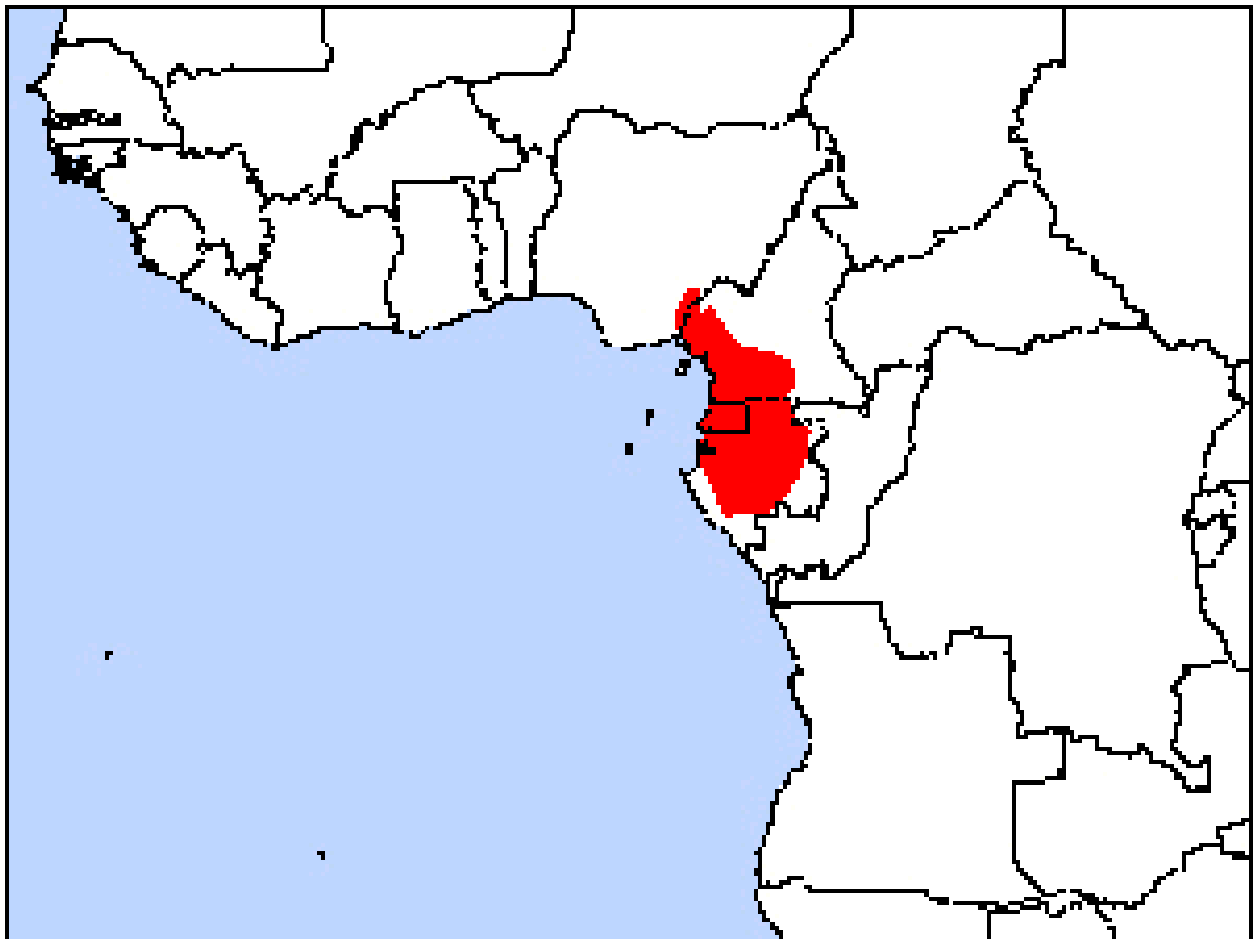




Together for birds and people

Threatened Birds of Africa
International Action Plan for Grey-necked Picathartes
Picathartes oreas



Edited by R. Bian, T. Awa, P.K. Ndong'ang'a, R. Fotso, D. Hoffmann, E. Sande (2006).

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International Species Action Plan for the Grey-necked Picathartes *Picathartes oreas*

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Preface

The relationship between BirdLife International and IUCN – The World Conservation Union stretches back into the formative years of both organizations. BirdLife International is IUCN's main partner and advisor on issues related to bird conservation and has played a leading role in the Consortium formed to develop the IUCN Red List of Threatened Species (www.iucnredlist.org) into a global tool for biodiversity conservation.

A particularly close relationship exists between BirdLife International and IUCN's Species Survival Commission (SSC). Each being extensive networks of species conservation expertise, the two organisations have worked together to produce several coordinated global assessments of the world's birds since the 1980s.

As an active member of the Red List Consortium, BirdLife International has taken a leading role in the development of the Red List criteria and standards, and has pioneered the development of Red List indicators. Using this system, BirdLife's 16 years of Red List data is allowing us to see meaningful trends in the status of the world's birds.

In Africa, BirdLife International has already taken a lead in site-based bird conservation, culminating in its landmark publication *Important Bird Areas in Africa and Associated Islands*. The concept of Important Bird Areas (at both national and regional levels) has proved very useful and is already showing direction for other types of biodiversity conservation on the continent.

However, the conservation of key sites alone may be insufficient to protect many species. Species with dispersed ranges, with only a small proportion of their population inside protected areas, or species facing a multitude of threats, often require a more integrated approach. Conservation efforts for such species require careful planning, taking into account the views and interests of all stakeholders, so allowing conservationists and ecosystem managers to mobilise their resources in an effective and strategic way.

This action plan is one in a series produced by BirdLife International for threatened birds in Africa. I urge all readers and users of this publication to push the conservation of Africa's birds, cornerstones and indicators of the continent's natural wealth, to a new level. Awareness of the need to conserve species and their habitats is slowly growing amongst policy makers. What we often lack are the tools and guidance to implement the appropriate measures. This series provides that critical service. In raising the profile of the problems facing Africa's avian species and the measures needed to secure their future, I believe, these plans will have a long-lasting impact on the conservation, not only of birds, but of the continent's rich biodiversity.

Achim Steiner
Director General
IUCN – The World Conservation Union

Foreword

Birds are part of the global ecosystem and studying them tells us about the natural environment on which we all depend and its biodiversity. Humankind values birds for educational, economic, recreational, cultural, ethical and spiritual reasons. Because birds are important, 105 countries worldwide are working together through the BirdLife International Partnership to conserve the world's birds and their habitats.

The Africa BirdLife International Partnership, currently represented in 18 African countries, has so far documented 1,230 Important Bird Areas (IBAs), sites that are internationally important for the conservation of birds and biodiversity in Africa. Unfortunately, 43% of these have no legal protection, leaving a fifth of the continent's globally threatened bird species at greater risk of extinction.

Africa has a total of 349 globally threatened bird species. Some of these are residents of more than one country, others are migratory or widely dispersed. The conservation of cross-border, migratory or widely dispersed species requires concerted strategic species-based approaches such as Species Action Plans, to complement long-term site-based strategies such as National Parks and other protected area systems. Species Action Plans are scientifically authoritative documents that, with wide consultation and agreement with the major stakeholders, provide the relevant agencies with specific and time-bound actions for conserving priority species. Species Action Plans therefore provide a framework for action at local, national and international levels, in addition to being used as fundraising and advocacy tools.

With funding from the UK Department for Environment, Food and Rural Affairs (Defra), under the Darwin Initiative for the Survival of Species, and with financial and technical support from the Royal Society for the Protection of Birds (the RSPB, the BirdLife International Partner in the UK), the Africa BirdLife International Partnership has developed a format and process of species action planning involving the participation of representatives from governments, species experts and interest groups, conservation NGOs and local communities. This Species Action Plan is one of seven international and 15 national plans for priority bird species in Africa, which were produced as a pilot to test the new approach. It is hoped that the format and process used in the production of these plans will act as a model for the production of other plans for the conservation of priority threatened fauna and flora in different countries of Africa and beyond.

The production of action plans is just the beginning of the process, because it is important to translate the plans into action. The involvement and agreement of national government representatives in the production of these plans will help stimulate the inclusion of the plans into existing and proposed national conservation strategies. In addition, members interested in the conservation of individual species will evaluate the successes and failures of the implementation process.

It is hoped that all those interested in the wise use of Africa's natural resources and the conservation of her breathtaking bird diversity will make effective use of these plans.

Achilles Byaruhanga

Chairman, Council of BirdLife Africa Partnership 2004/5
Executive Officer, *Nature*Uganda (BirdLife in Uganda)

Acknowledgements

This Action Plan is an output of a three year project – ‘*Action Plans for the conservation of Globally Threatened birds in Africa*’ which in turn is part of the Species Conservation Programme of the African Partnership of BirdLife International. Major support for the project came from the UK Department for the Environment, Food and Rural Affairs (Defra) under the Darwin Initiative and the Royal Society for the Protection of Birds (the RSPB, BirdLife in the UK). Special thanks are due to these two organisations.

The project was co-ordinated on behalf of the BirdLife Africa Species Working Group (ASWG) (a technical arm of the BirdLife International Africa Partnership) by *Nature*Uganda, BirdLife South Africa and the RSPB (BirdLife in Uganda, South Africa and UK respectively). The project was supported and implemented by 17 African BirdLife Partner Organisations. Their efforts were unrelenting and BirdLife International thanks them all sincerely.

A network of dedicated people throughout Africa formed Species Interest Groups (SIGs), which were led at national level by National Species Co-ordinators. The SIGs worked to promote the aims of the project and species conservation in general. The International Coordinator of Grey-necked Picathartes Species Interest Group with support from staff of CBCS played a pivotal role in developing this Action Plan by pooling and sharing information and organising an International Stakeholder Species Action Plan workshop that was attended by individuals from the range states of the species: Nigeria, Cameroon, Gabon and Equatorial Guinea. There was also very strong support for the development of this Action Plan from the relevant government departments and academic and research institutions of these countries. Warm thanks are due to all those involved in these organisations.

Many other individuals both inside and outside Africa contributed information, advice and support. BirdLife International thanks them all. May their efforts for species conservation continue to flourish.

Acronyms and definitions:

ASWG: African Species Working Group. ASWG is a technical arm of the BirdLife International Africa Partnership. Its role is to promote single species conservation initiatives within the BirdLife African Partnership through continuous development and implementation of an African Bird Species Conservation Programme.

CAP: BirdLife Council for the African Partnership (see back cover)

CBCS: Cameroon Biodiversity Conservation Society

CBD: Convention on Biological Diversity

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

CRES: Centre for Resource and Environmental Studies

CUREF: Conservation and Rational Use of Forest Ecosystems Programme (a programme of the Equatorial Guinea government)

DEFRA: The UK Department for the Environment, Food and Rural Affairs (known as Defra)

DFC: Direction de la Faune et de la Chasse (Office for Wildlife and Hunting) - Gabon

ECOFAC: Ecosystèmes Forestiers d’Afrique Centrale (Central Africa

EIA: Environmental Impact Assessment

FMU: Forest Management Unit

GEF: Global Environment Facility

GTZ: Deutsche Gesellschaft für Technische Zusammenarbeit

IBAs: Important Bird Areas. IBAs are sites of global biodiversity significance identified using international, objective standard scientific criteria. Places may be considered IBAs if they hold globally threatened species; restricted range species (world range <50,000 km²); biome-restricted species and/or congregations of significant numbers of the global population of a bird species. An IBA should as far as possible, be different in character from the surrounding area; exist as an actual or potential protected area; and, alone or with other sites, provide all the requirements of the birds, when present, for which it is important. (Fishpool and Evans, 2001).

IUCN: The World Conservation Union

MARP: Workshop on participatory management

MINEF: Le Ministère de l’Environnement et des Forêts

NBSAPs: National Biodiversity Strategies and action plans

NCF: Nigerian Conservation Foundation

NGO: Non-Governmental Organisation

NIBACS: National Important Bird Area Conservation Strategies

NSAPC: National Species Action Plan Coordinator

RSPB: Royal Society for the Protection of Birds

SAP: Species Action Plan. 'A Species Action Plan (SAP) is a scientifically authoritative, strategic document that defines specific, measurable objectives and actions for conserving priority species. The plan should be achievable, time-bound and involve all appropriate stakeholders.' (BirdLife International Africa Partnership, 2001).

SIG: Species Interest Group. A Species Interest Group is a group of people interested in the conservation of a species. It usually includes experts who have a lot of knowledge of the species and are interested in promoting its conservation but could also include a variety of other stakeholders such as local communities, hunters, business people etc. (BirdLife International Africa Partnership, 2001).

SNV: Schweizerische Normen-Vereinigung (Netherlands Development Organisation)

SSC: Species Survival Commission

SSG: Site Support Group. Local people based in or around sites who are concerned about biodiversity loss and who draw on the experience and achievements of the wider BirdLife International Partnership to create local solutions for biodiversity conservation and improved livelihoods.

TBI: Tropenbos International

UNESCO: United Nations Educational, Scientific and Cultural Organisation

WCS: Wildlife Conservation Society

WHC: The World Heritage Convention – A convention for the conservation of areas that are outstanding global cultural or natural value

WWF: Worldwide Fund for Nature

WWF-CPO: WWF China Programme Office

Executive summary

Picathartes oreas is among the 349 birds in Africa that are globally threatened with extinction. Although population estimates for most of its range countries are lacking, the global population is thought to be less than 10,000 individuals remaining in the wild. It is also believed that the population trend is more or less stable or declining due to habitat loss. Besides modification of its habitat, the bird faces an array of other threat, which includes low breeding success, predation, hunting of adult for bird trade etc. The bird is endemic to the lowland guineo-congolian forests. The distribution is fragmented because of its highly specialised habitat requirements.

This action plan set out a conservation strategy to improve the knowledge available on the species, to stabilize and reverse the current trend of population decline, with the aim of downgrade *P. oreas* to near-threatened under the threat criteria of IUCN list of globally threatened species. The aim of this five years plan is: **Current populations of *Picathartes* in key sites stabilised and/or increased.** The Action Plan contains five major objectives and a number of strategies. These include:

1. Distribution and trends estimates of *Picathartes* populations determined throughout its range.
2. Better protection of key sites
3. Reduction of stress due to human presence and activities
4. Reinforcement of local capacity for the study of the species
5. Assessment of human impact on *Picathartes*

The workshop to develop the action plan falls in line with a process which started with the funding of the project, followed by a series of workshops to develop a format for the Action Plans document and to train young African conservationists in species conservation and species action planning. Finally, the stakeholder's workshop brought together a broad range of expertise by inviting participants from different stakeholder groups of governmental and non-governmental organisation mainly from *Picathartes* range states. Facilitators and resource persons were from both within and outside the region. The process of developing this action plan was participatory and provides an opportunity for the participant themselves to develop National Species Action Plans based on the experienced gained during the international workshop. The participants from the range states organised themselves into a Species Interest Group (SIG) as a way to contribute to the implementation of the Action Plan and to enhance conservation of the species.

Résumé

Le picathartes chauve (*Picathartes oreas*) fait partie des 349 espèces d'oiseau d'Afrique globalement menacées d'extinction. Bien que l'on manque des estimations précises de population dans la plupart des pays de son aire de distribution, on estime à moins de 10 000 le nombre d'individus de cette espèce vivant à l'état naturel. On pense aussi que la tendance d'évolution des populations est plus ou moins stable ou en déclin en raison de la destruction de l'habitat. En dehors de la destruction de l'habitat, l'espèce fait face à un faisceau d'autres menaces qui comprennent entre autres la prédation, la chasse des adultes pour le commerce, la faible productivité. Le picatharte chauve est endémique des forêts basses guinéo-congolaises. La distribution est fragmentée à cause du fait que l'espèce a besoin pour se développer d'un habitat hautement spécialisé. Ce plan d'action met en place des stratégies de conservation pour améliorer la connaissance disponible sur cette espèce, pour stabiliser et renverser la tendance actuelle au déclin des populations avec le but de baisser la statut de l'espèce à Pré-menacé d'après les critères de L'UICN. Le but de ce plan quinquennal s'énonce comme suit : « Populations de Picathartes chauve dans les sites clés stabilisés et/ou accrues ». Ce plan d'action comprend 5 principaux objectifs et un certain nombre de stratégies. Citons entre autres :

1. Les distributions et les estimations des tendances des populations de Picathartes déterminées dans toute son aire de distribution
2. Meilleure protection des sites-clés
3. Réduction du stress due à la présence et aux activités humaines
4. Renforcement des capacités locales pour l'étude de l'espèce
5. Evaluation de l'impact des activités humaines sur le Picathartes

L'atelier pour le développement de ce plan d'action s'inscrit dans un processus qui a commencé avec le financement du projet, suivi d'une série d'ateliers pour développer un format pour les plans d'action, et pour former les jeunes conservateurs africains à la conservation des espèces et à la planification des actions de conservation. Finalement, l'atelier des experts a réuni une large de participants de divers groupes d'organisations gouvernementales et non-gouvernemental des pays dans lesquelles l'espèce est distribuée. Les facilitateurs et les personnes ressources venaient aussi bien de ces pays que d'ailleurs. Le processus pour développer ce plan d'action était participatif et a fourni aux participants un opportunité de développer des plans d'action nationale basée sur les expériences acquises au cours de cet atelier international. Les participants des pays de distribution de l'espèce se sont organisé en un groupe d'intérêt pour l'espèce comme un moyen de contribuer à l'exécution du plan d'action et de soutenir la conservation.

1 Introduction

1.1 Why a Grey-necked Picathartes Action Plan?

Grey-Necked Picathartes has been classified as Vulnerable under IUCN/BirdLife threat criteria (BirdLife International, 2000). It is also listed in appendix 1 of CITES which suggest that trade of this bird is authorized only in exceptional cases.

The distribution of the bird is highly fragmented and most of the breeding colonies are small, isolated and the populations are close to the minimum for long-term viability. These small and isolated populations are thought to be in decline due to habitat loss. The action plan provides a generalized framework and offers the opportunity to promote the conservation of this species through regional collaboration.

All range states members are signatory to the Convention on Biological Diversity (CBD) which obliges members to promote the recovery of threatened species through the development and implementation of plans.

1.2 Geographic scope

The genus *Picathartes* has only two species; *Picathartes oreas* and its congener *Picathartes gymnocephalus*. *P. oreas* is restricted to the lower-guinea forest of Nigeria, Equatorial Guinea, Gabon and Cameroon. The species is also suspected to occur in Congo Brazzaville. The range of *P. oreas* does not overlap with *P. gymnocephalus* and a block of guinea savannah called the Dahomey gap separates the two species in the Guinea congolian forest. *P. gymnocephalus* has been recorded in Sierra Leone, Guinea, Liberia, Cote d'Ivoire and Ghana.

This action plan intends to address the conservation needs of *Picathartes oreas* throughout its distribution range. Implementation of the Action Plan requires effective international co-ordination and actions in the entire range states.

1.3 Methodology

This International Action Plan was produced at an international stakeholder workshop using a process and format developed by the BirdLife International Africa Partnership and RSPB (BirdLife International, 2001). The workshop process involves four main steps.

- 1 Presentation and discussion of background information in order to identify gaps in knowledge on the species and capture new information.
- 2 A thorough analysis of the threats to the species and the relationship between the threats using the problem tree development approach.
- 3 Use of the agreed threats, their interrelationship and differing priorities to draft mitigating interventions.
- 4 Development and agreement on a monitoring and evaluation plan

Further details can be obtained from a Species Action Plan Development Manual developed during the project (Sande et al, 2005).

2 Background information

2.1 Introduction

The Grey-necked Picathartes is a resident endemic bird which occurs in the lower Guinean forests of Nigeria, Cameroon, Gabon, and Equatorial-Guinea. Its distribution is highly fragmented and all known populations are small and isolated. The occurrence of the bird is mainly associated with caves and rocks in hilly areas of the Congolian forest.

Picathartes oreas is classified as Vulnerable under IUCN/BirdLife International threat criteria. This means that its population throughout West Africa is highly fragmented and overall may be in decline. Although there is evidence that it is more numerous than was thought, its total population is thought to be well less than 10,000 mature individuals.

The species may be secure at some sites and in some protected areas, and there may be currently little habitat loss in Gabon, or in Bioko, where the extremely rugged and inaccessible areas inhabited by this bird are unlikely to be affected by human activity in the near future. However, it remains seriously threatened by forest clearance and disturbance throughout much of its range, and at many sites it survives only in poor quality habitat. Low nests in a protected area are known to have been destroyed by chimpanzees (*Pan troglodytes*) and Drills (*Papio leucophaeus*). Elsewhere, the bird is caught in spring-traps set for mammals. In Cameroon, which is believed to hold the highest population in the range states, the bird is found in many non protected localities. Hunting, traps and snares set for other species, disturbance caused by activities such as logging and burn farming are thus among the main threats. Even in protected areas, encroachment by farmers, hunters and loggers means that the safety of the resident populations cannot be guaranteed.

Very few studies have been carried out on this species. Most of the papers are from keen ornithologists who report their observations in the field while surveying the avifauna or the biodiversity in general of particular sites. Thomas Butynsky in Equatorial Guinea, Roger Fotso and Hilary Tye in Cameroon, J. Ash in Nigeria and André Brosset in Gabon are among scientists who have paid a special attention to this bird. No extensive research work has been conducted at PhD. or Masters level. It is therefore necessary to initiate a combined regional effort to address the conservation needs for this bird and create a forum to share relevant experience gained at national level.

The species action plan can lead to effective conservation actions only if proper stakeholders are involved in the process. Stakeholders are people who directly or indirectly affect the conservation of this bird either positively or negatively. *Picathartes* colonies mostly exist in rural areas where because of poverty, the communities heavily rely on the forest resources for their survival. On the other hand, most of these areas are wooded areas and thereby encroached by loggers. The process of developing this action plan recognises the main stakeholders, identifies the main causes, threats and proposes solutions to some extent. The action plan therefore provides the basis upon which to build a strong foundation to improve the conservation status of this bird from the vulnerable position to a near threatened status in five years period. At the end of this period a number of mechanisms will be put in place to monitor the population and threats of this bird.

Factfile

Family: Picathartidae.

Distribution: equatorial forest from SE Nigeria to NE Gabon.

Habitat: primary or secondary rain forest.

Size: 33-38 cm, 200-250 g.

Plumage: The nape is red and the fore-crown blue. The under parts including belly and throat are of soft lemon-yellow colour, with grey wash on the throat and upper chest. Primaries form a very distinctive black band separating the yellowish vent and the slate grey of the back.

Voice : rather silent, but sometimes gives low, quiet drawn out rasping or hissing 'wheet' call, 1-2 s long, repeated several times every 4 s or so, "like the sound of heavy furniture being pushed across a gritty wooden floor".

Nests: half-cup of dried mud impregnated with dry grass fibres and dead leaves built on cliffs, rock faces or cave roofs.

Eggs: 1-3, dark fawn with dark brown blotches, creamy white with chocolate brown and grey blotches.

Incubation period: 21-24 days, nestling period: about 24 days

Diet: mainly insects (grasshoppers, orthopterans, beetles, weevils...), invertebrates (earthworms, slugs, snails...), and small vertebrates, with some lizards, frogs...

English name: Grey-necked Picathartes, Grey-necked Rockfowl.

2.2 Taxonomy

Class: Aves

Order: Passeriformes

Suborder: Passeri (the Oscines)

Family: Picathartidae

Genus: *Picathartes*

Species: *P. oreas*

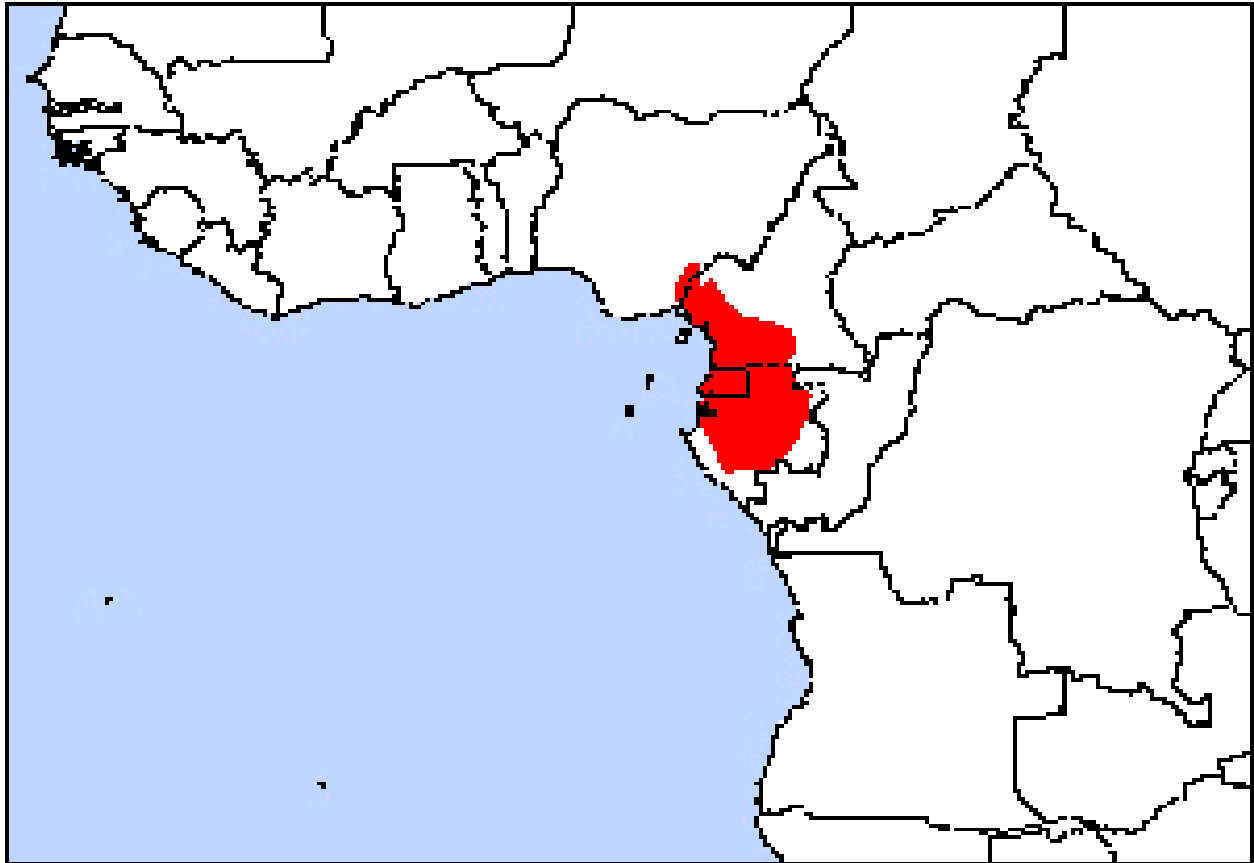
The type-specimen was collected near Victoria (Limbe) at the foot of Mont Cameroon (Reichenow, 1899). Soon after the type was described the species was found in the hills around Efulen in southern Cameroon (Sharpe, 1904). The nest and eggs of the birds were also discovered and in 1905 another specimen was collected at the same locality.

The taxonomic status of *Picathartes* constitutes an ongoing ornithological puzzle. The genus has been variously placed in the Corvidae (Serle, 1952; Sibley & Monroe, 1990); the Sturnidae or close to it (Lowe, 1938; Bannerman, 1951); the Muscicapidae, the Timaliidae (Delacour & Amadon, 1951; Hall & Moreau, 1970; Dowsett & Dowsett-Lemaire, 1993) and the Sylviidae (Sibley *et al.*, 1988). The uncertainty of the taxonomic position of *Picathartes* has generated a concurrent problem of determining the nearest relatives of its genus.

Recent DNA (and anatomical) work by Sibley and Ahlquist supports the corvine relationship of *Picathartes* (the humerus is typically corvine), but suggests that their closest relatives may be the rockjumpers (*Chaetops*) of South Africa (Sibley & Monroe, 1990) which themselves have usually been placed among babblers or thrushes. Brosset suggests that the two species of *Picathartes* may well be the remnants of an archaic avian order. The problem is still unresolved.

2.3 Distribution and population status

The Grey-necked Picathartes is a restricted range species found in equatorial forest from SE Nigeria to NE Gabon. It occurs in Nigeria, Cameroon, Gabon, Equatorial Guinea and on the Island of Bioko. It is also expected to be present in the north western tip of the Republic of Congo (Brazzaville). Annex 2 shows the local distribution, protected area status and known sites of the Grey-necked Picathartes. The locations of the known and potential sites across the range are shown in the map below.



Nigeria: The bird is locally common in undisturbed forest in South-East, close to Cameroon border; 94 breeding sites have been identified in 1987 with estimated 500-1000 birds, mostly between villages of Olum, Kanyang, Bamba and Bashu, in area of c. 20 x 50 km centred on 06°15'N, 09°05'E (Ash 1991), and 42 further sites nearby in Oban Hills / Obudu region (Anon, 1995).

Cameroon: *P. oreas* is widespread in the South-West part of the country, south of 06°N and west of 13°E, mainly in coastal lowland rain forest, up to 1800 m on Mount Cameroon and 1250 m on Mount Nlonako; 13 breeding sites in area of 3 x 5 km just Northwest of Mundemba in Korup National Park, one with 30 nests (Green 1995); near Korup, known from Rumpi Hills and mountains near Usukutang and Nguti (Roderwald *et al.*, 1994); in South, a large colony with 47 nests, at least 40 active, in Dja Biospher Reserve (Thompson and Fotso, 1995).

Gabon: 7 colonies each of 5-15 birds were known in Bélinga, Dibakouélé, and Bengoué (Brosset and Erard, 1986); several colonies 2-3 nests in Reserve de la Lopé in Central Gabon and on R. Mbay (Christy and Clarke, 1994); Birds caught alive, Mouila (01°50'S, 11°02'E), 1981 may have been an escape, but in 1994 a pair was seen not far north, in limestone caves east of Lastoursville (00°50'S, 12°43'E) (Y-M. de Martin de Viviers, pers.comm.).

Equatorial Guinea: Butynsky and Koster (1989) mention 10 sightings in almost inaccessible terrain, in SW, where the known distribution is limited to the Gran Caldera de Luba and a 7 km stretch of the Rio Olé at 500-750 m near 03°19 N, 08°29 E. The bird is strongly suspected to occur in Rio Muni, mainland Equatorial Guinea.

Its population throughout West Africa is highly fragmented and may overall be in decline. Its total population could well be less than 10,000 mature individuals.

Estimates of the population size, distribution and seasonal occurrence are presented in Table 1.

2.4 Protection status and Relationship with other SAPs and biodiversity strategies

The population is seriously threatened by habitat destruction: population is thought to have contracted in area west of Mount Kupe, with the destruction of forest by road building and timber extraction east and north of Kumba (Moore, 1997), and around Yaounde due to habitat destruction (Fotso, 1993).

Grey-necked Picathartes is protected by National law in Cameroon.

Picathartes oreas is listed under the category A in the Ministerial Decree N° 0565/A/MINEF/DFAP/SDF/SRC of MINEF. The animal species in this category are fully protected and cannot be killed. However, capture or detention is submitted to a special authorization issued by the Minister in charge of wildlife.

Grey-necked Picathartes is classified as Vulnerable under the IUCN/Birdlife International threat criteria for threatened species. *P. Oreas* is listed in Appendix I of CITES. The national legislation and signatories to international conservation treaties relevant to Grey-necked Picathartes in range states are presented in Table 2.

The Cameroon Biodiversity Conservation Society (BirdLife's Affiliate in Cameroon) is preparing a National Important Birds Areas Conservation Strategy (NIBACs) which should include a monitoring plan for globally threatened bird species.

In Cameroon, Grey-necked Picathartes occurs in the same areas with many other threatened animal species for which some conservation efforts exist, eg:

- Banyang Mbo, where *Loxodonta africana* (En), *Pan troglodytes* (En), *Mandrillus leucophaeus* (En), *Colobus satanas* (Vu), *Syncerus caffer nanus* (CD), *Cephalophus sylvicolor* (NT) occurs.
- Ngovayang where *Gorilla gorilla* (En) occurs.
- Kupé where there is also *Mandrillus leucophaeus* (En), *Pseudopotto martini* (En), *Arctocebus aureus* (NT), *Paraxerus cooperi* (Vu) etc.

In Nigeria, the bird is found in four IBAs.

National Plans should follow the International Action Plan for the Conservation of Grey-necked Picathartes.

Table 1: Population, distribution and seasonal occurrence of Grey-necked Picathartes (Quality code according to the World Bird Database)

	Estimated population (Individuals)	Distribution	Population trend	Seasonal occurrence	Notes
Nigeria	1000 (B)	Currently known from forests of Cross River State only	↓(A) Probably declining due to habitat loss	Resident with proven breeding records	
Cameroon	< 4000 (A)	Localised and fragmented in Southern forest	↓(A) Probably declining as forest is lost	Resident	More and more sites are found
Gabon	< 1000 (B)		Stable (B)	Resident	Majority of sites found in protected areas. Many datas are from occasional observations
Equatorial guinea	< 500 (C)		Stable (C)	Resident	The bird is mostly found in protected areas.
Congo (Brazzaville)	Potential (A few hundreds)	?	?	?	?

Population trend: ↓ Declining, (A) Estimations are quite sure; (B) Estimations based on incomplete information, (C) Poor data

Table 2: National legislation and signatories to international conservation treaties relevant to Grey-necked Picathartes in range states

Country	National legislation	CITES	CBD	UNESCO: Man & Biosphere	Africa convention	World heritage convention
Nigeria		X	X	X	X	X
Cameroon	Protected: hunting and trapping prohibited	X	X	X	X	X
Congo (Brazzaville)		X	X	X	X	X
Gabon		X	X	X	X	X
Equatorial guinea		X	X	X	X	X

2.5 Habitat and nests sites

Picathartes are almost always encountered in primary or secondary forest. In Cameroon, the bird occurs predominantly in coastal lowland rain forest associated with caves, cliffs and overhanging rocks in rugged and inaccessible places.

Caves inhabited by *Picathartes* are open cavities in ferrous rocks. There are large cracks and chimneys in the roof, ramifications and bed rocks in the walls (Brosset). However, in 1999, Matthias Waltert and Michael Mühlenberg found a nest of this species attached to the buttress of a large *Piptadeniatrum* tree, 1,5 m above ground, near a small forest stream.

The birds and their nests are mostly seen in rocky areas below closed-canopy undisturbed rainforest. A prerequisite for nesting seemed to be a rock-face at least 3 m high having an overhang sufficient to provide shelter from falling rain, and sufficient dry surface to permit a nest to be attached (Thompson and Fotso, 1995). The height of nests above ground level varies greatly. Nests are constructed of mud intermixed with rootlets and vegetable fibres, and set into a very hard stone-like structure. There is a considerable variation in nests size but the measurements of a typical nest are 400 mm long, 290 mm wide, and 140 mm thick.

2.6 Biology and Ecology

Picathartes is usually encountered in primary and secondary forest, usually singly or in pairs but occasionally in small groups of three to four birds. Recent studies by Adeyemo and Ayodele (2005) show that the Grey-necked *Picathartes* feed on a wide variety of species of insects, fruits and flower buds, with animal food resources representing a higher composition of the diet. Other forest floor invertebrates and small invertebrates have also been observed in their diet (Fry *et al.* 2000). The bird is exceptionally shy and elusive in areas where it is disturbed or persecuted. *P. oreas* is very active in the earlier morning. It breeds colonially where nests sites are limited (the majority of colonies consisting of two-five nests, but it not a colonial breeder in Mount Cameroon where nests sites are abundant and possibly does not breed in colonies on Bioko (Butynski *et al.*, 1996). Breeding is associated with the wet season, occurring twice a year where rainfall distribution is bimodal. Nesting activities in Cameroon are observed between March and November with a peak between August and November. The majority of nests contain two but occasionally three eggs. In Cameroon, the birds have been recorded between 45-2100 m. The breeding biology of the only other species of the same family and genus has been studied in more detail (Thompson, 2004).

2.7 Threats and potential threats

Grey-necked *Picathartes* is seriously threatened by habitat destruction/clearance (◆◆◆◆) which leads to low availability of nest sites (◆◆◆) and low fertility of eggs (◆◆-◆◆◆) which together with infanticide (◆◆◆) and stress due to disturbance (◆◆◆◆) leads to low breeding success (◆◆◆). Low breeding success is the main biological factor that leads to declining population of the Grey-necked *Picathartes*. The details of the threats in the cause and effect relationship are presented in the Problem Tree (Annex 1). Some nests in Korup are known to have been destroyed by Chimpanzees (*Pan troglodytes*), and Drills (*Papio leucophaeus*) and on Mt Kupe it is caught in spring-traps set for mammals.

Key: ◆◆◆◆ = critical
◆◆◆ = high importance
◆◆ = medium importance
◆ = low importance

2.8 Stakeholder Analysis

Stakeholders impact on the species positively or negatively with varying degrees of intensity. The main stakeholders in the four range states were: government departments/ministries, environmental NGOs, local communities and development agencies. The details of the stakeholders' impact on the species, their activities and the proposed activities to address the impact for each range state are presented in Annex 3.

3 Action Programme

3.1 Vision

Within 10 years to improve the status of Grey-necked Picathartes from Vulnerable to Near Threatened

3.2 Aim

Within five years to stabilise or increase the current populations of Grey-necked Picathartes in key sites

3.3 Objectives

The objectives that contribute towards achieving the above aim and ultimately to the vision are outlined in Table 5 below

Table 3: Objectives

Objective	Indicators
1. The distribution and estimation of population trend Grey-necked Picathartes in known and potential sites determined. ♦♦♦♦	Updated distribution maps and annual population trend reports in each country produced.
2. Stress due to presence of human activity reduced. ♦♦-♦♦♦	At least one Picathartes site designated as a protected area in each range state.
3. Local human capacities to study Grey-necked Picathartes built. ♦♦♦-♦♦♦♦	Research and monitoring teams trained and available in all range states. Stakeholders sensitised and cooperative in conservation of Grey-necked Picathartes.
4. Assessment of human impact on Grey-necked Picathartes. ♦♦-♦♦♦	Socio-economic surveys at sites where the species occurs completed and reports published.
5. Better protection and management of key sites. ♦♦♦♦	Management plans for at least one Picathartes stronghold in each range state developed within five years.

3.4 Projects

Project concepts were developed that will be implemented in order to achieve each of the strategic objectives of the Action Plan. These concepts and the main attendant activities envisaged are given below:

Objective 1: The distribution and estimation of population trend Grey-necked Picathartes in known and potential sites determined ♦♦♦♦

1. Preliminary surveys of known and potential sites to generate baseline data. The following methods shall be used: scientific techniques available such as GIS, aerial photographs, remote sensing, transects, digital mapping. Literature review and interviews will be done.
2. Annual monitoring of sites previously surveyed in order to assess evolution trends.
3. Identification and awareness of potential collaborators active on the ground.

Objective 2: Stress due to presence of human activity reduced ♦♦-♦♦♦

1. Sensitise tourists, researchers and investors on the impact of their activity on the species.
2. Adequately train local guides.
3. Strengthen legislation by restricting entries at sites.
4. Protect better potential and key sites by turning them into protected areas.
 - Document factors reducing the stress as much as possible.

Objective 3: Local human capacities to study Grey-necked Picathartes built ♦♦♦-♦♦♦♦

1.
 - Training on population surveys.
 - Training Workshop.
 - Data collection.
 - Data management.
2.
 - Stakeholder awareness on the importance of Picathartes.
 - Develop environment education programme on Picathartes.
 - Workshop on participatory management (MARP).
 - Media coverage (press – radio, TV, posters).

Objective 4: Assessment of Human impact on Picathartes ♦♦-♦♦♦

Socio-economic surveys at sites where the species occurs through Questionnaires, MARP.

Objective 5: Better protection and management of key sites ♦♦♦♦

- 1: Developing key sites
 - Assess status at sites.
 - Reconnaissance and surveys of key sites.
- 2: Institutional support
 - Training and equipment support.
 - Funding for running.
- 3: Produce a socio-economic development programme at key sites through MARP workshops.

Table 4 summarises the projects under the headings Policy and legislation, Species and habitat, Monitoring and research, Public awareness and training with the countries of priority, overall priority of the project, agencies responsible, time scale and cost estimates.

Table 4: The Projects Table

Project	Country	Over all priority	Responsible agency	Duration	Cost	Indicators	Risks and opportunities
A) Policy and Legislation							
2.3 Law enforcement	All	◆◆◆◆	Government	2003-2007	◆◆-◆◆◆	Gazette modifying existing laws published in each country	State reluctance to promulgate the law
B) Species & Habitat							
5.1 Planning at key sites	All	◆◆◆◆	Governments NGOs, Donors	2003-2007	◆◆◆	Management Plan adopted, published and implemented	
2.4 Protection of potential and key sites by turning them into PAs	All	◆◆◆◆	Government and NGOs	2003-2007	◆◆◆	At least 1 Picathartes site designated as PA in each country	Expansion of the current PAs network
C) Monitoring & Research							
1.1 Preliminary surveys	All	All	NGOs and relevant government bodies	01-06-2003	◆◆◆	Preliminary report published in each country and distribution map produced	Problem of using technologies. Willingness lacking at the community level, political instability
1.2 Annual surveys and monitoring	All	◆◆◆◆	NGOs and relevant government bodies	01-06-2007	◆◆◆	Annual report published in each country. Updated maps	No compliance with funding schedules, lack of willingness at the community level
1.3 Collaboration with other projects	All	◆-◆◆	NGOs and relevant government bodies	2003-2007	◆◆	Picathartes mentioned in other Biodiversity projects	Collaborators not volunteering, ongoing biodiversity projects

D) Public awareness and training							
3.3 Training in monitoring and research		◆◆◆◆	Government research institutions, universities NGOs, Donors	2003-2007	◆◆◆	Research and Monitoring team trained and available	Human resources trained
3.1 Training in Picathartes population surveys	U	◆◆◆	Government NGOs, local communities	2003-2007	◆◆	Stakeholders sensitised and cooperative	Human resources trained
3.2 Stakeholder awareness on the importance of the species	U	◆◆◆	Governments NGOs Local communities	2003-2007	◆◆	Stakeholders sensitised and cooperative	Funding not available, involvement of local communities lacking
5.3.1 Socio-economic study	All	◆◆◆	NGOs and Government		◆◆◆	Reports published	Collaboration with other projects
5.3 2 Produce a socio-economic development programme	„	◆◆	Governments NGOs, local communities	2003-2007	◆◆◆	At least X projects implemented in key sites	No involvement of local communities
5.2 Institutional support	„	◆◆◆◆	Governments NGOs, Donors	2003-2007	◆◆	Institutions equipped and operational	Protection of other species
2.1 Tourists, researchers and economic interest groups sensitised	All	◆◆◆◆	NGOs and Government	2003-2007	◆◆	Report observations	Foreign currency reduced
2.2 Adequately train local guides	All	◆◆◆	Local NGOs and Government	2003-2004	◆◆	At least 1 guide trained per country	Collaboration with other projects

Low (◆), medium (◆◆), high (◆◆◆), critical (◆◆◆◆): ◆ < \$10000 ; ◆◆ \$ 10000 – 50 000 ; ◆◆◆ > \$50 000

4 Monitoring and evaluation

What & Why? A monitoring and evaluation plan is needed to determine whether activities are progressing according to schedule. By obtaining information on the progress made in the implementation of the activities and using this information against the set indicators (Table 4), it will be possible to assess progress of implementation of the plan towards achieving the aim and objectives that were set. Monitoring and evaluating progress on a regular basis means that priorities can be assessed and adjusted when required. This also serves as a basis for keeping everyone informed.

Who? It was agreed that the Monitoring and Evaluation (M & E) plan for the Grey-necked Picathartes at international level will be coordinated by the Species Interest Group with the International Grey-necked Picathartes Action Plan Coordinator taking the lead across all range states. The task involves co-ordinating the monitoring and evaluation, and includes financial reporting when appropriate. National Focal Points will take the lead at national level and are expected to involve other important stakeholders, such as conservation NGOs, Government departments, scientific experts and local community representatives. International Conservation NGO should be involved in the M&E process where appropriate and should be encouraged to implement some of the required projects that lie in their areas of competence.

How & How often? Annually (two to three months before the end of the year), the International Grey-necked Picathartes Action Plan Coordinator will circulate a table for monitoring and evaluating implementation of the Grey-necked Picathartes Action Plan (a derivative of Table 4) with two additional columns, one for completion date and another one for remarks. National Focal Points will provide information on national progress and return the table to the International Co-ordinator before the end of the year. A regional M & E report will be circulated by the International Co-ordinator in the first quarter of the following year.

5 Factors influencing success

In Cameroon, *Picathartes oreas* occurs in 15 of the 35 confirmed IBAs sites and the IBA. Six of them are protected by national law. The IBAs process is now being considered by the Cameroon Ministry of Environment and Forestry as a toolkit for the identification of potential protected areas.

In Nigeria, the Picathartes is generally regarded as being too small to hunt deliberately. The bird is found in four IBAs among which three are protected areas.

According to Thompson and Fotso (2000), the populations of Picathartes occur in what is sometimes highly degraded forest close to the city of Yaounde where the population is more than one million. The implications of this discovery are that the Picathartes have fairly high disturbance thresholds and make more use of non-forested habitat than was previously thought. It has become a flagship species for biodiversity conservation in Cameroon. The CBCS, local partner of BirdLife International uses its picture on its logo. The general factors affecting the success of the action plan implementation are presented in Table 5 and ongoing projects in range states that may benefit the Grey-necked Picathartes are shown in Table 6.

Table 5: Factors affecting the success of Action Plan implementation

	Opportunities	Risks
Scientific		The species may be decimated for scientific or tourism purposes
Species attraction	<ul style="list-style-type: none"> • Ecotourism 	<ul style="list-style-type: none"> • Perturbations due to ecotourism
Biology of species	<ul style="list-style-type: none"> • Easy to observe • Suitable habitat easily identified • Nesting in marginal rocky areas • Food diversified • Discrete species 	<ul style="list-style-type: none"> • Species easily disturbed • Intraspecific competition • Susceptibility to habitat change • Even under optimal conditions the population density remains low
Socio-cultural	<ul style="list-style-type: none"> • Species respected even feared by some ethnic groups of Cameroon • Species not hunted in Nigeria Gabon due to its small size. • Pride for the home range region 	<ul style="list-style-type: none"> • Species poorly known

Table 6: Ongoing projects in range states

Title	Institutions	Working phase	Strengths	Weaknesses
CAMEROON				
Projet Korup	WWF-CPO/UE/GTZ	Ending phase	Strong support	Low Conservation
Campo Ma'an	SNV/ TROPENBOS WWF	Ending phase	Conservation advantages	
Yaoundé Massif Forest Project	C B C S	Starting	Community support	Lack means of transport
Takamanda Forest Project	G T Z W C S			
Coastal Zone Project	WWF WSC, CRES	2 nd phase	Participatory management	
SDDL (Dja)	SNV			
Projet Dja	ECOFACT			
Ngovayang Project	CBCS		Launching imminent	
Mt Kupe	WWF			
GABON				
Biodiversity survey	MEFEPN/DFC WCS WWF	Last phase	Large areas covered Many species recorded	Indirect methods Identification more general

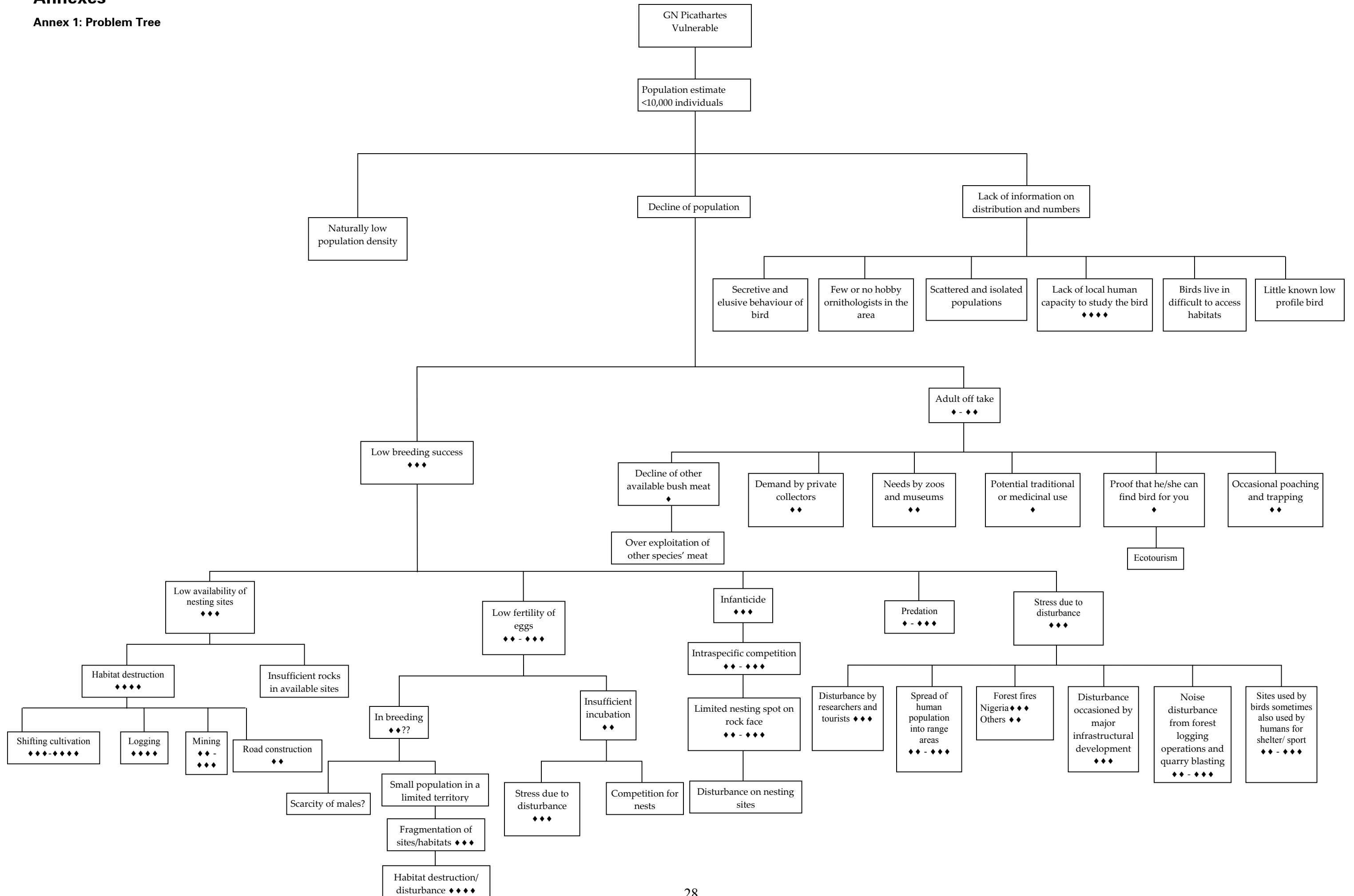
EQUATORIAL GUINEA				
ECOFAC	Ministry of Forest; EU funding, Spanish Cooperation with equatorial Guinea government	Ongoing	Funding Long-term Project Good experience in conservation	Does not cover the whole country
CUREF	Ministry of Forests	Last phase	Surveys, research at critical sites	Short duration
NIGERIA				
Gorilla research Project	NCF-WCS in collaboration with Cross River State Commission	Ongoing with a monitoring team in the field	Trained personnel, devoted to collecting data on Picathartes	Research on Picathartes is not the first priority
Resurvey of ape distribution	NCF-WCS in collaboration with Cross River National Park	Ongoing with a team in the field	Trained personnel, devoted to collecting data on Picathartes	Research on Picathartes is not the first priority

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Annexes

Annex 1: Problem Tree



Annex 2: Local distribution, number and protected area status, number of colonies and nests of Grey-necked Picathartes in range states

Site name		Province	Site (IBA n°)	Protection status	N° of colonies	N° of nests	References
CAMEROON							
Banyang Mbo Wildlife sanctuary	05°25N 09°35E	SW	CM017	Wildlife Sanctuary		>20	
Korup National Park	05°10N 08°52E	SW	CM019	National Park		>30	
Mont Manengouba	05°00N 09°50E	LT /SW	CM021	Unprotected			Dowsett-Lemaire and Dowsett (1999c, 2000a)
Bakossi Mountains	04°58N 09°40E		CM022	Unprotected			Dowsett-Lemaire (2000)
Mount Nlonako	04°51N 10°03E		CM023	Unprotected		>30	Dowsett-Lemaire and Dowsett (1999c, 2000a, 2001a)
Mount Rata and Rumpi Hills forest Reserve	04°51N 09°10E		CM024	Forest reserve			
Mont kupe	04°48N 09°42E		CM025	Unprotected			Bowden (2001)
Yabassi	04°30N 10°25E		CM026	Unprotected			Dowsett-Lemaire and Dowsett (2001a)
Mont Cameroon and Mokoko Onge	04°12N 09°10E		CM027	Unprotected			
Mbam Minkom-Kala	03°51N 11°23E	CE	CM028	Unprotected		>100	Thompson and Fotso (1996)
Dja Faunal Reserve	03°15N 13°00E		CM029	Wildlife Reserve, Biosphere Reserve, World Heritage Site		C.50	Christy 1994
Boumba Bek	02°40N 15°00E		CM030	Unprotected			

Campo Ma'an Complex	02°30N 10°15E		CM031	National park, Unprotected			Languy and Demey 2000
Ngovayang	03°40N 10°80E	South		Unprotected			Fotso
Takamanda	05°59N 09°11E	Southwest		Protected			
EQUATORIAL GUINEA							
Luba Caldera Scientific Reserve	03°21N 08°33E	Bioko Sur	CQ003	Scientific reserve			Butynsky Koster
Rio Campo (Potential Site)		Littoral		National Reserve			Butynsky Koster Christy
Monte Alen National Park	01°30N 10°15E	Centro Sur	CQ004	National Park			ECOFAC Dowsett-Lemaire and Dowsett (1999)
Nsorc Highlands National Park	01°12N 11°08E		CQ005				
Basile Peak National Park (Potential Site)	03°35N 08°45E	Bioko Norte	CQ002	National Park			Butynsky Koster Christy
GABON							
Minkebe Forest Reserve (Potential Site)	01°50S 12°50E	Wolen-Ntem et Ogoué – Ivindo	GA004	Wildlife Reserve	Unknow n	Unkno wn	Patrice Christy Canopée n°21/01
Bengoué (Potential Site)		Moyen Ogoué		Unprotected			
Mt de Cristal (Potential Site)		Estuary		Wildlife Reserve			
Mt Doudou (Potential Site)		Nyanga		Wildlife Reserve			
Massif du Chaillu (Potential Site)		Ngounie Ogoué-Lolo		Unprotected but potential protected area			

Mt Belinga (Potential Site)		Ogoué – Ivindo		Unprotected but potential protected area			
Lopé Faunal Reserve	00°30S 11°35E	Ogoué – Ivindo	GA002	Wildlife Reserve		2 to 3	Christy and Clark
Gamba Protected Area Complex	02°25S 10°00E		GA001				
Mouila Region (Potential site)		Ngounie		Unprotected			Martin de Viviers
NIGERIA							
Afi River Forest Reserve	06°20N 09°00E	Cross River State (CRS)	NG005	Forest Reserve	-	-	Ash 1991
Afi Mountain Wildlife Sanctuary (Potential Site)		CRS		Wildlife Sanctuary			
Cross River National Park - Okwangwo Division	06°17N 09°14E	CRS	NG010	National Park	6 (Mbe)	6 (Mbe)	
Mbe Mountain (Potential Site)		CRS		Unprotected			
Cross River National Park - Oban division	05°25N 08°35E	CRS	NG007	National Park	-		
Obudu Plateau (Potential Site)		CRS	NG001	Unprotected	-		
Bashu Extension (Potential Site)		CRS		National Park			
Ebok-Kabaken	06°17N 08°30E		NG027				

Annex 3: Stakeholders analysis

Stakeholder	Interest (Mission)	Activities	Impact	Intensity	Proposed Activity
CAMEROON					
Ministry of Environment and Forests (MINEF)	Natural resources management for the whole country	-Enact and enforce laws. -Fund conservation and protection projects -Coordinate all activities related to protection and conservation -Create and manage PAs	+	◆◆◆	- Recruit and train personnel - Expand the Protected Areas (PAs) network
NGOs	Conservation and protection of natural resources	- Funding projects - Research - Capacity building	+	◆◆◆	- Coordinate their activities related to the species - Focus more on conservation
Local Communities	Maximum profit from natural resources	- Poaching- itinerant agriculture - Timber cutting	-	◆◆◆◆	Sensitization Improved techniques
Investors	Maximum profit from natural resources	- Trapping, catching - Forest exploitation – Poaching, mining	-	◆◆◆◆	- Law enforcement - Develop FMU (Forest Management Units) - Undertake impact assessment
Other Administrations					
Ministry of Agriculture (MINAGRI)	Increase crop harvest	Vegetation clearing	-	◆◆◆◆	Improve agricultural systems
Ministry of Tourism (MINTOUR)	Valuing tourism	Ecotourism Development	+/-	◆◆◆	Improve ecotourism systems
Ministry of Planning (MINPAT)	Planning	Ensure equilibrium of the territory - Funding	+/-	◆◆◆	Decentralise funding Respect the 30 % quota permanent forested area

NIGERIA					
Government	- Conserving biodiversity and natural resources - Tourism - Income generating (forest concessions)	-Enacting laws - Law enforcement - Giving away concessions - Classification of protected sites	+ + - -	◆◆ ◆◆ ◆◆◆◆ ◆◆◆	- Reviewing laws - Improve equipment, funding and staff training - Strengthening regulations and procedures (EIA) - Discontinuity of reserved spaces
Forest industries	- Timber cutting	- Forest clearing - Opening up access trails -Hunting/agriculture	- - -	◆◆◆◆ ◆◆◆ ◆◆◆	- Improve timber exploitation system Wildlife protection laws enforced within concessions
Universities and researchers	research opportunities -Excursion opportunities	- Presence of research teams - Biodiversity Monitoring and studies	+ +	◆◆	Increase funding opportunities for research
Local communities	- Non timber forest products and animal proteins - Gardens	- Harvesting fruits and hunting - Itinerant agriculture	- -	◆◆◆ ◆◆◆◆	- Provide subsistence alternatives to local communities Adopt family planning methods to regulate human population -introduction of intensive techniques in agriculture - Agrarian reform (Land tenure)
Environmental ONGs	Conservation of Biodiversity and natural resources	- Biodiversity survey and monitoring - Public awareness and sensitisation	+ +	◆◆ ◆	- Funding micro - projects as alternatives - Improve public awareness

EQUATORIAL GUINEA					
Ministry of Forests, Fisheries and	Conservation and protection of biodiversity	Enact and enforce conservation laws	+	◆◆◆	Improve law enforcement by listing Pithacartes as protected species
NGO	Nature protection	Public awareness	+	◆◆	Produce sensitisation programmes de for the protection of the species
Investors	Timber extraction	- Opening up trails	-	◆◆◆◆	Establish a management plan for rationale use of resources in target zones
Local communities	Resource exploitation	- Agriculture - Hunting - Fishing	-	◆◆◆◆	Public awareness on protection of the species
Researchers	Undertake studies on the biology of he species	Scientific observations	+	◆◆◆	Intensify research in target zones
GABON					
Ministry of forests, Fisheries and Nature protection) Office for wildlife and hunting (DFC)	Management of renewable resources	- Conservation	+	◆◆◆	- Updating data
		- PAs management	+	◆◆◆	--Counting colonies - Tourism?
Amis du Pangolin	Species conservation	Awareness	+	◆◆◆	- Conferences and talks - Ecotourism
Forest exploiters	Forest exploitation	- Timber extraction - Road construction	-	◆◆◆◆ ◆◆◆◆	- Impact assessment - Counting nesting sites

Local communities	Use of natural resources	<ul style="list-style-type: none"> - Extensive agriculture - Hunting - Anarchical urbanisation 	<ul style="list-style-type: none"> - - - 	<ul style="list-style-type: none"> ◆◆◆◆ ◆ ◆◆◆◆ 	<ul style="list-style-type: none"> - Intensive agriculture - Develop fishing and farming - Setting plots outside
Oil exploiters and miners	Oil and mineral extraction	<ul style="list-style-type: none"> - Exploration - Forages - Construction of access roads 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> ◆◆ ◆◆◆ ◆◆◆◆ 	<ul style="list-style-type: none"> - Impact assessment -Site counting