

State of Sierra Leone's Birds

A guide for
Policy & Conservation
Action



FOREWORD

Biodiversity conservation has been at the forefront of environmental protection in Sierra Leone and is considered an integral part of the national development agenda. Over the years many projects have focussed on the conservation and management of forests and other key ecosystems, culminating in the establishment of two national parks at Outamba-Kilimi and Gola, many forest reserves of various legal statuses; and now the proposed establishment of marine protected areas. Some of the most critical habitats and their constituent species of flora and fauna are protected under our well thought-out national legislations and traditional bye-laws. It is now a rule of thumb that all development and extractive projects must be preceded by comprehensive environmental and social impact assessments, so that local biodiversity and livelihood issues are holistically addressed.

Our international environmental and biodiversity-related cooperation incorporates the signing and/or ratification of conventions and agreements including *inter alia*, the Convention on Biological Diversity, the Convention on Climate Change and the Ramsar Convention on Wetlands. Therefore, collaboration with international partners has accrued huge benefits that extend beyond these international conventions and agreements. Over the years, the Forestry Division of the Ministry of Agriculture Forestry and Food Security of the Government of Sierra Leone and the Conservation Society of Sierra Leone have collaborated with BirdLife International and the Royal Society for the Protection of Birds (RSPB) to implement some of the most successful and sustainable bird-related conservation programmes in the country. The recent establishment of the Gola Rainforest National Park lends credence to the long-term collaboration with our trusted international partners, particularly the RSPB. These actions, among others, are geared towards ensuring that our natural heritage is conserved for the benefit of current and future generations.

This useful and timely publication – the State of Sierra Leone’s Birds: A Guide for Policy and Conservation Action - excellently captures the issues and demonstrates the importance of biodiversity in general, and birds in particular, to biological resources conservation and the socio-economic and cultural activities of the people of Sierra Leone. In a simple and comprehensible format, the report clearly presents the status of our birds and the realities and challenges that our environment faces, in the midst of the growing population and quest for national development and social prosperity. Of particular relevance to the Environmental Protection Agency (EPA) is the role that birds play as effective biological indicators of environmental health. I am impressed by the authors’ depth of knowledge and expertise in preparing this all-important status report, and convinced that the information contained herein will be of the utmost relevance to decision makers and managers in the field of environmental protection and biodiversity conservation.

Madam Haddijatou Jallow (L.L.B – Environmental Law)

Executive Chairperson

Environmental Protection Agency

Office of the President

Government of Sierra Leone



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PURPOSE OF THIS REPORT

This report aims to draw the attention of conservationists, Protected Area Managers, policy makers, bird enthusiasts and concerned citizens to the state of birds and the general environment in Sierra Leone. This is one of a growing series of national reports, building on the approaches developed by BirdLife International for its global assessment of the State of the World's Birds. The data was obtained mainly from desk studies, supported by a number of recent field surveys and observations, including data from the most recent and updated bird list for Sierra Leone. The report was also heavily informed by a workshop involving national bird experts.

PRESENTATION OF THE REPORT

The content has been designed and presented to cater for the information needs of both experts and non-experts with diverse backgrounds and interests. Scientific concepts have been simplified to ensure that all interest groups can easily comprehend the information provided. Scientific names of species are included only at the first mention; subsequently, English names are used. Abbreviations and acronyms of organisations are given in parentheses the first time they are mentioned in the text. Except for most of the bird pictures, the sources of which have been credited to the relevant authors, all other pictures are by courtesy of the authors of this report. A list of references of publications and reports cited in the text is given at the end of the report.

AUTHORS

Arnold Okoni-Williams (PhD) – Lecturer, Department of Biological Sciences, Fourah Bay College, University of Sierra Leone. PMB Freetown, Sierra Leone. Email: aokoni2001@yahoo.com

Hazell Shokellu Thompson (PhD) – Director, Partnership & Capacity Development, BirdLife International, Wellbrook Court, Girton Road, Cambridge, CB3 0NA, United Kingdom.
Email: Hazell.Thompson@birdlife.org

Sama Sahr Monde (PhD) - Executive Director, Conservation Society of Sierra Leone, 4C Old Railway Line, Tengbeh Town, Freetown. Email: samamonde@yahoo.com

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INTRODUCTION

Birds and their relationship to the environment

Birds are facilitators of ecological processes

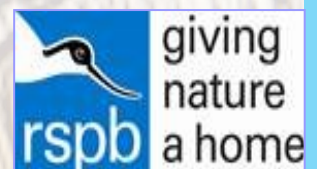
Birds facilitate many ecological processes such as pollination and the dispersal of plant seeds. The seeds of many plants are physiologically primed as they pass through the alimentary canal of birds. Thus, the continued production of flowers and fruits by many plants, depends greatly on birds

Birds are indicators of environmental change

Birds are well known indicators of environmental change, owing to a combination of factors including their ubiquitous nature and the fact that they are often the first well-studied animal taxon to respond visibly to changes in the environment.

Birds form a global conservation currency

Birds are now used in various quarters as important flagships for conservation. National and international conservation organisations like the Conservation Society of Sierra Leone, BirdLife International and the Royal Society for the Protection of Birds (RSPB) use birds as a global currency to garner local and international support for birds and habitat conservation. BirdLife International, is a global partnership of national conservation organisations represented in more than 120 countries on all continents



Bird diversity correlates with wider biodiversity

Substantial empirical evidence shows that the diversity and distribution of birds correlates with those of other taxa, and especially of other vertebrates. In the absence of adequate resources, to monitor all biodiversity, birds are a useful surrogate to provide information about the status of many ecosystems



INTRODUCTION

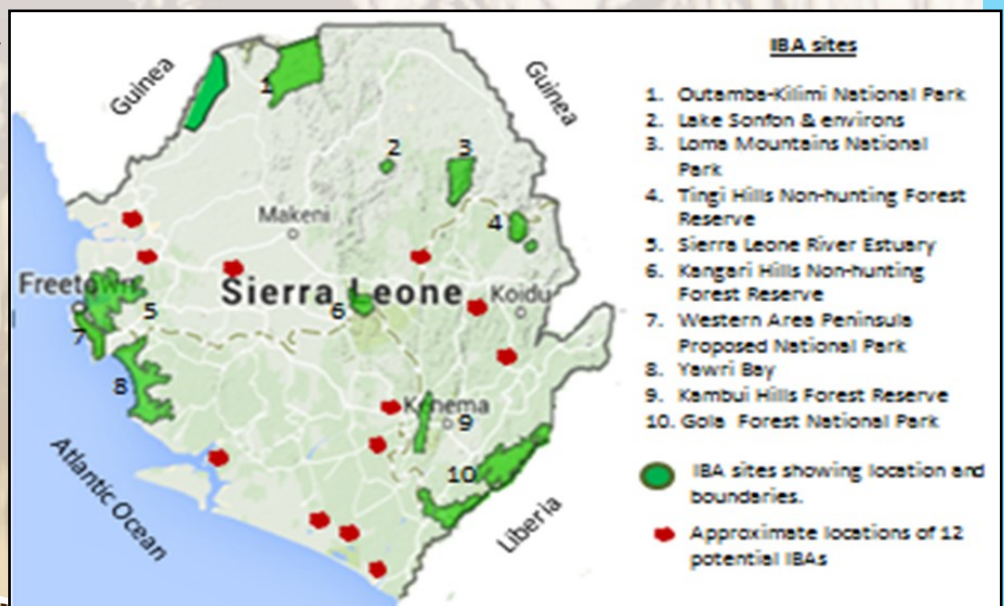
Historic and current trends - birds are central to monitoring Sierra Leone's biodiversity

The genesis of bird study in Sierra Leone is difficult to catalogue, but pioneering bird surveys were initiated by G.D. Field in the early 1970s, when he published a number of reports on the bird diversity of some key sites (Field, 1974; Field, 1979). However, the first comprehensive bird list for Sierra Leone was published by Dowsett and Dowsett-Lemaire (1993) combining data from several decades of field studies and surveys. Further surveys were conducted in the early 1990s by Sierra Leoneans, supported by personnel from the RSPB and BirdLife International at several sites (Atkinson et al., 1992; Allport et al., 1992; Ausden and Wood, 1993). These studies led to the development and implementation of the most important bird and habitat inventory programme the country has experienced - the Important Bird Area (IBA) programme - coordinated by the Conservation Society of Sierra Leone and the Forestry Division of the Ministry of Agriculture Forestry and Food Security (MAFFS). Sierra Leone's IBAs were documented in a book chapter in the regional compendium, *Important Bird Areas in Africa* (Fishpool et al, 2001) and in a national IBA book (Okoni-Williams et al., 2005). The IBA process has fed into a number of conservation programmes and projects, including, but not limited to the following:

- ✦ **Key Biodiversity Areas of Sierra Leone** - coordinated by Conservation International
- ✦ **National Biodiversity Strategy and Action Plan** – Forestry Division (MAFFS) and EPA
- ✦ **Gola Forest Conservation Concession Programme** – RSPB, CSSL & Forestry Division
- ✦ **Sierra Leone Biodiversity Conservation Project** – World Bank & Forestry Division.

Species level research was pioneered by H.S. Thompson, whose PhD research on White-necked Picathartes *Picathartes gymnocephalus* (Thompson, 1997; 2004), highlighted the importance of species-specific research to the conservation of critical species and their habitats. Unfortunately, little species-based research has been done by Sierra Leoneans since, but extensive surveys have been carried out in the Gola forest covering the status and distribution of some threatened forest restricted species including Gola Malimbe *Malimbus balmanni*, White-breasted Guinea fowl *Agelastes meleagrides* and White-necked Picathartes (see Klop et al., 2008). These assessments have yielded new data and better understanding of the conservation status and distribution of these and many other threatened bird species.

Map of Sierra Leone showing the location of IBA sites. These sites are flagships for biodiversity conservation in the country. Some of the potential IBAs (red spots) have been surveyed and the data will be included in subsequent editions of the IBA book

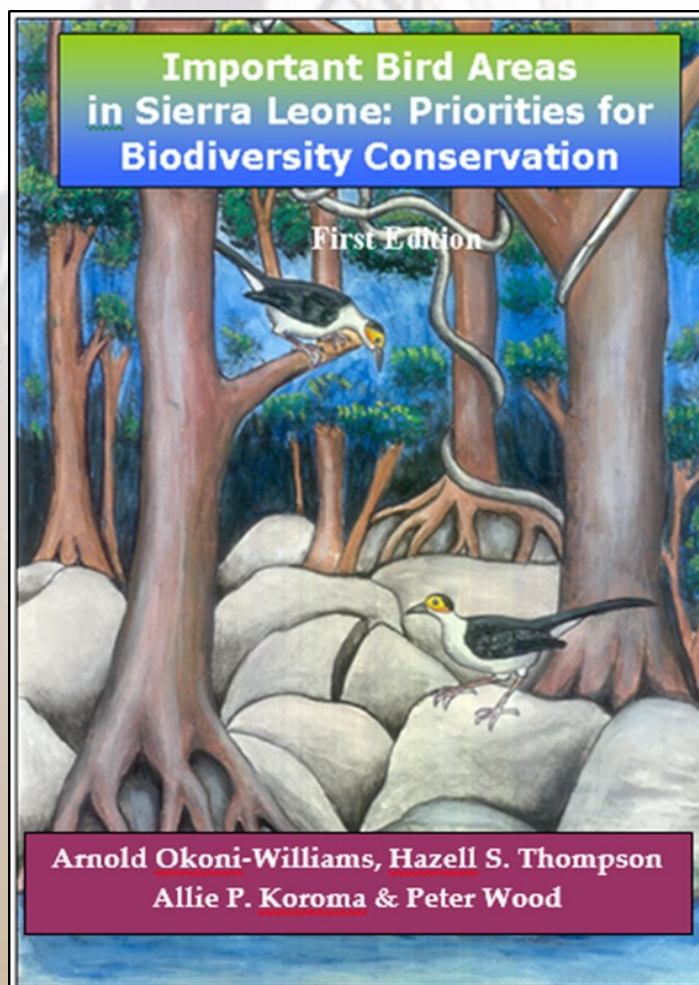


STATE

Using birds to identify key biodiversity sites and set conservation priorities

From all indications, the IBA Programme is the most important bird survey programme undertaken in Sierra Leone in recent times. It did not only revolutionize national thinking about birds and their habitats, but also raised the profile of birds and bird-related conservation issues in the country. The IBA programme started in 1992 with initial assessments and desk studies that identified 23 potential IBA sites, incorporating all major ecosystems in the country. The initial field surveys were conducted between 1992 and 1995, which together with various published reports, culminated in the identification of 10 IBAs of international significance. Of these 10 IBAs, six are either forest reserves or in forested habitats, two are coastal wetlands/mangroves, one inland wetland and one savanna woodland. Beyond this, 13 sites of national importance were documented, including four forests, four inland wetlands, three wood/grassland savanna, and two coastal wetlands/mangroves. Forests, indeed constitute the most important ecosystem for biodiversity conservation in the country, followed by wetlands, in terms of habitat representation in IBAs.

The identification of IBAs was a first step in documenting sites of high biodiversity value in the country. Sites were assessed for IBA status based on internationally justified criteria which were robust, comprehensible and easily applied to data on occurrence and abundance of bird species in different areas (Fishpool, 1997). A second stage involved setting priorities for action at the IBAs, wherein other biological characteristics such as mammalian diversity and threat levels were taken into consideration. The prioritisation was an equally technically robust, and highly participatory process that involved stakeholders from national government, the University of Sierra Leone, NGOs and other civil society groups. The process resulted in the prioritisation of sites into various categories (Okoni-Williams et al., 2005) that have been widely used in targeting conservation projects and programmes to areas where the greatest impacts could be achieved.



STATE

An overview of bird diversity in relation to habitats in Sierra Leone

Sierra Leone is now known to have 632 regularly occurring bird species - 489 resident and 143 migratory species. Additionally, some 10 species are considered vagrants, giving a total record of 642 species. The vast majority of the resident species are ubiquitous (see figure), but there are many other species with various levels of rarity ranging from species with very restricted habitat requirements to widespread but low population density ones. Of the resident species, 307 show proof of breeding, of which 174 species are restricted to the Guinea-Congo forest biome (GC biome) and 28 species are restricted to the Sudan-Guinea savanna biome (SG biome). Based on International Union for the Conservation of Nature (IUCN, 2000) and BirdLife International (2014) threatened species categorisations, the country holds 27 species of global conservation concern, a large proportion of which are found in forest ecosystems (Table 1). Five of these species are new uplisted whilst two are uplisted; only Turatis Boubou *Laniarus turatis* was down-listed from near-threatened to least concern.

Fourteen of the resident species are restricted to the Upper Guinea Forest Endemic Bird Area (EBA 084), which defines a biogeographic range of equal to or less than 50,000 km² (Stattersfield et al., 1998). A number of recent surveys have confirmed that species such as the American Golden Plover *Pluvialis dominica* and Ovampo Sparrow-Hawk *Accipiter ovampensis*, which were thought to be vagrants, are actually regular visitors. Other *ad hoc* surveys have observed large flocks of Hartlaub's Duck *Pteronetta hartlaubii* along the southern ends of the Moa River and a wide distribution of Emerald Starlings *Lamprotornis iris* across the north to northeast of the country. New listings for Sierra Leone since 1992, includes Damara Tern *Sterna balaenarum* (NT), Blue-moustached Bee-eater *Merops mentalis* (NT), Northern Shoveler *Anas clypeata*, Greater Flamingo *Phoenicopterus roseus* and Rose-ringed Parakeet *Psittacula krameri*.

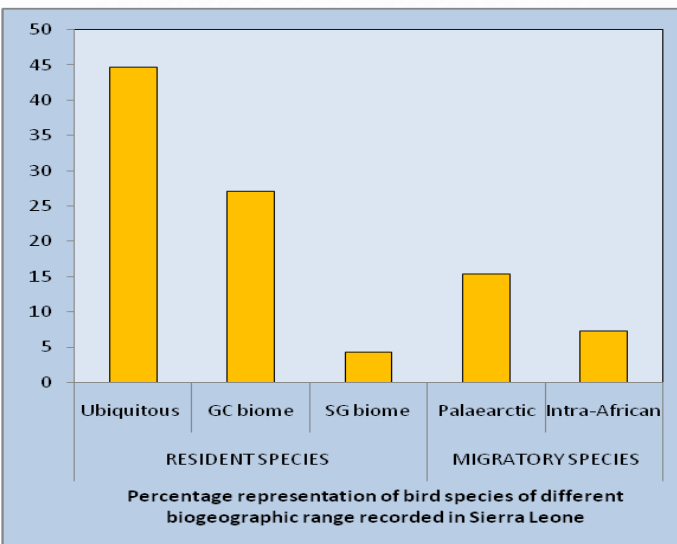


Table 1. List of species of global conservation concern, their IUCN/BirdLife International status and review.

English and Scientific names	IUCN/BL Status	Review	Main habitat
Lesser Flamingo <i>Phoenicopterus minor</i>	NT	No	Wetland
Bateleur <i>Terathopius ecaudatus</i>	NT	New uplisted	Savanna
Hooded Vulture <i>Neophron monachus</i>	EN	New uplisted	Open
Crowned Eagle <i>Stephanoaetus coronatus</i>	NT	New uplisted	Forest
Martial Eagle <i>Polemaetus bellicosus</i>	NT	New uplisted	Savanna
Pallid Harrier <i>Circus macrourus</i>	NT	No	Open
Lesser Kestrel <i>Falco naumanni</i>	VU	No	Open
White-breasted Guineafowl <i>Agelastes meleagrides</i>	VU	No	Forest
Great Snipe <i>Gallinago media</i>	NT	No	Wetland
Damara Tern <i>Sterna balaenarum</i>	NT	No	Wetland
Rufous Fishing Owl <i>Scotopelia ussheri</i>	EN	No	Forest
Blue-moustached Bee-eater <i>Merops mentalis</i>	NT	New uplisted	Forest
Brown-cheeked Hornbill <i>Ceratogymna cylindricus</i>	VU	Uplisted	Forest
Yellow-casqued Hornbill <i>Ceratogymna elata</i>	VU	Uplisted	Forest
Yellow-footed Honeyguide <i>Meligonomon eisenrauti</i>	DD	No	Forest
Western Wattled Cuckoo-shrike <i>Campephaga lobata</i>	VU	No	Forest
Green-tailed Bristlebill <i>Bleda eximia</i>	VU	No	Forest
Baumann's Greenbul <i>Phyllastrephus baumannii</i>	DD	No	Forest
Yellow-bearded Greenbul <i>Criniger olivaceus</i>	VU	No	Forest
Lagden's Bush-shrike <i>Malacothotus lagdeni</i>	NT	No	Forest
Rufous-winged Illadopsis <i>Illadopsis rufescens</i>	NT	No	Forest
White-necked Picathartes <i>Picathartes gymnocephalus</i>	VU	No	Forest
Sierra Leone Prinia <i>Prinia leontica</i>	VU	No	Forest
Black-capped Rufous Warbler <i>Bathmocercus cerviniventris</i>	NT	No	Forest
Nimba Flycatcher <i>Melaneris ayanamarulae</i>	VU	No	Forest
Gola Malimbe <i>Malimbus ballmanni</i>	EN	No	Forest
Copper-tailed Glossy Starling <i>Lamprotornis cupreocauda</i>	NT	No	Forest
Emerald Starling <i>Lamprotornis iris</i>	DD	No	Savanna
Total - 28; Endangered (EN) - 3; Vulnerable (VU) - 10; Near-threatened (NT) - 12; Data Deficient (DD) - 3			

STATE

Birds have a close socio-cultural relationship to local people



For centuries, birds have been at the heart of many customs and traditions of the different ethnic groups in Sierra Leone. They have been used as cultural symbols, food and even in traditional folk medicine. White-necked Picathartes breeding sites, for example, were recognised as sacred because some indigenous tribes in the south-east considered these birds as embodiments of ancestral spirits (Thompson, 1997). The local names of some birds depict the demographic characteristic of some ethnic groups, popularly exemplified by the local name for Red-billed Firefinch *Lagonosticta senegalensis* - "kamara bɔd" - where the name indicates one of the most common surnames (Kamara) among most of the ethnic groups in the country.

The call of the Senegal Coucal *Centropus senegalensis* - "time bɔd" - is thought to signal particular times of the day and this was traditionally used by local people in the south, to manage their daily work schedule. The call of some birds such as the Naked-faced Barbet *Gymnobucco calvus* and the Emerald Cuckoo *Chrysococcyx cupreus* indicate the imminent arrival of a stranger in a village. Ceremonies among the Creoles in honour of dead relatives are thought to be accepted by the spirit of the dead if the vicinity was visited by Hooded Vultures *Neophron monachus* and the food prepared during the ceremony was eaten by the birds. These are probably some of the most recognised human socio-cultural attachment to birds, which unfortunately are on the decline, especially in and around urban settings, in the face of the growing use of modern technology and the influence of western lifestyles.

Hooded vultures perched on a palm tree, attracted by food being prepared at a location where a family was performing traditional rites in honour of a dead relative.



STATE

Birds have vital socio-economic importance to the country and local people

Birds play vital roles in the socio-economic life of people in Sierra Leone, even though some of the uses made of them have been detrimental to biodiversity. In the past, when there was less consciousness and awareness of the negative effect of the activity, the bird trade was among the most lucrative wildlife-related enterprises in the country. The targeted species were diverse, but parrots (especially the Grey Parrot *Psittacus erithacus*), hornbills and estrildid finches were among the most sought-after species. As a consequence of the efforts of relevant government departments, increased general awareness and the quest to implement the CITES convention, the wild bird trade has now declined considerably. Trapping and killing of birds for food is still a regular occurrence in some rural communities, especially in places where meat protein from other sources is limited. In addition, common birds that are pests to agriculture (including weavers, queleas and some estrildid finches) have been targeted for ages, with the aim of reducing loss to crop production.

Currently, beneficial socio-economic relations between man and birds in Sierra Leone are focused on ecotourism. Private freelance tour-guiding is a growing viable business among young birders. Scores of bird enthusiasts, researchers and nature lovers from different countries, particularly the United Kingdom, South Africa and United States, are visiting the country each year, to see particular species including White-necked Picathartes, Dybowski Twinspots *Euschistospiza dybowski*, Sierra Leone Prinia *Schistolais leontica*, Emerald Starlings *Lamprolornis iris* and Gola Malimbe, to name a few. Visits to the Western Area Peninsular Forest (WAPF), Outamba-Kilimi and Gola forest national parks are among the most popular itineraries. These ventures have brought substantial income into the local economy over the last five years and have improved the lives of a number of young birders and tour guides. However, there is need for more investments into ecotourism, especially with regards to hotel accommodation and accessibility to more remote areas. There must be further improvements in our road networks and tourism facilities upgraded, if local people are to accrue much benefit from ecotourism.



Gola Malimbe *Malimbus ballmanni*
(Nik Borrow)



White-necked Picathartes
Picathartes gymnocephalus (www.arkive.org)

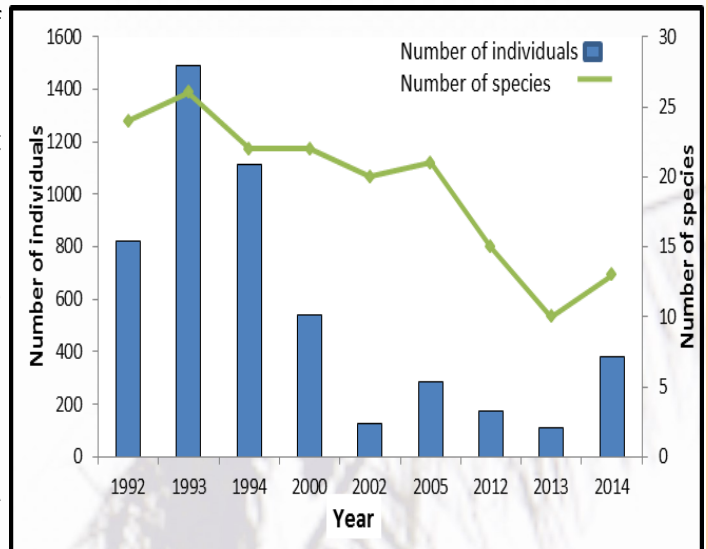
Yellow-casqued Hornbill
Ceratogymna elata
(www.arkive.org)



STATE

Research and monitoring are relevant to conservation planning and action

Sierra Leone has had its fair share of ornithological research and monitoring, the outcomes of which have contributed to knowledge on species and habitat conservation needs in the country. Bird research and monitoring has over the years been the domain of the Conservation Society of Sierra Leone (CSSL) and the University of Sierra Leone (USL). Regular monitoring of waterbirds was supported by Wetlands International, whilst the RSPB and BirdLife International supported research and surveys of key biodiversity sites that led to the publication of the African IBA chapter and book for Sierra Leone. However, whereas official and *ad hoc* surveys and monitoring activities are ongoing, species-focused research has declined, probably because of inadequate funding and lack of interest from university students. Most science students are now opting for geology, engineering, medicine and banking, because of the perceived lucrative nature of these carriers.



Trends in waterbird numbers at Aberdeen Creek since 1992. The decline in bird species and numbers has been associated with habitat degradation resulting from mangrove depletion, land reclamation and housing construction in and around the creek.

Bottom

University students discussing conservation issues on a research trip to Western Peninsula Forest reserve.

Research funding for ornithology and biodiversity studies at the universities in Sierra Leone is very limited. With the exception of CSSL, very little attention is paid by environmental Non-governmental Organisation (NGO) to birds and bird-oriented studies and conservation work. Based on anecdotal observations over time, the number of people involved in bird research and monitoring has increased



slightly over the last two decades; however, it is still limited to a few university scientists, NGO staff and freelance bird tour-guides. Thus, the need to encourage young scientists and ordinary people to become involved in bird conservation programmes cannot be overemphasised. Running nature clubs in schools has a proven history of being an effective tool to stimulating interest in young people, so revamping and re-invigorating the concept (e.g. through the Wildlife Club of Africa Project coordinated by BirdLife International) could be one of the ways forward.



PRESSURES

Deforestation for agriculture destroys biodiversity

The Intergovernmental Panel on Climate Change (IPCC) has identified slash and burn agriculture as one of the biggest threats to global biodiversity, which is fuelling climate change in tropical developing countries including Sierra Leone. Much of the changes in vegetation in Sierra Leone over the last one hundred years have resulted from the traditional slash and burn agriculture, which has depleted the country's forest ecosystems to less than 5% of its 1900 cover. Once widely distributed closed canopy forest is now confined to relatively small somewhat isolated patches found within reserve boundaries, mainly in the northeast to southeast sector of the country, due to the widespread nature of slash and burn agriculture.



Top

Aftermath of slash & burn agriculture. Note the fuel wood stocked in the background.

Right

A wide expanse of degradation resulting from agriculture, threatening riparian ecology on which some bird species depend

The resulting distribution of the country's avifauna is such that most of the forest-dependent birds are now confined to forest refugia, the extent of which are limited by non-forest types dominated by farms, scrub or fallow vegetation at various stages of regrowth. The long-term consequences of such habitat limitations include impaired species dispersal capacity and restricted gene flow, which are tools for evolution and speciation. In addition, the degree of vegetation recovery and re-colonization by forest birds is being hampered by declining fallow periods and further encroachment into forest reserve areas, precipitated by the growing rural human population and increasing cost of living challenges. Thus, avifaunal diversity and distribution in the country is assumed to be greatly influenced by traditional slash-and-burn agriculture.

A recent development in the agriculture sector is the establishment of crop monocultures geared towards the production of biofuels. A vast area of *boliland* (seasonally flooded grassland) visited by both trans-African and Palearctic migrants in the north central part of Sierra Leone is now cultivated with sugarcane for the production of ethanol, whilst an equally large forest habitat component in the south is being cultivated with oil palm. The initial and potential impacts on birds are enormous and long-lasting, considering that these projects have the potential to expand, with the growing global demand for biofuels. These biofuel monocultures are owned by influential multilateral companies in rich industrialized countries.



PRESSURES

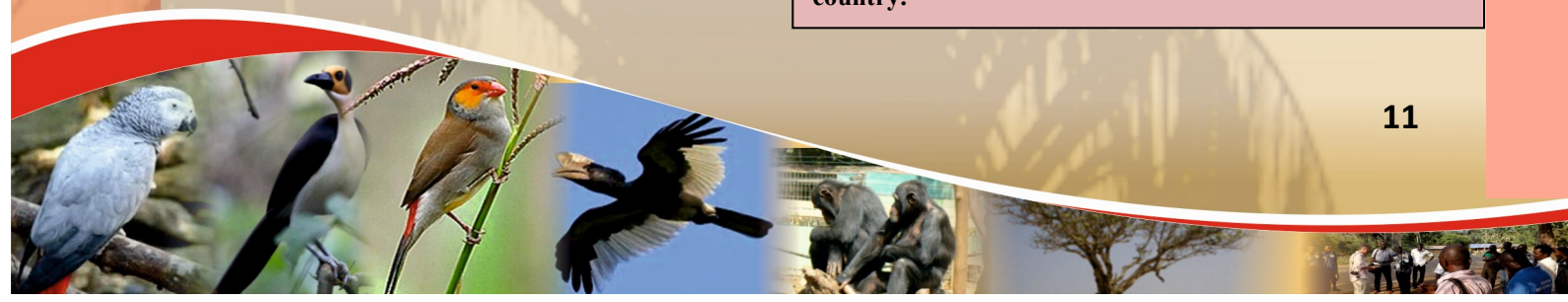
Wood fuel extraction and logging degrade vital habitats for birds

Wood fuel is the most common domestic fuel source in Sierra Leone, and is thought to constitute up to 95% of domestic fuel needs. Wood fuel is obtained through two main mechanisms - wood cutting and charcoal production. Much of the wood that is produced comes from bush fallows that are slashed and burnt when farmers prepare their plots for cultivation. The rate of charcoal production has increased due to the introduction of the power-saw into the initial process of preparation of the wood in response to growing demand. A decade ago it could take a whole month to cut down a tree into pieces suitable for charcoal production, but now the whole process of wood preparation takes only a couple of days. Because many tree species are good fuel woods, the rate of degradation is high, depleting vital ecological resources required for breeding, foraging and roosting activities of birds and other fauna. Some habitat generalists, such as the Common Greenbul *Pycnonotus babatus*, Grey-backed Cameroptera *Cameroptera brachyura*, Tawny-flanked Prinia *Prinia subflava* and many cisticolas, have benefited from these activities, but forest dependent greenbuls, turacos, malimbos and others have also been seriously affected.

Logging in Sierra Leone may be selective, but is often indiscriminate as well, creating openings in the tree canopy and exposing critical habitats to natural forces such as direct sunlight, heavy rainfall, strong winds and invasion by alien plants and animals. Logging and fuel wood extraction in mangrove areas is reducing viable roosting habitats for birds at wetland IBAs along the country's coast, including the Aberdeen Creek and many other mangrove habitats. The selective logging of tree species like *Pterocarpus mildbraedii* and *Lophira lanceolata* (hardwood species, exploited mainly for export), is devastating the woodland savanna ecology of areas in the northeast and around the boundaries of the Kilimi sections of the Outamba-Kilimi National Park, which are strongholds of the data deficient Emerald Starlings.



Woodfuel extraction (top) and logging (bottom) are main causes of habitat destruction and degradation in the country.



PRESSURES

Urbanisation/settlement expansion degrades and destroys viable ecosystems



In the last two decades, urbanisation and settlement expansion has seriously degraded riverine and coastal ecosystems particularly around Freetown, the capital city, where about one-fourth of the country's population lives. The situation is associated with population growth and urban sprawl, aggravated by the impacts of civil war (which ended in 2002), rural to urban migration, and more recently, high income investments. Unplanned and makeshift housing developments and illegal settlements (many constructed on reclaimed land) now inundates previously forested hillsides around Freetown and the shores and river banks, along bays and creeks. The construction of new highways around the Freetown peninsula

forest has aggravated the problem of land grabbing and encroachment into the core forest areas, necessitated by recent expansion of new settlements within the neighbourhood of the capital city.

Shorelines are clogged with sediments from construction-related and refuse dumping activities causing lasting ecological damage to these aquatic ecosystems, including reduction in prey items and destruction of breeding and spawning grounds for waterbirds. The consequences include a decline in waterbirds, particularly terns and gulls, which are previously regular visitors to the creeks and bays around the western peninsula. In fact, gulls have hardly been recorded in these areas over the last

decade and wader populations have generally dropped considerably.



Top

Deforestation of hill slopes of the Western Area Peninsula forest resulting from urbanisation threatens water supply system in of Freetown.

Bottom

Degradation of once viable coastline resulting from sedimentation and unbridled housing development.



PRESSURES

Indiscriminate mining is a menace to biodiversity

Mining is increasingly becoming the most important current and future threat to Sierra Leone's biodiversity in general and birds in particular. Iron ore and gold mining threaten some of the most important forest reserves, including Gola Forest National Park, Kangari Hills forest reserves (both IBAs) and Nimini forest reserve (a proposed IBA), which are now known to hold commercially viable quantities of iron ore and gold, respectively. The Gola forest is protected by virtue of the conservation concession programme, preceding its national park status, negotiated through support from the RSPB. However, constant vigilance, monitoring, collaborative management and strong political will towards conservation, is required to maintain its status.

At Kangari Hills forest reserve, there is serious pressure from investors who have proposed the purchase of almost half of the forest estate for gold mining. Artisanal gold mining is widespread and is affecting massive areas of the river network in the country. In a recent survey in a proposed gold mining concession area at Nimini Hills Forest Reserve, no kingfishers and riparian-dependent birds were recorded because the entire river and tributary system in the area under concession was completely inundated by sediments resulting from the artisanal mining.

Artisanal zircon mining at Kargboro Creek is modifying the coastal ecology at the southern end of the Yawri Bay to the extent that some of the popular roosting tidal sandbanks for such species as Greater Flamingo *Phoenicopterus roseus*, Lesser Flamingo *Phoenicopterus minor* (NT), Great White Pelican *Pelecanus onocrotalus* and many species of terns and gulls, including the Damara Tern (NT), are disappearing. Similarly, iron ore mining poses a serious threat to birds and their habitats, both by forest clearing for mining or the dumping of mine tailings into viable habitats including seasonally flooded areas and savanna woodlands. At Feremgbaia hills, in north-eastern Sierra Leone, where one of Africa's largest iron ore mines is located, mining is destroying large expanse of habitats that hold Emerald Starlings *iris* (DD), Black-headed Rufous Warbler *Bathmocercus cerviniventris* (NT), Copper-tailed Glossy Starlings *Lamprotornis cupreocauda* (NT) and Rufous-winged Illadopsis *Illadopsis rufescens* (NT).

The resulting changes in bird diversity that will accompany the changing landscape due to mining activities in the country could be disastrous.



Top

Artisanal mining along a river bank at Kangari Hills forest reserve. Murky waters downstream resulting from mining sediments at Ferembaia Hills.

Left

Clearing of large areas of forest and woodland habitats for iron ore mining at Feremgbaia Hills.

PRESSURES

Climate change is a key threat to our birds, but requires better understanding



There is now clear evidence that climate change is affecting and will continue to affect birds and biodiversity. Many species in sub-Saharan Africa are projected to experience shifts in the distribution of suitable climate for them, such that the average overlap between current and projected distribution of birds at the end of the century is 56% (but only 32% for species of conservation concern that have been identified in IBAs) (BirdLife International, 2014). These shifts will cause turnover of species occurring at IBAs. The turnover of species of conservation concern is projected to average 35-45% at each IBA by the end of the century (BirdLife International, 2014). However, the IBA network as a whole will still be critically important for conserving these species; 88–92% of species of conservation concern will retain suitable climate in at least one of the IBA in which they are currently found, and only 7–8 species will lose representation from the entire network of IBAs. In Sierra Leone, based on a report produced for the National Adaptation Programme of Action (Karim and Okoni-Williams, 2005) climate change has the

potential to distort a range of ecosystem processes and may result in permanent changes to bird diversity and bird habitats in future, consistent with observations by Simmons et al, (2004).

Locally, species that are restricted to the small tracts of montane and sub-montane ecosystems at Loma Mountain and Tingi Hills and in the lowland moist closed forest at Gola, may particularly be vulnerable to climate change. Species that could be affected include Sierra Leone Prinia, Rufous-naped Lark *Mirafra africana*, Gola Malimbe and Nimba Flycatcher *Melaenornis annamarulae* among others. Also, long dry spells with intense solar heat and changes in periodicity of annual precipitation have the potential to disrupt the synchrony between the phases of flowering and invertebrate boom, and the breeding and nesting activities of some birds. Sandy beaches along the Freetown peninsula are now seriously threatened by climate change (aggravated by mining and refuse dumping) as these habitats are now clogged by a rising trend of sea weeds, rendering these areas ecologically redundant for both avifauna and human survival. Further in-country research is required to ascertain the full extent and impacts of such phenomena.

The pictures at the top depict some of the consequences of the climate change on the coastal environment. The tree where some egret species used to nest (top) fell within a year of the first visit (bottom), due to sea level rise along the coast

Right: The beautiful sand flats of the Lumley beach, Freetown being clogged by sea weeds suspected to be a primary cause of climate change.



PRESSURES

The wild-bird trade is still a potent cross-border threat to our local birds

The populations of some bird species in Sierra Leone were significantly affected by the wild bird trade in the past, especially from the 1960s to the 1980s. Birds that were traded include a diverse range of species, such as estrildid finches, hornbills, parrots, orioles, malimbos, helmet shrikes and starlings. However, the implementation of the CITES convention and the Wildlife Conservation Act of 1972 have drastically reduced the wild-bird trade since the early 1990s and it is no longer a significant threat to local avifauna. The capture, trade and use of birds as domestic pets has also declined significantly over the years. This may have resulted from increased awareness among young people on wildlife conservation and legislation issues, which may be unconnected with the impact of nature clubs in schools and communities across the country. Another possible reason could be the shift in the general hobbies of young people towards increasing use of modern technology and social media and thus much less attention paid to keeping home pets.

The wild bird trade is, however, still very active in the neighbouring Republic of Guinea, affecting birds of various taxa and conservation statuses. This may fuel cross-border activities and threaten local avifauna in Sierra Leone, especially in the north and west of the country. A recent discovery at the Lumley beach area, which is frequently visited by foreign tourists revealed two caged Grey Parrots being prepared for illegal export across the border. Also, recent anecdotal evidence from Guinea suggests that offers of up to \$3000 are being made for bird species such as the vulnerable Shoebill *Balaeniceps rex*, which is endemic to East Africa. This is an indication of the potential danger posed by intra-continental wild bird trade to local avifauna.



Grey Parrots *Psittacus erithacus*
(www.arkive.org)



Orange-cheeked Waxbill *Estrilda melpoda*
(www.arkive.org)



RESPONSES/INTERVENTIONS

Legislation in relation to birds and habitat conservation in Sierra Leone

Legislation to protect biodiversity in Sierra Leone was initiated as far back as the 1900s, with the establishment of forest reserves and other protected areas, but a specific focus on wildlife conservation only came into being in 1973, when the Wildlife Conservation Act of 1972 was enacted. The Act makes provision for the establishment of different categories of protected areas, including strict nature reserves, national parks, game sanctuaries and forest reserves, where majority of species of global conservation interest occur. It also provides special protection of birds under the category “Prohibited Animals”, which according to the Act “provides absolute protection of animals from any form of exploitation for certain species including White-breasted Guineafowl, White-necked Picathartes, White Stork *Ciconia ciconia* and birds used in the plumage trade...”, including parrots, lovebirds and estrildid finches.

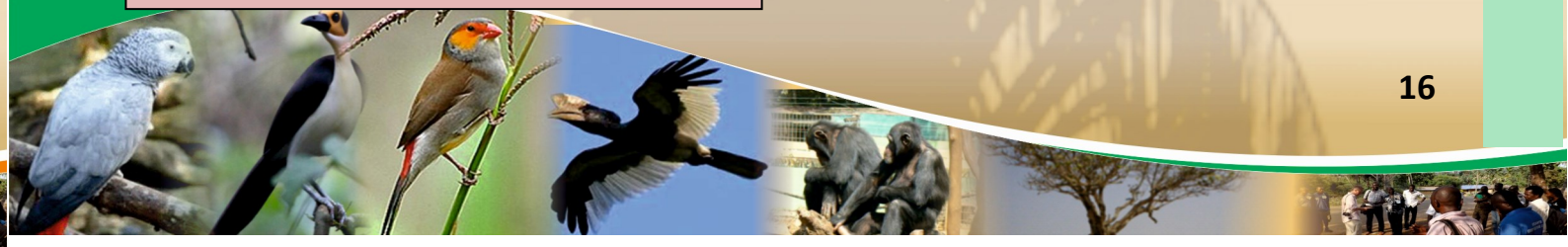
The Forestry Act of 1988 further strengthened earlier legislation, especially on the use and management of forest resources. The Act emphasized community forestry as a mechanism to enhance sustainable forest resource exploitation. The emphasis on forest conservation had positive

implications for bird conservation because of the strong correlation between forest bird diversity and forest cover. In some cases cultural practices have resulted in preservation of forest habitat, where species of special conservation interest occur. For instance, in the Gola Forest area, a significant proportion of the breeding sites of White-necked Picathartes are found in community forests (Wotton & Morris, 2007), which are protected mainly because of their cultural attachment to forests. However, it is difficult to determine how community participation in forest management has contributed to bird conservation in areas where parallel official conservation programmes are lacking.

The 1972 Wildlife Conservation Act and the 1988 Forestry Act strongly shaped the landscape of bird conservation in Sierra Leone. The protected area network in the country has been expanded and strengthened particularly with the recent gazettement of Gola, Loma and WAPF national parks. The network together holds the largest diversity of resident birds in the country, including threatened, data deficient and near-threatened species, Upper Guinea endemics, Guinea-Congo forest biome species and Sudan-Guinea savanna biome species. Both the 1972 Wildlife Conservation Act and the 1988 Forestry Act are now under review in the face of current national and global realities, whilst the first national wetlands conservation act is being formulated.



Outcomes of actions backed by legislation at WAPF: Western Chimpanzees at the rehabilitation centre (top); and *in situ* conservation action for White-necked Picathartes funded by Walt Disney Conservation Trust.



RESPONSES/INTERVENTIONS

International conventions and agreements need to be incorporated into national laws and action plans

Sierra Leone has shown its commitment to international biodiversity conservation by signing and ratifying a number of international conventions that relate to biodiversity conservation. These include the Convention on Biological Diversity (CBD) in 1994, the Convention on Climate Change in 1995, the Convention on Desertification in 1997 and the Ramsar Convention on Wetlands in 1999. The implementation of the tenets of these conventions has in one way or another had positive impacts on birds. As one of the many benefits of signing the CBD, Sierra Leone was included among one of the ten African countries that implemented the BirdLife International IBA project titled *NGO-Government Partnerships for Sustainable Biodiversity Action*, funded by the Global Environment Facility (GEF) (1999-2002), during which, the key focus was the development of national capacity to conserve birds and their habitats. A key long-term indirect outcome of the project was the constitution of the Gola Forest National Park by the Government of Sierra Leone, with strong support from the RSPB (BirdLife Partner in the UK) and CSSL (BirdLife Partner in Sierra Leone). Gola is the largest patch of moist closed-canopy lowland forest in the country which holds the highest number of threatened forest-dependent and Upper Guinea forest endemic birds in the country.



A regularly monitored roosting site for pelicans and a diversity of terns and gulls at Kargboro Creek, Yawri Bay, a proposed marine protected area. The continued viability of the mangrove and sand/mud flats for bird congregations, is a strong reason for designation of the Yawri Bay as a Ramsar site .

Waterbird conservation is being addressed within the context of implementing the obligations of the Ramsar Convention, resulting in the designation of the Sierra Leone River Estuary (incorporating the Aberdeen Creek) as a Ramsar site in the year 2000; this site is one of the major flyways for Palaearctic migratory species in Sierra Leone. Sufficient data and reasons for the Yawri Bay to be designated a Ramsar site, have been advanced to the authorities, but the process has been delayed. However, plans are well advanced to sign the African Eurasian Waterbird Agreement, which is expected to enhance national capacity for surveys, research and conservation actions for migratory species. Recent efforts on aquatic ecosystems conservation

include the identification of coastal and marine ecosystems for possible protection, funded under the Regional Marine and Coastal Conservation Programme (PRCM) in West Africa. In addition, the Wadden Sea Flyway Initiative is collaborating with Wetlands International and Conservation Society of Sierra Leone to augment efforts towards waterbird monitoring and conservation in Sierra Leone.



RESPONSES/INTERVENTIONS

Research, Monitoring and Ecotourism

Detailed ornithological research was pioneered through the study of the breeding biology and ecology of the vulnerable White-necked Picathartes in the mid 1990s (Thompson, 1997; 2004a; 2004b). This research brought into focus the importance of understanding the specific ecological requirement of a species that is locally and globally threatened with extinction. Follow-up habitat and population assessment for Picathartes were carried out at two key sites for the species: (a) the Gola forest, where it was discovered that a majority of the breeding colonies occur outside the reserve boundaries (Klop et al., 2008); and (b) the Western Area Peninsular Forest, where two new colonies were discovered and anecdotal aggressive behaviour towards humans was first observed in the species.



The Gola Forest Programme, funded by the RSPB, conducted extensive surveys to ascertain the presence, status and distribution of a number of key avifauna at the site including Gola Malimbe, White-necked Picathartes, White-breasted Guineafowl and Lagden's Bushshrike among others (Klop et al., 2008). Building on earlier studies (e.g. Atkinson et al., 1992), an intensive survey (but limited coverage) of the birds of Loma Mountains conducted in 2008, confirmed the continued presence of one endangered species (Rufous Fishing Owl *Scotopelia ussheri*), four vulnerable species, six near-threatened species and two data deficient species in that forest reserve (Demey and Okoni-Williams, 2008). Surveys at Lake Sonfon, Bumbuna, Ferengbaia Hills and environs have shown that the northeast sector of the country is a stronghold for the data deficient Emerald Starling.



An outdoor exercise demonstrating flyway conservation issues during training for waterbird monitoring funded by the Wadden Sea Initiative.

Top – A waterbird monitoring exercise at Tissana Point, Yawri Bay, funded by the Wadden Sea Initiative

Waterbird monitoring, mainly funded by Wetlands International started in 1992 and has been ongoing since, except for interruptions by civil conflict and lack of funding in some years. Coverage has been widespread along the coastal zone and some inland wetlands in the country. The documentation of nine new records of water birds in the country including the near-threatened Damara Tern, which breeds in southern Africa is a key outcome of waterbird monitoring in the country (Okoni-Williams et al., 2001; Van der Winden et al., 2005).



RESPONSES/INTERVENTIONS

Active site conservation programmes - a key to sustaining conservation status of sites

For several decades, much of the conservation of forest reserves was limited to government actions, through legislation, law enforcement and surveillance. The first site conservation action with some external impetus came through support from the World Wildlife Fund (WWF) for the constitution of the Outamba-Kilimi National Park (OKNP) in 1986. The OKNP holds some of the most diverse of ecosystems in the country, including woodland savanna, forest and gallery forest, lakes and grasslands and so supports a rich avifauna, including three species of global conservation concern and 12 of the 28 Sudan-Guinea savanna biome species in the country (Okoni-Williams et al., 2001).

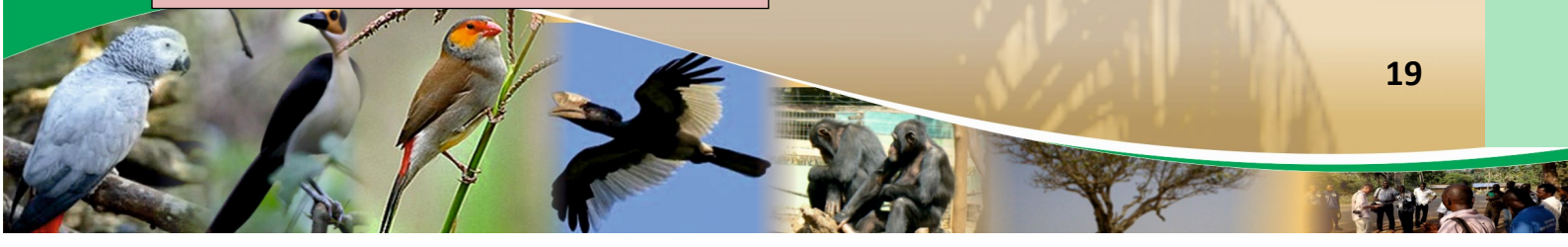
The Gola Forest Conservation Programme funded by the RSPB through the Conservation Society of Sierra Leone and the Forestry Division, MAFFS, is the longest-running active forest conservation programme in the country. Initiated in the early 1990s as a direct result of intensive field studies of Gola forest biodiversity (funded by the RSPB and BirdLife International), the programme was developed into a sophisticated conservation operation that is now probably one of the major successes in the implementation of the concept of “concession for conservation” in the world. The programme attracted co-funding from a variety of sources and resulted in national park designation for the largest tract of lowland rainforest in Sierra Leone. The Gola Forest National Park will cater for the conservation needs of numerous lowland forest birds, including its nine globally threatened and

seven near-threatened species. Conservation of the Tiwai Island is being addressed through support from Conservation International, with local coordination by the Environmental Foundation for Africa.

A BirdLife International initiative through the Conservation Society of Sierra Leone and the Society for the Conservation of Nature in Liberia to extend the successful Gola forest model to the contiguous forests of Liberia, resulted in high-level commitment by the Presidents of Sierra Leone and Liberia to declare a trans-boundary “Peace Park” in the area. The Disney World Conservation Trust, through BirdLife International, funded a two-year reassessment and conservation project for White-necked Picathartes in the WAPF between 2006 and 2008. The project among other things, enhanced the capacity of the local site support group and engaged them to serve as wardens and community activists for protecting Picathartes sites. The successes of the project, which included the discovery of two new breeding colonies, are still evident. The European Union funded WAPF conservation project and the GEF/World Bank funded Biodiversity Conservation Project in four other sites, are direct site-level interventions geared towards the conservation of birds and biodiversity in general.



The Presidents of Sierra Leone and Liberia, Ernest Bai Koroma (right) and Ellen Johnson-Serlif (left), cutting the tape at the launching ceremony of the establishment of the Gola National Park and the start of the project “Across the River Peace Park” between Sierra Leone and Liberia.



RESPONSES/INTERVENTIONS

Community participation as a vital component of birds and habitat conservation

Many local communities consider the establishment of a forest reserve or national park as a calculated attempt by the authorities to exclude them from the use of their own inheritance. Consequently, local communities are quite apprehensive about reserves. However, community collaboration has been quite instrumental in the acceptance of the concept of concession for conservation and the constitution of the national park at Gola forest reserve. BirdLife International's African Partners introduced the concept of site support groups (SSGs), which comprise conservation activists in adjacent communities who are willing to contribute to the conservation of critical habitats within their areas of operation. SSGs are very active in and around the Gola forest, WAPF and Yawri Bay, providing vital information and support to processes and programmes geared towards the conservation of the species and sites. There are now 42 SSGs around the Gola Forest working with the Conservation Society of Sierra Leone and Gola Forest National Park on the reserve and buffer zone conservation, including the carbon credit initiatives.

Sustaining funding for activities of SSGs has been a big challenge in the midst of limited resources and the growing fatigue among potential donors. The young people who are the pioneers of SSG are sometimes preoccupied with problems associated with lack of employment opportunities, which threatens the level of voluntarism and enthusiasm among them. Once motivated with some direct benefits including training in various skills for gainful employment, SSGs have been a very potent force in species and site conservation programmes. From experience, SSGs have the capability to influence decisions at all hierarchical levels of the community, including local traditional authorities and politicians. The national BirdLife partner in Sierra Leone, the Conservation Society of Sierra Leone, has a pivotal role to play in developing and strengthening the Site Support Group network in Sierra Leone.



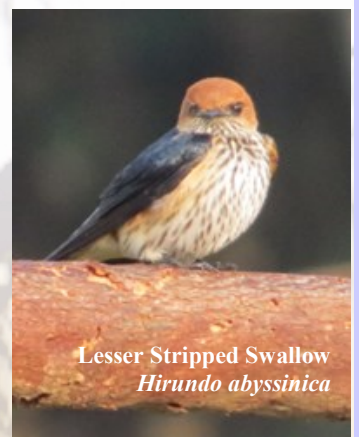
Top – Two days old nestlings of White-necked Picathartes, photograph taken during a monitoring exercise

Seminar at community level for the conservation of White-necked Picathartes in the Western Area Peninsular forest. National Park

Left – Fishing at Tombo village on northern Yawri Bay, where the largest landing for artisanal fishing is located.

RECOMMENDATIONS

- ✎ Review policies on birds and habitat conservation in line with national implementation of international conservation conventions and agreements.
- ✎ Speed up the process of reviewing current legislations to strengthen wildlife and forestry policies, with the aim of updating legal instruments and introducing penalties sufficient to deter potential violators.
- ✎ Continue to provide and improve support for bird research and monitoring programmes, in order to ensure that relevant information is available to conservation planners and managers.
- ✎ Upgrade and maintain the conservation status of protected areas. There is urgent need for the legal status of more terrestrial ecosystems (such as forest reserves) and coastal and marine ecosystems to be improved as a means of ensuring their long-term protection.
- ✎ Strengthen the legislative status and prosecutorial powers of the newly formed National Protected Areas authority for effective implementation of relevant legislations.
- ✎ Continue to improve support for proper management and wise use of forest reserves and other protected areas, particularly in tandem with the development of the concept of community forest.
- ✎ Constitute more Site Support Groups and enhance their capacity to support co-management initiatives in and around protected areas.
- ✎ Provide high level support for good environmental governance, law enforcement and community participation in natural resource management, including the establishment of marine protected areas.
- ✎ Introduce bird identification, monitoring and conservation into university curricula and support short courses that would enhance the capacity of relevant ministry and NGO staff.
- ✎ Stimulate greater interest in bird tourism and bird habitat conservation, particularly among Sierra Leoneans, by organising and popularising bird tourism, for example, the use of bird photos in postage stamps and souvenirs.
- ✎ Promote birds and contemporary fine art among Sierra Leonean artists. The CSSL (BirdLife Partner in Sierra Leone) could take the lead in organising annual bird exhibitions.



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Supporting Organizations



Conservation Society of Sierra Leone (CSSL) is a national non-governmental organization, with a mission to save, protect and conserve Sierra Leone's natural environment in perpetuity. Join the CSSL today and contribute to the noble course of sustainably managing the country's natural endowment for the benefit of present and future generations. Address: 4C, Old Railway Line Tengbe Town, Freetown, Sierra Leone. Tel: +23278088542; Email cssl_03@yahoo.com.



BirdLife International is a global Partnership of independent organizations, promoting sustainable global conservation of birds, habitats and ecosystems by enabling positive change through people. BirdLife International has over 120 partners worldwide and the CSSL is its local partner in Sierra Leone. For more information visit www.birdlife.org.



The RSPB is the UK's largest nature conservation charity, inspiring everyone to give nature a home. Together with our partners, we protect threatened birds and wildlife so our towns, coast and countryside will teem with life once again. We play a leading role in BirdLife International, a worldwide partnership of nature conservation organisations. We support conservation programmes in many countries including the CSSL and the Gola National Park in Sierra Leone. For more information visit www.rspb.org.uk



The Aage V. Jensen Charity Foundation operates all over the world via ownership as well as support of research and nature projects. The objective of the Foundation is to contribute to the preservation of nature in all its diversity, and at the same time to open the eyes of the public to all that nature has to offer. The Foundation works to communicate the importance of protecting endangered wildlife and natural habitats. For more information visit www.avjcf.org.

Front cover picture

White-necked Picathartes *Picathartes gymnocephalus*
(www.arkive.org).

