

A REVIEW OF THE STATUS OF THE FAUNA OF SELECTED PROTECTED AREAS IN THE MAJOR VEGETATION ZONES OF GHANA

S. YEBOAH AND J. P. DEIKUMAH

*School of Biological Sciences, Department of Entomology and Wildlife,
University of Cape Coast, Cape Coast, Ghana*

Abstract

The fauna in four major vegetation types, namely, rainforest, semi-deciduous forest, inland savanna and coastal scrub and grassland, was examined with the main objective of providing a general description of the fauna and highlighting the species that are threatened or of special conservation concern, nationally and globally. The fauna examined were mammals (large and small), birds and reptiles. The sources of information include the Internet, books, journals and faunal survey reports on various forest reserves and protected areas in Ghana. The threat to fauna appears to be highest in the rainforest and the semi-deciduous forest. For mammals, 41.8 and 28 per cent are threatened in the rainforest and semi-deciduous forest, respectively. The comparable figures for birds are 4.5 and 3.1 per cent. The most endangered (critically endangered) mammal species in Ghana is the Miss Waldron's red colobus monkey (*Procolobus badius*); current thinking is that it has gone extinct. Six species of mammals are endangered (IUCN) in the semi-deciduous forest, two in the rainforest and four in the inland savanna; no endangered species has been recorded in the coastal scrub and grassland. The main causes of threat to fauna in forest reserves are habitat degradation and fragmentation, to which mining activities have been contributing in recent times.

Résumé

YEBOAH, S. & DEIKUMAH, J. P.: *Une révision de la condition de la faune des aires protégées sélectionnées dans les zones de végétation majeure du Ghana.* La faune en quatre types de végétation majeure (à savoir, forêt pluviale, forêt à feuilles semi-caduques, la Savane intérieure, les broussailles littorales et la terre herbeux) étaient examinées avec l'objectif principal de faire une description générale de la faune et de souligner les espèces qui sont menacées ou sont d'intérêt de conservation spéciale globalement et nationalement. Les faunes traitées étaient mammifères (grands et petits) les volailles et les reptiles. Les sources d'information comprennent l'internet, les livres, les revues, et les rapports du sondage faunistique sur les différents réserves de forêt et les aires protégées au Ghana. La menace à la faune apparaît être la plus élevée dans les forêts pluviaux et les forêts à feuilles semi-caduques. Pour les mammifères, 41.8 et 28% sont menacés respectivement dans les forêts pluviaux et les forêts à feuilles semi-caduques. Les chiffres comparables pour les volailles sont 4.5 et 3.1%. Les espèces de mammifère qui sont en voie de disparition (dans un état critique de disparition) au Ghana est le singe colobus rouge de Miss Waldron's (*Procolobus badius*) et la pensée actuelle est qu'elle n'existe plus. Six espèces de mammifères sont en voie de disparition (IUCN) dans la forêt à feuilles semi-caduques, deux dans la forêt pluviale et quatre dans la savane intérieure. Aucune espèce en voie de disparition n'est enregistrée dans la broussaille littorale et la terre herbeux. Les causes principaux de la menace à la faune dans les réserves de forêt sont la dégradation de habitat et la fragmentation auxquelles les activités de mines font beaucoup d'influence récemment.

Introduction

During the early parts of the 19th century a number of forests were set aside as forest reserves and protected by law. The long-term objective of this was to protect some of the vital natural resources of the country for posterity in the face of ever increasing human populations and urbanization. The forest reserves harbour many important native flora and fauna. In recent times, a lot of encroachments have been going on in these forest reserves through uncontrolled bush fires, illegal farming, pouching, over-harvesting of timber and mineral exploration. The result is that these forest reserves are dwindling in size and mostly seriously fragmented. The status of the fauna of these reserves is not clearly known, and the scanty information available is fragmented and need to be reviewed to bring out a clearer picture (Oates *et al.*, 2000; <http://www.primatesg.org/pennantii07.htm>).

Available information on the fauna of the four main vegetation types of Ghana was, therefore, examined with the following main objectives: a) to provide a general description of the fauna in the different vegetation types, and b) to provide highlights of the species that are threatened, or of special biodiversity and conservation concern nationally and globally. The fauna covered in this report were mammals, birds and reptiles.

Experimental

Study area

The four vegetation types (Fig.1) are the rainforest (wet and moist evergreen), semi-deciduous (moist deciduous) forest, inland savanna (Sudan savanna and Guinea savanna), and coastal scrub and grassland (Dickson & Benneh, 1988).

Information search on the fauna and the different vegetation types was carried out from various sources. The sources included the Internet (<http://www.birdlife.org>, <http://www.tougha.com>), books (Birdlife International, 2005; C-I Ghana, 2002ab), publications (Ntiamoah-Baidu, 1997; Yeboah, 1994 and 1998),

and faunal survey reports (Yeboah, 1997, 1998a-h, 1999, 2003, 2004 ab, 2005 ab; Yeboah & Owusu, 1999a-j) on various parts of the country.

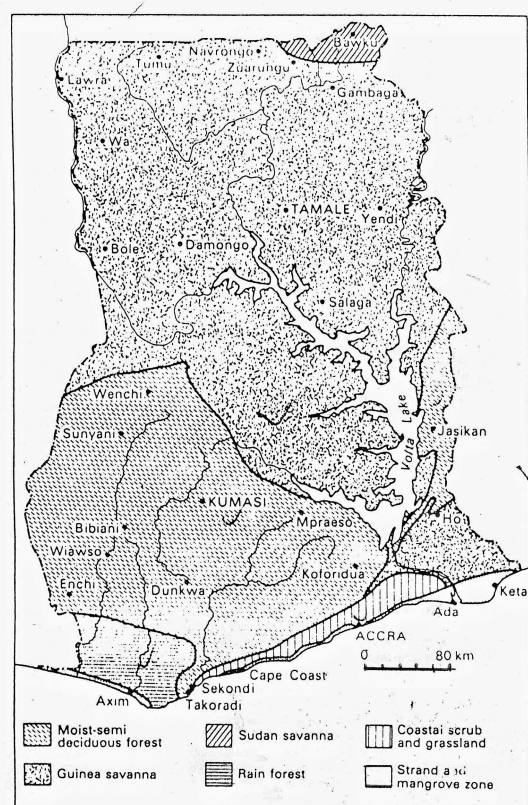


Fig. 1. The vegetation types of Ghana

Results

Semi-deciduous forest

Mammals. A total of 100 species of mammals are known to be present in the semi-deciduous forest of Ghana, mainly distributed in 121 forest reserves, six of which are wildlife conservation areas and include Bomfibri Wildlife Sanctuary, Bia National Park, Kakum National Park, Owabi Wildlife Sanctuary, Agumatsa Wildlife Sanctuary and Kyabobo National Park. The largest conservation area in this vegetation type is the Kakum Conservation Area, and the largest forest

TABLE 1

Mammals threatened or of special conservation concern in the four major vegetation zones of Ghana (SD = Semi-deciduous, RF = Rainforest, IS = Inland savanna, CSG = Coastal scrub and grassland, EN = Endangered, VU = vulnerable, DD = Data deficient, SI = First schedule, SII = Second schedule of the Ghana Wildlife Conservation Regulations)

Species name		Vegetation zones				Status	
Scientific	Common	SD	RF	IS	CSG	IUCN	Ghana
Order Primata							
<i>Procolobus badius</i>	Miss Waldron's red colobus	+				CR	
<i>Cercopithecus diana</i>	Diana monkey	+	+			EN	
<i>Procolobus vellerosus</i>	White-thighed B/W colobus	+	+			VU	
<i>Pan troglodytes</i>	Chimpanzee	+	+			VU	
<i>Galago senegalensis</i>	Bush baby	+			+	EN	SI
<i>Perodicticus potto</i>	Bossman's potto	+				EN	
<i>Colobus polykomos</i>	Western B/W colobus	+				VU	
Order Artiodactyla							
<i>Hyemoschus aquaticus</i>	Water chevrotan	+	+			DD	
<i>Hylochoerus meinertzhageni</i>	Giant forest hog	+	+			VU	
<i>Cephalophus dorsali</i>	Bay duiker	+					
<i>Cephalophus ogilbyi</i>	Oglibys duiker	+					
<i>Cephalophus sylvicultor</i>	Yellow-backed duiker	+					
<i>Tragelaphus euryceros</i>	Bongo	+	+				
<i>Domaliscus lunatus</i>	Korrigum, Sassaby, Topi			+		VU	SI
<i>Gazella rufifrons</i>	Red-fronted gazelle			+		EN	SI
<i>Tragelaphus derbianus</i>	Western giant eland			+		EN	SI
<i>Redunca redunca</i>	Bohor reedbuck			+			SI
<i>Ourebia ourebi</i>	Oribi			+			SI
<i>Tragelaphus spekii</i>	Marshbuck, Sitatunga			+			SI
Order Proboscidea							
<i>Loxodonta africana</i>	Elephant	+	+	+		EN	SI
Order Carnivora							
<i>Mungos gambianus</i>	Gambian mongoose	+				DD	
<i>Genetta johnstoni</i>	Johnston's genet	+	+			VU	
<i>Nandina binotata</i>	African palm civet	+	+				
<i>Poiana richardsoni</i>	African Linsang	+				EN	
<i>Lutra maculicollis</i>	Spot-necked otter	+				VU	
<i>Mellivora capensis</i>	Honey badger ratel		+				
<i>Aonyx capensis</i>	African clawless otter	+	+				
<i>Panthera leo</i>	Lion			+		VU	SI
<i>Panthera pardus</i>	Leopard			+		VU	SI
<i>Lycaon pictus</i>	African wild dog			+		EN	SI
<i>Felis serval</i>	Serval			+			SI
<i>Felis silverstris</i>	Wild cat			+			SI
<i>Felis caracal</i>	Caracal			+			SI
<i>Canis adustus</i>	Side-striped Jackal			+			SI
<i>Crocuta crocuta</i>	Spotted hyena			+			SI

TABLE 1 (continued)

Species name		Vegetation zones					Status	
Scientific	Common	SD	RF	IS	CSG	IUCN	Ghana	
Order Rodentia								
<i>Idiurus zenkeri</i>	Zenker's flying squirrel	+	+			VU		
<i>Anomalurus pelii</i>	Pel's flying squirrel	+	+					
<i>Anomalurus derbianus</i>	Lord Derby's flying squirrel	+	+					
<i>Hystrix cristata</i>	Crested porcupine	+						
<i>Epixerus ebii</i>	Forest palm squirrel	+	+					
<i>Anomalurus beecrofti</i>	Beecroft's flying squirrel							
Order Insectivora								
<i>Orycteropus afer</i>	Aardvark			+	+		SI	
Order Pholidota								
<i>Manis tetradactyla</i>	Black-bellied pangolin	+		+	+		SI	
<i>Manis tricuspis</i>	White-bellied pangolin	+		+	+		SI	
<i>Manis gigantean</i>	Giant pangolin			+	+		SI	
Order Chiroptera								
<i>Chalinolobus superbus</i>	Pied bat	+	+			VU		
<i>Epomops buettikfrieri</i>	Buettikfer's epaulet fruit bat	+	+			VU		

reserve is the Bia Tawya Forest Reserve.

Out of the number of mammals 28 (28%) are threatened, or of special conservation concerns (Tables 1, 2, and 3). The Miss Waldron's red colobus (*Procolobus badius*) is critically endangered and believed to be present in the Bia and Nini-Sushien National Parks. *Procolobus badius* Waldron has a restricted distribution in eastern Cote d'Ivoire and western Ghana. There have been no confirmed sightings of them since 1978, and surveys carried out from 1993 to the present have yet to reveal any living individual (Oates *et al.*, 2000; <http://www.primata-sg.org/pennantii07.htm>).

Four other species are classified (IUCN) as "Endangered" and nine "Vulnerable" and, therefore, of global conservation concern. The endangered species are Diana monkey (*Cercopithecus diana*), Bossman's potto (*Perodicticus potto*), Elephant (*Loxodonta*

africana) and African linsang (*Poiana richardsoni*).

Birds. Three hundred and twenty-two species of birds have been recorded in the semi deciduous forest (Birdlife International, 2005). Ten of these are threatened or of global and local conservation concerns (Tables 1, 2 and 3) and this represents 3.1 per cent of the species present. Three have been classified as "Vulnerable", and these are the white-breasted guinea fowl (*Agelastes meleagrides*), western-wattled cuckoo shrike (*Campephaga iobata*) and the yellow-throated olive greenbul (*Criniger olivaceus*).

Reptiles. Thirty-three species of reptiles are known to be present in the semi-deciduous forest area, out of which three are threatened or of special conservation concern. These are African dwarf crocodile (*Osteolaemus tetraspis*), African sharp-nosed crocodile (*Crocodylus cataphractus*), and Nile crocodile (*Crocodylus*

TABLE 2

Birds threatened or of special conservation concern in the four major vegetation zones of Ghana (SD = Semi-deciduous, RF = Rainforest, IS = Inland savanna, CSG = Coastal scrub and grassland, VU = Vulnerable, DD = Data deficient, SI = First schedule of the Ghana Wildlife Conservation Regulations)

Species name		Vegetative zones				Status	
Scientific	Common	SD	RF	IS	CSG	IUCN	Ghana
Family Pheasianidae							
<i>Agelastes meleagrides</i>	White-breasted guinea fowl	+	+			VU	SI
Family Sylviidae							
<i>Acrocephalus paludicola</i>	Aquatic warbler		+			VU	SI
Family Corvidae							
<i>Picathartes gymnocephalus</i>	Bare-headed rock fowl	+	+			DD	SI
Family Grareolidae							
<i>Glareola nordmanni</i>	Black-winged platincole	+				DD	SI
Family Ralliidae							
<i>Crex crex</i>	Corncrake		+			VU	SI
Family Falconidae							
<i>Falco naumanni</i>	Lesser-winged kestrel	+	+			DD	SI
Family Pycnonotyidae							
<i>Criniger olivaceus</i>	Yellow-throated olive greenbul	+	+			VU	SI
Family Campephagidae							
<i>Campephaga iobata</i>	Western-wattled cuckoo shrike	+				VU	SI
Family Indicatoridae							
<i>Melognomon eisentrauti</i>	Yellow-footed honey guide	+	+			DD	SI
Family Muscicapidae							
<i>Muscicapa tessmanni</i>	Tasmania flycatcher	+	+			DD	SI
Family Ardeidae							
<i>Tigrionis leucolophus</i>	White-crested bittern	+	+			DD	SI
Family Anatidae							
<i>Dendrocygna viduala</i>	White-faced tree duck	+					SI

TABLE 3

Reptiles threatened or of special conservation concern in the four major vegetation zones of Ghana (SD = Semi-deciduous, RF = Rainforest, IS = Inland savanna, CSG = Coastal scrub and grassland, VU = Vulnerable, DD = Data deficient, SI = First schedule of the Ghana Wildlife Conservation Regulations)

Species name		Vegetative zones				Status	
Scientific	Common	SD	RF	IS	CSG	IUCN	Ghana
<i>Osteolaemus tetraspis</i>	African Dwarf Crocodile	+	+			VU	SI
<i>Crocodylus cataphractus</i>	African Sharp-nosed crocodile	+	+			DD	SI
<i>Crocodylus niloticus</i>	Nile crocodile	+	+	+		VU	SI

niloticus). This represents 9.1 per cent of the total number of 33 species recorded in the area.

Rainforest

Mammals. Forty-three species of mammals are known to be present in the rainforest of Ghana. These are mainly distributed in 20 forest reserves and the Ankasa Conservation area (Ankasa Resource Reserve and Nini-Sushien National Park). The largest protected area in this vegetation type is the Ankasa Conservation area. Eighteen of the 43 species (41.8%) are threatened or of special conservation concern (Tables 1, 2 and 3). Two of these are classified (IUCN) as “Endangered” and seven as “Vulnerable”. The endangered species are the Diana monkey (*Cercopithecus diana*) and the African elephant (*Loxodonta africana*).

Birds. A total of 176 species of birds have been recorded in the rainforest of Ghana (Birdlife International, 2005), eight (4.5%) of which are threatened or of conservation concern globally and locally (Tables 1, 2 and 3). Four are classified as “Vulnerable”, and these are white-breasted guinea fowl (*Agelastes meleagrides*), aquatic warbler (*Acrocephalus paludicola*), yellow-throated olive greenbul (*Criniger olivaceus*) and corncrake (*Crex crex*).

Reptiles. Eighteen reptilian species have been recorded in the rainforest, and three (17%) of them are threatened or of conservation concern. These are the African dwarf crocodile (*Osteolaemus tetraspis*) which is classified as “Vulnerable”, the African sharp-nosed crocodile (*Crocodylus cataphractus*) classified as “Data Deficient”, and the Nile crocodile (*Crocodylus niloticus*).

Inland savanna.

The fauna in this vegetation type are distributed among 58 forest reserves and seven protected areas. The protected areas are the Gbele Resource Reserve, Kalakpa Resource Reserve, Kogyae Strict Nature Reserve, Bui National Park, Digya National Park, Mole National Park, and the

Boabeng Fiema Wildlife Sanctuary. The largest of these are the Mole and Digya National parks.

Mammals. A total of 93 species of mammals have been recorded in the inland savanna zone of Ghana, 21 (22.66%) of which are threatened or of global and national conservation concern (Tables 1, 2 and 3). Four of the threatened species are classified as “Endangered”, and these are red-fronted gazelle (*Gazella rufifrons*), western giant eland (*Tragelaphus derbianus*), African elephant (*Loxodonta africana*) and African wild dog (*Lycaon pictus*). An additional four are classified as “Vulnerable” and these are korrigum (*Domaliscus hinatus*), pigmy hippopotamus (*Hippopotamus amphibious*), lion (*Panthera leo*), and leopard (*Panthera pardus*).

Birds. The number of bird species recorded in the inland savanna is 304, and this includes two threatened species listed (IUCN) as vulnerable. These are white-breasted guinea fowl (*Agelastes meleagrides*) and lesser kestrel (*Falco naumanni*). All the 304 species have been recorded in the Mole National Park (Birdlife International, 2005).

Reptiles. Thirty-three species of reptiles have been recorded in the inland savanna, out of which one, the Nile crocodile (*Crocodylus niloticus*), is threatened and listed on Schedule 1 of the Ghana Wildlife Conservation Regulations (1995).

Coastal scrub and grassland

The fauna in the coastal scrub and grassland are mainly distributed in three forest reserves and the Shai Hills Resource Reserve. The largest forest reserve in the area is the Cape Three Points Forest Reserve in the Western Region.

Mammals. A total of 31 species of mammals have been recorded in the coastal scrub and grassland. These are mainly small mammals including bats. Five (16.1%) are threatened (Tables 1, 2 and 3) and of special conservation concern in Ghana. The five species are bush baby (*Galago senegalensis*), aardvark (*Orycteropus afer*), white-bellied pangolin (*Manis tricuspis*),

black-bellied pangolin (*Manis tetradactyla*) and giant pangolin (*Manis gigantea*).

Birds. One hundred and seventy-eight species of birds have been recorded in the coastal scrub and grassland. Two (1.1%) of these are threatened and of special conservation concern in Ghana (listed on Schedule 1 of the Ghana Wildlife Conservation Regulations, 1995), and these are the damara tern (*Sterna balaenarium*) and white-faced tree duck (*Dendrocygna viduala*) (Birdlife International, 2005).

Reptiles. Thirteen species of reptiles have been recorded for the area but none is currently threatened.

Discussion

All the vegetation types examined have various proportions of their fauna under threat of extinction. With respect to mammals, the vegetation types mostly in danger of losing their fauna to extinction are the rainforest and the semi deciduous forest where 41.8 and 28 per cent, respectively, of their fauna are threatened. To a lesser degree the same can be said about birds in the two vegetation types where 4.5 and 3.1 per cent, respectively, of the bird fauna are threatened with extinction. Apart from over harvesting, the main causes of threat to fauna in these vegetation types are habitat degradation and fragmentation to which mining activities have been contributing in recent times. For example, in this country permits have been given to some mining companies to explore some forest reserves for mining. Most often, by the time ecologists get to the site to collect data on base line information, the area had already been degraded and fragmented, by human activities.

In the end no useful information is collected during base line surveys because the animals would have been scared away already and important migration corridors fragmented. This problem has been highlighted in many faunal survey reports for mining companies, yet the problem still persists. Either these concerns are

not incorporated in the final report to the EPA or the latter does not see to the implementation of the recommendations suggested and the enforcement of the EPA Act 490 (1994) and Guidelines on Ghana's Mining Environmental Regulations (GGOMER), (1994). In the final analysis it is the habitat and the fauna that suffer.

The threat of extinction to mammals in all the vegetation types appears to be more serious than to birds. Although both birds and mammals are affected by habitat degradation and fragmentation, birds are capable of flying over long distances from one habitat type to another with less risk of persecution. On the other hand, mammals cannot do that without getting killed by hunters along their fragmented migratory routes. Besides, hunters are more interested in large mammals than birds, which are generally small in size.

In the inland savanna where the threat of desertification is high there are 58 forest reserves of various sizes, all containing some representation of the local fauna. Any activities such as mining in these fragile habitats could spell doom for the few fauna presently surviving in them. For example, for sensitive species such as roan antelopes that are adapted to woodland savanna any anthropomorphic activity that has the potential of converting it to open grassland poses a threat to their survival. At the moment, it is only the forest reserves and the seven protected areas in this vegetation type that have the suitable habitats and some degree of protection for these animals; no mining activities should be permitted in these reserves. At the moment permit has been given for the construction of a dam in the Bui National Park.

The dam is likely to lead to the submergence of the habitat of the vulnerable pigmy hippopotamus (*Hippopotamus amphibious*). Even worse things are going to occur in the Atewa Range Forest Reserve for bauxite mining despite its rich fauna and importance as an IBA site. This is indeed very unfortunate. The coastal scrub and grassland has the least number of protected areas;

there are only three small forest reserves and one resource reserve serving as refuge for the fauna. About 16 per cent (16.1%) of its mammal fauna is under threat; there is, therefore, the need for these refuges to be seriously protected without allowing any other form of land use.

Conclusion

Extinction or threat to extinction is a natural phenomenon; some species are bound to go extinct due to inability to adapt to changes and through over-speciation. However, this phenomenon is accelerated by anthropomorphic activities such as mining that degrades or fragments habitats. There is evidence from local people that noise from drilling machines and related destructive activities drive animals into farmlands, which are, subsequently, get killed by hunters. But whether the mining sector is a key player in the current threat to fauna, especially in the rainforest and semi-deciduous forest of Ghana, cannot be established. One thing is, however, clear; indiscriminate mining activities can directly or indirectly greatly contribute to the threat of survival of fauna. It is, therefore, important that mining activities (both legal and illegal) are not allowed to extend into the few pockets of forest reserves that serve as refuge for the animals being persecuted in unprotected habitats.

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