds of the World, vol.2.* Birdlife International, Lynx Edicions.

Brown, LH, Urban, EK and Newman, K, 1982. *The Birds of Africa, vol.1*.Academic Press, London.

Steyn, P, 1982. *Birds of Prey of Southern Africa*. David Philip, Cape Town.

15. COMPILERS: Gerhard H. Verdoorn, Rapter Conservation Group, PO Box 72155, Parkview 2122, South Africa.
Laura A. Roth, 1624 Fairhills Drive, St. Louis, Missouri, MO 63146, USA

Sagittarius serpentarius **Secretarybird**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Sagittarius serpentarius

FAMILY: Sagittariidae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Secretarybird

Shows most morphological, behavioral and molecular affinites with Falconiformes, especially Accipitridae. Also some behavioral affinities with Ciconiidae. Proposed relationships to Cariamidae and other Gruiformes unsubstantiated. Birds of W Africa have occasionally been awarded separate *gambiensis* species status. Monotypic.

2. Distribution of the Taxon

Africa
HISTORICAL DISTRIBUTION: same as current.
CURRENT COUNTRIES: Senegambia E to Ethiopia and Somalia and S to South Africa.
MIGRATION REGIONS: no migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: now future

HUMAN INTERFERENCE
Habitat fragmentation
Habitat loss
Habitat loss due to exotic plants
Harvest/hunting
Pesticides
Powerlines
Trade for market or medicine

6. Trade:

Parts in Trade: Yes – 1989-93.

7. Population (global) Unknown

8. Population trends Unknown

Widespread and often locally common, both in protected natural areas and in various forms of extensive agriculture. Often protected in recognition of snake and rodent killing abilities, but sometimes persecuted at low, accessible nest sights. Aforestation of grasslands and intensive land use have eliminated habitat, with some compensation where bush has been cleared for grazing or croplands. Protected CITIES because eof pressure of live animal trade. Has been bred several times in captivity; male should be kept non-pinioned for breeding success. Population possibly expanding in the C Karoo (De Aar, South Africa) and in the southern Kalahari (northern cape, South Africa).

9. Data Source
DATA SOURCE/QUALITY: 1 census monitoring

10. Recent Field Studies
Francois D. Taljaard, Platberg-Karoo Raptor Project (Raptor Conservation Group), De Aar (South Africa).
Abrie W. A. Maritz, Kalahari Raptor Project (Raptor Conservation Group), Northern Cape, South Africa.

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey Studies; habitat management; monitoring; limiting factor management

13. Captive Program Recommendation: No
Level of Difficulty: 1
Existing Captive Population(ISIS): 26-31-6 = 63

14. SOURCES:

Del Hoyo et al., 1995. *Handbook of the Birds of the World, vol.2*. Birdlife International, Lynx Edicions, Barcelona.

Abrie W.A. Maritz and Francois D. Taljaard, Raptor Conservation Group, Unpublished Results.

15. COMPILERS: David G. Allan, Avian Demography Unit, Department of Statistical Sciences, University of Cape Town, Rondebosch 7700, South Africa.
Gerhard H. Verdoorn, Raptor Conservation Group, PO Box 72155, Parkview 2122, South Africa.

Terathopius ecaudatus **Bateleur**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Terathopius ecaudatus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Bateleur, Bateleur Eagle
Monotypic

2. Distribution of the Taxon: Senegambia E to Sudan and Ethiopia then S to Namibia and South Africa.

HISTORICAL DISTRIBUTION: Little different from current except in South Africa and Zimbabwe, where the range is at least 80% reduced and mainly limited to National Parks.

CURRENT COUNTRIES: See distribution above.

MIGRATION REGIONS: No true migration, but local influx of immature birds into Northern Cape Kalahari in winter/dry season and into Kruger National Park in summer/wet season; maybe an east-west movement of young birds in southern Africa.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km
OCCUPANCY AREA: larger than 2,000 sq. km

5. Threats:

now	future
habitat loss	
Poisoning	
(esp. in Zimbabwe, S. Africa and Namibia)	
Human interferance (nest disturbance)	
Drowning in farm reservoirs	

6. Trade: Yes, 1989, 1990, 1991, 1992, 1993

7. Population (global) Unknown

Widespread and common at densities of 1 pair/30-200 sq. km in Kruger National Park, Transvaal (estimated total 600 pairs, Watson 1986). Inter-nest spacing of 13 – 16 km in Zimbabwe (Steyn, 1982), 7.2 km in Kalahari Gemsbok National Park (Herholdt & De Villiers, 1991), 5.5 km in

Zambia (Osborne, 1982) and 5.1 km in Kruger National Park (Watson, 1986).

8. Population trends In South Africa, locally stable in large National Parks (Kruger and Kalahari Gemsbok), but virtually 100% decline outside these areas between 1940 and 1980s. Estimated 75% decline over the last 20 years in southern Africa.
TREND OVER PAST 100 YEARS: Major decline in southern Africa.
GENERATION TIME: About 25 years.

Common only in larger nature reserves. Declining in W Africa (Ivory Coast) and in Sudan. Some evidence for pesticide contamination in S Africa but levels thought to be too low for population effects. Direct and indirect persecution (shooting, trapping, poisoning) probably caused major decline elsewhere. Education of local communities as done by the Kalahari Raptor Project of the Raptor Conservation Group, may result in diminished effects on the Bateleur and recolonization of former habitats may take place (5 active breeding pairs recently established on farmlands in the Norhtern Cape Kalahari region).

9. Data Source
DATA SOURCE/QUALITY: 1/2

10. Recent Field Studies:
Richard Watson (1986), Biology, ecology and population dynamics in Kruger National Park, 1980-84.
J.J. Herholdt, Kalahari Gemsbok National Park, 1980s.
Abrie W.A. Maritz, Kalahari Raptor Project of the Raptor Conservation Group, 1992-present.

11. Status
IUCN CATEGORY (Global): Near Threatened
CITES: Appendix II.

12. Research and Mangement Recommendations
Habitat management; monitoring, limiting factors management, PHVA pending further data from research and surveys.

13. **Captive Program Recommendation:** No
Level of Difficulty: 3
Existing Captive Population(ISIS): 19.23.6 = 48

13. SOURCES: Own
Watson, R.T. 1986. *Biology, ecology and population dynamics of the Bateleur*. PhD. Thesis, University of the Witwatersrand, South Africa. 291 pp.

Brown, L.H., Urban, E.K. and Newman K.B. 1982. *The Birds of Africa, vol.1*. Academic Press, London.

Maclean, G.L. 1992. *Robert's Birds of Southern Africa.* John Voelcker Bird Book Fund, Cape Town.

Steyn, P. 1983. *Birds of prey of Southern Africa*. Credo Press, Cape Town.

Herholdt, J.J. and DeVilliers, D.J. 1991. Breeding success and population density of the Bateleur (*Terathopius ecaudatus*) in the Klahari Gemsbok National Park. *GABAR* 6(1):3-6.

Osborne, T.O. 1982. Notes on the breeding of the Bateleur in southern Zambia. *Ostrich* 53: 115-177.

Mundy, P.J. 1989. *Honeyguide*. 35: 102-111.

14. COMPILERS:

Richard T. Watson, The Peregrine Fund, 5666 West Flying Hawk Lane, Boise, ID 83709, Tel 208-362-3716.
Abrie W.A. Maritz, Raptor Conservation Group, PO Box 72334, Parkview 2122, South Africa.
Peter J. Mundy, PO Box FM 424, Famona, Bulawayo, Zimbabwe.

Urotriorchis macrourus **Long-tailed hawk**

African Falconiformes CAMP Taxon Data Sheet

1. Scientific Name / Ambiguities

Urotriorchis macrourus

FAMILY: Accipitridae LEVEL: Species
ORDER: Falconiformes
CLASS: Aves
COMMON NAME: Long-tailed hawk

Monotypic genus, apparently very close to Accipiter, with which has been merged; has also been linked with other endemic African genera, *Melierax* and *Kaupifalco*. Invalid race *batesi* proposed for populations from Cameroon eastwards. Monotypic.

2. Distribution of the Taxon Africa

HISTORICAL DISTRIBUTION: same as curent.
CURRENT COUNTRIES: Liberia E to W Uganda and S to SW and C Zaire.
MIGRATION REGIONS: No migration.

3.-4. Occurrence and Occupancy in & around area study/sighting

OCCURRENCE AREA: > 20,000 sq km.
OCCUPANCY AREA: > 2,001 sq km.

5. Threats: now future

HUMAN INTERFERENCE
Fragmentation
Habitat loss

6. Trade: No

7. Population (global) Unknown

8. Population trends Declining

Secretive but widely recorded from primary forest; restricted to large tracts of dense forest although readily occurs at edge of clearings. Intolerant of secondary habitats, and is probably declined considerably throughout much of W Africa. Not uncommon in Sierra Leone; widespread and

common in Ghana.

9. Data Source
DATA SOURCE/QUALITY: - Unknown

10. Recent Field Studies: None Known

11. Status
IUCN CATEGORY (Global): Lower risk
CITES: Appendix II.

12. Research and Mangement Recommendations
Survey Studies; habitat management; monitoring

13. Captive Program Recommendation: No
Level of Difficulty: 2
Existing Captive Population(ISIS): None

14. SOURCES:
Del Hoyo et al., 1995. *Handbook of the Birds of the World,vol.2*. Birdlife International, Lynx Edicions, Barcelona.

15. COMPILERS: David G. Allan, Avian Demography Unit, Department of Statistical Sciences, University of Cape Town, Rondebosch 7700, South Africa.

Table 4. Summary of CAMP Taxon Data Sheet Data for Selected African Falconiformes

	TAXON			WILD POPULATION							CAPTIVE POPULATION		
Global CAMP Taxon #	SCIENTIFIC NAME		NEW IUCN	CURRENT DISTRIBUTION	EXT OCC	# LOC	DQ	THREATS	TRADE	RES MGMT	PHVA	REC	DIFf	Exist Pop
9	Aviceda	cuculoides	LR	Central to Southern Africa	D		3	L,P	No	S,M,Hm	No	No	3	None
10	Aviceda	madagascariensis	VU	Madagascar	D		?		No	S,M,Lh,Lr,Lm	Pend	Pend	2/3	Nonw
25	Machaerhamphus	alcinus	DD	S. Burma, W. Thailand, Malay Penn., Sumatra, Borneo, NC Sulawesi, E. New Guinea, Senegambia, E to Ethiopia and S to South Africa, Madagascar	D		4	Pl	No	S, M, Lr, Hm, T	Pend	Pend	E	None
94	Polyboroides	typhus	LR	Senegambia E to W Sudan, N to Air Mountains (NW Niger) and S to Zaire, E Sudan to Eritrea and S to Angola and South Africa	D		1	Po, Shooting	No	S, M, T	No	No	1	8.5.2
96A	Melierax	metabates	LR	SW Morroco, Mali E to N Sudan, SW Arabian Penn, Senegambia E to Ethiopia and S to NE Zaire and N Tanzania, Angola E to S Tanzania and S to N Namibia and NE South Africa	D		1	L, Lf	No	S, M, Hm	No	No	2	none
96	Kaupifalco	monogrammicus	LR	Senegambia E to Ethiopia and S to Uganda and Kenya. South Kenya S to N South Africa and W to Angola and N to Namibia	D		1	L	Yes	M, Hm	No	No	2	0.1.0
97	Melierax	poliopterus	LR	SE Ethiopia and Somalia S to E Uganda and N Tanzania	D		1	L, Ic,	Yes	M, Hm	No	No	1	none
98	Melierax	canorus	LR	S Angola, S and E through Namibia, Botswana, and Zimbabwe to NE South Africa in Transvaal and NW Orange Free State. S South Africa, in Cape Province, SE Orange Free State	D		1, 2	Ps, Dr, Pl, Shooting	No	M, Lm	No	No	3	1.2.3
98A	Micronisus	gabar	LR	Senegambia E to N Ethiopia and SW Arabia, and S to N Cameroon, Chad, and Sudan. Ethiopian highlands S to Zaire, Zambia, and Mozambique. S Angola, Zambia, and Mozambique S to South Africa	D				Yes	M, T	No	No	2	none
152	Urotriorchis	macrourus	LR	Liberia E to W Uganda and S to SW and C Zaire	D			L, Lf	No	S, M, Hm	No	No	2	none
153	Butastur	rufipennis	LR	Senegambia E to Ethiopia, migrating S to Sierra Leone, Cameroon, NE Zaire, Kenya, and N Tanzania	D		2	Sd, L, Ps	Yes	M, Hm	No	No	2	none
196	Buteo	oreophilus	LR	Highlands of Ethiopia S to Tanzania and Malawi and W to Uganda. S and E South Africa	D		1, 2	L, Lf,	No	M, Hm	No	No	2	0.1.0
198	Buteo	rufinus	LR	SE Europe and Asia Minor E through I ran and Afghanistan to NW Mongolia and S to NW India(Garbwal); winters to NE Africa and N India. N Africa , from Mauritania to Egypt; Arabia	D		1	Po	Yes	S, M, Lr	No	No	2	3.5.1
202	Buteo	auguralis	LR	Sierra Leone E to Uganda and Ethiopia, and S to N Angola; outside breeding season occurs in Sahel Zone	D		2,3		Yes	M	No	No	2	none
203	Buteo	augur	LR	Ethiopia S to Zimbabwe and W to S Angola and N and C Namibia	D		2	L,	Yes	M, Hm	No	No	2	none

	TAXON		WILD POPULATION									CAPTIVE POPULATION		
Global CAMP Taxon #	SCIENTIFIC NAME		NEW IUCN	CURRENT DISTRIBUTION	EXT OCC	# LOC	DQ	THREATS	TRADE	RES MGMT	PHVA	REC	Dlff	Exist Pop
204	Buteo	archeri	VU	Highland of N Somalia	D?		4	L, Lf, W	No	S, M, Lh, Hm, Lr	Pend	Pend	2	none
205	Buteo	rufofuscus	LR	South Africa, S and C Namibia, Lesotho, Swaziland, S Mozambique and S Botswana	D		2	Shooting, Po, L, Pl	Yes	M, Lr	No	No	2	4.5.0
228	Polemaetus	bellicosus	LR	Senegambia E to Ethiopia and S to South Africa	D		1	H, I, Po, Pl, Dr, L	Yes	S, M, T, Lr, Ed	No	No	2	3.3.0
230	Lophaetus	occipitalia	LR	Senegambia E to Ethiopia and S to N Namibia, N Botswana and E South Africa	D		1	L, Lf, Pl, Po	Yes	M, Hm	No	No	2	1.0.0
243	Sagittarius	serpentarius	LR	Senegambia E to Ethiopia and Somalia, and S to South Africa	D		1	L, Lf, T, H, Po, I, Lp, Ps, Pl	Yes	S, M, Hm, Lm	No	No	1	26.31.6

Selected African Falconiformes Conservation Assessment and Management Plan

Working Draft

Section 4
Appendices

Appendix I.

Compilers of the African Falconiformes CAMP

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Appendix II.

IUCN Red List Categories (1994)
Prepared by the
IUCN Species Survival Commission

As approved by the
40th Meeting of the IUCN Council
Gland, Switzerland

30 November 1994

IUCN RED LIST CATEGORIES

1) Introduction

1. 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 introduction these categories have become widely recognised 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 organisations. 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.

2. The need to revise the categories has been recognised 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 1989 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.

In this document, proposals for new definitions for Red List categories are presented. The general aim of the new system is to provide an explicit, objective framework for the classification of species according to their extinction risk.

The revision has several specific aims:

- to provide a 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 which affect risk of extinction;
- to provide a system which will facilitate comparisons across widely different taxa;
- to give people using threatened species lists a better understanding of how individual species were classified.

3. The proposals presented in this document result from a continuing process of drafting, consultation and validation. It was clear that the production of a large number of draft proposals 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

numbering was applied 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: Mace & Stuart (1994)
Following further comments received and additional validation exercises, some minor changes to the criteria were made. In addition, the Susceptible category present in Versions 2.0 and 2.1 was subsumed into the Vulnerable category. A precautionary application of the system was emphasised.

Final Version
This final document, which incorporates changes as a result of comments from IUCN members, was adopted by the IUCN Council in December 1994.

All future taxon lists including categorisations should be based on this version, and not the previous ones.

4. 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 of terms used. 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.

References:

Fitter, R., and M. Fitter, ed. (1987) The Road to Extinction. Gland, Switzerland: IUCN.

IUCN (1993) Draft IUCN Red List Categories. Gland, Switzerland: IUCN

Mace, G. M., and R. Lande. (1991) "Assessing extinction threats: toward a reevaluation of IUCN threatened species categories." Conserv. Biol. 5.2: 148-157.

Mace, G. M. & S. N. Stuart. (1994) "Draft IUCN Red List Categories, Version 2.2". Species 21-22: 13-24.

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 categorisation 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 micro-organisms. The criteria may also be applied within any specified geographical or political area although in such cases special notice should be taken of point 11 below. In presenting the results of applying the criteria, the taxonomic unit and area under consideration should be made explicit. The categorisation process should only be applied to wild populations inside their natural range, and to populations resulting from benign introductions (defined in the draft IUCN Guidelines for Re-introductions as "..an attempt to establish a species, for the purpose of conservation, outside its recorded distribution, but within an appropriate habitat and eco-geographical 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 one of the categories (see Figure 1).

3. **Role of the different criteria**

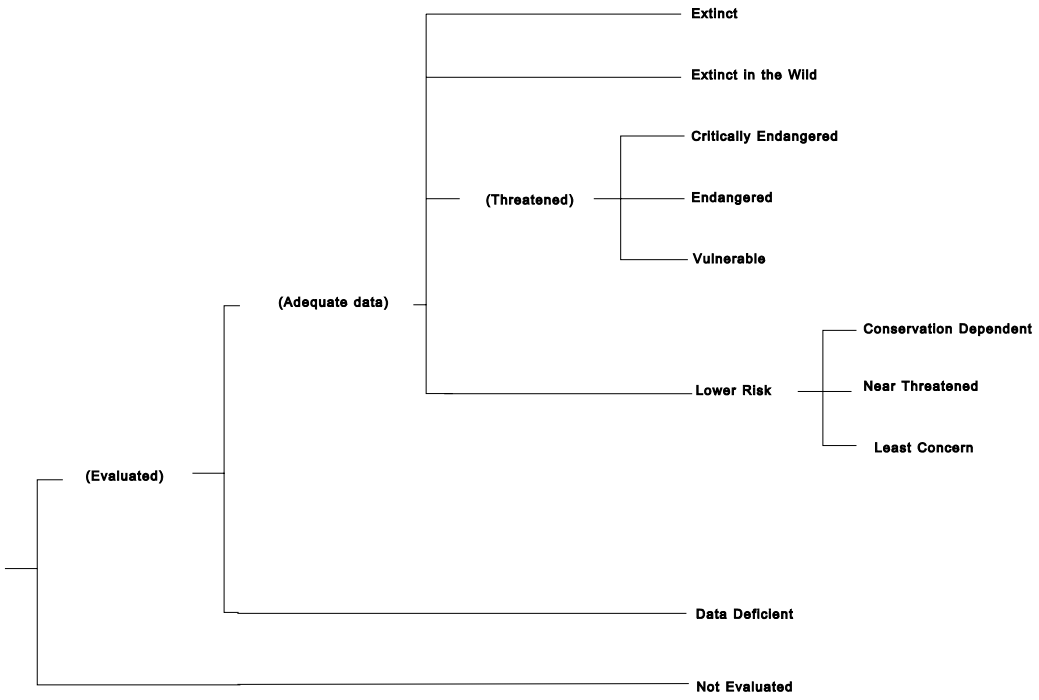
For listing as Critically Endangered, Endangered or Vulnerable there is a range of quantitative criteria; meeting any one of these criteria qualifies a taxon for listing at that level of threat. Each species should be evaluated against all the criteria. The different threat levels for any taxon (other than micro-organisms). The relevant factor is whether

any one criterion is met, not whether all are appropriate or all are met. Because it will never be clear which criteria are appropriate for a particular species in advance, each species should be evaluated against all the criteria, and any criterion met should be listed.

4. Derivation of quantitative criteria

The quantitative values presented in the various criteria associated with threatened categories were developed through wide consultation and they 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 against a common standard. Some broad consistency between them was sought. However, a given taxon should not be expected to meet all criteria (A-E) in a category; meeting any one criterion is sufficient for listing.

Figure 1: Structure of the Categories



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 may 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 assumed here to be a chance process. Thus, a listing in a higher extinction risk category implies a higher expectation of extinction, and over the time-frames specified more taxa listed in a higher category are expected to go extinct than in a lower one (without effective conservation action). However, the persistence of some taxa in high risk categories 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 at applying the criteria, as methods involving estimation, inference and projection are emphasised to be acceptable throughout. Inference and projection may be based on extrapolation of current or potential threats into the future (including their rate of change), or 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. Given that data are rarely available for the whole range or population of a taxon, it may often be appropriate to use the information that is available to make intelligent inferences about the overall status of the taxon in question. In cases where a wide variation in estimates is found, it is legitimate to apply the precautionary principle and use the estimate (providing it is credible) that leads to listing in the category of highest risk.

Where data are insufficient to assign a category (including Lower Risk), the category of 'Data Deficient' may be assigned. However, it is important to recognise that this category

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 a taxon to determine the appropriate listing.

8. **Conservation actions in the listing process**

The criteria for the threatened categories are to be applied to a taxon whatever the level of conservation action affecting it. 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 emphasise here that a taxon require conservation action even if it is not listed as threatened.

9. **Documentation**

All taxon lists including categorisation resulting from these criteria should state 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, which are aimed at including taxa that are threatened at regional or national levels (but not necessarily throughout their global ranges), 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 recognised that a global category of threat may not be the same as a regional or national category for a particular taxon. For example, taxa classified as Vulnerable on the basis of their global declines in numbers or range might be

margins of their global range. IUCN is still in the process of developing guidelines for the use of national red list categories.

12. **Re-evaluation**

Evaluation of taxa against the criteria should be carried out at appropriate intervals. This is especially important for taxa listed under Near Threatened, or Conservation Dependent, and for threatened species whose status is known or suspected to be deteriorating.

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 been met for 5 years or more. (B) If the original classification is found to have been erroneous, 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 categories of lower to higher risk 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 but general 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.

III) Definitions

1. **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 obligately dependent on other taxa for all or part of their life cycles, biologically appropriate values for the host taxon should be used.

2. **Subpopulations**

Subpopulations are defined as geographically or otherwise distinct groups in the

3. **Mature individuals**

The number of mature individuals is defined as the number of individuals known, estimated or inferred to be capable of reproduction. When estimating this quantity the following points should be borne in mind:

- Where the population is characterised by natural 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, behaviourally 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 (e.g. the estimated effective population size).

- 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.

4. **Generation**

Generation may be measured as the average age of parents in the population. This is greater than the age at first breeding, except in taxa where individuals breed only once.

5. **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.

6. **Reduction**

A reduction (criterion A) is a decline 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 reduction 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 reduction.

magnitude (i.e., a tenfold increase or decrease).

8. **Severely fragmented**

Severely fragmented is refers to the situation where increased extinction risks to the taxon 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 recolonisation.

9. **Extent of occurrence**

Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy. This measure may

exclude discontinuities or disjunctions within the overall distributions of taxa (e.g., large areas of obviously unsuitable habitat) (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).

10. **Area of occupancy**

Area of occupancy is defined as the area within its '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 existing populations 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).

11. **Location**

Location defines a geographically or ecologically distinct area in which a single event (e.g. pollution) will soon affect all individuals of the taxon present. A location usually, but not always, contains all or part of a subpopulation of the taxon, and is typically a small proportion of the taxon's total distribution.

12. **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

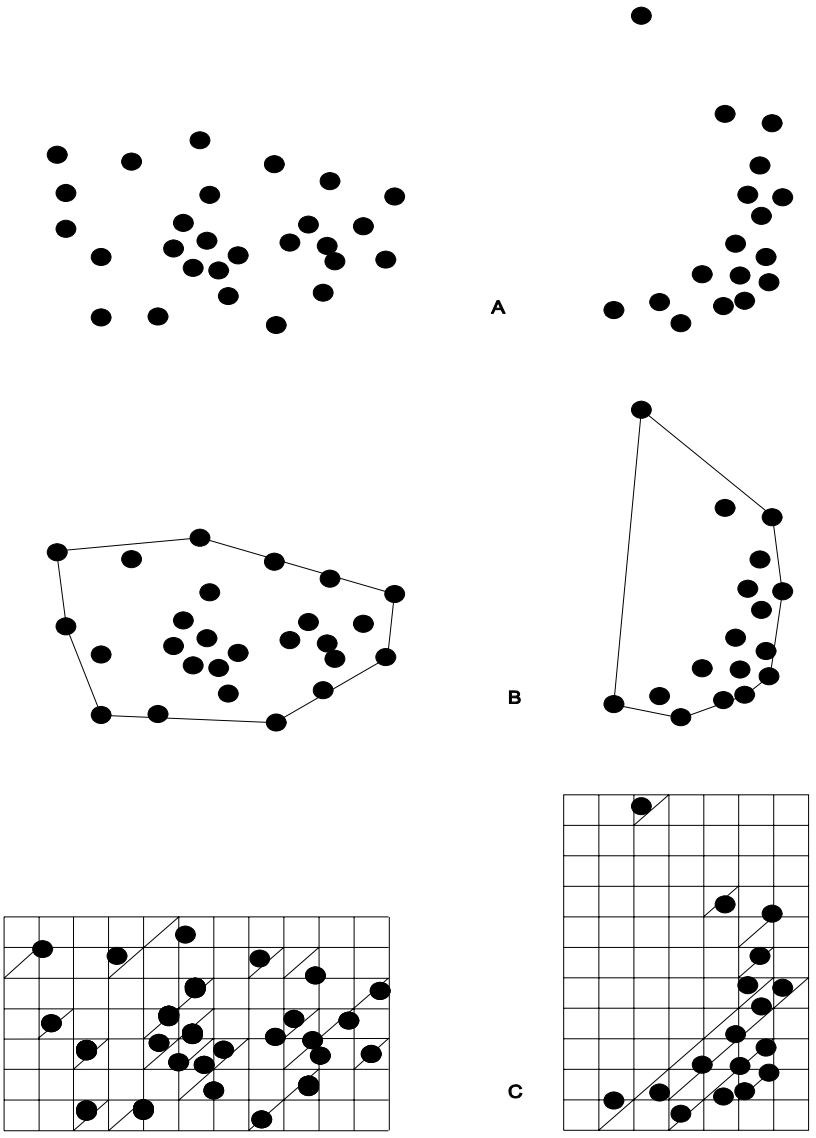


Figure 2:
Two examples of the distinction between extent of occurrence and area of occupancy (a) is the spatial distribution of known, inferred or projected sites of occurrence. (b) shows one possible boundary to the extent of occurrence, which is the measured area within this boundary. (c) shows one measure of area of occupancy which can be measured by the sum of the occupied grid squares.

IV) The categories [1]

EXTINCT (EX)
A taxon is Extinct when there is no reasonable doubt that the 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 naturalised 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 pages 12 and 13.

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 14 and 15.

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 D) on pages 16 and 17.

LOWER RISK (LR)
A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

1. **Conservation Dependent (cd)**. Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.

2. **Near Threatened (nt)**. Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

3. **Least Concern (lc)**. Taxa which do not qualify for Conservation Dependent or Near Threatened.

DATA DEFICIENT (DD)

Note: As in previous IUCN categories, the abbreviation of each category (in parenthesis) follows the English denominations when translated into other languages

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. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and 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, threatened status may well be justified.

NOT EVALUATED (NE)
A taxon is Not Evaluated when it is has not yet been 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 reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:

a) direct observation
b) an index of abundance appropriate for the taxon
c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
d) actual or potential levels of exploitation
e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2) A reduction of at least 80%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) 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 known to exist at only a single location.

2) Continuing decline, observed, inferred or projected, in any of the following:

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
d) number of mature individuals.

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 subpopulation 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 10 years or 3 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 reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:

a) direct observation
b) an index of abundance appropriate for the taxon
c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
d) actual or potential levels of exploitation

three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d),

or (e) above.

B) Extent of occurrence estimated to be less than 5000 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 known to exist 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
d) number of mature individuals.

C) Population estimated to number less than 2500 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 subpopulation 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) Population reduction in the form of either of the following:

1) An observed, estimated, inferred or suspected reduction of at least 20% over the last 10

years or three generations, whichever is the longer,, based on (and specifying) any of the following:

a) direct observation
b) an index of abundance appropriate for the taxon
c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
d) actual or potential levels of exploitation
e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2) A reduction of at least 20%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B) Extent of occurrence estimated to be less than 20,000 km^2 or area of occupancy estimated to be less than 2000 km^2, and estimates indicating any two of the following:

1) Severely fragmented or known to exist 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
d) number of mature individuals.

C) Population estimated to number less than 10,000 mature individuals and either:

1) An estimated continuing decline of at least 10% within 10 years or 3 generations

a) severely fragmented (i.e. no subpopulation estimated to contain more than 1000 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 characterised 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 effects 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.