

	 eni S.p.A. exploration & Production Division GHANA OCTP BLOCK Phase 2 Pre-Construction Surveys	Doc. rep ms hse 009 eni ghana r00 1 of 91
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GHANA OCTP BLOCK

Preconstruction Bird Survey Report

ABSTRACT

Results of the Nov-2015 preconstruction bird survey demonstrate that the area of influence (AoI) for the onshore receiving facility (ORF) supports a rich and diverse avifauna. The results will serve as a baseline for future monitoring and for designing effective mitigation actions through a BAP. Various bird species of conservation concern are shown to occur, which include the presence of important populations of the two qualifying species for the Amansuri Wetland IBA, namely Royal Tern (*Thalasseus maximus*) and Sanderling (*Calidris alba*) and resident populations of Critically Endangered Hooded Vultures (*Necrosyrtes monachus*). Various avifaunal hotspots are identified within and in the vicinity of the AoI. Results of the survey will inform the Critical Habitat Assessment for the Project.

SUMMARY OF REVISIONS

January 2015	02	Final Issued for disclosure	ESL/ERM	HSE & CI Manager Juan Deffis	Development Project Manager Ezio Miguel Lago
December 2015	01	Draft Issued for comments	ESL/ERM	HSE & CI Manager Juan Deffis	Development Project Manager Ezio Miguel Lago
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ACRONYMS

Acronym	Definition
AoI	Area of Influence
CITES	Convention on the International Trade in Endangered Species
CMS	Convention on Migratory Species
CR	Critically Endangered, a status used for a species that is highly threatened with extinction by the IUCN Red List of Threatened Species
EIS	Environmental Impact Statement
EN	Endangered, a status used for a species that is threatened with extinction by the IUCN Red List of Threatened Species
FPSO	Floating Production Storage and Offloading Unit
GBIF	Global Biodiversity Information Facility
GPS	(Handheld) Geographic Positioning System
IBA	Important Bird and Biodiversity Area
IUCN	International Union for the Conservation of Nature
LC	Least Concern, a status used for a non-threatened species by the IUCN Red List of Threatened Species
NGO	Non-Government Organisation
NT	Near Threatened, a status used for an almost-threatened species by the IUCN Red List of Threatened Species
OBIS	Ocean Biogeographic Information System
OCTP	Offshore Cape Three Points (Integrated Oil and Gas Project)
ORF	Onshore Receiving Facility
ToR	Terms of Reference
UNEP-WCMC	United Nations Environmental Programme – World Conservation Monitoring Centre
VU	Vulnerable, a status used for a threatened species by the IUCN Red List of Threatened Species

1 INTRODUCTION

Eni have proposed the development of the OCTP Development Project in Ghana which comprises the development of 19 offshore wells for oil and gas extraction together with the installation of offshore processing facilities, a gas pipeline and an onshore receiving facility with a compression station. The construction and operation of these facilities have the potential to impact birds, as the proposed development is located within the Amansuri Wetland Important Bird and Biodiversity Area (IBA), first assessed in 2001 and revised in 2013. The Amansuri Wetland is located within an important migration route and features high levels of diversity. The presence of Critically Endangered (Cr) Hooded Vulture (*Necrosyrtes monachus*) is a significant conservation concern. This preconstruction bird survey has therefore been conducted to assess various aspects of the local bird ecology, with a specific focus on the Hooded Vulture.

1.1 PROJECT BACKGROUND

The possible impacts of the Project on birds are expected mainly from the construction and operation of the onshore facilities. The eni Onshore Receiving Facility (ORF) will be located in Sanzule and will receive the treated gas coming from the Floating Production Storage and Offloading Unit (FPSO), via an offshore pipeline before compressing it and introducing it into the gas network. The footprint of the ORF will occupy up to 23 ha of land. This includes the permanent footprint of the ORF (up to 10 ha), the temporary construction yard (up to 10 ha) and both temporary and permanent camps (around 30). The installation of the onshore section of the pipeline, including the connection to the Ghanaian national grid, will require the additional occupation of approximately 8 ha during the construction phase. Construction of overhead electricity lines has been identified as constituting a threat to various bird species such as the Hooded Vulture, which is classified on the IUCN Red List of Threatened Species as critically endangered.

The west coast of Africa, where the Project is located, forms an important section of the East Atlantic Flyway, an internationally important migration route for a range of bird species, especially shore birds (including the Near Threatened Eurasian Oystercatcher *Haematopus ostralegus*). The highest concentrations of seabirds are present during the spring and autumn migrations, around March and April, and September and October respectively.

The terrestrial bird diversity in the Western Region of Ghana is expected to exceed 250 species and includes the following threatened species: Green-tailed Bristlebill (*Bleda eximia*, Near Threatened), Grey Parrot (*Psittacus erithacus*, Near Threatened), Yellow-Bearded Greenbul (*Criniger olivaceous*, Vulnerable), Copper-tailed Glossy Starling (*Lamprotornis cupreocauda*, Near Threatened).

During the preparation of the EIS in 2014, field surveys were conducted in the Project Concession Area, which recorded Hooded Vulture (*Necrosyrtes monachus*). This species is critically endangered and the IUCN report a widespread decline in population. Given that the Project Concession Area does not lie within its main distribution area ⁽¹⁾ one of the objectives of the pre-construction bird survey was to establish the use of the area by the Hooded Vulture, whether this is frequent, incidental or residential use of the area. The preferred habitats of this species include forests, beaches and human settlements, and all of these habitats occur within the onshore part of the Project Area.

1.2 LEGISLATIVE FRAMEWORK

1.2.1 National Legislation

The environmental law of the Republic of Ghana is embodied in the Environmental Protection Agency Act 490 passed in 1994. Act 490 prescribes the establishment of the Environmental Protection Agency (EPA), describes its functions and responsibilities, provides powers for enforcement and control, establishes a National Environment Fund, and gives provisions for administration and operations.

Important Environmental Acts include:

- Environmental Protection Act (Act 490 of 1994)
- Environmental Assessment Regulations (LI 1652, 1999) legislates the EIA process, and sets out requirements for Preliminary Environmental Assessments (PEAs); Environmental Impact Assessments (EIAs); Environmental Impact Statement (EIS) (also termed the ESIA Report); Environmental Management Plans (EMPs); Environmental Certificates; and Environmental Permitting.
- Water Resources Legislation consists of the Water Resources Commission Act 1996 (Act 522 of 1996).

1.2.2 Lender Safeguards and International Conventions

International Environmental and Social Performance Standards

The Equator Principles (EPs) are an approach by financial institutions to determine, assess and manage environmental and social risk in project financing. These Principles have been adopted by a wide range of financial institutions to manage the social and environmental risks associated with their potential investments and consist of the following Principles:

- Principle 1 Categorization of projects;
- Principle 2 The borrower has to conduct an Environmental and Social Impact Assessment (EIA);
- Principle 3 Applicable Social and Environmental Standards;
- Principle 4 Action Plan and Management System;
- Principle 5 Consultation and Disclosure;
- Principle 6 Grievance Mechanism;

⁽¹⁾ <http://www.birdlife.org/datazone/species/factsheet/22695185>

- Principle 7 Independent Review;
- Principle 8 Covenants;
- Principle 9 Independent Monitoring and Reporting;
- Principle 10 Equator Principles Financial Institutions (EPFI) Reporting.

The EPs are adopted by the majority of financial institutions and are applied where total project capital costs exceed US\$10 million. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. The EPs are based on the International Finance Corporation Performance Standards on social and environmental sustainability and on the World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines).⁽²⁾

The International Finance Corporation (IFC) Performance Sustainability Framework and Performance Standards comprise the following elements:

- Policy on Environmental and Social Sustainability;
- Performance Standards' on Environmental and Social Sustainability; and
- Access to Information Policy.

The IFC Performance Standards considered relevant consist of:

- Assessment and Management of Social and Environmental Risks and Impacts;
- Biodiversity Conservation and Sustainable Management of Living Natural Resources.

The African Development Bank Policies and Guidelines have various policies and guidelines that may apply, which include:

- The Bank Group Policy on the Environment (2004);
- Integrated Environmental and Social Impact Assessment (IESIA) Guidelines (2003); and
- Bank Group's Handbook on Stakeholder Consultation and Participation (2001).

International Protocols & Conventions

The Republic of Ghana is a signatory to a number of international conventions on environmental protection and conservation, of which the following are applicable:

- Ramsar Convention on Wetlands of International Importance, especially Waterfowl Habitats (Ramsar, Iran), 1971 (website: <http://www.ramsar.org/>);
- Convention on Biological Diversity (CBD), 1992 (website: <https://www.cbd.int/>);
- Convention on the Conservation of Migratory Species of wild animals (CMS), 1983 (website: <http://www.cms.int/>);

(2) <http://equator-principles.com/resources/Frequently%20Asked%20Questions.pdf>

- United Nations Framework Convention on Climate Change (UNFCCC), 1992 (website: <http://unfccc.int/2860.php>);
- Vienna Convention for the Protection of the Ozone Layer, 1985 (website: ozone.unep.org/en/treaties-and-decisions/vienna-convention-protection-ozone-layer);
- African-Eurasian Migratory Waterbirds Agreement (AEWA), Ghana joined as a contracting party in 2005 (website: aewa.eaudeweb.ro/en/legalinstrument/aewa). See Appendix A for AEWA species identified in the project AoI.

The coastal and offshore waters of Ghana are protected from pollution through a range of international laws:

- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION) 1969;
- Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (Abidjan Convention) 1985.

Eni Ghana's proposed activities have the potential to impact adversely on local marine resource users and several sections of the Convention on Biodiversity are relevant:

- Art. 8: requires in-situ ecosystem conservation and protection of threatened species or populations, as well as of customary use and traditional practices of local communities;
- Art. 10: obliges states to adopt measures to minimize effects on biological diversity, to protect customary community practices, and to support local efforts to remedy degradation of biodiversity;
- Art. 11: requires creation of economic and social incentives;
- Traditional sea tenure and access to marine living resources should receive support under Articles 8(j) and 10(c), which require protection of sustainable customary use of biological resources, and preservation of traditional knowledge and practices of local communities relating to conservation and sustainable use. Article 10(d) requires a Party to support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced".

1.2.3 Industry Best Practices, Standards and Guidelines

There are several industry good practices for offshore development. Those of relevance include but not limited to:

- OGP (2007) Environmental, Social Health Risk and Impact Management Process;
- OGP (1997) Environmental Management in Oil and Gas Exploration and Production;
- IPIECA (2010) Alien invasive species and the oil and gas industry;
- IPIECA (2011) Guidance on Improving Social and Environmental performance: Good practice Guidelines for the Oil and Gas Industry.

2 OVERVIEW OF THE AMANSURI WETLAND IMPORTANT BIRD AND BIODIVERSITY AREA

The Amansuri Wetland lies approximately 360 km west of Accra, near the town of Axim. It includes the freshwater Amansuri lagoon (including the village of Nzulenso which is built on stilts in the lagoon), the flood-plains of the Amansuri river, the coastal Amansuri lagoon and estuary, and the sandy Esiama beach, between the Amansuri and Ankobra rivers. The site covers approximately 40% of the total catchment of the Amansuri River.

The Amansuri Wetland Important Bird and Biodiversity Area (IBA) was first assessed in 2001 and covers an area in excess of 38,000 ha. The onshore components of the Project area lie within the eastern parts of the IBA as shown in Figure 2.1. IBAs such as the Amansuri Wetland are not officially gazetted protected areas, but are internationally recognised. Table 2.1 provides a description of the IBA. This wetland is also listed as a Critical Site ⁽³⁾ under the AEWA (*Agreement on the Conservation of African-Eurasian Migratory Waterbirds*) Wings of Wetlands (WoW) Initiative.

2.1 HABITATS

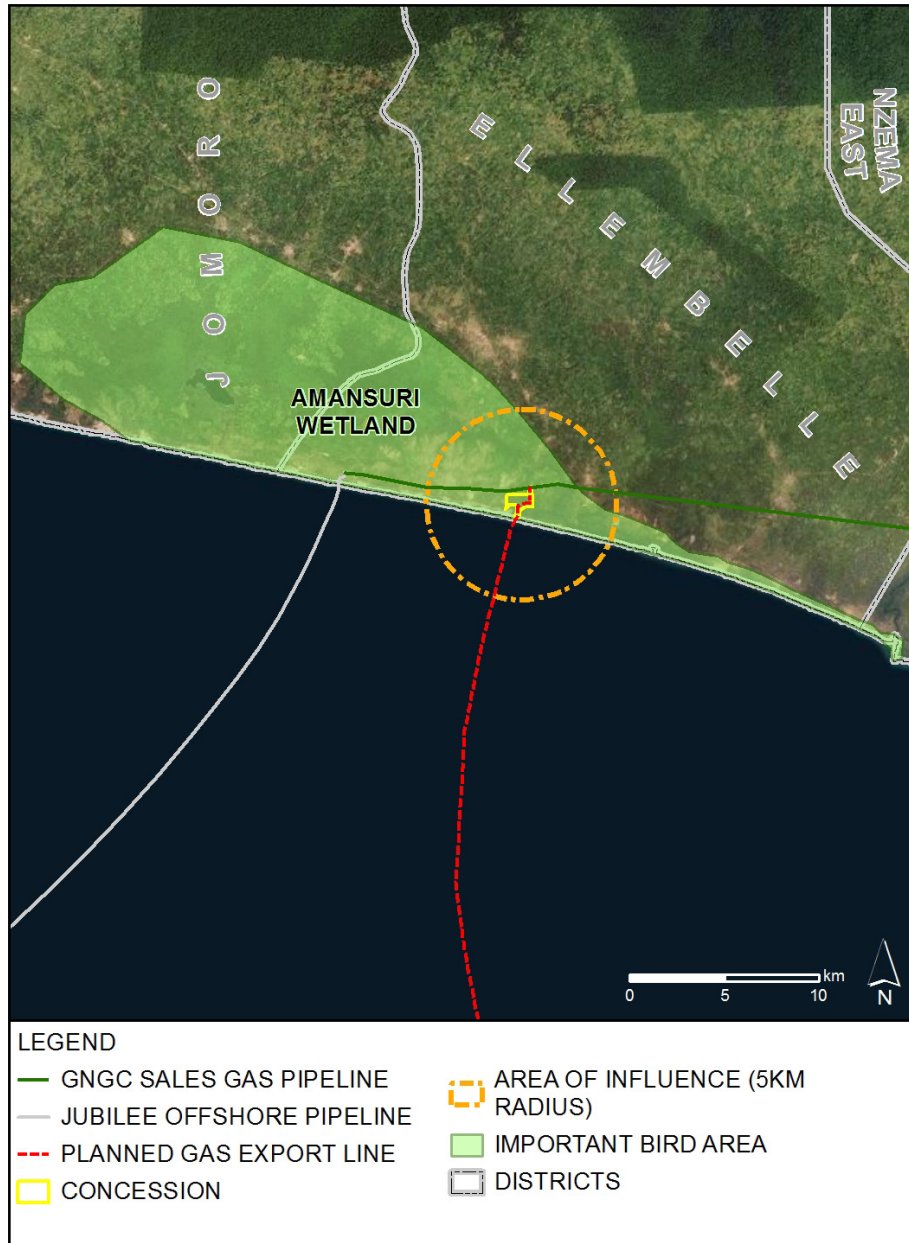
The vegetation in the catchment is Wet Evergreen Forest, a forest type restricted to the highest rainfall zones. The Amansuri wetland is a blackwater system with a wetland area of more than 10,000 ha. These blackwater wetlands exist in a relatively pristine state, consisting of a freshwater lagoon, forests, grasslands and rivers. It is considered the most extensive remaining stand of intact swamp forest in Ghana, the only known peat swamp forest in Ghana, and the best example of freshwater swamp forest characterized by black humic waters. More than 70% of the wetland catchment area is covered by swamp forest.

The most common tree in the swamps is the Raffia Palm (*Raphia vinifera*), which grows in almost pure stands. The large spiny aroid *Cyrtosperma senegalense* grows along the edge of the raffia while the drier patches support mainly sedges and grasses. The area is subject to seasonal flooding and the nature of the terrain is such that access is very difficult and, as a consequence, large areas are largely untouched.

The Amansuri Wetlands represent a unique habitat with high levels of endemism, and a regionally important biodiversity hotspot. This significance is recognised in the Important Bird and Biodiversity Area classification, and the wetland has additionally been proposed as an internationally recognised Ramsar Site. Boundaries for the proposed Ramsar Site have however not been agreed.

(3) Critical Sites have been identified and designated using two numerical criteria derived from those used for the identification of Ramsar sites and IBAs

Figure 2.1 Locations of the proposed Onshore Receiving Facility and the Area of Influence relative the Amansuri Wetland Important Bird Area



2.2 AVIFAUNA

The Amansuri Wetland IBA is notified for Sanderling (*Calidris alba*) and the Royal Tern (*Thalasseus maximus*). Both bird species are listed as Least Concern on the IUCN Red List of Threatened Species (2015). Birds listed as important in the Amansuri Wetland IBA factsheet are presented in Table 2.1.

Table 2.1 Bird Species Listed as Important in the Amansuri Wetland IBA

Common	Species Name	Status	Importance as stated in the IBA Factsheet
Sanderling * LC	<i>Calidris alba</i>	Least Concern AEWA, CMS species	IBA qualifying species , 4250 birds present in the winter months (criterion A4i)
Royal Tern * LC	<i>Thalasseus maximus</i> formerly <i>Sterna maxima</i>	Least Concern AEWA, CMS species	IBA qualifying species , 700 birds present in the winter months (criterion A4i)
Grey Plover *	<i>Pluvialis squatarola</i>	Least Concern AEWA, CMS species	None specified for the IBA
Common Ringed Plover *	<i>Charadrius hiaticula psammodytes</i>	Least Concern AEWA, CMS species	None specified
Common Sandpiper	<i>Tringa hypoleucos</i>	Least Concern AEWA species	None specified
Ruddy Turnstone *	<i>Arenaria interpres</i>	Least Concern AEWA, CMS species	None specified
Eurasian Oystercatcher *	<i>Haematopus ostralegus</i>	Near Threatened AEWA species	Only site along the Ghana coast where this species is seen frequently.
Sandwich Tern *	<i>Sterna sandvicensis</i>	Least Concern AEWA, CMS species	Small flocks of these terns regularly roost on sandbanks in the Amansuri River estuary.
Common Tern * LC	<i>Sterna hirundo</i>	Least Concern AEWA, CMS species	AEWA applies for this species.
Black Tern	<i>Chlidonias niger</i>	Least Concern AEWA, CMS species	AEWA applies for this species.
Hooded Vulture	<i>Necrosyrtes monachus</i>	Critically Endangered CITES Appendix II	Not listed on the Amansuri Wetland IBA factsheet, but important being a resident and highly threatened species
Grey Parrot	<i>Psittacus erithacus</i>	Vulnerable CITES Appendix II	Not listed on the factsheet for the Amansuri Wetland IBA, but present and CITES listed.

* Denotes birds observed during the preconstruction bird survey (Nov 2015)

Criterion A4i indicates that the site is known or thought to hold, on a regular basis, >1% of a biogeographic population of the relevant congregatory waterbird species.

The bioregional populations for Royal Tern for West Africa are estimated at 225,000 birds, and for Sanderling are estimated at 120,000 birds for the East Atlantic, Europe, West and Southern Africa population. One percent of these populations, which are typically required for sites to qualify for Criterion A4i as noted above, are estimated at 2300 and 1200 birds respectively (Waterbird Population Estimates online database, available at <http://wpe.wetlands.org/>).

3 METHODOLOGY

3.1 OBJECTIVES

The bird surveys focused on the following two main objectives:

- Identifying the species present in the Project Area of Influence (AoI); and
- Identifying and locating habitats within the AoI that are of importance for the conservation of birds in general and for target species in particular.

3.2 FIELD SURVEY AREA

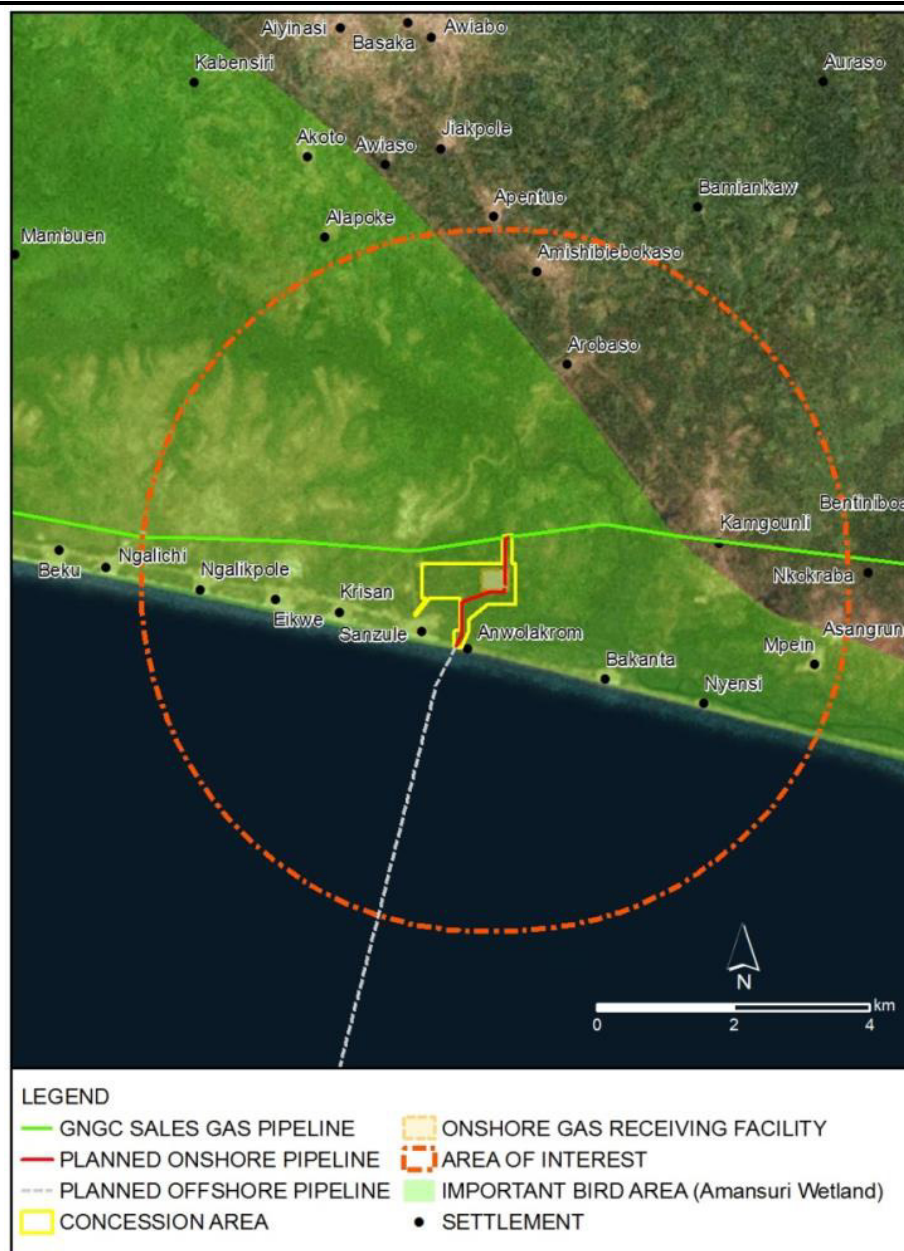
The AoI was defined in the EIS (see Section 4.14 of the EIS Phase 2 report) as a 5 km radius around a centre point within the proposed location of the ORF (Figure 3.1). This AoI was established to cover the sites potentially affected by noise and light emission from Project sites as these physical impacts were considered in the EIS to have the widest reach. Various other natural gas related developments are occurring in the vicinity and infrastructure such as roads, bridges, powerlines and pipelines are being developed as part of a greater plan. Those developments were not considered for the development of the AoI.

The TOR required the preconstruction bird survey to use this AoI, with the survey effort focussed more intensively on those areas expected to be more affected by project activities, as well as on those areas considered to be sensitive from an avifaunal perspective.

The AoI was amended during the field survey to include the shoreline and nearby coastal habitats that could support IBA notified populations, and some bird observations from outside of the AoI were therefore included in this report.

This geographically determined AoI was not ideal for assessing the likely impact of the project on different species. E.g. Common Tern (*Sterna hirundo*) most individuals will forage 5-10 km, occasionally up to 15 km offshore (del Hoyo et al. 1996). Common Terns forage over fresh water as well as marine habitats. Common Terns tend to range further than Roseate Terns (BirdLife International 2000), and most individuals are observed within 10 km of a breeding colony (Becker et al. 1993, Wanless et al. 1998, Newton and Crowe 1999), although birds have been recorded at a maximum of 18 km from the colony (Duffy 1986).

Figure 3.1 Birds Survey Study Area



Source: ERM, 2015

3.3 TARGET SPECIES

The ToR issued for the preconstruction bird survey required an emphasis to be placed on confirming the presence and assessment of the following species of concern:

- Hooded Vulture (*Necrosyrtes monachus*, Critically Endangered);
- Grey Parrot (*Psittacus erithacus*, Vulnerable);
- Yellow-Bearded Greenbul (*Criniger olivaceus*, Vulnerable);

- Green-tailed Bristlebill (*Bleda eximia*, Near Threatened);
- Copper-tailed glossy starling (*Lamprotornis cupreocauda*, Near Threatened);
- Sanderling (*Calidris alba*, IBA qualifying species, Least Concern);
- Royal tern (*Thalasseus maximus* [formerly *Sterna maxima*], IBA qualifying species, Least Concern).
- Eurasian Oystercatcher (*Haematopus ostralegus*) not an IBA qualifying species but the threatened status was raised to Near Threatened on the IUCN Red List in October 2015.

3.4 FIELD SURVEY METHODOLOGY APPROACH

The field assessment for the preconstruction bird survey was conducted from 25 to 29 November 2015, covering 4.5 days. The timing of the survey was chosen due to the high likelihood of detecting overwintering shorebirds, most notably Sanderling (*Calidris alba*). Details of the personnel involved are presented in Table 3.1.

Table 3.1 Details of the personnel involved in the preconstruction bird survey

Name	Position	Role
Andrew Cauldwell	ERM Principal Consultant	Survey lead and reporting
James Blimey	Ghana Wildlife Division Senior Technical Assistant	Field identification of birds
Dr Angela Lamptey	Ornithologist and Senior Lecturer, University of Accra, Department of Marine and Fisheries Sciences	Advisory role

Comments on the draft report have been received from:

- Fauna Flora International (Pippa Howard and Jason Sali);
- BirdLife International (Samir Whittaker);
- BirdLife Ghana (Ademola Ajagbe); and
- Eni (Elena Pavanel)

One season bird survey, especially within a major migratory route, is often skewed to fewer resident species. Repeat surveys are therefore recommended during the wet season and when Palearctic migrants are present. Data collected during previous surveys in support of the EIS have been included in the analysis of the bird sensitivity, but their contribution to understanding the migratory bird ecology has been limited. No further surveys are planned for the pre-construction survey, although a Management Plan will be developed which will contain ongoing bird monitoring requirements.

A field survey was conducted to characterise the key bird habitats and their potential use by the target species using point counts and transects depending on the accessibility of habitats. Locations for point counts and transects were selected to adequately represent the ORF concession area, the shoreline, areas where Hooded Vulture were expected and

other important habitats within the AoI. The areas of the AoI closer to the ORF were given greater emphasis than the outer areas. Accessibility of habitats was also a determining factor in the selection of point count and transect locations. The locations of transects and point counts are presented in Figure 3.2 with coordinates of points presented in *Appendix B*. Most observations were done during the early morning and late afternoon hours when birds were active. One nocturnal survey lasting 2.5 hours was conducted within the concession area.

Birds were identified by visual observation using binoculars and listening to calls ⁽⁴⁾. For certain cryptic species call playback was used to elicit response and aid in identification to species level. Where possible photographic records of birds observed were made (see *Appendix D*), which was useful to confirm numbers of some congregatory species.

Data recorded for the many bird observations included the following:

- Species observed, count of individuals (where possible) and GPS location;
- Habitat preferences of target species;
- Behaviour such as breeding, feeding or roosting.

Bird names, spelling and sequence used in this report is in accordance with the African Bird Club.

Bird observations were made in different habitats and characteristic bird species per habitat have been defined from the data collected during the preconstruction bird survey, through developing a large matrix of data as presented in *Appendix B*. Species that tend to cluster in certain habitats are listed in *Section 4.1* as characteristic of those habitats. Observed abundance was rated on a five-point scale, but is based on a single survey only.

(4) Bird field guides used were (i) Borrow & Demey. 2007. Field Guide to the Birds of Ghana; and (ii) Sinclair & Ryan. 2010. Birds of Africa South of the Sahara.

Figure 3.2a Locations of Transects (green lines) and Key Bird Observation Points used in the Nov-2015 Preconstruction Bird Survey (zoomed into the greater concession area)

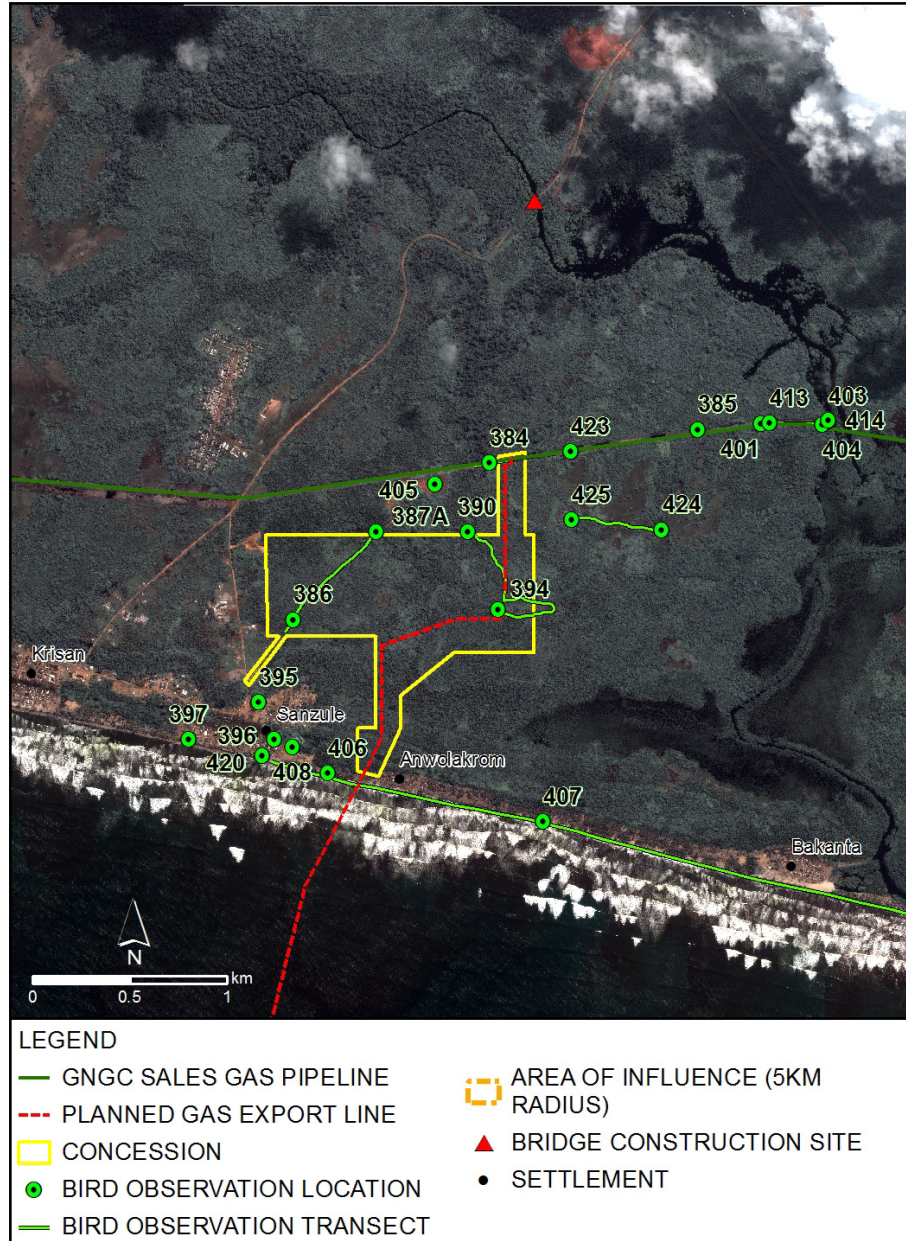


Figure 3.3b Locations of Transects (green lines) and Key Bird Observation Points used in the Nov-2015 Preconstruction Bird Survey; showing the greater AoI



3.5 LIMITATIONS OF THE NOV-2015 FIELD SURVEY

Some limitations have influenced the survey as explained in some examples below:

3.5.1 Season of Assessment

The diversity of birds observed in November 2015 may have been reduced due to the season of assessment. The survey missed the two migration periods of August/September and March/April. Some of the intra-African migrants were thought to have migrated south for the southern hemisphere summer, which was evidenced by a low diversity of cuckoo species, with only two species being present.

3.5.2 Accessibility

The following constraints on access applied:

- Swamp forests were impenetrable due to dense vegetation and the wet peat-based substrate. The interior of this habitat could not be accessed, although observations from the edges were possible.
- Secondary/tertiary forest habitats frequently had the formation of a thicket making penetration into that habitat difficult. Visibility was generally restricted to less than a meter.
- The Amansuri River Estuary east of the area of influence (GPS point 419) could only be accessed at low tide. When accessed the first time there was a large flock of terns present, but these birds were absent when the site was accessed a second time. These birds feed offshore and their presence may be both tide and weather dependent.

3.5.3 Construction Activities

A large bridge was being constructed across the river and associated peat habitats that traverse the Amansuri wetland and within the AoI. This construction will serve the proposed ORF development and a range of other upcoming developments in the vicinity. A deep pit was being excavated which resulted in a lot of noise and heavy vehicle activity, and the entire area was closed off and the survey team was not able to access the area to look at birds.

3.5.4 Other Anthropogenic Disturbances

The area is exposed to considerable subsistence hunting in parts of the AoI with local hunters going out at night with torches. Used shotgun shells were observed during field surveys, and there was no evidence of primates or duikers that would be expected in those habitats (see also *Section 4.1.2*).

There was a large accumulation of litter and other waste in many parts of the AoI. Vast volumes of plastic washes up on the beaches and may reduce the quality of the habitat for shorebirds. Village environments are associated with copious quantities of waste and poor sanitation, which provides a source of food for some bird species but is expected to discourage the presence of others.

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Despite the above limitations, a successful survey was achieved which demonstrates the diversity of bird species, confirmed the presence of several target species, the importance of the Amansuri Wetland IBA and will serve as a basis for establishing a future bird monitoring programme.

4 SURVEY RESULTS

4.1 HABITAT OBSERVATIONS

The bird assemblages observed during the preconstruction bird survey differed between the various habitats. To facilitate descriptions of the birds, the following six groups of habitats are recognised within the AoI, illustrated in Figure 3.1 and are briefly described thereafter:

1. Beaches and Dunes (Sandy Shoreline);
2. Evergreen Forest and Transitional Woodland (Secondary/Tertiary Forests);
3. Swamp and Mangrove Forest;
4. Cropland and Natural Vegetation Mosaic (Coconut and Oil Palm Plantations);
5. Seasonally-flooded Grassland; and
6. Urban Areas.

Figure 4.1 Examples of Habitat Types Described in this Report





4.1.1 Beaches and Dunes Habitat

Broad sandy beaches extend as a long linear habitat within and far beyond the AoI. The beaches consist of fine sand and there are many shells, logs and other items that wash up from the sea. These beaches are fringed by tall coconut plantations which are frequently interspersed with village settlements. Both the coconut plantations and the village settlements reach almost to the high tide mark. The beach habitat could be classified as a natural habitat, although it is heavily impacted by local communities that are extensively engaged in various fishing activities, using large seine nets from the shore and boats to access offshore fish resources. There is regular human disturbance during daylight hours along the beaches as a result of the fishing activities, and there is a large quantity of plastic waste washed up from the sea. These disturbances may be having an impact on the by birds by becoming entangled in nylon, ingesting plastic, plastic bags covering potential food sources such as stones and shells and the possible introduction of disease. Characteristic bird species identified in this sandy shoreline habitat and observed abundance (see *Section 4.2.1*) are presented in Table 4.1. The occurrence of shorebirds is further discussed in *Section 4.2.2*.

Table 4.1 Characteristic Bird Species and Observed Abundance in the Beaches and Dunes Habitats

Common Name	Species Name	Observed Abundance (see Section 4.2.1)
Eurasian Oystercatcher *	<i>Haematopus ostralegus</i>	Frequent
Common Ringed Plover *	<i>Charadrius hiaticula</i>	Single group observation
Grey Plover *	<i>Pluvialis squatarola</i>	Common
Sanderling *	<i>Calidris alba</i>	Abundant
Whimbrel *	<i>Numenius phaeopus</i>	Common
Ruddy Turnstone *	<i>Arenaria interpres</i>	Single group observation
Royal Tern *	<i>Thalasseus maximus</i>	Frequent
Sandwich Tern *	<i>Sterna sandvicensis</i>	Uncommon

* Denotes species covered by the African-Eurasian Migratory Waterbirds Agreement (AEWA)

4.1.2 Evergreen Forest and Transitional Woodland Habitats

There are no primary forests within the project area, and all remaining forests have been heavily impacted. Patches of forest do remain in the area and can be classified as either secondary or tertiary forest. The tree canopy varies from approximately four to 12 meters with many emergent trees reaching up to approximately 20 meters. The sub-canopy vegetation generally resembles a thicket and is largely impenetrable. This habitat could be classified as a natural habitat based on the high diversity of plant and bird species and a diversity of natural processes that do occur there. However, many faunal species appear to be absent, as no evidence of primates or antelope species were seen. Hunting activity appears to be intense as several night hunters from the community were seen, shotgun shells were seen and larger birds such as hornbills were very shy. These habitats support a diversity of forest bird species, with characteristic species presented in Table 4.2.

Table 4.2 Characteristic Bird Species and Observed Abundance in the Evergreen Forest and Transitional Woodland Habitats

Common Name	Species Name	Observed Abundance (see Section 4.2.1)
African Harrier Hawk	<i>Polyboroides typus</i>	Uncommon
Blue-spotted Wood Dove	<i>Turtur afer</i>	Common
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>	Uncommon
African Pygmy Kingfisher	<i>Ceyx pictus</i>	Uncommon
Black Bee-eater	<i>Merops gularis</i>	Uncommon
Little Bee-eater	<i>Merops pusillus</i>	Abundant
White-throated Bee-eater	<i>Merops albicollis</i>	Frequent
Piping Hornbill	<i>Bycanistes fistulator</i>	Frequent
Naked-faced Barbet	<i>Gymnobucco calvus</i>	Uncommon
Speckled Tinkerbird	<i>Pogoniulus scolopaceus</i>	Frequent
Red-rumped Tinkerbird	<i>Pogoniulus atroflavus</i>	Frequent
Little Greenbul	<i>Andropadus virens</i>	Frequent
Grey-headed Bristlebill Bulbul	<i>Bleda canicapillus</i>	Frequent
Green Hylia	<i>Hylia prasina</i>	Frequent
Tawny-flanked Prinia	<i>Prinia subflava</i>	Common
Western Olive Sunbird	<i>Cyanomitra obscura</i>	Common
Collared Sunbird	<i>Hedydipna collaris</i>	Common
Olive-bellied Sunbird	<i>Cinnyris chloropygius</i>	Common
Tiny Sunbird	<i>Cinnyris minullus</i>	Frequent
Orange-cheeked Waxbill	<i>Estrilda melpoda</i>	Frequent
Bronze Mannikin	<i>Lonchura cucullata</i>	Frequent
Black-and-white Mannikin	<i>Lonchura bicolor</i>	Common

4.1.3 Swamp and Mangrove Forest Habitats

Freshwater swamp forests occur widely within the Amansuri Wetland, but within the AoI are represented as small patches interspersed by secondary forest or palm plantations. The swamp forests are based on a peat substrate and heavily dominated by *Raphia* palm (*Raphia vinifera*). Dense vegetation and the wet substrate make these habitats inaccessible; however the GNCC pipeline route has created an access into parts of this habitat which has facilitated bird surveys for this study. The strong leaf-stalks of the *Raphia* palm leaves are used for construction by local communities. There was evidence of harvesting *Raphia* palms but extensive natural habitat does occur due to the difficult access.

Mangrove habitats occur in the estuaries and along the lower reaches of the rivers in the AoI. These habitats are dominated by *Rhizophora* and *Avicennia* species and support a limited diversity of other plant species. This habitat is difficult to access and limited survey was possible during the field study.

Characteristic bird species observed in these habitats are presented in Table 4.3.

Table 4.3 Characteristic Bird Species and Observed Abundance in the Swamp and Mangrove Forest Habitats

Common Name	Species Name	Observed Abundance	Swamp Forest	Mangrove Forest
Dwarf Bittern	<i>Ixobrychus sturmii</i>	Single obs.	x	
African Jacana	<i>Actophilornis africanus</i>	Uncommon	x	
Blue-breasted Kingfisher	<i>Halcyon malimbica</i>	Single obs.		x
Malachite Kingfisher	<i>Alcedo cristata</i>	Uncommon	x	
Yellow-throated Tinkerbird	<i>Pogoniulus subsulphureus</i>	Single obs.		x
Swamp Palm Bulbul	<i>Thescelocichla leucopleura</i>	Common	x	
Reichenbach's Sunbird	<i>Anabathmis reichenbachii</i>	Common	x	x
Buff-throated Sunbird	<i>Chalcomitra adelberti</i>	Uncommon	x	
Splendid Sunbird	<i>Cinnyris coccinigastrus</i>	Frequent	x	
Copper-tailed Starling	<i>Lamprotornis cupreocauda</i>	Single obs.	x	
Blue-billed Malimbe	<i>Malimbus nitens</i>	Single obs.		x

4.1.4 Cropland and Natural Vegetation Mosaic

The majority of the terrestrial components of the AoI were dominated by coconut and oil palm plantations. This habitat covers most of the concession area. These plantations range from being well managed open habitats, to old plantations that are regressing back to secondary/tertiary forest. Coconut palms are generally tall reaching up to 20 meters but oil palms tend to be shorter reaching five to eight meters. Regenerating vegetation forms an impenetrable thicket reaching up to five meters. Bird diversity and abundance was much reduced in comparison to the secondary and swamp forests, with characteristic species presented in Table 4.4.

Table 4.4 Characteristic Bird Species and Observed Abundance in the Cropland and Natural Vegetation Mosaic Habitats

Common Name	Species Name	Observed Abundance (see Section 4.2.1)
Red-eyed Dove	<i>Streptopelia semitorquata</i>	Frequent
Senegal Coucal	<i>Centropus senegalensis</i>	Frequent
African Pied Hornbill	<i>Tockus fasciatus</i>	Common
Green-headed Sunbird	<i>Cyanomitra verticalis</i>	Uncommon
Splendid Starling	<i>Lamprotornis splendidus</i>	Common
Red-vented Malimbe	<i>Malimbus scutatus</i>	Frequent
Black-necked Weaver	<i>Ploceus nigricollis</i>	Uncommon
Black-bellied Seedcracker	<i>Pyrenestes ostrinus</i>	Uncommon

4.1.5 Seasonally-flooded Grassland Habitat

Seasonally flooded grasslands occupy area within the north-western parts of the AoI. These grasslands appear to be hydrologically linked to the swamp forests that occupy the central area of the Amansuri wetlands. The grasslands are dominated by medium-height grasses growing to approximately 40 cm tall, and are interspersed with tall growing Borassus Palms and small islands of forest. The grasslands show evidence of being burnt on a seasonal basis and grass was being harvested to a limited extent by women from the local villages. These effects did not appear to disturb the habitat and the grassland habitat appeared to be in a natural state. There was minimal evidence of livestock grazing. This habitat was partially flooded at the time of the survey and a limited diversity of bird species was observed there. The low numbers of birds were observed during the field survey although the species present included a number of typical grassland species (e.g. Yellow-throated Longclaw and Zitting Cisticola). It is possible that there may be an influx of herons, storks and other waterbirds at other times of the year and the area may have a higher importance for birds than was observed during the field survey. This may also apply to migrant, vagrant and nomadic species and not just waterbirds.

Characteristic bird species identified there are presented in Table 4.5.

Table 4.5 Characteristic Bird Species and Observed Abundance in the Seasonally-flooded Grassland Habitat

Common Name	Species Name	Observed Abundance (see Section 4.2.1)
Little Egret	<i>Egretta garzetta</i>	Uncommon
Great Egret	<i>Egretta alba</i>	Uncommon
Grey Kestrel	<i>Falco ardosiaceus</i>	Uncommon
African Wattled Lapwing	<i>Vanellus senegallus</i>	Uncommon
African Palm Swift	<i>Cypsiurus parvus</i>	Common
Yellow-throated Longclaw	<i>Macronyx croceus</i>	Uncommon
Zitting Cisticola	<i>Cisticola juncidis</i>	Common

4.1.6 Urban Habitat

Many villages occur within the AoI, particularly fishing villages along the coast. Houses are constructed close to one another and create an urbanised environment that is totally transformed and different from the adjacent areas. There are many coconut palms associated with villages, and a variety of cultivated food producing and ornamental plants. This is a modified habitat, but there is a diversity of bird species that have adapted to living commensally with local communities. Characteristic bird species that were observed within this habitat are presented in Table 4.6.

Table 4.6 Characteristic Bird Species and Observed Abundance in the Urban Habitat

Common Name	Species Name	Observed Abundance
Cattle Egret	<i>Bubulcus ibis</i>	Common
Black Kite	<i>Milvus migrans</i>	Abundant
Hooded Vulture	<i>Necrosyrtes monachus</i>	Frequent
Laughing Dove	<i>Streptopelia senegalensis</i>	Common
Woodland Kingfisher	<i>Halcyon senegalensis</i>	Frequent
Ethiopian Swallow	<i>Hirundo aethiopica</i>	Common
African Pied Wagtail	<i>Motacilla aguimp</i>	Frequent
Common Bulbul	<i>Pycnonotus barbatus</i>	Common
Pied Crow	<i>Corvus albus</i>	Abundant
Northern Grey-headed Sparrow	<i>Passer griseus</i>	Abundant
Vieillot's Black Weaver	<i>Ploceus nigerrimus</i>	Frequent
Village Weaver	<i>Ploceus cucullatus</i>	Abundant

4.2 RESULTS OF BIRD OBSERVATIONS

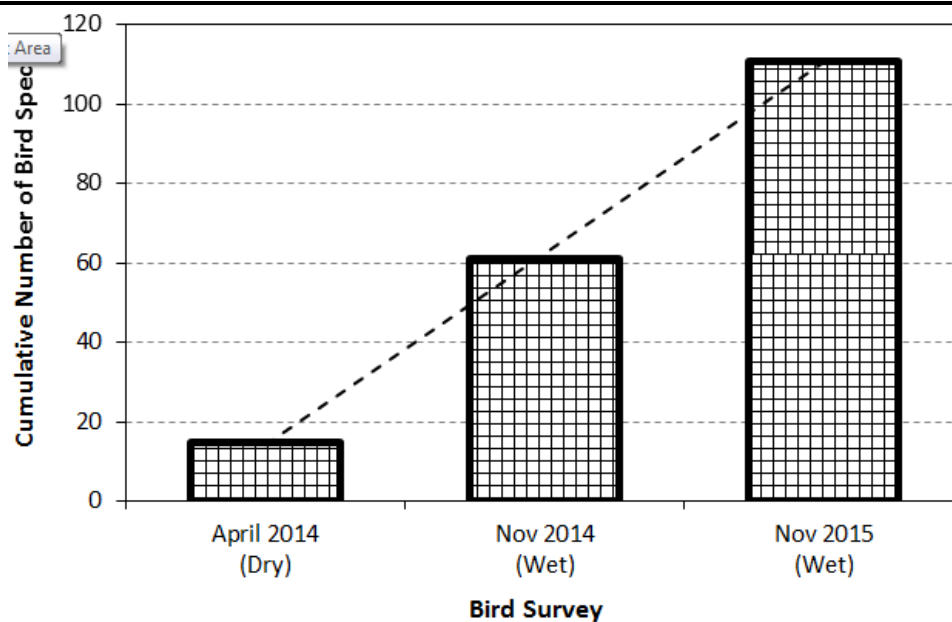
4.2.1 Species Diversity and Abundance

Appendix A presents a list of 175 bird species known to occur in the Amansuri Wetland. Owusu (2007) identified 124 bird species within the Amansuri Wetland over a three year survey. A total of 113 bird species have been shown to occur within the project AoI during the recent preconstruction bird survey and previous surveys in support of baseline surveys for the EIS. A total of 61 of the bird species listed by Owusu (2007) were observed during this pre-construction survey and surveys in support of the EIS. It is important to note that Owusu (2007) did not assess the shorebirds but had an emphasis on inland waterbirds. Few inland waterbirds were observed within the AoI.

The results of the current survey represent a considerable increase on the previously recorded diversity for the project area, as shown in Figure 4.2, which is attributed to the increased study area, which now includes the shore area. Previous surveys have focussed largely on the OCTP onshore concession area, with few birds recorded from the shoreline and settlement habitats. Comparison between surveys covering different areas are of limited validity, however the recorded diversity shows linear growth, which suggests that there remains a considerable diversity of species not yet recorded. As the list of known

species becomes comprehensive, growth of the list will slow down and develop into an asymptote shaped curve.

Figure 4.2 Species Diversity Accumulation Curve over Successive Surveys within the AoI



The detailed data arising from field observations for the preconstruction bird survey are presented in *Appendix B*. The detailed data has been used to develop five categories of abundance (Table 4.7), which have been used to describe the abundance of bird species per habitat in Table 4.1 to Table 4.6.

Table 4.7 Bird Abundance Categories used for the Preconstruction Bird Survey

Category	Description
Single observation	Observed once only during the field assessment
Uncommon	Few observations and restricted to one habitat type
Frequent	Observed in different habitats or frequently in one habitat
Common	Observed frequently in at least two habitats within the AoI
Abundant	Observed frequently in most habitats within the AoI

4.2.2 Presence of Shore Birds and Status of the IBA

The abundance of shorebirds was assessed over a 7.7km transect at low tide from Sanzule Village to the Amansuri River Estuary east of the AoI (Figure 3.2). Results of the bird counts along this transect are presented in *Appendix B*, and summarised in Table 4.8 on the basis of density per linear kilometre. A high confidence on these bird numbers was possible due to the open habitat, the linear nature of the shoreline and the ability of the surveyors to avoid double counting. Flocks of shorebirds were recorded along the length of the transect, and no particular hotspot for shorebird foraging appeared to be evident. The

only bird species that was found to be abundant was the Sanderling, with limited numbers of other bird species being present.

**Table 4.8 Shorebird Densities Observed During the November 2015
Preconstruction Bird Survey**

Common Name	Species Name	419-420 Transect Result (7.7km)	Bird Density per km of Shoreline
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	16	2.1
Common Ringed Plover	<i>Charadrius hiaticula</i>	3	0.4
Grey Plover	<i>Pluvialis squatarola</i>	21	2.7
Sanderling	<i>Calidris alba</i>	349	45.3
Whimbrel	<i>Numenius phaeopus</i>	13	1.7
Ruddy Turnstone	<i>Arenaria interpres</i>	5	0.6

In addition to the birds recorded on the shoreline transect 419-420, a large congregation of birds was observed at Amansuri River Estuary east of the AoI (located at GPS point 419). This concentration was estimated to include approximately 1000 Sanderlings, over 800 Royal Terns, over 100 Sandwich Terns, and low numbers of Common Terns, Eurasian Oystercatchers, Grey Plovers and Whimbrel (*Appendix B*). The terns were present in a mixed species flock and were tightly clustered together with the Sanderlings, and the figures presented here are estimated numbers only. The Sanderlings were thought to have gathered over a long length of shoreline to congregated there, and are expected to include Sanderlings that were counted a couple of days later along the transect described in Table 4.8.

Approximately 700 Royal Terns are expected to occur within the Amansuri Wetland IBA (Table 2.1) and this observation is therefore significant. It was the only site where Royal Terns were observed to be resting and the only site where Sandwich Terns were observed. The estuary is moderately far from any fishing village, and appears to be less disturbed by fishing activities than most other stretches of the shoreline. This estuary clearly represents an important hotspot for roosting shore and sea birds.

The original IBA assessment estimated that 4250 sanderlings are present within the IBA during the winter months. Approximately 1000 birds were observed, but not the entire IBA was assessed and it is possible that many more of these birds were present along the 43 km stretch of shoreline or other habitats of the IBA. Sanderling numbers are reported to have increased considerably along the Ghana coast (Ntiama-Baidu *et al.* 2014) in recent years although the reasons for this are not clear.

A number of the Sanderlings photographed during the field assessment were tagged with various coloured leg rings and tags (Figure 4.3). The tagging project was identified through the CRBirding website⁽⁵⁾ to be conducted by Dr Jeroen Reneerkens in the Netherlands⁽⁶⁾. Tagging was conducted by researchers at the University of Ghana to monitor the migratory movements of Sanderlings. Observations for 31 tagged Sanderlings were uploaded onto the Animal Tracks website (<https://animaltrack.org/>) to assist this research.

Figure 4.3 Four examples of tagged Sanderlings photographed in the AoI



The Save the Seashore Birds Project – Ghana (SSBP-G) has been implemented from 1985 to 1988⁽⁷⁾. Fishermen have for long known the importance of birds such as terns as indicators of fish stocks out at sea, and the SSBP-G has encouraged fishermen to appreciate the importance of protecting sea birds while on the shore for their own benefit. Based on the numbers of shorebirds present, the programme appears to have been successful and the benefits are still being appreciated by the shore birds.

(5) CRBirding website available at: <http://www.cr-birding.org/>

(6) Dr Jeroen Reneerkens, Animal Ecology Group, Centre for Ecological and Evolutionary Studies, University of Groningen, PO Box 14, 9750 AA Haren, The Netherlands. J.W.H.Reneerkens@rug.nl

(7) The Save the Seashore Birds Project – Ghana (SSBP-G) was established with the signing of an agreement between the Ghana Government, the Royal Society for the Protection of Birds (RSPB) and the International Council for Preservation (ICBP) in June 1985. The activities of the SSBP-G centered around research, training, conservation education and public awareness programmes, have achieved results far beyond the initial aim of saving a single species and has contributed immensely to general wildlife conservation awareness within Ghana. Data available at: <http://www.ghanawildlifesociety.org/page.php?page=248§ion=28&typ=1&subs=254>

4.2.3 Other Bird Species of Conservation Concern

Data is presented below on various bird species of conservation that have been observed or may occur in the project AoI. Additional data for these species are presented in *Appendix C*.

Hooded Vulture (*Necrosyrtes monachus*)

Hooded Vultures have been recorded in the IBA and in the project area during each survey that has been conducted (*Appendix A*). This species is classified on the IUCN Red List of Threatened Species as Critically Endangered. An emphasis was therefore placed on making observations of this vulture during the November 2015 preconstruction bird survey.

Observations suggest that there may be two resident groups of Hooded Vultures associated with the fishing villages in the AoI. Two adult birds were observed on several occasions in Sanzule Village and a group of four birds comprising both adult and sub-adult birds was observed in Eikwe Village (Figure 4.4). At least six sightings were in village habitats where the birds are able to feed on waste, while one sighting (GPS point 410) was made where the Eikwe group had gathered at a freshwater pond to drink.

The data suggests the presence of two vulture groups but monitoring over a period of time will be necessary to confirm this. There is a high likelihood that other Hooded Vulture groups are present in the AoI, as villages in the northeast of the AoI were not surveyed.

Individual birds were sighted twice. At GPS point 403 a single Hooded Vulture was seen flying high overhead, and at GPS point 399 (7km west of the AoI), a single vulture was seen flying low within a village environment in the vicinity of Atuabo.

Distribution and Ecology of the Hooded Vulture

The Hooded vulture has been up-listed to Critically Endangered in 2015 on the IUCN Red List for Threatened Species (was listed as Endangered in 2011). The species has a wide distribution that extends from southern Africa to the southern limits of the Sahel, but has disappeared from many parts of its former range. The population is estimated to number a maximum of 197,000 individuals. Recently published evidence suggests the population is experiencing an extremely rapid decline (estimated 83% decline over three generations, Ogada et al. 2015) owing to indiscriminate poisoning, trade for traditional medicine, hunting, persecution and electrocution, as well as habitat loss and degradation.

The Birdlife International factsheet for Hooded Vultures provides a distribution map that indicates these birds to be extinct/extirpated in the coastal region of Ghana, in which the project AoI is located (Figure 4.5). This makes the presence of these vultures in the project AoI all the more important.

Figure 4.4 Locations of Hooded Vulture Sightings During the November 2015 Preconstruction Bird Survey

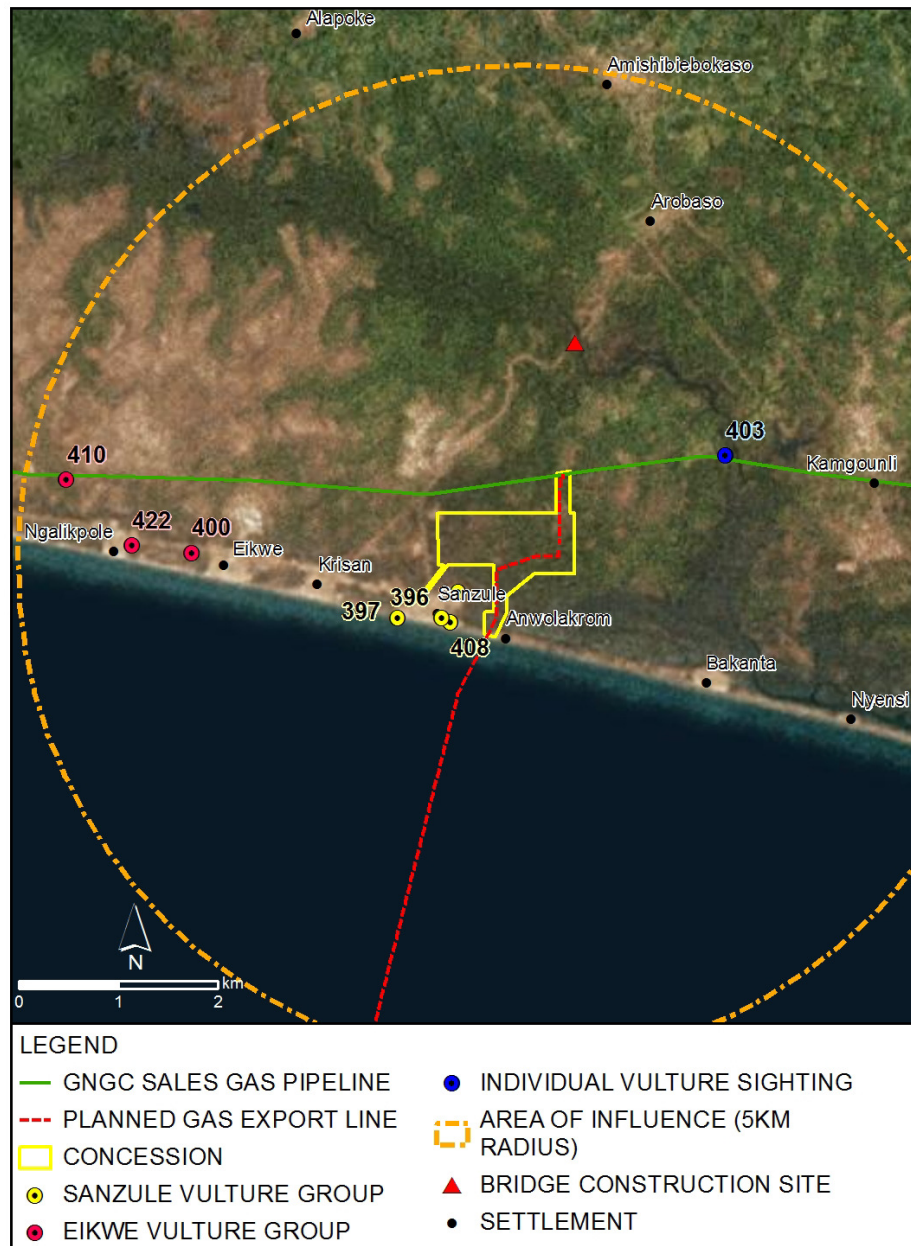
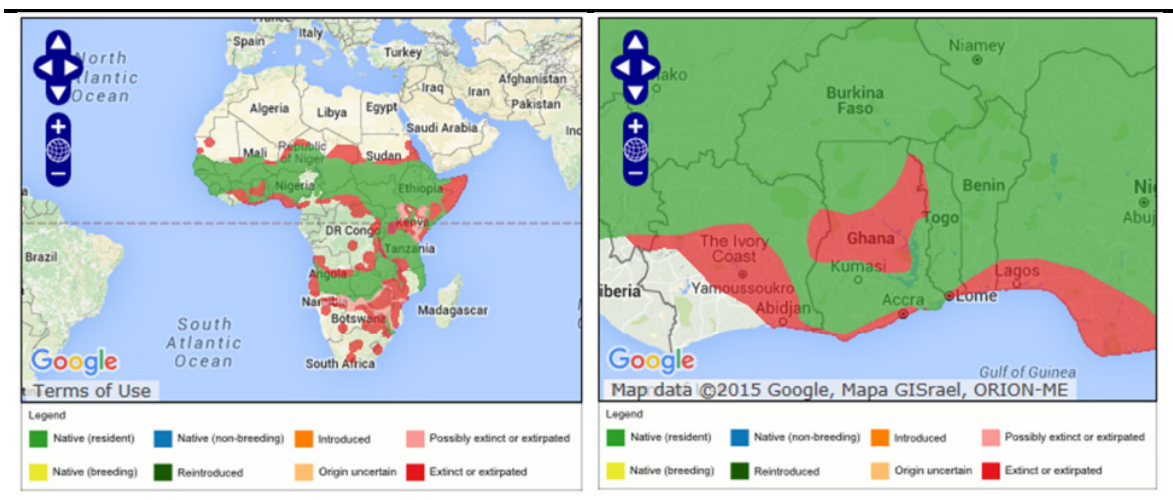


Figure 4.5 Hooded Vulture Distribution Map Published Online by Birdlife International (left: entire African continent, right: zoomed to Ghana)



Source: Birdlife International Factsheet for Hooded Vultures
Available at: <http://www.birdlife.org/datazone/species/factsheet/22695185>

The threatened status of the Hooded Vulture has recently been upgraded to critically endangered based on the following justification provided by the IUCN Red List of Threatened Species:

"This vulture has been up-listed to Critically Endangered. Recently published evidence suggests the population is experiencing an extremely rapid decline owing to indiscriminate poisoning, trade for traditional medicine, hunting, persecution and electrocution, as well as habitat loss and degradation."

The species is often associated with human settlements, but is also found in open grassland, forest edge, wooded savanna, desert and along coasts (Ferguson-Lees and Christie 2001). It occurs up to 4,000 m, but is most numerous below 1,800 m. It feeds mainly on carrion, but also takes insects. Large wild herbivore populations have disappeared over most of its range in West Africa and this vulture appears to have switched its food source from carrion to waste. This species appears to be highly adaptable and it can change its habits and habitat according to availability of food etc. It lives well on the margins of human settlement, but would change its distribution and feeding habits if necessary.

Major threats to Hooded Vultures include non-target poisoning, capture for traditional medicine and bushmeat, and direct persecution (Ogada and Buij 2011). Hooded Vulture meat is reportedly sold as chicken in some places. Intentional poisoning of vultures may be carried out in some areas by poachers in order to hide the locations of their kills. Secondary poisoning with carbofuran pesticides at livestock baits being used to poison mammalian predators is an issue in East Africa (Otieno *et al.* 2010, C. Kendall *in lit.* 2012). Declines have also been attributed to land conversion through development and

improvements to abattoir hygiene and rubbish disposal in some areas (Ogada and Buij 2011).

Throughout its range in Sub-Saharan Africa, this species is reported to be frequently seen around human settlements and even large urban cities such as, in Ghana, Accra. Roberts (2013) estimated a population of 257 birds in Accra. James Blimey has observed a noticeable nationwide decline in abundance of this vulture in recent decades, which is substantiated by Ogada and Buij (2011). Reasons for the decline in Ghana are not known but may be caused by improving sanitation for village communities, improved veterinary services for livestock (there is no evidence regarding the use of diclofenic), disposal of livestock carcasses in a manner that does not provide food for scavengers and motorised transport that reduces the need for beasts of burden such as donkeys, horses and cattle. These may not be the primary causes neither do these threats exist in isolation of other threats.

James Blimey stated that there is a general acceptance of vultures in Ghana society, and this is substantiated by Roberts (2013). The Hooded Vulture is the first wild bird that children learn the name and communities accept that the species plays a role in cleaning up the environment. Roberts (2013) stated that there is some disliking of Hooded Vultures in Accra due to their habit of defecating on cars, houses and other structures. As a result some large trees in which the birds have been known to roost have been cut down or the branches severely pruned. Some evidence of sale of Hooded Vulture body parts to Nigeria was also detected. The extent to which this applies in the project area will need to be determined in future studies.

In Ghana this vulture is known to favour large coconut palms in the vicinity of villages for nesting, alternatively it nests in large cotton trees (*Ceiba pentandra*). Large coconut palms are plentiful in the vicinity of fishing villages in the project area of influence, and abundant suitable habitat exists for this species, although occurrence of nesting in the project area of influence was not confirmed. Roberts (2013) noted the dependence of the birds on large trees in Accra, and stated that protection of large trees was vital for maintaining suitable habitat. Additional data on Hooded Vultures are presented in *Appendix C*.

Grey Parrot (*Psittacus erithacus*)

Grey Parrots were listed in the EIS as a possible species of concern for the project area and were therefore included in the ToR as a priority species for the field survey, although the species has not been observed during previous surveys. Two Grey Parrots were observed during the preconstruction bird survey flying above the tree canopy in a single sighting (GPS point 423). The general habitat there was a mixture of secondary forest and swamp forest, but the birds could not be associated with particular habitats due to their flight behaviour. This species is classified as Vulnerable on the IUCN Red List of Threatened Species. Population declines are attributed primarily to capture of wild birds for the pet trade and also to habitat loss. Additional data on Grey Parrots are presented in *Appendix C*.

Copper-tailed Glossy Starling (*Lamprotornis cupreocauda*)

A single sighting of the Copper-tailed Glossy Starling was made in Swamp Forest close to the OCTP onshore concession boundary (GPS point 384). The observation was sufficient to confirm the presence of this species but provided little data about the local ecology of the species. This species is classified as Near Threatened on the IUCN Red List of Threatened Species, with loss of habitat is listed as the primary cause for its decline.

This starling is a species of forest, forest edge, and gallery forest (Gatter 1997, H. Rainey *in litt.* 1999). It has been reported to benefit immediately following forest burning when some emergent trees remain, but to decline in secondary habitats thereafter (Gatter 1997). It feeds on insects, figs, berries and other fruits (Fry *et al.* 2000). Additional data on Copper-tailed Glossy Starlings are presented in *Appendix C*.

Green-tailed Bristlebill (*Bleda eximia*)

The Green-tailed Bristlebill has not been observed in the project area or AoI during any of the surveys. This species typically forages together with the Grey-headed Bristlebill (*Bleda canicapillus*) which was observed in secondary forest during the preconstruction bird survey. The Green-tailed Bristlebill is therefore considered likely to occur in the project AoI. This species is classified as Near Threatened on the IUCN Red List of Threatened Species with loss of habitat is listed as the primary cause for its decline. Additional data on Green-tailed Bristlebill are presented in *Appendix C*.

Yellow-Bearded Greenbul (*Criniger olivaceus*)

The Yellow-Bearded Greenbul has not been recorded during any of the bird surveys conducted. This species is listed as Vulnerable on the IUCN Red List, and is endemic to West Africa. This is a species that is found in the mid-storey of lowland primary forest. In Ghana, the species is restricted to the wetter evergreen forests of the southwest. These wet evergreen forests do not occur in the project area and the Yellow-Bearded Greenbul is considered to have a low likelihood of occurrence there. Additional data on Yellow-bearded Greenbuls are presented in *Appendix C*.

4.2.4 Breeding Behaviour Observed during the Preconstruction Bird Survey

Few observations of breeding behaviour were made during the preconstruction bird survey. Breeding observations have been annotated in *Appendix B*, but included the following:

A pair of Black Kites (*Milvus migrans*, *Appendix D* photo i), classified as Least Concern, was observed building a nest in a tall Coconut Palm within the OCTP onshore concession (close to GPS point 387). This species was abundant during the field survey and was observed in every habitat.

A Little Bee-eater (*Merops pusillus*, *Appendix D* photo s), classified as Least Concern, nesting colony was observed in an exposed soil embankment of a quarry immediately north of the OCTP onshore concession (GPS point 405). A number of deep horizontal holes were present, and bee-eaters roosting on nearby sticks were visibly dirty and covered in

reddish soil. The birds had also excavated burrows into a nearby heap of loosened soil. All of the burrows appeared to be recently excavated and no evidence of eggs and nestlings were observed. Soil from the quarry was being used for road construction and this nesting colony was not in a secure location.

Ethiopian Swallows (*Hirundo aethiopica*, *Appendix D* photo x), classified as Least Concern, were abundant in the village of Sanzule and included a number of juvenile birds. It was not possible to determine if the birds had nested in the village, but it is unlikely that the juvenile birds had flown a long distance from their nests.

A pair of Reichenbach's Sunbirds (*Anabathmis reichenbachii*, *Appendix D* photo bb), classified as Least Concern, was observed attending to a nest amongst mangrove trees at GPS point 414. This sunbird species is widespread in the Congo Basin but has a fragmented distribution in West Africa. The Amansuri Wetland is illustrated in Borrow & Demey (2007) as its only area of occurrence within Ghana, although the IUCN Red List illustrates a wider coastal distribution. The species was found to be relatively abundant during the pre-construction bird survey, being observed in five different locations (*Appendix B*) but always closely associated with surface water.

Veillot's Black Weaver (*Ploceus nigerrimus*, *Appendix D* photo gg) and Village Weavers (*Ploceus cucullatus*, *Appendix D* photo hh), both classified as Least Concern, were seen nesting communally in a noisy mixed species commune high in coconut palms within village habitats.

4.2.5 Occurrence of Nocturnal Birds

A night survey lasting approximately 2.5 hours was conducted to assess the diversity of nocturnal birds such as owls and nightjars. Calls of a variety of nocturnal birds likely to occur were played but no response was detected. No nocturnal birds were observed or heard, and no evidence of owl pellets or road kills of nightjars were seen throughout the survey. Nocturnal birds may be present, but their diversity and abundance is low, or selected species may be seasonally absent.

4.2.6 Other Incidental Observations during the Preconstruction Bird Survey

A Red-necked Buzzard (*Buteo auguralis*) was photographed in secondary forest feeding on a small snake, possibly belonging to the *Psammophylax* genus (*Appendix D* photo j). This was the only observation of this raptor throughout the field survey, although this species was recorded within the IBA by Owusu (2007) on several occasions in 2004, 2005 and 2006.

A pair of Grey Kestrels (*Falco ardosiaceus*) were observed in a large Borassus Palm (*Borassus aethiopum*) in open grassland habitat near GPS point 424, and were causing much agitation to a flock of African Palm Swifts (*Cypsiurus parvus*). No nests were seen but the Kestrels were presumed to be raiding swift nests.

5 CONCLUSIONS

This report provides an overview of the bird diversity that occurs within the AoI of the OCTP Onshore Receiving Facility, and will serve as a baseline for future monitoring. Raw data from birds counts conducted along transects and observation points are provided in *Appendix B*. Various bird species of conservation concern are shown to occur, which include the following important observations:

The IBA supports large numbers of the qualifying species for which it was established, namely Royal Terns (*Sterna maxima*) and Sanderlings (*Calidris alba*).

Hooded Vultures (*Necrosyrtes monachus*), classified as Critically Endangered on the IUCN Red List of Threatened Species, show evidence of being resident within the project's Area of Influence.

Two other bird species of conservation concern have been shown to be present, namely Grey Parrot (*Psittacus erithacus*) classified as Vulnerable on the IUCN Red List and listed on Appendix II of CITES., and Copper-tailed glossy starling (*Lamprotornis cupreocauda*) classified as Near Threatened.

The IBA is large and has various hotspots of key biodiversity activity, with the following hotspots being of relevance:

An estuary of the Amansuri and Ankobra rivers west of the proposed eni development's Area of Influence (AoI) is an important roosting site for large numbers of terns and various shorebirds.

The shoreline is important foraging habitat for various shorebirds. The proposed eni development will possibly have a direct impact on the shoreline and measures will need to be taken to protect the qualifying species and other shorebirds occurring there.

Village habitats are important hotspots for the critically endangered Hooded Vulture. Data suggests there may be two resident groups of this species depend on the waste from fishing villages within the AoI. Additional groups of this vulture may be present in other villages associated with the AoI. The extent of populations cannot be quantified until further studies are conducted.

A nesting colony of Little Bee-eaters (*Merops pusillus*) occurs in an insecure location on the boundary of the proposed ORF concession. The nesting site has been artificially created and could be easily recreated in a nearby safe location.

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APPENDIX A – LIST OF BIRD SPECIES IDENTIFIED DURING CURRENT AND PAST SURVEYS

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
1. Reed Cormorant	<i>Phalacrocorax africanus</i>	LC (dec, 2012)	x			
2. Little Bittern *	<i>Ixobrychus minutus</i>	LC (dec, 2014)	x			
3. Dwarf Bittern *	<i>Ixobrychus sturmii</i>	LC (unkn, 2012)				x
4. Cattle Egret *	<i>Bubulcus ibis</i>	LC (inc, 2015)	x	x		x
5. Striated Heron	<i>Butorides striata</i>	LC (dec, 2014)	x			
6. Western Reef Heron *	<i>Egretta gularis</i>	LC (stbl, 2014)		x		
7. Little Egret *	<i>Egretta garzetta</i>	LC (inc, 2015)				x
8. Yellow-billed Egret	<i>Egretta intermedia</i>	LC (dec, 2015)			x	
9. Great Egret *	<i>Ardea alba</i> [<i>Casmerodius albus</i>]	LC (unkn, 2015)				x
10. Grey Heron *	<i>Ardea cinerea</i>	LC (unkn, 2012)	x		x	
11. Black-headed Heron *	<i>Ardea melanocephala</i>	LC (inc, 2012)			x	
12. Goliath Heron	<i>Ardea goliath</i>	LC (stbl, 2012)	x			
13. White-faced Whistling Duck *	<i>Dendrocygna viduata</i>	LC (inc, 2012)	x			
14. African Pygmy Goose *	<i>Nettapus auritus</i>	LC (dec, 2012)	x			
15. Black Kite	<i>Milvus migrans</i>	LC (unkn, 2015)	x	x	x	x
16. Palm-nut Vulture	<i>Gypohierax angolensis</i>	LC (stbl, 2015)	x			
17. Hooded Vulture	<i>Necrosyrtes monachus</i>	CR (dec, 2015)	x	x	x	x
18. African Harrier Hawk	<i>Polyboroides typus</i>	LC (stbl, 2015)	x			x
19. African Goshawk	<i>Accipiter tachiro</i>	LC (dec, 2015)	x		x	
20. Red-necked Buzzard	<i>Buteo auguralis</i>	LC (inc, 2015)	x			x
21. Crowned Eagle	<i>Stephanoaetus coronatus</i>	NT (dec, 2012)	x			
22. Grey Kestrel	<i>Falco ardosiaceus</i>	LC (stbl, 2012)	x			x
23. Ahanta Francolin	<i>Fringilla achantensis</i>	LC (dec, 2012)	x			
24. White-spotted Flufftail	<i>Sarothrura pulchra</i>	LC (dec, 2012)	x			
25. African Crake *	<i>Crex [Crecopsis] egregia</i>	LC (stbl, 2012)	x			
26. Common Moorhen *	<i>Gallinula chloropus</i>	LC (stbl, 2015)	x			
27. African Finfoot	<i>Podica senegalensis</i>	LC (dec, 2012)	x			
28. African Jacana	<i>Actophilornis africanus</i>	LC (stbl, 2012)	x			x
29. Eurasian	<i>Haematopus</i>	NT (dec,				x

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
Oystercatcher *	<i>ostralegus</i>	2015)				
30. Common Ringed Plover *	<i>Charadrius hiaticula</i>	LC (dec, 2012)				x
31. Grey Plover *	<i>Pluvialis squatarola</i>	LC (dec, 2012)				x
32. African Wattled Lapwing *	<i>Vanellus senegallus</i>	LC (stbl, 2012)				x
33. Sanderling *	<i>Calidris alba</i>	LC (unkn, 2012)				x
34. Little Stint *	<i>Calidris minuta</i>	LC (dec, 2012)			x	
35. Whimbrel *	<i>Numenius phaeopus</i>	LC (dec, 2012)		x		x
36. Common Greenshank *	<i>Tringa nebularia</i>	LC (stbl, 2015)	x			
37. Ruddy Turnstone *	<i>Arenaria interpres</i>	LC (dec, 2012)				x
38. Royal Tern *	<i>Sterna maxima</i>	LC (stbl, 2012)				x
39. Sandwich Tern *	<i>Sterna sandvicensis</i>	LC (stbl, 2015)				x
40. Common Tern *	<i>Sterna hirundo</i>	LC (dec, 2015)				x
41. African Green Pigeon	<i>Treron calvus</i>	LC (dec, 2014)	x		x	
42. Tambourine Dove	<i>Turtur tympanistria</i>	LC (stbl, 2015)	x		x	x
43. Blue-spotted Wood Dove	<i>Turtur afer</i>	LC (stbl, 2012)	x			x
44. Red-eyed Dove	<i>Streptopelia semitorquata</i>	LC (inc, 2012)	x		x	x
45. Laughing Dove	<i>Streptopelia senegalensis</i>	LC (stbl, 2015)			x	x
46. Grey Parrot	<i>Psittacus erithacus</i>	VU (dec, 2013)				x
47. Green Turaco	<i>Tauraco persa</i>	LC (stbl, 2012)	x			
48. Yellow-billed Turaco	<i>Tauraco macrorhynchus</i>	LC (stbl, 2012)	x			
49. Western Grey Plantain-eater	<i>Crinifer piscator</i>	LC (stbl, 2012)	x		x	x
50. Black Cuckoo	<i>Cuculus clamosus</i>	LC (stbl, 2012)	x			
51. African Emerald Cuckoo	<i>Chrysococcyx cupreus</i>	LC (stbl, 2012)	x			x
52. Klaas's Cuckoo	<i>Chrysococcyx klaas</i>	LC (stbl, 2012)	x		x	x
53. Dideric Cuckoo	<i>Chrysococcyx caprius</i>	LC (stbl, 2012)	x			
54. Yellowbill Malcoha	<i>Ceuthmochares aereus</i>	LC (stbl, 2014)	x			
55. Black-throated Coucal	<i>Centropus leucogaster</i>	LC (stbl, 2012)	x			
56. Senegal Coucal	<i>Centropus senegalensis</i>	LC (stbl, 2012)	x	x	x	x
57. Mottled Spinetail	<i>Telacanthura ussheri</i>	LC (stbl, 2012)	x			
58. African Palm Swift	<i>Cypsiurus parvus</i>	LC (inc, 2012)	x		x	x
59. Common Swift	<i>Apus apus</i>	LC (stbl, 2014)			x	
60. Blue-breasted	<i>Halcyon malimbica</i>	LC (dec, 2012)	x		x	x

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
Kingfisher						
61. Woodland Kingfisher	<i>Halcyon senegalensis</i>	LC (stbl, 2012)	x		x	x
62. African Pygmy Kingfisher	<i>Ceyx pictus</i>	LC (stbl, 2012)	x			x
63. Malachite Kingfisher	<i>Alcedo cristata</i>	LC (stbl, 2014)			x	x
64. Shining-blue Kingfisher	<i>Alcedo quadribachys</i>	LC (stbl, 2012)		x		
65. Giant Kingfisher	<i>Megaceryle maxima</i>	LC (dec, 2012)				x
66. Pied Kingfisher	<i>Ceryle rudis</i>	LC (unkn, 2012)	x			
67. Black Bee-eater	<i>Merops gularis</i>	LC (stbl, 2012)				x
68. Little Bee-eater	<i>Merops pusillus</i>	LC (dec, 2012)	x		x	x
69. White-throated Bee-eater	<i>Merops albicollis</i>	LC (stbl, 2012)			x	x
70. Rosy Bee-eater	<i>Merops malimbicus</i>	LC (unkn, 2015)			x	
71. Blue-throated Roller	<i>Eurystomus gularis</i>	LC (dec, 2012)	x			
72. Broad-billed Roller	<i>Eurystomus glaucurus</i>	LC (stbl, 2012)	x			
73. White-crested Hornbill	<i>Tropicranus albocristatus</i>	LC (dec, 2014)	x		x	
74. Red-billed Dwarf Hornbill	<i>Tockus camurus</i>	LC (stbl, 2012)		x		
75. African Pied Hornbill	<i>Tockus fasciatus</i>	LC (unkn, 2014)	x	x	x	x
76. Piping Hornbill	<i>Bycanistes fistulator</i>	LC (dec, 2014)	x			x
77. Black-casqued Hornbill	<i>Ceratogymna atrata</i>	LC (dec, 2012)	x			
78. Naked-faced Barbet	<i>Gymnobucco calvus</i>	LC (dec, 2014)	x			x
79. Speckled Tinkerbird	<i>Pogoniulus scolopaceus</i>	LC (dec, 2012)	x			x
80. Red-rumped Tinkerbird	<i>Pogoniulus atroflavus</i>	LC (stbl, 2012)	x			x
81. Yellow-throated Tinkerbird	<i>Pogoniulus subsulphureus</i>	LC (stbl, 2012)	x			x
82. Yellow-rumped Tinkerbird	<i>Pogoniulus bilineatus</i>	LC (stbl, 2012)	x			
83. Yellow-spotted Barbet	<i>Buccanodon duchaillui</i>	LC (stbl, 2012)	x			
84. Hairy-breasted Barbet	<i>Tricholaema hirsuta</i>	LC (stbl, 2012)	x			
85. Buff-spotted Woodpecker	<i>Campethera nivosa</i>	LC (stbl, 2012)	x			
86. Gabon Woodpecker	<i>Dendropicos gabonensis</i>	LC (stbl, 2014)			x	
87. Fire-bellied Woodpecker	<i>Dendropicos pyrrhogaster</i>	LC (inc, 2012)		x		

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
88. Flappet Lark	<i>Mirafra rufocinnamomea</i>	LC (dec, 2012)	x			
89. Fanti Saw-wing	<i>Psolidoprocne obscura</i>	LC (stbl, 2012)	x			
90. Lesser Striped Swallow	<i>Cecropis abyssinica</i>	LC (inc, 2012)	x			
91. Wire-tailed Swallow	<i>Hirundo smithii</i>	LC (inc, 2012)	x			
92. Ethiopian Swallow	<i>Hirundo aethiopica</i>	LC (inc, 2012)	x			x
93. Barn Swallow	<i>Hirundo rustica</i>	LC (dec, 2012)	x			
94. African Pied Wagtail	<i>Motacilla aguimp</i>	LC (stbl, 2012)	x		x	x
95. Plain-backed Pipit	<i>Anthus leucophrys</i>	LC (stbl, 2012)	x			
96. Yellow-throated Longclaw	<i>Macronyx croceus</i>	LC (stbl, 2012)	x			x
97. Black Cuckoo-Shrike	<i>Campephaga flava</i>	LC (stbl, 2012)	x			
98. Little Greenbul	<i>Andropadus virens</i>	LC (stbl, 2012)	x		x	x
99. Little Grey Greenbul	<i>Andropadus gracilis</i>	LC (stbl, 2012)				x
100. Slender-billed Greenbul	<i>Andropadus gracilirostris</i>	LC (stbl, 2012)	x			
101. Yellow-whiskered Greenbul	<i>Andropadus latirostris</i>	LC (stbl, 2012)			x	
102. Yellow-whiskered Greenbul	<i>Andropadus latirostris</i>	LC (stbl, 2012)	x			
103. Honeyguide Greenbul	<i>Baeopogon indicator</i>	LC (stbl, 2012)	x			
104. Simple Greenbul	<i>Chlorocichla simplex</i>	LC (stbl, 2012)	x			x
105. Swamp Palm Bulbul	<i>Thescelocichla leucopleura</i>	LC (stbl, 2012)	x			x
106. Grey-headed Bristlebill Bulbul	<i>Bleda canicapillus</i>	LC (stbl, 2012)	x		x	x
107. Red-tailed Greenbul	<i>Criniger calurus</i>	LC (stbl, 2012)	x			
108. Common Bulbul	<i>Pycnonotus barbatus</i>	LC (inc, 2012)	x		x	x
109. Western Nicator	<i>Nicator chloris</i>	LC (stbl, 2012)				x
110. Western Nicator	<i>Nicator chloris</i>	LC (stbl, 2012)	x			
111. Fire-crested Alethe	<i>Alethe diademata</i>	LC (dec, 2013)	x			
112. Rufous Flycatcher-Thrush	<i>Stizorhina fraseri</i>	LC (dec, 2012)	x			
113. African Thrush	<i>Turdus pelios</i>	LC (unkn, 2012)			x	
114. Northern Crombec	<i>Sylvietta brachyura</i>	LC (stbl, 2012)	x			
115. Green Crombec	<i>Sylvietta virens</i>	LC (stbl, 2012)	x			
116. Kemp's Longbill	<i>Macrosphenus kempii</i>	LC (stbl, 2012)	x			
117. Grey Longbill	<i>Macrosphenus concolor</i>	LC (stbl, 2012)	x			x
118. Green Hylia	<i>Hylia prasina</i>	LC (stbl, 2012)	x		x	x
119. Red-faced Cisticola	<i>Cisticola erythrops</i>	LC (stbl, 2012)			x	
120. Whistling Cisticola	<i>Cisticola lateralis</i>	LC (stbl, 2012)			x	

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
121. Winding Cisticola	<i>Cisticola galactotes</i>	LC (stbl, 2012)	x			
122. Zitting Cisticola	<i>Cisticola juncidis</i>	LC (inc, 2014)	x			x
123. Tawny-flanked Prinia	<i>Prinia subflava</i>	LC (stbl, 2012)	x		x	x
124. Grey-backed Camaroptera	<i>Camaroptera brevicaudata</i>	NE (unkn)	x		x	
125. Yellow-browed Camaroptera	<i>Camaroptera superciliaris</i>	LC (stbl, 2012)	x			
126. Cassin's Flycatcher	<i>Muscicapa cassini</i>	LC (stbl, 2012)	x			
127. Blue-headed Crested Flycatcher	<i>Trochocercus nitens</i>	LC (dec, 2012)	x			
128. African Paradise Flycatcher	<i>Terpsiphone viridis</i>	LC (stbl, 2012)				x
129. Red-bellied Paradise Flycatcher	<i>Terpsiphone rufiventer</i>	LC (dec, 2013)	x			x
130. Chestnut Wattle-eye	<i>Dyaphorophya castanea</i>	LC (stbl, 2012)	x			
131. Brown-throated Wattle-eye	<i>Platysteira cyanea</i>	LC (stbl, 2012)			x	
132. Pale-breasted Illadopsis Akalat	<i>Illadopsis rufipennis</i>	LC (stbl, 2012)	x			
133. Tit-hylia	<i>Pholidornis rushiae</i>	LC (stbl, 2012)	x			
134. Mouse-brown Sunbird	<i>Anthreptes gabonicus</i>	LC (stbl, 2012)	x			x
135. Reichenbach's Sunbird	<i>Anabathmis reichenbachii</i>	LC (stbl, 2012)				x
136. Green-headed Sunbird	<i>Cyanomitra verticalis</i>	LC (stbl, 2012)	x		x	x
137. Western Olive Sunbird	<i>Cyanomitra obscura</i>	LC (stbl, 2012)	x		x	x
138. Buff-throated Sunbird	<i>Chalcomitra adelberti</i>	LC (stbl, 2012)	x			x
139. Collared Sunbird	<i>Hedydipna collaris</i>	LC (stbl, 2012)	x			x
140. Olive-bellied Sunbird	<i>Cinnyris chloropygius</i>	LC (stbl, 2012)	x			x
141. Tiny Sunbird	<i>Cinnyris minulla</i>	LC (stbl, 2012)				x
142. Splendid Sunbird	<i>Cinnyris coccinigastrus</i>	LC (stbl, 2012)				x
143. Copper Sunbird	<i>Cinnyris cupreus</i>	LC (stbl, 2012)	x		x	x
144. Black-crowned Tchagra	<i>Tchagra senegalus</i>	LC (stbl, 2012)	x			x
145. Yellow-crowned Gonolek	<i>Laniarius barbarus</i>	LC (stbl, 2012)			x	
146. Western Black- headed Oriole	<i>Oriolus brachyrhynchus</i>	LC (dec, 2012)		x		
147. Western Black- headed Oriole	<i>Oriolus brachyrhynchus</i>	LC (dec, 2012)	x			
148. Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	LC (stbl, 2012)	x			

Common Name	Species Name	IUCN status (pop. trend & year assessed)	Owusu (2007)	2014 Dry	2014 Wet	Nov 2015
149. Pied Crow	<i>Corvus albus</i>	LC (stbl, 2013)	x	x	x	x
150. Copper-tailed Starling	<i>Lamprotornis cupreocauda</i>	NT (dec, 2012)				x
151. Splendid Starling	<i>Lamprotornis splendidus</i>	LC (unkn, 2012)	x		x	x
152. Northern Grey-headed Sparrow	<i>Passer griseus</i>	LC (stbl, 2012)	x		x	x
153. Red-vented Malimbe	<i>Malimbus scutatus</i>	LC (stbl, 2012)	x			x
154. Blue-billed Malimbe	<i>Malimbus nitens</i>	LC (stbl, 2012)	x			x
155. Red-headed Malimbe	<i>Malimbus rubricollis</i>	LC (stbl, 2012)	x			
156. Black-necked Weaver	<i>Ploceus nigricollis</i>	LC (stbl, 2012)			x	x
157. Spectacled Weaver	<i>Ploceus ocularis</i>	LC (stbl, 2012)	x			
158. Vitelline Masked Weaver	<i>Ploceus vitellinus</i>	LC (stbl, 2012)	x			
159. Vieillot's Black Weaver	<i>Ploceus nigerrimus</i>	LC (stbl, 2012)		x		x
160. Village Weaver	<i>Ploceus cucullatus</i>	LC (stbl, 2012)	x	x	x	x
161. Yellow-mantled Weaver	<i>Ploceus tricolor</i>	LC (stbl, 2012)		x		
162. Northern Red Bishop	<i>Euplectes franciscanus</i>	LC (stbl, 2012)			x	
163. Yellow-crowned Bishop	<i>Euplectes afer</i>	LC (stbl, 2012)	x			
164. Yellow-mantled Widowbird	<i>Euplectes macroura</i>	LC (stbl, 2012)	x			
165. Grey-headed Negrofinch	<i>Nigrita canicapillus</i>	LC (stbl, 2012)	x			x
166. White-breasted Negrofinch	<i>Nigrita fusconotus</i>	LC (stbl, 2012)				x
167. Orange-cheeked Waxbill	<i>Estrilda melpoda</i>	LC (stbl, 2012)	x		x	x
168. Western Bluebill	<i>Spermophaga haematina</i>	LC (stbl, 2012)	x		x	
169. Black-bellied Seedcracker	<i>Pyrenestes ostrinus</i>	LC (stbl, 2012)				x
170. Bar-breasted Firefinch	<i>Lagonosticta rufopicta</i>	LC (stbl, 2012)			x	
171. African Firefinch	<i>Lagonosticta rubricata</i>	LC (stbl, 2012)			x	
172. Black-faced Quailfinch	<i>Ortygospiza atricollis</i>	LC (stbl, 2013)	x			
173. Bronze Mannikin	<i>Lonchura cucullata</i>	LC (stbl, 2012)	x		x	x
174. Black-and-white Mannikin	<i>Lonchura bicolor</i>	LC (stbl, 2012)	x			x
175. Pin-tailed Whydah	<i>Vidua macroura</i>	LC (stbl, 2012)	x			
Total numbers of species:			124	15	52	86

*	AEWA species	CR	Endangered
pop	Population	VU	Vulnerable
inc	Increasing population trend	NT	Near threatened
dec	Decreasing population trend	LC	Least concern
Stbl	Stable population trend	NE	Not evaluated
unkn	Unknown population trend		

Bird Surveys listed in Appendix A

- Owusu 2007 The Ornithological Importance of the Amansuri Community Nature Reserve in the Western Region of Ghana. Journal of Science and Technology Vol 27(3) pg 72-85. (Based on a 3-year study) Available at:
<http://www.ajol.info/index.php/just/article/view/33060>
- 2014/2015 Dry and Wet Baseline surveys for the ESIA
- November 2015 Preconstruction bird survey described in this report



APPENDIX B – RAW COUNT DATA FROM THE FIELD ASSESSMENT FOR THE PRECONSTRUCTION BIRD SURVEY (NOV-2015)

Habitats: Location:		Sandy Shore				Grass	Mangrove			Swamp Forest			Secondary Forest					Coconut Plantation				Villages																																
		AoIE	Trans.	Sz	Sz	AoIW	PipeE	AoIE	PipeE	ConB	Conc	ConB	Trans.	PipeE	PipeE	PipeE	PipeC	Conc	AoIW	AoIN	Sz	Sz	Sz	Sz	Sz	Sz	Sz	AoIW																										
Bird Species	ID	Estuary (419)	419- 420	406	407	411- 412a	403	420	414	384	390- 394	405	424- 425	385	401- 404	413- 414	423	386- 387a	410	421- 421a	400	General	395	396	397	399	408	422																										
Dwarf Bittern	☐			4						1								2	4	1			15	5																														
Cattle Egret	V																																																					
Little Egret *	V																																																					
Great Egret	V																																																					
Black Kite #	☐																																																					
Hooded Vulture	☐																																																					
African Harrier Hawk	V																																																					
Red-necked Buzzard (p)	☐																																																					
Grey Kestrel (p)	☐																																																					
African Jacana	V																																																					
Eurasian Oystercatcher	☐	8	16	7	3				1																																													
Common Ringed Plover	☐		3																																																			
Grey Plover	☐	8	21	2																																																		
African Wattled Lapwing	☐																																																					
Sanderling	☐	(1000)	349	128																							14																											
Whimbrel	☐	6	13	1																							3																											
Ruddy Turnstone	☐		5																																																			
Royal Tern	☐	(850)	3																																																			
Sandwich Tern	☐	(100)																																																				
Common Tern	☐	5																																																				
Tambourine Dove	V																																																					
Blue-spotted Wood Dove	☐																															1	1													1								
Red-eyed Dove	☐																															2		2	1		2			2					4			5	1					
Laughing Dove	V																																																					
Grey Parrot	V																																											2										
Western Grey Plantain-eater	☐																															1								1														
African Emerald Cuckoo	c																																									1												
Klaas's Cuckoo	☐																																									2	1											
Senegal Coucal	☐																																											1		2								
African Palm Swift #	V																																							15										4				
Blue-breasted Kingfisher	cc												1																																									
Woodland Kingfisher	☐												1					1		1																																		
African Pygmy Kingfisher	☐														1			1																																				
Malachite Kingfisher	☐									1																																												
Giant Kingfisher	V	1																																																				
Black Bee-eater	☐														2	2																																						
Little Bee-eater #	☐										2	6	3	2	10																																							
White-throated Bee-eater	☐												14																																									
African Pied Hornbill *	☐									3	4		2					2		5	1		1		1																													
Piping Hornbill	☐											1	1	2	2	5	5							1																														
Naked-faced Barbet	☐											2				1																																						
Speckled Tinkerbird	☐						1			1	1				1	4				1																																		

Habitats: Location:		Sandy Shore				Grass	Mangrove			Swamp Forest			Secondary Forest					Coconut Plantation				Villages								
		AoIE	Trans.	Sz	Sz	AoIW	PipeE	AoIE	PipeE	ConB	Conc	ConB	Trans.	PipeE	PipeE	PipeE	PipeC	Conc	AoIW	AoIN	Sz	Sz	Sz	Sz	Sz	Sz	Sz	AoIW		
Bird Species	ID	Estuary (419)	419- 420	406	407	411- 412a	403	420	414	384	390- 394	405	424- 425	385	401- 404	413- 414	423	386- 387a	410	421- 421a	400	General	395	396	397	399	408	422		
Red-rumped Tinkerbird	cc									1	1				1		2													
Yellow-throated Tinkerbird	c									1																				
Ethiopian Swallow #	□																													
African Pied Wagtail	□									1																				
Yellow-throated Longclaw	□									2																				
Little Greenbul	□									1																				
Little Grey Greenbul	c									2					1															
Simple Greenbul	cc									1	1																			
Swamp Palm Bulbul	c									1					1															
Grey-headed Bristlebill	cc																3													
Common Bulbul	□													2					9											
Western Nicator	c																	1												
Grey Longbill	cc															1														
Green Hylia	c							1			1			1																
Zitting Cisticola	c					6																								
Tawny-flanked Prinia	□							1				1				1														
African Paradise	cc							2																						
Flycatcher *																														
Red-bellied Paradise	cc													2																
Flycatcher *																														
Mouse-brown Sunbird	□																			1										
Reichenbach’s Sunbird #	□							2					1				2	1	2											
Green-headed Sunbird	c																	1												
Western Olive Sunbird	cc							3						2				1												
Buff-throated Sunbird	c									2	1			1		2														
Collared Sunbird	□							1		1	1			3		2	4	2												
Olive-bellied Sunbird	□										1			2		1			1	1										
Tiny Sunbird	cc									2				1		1			2											
Splendid Sunbird	V							1		1				1																
Copper Sunbird	□													1				1												
Black-crowned Tchagra	V													1																
Pied Crow	□					5							2						3	xx	2	3	7		4	8				
Copper-tailed Starling	V									1																				
Splendid Starling #	□							5	2				4		1	8			3	5		4								
Nth. Grey-headed Sparrow #	□																			xx	1	4		2						
Red-vented Malimbe	□			4										1				2												
Blue-billed Malimbe	□					1																								
Black-necked Weaver	V																	2												
Vieillot’s Black Weaver #	□																			xx										
Village Weaver #	□			10		2											4				10	2	3							
Grey-headed Negrofinch	V									1					1															
White-breasted Negrofinch	V													1																
Orange-cheeked Waxbill *	□									5			3																	
Black-bellied Seedcracker	□																	1												
Bronze Mannikin	V															8														

Habitats:		Sandy Shore				Grass	Mangrove			Swamp Forest			Secondary Forest					Coconut Plantation				Villages									
Location:		AoIE	Trans.	Sz	Sz	AoIW	PipeE	AoIE	PipeE	ConB	Conc	ConB	Trans.	PipeE	PipeE	PipeE	PipeC	Conc	AoIW	AoIN	Sz	Sz	Sz	Sz	Sz	Sz	AoIW				
Bird Species	ID	Estuary (419)	419- 420	406	407	411- 412a	403	420	414	384	390- 394	405	424- 425	385	401- 404	413- 414	423	386- 387a	410	421- 421a	400	General	395	396	397	399	408	422			
Black-and-white Mannikin	☐									5			5					8													
Total numbers of birds		2011	410	152	21	28	15	9	10	25	22	9	67	6	48	49	8	31	4	28	2	1	68	13	15	1	10	12			

Key to Acronyms used in Appendix B

AoIE	Eastern part of the Area of Influence
AoIN	Northern part of the Area of Influence
AoIW	Western part of the Area of Influence
ConB	Close proximity (buffer) of the eni concession
Conc	Within the eni concession
Grass	Seasonally flooded grassland in the west of the AoI
PipeC	GNCC Pipeline north of the eni concession
PipeE	GNCC Pipeline east of the eni concession
Sz	Sanzule Village
Trans.	Long transect
Species of concern are highlighted in bold text	
Bird counts in parentheses indicate estimated numbers	

Key to Symbols used in Appendix B in order of identification confidence

□	Identification confirmed from a photograph (51 species)
V	Reliable visual identification (17 species)
cc	Identification confirmed from response to a call (9 species)
c	Identified from a call only (9 species)

Symbols for Other Observations of Interest

#	Evidence of breeding (8 species)
*	Present in breeding plumage (5 species)
(p)	Predatory behaviour displayed (2 species)

GPS Coordinates of points used in Appendix B (Decimal degrees; WGS84)

ID	Latitude	Longitude	ID	Latitude	Longitude	ID	Latitude	Longitude
384	4.972678	-2.442980	403	4.974596	-2.427285	419	4.942607	-2.382083
385	4.974215	-2.433316	404	4.974453	-2.427583	420	4.959124	-2.453472
386	4.965419	-2.452040	405	4.971697	-2.445469	420	4.959124	-2.453472
387	4.967991	-2.449672	406	4.958322	-2.450442	421	5.003197	-2.436067
390	4.969481	-2.443970	407	4.956071	-2.440484	421a	4.999546	-2.438995
394	4.965899	-2.442543	408	4.959530	-2.452091	422	4.966478	-2.480932
395	4.961598	-2.453628	410	4.972415	-2.486815	423	4.973194	-2.439199
396	4.959890	-2.452936	411	4.972426	-2.483060	424	4.969581	-2.434986
397	4.959895	-2.456878	412a	4.979855	-2.479122	425	4.970041	-2.439161
399	4.980903	-2.553596	413	4.974519	-2.429999	Estuary	4.942607	-2.382083
400	4.965789	-2.475535	414	4.974634	-2.427267	General	Not a specified point	
401	4.974490	-2.430421	414	4.974634	-2.427267			

APPENDIX C BACKGROUND DATA ON THREATENED STATUS AND ECOLOGY FOR BIRD SPECIES OF CONSERVATION CONCERN

Appendix C presents background ecological data, threats and justification for threatened status for 15 bird species of conservation concern that occur or may occur within the project AoI. Data presented in Appendix C was sourced from the IUCN Red List of Threatened Species, followed by a list of references quoted by the IUCN for these species.

Species presented in Appendix C include:

- Hooded Vulture (*Necrosyrtes monachus*) CR (decreasing, 2015)
- Eurasian Oystercatcher (*Haematopus ostralegus*) NT (decreasing, 2015)
- Common Ringed Plover (*Charadrius hiaticula*) LC (decreasing, 2012)
- Grey Plover (*Pluvialis squatarola*) LC (decreasing, 2012)
- Sanderling (*Calidris alba*) LC (unknown, 2012)
- Common Sandpiper (*Actitis hypoleucos*) LC (decreasing, 2012)
- Ruddy Turnstone (*Arenaria interpres*) LC (decreasing, 2012)
- Royal Tern (*Thalasseus maximus*) LC (stable, 2012)
- Sandwich Tern (*Sterna sandvicensis*) LC (stable, 2015)
- Common Tern (*Sterna hirundo*) LC (decreasing, 2015)
- Black Tern (*Chlidonias niger*) LC (decreasing, 2012)
- Grey Parrot (*Psittacus erithacus*) VU (decreasing, 2013)
- Green-tailed Bristlebill Bulbul (*Bleda eximius*) NT (decreasing, 2012)
- Yellow-bearded Greenbul (*Criniger olivaceus*) VU (decreasing, 2013)
- Copper-tailed Starling (*Lamprotornis cupreocauda*) NT (decreasing, 2012)

Hooded Vulture (*Necrosyrtes monachus*) CR (decreasing, 2015)

CITES Appendix II

JUSTIFICATION

This vulture has been uplisted to Critically Endangered. Recently published evidence suggests the population is experiencing an extremely rapid decline owing to indiscriminate poisoning, trade for traditional medicine, hunting, persecution and electrocution, as well as habitat loss and degradation.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

Given evidence of recent declines in various parts of its range, this species' population is estimated to number a maximum of 197,000 individuals.

Recently published data shows that this species' population is declining rapidly with an estimated 83% decline (range 64-93%) over three generations (53 years) (Ogada *et al.* 2015).

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

The species is often associated with human settlements, but is also found in open grassland, forest edge, wooded savanna, desert and along coasts (Ferguson-Lees and Christie 2001). It occurs up to 4,000 m, but is most numerous below 1,800 m. It feeds mainly on carrion, but also takes insects. In West Africa and Kenya it breeds throughout

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the year, but especially from November to July. Breeding in northeast Africa occurs mainly in October-June, with birds in southern Africa tending to breed in May- December. It is an arboreal nester and lays a clutch of one egg. Its incubation period lasts 46-54 days, followed by a fledging period of 80-130 days. Young are dependent on their parents for a further 3-4 months after fledging (Ferguson-Lees and Christie 2001).

THREATS

Major threats to this species include non-target poisoning, capture for traditional medicine and bushmeat (McKean *et al.* 2013), and direct persecution (Ogada and Buij 2011, Ogada *et al.* 2015). In Nigeria, a survey of medicinal traders found that Hooded Vulture was the most commonly traded species of vulture, with 90% of all vulture parts traded belonging to the species (Saidu and Buij 2013). And across West and Central Africa the species is one of the most heavily traded, with an estimated 5,850-8,772 individuals traded over a six-year period in West Africa (Buij *et al.* 2015). Hooded Vulture meat is reportedly sold as chicken in some places. Intentional poisoning of vultures may be carried out in some areas by poachers in order to hide the locations of their kills. Secondary poisoning with carbofuran pesticides at livestock baits being used to poison mammalian predators is also an issue in East Africa (Otieno *et al.* 2010, C. Kendall *in litt.* 2012, Roxburgh and McDougall 2012). Declines have also been attributed to land conversion through development and improvements to abattoir hygiene and rubbish disposal in some areas (Ogada and Buij 2011). The species may also be threatened by avian influenza (H5N1), from which it appears to suffer some mortality and which it probably acquires from feeding on discarded dead poultry (Ducatez *et al.* 2007).

Eurasian Oystercatcher (*Haematopus ostralegus*) **NT (decreasing, 2015)**

AEWA species

JUSTIFICATION

This species has been uplisted to Near Threatened as it almost meets the requirements for listing as threatened under criteria A2ab+3b+4ab. It has an extremely large range and population size, and the largest flyway population increased strongly between the 1960s and 1990s but subsequently declined moderately rapidly. The recent decline may be part of a longer-term fluctuation and the population should be monitored carefully to ascertain whether it shows signs of stabilising. None of the remaining flyway populations have increased. Should new information suggest declines are continuing or that actions to benefit the species, such as limiting mechanical shellfishery operations, are not leading to population recoveries, the species would merit uplisting to a higher threat category.

POPULATION AND TREND JUSTIFICATION

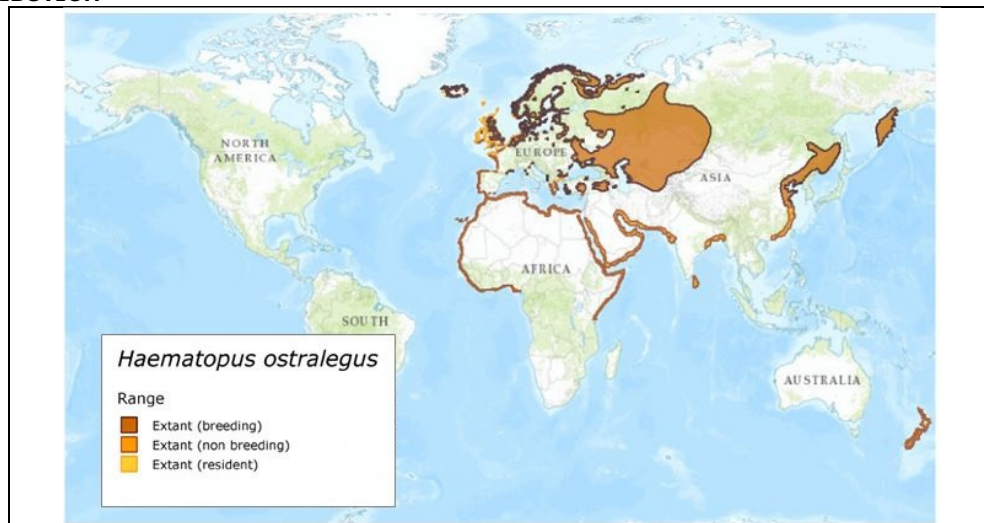
The global population is estimated to number c. 1,004,000-1,160,000 individuals (Wetlands International 2012). The European population is estimated at 284,000-354,000 pairs, which equates to 568,000-708,000 mature individuals (BirdLife International 2015).

The overall population trend is decreasing. The *ostralegus* and *finschi* populations are reported to be declining (Wetlands International 2012, Nagy *et al.* 2014, Sagar and Veitch

2014, van de Pol *et al.* 2014, van Roomen *et al.* 2014a, BirdLife International 2015). The population of *ostralegus* increased strongly between the 1960s and the 1990s (van de Pol *et al.* 2014), but has subsequently declined significantly, at a rate exceeding 40% over three generations. The *longipes* population is reported to be stable (Sarychev and Mischenko 2014, van Roomen *et al.* 2014b) and the trend for the *osculans* population is unknown (Melville *et al.* 2014). Recent declines in the *H. o. ostralegus* population may however be part of a longer-term fluctuation. Mechanical shellfisheries operations have been severely restricted in the Netherlands and the species's population there may be expected to increase in the future (van de Pol *et al.* 2014). Further information is needed to confirm whether the population reaches stability or if it continues to decline. Because of this uncertainty, the rate of decline is currently placed in the band 20- 29% in three generations although the current rate appears to be higher.

Current Population Trend: Decreasing

DISTRIBUTION



HABITAT AND ECOLOGY

The species breeds on coastal saltmarshes, sand and shingle beaches, dunes, cliff-tops with short grass and occasionally rocky shores, as well as inland along the shores of lakes, reservoirs and rivers or on agricultural grass and cereal fields, often some distance from water (Hayman *et al.* 1986, del Hoyo *et al.* 1996). Outside of the breeding season the species is chiefly coastal, frequenting estuarine mudflats, saltmarshes and sandy and rocky shores (del Hoyo *et al.* 1996). The nest is a shallow scrape on the ground often on raised surfaces (e.g. earth banks) in the open or in short vegetation on cultivated or uncultivated land, cliff-tops, rocky outcrops or clearings in taller vegetation including woods and moorland (Hayman *et al.* 1986, del Hoyo *et al.* 1996, Snow and Perrins 1998).

Most populations of this species are fully migratory, inland breeders moving to the coast for the winter (del Hoyo *et al.* 1996). The species breeds from April to July (Hayman *et al.* 1986) in solitary pairs or small groups (Flint *et al.* 1984), during the winter foraging singly or in small groups of up to 10 individuals (Snow and Perrins 1998) and with larger flocks often forming in major bays and estuaries and at roosting sites (Hayman *et al.* 1986, del Hoyo *et al.* 1996, Snow and Perrins 1998). When foraging on soft intertidal substrates

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bivalves and gastropods are the most important food items for this species (del Hoyo *et al.* 1996). Polychaetes and crustaceans are more important in estuaries however, and molluscs (e.g. mussels, limpets and whelks) are most important on rocky shores (del Hoyo *et al.* 1996). When inland, prey such as earthworms and insect larvae (e.g. caterpillars and crane fly larvae) are also taken (del Hoyo *et al.* 1996).

THREATS

The main threat to the species is the over-fishing of benthic shellfish and the resulting disappearance of intertidal mussel and cockle beds (Atkinson *et al.* 2003, Verhulst *et al.* 2004, Ens 2006, van de Pol *et al.* 2014). Bait digging has also been identified as a threat through loss of prey species and disturbance to the benthic fauna (van de Pol *et al.* 2014). The species is also threatened by habitat degradation on its wintering grounds due to land reclamation (for example in the Yellow Sea [Melville *et al.* 2014]), pollution, human disturbance (Kelin and Qiang 2006) (e.g. from construction work or recreational activities [Burton *et al.* 2002, van de Pol *et al.* 2014]), coastal barrage construction (Burton 2006), industrial development including development of ports and oil extraction, oil spills, wind farms (Melville *et al.* 2014) and reduced river flows (Kelin and Qiang 2006). Rapid and extensive land reclamation is reported from staging and wintering grounds for the *osculans* population in South Korea and China and large-scale planting of *Spartina alterniflora* on the coast of eastern China may cause loss of foraging and nesting habitats (Melville *et al.* 2014). Intensive agriculture including frequent mowing of grasslands and high densities of grazing livestock threatens chicks, eggs and nests and high levels of fertilizers and pesticides can reduce soil invertebrate biomass (van de Pol *et al.* 2014). A reduction in eutrophication is likely to have contributed to declines in some areas, owing to a loss of food resources (van de Pol *et al.* 2014, H. Meltøfte *in litt.* 2015).

Sea level rise leading to increased coastal erosion and flooding is contributing to habitat loss in some areas (Melville *et al.* 2014, van de Pol *et al.* 2014). Climate change has advanced the average egg-laying date of the species and is likely to reduce recruitment of bivalves, however warmer winters are expected to benefit the species leading to lower winter mortality (van de Pol *et al.* 2014). Droughts in some inland areas are likely to lead to a loss of suitable habitat (Melville *et al.* 2014, Sarychev and Mischenko 2014).

The species is hunted in France but the effects of hunting at the population level are not known (van de Pol *et al.* 2014). It may be subject to subsistence egg collection in China (Melville *et al.* 2014) and illegal hunting elsewhere (Sarychev and Mischenko 2014). Eggs and chicks are known to be predated by Corvidae, gulls, American Mink *Neovison vison*, dogs and foxes *Vulpes vulpes* (Sarychev and Mischenko 2014). The invasive Pacific Oyster *Crassostrea gigas* has become abundant in the Oosterschelde (Netherlands) and is increasing in the Dutch Wadden Sea (van de Pol *et al.* 2014). Eurasian Oystercatcher generally does not eat this species of oyster which is reported to be invading mussel beds and may compete with cockles and mussels thus reducing food availability. However Pacific Oyster beds could also provide an area for mussel beds to re-establish. The species is susceptible to avian influenza so may be threatened by future outbreaks of the virus (Melville and Shortridge 2006).

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Breeding range expansion of the *finschi* population has increased the likelihood of hybridisation with Variable Oystercatcher *H. unicolor* (Sagar and Veitch 2014). In the northern part of the *longipes* population breeding range, cessation of grazing in coastal areas leading to development of shrubby vegetation threatens breeding habitats (Sarychev and Mischenko 2014). Conversely, intensive grazing in some areas may pose a threat to this population. Pollution from sewage, heavy metals and organochlorine pesticides have been identified as potential threats for the *osculans* population (Melville *et al.* 2014).

Common Ringed Plover (*Charadrius hiaticula psammodroma*) **LC (decreasing, 2012)**

There are three weakly defined subspecies, which vary slightly in size and mantle colour; they intergrade where their ranges meet:

- *Charadrius hiaticula hiaticula* - breeds temperate western Europe north to central Scandinavia; resident or short-distance migrant to southwest Europe. Largest and palest subspecies.
- *Charadrius hiaticula psammodroma* - breeds Iceland, Greenland, northeast Canada; wintering west Africa. Intermediate in size and colour.
- *Charadrius hiaticula tundrae* - breeds Arctic northern Scandinavia and Asia; wintering Africa and southwest Asia. Smallest and darkest subspecies.

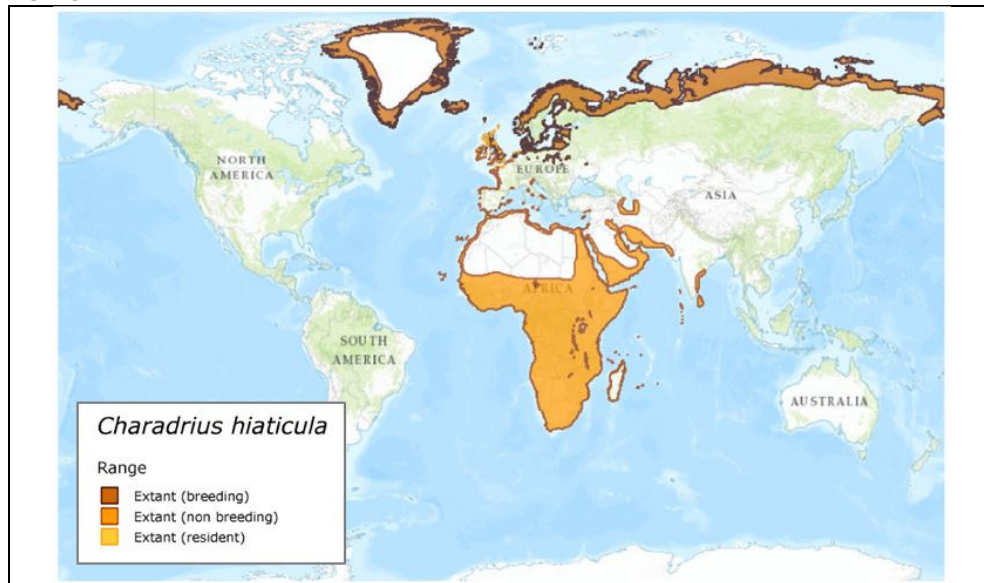
C. h. hiaticula and *C. h. tundrae* are among the taxa to which AEWA applies.

CMS species

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The global population is estimated to number c.360,000-1,300,000 individuals (Wetlands International 2006), while national population sizes have been estimated at < c.1,000 individuals on migration and < c.1,000 wintering individuals in Japan and c.10,000-100,000 breeding pairs and c.1,000-10,000 individuals on migration in Russia (Brazil 2009).

The overall population trend is decreasing, although some populations have unknown trends (Wetlands International 2006).

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

Behaviour The majority of this species is fully migratory (del Hoyo *et al.* 1996, Hockey *et al.* 2005) and travels either on a broad or narrow front depending on the location of each population's breeding and wintering grounds (del Hoyo *et al.* 1996). The species starts to breed from April until June, nesting in solitary pairs or loose semi-colonial groups (especially in undisturbed areas) (del Hoyo *et al.* 1996). It is a gregarious species (Hayman *et al.* 1986) and often roosts communally in flocks of several hundred close to its feeding areas (Hayman *et al.* 1986, del Hoyo *et al.* 1996), occurring singly, in small (up to 50 individuals) or large flocks (up to 1,200-1,500 individuals) during the non-breeding season (Urban *et al.* 1986). **Habitat** *Breeding* The species breeds primarily on sand or shingle beaches either along the Arctic coast (Hayman *et al.* 1986, del Hoyo *et al.* 1996, Snow and Perrins 1998) or around coastal tundra pools or lakes (Johnsgard 1981). In the south of its range it may also breed inland on the Arctic tundra (Hayman *et al.* 1986, del Hoyo *et al.* 1996) on muddy plains with stones or pebbles (Johnsgard 1981), on shores and sandbars of inland rivers, lakes, gravel pits or reservoirs (Hayman *et al.* 1986, del Hoyo *et al.* 1996, Snow and Perrins 1998), or on short grassland, farmland (del Hoyo *et al.* 1996, Snow and Perrins 1998) and other well-drained sites (Snow and Perrins 1998). *Non-breeding* Outside of the breeding season the species inhabits muddy, sandy or pebbly coasts in the tropics and subtropics (Johnsgard 1981) including estuaries (del Hoyo *et al.*

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1996), tidal mudflats, sandflats and exposed coral reefs (Urban *et al.* 1986). It also frequents mudbanks or sandbanks along rivers and lakes (Urban *et al.* 1986), lagoons, saltmarshes, short grassland, farmland, flooded fields, gravel pits, reservoirs (del Hoyo *et al.* 1996), sewage works and saltpans during this season (Hockey *et al.* 2005). **Diet** Its diet consists of small crustaceans, molluscs, polychaete worms, isopods, amphipods, insects (e.g. ants, beetles, flies and fly larvae) and millipedes (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow scrape (del Hoyo *et al.* 1996) positioned near the high-water mark on shingle or sandy beaches (Johnsgard 1981, Hayman *et al.* 1986). The species is a solitary nester although it may breed at quite high densities in undisturbed areas, neighbouring nests spaced between 5 and 100 m apart (del Hoyo *et al.* 1996). **Management information** Removing feral American mink *Neovison vison* from a large archipelago with many small islands in the Baltic Sea resulted in an increase in the breeding density of this species in the area (Nordstrom *et al.* 2003).

THREATS

Important migratory stop-over habitats for this species on the Baltic Sea coastline are threatened by petroleum pollution, wetland drainage for irrigation, land abandonment and changing land management practices leading to scrub overgrowth (Grishanov *et al.* 2006). The species is also susceptible to avian botulism (so may be threatened by future outbreaks of the disease) (Blaker 1967), and suffers predation from feral America mink *Neovison vison* in some regions (Nordstrom *et al.* 2003).

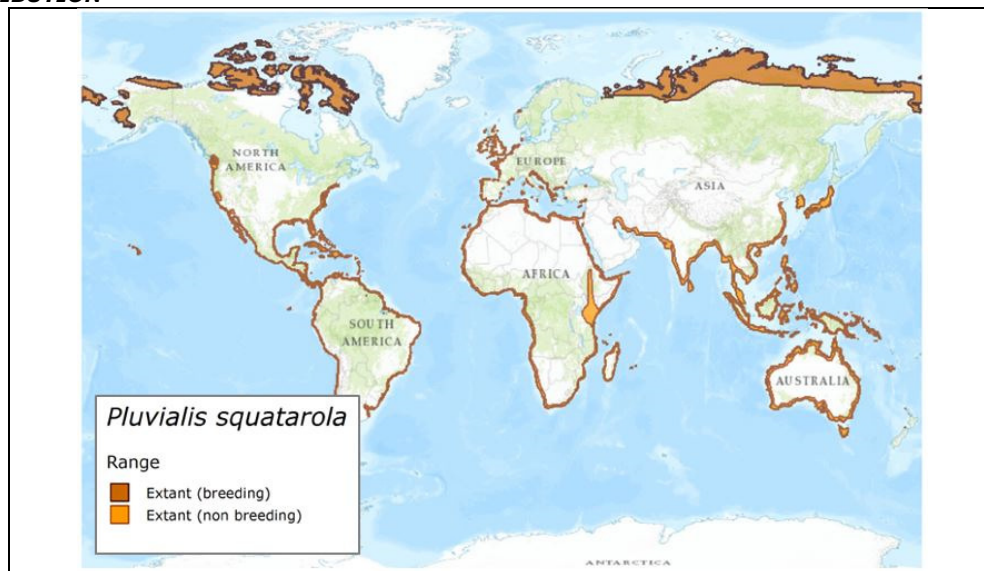
Grey Plover (*Pluvialis squatarola*) **LC (decreasing, 2012)**

AEWA and CMS species

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The global population is estimated at 692,000 individuals according to WPE3 population data, which are considered complete. National population estimates include: c.10,000 individuals on migration and c.1,000-10,000 wintering individuals in China; c.50-10,000 wintering individuals in Taiwan; c.1,000- 10,000 individuals on migration and c.1,000-10,000 wintering individuals in Korea; c.1,000-10,000 individuals on migration and c.1,000-10,000 wintering individuals in Japan, and c.10,000-100,000 breeding pairs and c.1,000-10,000 individuals on migration in Russia.

The overall population trend is decreasing, although some populations have unknown trends (Wetlands International 2006). This species has had stable population trends over the last 40 years in North America (data from Breeding Bird Survey and/or Christmas Bird Count: Butcher and Niven 2007) Note, however, that these surveys cover less than 50% of the species' range in North America.

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

Behaviour This species is fully migratory (del Hoyo *et al.* 1996). It departs its breeding grounds from late-July to September (southward movements continuing into November) (Hayman *et al.* 1986, del Hoyo *et al.* 1996) and returns from late-May to June (del Hoyo *et al.* 1996). It breeds from May to August (Hayman *et al.* 1986) in solitary well-dispersed pairs (del Hoyo *et al.* 1996) and forages alone or in small loose flocks (Johnsgard 1981) of up to 30 individuals (del Hoyo *et al.* 1996). It is gregarious during the winter however, often roosting in large flocks containing up to several thousand individuals (del Hoyo *et al.* 1996). **Habitat** *Breeding* The species nests in the high Arctic in both upland and valley locations (del Hoyo *et al.* 1996) between the treeline and the coast (Snow and Perrins 1998) , utilising dry stony tundra with sedge, moss, lichen (del Hoyo *et al.* 1996), grass (Johnsgard 1981) or dwarf birch (Snow and Perrins 1998), peat ridges in tundra marshes (Johnsgard 1981), dry exposed ridges, riverbanks, raised sand or gravel beaches, and

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rocky slopes (Johnsgard 1981). *Non-breeding* Outside of the breeding season the species frequents intertidal mudflats, saltmarshes (del Hoyo *et al.* 1996), sandflats (Johnsgard 1981, del Hoyo *et al.* 1996) and beaches (del Hoyo *et al.* 1996) of oceanic coastlines, bays and estuaries (Johnsgard 1981). During migration it may also be found inland on lakes, pools or grasslands (del Hoyo *et al.* 1996). **Diet** *Breeding* During the breeding season the diet of this species consists largely of adult and larval insects such as beetles and Diptera (del Hoyo *et al.* 1996) as well as some plant matter (e.g. grass seeds and stems) (del Hoyo *et al.* 1996). *Non-breeding* When on the coast in its wintering range the species takes marine polychaete worms, molluscs and crustaceans (del Hoyo *et al.* 1996) (e.g. crabs, sand shrimps) (Johnsgard 1981), occasionally also taking insects (e.g. grasshoppers and beetles) or earthworms when in inland habitats on passage (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow scrape (del Hoyo *et al.* 1996) on dry ground in exposed, stony sites (Snow and Perrins 1998), neighbouring nests not less than 400 m apart (del Hoyo *et al.* 1996). **Management information** In the UK there is evidence that the removal of *Spartina anglica* from tidal mudflats using a herbicide is beneficial for the species (Evans 1986).

THREATS

Non listed on the IUCN Red List of Threatened Species

Sanderling (*Calidris alba*) **LC (unknown, 2012)**

AEWA and CMS species

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

POPULATION AND TREND JUSTIFICATION

The global population is estimated to number c.620,000-700,000 individuals (Wetlands International, 2006), while national population estimates include: c.1,000-10,000 individuals on migration and c.1,000- 10,000 wintering individuals in China; c.50-1,000 individuals on migration and c.50-1,000 wintering individuals in Taiwan; c.50-1,000 individuals on migration and c.50-1,000 wintering individuals in Korea; c.1,000-10,000 individuals on migration and c.50-10,000 wintering individuals in Japan and c.10,000-100,000 breeding pairs and c.1,000-10,000 individuals on migration in Russia (Brazil 2009).

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The overall population trend is uncertain, as some populations are decreasing, while others are increasing, stable or have unknown trends (Wetlands International 2006). This species has had stable population trends over the last 40 years in North America (data from Breeding Bird Survey and/or Christmas Bird Count: Butcher and Niven 2007) Note, however, that these surveys cover less than 50% of the species' range in North America.

Current Population Trend: Unknown

DISTRIBUTION



HABITAT AND ECOLOGY

Behaviour This species is a full long-distance migrant that travels mainly via offshore and coastal routes using a number of favoured stopover sites (del Hoyo *et al.* 1996). It breeds from June to mid-July in solitary pairs (del Hoyo *et al.* 1996), departing the breeding grounds between mid-July and early- September (Hayman *et al.* 1986). The species usually occurs in small flocks on migration (Johnsgard 1981) although it may aggregate into larger flocks at stopover sites (Hayman *et al.* 1986), and in winter it forages in small to very large flocks (del Hoyo *et al.* 1996). **Habitat** *Breeding* The species breeds in the high Arctic on barren, stony tundra with well-drained ridges (Johnsgard 1981, del Hoyo *et al.* 1996), gentle slopes or level alluvial plains supporting scattered vegetation of willow *Salix* spp., *Dryas* spp. and saxifrage *Saxifraga* spp. usually less than 200 m above sea-level (Johnsgard 1981). *Non-breeding* On passage the species may occur on inland freshwater or saline lakes (del Hoyo *et al.* 1996) but it is largely coastal during the winter, inhabiting open sandy beaches exposed to the sea, the outer reaches of estuaries, rocky and muddy shores, mudflats (del Hoyo *et al.* 1996) and coral reefs (Urban *et al.* 1986). **Diet** *Breeding* When breeding the species takes insects (especially adult and larval Diptera, Coleoptera and Lepidoptera) as well as spiders and crustaceans (del Hoyo *et al.* 1996). On arrival on the breeding grounds the species may also complement its diet with plant matter (e.g. seeds, saxifrage buds, moss and algae) (del Hoyo *et al.* 1996) before

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invertebrate prey becomes available (Johnsgard 1981). *Nonbreeding* During the winter its diet consists of small molluscs, crustaceans, polychaete worms and adult, larval and pupal insects (e.g. Diptera, Coleoptera, Lepidoptera, Hemiptera and Hymenoptera), as well as occasionally fish and carrion (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow depression on the bare earth (del Hoyo *et al.* 1996) of stony well-drained ridges, gentle slope or level alluvial plains (Johnsgard 1981).

THREATS

The species is sensitive to disturbance on beaches (del Hoyo *et al.* 1996) (e.g. from recreational activities and free-running dogs (Thomas *et al.* 2003)), and is susceptible to avian influenza so may be threatened by future outbreaks of the virus (Melville and Shortridge 2006). In the Chinese, North Korean and South Korean regions of the Yellow Sea (East Asian flyway route) this species is threatened by the degradation and loss of wetland habitats through environmental pollution, reduced river flows and human disturbance (Kelin and Qiang 2006).

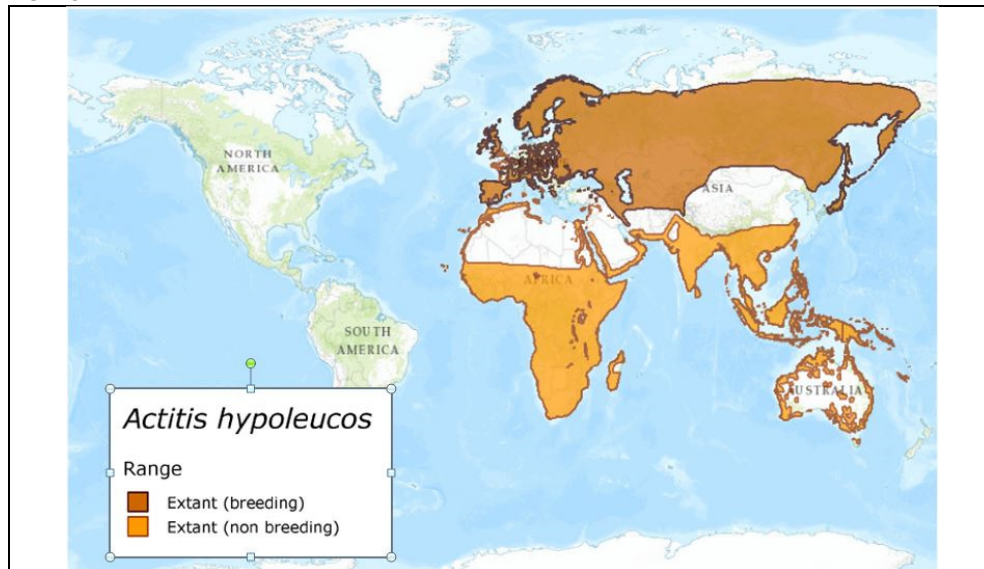
Common Sandpiper (*Actitis hypoleucos*) **LC (decreasing, 2012)**

AEWA species

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

Currently, Common Sandpipers are listed under the category of Least Concern by the International Union for the Conservation of Nature and Natural Resources (IUCN). They are presently one of the most widespread and adaptable shorebirds. There are estimated to be between 2,600,000 and 3,200,000 adults living worldwide (Wetlands International, 2006). Their population has been declining recently, but their population size is large enough to not be vulnerable at this point. This decline in population is attributed to a decreasing breeding population as a result of those lost due to recreational fishing. Increased human development on coastal areas frequently disrupts the breeding activities of this, and many other shorebirds. Such disturbances during the breeding season result in failed nesting attempts, and an overall population decrease.

The national population estimates include: c.10,000-100,000 breeding pairs, c.1,000-10,000 individuals on migration and c.1,000-10,000 wintering individuals in China; c.1,000-10,000 individuals on migration and c.1,000-10,000 wintering individuals in Taiwan; c.100-10,000 breeding pairs, c.1,000-10,000 individuals on migration and c.50-1,000 wintering individuals in Korea; c.100-10,000 breeding pairs, c.1,000-10,000 individuals on migration and c.1,000-10,000 wintering individuals in Japan and c.10,000-1 million breeding pairs and >c.1,000 individuals on migration in Russia (Brazil 2009).

The overall population trend is decreasing, although some populations may be stable and others have unknown trends (Wetlands International 2006). In Europe, trends since 1980 show that populations have undergone a moderate decline ($p < 0.01$), based on provisional data for 21 countries from the Pan-European Common Bird Monitoring Scheme (EBCC/RSPB/BirdLife/Statistics Netherlands; P. Vorisek in litt. 2008).

Current Population Trend: Decreasing

There is insufficient data for local populations in West Africa, and monitoring is needed to determine local and national status.

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HABITAT AND ECOLOGY

Behaviour This species is a full migrant, migrating at night overland on a broad front across both deserts and mountains (del Hoyo *et al.* 1996). Small numbers may also remain in the northern maritime climatic zone (e.g. the British Isles, Mediterranean and Japan) throughout the year (del Hoyo *et al.* 1996, Snow and Perrins 1998). The European population that overwinters in West Africa migrates south between mid-July and August (juveniles following one month later), and returns to the breeding grounds from late-March to April (del Hoyo *et al.* 1996, Snow and Perrins 1998). Immature individuals may also remain in the winter range throughout the summer breeding season (Snow and Perrins 1998). The species breeds from May to June in scattered single pairs 60-70 m apart in optimal breeding habitat (del Hoyo *et al.* 1996), and migrates singly or in small flocks (del Hoyo *et al.* 1996), although it usually remains solitary in its winter range (Urban *et al.* 1986). It forages diurnally (del Hoyo *et al.* 1996) and may aggregate at night (Johnsgard 1981) into roosts of over 100 individuals (del Hoyo *et al.* 1996). **Habitat** During the breeding season this species shows a preference for pebbly, sandy or rocky margins of fast-flowing rivers (del Hoyo *et al.* 1996, Snow and Perrins 1998), as well as small ponds, pools (Snow and Perrins 1998) and dams (Urban *et al.* 1986), clear freshwater lake shores, sheltered sea coasts with rocky or sandy beaches, tidal creeks and estuaries (Urban *et al.* 1986), and often forages in patches of dry meadow (del Hoyo *et al.* 1996). It occurs from sea level up to 4,000 m or more in the mountains, but generally avoid frozen, snow-clad or very hot areas (Snow and Perrins 1998). **Non-breeding** In its winter range this species inhabits a wide variety of habitats, such as small pools, ditches, riverbanks (del Hoyo *et al.* 1996, Snow and Perrins 1998), streams, dam shores (Yalden 1992), marshy areas (Johnsgard 1981), estuaries, freshwater seeps on coastal shores, tidal creeks in mangrove swamps and saltmarshes, harbours, docks (Yalden 1992, Snow and Perrins 1998) and filtration tanks of sewage works (Yalden 1992). It will also forage on grassland along roadsides and occasionally in gardens (Yalden 1992, del Hoyo *et al.* 1996), but it generally avoids large coastal mudflats (del Hoyo *et al.* 1996). **Diet** The diet of this species consists of adult and larval insects (such as beetles and Diptera), spiders, molluscs, snails, crustaceans, annelids, and occasionally frogs, toads, tadpoles and small fish, as well as plant material (including seeds) (Urban *et al.* 1986, del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow depression, sometimes amongst shrubs and trees (del Hoyo *et al.* 1996).

THREATS

The size of the breeding population in England is threatened by disturbance from recreational anglers (Yalden 1992).

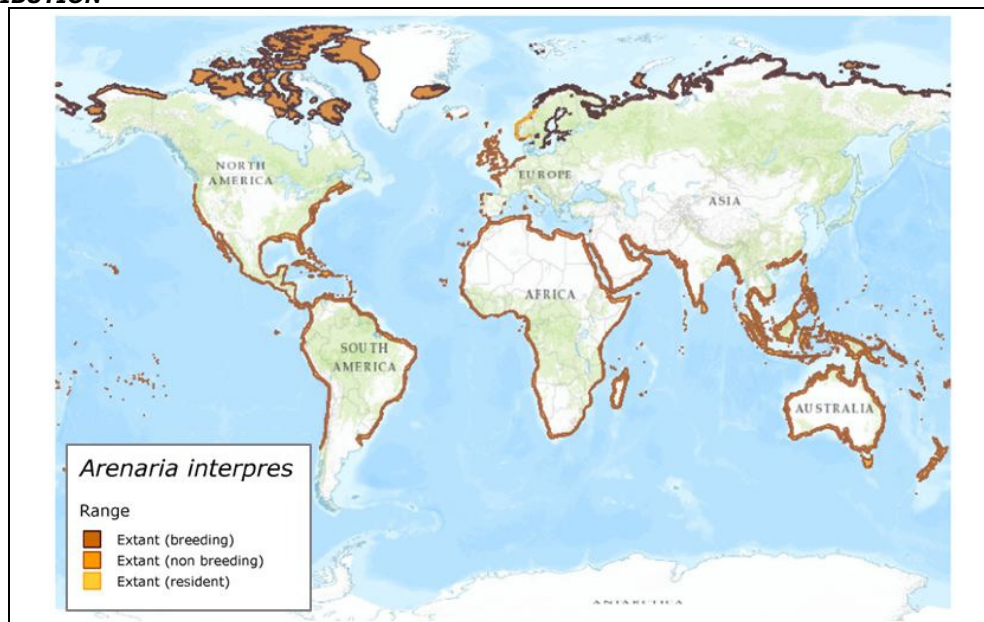
Ruddy Turnstone (*Arenaria interpres*) LC (decreasing, 2012)

AEWA and CMS species
Protected under the U.S. Migratory Bird Act

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The global population is estimated to number c.460,000-800,000 individuals (Wetlands International, 2006), while national population estimates include: c.1,000-10,000 individuals on migration and c.50- 1,000 wintering individuals in China; c.1,000-10,000 individuals on migration and c.50-10,000 wintering individuals in Taiwan; c.50-10,000 individuals on migration in Korea; c.1,000-10,000 individuals on migration and c.50-1,000 wintering individuals in Japan and c.10,000-100,000 breeding pairs and c.1,000-10,000 individuals on migration in Russia (Brazil 2009).

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The overall population trend is decreasing, although some populations have unknown trends (Wetlands International 2006), and in North America the trend is increasing (based on BBS/CBC data: Butcher and Niven 2007).

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

Behaviour This species is fully migratory (del Hoyo *et al.* 1996). It breeds from May to early-August (Hayman *et al.* 1986) in solitary pairs (del Hoyo *et al.* 1996), although several pairs may nest close together in optimal habitats (Johnsgard 1981) along coasts or on islands (Snow and Perrins 1998). The species migrates in large flocks (del Hoyo *et al.* 1996) and is gregarious and sociable when feeding or roosting in winter (Snow and Perrins 1998), often foraging in close flocks of 10-100 or more individuals, especially in tidal areas (del Hoyo *et al.* 1996). **Habitat** *Breeding* The species breeds near the coast or up to several kilometres inland (Snow and Perrins 1998) in the high Arctic (Hayman *et al.* 1986), nesting on coastal plains, marshes and tundra (del Hoyo *et al.* 1996) and showing a preference for mosaics of bare rock, clay or shingle and vegetation near water (Snow and Perrins 1998) or in areas that remain damp until late summer (Johnsgard 1981). *Non-breeding* Outside of the breeding season the species is mainly coastal (del Hoyo *et al.* 1996), although on migration it may occur inland along dykes or on lake shores (del Hoyo *et al.* 1996). During the winter it frequents productive rocky and shingle shores (Hayman *et al.* 1986, del Hoyo *et al.* 1996), breakwaters (del Hoyo *et al.* 1996), sandy beaches with storm-wracked seaweed (Hayman *et al.* 1986, del Hoyo *et al.* 1996), short-grass saltmarshes, sheltered inlets, estuaries, mangroves swamps, exposed reefs and mudflats with beds of molluscs (del Hoyo *et al.* 1996). **Diet** *Breeding* On its Arctic breeding grounds the species takes Diptera (especially adult and larval midges) as well as larval Lepidoptera, Hymenoptera, Coleoptera and spiders, occasionally also taking vegetable matter early in the season (del Hoyo *et al.* 1996). *Non-breeding* Outside of the breeding season its diet consists of insects, crustaceans, molluscs (del Hoyo *et al.* 1996) (especially mussels or cockles) (Johnsgard 1981), annelids, echinoderms, small fish, carrion and birds eggs (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow depression (del Hoyo *et al.* 1996) in mud, peat or on dry ground (Johnsgard 1981) with dense vegetation (del Hoyo *et al.* 1996), often positioned on a slight ridge, hummock or tussock, or in cleft or shallow fissure (Snow and Perrins 1998). The species usually nests solitarily, although neighbouring pairs may nest as little as 15 m apart along coasts or on islands (where abundant feeding habitats are available) (Snow and Perrins 1998). **Management information** Removing feral American mink *Neovison vison* from a large archipelago with many small islands in the Baltic Sea had the result of increasing the breeding density of this species in the area (Nordstrom *et al.* 2003).

THREATS

The species suffers nest predation from feral American mink *Neovison vison* in some regions (Nordstrom *et al.* 2003), and is susceptible to avian influenza so may be threatened by future outbreaks of the virus (Melville and Shortridge 2006).

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Populations of Ruddy Turnstone are threatened by many of the factors that threaten shorebirds worldwide: alteration, destruction, and contamination of coastal habitats. Their breeding grounds may be influenced increasingly by global climate changes. Especially critical is the impact of coastal disturbance on ruddy turnstones during migration, especially important staging areas where historically superabundant food resources, such as horseshoe crab eggs (*Limulus polyphemus*) or herring eggs (*Clupea pallasii pallasii*), were critical to body condition during the spring migration.

Royal Tern (*Thalasseus maximus*) LC (stable, 2012)

AEWA and CMS species

JUSTIFICATION

This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



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POPULATION AND TREND JUSTIFICATION

The overall population trend is stable, although some populations have unknown trends (Wetlands International 2006). This species has undergone a small or statistically insignificant increase over the last 40 years in North America (data from Breeding Bird Survey and/or Christmas Bird Count: Butcher and Niven 2007) Note, however, that these surveys cover less than 50% of the species's range in North America.

Current Population Trend: Stable

HABITAT AND ECOLOGY

Behaviour This species undergoes post-breeding dispersive movements northwards before migrating southwards for the winter (del Hoyo *et al.* 1996). It breeds between April and June (Richards 1990) in dense colonies of 100-4,000 pairs often near colonies of Laughing Gull *Larus atricilla* and Sandwich Tern *Sterna sandvicensis* (del Hoyo *et al.* 1996). The species may also nest singly amidst colonies of other tern species (del Hoyo *et al.* 1996). It usually feeds singly or in small flocks and roosts gregariously even outside of the breeding season (del Hoyo *et al.* 1996). **Habitat** *Breeding* For breeding the species shows a preference for inaccessible sites including barren sandy beaches, islands in saltmarsh, dredge spoil and coral islands surrounded by shallow water and with a high degree of visibility, no mammalian predators and little vegetation (del Hoyo *et al.* 1996). It also forages along estuaries, in lagoons and in mangroves during this season, mostly within 100 m of the shore but up to 40 km from the breeding colony (del Hoyo *et al.* 1996). *Non-breeding* Outside of the breeding season the species forages within 100 m of the land along sheltered coasts in estuaries, harbours and river mouths, sometimes also foraging a short distance inland along broad rivers (del Hoyo *et al.* 1996). **Diet** Its diet consists predominantly of small fish 3-18 cm long as well as squid, shrimps and crabs (del Hoyo *et al.* 1996). **Breeding site** The nest is a simple scrape (del Hoyo *et al.* 1996) in sand (Urban *et al.* 1986) in inaccessible sites surrounded by shallow water near the mouths of bays with a high degree of visibility, no mammalian predators and little vegetation (del Hoyo *et al.* 1996). **Management information** The preferred breeding sites of this species are often vulnerable to flooding (del Hoyo *et al.* 1996).

THREATS

The species is potentially threatened by the contamination of large prey with pesticides (through bioaccumulation in the food chain) (del Hoyo *et al.* 1996). It has also suffered dramatic declines over the past 25 years in California due to the disappearance of its staple prey (the Pacific sardine) through overfishing (del Hoyo *et al.* 1996). **Utilisation** Egg-collecting is known to occur at breeding colonies of this species (del Hoyo *et al.* 1996, Del Viejo *et al.* 2004).

The African populations (*Thalasseus maximus albididorsalis*) are less understood than the global population (*T. m. maximus*). There are reports of localised collapses of populations of the African populations due to loss of habitat and the impacts of over-fishing by humans on their food resources. Eggs are also predated by gulls and dogs and breeding areas can be easily disturbed. It is therefore important to better understand this species and figure out where they migrate to, where they breed and feed etc. and what other threats might exist to their continued success at this location.

Sandwich Tern (*Sterna sandvicensis*) LC (stable, 2015)

AEWA and CMS species

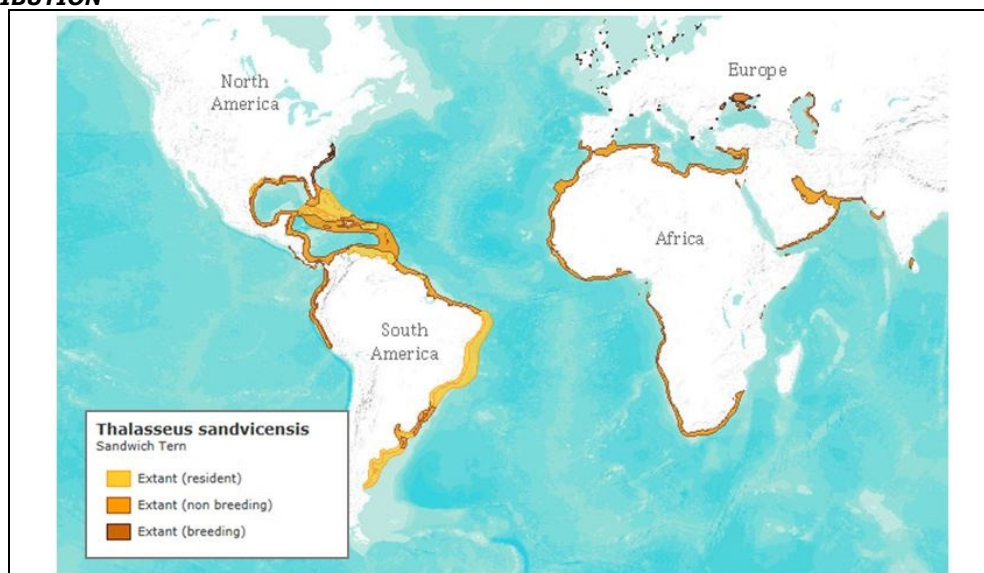
JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be fluctuating, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

This is a species of Least Concern from the IUCN due to its large numbers and geographic distribution. The suitability of a given habitat for creating nesting colonies of sandwich Terns is vulnerable to destruction by natural phenomena events (ie: hurricanes, storms) and vegetation overgrowth. Habitat destruction by humans is known to adversely affect the ability of this species and many others that depend on undisturbed beach to breed. Overuse by humans visiting beaches can cause whole colonies to abandon the area en masse and minimize re-use in future years.

Current population trend stable

DISTRIBUTION



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HABITAT AND ECOLOGY

Behaviour This species is migratory, undergoing post-breeding dispersive movements north and south to favoured feeding grounds before migrating southward (del Hoyo *et al.* 1996). It breeds in dense colonies with other terns or Black-headed Gulls *Larus ridibundus* (del Hoyo *et al.* 1996) and is gregarious throughout the year, often forming feeding flocks where prey is abundant or concentrated (although it may also feed solitarily) (Snow and Perrins 1998). **Habitat** *Breeding* During the breeding season the species forms colonies on sandy islands, rocky calcareous islets, sand-spits, sand-dunes, shingle beaches and extensive deltas (Snow and Perrins 1998) with immediate access to clear waters with shallow sandy substrates rich in surface-level fish (Snow and Perrins 1998). It shows a preference for raised, open, unvegetated sand, gravel, mud or bare coral substrates for nesting (del Hoyo *et al.* 1996). *Non-breeding* Outside of the breeding season the species frequents sandy or rocky beaches, mudflats fringed by mangroves, estuaries, harbours and bays, often feeding over inlets and at sea (del Hoyo *et al.* 1996). **Diet** Its diet consists predominantly of surface-dwelling marine fish (Snow and Perrins 1998) 9-15 cm long (del Hoyo *et al.* 1996) as well as small shrimps, marine worms and shorebird nestlings (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow scrape on raised, open, unvegetated sand, gravel, mud or bare coral substrates preferably far from upright vegetation (del Hoyo *et al.* 1996) on sandy islands, rocky calcareous islets, sand-spits, sand-dunes and shingle beaches (Snow and Perrins 1998). The species forms very dense colonies during the breeding season in which the eggs of neighbouring pairs may only be 20 cm apart (del Hoyo *et al.* 1996). **Management information** The species responds favourably to habitat management such as vegetation clearance, and can be readily attracted to suitable nesting habitats by the use of decoys (del Hoyo *et al.* 1996). Breeding pairs are also known to be attracted to coastal locations where artificial nesting sites have been constructed (e.g. beaches of bare shingle and islands or rafts covered with sparse vegetation) (Burgess and Hirons 1992). A conservation scheme for the protection of gull and tern breeding colonies in coastal lagoons and deltas (e.g. Po Delta, Italy) involves protection from human disturbance, prevention of erosion of islet complexes, habitat maintenance and the creation of new islets for nest sites (Fasola and Canova 1996). The scheme particularly specifies that bare islets with 30-100 % cover of low vegetation (sward heights less than 20 cm) should be maintained or created as nesting sites (Fasola and Canova 1996).

THREATS

The species is particularly vulnerable to human disturbance (del Hoyo *et al.* 1996) (e.g. from tourists) especially near breeding colonies on beaches early in the breeding season (Bourne and Smith 1974). It is also sensitive to disturbance from coastal wind farms (wind turbines) (Garthe and Huppop 2004). It is threatened by the loss or degradation of its favoured breeding habitats through inundation, wind-blown sand and erosion (del Hoyo *et al.* 1996), and has suffered previous local declines from exposure to bioaccumulated organochlorine pollutants in marine fish (Koeman *et al.* 1967, del Hoyo *et al.* 1996). Egg collecting at breeding colonies also poses a threat to the species throughout the tropics (del Hoyo *et al.* 1996). **Utilisation** This species is hunted in West Africa during the winter (del Hoyo *et al.* 1996).

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Common Tern (*Sterna hirundo*) LC (decreasing, 2015)

AEWA and CMS species, and protected under the US Migratory Bird Act

JUSTIFICATION

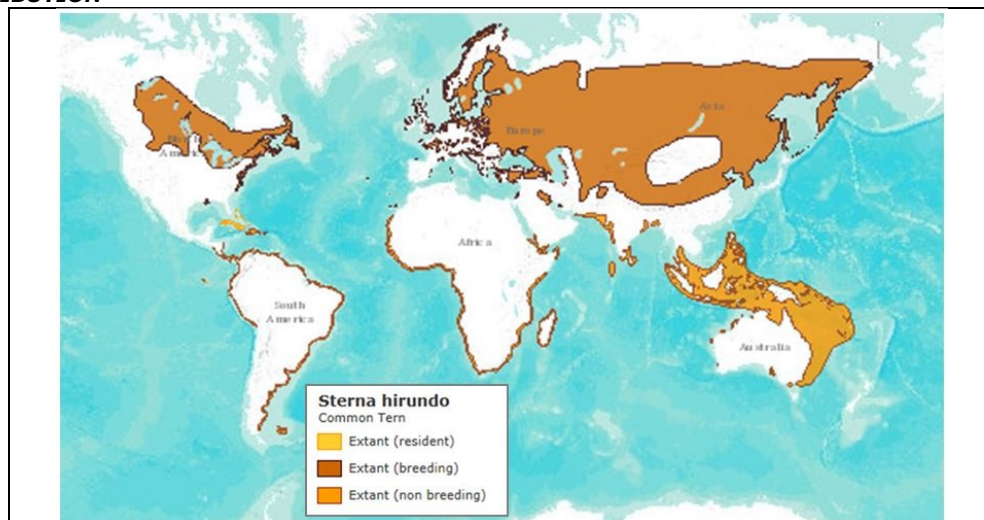
This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

POPULATION AND TREND JUSTIFICATION

The global population is estimated to number c.1,600,000-4,600,000 individuals (Wetlands International 2006), while national population sizes have been estimated at c.10,000-100,000 breeding pairs, c.1,000-10,000 individuals on migration and c.50-1,000 wintering individuals in China and c.10,000-100,000 breeding pairs and c.1,000-10,000 individuals on migration in Russia (Brazil 2009).

The overall population trend is decreasing, although some populations may be stable and others have unknown trends (Wetlands International 2006). This species has undergone a large and statistically significant decrease over the last 40 years in North America (-70.4% decline over 40 years, equating to a -26.2% decline per decade; data from Breeding Bird Survey and/or Christmas Bird Count: Butcher and Niven 2007).

DISTRIBUTION



HABITAT AND ECOLOGY

Behaviour This species is a strongly migratory coastal seabird (del Hoyo *et al.* 1996, Snow and Perrins 1998). It breeds between April and June in solitary pairs or colonially in groups of up to several thousand pairs (inland colonies often smaller and more widely-dispersed than coastal ones) (del Hoyo *et al.* 1996). Palearctic breeders migrate south after breeding between August and October, returning to the breeding grounds in March or April (del Hoyo *et al.* 1996). The species may moult on arrival in its the wintering grounds (e.g. the Caribbean), during which it may become vulnerable to human exploitation (van Halewyn and Norton 1984). It is gregarious throughout the year (Snow and Perrins 1998) and shoals of fish may attract dense feeding flocks, although it otherwise feeds singly or in small loose groups (del Hoyo *et al.* 1996, Snow and Perrins 1998). In some cases, it is territorial; in Massachusetts, feeding territories usually consist of linear strips of shoreline which are occupied and defended regularly by both members of a pair. The prevalence of territoriality at feeding sites varies between colonies and is related to food species availability (Nisbet 1983). Most individuals forage 5-10 km from breeding colonies, occasionally feeding at sea 15 km offshore (del Hoyo *et al.* 1996). Common Terns forage over fresh water as well as marine habitats, and often follow predatory fish, waiting for panicking baitfish to surface. They sometimes forage in mixed-species flocks together with other terns (Safina 1990, Brenninkmeijer *et al.* 2002).

Habitat *Breeding* The species breeds in a wide variety of habitats in coastal and inland areas from sea-level to heights of greater than 4,000 m (del Hoyo *et al.* 1996). Along the coast it shows a preference for nesting on flat rock surfaces on inshore islands (Snow and Perrins 1998), open shingle and sandy beaches, dunes and spits (del Hoyo *et al.* 1996, Snow and Perrins 1998), vegetated inter-dune areas, sandy, rocky, shell-strewn or well-vegetated islands in estuaries (del Hoyo *et al.* 1996) and coastal lagoons (Snow and Perrins 1998), saltmarshes (Richards 1990, Snow and Perrins 1998), mainland peninsulas (Snow and Perrins 1998) and grassy plateaus atop coastal cliffs (del Hoyo *et al.* 1996). Inland it may nest in similar habitats including sand or shingle lakes shores (Richards 1990), shingle banks in rivers (Snow and Perrins 1998), sandy, rocky, shell-strewn or well-vegetated islands in lakes and rivers (del Hoyo *et al.* 1996, Snow and Perrins 1998), sand- or gravel-pits (Richards 1990, Snow and Perrins 1998), marshes, ponds, grassy areas and patches of dredged soil (Snow and

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Perrins 1998). *Non-breeding* The species winters on sheltered coastal waters (Higgins and Davies 1996), estuaries and along large rivers, occupying harbours, jetties, piers, beaches (del Hoyo *et al.* 1996) and coastal wetlands including lagoons, rivers, lakes, swamps and saltworks, mangroves and saltmarshes (Higgins and Davies 1996). During this season it roosts on unvegetated sandy beaches, shores of estuaries or lagoons, sandbars and rocky shores (Higgins and Davies 1996). **Diet** The species is opportunistic, its diet consisting predominantly of small fish and occasionally planktonic crustaceans and insects (del Hoyo *et al.* 1996). **Breeding site** The nest is a shallow depression on open substrates with little or no vegetation placed near a vertical object (e.g. rock, shell, plant or artefact) to provide shelter for chicks and to facilitate nest identification (del Hoyo *et al.* 1996). Nest sites include the edges of bare sand amongst vegetation, rocks or logs, open areas on the margins of vegetation on beaches, the edges of mats of vegetation in marshes (del Hoyo *et al.* 1996), and grassy or rocky substrates on rocky islets (del Hoyo *et al.* 1996). The species will also readily nest on artificial rafts (del Hoyo *et al.* 1996). **Foraging range** Studies have observed foraging birds at up to 37 km from the nearest colony (Cramp 1985, BirdLife International 2000). However, although Common Terns tend to range further than Roseate Terns (BirdLife International 2000), most are observed within 10 km of a breeding colony (Becker *et al.* 1993, Wanless *et al.* 1998, Newton and Crowe 1999). At various sites, visual observations e.g. of direction of flight also suggest that most feeding trips are to sites within 10 km of the colony (Hopkins and Wiley 1972, Duffy 1986, Uttley *et al.* 1989, Burness *et al.* 1994, BirdLife International 2000), although birds in these studies were recorded at a maximum of 18 km from the colony (Duffy 1986). Radio-tagging at the Wadden Sea has shown that birds forage at a mean radius of at least 6.3 km (Becker *et al.* 1993), although the total distance travelled by individuals on these foraging trips is much greater, around 26-30 km. In Massachusetts, feeding territories tend to be located in shallow water up to 75 m from shore, and may be at least 8.5 km away from the breeding colony (Lemmetyinen 1973, Nisbet 1983, BirdLife International 2000), as well as areas where depth changes abruptly and tidal currents are strong, which presumably produces much upwelling and mixing of cold, deep water with warmer surface water (Safina 1990). Birds lower the rate at which they attempt to forage when windspeed is high (Taylor 1983).

THREATS

During the breeding season the species is vulnerable to human disturbance at nesting colonies (Buckley and Buckley 1984, Blokpoel and Scharf 1991) (e.g. from off-road vehicles, recreation, motor-boats, personal watercraft and dogs) (van Halewyn and Norton 1984, del Hoyo *et al.* 1996, Hyde 1997, Burger 1998), and to the flooding of nest sites as a result of naturally fluctuating water levels (Buckley and Buckley 1984, del Hoyo *et al.* 1996, Hyde 1997). On its breeding grounds the species is also threatened by habitat loss as a result of coastal development (Buckley and Buckley 1984, Blokpoel and Scharf 1991, del Hoyo *et al.* 1996, Hyde 1997), erosion (Hyde 1997), vegetation overgrowth (rapid vegetation succession encroaching upon nesting habitats) (Blokpoel and Scharf 1991, del Hoyo *et al.* 1996, Hyde 1997), and chemical pollution (which may also result in eggshell thinning) (Blokpoel and Scharf 1991, del Hoyo *et al.* 1996, Hyde 1997). It suffers predation at nesting colonies from rats (especially on islands) (Buckley and Buckley 1984, del Hoyo *et al.* 1996) and from expanding populations of large gull species (Brown and

Nettleship 1984, del Hoyo *et al.* 1996) such as Herring Gulls *Larus argentatus* (Buckley and Buckley 1984) (gulls may also prevent the species from nesting in the area by colonising it first) (Blokpoel and Scharf 1991, del Hoyo *et al.* 1996). The species is susceptible to avian influenza so may be threatened by future outbreaks of the virus (Melville and Shortridge 2006). **Utilisation** The species is harvested semi-commercially on its wintering grounds in the Caribbean (van Halewyn and Norton 1984, del Hoyo *et al.* 1996).

Black Tern (*Chlidonias niger*)

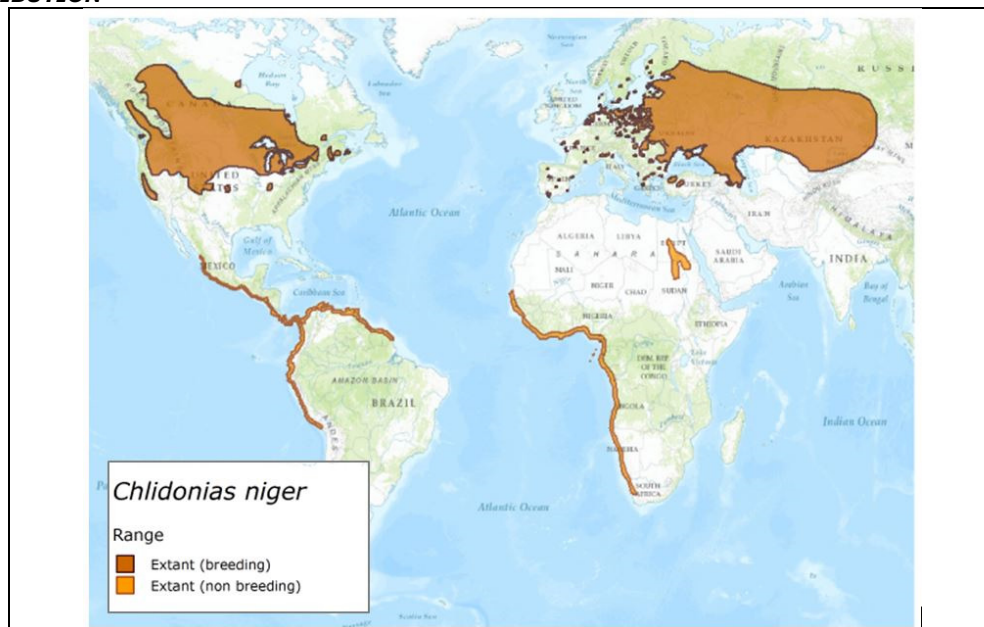
LC (decreasing, 2012)

AEWA and CMS species

JUSTIFICATION

This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

DISTRIBUTION



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POPULATION AND TREND JUSTIFICATION

This species has undergone a small or statistically insignificant decrease over the last 40 years in North America (data from Breeding Bird Survey and/or Christmas Bird Count: Butcher and Niven 2007).

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

In winter, this species is primarily pelagic, being found in oceanic waters several miles offshore. On migration, Black Terns may be found on a variety of freshwater wetlands, including marshes, ponds, and rivers.

Behaviour This species is strongly migratory (del Hoyo *et al.* 1996) and travels both over land and over sea (Snow and Perrins 1998). It breeds between May and June (del Hoyo *et al.* 1996) in colonies, usually of less than 20 pairs (rarely more than 100 pairs) (del Hoyo *et al.* 1996) and often close to other species (Flint *et al.* 1984, Snow and Perrins 1998). After breeding it departs for its wintering grounds from July onwards (Richards 1990), returning north again from late-March (Snow and Perrins 1998). The species is gregarious throughout the year (Snow and Perrins 1998), foraging in groups of 2-20 during the breeding season and congregating in large flocks offshore on passage and in the winter over shoals of predatory fish (Richards 1990, del Hoyo *et al.* 1996, Snow and Perrins 1998). **Habitat** *Breeding* The species breeds on fresh or brackish wetlands (Richards 1990) such as small pools, lakes, marshes (Richards 1990, del Hoyo *et al.* 1996), ditches, overgrown canals, quiet reaches of rivers, swampy meadows (Richards 1990), peat bogs and rice-fields (del Hoyo *et al.* 1996), showing a preference for well-vegetated areas (del Hoyo *et al.* 1996) with sparse, open emergent vegetation (del Hoyo *et al.* 1996) (e.g. *Typha* spp., sedge or reeds) (Flint *et al.* 1984) and floating water-lilies (del Hoyo *et al.* 1996), and with water 1-2 m deep (del Hoyo *et al.* 1996). It generally avoids small marshland areas less than 4 ha in area (del Hoyo *et al.* 1996). *Non-breeding* On passage the species frequents inland wetlands including pools, ditches (del Hoyo *et al.* 1996), reservoirs, lakes and sewage farms (Snow and Perrins 1998), as well as coastal habitats and estuaries (del Hoyo *et al.* 1996). In winter it is predominantly coastal however, frequenting estuaries (del Hoyo *et al.* 1996, Snow and Perrins 1998), saltmarshes, bays (Snow and Perrins 1998), coastlines and coastal lagoons (del Hoyo *et al.* 1996) as well as marine waters up to 400-600 km offshore (Urban *et al.* 1986). **Diet** *Breeding* Its breeding diet consists predominantly of insects (e.g. chironomids, Odonata, Ephemeroptera and Coleoptera) as well as small fish (del Hoyo *et al.* 1996) and amphibians (Snow and Perrins 1998) (e.g. tadpoles and frogs) (del Hoyo *et al.* 1996). *Non-breeding* On passage and during the winter the species's diet consists largely of marine fish although insects and crustaceans may also be taken (Snow and Perrins 1998). **Breeding site** The nest may be a low compressed mound of plant matter (Flint *et al.* 1984, Snow and Perrins 1998) placed in very shallow water (Snow and Perrins 1998) or on a floating mat of aquatic vegetation (Flint *et al.* 1984) over water more than 50 cm deep (del Hoyo *et al.* 1996). The nest may also be a shallow scrape (Snow and Perrins 1998) on the ground amongst marsh vegetation (Snow and Perrins 1998). The species breeds in small colonies and may forage up to 2-5 km from breeding sites (del Hoyo *et al.* 1996). **Management information** In the Netherlands the provision of anchored artificial nesting rafts has been partly successful as a conservation measure (van der Winden *et al.* 2004, 2005), especially in habitats

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where unstable nest substrates (such as floating waterlilies) result in poor breeding successes (van der Winden *et al.* 2004). In the Netherlands there have also been successful programmes to reduce disturbance and improve habitat quality in agricultural areas, which has benefited the species (van der Winden 2005). The application of glyphosphate-based herbicides to combat and prevent the overgrowth of *Typha* spp. in wetlands may also benefit the species (Linz and Blixt 1997).

THREATS

On its breeding grounds the species is threatened by reductions in food availability due to the eutrophication of surface waters (which reduces the diversity of large insects) (Beintema 1997), the acidification of lakes (which leads to the death of fish) (Beintema 1997), the introduction of exotic fish species (e.g. peacock bass *Cichla ocellaris*) (del Hoyo *et al.* 1996) and pesticide pollution (which may also lead to direct mortality from poisoning) (del Hoyo *et al.* 1996). When breeding the species is also threatened by fluctuating water levels (Snow and Perrins 1998), the loss and deterioration of freshwater nesting habitats (del Hoyo *et al.* 1996, van der Winden 2005) (e.g. through drainage for agriculture (del Hoyo *et al.* 1996, Snow and Perrins 1998) and overgrowth of *Typha* spp. beds [del Hoyo *et al.* 1996, Linz and Blixt 1997]), and human disturbance (del Hoyo *et al.* 1996, Snow and Perrins 1998, van der Winden 2005) (especially where this forces breeding pairs to leave the nest before the young are fully fledged) (van der winden 2002). The species is also susceptible to avian influenza so may be threatened by future outbreaks of the virus (Melville and Shortridge 2006).

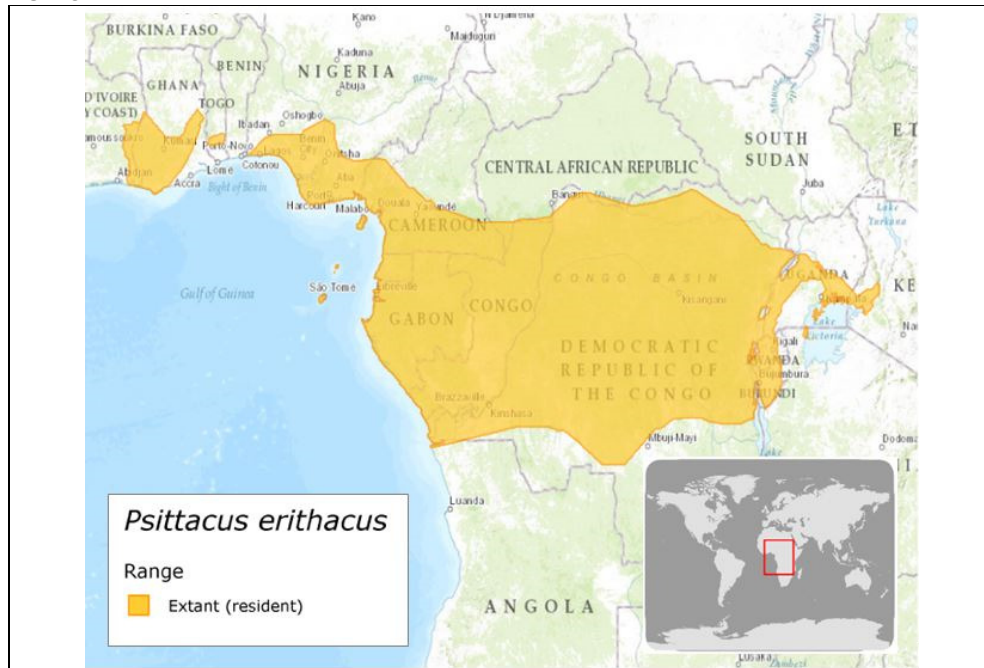
Grey Parrot (*Psittacus erithacus*) VU (decreasing, 2013)

CITES Appendix II

JUSTIFICATION

This species has been uplisted to Vulnerable because the extent of the annual harvest for international trade, in combination with the rate of ongoing habitat loss, means it is now suspected to be undergoing rapid declines over three generations (47 years).

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

Gatter (1997) estimated two breeding pairs/ km² of *P. timneh* in logged forest north of Zwedru, Liberia. McGowan (2001) provided similar estimates of nest densities in Nigeria of 0.5-2.1/km², believing the higher end to be more accurate. This would indicate 4.2 breeding birds/km² plus non-breeding birds (the remaining 70-85% of the population, as estimated by Fotso (1998b), giving estimates of 4.9-6.0 birds/km². These estimates are substantially higher than those of 0.3-0.5 birds/km² in good habitat in Guinea (*timneh*) and 0.9-2.2 birds/km² (in evergreen forests) or 0.15-0.45 birds/km² (in semi-deciduous forests) in Ghana. Using these density estimates, the overall *P. timneh* population was estimated at 120,100-259,000 birds, and the West African population of *P. erithacus* at 40,000-100,000 birds, although central African populations of this subspecies are much larger. Using a global land cover classification, a digitised map of the species's range from Benson *et al.* (1988), and estimates of density 0.15-0.45 birds/km² in semi-deciduous forest (including deciduous forest) and 0.3-6.0 birds/km² in evergreen forest (including swamp forest and mangrove), supplemented by post-1995 published national estimates where available, an initial coarse assessment of the global population of this species (subtracting estimates for the now-split *P. timneh*) is 0.56-12.7 million individuals.

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Population declines have been noted in Burundi, Cameroon, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, Togo, Uganda and parts of Congo and the Democratic Republic of the Congo. In all of these declines, trapping for the wild bird trade has been implicated, with habitat loss also having significant impacts throughout West and East Africa. Data suggest that c.21 % of the wild population is being harvested annually, and in addition forest loss during 1990-2000 was estimated to be particularly high in Cote d'Ivoire (31%) and Nigeria (26%). The total number birds extracted from the wild during the period 1982 to 2001 may well have been over 1 million (A. Michels *in litt.* 2012), with perhaps some 100,000 birds per year being captured in Cameroon during the late 1990s and early 2000s (F. Dowsett-Lemaire *in litt.* 2012). The rate of decline is hard to quantify, but given the massive level of capture for trade and the high levels of forest loss in parts of the range a decline of 30-49% in three generations (47 years) may be a conservative estimate.

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

Although typically inhabiting dense forest, they are commonly observed at forest edges, clearings, gallery forest, mangroves, wooded savannah, cultivated areas, and even gardens (Juniper and Parr 1998), but it is not clear whether these are self-sustaining populations. At least in West Africa, the species makes seasonal movements out of the driest parts of the range in the dry season. It is highly gregarious, forming large roosts at least historically containing up to 10,000 individuals (Juniper and Parr 1998). Feeding takes place in smaller groups of up to 30 birds and the diet consists of a variety of fruits and seeds, while the nest is in a tree cavity 10-30 m above ground (Juniper and Parr 1998). Nesting is usually solitary, but can take place in loose colonies, for example in Principe, while the breeding season varies across the range (Juniper and Parr 1998).

THREATS

It is one of the most popular avian pets in Europe, the United States, and the Middle East due to its longevity and unparalleled ability to mimic human speech and other sounds. Demand for wild birds is also increasing in China, and increased presence of Chinese businesses in central Africa (particularly for mining, oil and logging) may increase illegal exports of this species (F. Maisels *in litt.* 2006, H. Rainey *in litt.* 2006). From 1982 to 2001, over 657,000 wild-caught individuals of both *erithacus* and *timneh* (the vast majority *erithacus*) entered international trade (UNEP-WCMC 2005). Considering estimates for preexport mortality, the number of birds extracted from the wild during this period may well have numbered over 1 million (A. Michels *in litt.* 2012). In the late 1990s and early 2000s Cameroon exported an annual quota of 10,000 birds; estimates that c90% of trapped birds died before reaching Douala airport suggest that some 100,000 birds per year were being captured in Cameroon during that period (F. Dowsett-Lemaire *in litt.* 2012). Official statistics give exports of 367,166 individuals from Cameroon in the period 1981-2005, and the country accounted for 48% of exports between 1990-1996 (Waugh 2010). Up to 10,000 wild-caught birds from the Democratic Republic of the Congo are apparently imported into South Africa each year (S. Boyes *in litt.* 2011). Because it concentrates in traditional roosting, drinking and mineral lick sites, it is especially vulnerable to trapping pressure. Habitat loss is undoubtedly having significant impacts, particularly throughout West and East Africa. In addition to capture for international trade,

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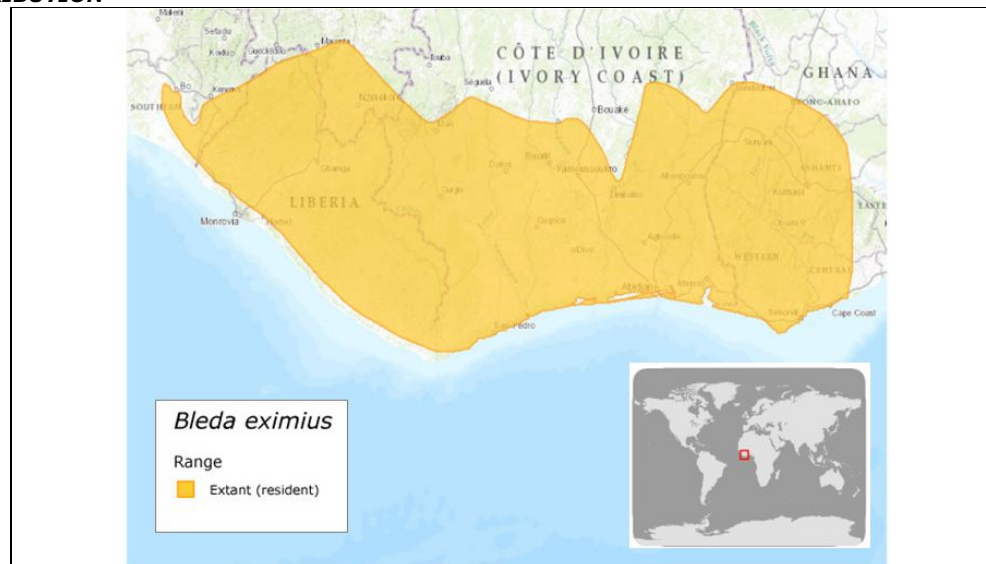
there is an active internal trade in live birds for pets and exhibition (McGowan 2001, Clemmons 2003, A. Michels *in litt.* 2012). The species is also hunted in parts of the range as bushmeat and to supply heads, legs and tail feathers for use as medicine or in black magic (Fotso 1998, McGowan 2001, Clemmons 2003, A. Michels *in litt.* 2012).

Green-tailed Bristlebill Bulbul (*Bleda eximius*) NT (decreasing, 2012)

JUSTIFICATION

This species has been down-listed to Near Threatened because evidence shows that it is more tolerant of habitat modification than previously thought. Rapid rates of deforestation in its range are nevertheless suspected to be driving a moderately rapid population decline (it almost qualifies for listing as threatened under criteria A2c+3c+4c).

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The population size is preliminarily estimated to fall into the band 10,000-19,999 mature individuals.

The population is suspected to be in moderately rapid decline, owing to the clearance of forest in the species' range primarily for commercial timber extraction and subsistence agriculture. The rate of decline is not thought to be more severe because the species shows some tolerance of modified habitats.

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

The species's optimal habitat may be closed-canopy lowland forest up to 1,400 m, in Ghana preferring undisturbed, wet evergreen forest (Holbech 1992, 1996), and it appears to have more restricted habitat requirements than the Yellow-bearded Greenbul *Criniger olivaceus* (H. Rainey *in litt.* 2007). However, in Liberia, it is found in high forest and also mature secondary forest (Gatter 1997), and it shows tolerance to forest degradation, as

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caused by logging and road-building, for example (Dowsett-Lemaire and Dowsett 2009, F. Dowsett-Lemaire *in litt.* 2010). It forages mainly on the ground in dense understorey vegetation, and is a follower of ant columns (P. Robertson *in litt.* 1998, F. Dowsett-Lemaire *in litt.* 2011).

THREATS

Remaining large tracts of forest in Liberia are under intense and increasing pressure from commercial logging and a consequent increase in settlement and smallholder agriculture (Fauna and Flora International 2000). Elsewhere in the Upper Guinea region, forest survives in fragmented patches which are under intense pressure for logging and agriculture (Fauna and Flora International 2000). Overall, there has been a slight decrease recently in the rate of forest loss in the Upper Guinea Region, mostly owing to a decrease in Cote d'Ivoire, where the return of peace may allow the rate to increase again (H. Rainey *in litt.* 2007). Forests on the Guinea and Cote d'Ivoire border, on and near Mt Nimba, have little effective protection and clearance for agriculture, industry and logging is taking place rapidly (H. Rainey *in litt.* 2007).

Yellow-bearded Greenbul (*Criniger olivaceus*) **VU (decreasing, 2013)**

JUSTIFICATION

Forest throughout this species's known range is fast disappearing and its population could still be rapidly declining, and is certainly becoming increasingly fragmented. It is therefore classified as Vulnerable.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The total population is conservatively suspected to number somewhere in the region of 100,000- 499,999 individuals based on a population of c.120,000 pairs in Liberia alone.

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The population is suspected to be declining rapidly, in line with the clearance of forest within the species's range for commercial timber extraction and agriculture.

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

It is found in the midstorey of lowland primary forest. In Liberia, it is also known from mature secondary forest, forest-grassland mosaic and gallery forest and is found in the northern mountains up to 800 m (Gatter 1997). In Cote d'Ivoire, it is found in most primary forest in Tai National Park, but is more common in the evergreen forest of Yapo Forest, possibly owing to the greater prevalence of dense understorey and epiphytes (Gartshore *et al.* 1995). It is mainly insectivorous.

THREATS

The largest remaining area of Upper Guinea forest (43%) is now found in Liberia, where it is under intense pressure, particularly since the end of the civil war in 1996, when there was a sharp increase in commercial logging activities (Anon. 2000). Large scale deforestation (in 1990 estimated to be c.6% annually) has already taken place in Cote d'Ivoire, particularly since the mid-1970s, and has been encroaching on protected areas (Chatelain *et al.* 1996). Forests on the Guinea and Cote d'Ivoire border, near Mt Nimba, have little effective protection and clearance for agriculture and logging is taking place rapidly (H. Rainey *in litt.* 2007). The rate of forest loss in the Upper Guinea region appears to have declined slightly in recent years, owing mostly to a decrease in the rate of deforestation in Cote d'Ivoire, which may increase with the return of peace (H. Rainey *in litt.* 2007). Across the Upper Guinea region, forest survives in fragmented patches which are under intense pressure for logging and agriculture (Anon. 2000).

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Copper-tailed Starling (*Lamprotornis cupreocauda*) NT (decreasing, 2012)

JUSTIFICATION

This species is listed as Near Threatened because ongoing deforestation for agriculture and timber is suspected to be driving a moderately rapid population decline. Any evidence of a greater decline rate may qualify the species for a higher threat category.

DISTRIBUTION



POPULATION AND TREND JUSTIFICATION

The population size of this species has not been quantified, but it is described as generally common.

The population is suspected to be in decline owing to ongoing habitat destruction and fragmentation.

Current Population Trend: Decreasing

HABITAT AND ECOLOGY

It is a species of forest, forest edge, and gallery forest (Gatter 1997, H. Rainey *in litt.* 1999). It has been reported to benefit immediately following forest burning when some emergents remain, but to decline in secondary habitats thereafter (Gatter 1997). It feeds on insects, figs, berries and other fruits (Fry *et al.* 2000). The species nests in holes in dead trees and branches, and the clutch-size may be three. Observations suggest breeding activity between August and February (Fry *et al.* 2000).

THREATS

Destruction of forest throughout its range, resulting from commercial logging and clearance for cultivation, is likely to be causing widespread declines.

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APPENDIX D – SELECTION OF 36 BIRD SPECIES PHOTOGRAPHED DURING THE PRECONSTRUCTION BIRD SURVEY (NOVEMBER 2015)



a. Eurasian Oystercatcher (*Haematopus ostralegus*)



b. Grey Plover (*Pluvialis squatarola*)



c. Sanderling (*Calidris alba*)



d. Whimbrel (*Numenius phaeopus*)



e. Ruddy Turnstone (*Arenaria interpres*)



f. Royal Tern (*Thalasseus maximus*) - yellow beak
g. Sandwich Tern (*S. sandvicensis*) - black beak



h. Hooded Vulture (*Necrosyrtes monachus*)



i. Black Kite (*Milvus migrans*)



j. Red-necked Buzzard (*Buteo auguralis*)



k. Blue-spotted Wood Dove (*Turtur afer*)



l. Red-eyed Dove (*Streptopelia semitorquata*)



m. Western Grey Plantain-eater (*Crinifer piscator*)



n. Klaas's Cuckoo (*Chrysococcyx klaas*)



o. Senegal Coucal (*Centropus senegalensis*)



p. Woodland Kingfisher (*Halcyon senegalensis*)



q. African Pygmy Kingfisher (*Ceyx pictus*)



r. Black Bee-eater (*Merops gularis*)



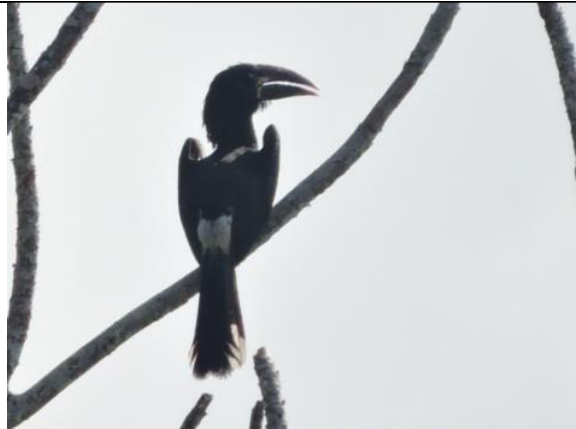
s. Little Bee-eater (*Merops pusillus*)



t. White-fronted Bee-eater (*Merops albicollis*)



u. African Pied Hornbill (*Tockus fasciatus*)



v. Piping Hornbill (*Bycanistes fistulator*)



w. Speckled Tinkerbird (*Pogoniulus scolopaceus*)



x. Ethiopian Swallow (*Hirundo aethiopica*)



y. African Pied Wagtail (*Motacilla aguimp*)



z. Common Bulbul (*Pycnonotus barbatus*)



aa. Tawny-flanked Prinia (*Prinia subflava*)



bb. Reichenbach's Sunbird (*Anabathmis reichenbachii*)



cc. Copper Sunbird (*Cinnyris cupreus*)



dd. Splendid Starling (*Lamprolornis splendidus*)



ee. Northern Grey-headed Sparrow (*Passer griseus*)



ff. Red-vented Malimbe (*Malimbus scutatus*)



gg. Vieillot's Black Weaver (*Ploceus nigerrimus*)



hh. Village Weaver (*Ploceus cucullatus*)



ii. Orange-cheeked Waxbill (*Estrilda melpoda*)



jj. Black-and-white Mannikin (*Lonchura bicolor*)