

ANNEXES - CHAPTER 4

Annexe 4-3 Details on important species

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4.3 Details on important species

The following fact sheets provide details on the important species identified as being present in the study areas. They are the first- and second-priority species named in Section 4.6.

4.3.1 *Hemidactylus kundaensis*

French name: -

Guinean name: -

English name: -

Taxonomic information: Gecko of the Gekkonidae family described by Chirio and Trape in 2012

IUCN status: Critically Endangered B2ab(iii) ver 3.1 (status recognized in 2013)

Other status: -

Overall distribution: Very restricted: endemic to Sangarédi subprefecture

Local distribution: Seen in Kourawel in 2013

Habitat: Dry forest on slopes or plateaus, but may be anthropophilous

Overall population: ?

Threats: ?

Value: High (first-priority species)

Justification of importance rating: IUCN status, newly described species with a very restricted range

Potential impacts: Habitat destruction (dwellings), construction phase

Level of potential impacts: High

Mitigation measures: Verification of presence, with possible capture and relocation of individuals

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 8: Inventory of Reptiles in the Sangarédi Region for the CBG Bauxite Mine Expansion Project. 67 p.

Chirio L. 2012: Inventaire des reptiles de la région de Sangarédi (Guinée: Afrique de l'Ouest) - Bull. Soc. Herp. Fr., 144: 67-100.

Chirio, L. 2013. *Hemidactylus kundaensis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.2 *Eretmochelys imbricata*

French name: Tortue imbriquée

Guinean name:

English name: Hawksbill turtle

Taxonomic information: Marine turtle of the Cheloniidae family

IUCN status: Critically Endangered A2bd ver 3.1

Other status: -

Overall distribution: Tropical and subtropical oceans

Local distribution: One juvenile of this species seen on the edge of the Rio Nuñez estuary near the Island of Binari

Habitat: Marine species, nests on sandy beaches

Overall population: 80% decline in numbers in three generations

Threats: Direct destruction (hunting for meat and shells) and destruction of habitats (coral reefs and nesting beaches)

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, collisions with ships, dredging

Level of potential impacts: High

Mitigation measures: Specific measures (4.8), protection of the estuary

Residual impacts: Dredging

Level of residual impacts: Medium (construction), None (operation – impacts offset by positive effects of protection)

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 2: Marine mammal, sea turtle and crocodile occurrence in the Rio Nuñez region of Guinea, 24 October to 8 November 2013. 102 p.

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 9: Inventory of Reptiles in the Kamsar Region for the CBG Bauxite Mine Expansion Project. 40 p.

Mortimer, J.A. & Donnelly, M. (IUCN SSC Marine Turtle Specialist Group) 2008. *Eretmochelys imbricata*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

Jeanne A. Mortimer & Marydele Donnelly. 2008. Hawksbill Turtle (*Eretmochelys imbricata*) Marine Turtle Specialist Group 2008 IUCN Red List status assessment.

4.3.3 *Cynisca cf oligopholis*

French name: -

Guinean name: -

English name: Cassine River Worm Lizard (for *Cynisca oligopholis*)

Taxonomic information: Small burrowing reptile of the Amphisbaenidae family. Probably an undescribed species closely related to *Cynisca oligopholis*.

IUCN status: Listed as Endangered B1ab(iii) ver 3.1. Given that this assessment dates from 2013, it is very likely that once it is described and assessed, the status of *Cynisca cf oligopholis* will also be High.

Other status: -

Overall distribution: Probably a new species, whose distribution is still largely unknown but seems to be limited to the Sangarédi subprefecture. *Cynisca oligopholis* is known only from one locality in Guinea-Bissau.

Local distribution: Chirio (2012) found *Cynisca cf oligopholis* only at Kogon Lenguéré (29 individuals were collected). During the work done in 2013, it was also found at Kalinka Roundé, to the southwest of the Sangarédi study area.

Habitat: Gallery forest

Overall population: ?

Threats: Loss of gallery forests

Value: High (first-priority species)

Justification of importance rating: Probably an undescribed species, and therefore with no IUCN status, but the closest species is already listed by IUCN as Endangered. Very restricted range.

Potential impacts: Habitat destruction

Level of potential impacts: Medium

Mitigation measures: Protection of the forest

Residual impacts: None

Level of residual impacts: Medium (positive)

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 8: Inventory of Reptiles in the Sangarédi Region for the CBG Bauxite Mine Expansion Project. 67 p.

Chirio L. 2012: Inventaire des reptiles de la région de Sangarédi (Guinée: Afrique de l'Ouest) - Bull. Soc. Herp. Fr., 144: 67-100.

Chirio, L. 2013. *Cynisca oligopholis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.4 *Phrynobatrachus pintoï*

French name: -

Guinean name: -

English name: Pinto's River Frog

Taxonomic information: Frog of the Phrynobatrachidae family (African river frogs). Species described by Hillers, Zimkus and Rödel in 2008.

IUCN status: Endangered B1ab(iii) ver 3.1 (new status in 2014, DD in 2013)

Other status:

Overall distribution: Very restricted range (386 km² according to the IUCN) between Boulléré and Telimélé. Endemic to northwestern Guinea.

Local distribution:

Habitat: Woodlands, gallery forests

Overall population: ?

Threats: Any change affecting its habitats, given its very restricted range

Value: High (first-priority species)

Justification of importance rating: IUCN status, very restricted range

Potential impacts: Forest destruction, water-quality impacts

Level of potential impacts: High

Mitigation measures: Protection of the forest

Residual impacts: Possibly some water-quality impacts (aluminum) offset by habitat protection

Level of residual impacts: Medium (positive)

References:

Hillers, A., Zimkus, B. and Rödel, M.-O. 2008. A new species of *Phrynobatrachus* (Amphibia: Anura: Phrynobatrachidae) from North-western Guinea, West Africa. *Zootaxa* 1815: 43–50.

Rödel, M.O., Doumbia, J., Kouamé, N. and Sandberger, L. 2011. *Phrynobatrachus pintoii* Hillers, Zimkus & Rödel, 2008 (Amphibia: Anura:Phrynobatrachidae): additional morphological and distribution data. *Zootaxa* 3098: 59-63.

IUCN SSC Amphibian Specialist Group 2014. *Phrynobatrachus pintoii*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 26 August 2014.

4.3.5 *Pan troglodytes verus*

French name: Chimpanzé de l’Afrique de l’Ouest

Guinean name:

English name: West African Chimpanzee

Taxonomic information: West African chimpanzee subspecies

IUCN status: Endangered (A4cd ver 3.1)

Other status: -

Overall distribution: Africa: the *verus* subspecies is limited to West Africa from Senegal to Ghana

Local distribution: Present in the Sangarédi area (appears to be no longer present in the Kamsar region). About 31 groups of nests were inventoried in 2013 in the Sangarédi study area

Habitat: Requires forested environments (gallery forest or dry forest)

Overall population: Population reduction of more than 50% in the past three generations

Threats: Habitat destruction, poaching, diseases

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Habitat destruction, poaching

Level of potential impacts: High

Mitigation measures: Forest protection, hunting management plan

Residual impacts: Habitat protection very important

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 5: A survey of the large mammals of Sangarédi and Kamsar in Boké prefecture. 61 p.

Oates, J.F., Tutin, C.E.G., Humle, T., Wilson, M.L., Baillie, J.E.M., Balmforth, Z., Blom, A., Boesch, C., Cox, D., Davenport, T., Dunn, A., Dupain, J., Duvall, C., Ellis, C.M., Farmer, K.H., Gatti, S., Greengrass, E., Hart, J., Herbinger, I., Hicks, C., Hunt, K.D., Kamenya, S., Maisels, F., Mitani, J.C., Moore, J., Morgan, B.J., Morgan, D.B., Nakamura, M., Nixon, S., Plumptre, A.J., Reynolds, V., Stokes, E.J. & Walsh, P.D. 2008. Pan troglodytes. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

Humle, T., Boesch, C., Duvall, C., Ellis, C.M., Farmer, K.H., Herbinger, I., Blom, A. & Oates, J.F. 2008. Pan troglodytes ssp. verus. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.6 *Procolobus badius* (*ssp badius* or *temminckii*)

French name: Colobe bai

Guinean name:

English name: Red Colobus

Taxonomic information: The Red Colobus is a small primate of the Cercopithecidae family. The individuals seen in 2013 in the Sangarédi region were outside the known ranges. It is not clear to which subspecies the individuals belong, or if it is in fact a new subspecies.

IUCN status: Endangered A2cd ver 3.1

Other status: -

Overall distribution: The range of the *badius* subspecies is limited to Guinea, Sierra Leone and Liberia. The *temminckii* subspecies is present in Guinea-Bissau and Gambia.

Local distribution: Present along the Cogon north of the Sanagrédi study area

Habitat: Forest

Overall population: ?

Threats: Hunting and habit losses

Value: High (first-priority species)

Justification of importance rating: IUCN status, may be a new subspecies

Potential impacts: Limited given its observed distribution

Level of potential impacts: Medium

Mitigation measures: Protection of the Cogon Corridor

Residual impacts: Fragmentation impacts

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 5: A survey of the large mammals of Sangarédi and Kamsar in Boké prefecture. 61 p.

Oates, J.F., Struhsaker, T. & McGraw, S. 2008. *Procolobus badius* ssp. *badius*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

Galat-Luong, A., Galat, G., Oates, J.F., Struhsaker, T., McGraw, S. & Ting, N. 2008. *Procolobus badius* ssp. *temminckii*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

Oates, J.F., Struhsaker, T., McGraw, S., Galat-Luong, A., Galat, G. & Ting, T. 2008. *Procolobus badius*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.7 *Epinephelus guaza* (= *marginatus*)

French name: Mérrou brun, Mérrou noir, Mérrou rouge (Tunisia)

Guinean name:

English name: Dusky Grouper

Taxonomic information: Marine fish of the Serranidae family (rockcod, barbier, grouper)

IUCN status: Endangered A2d ver 3.1 (sharp decline in numbers)

Other status:

Overall distribution: Wide range: South America, Mediterranean, Africa

Local distribution: Present in the Rio Nuñez estuary

Habitat: Rocky reefs, generally in depths from 8 to 300 m

Overall population: ?

Threats: Fishing

Value: High (first-priority species)

Justification of importance rating: IUCN status and significant recent declines

Potential impacts: Outside the impact zone

Level of potential impacts: None

Mitigation measures: n/a

Residual impacts: None

Level of residual impacts: None

References:

Heemstra, P.C. and J.E. Randall, 1993. FAO Species Catalogue. Vol. 16. Groupers of the world (family Serranidae, subfamily Epinephelinae). An annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. Rome: FAO. FAO Fish. Synop. 125(16):382 p.

Cornish, A. & Harmelin-Vivien, M. (Grouper & Wrasse Specialist Group) 2004. *Epinephelus marginatus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 26 August 2014.

4.3.8 *Rhinobatos cemiculus* (= *Glaucostegus cemiculus*)

French name: Guitare de mer fousseuse

Guinean name:

English name: Blackchin Guitarfish

Taxonomic information: Marine fish of the Rhinobatidae family

IUCN status: Endangered (A4bd ver 3.1)

Other status: -

Overall distribution: Eastern Atlantic and Mediterranean

Local distribution: Present in the Rio Nuñez estuary

Habitat: Demersal species present in coastal waters to a depth of 100 m

Overall population: ?

Threats: Fishing for the fin trade

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, dredging

Level of potential impacts: Medium

Mitigation measures: Estuary protection plan

Residual impacts: Dredging

Level of residual impacts: Medium

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 3: Results of a Rapid Baseline Survey of the Fishery Resources of the Rio Nuñez Estuary, Northwest Guinea. 36 p.

Notarbartolo di Sciara, G., Bradai, M.N., Morey, G., Brahim, K., Camara L., Litvinov, F., Dulvy, N. Doumbouya, F., Ducrocq, M., Heenan, A. & Sidi, N. 2007. *Glaucostegus cemiculus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.9 *Epiplatys njalaensis*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchiidae family

IUCN status: Endangered B1ab(iii)+2ab(iii) ver 3.1 (2010)

Other status: -

Overall distribution: According to the IUCN, limited to Sierra Leone. Present in Guinea according to Fishbase (<http://www.fishbase.org/summary/Epiplatys-njalaensis.html>) and the Simandou project studies.

Local distribution:

Habitat: Small streams, benthic and nonmigratory

Overall population: ?

Threats: Habitat destruction

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: High

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

<http://www.fishbase.org/summary/Epiplatys-njalaensis.html>

Huber, J.H., 1996. Killi-Data 1996. Updated checklist of taxonomic names, collecting localities and bibliographic references of oviparous Cyprinodont fishes (Atherinomorpha, Pisces). Société française d'ichtyologie, Muséum national d'Histoire naturelle, Paris, France, 399 p.

Lalèyè, P. 2010. *Epiplatys njalaensis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.10 *Nimbapanchax jeanpoli* (= *Archiaphyosemion jeanpoli*)

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchiidae family

IUCN status: Endangered B1ab(iii)+2ab(iii) ver 3.1 (2010)

Other status: -

Overall distribution: Guinea, Liberia

Local distribution: Its presence in the Sangarédi region represents an extension of its range

Habitat: Streams, benthic and nonmigratory

Overall population: ?

Threats: Habitat destruction

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Destruction of habitat, impacts on water quality (aluminum)

Level of potential impacts: High

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Entsua-Mensah, M. 2010. *Nimbapanchax jeanpoli*. The IUCN Red List of Threatened Species. Version 2014.2.

4.3.11 *Necrosyrtes monachus*

French name: Percnoptère brun

Guinean name:

English name: Hooded Vulture

Taxonomic information: Vulture of the Accipitridae family

IUCN status: Endangered A2acd+3cd+4acd ver 3.1 (2012)

Other status: -

Overall distribution: Sub-Saharan Africa

Local distribution:

Habitat: Often anthropophilous, but also found in savanna and dry forest areas

Overall population: 197,000

Threats: Poisoning

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of nests and juveniles because of clearing

Level of potential impacts: Medium

Mitigation measures: Specific study before clearing

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 6: A survey of the birds of Sangarédi subprefecture. 34 p.

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 7: A survey of the birds of Kamsar. 13 p

Ogada, D.L. 2014. The power of poison: pesticide poisoning of Africa's wildlife. Ann.N.Y. Acad. Sci.

Ogada, D.L., F. Keesing, and M.Z. Virani. 2011. Dropping dead: causes and consequences of vulture population declines worldwide. Annals of the New York Academy of Sciences 2011:1-15

Ogada, D.L., and R. Buij. 2011. Large declines of the Hooded Vulture *Necrosyrtes monachus* across its African range. Ostrich 82:101-113

BirdLife International 2012. *Necrosyrtes monachus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

Global Raptor Information Network. 2014. Species account: Hooded Vulture *Necrosyrtes monachus*. Downloaded from <http://www.globalraptors.org> on 10 Sep. 2014.

4.3.12 *Gyps africanus*

French name: Vautour africain

Guinean name:

English name: White-backed Vulture

Taxonomic information: Vulture of the Accipitridae family

IUCN status: Endangered A2bcd+3bcd+4bcd ver 3.1 (2012)

Other status: -

Overall distribution: Equatorial Africa

Local distribution:

Habitat: Wooded savanna, needs large trees to nest

Overall population: 270,000 but declining rapidly (numbers down 90%)

Threats: Poisoning, habitat loss

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of nests and juveniles because of clearing

Level of potential impacts: Medium

Mitigation measures: Specific assessment before clearing

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 6: A survey of the birds of Sangarédi subprefecture. 34 p.

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 7: A survey of the birds of Kamsar. 13 p.

UNEP/CMS Preventing Poisoning Working Group. 2014. Review of the ecological effects of poisoning on migratory birds. UNEP/CMS/COP11/Inf.

BirdLife International 2012. *Gyps africanus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.13 *Gyps rueppellii*

French name: Vautour de Rüppell

Guinean name:

English name: Rüppell's Vulture

Taxonomic information: Vulture of the Accipitridae family

IUCN status: Endangered A2abcd+3bcd+4abcd ver 3.1 (2012)

Other status: -

Overall distribution: Sahel and savanna regions in Africa

Local distribution:

Habitat: Open areas of Acacia woodland

Overall population: ?

Threats: Poisoning, habitat loss

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of nests and juveniles because of clearing

Level of potential impacts: Medium

Mitigation measures: Specific assessment before clearing

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 6: A survey of the birds of Sangarédi sous-prefecture. 34 p.

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 7: A survey of the birds of Kamsar. 13 p.

BirdLife International 2014. Gyps rueppelli. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.14 *Chelonia mydas*

French name: Tortue verte

Guinean name:

English name: Green Turtle

Taxonomic information: Marine turtle of the Cheloniidae family

IUCN status: Endangered A2bd ver 3.1

Other status: -

Overall distribution: Tropical and subtropical oceans

Local distribution: One shell found on the shore of the Island of Binari in the Rio Nuñez estuary

Habitat: Marine, nests on sandy beaches

Overall population: Population reduction of 48% to 67% in the past three generations

Threats: Collection of eggs and capture of adults, habitat destruction

Value: High (first-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, collisions with ships, dredging

Level of potential impacts: High

Mitigation measures: Specific measures (4.8), protection of the estuary

Residual impacts: Dredging

Level of residual impacts: Medium (construction), None (operation – impacts offset by positive effects of protection)

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 2: Marine mammal, sea turtle and crocodile occurrence in the Rio Nuñez region of Guinea, 24 October to 8 November 2013. 102 p.

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 9: Inventory of Reptiles in the Kamsar Region for the CBG Bauxite Mine Expansion Project. 40 p.

Seminoff, J.A. (Southwest Fisheries Science Center, U.S.) 2004. *Chelonia mydas*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.15 *Osteolaemus cf tetraspis*

French name: Crocodile nain africain (for *Osteolaemus tetraspis*)

Guinean name: -

English name: West African Dwarf Crocodile

Taxonomic information: Probably an undescribed type of *Osteolaemus tetraspis*, a small crocodile of the Crocodylidae family. There may be several species in West Africa.

IUCN status: *Osteolaemus tetraspis* is listed by IUCN as Vulnerable A2cd ver 2.3. This status dates from 1996 and needs to be reviewed. It would seem that *Osteolaemus cf tetraspis* is much scarcer (Shirley and al, 2013) and will ultimately be given High status.

Other status: -

Overall distribution: *Osteolaemus tetraspis* is found in much of West and Central Africa. The study area is on the western edge of this species' range. The range of *Osteolaemus cf tetraspis* is obviously more limited.

Local distribution: *Osteolaemus tetraspis* is considered scarce in the region (Chirio 2012). In 2013, Chirio found a thriving population of this taxon in the vicinity of Sintiourou, where many juveniles and several adults were observed at night. The amphibian inventory team also observed a population to the northwest of Sintiourou. A subadult of this species was even identified inside the territory of the mine. The Sangarédi region therefore appears to be an important location for this species.

Habitat: Poorly characterized, but *Osteolaemus tetraspis* is present in a variety of freshwater habitats: swamps, flooded forests, watercourses, etc.

Overall population: ?

Threats: Habitat destruction

Value: High (first-priority species)

Justification of importance rating: IUCN status of *Osteolaemus tetraspis* and likely higher status for this as-yet-undescribed species present in the region

Potential impacts: Habitat destruction

Level of potential impacts: High

Mitigation measures: Protection of gallery forests

Residual impacts: None

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 8: Inventory of Reptiles in the Sangarédi Region for the CBG Bauxite Mine Expansion Project. 67 p.

Chirio L. 2012: Inventaire des reptiles de la région de Sangarédi (Guinée: Afrique de l'Ouest) - Bull. Soc. Herp. Fr., 144: 67-100.

Crocodile Specialist Group 1996. *Osteolaemus tetraspis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

Simandou Project (Guinea) – Port Component – Crocodiles baseline report iii Final Report – 2113_Rapport_Crocodiles_VF . Environnement Illimité inc. (January 2013)

Simandou Project (Guinea) – Port Component – Crocodiles Complementary report – Genetic analysis in Final Report – 2113_Rapport_Croco_complement_VF.doc Environnement Illimité inc. (January 2013)

M. H. Shirley, K. A. Vliet, A. N. Carr, J. D. Austin. 2013. Rigorous approaches to species delimitation have significant implications for African crocodylian systematics and conservation. *Proceedings of the Royal Society B: Biological Sciences*, 2013; 281 (1776)

Eaton, M.J. (2010). Dwarf Crocodile *Osteolaemus tetraspis*. Pp. 127-132 in *Crocodiles. Status Survey and Conservation Action Plan. Third Edition*, ed. by S.C. Manolis and C. Stevenson. Crocodile Specialist Group: Darwin

4.3.16 *Hippopotamus amphibius*

French name: Hippopotame

Guinean name:

English name: Hippopotamus

Taxonomic information: Large mammal of the Hippopotamidae family

IUCN status: Vulnerable A4cd ver 3.1

Other status: -

Overall distribution: Africa. The populations in West Africa are quite small (7,000), isolated and most likely the most threatened.

Local distribution: Present in the Cogon River in the Sangarédi study area

Habitat: Large rivers

Overall population: In decline

Threats: Hunting and loss of habitat

Value: High (first-priority species)

Justification of importance rating: IUCN status under review. This species is likely to be relisted as Endangered, at least in West Africa.

Potential impacts: Loss of habitat, isolation of the population, hunting

Level of potential impacts: Medium

Mitigation measures: Protection of the Cogon Corridor, hunting management plan

Residual impacts: Negative effects offset by positive effects

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 5: A survey of the large mammals of Sangarédi and Kamsar in Boké prefecture. 61 p.

Lewison, R. & Oliver, W. (IUCN SSC Hippo Specialist Subgroup) 2008. Hippopotamus amphibius. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.17 *Hemidactylus albivertebralis*

French name: -

Guinean name: -

English name: -

Taxonomic information: Gecko of the Gekkonidae family described by Trape & Böhme in 2012

IUCN status: DD (insufficient information on this species at present)

Other status: -

Overall distribution: Isolated areas: Benin, Ghana, Guinea

Local distribution: The first specimen to be captured in Guinea was caught in a Sylvatrop Consulting stopover hut in Kawass near Kamsar.

Habitat: Appears to be limited to coastal areas. Anthropophilous.

Overall population: ?

Threats: ?

Value: High (first-priority species)

Justification of importance rating: Newly described species, scarce, restricted range and habitat

Potential impacts: Unlikely as a consequence of the Project

Level of potential impacts: None

Mitigation measures: None

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 9: Inventory of Reptiles in the Kamsar Region for the CBG Bauxite Mine Expansion Project. 40 p

Trape, J.-F., Trape, S. and Chirio, L. 2012. Lézards, crocodiles et tortues d'Afrique occidentale et du Sahara. IRD Editions, Marseille.

Trape, J. 2013. *Hemidactylus albivertebralis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.18 *Circaetus beaudouini*

French name: Circaète de Beaudouin

Guinean name:

English name: Beaudouin’s Snake Eagle

Taxonomic information: Bird of prey of the Accipitridae family. Previously lumped into *Circaetus gallicus*.

IUCN status: Vulnerable A2bcd+3bcd+4bcd; C1+2a(ii) ver 3.1 (2014)

Other status: -

Overall distribution: Narrow strip south of the Sahara

Local distribution:

Habitat: Dry savanna

Overall population: 3,500 to 15,000

Threats: Habitat destruction and pesticides

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of habitat

Level of potential impacts: None (species is not common in the region and there is ample remaining habitat)

Mitigation measures: General animal-protection measures

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 6: A survey of the birds of Sangarédi subprefecture. 34 p.

BirdLife International 2014. *Circaetus beaudouini*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.19 *Cercocebus atys*

French name: Mangabey enfumé

Guinean name:

English name: Sooty Mangabey

Taxonomic information: Primate of the Cercopithecidae family. The individuals in the study area probably belong to the subspecies *Cercocebus atys ssp. atys*.

IUCN status: Vulnerable A2cd ver 3.1

Other status:

Overall distribution: From Senegal to Ghana

Local distribution:

Habitat: Forests

Overall population:

Threats: Habitat losses and hunting

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of habitat, hunting

Level of potential impacts: Medium

Mitigation measures: Habitat protection, hunting management plan

Residual impacts: Offset by habitat protection

Level of residual impacts: Medium positive

References:

Oates, J.F., Gippoliti, S. & Groves, C.P. 2008. *Cercocebus atys*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.20 *Lepidochelys olivacea*

French name: Tortue de Ridley

Guinean name: -

English name: Olive Ridley

Taxonomic information: Marine turtle of the Cheloniidae family

IUCN status: Vulnerable A2bd ver 3.1

Other status: -

Overall distribution: Tropical oceans

Local distribution: On Chirio's 2013 list of reptiles in Kamsar

Habitat: Complex, includes sandy beaches for nesting

Overall population: Numbers reduced

Threats: Hunting (eggs, adults) and destruction of nesting sites

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, collisions with ships, dredging

Level of potential impacts: Medium

Mitigation measures: Specific measures (4.8), protection of the estuary

Residual impacts: Dredging

Level of residual impacts: Medium (construction), None (operation – offset by positive effects of protection)

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 9: Inventory of Reptiles in the Kamsar Region for the CBG Bauxite Mine Expansion Project. 40 p

Abreu-Grobois, A & Plotkin, P. (IUCN SSC Marine Turtle Specialist Group) 2008. *Lepidochelys olivacea*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.21 *Trichechus senegalensis*

French name: Lamantin d’Afrique

Guinean name:

English name: African Manatee

Taxonomic information: Marine mammal of the Trichechidae family. Complex species that may be divided into several species or subspecies in the future.

IUCN status: Vulnerable A3cd; C1 ver 3.1

Other status: -

Overall distribution: Atlantic coasts of Africa, with inland populations in some rivers and lakes

Local distribution: Rio Nuñez estuary

Habitat: Coastal waters, large rivers and lakes. Can live in freshwater and saltwater.

Overall population: ?

Threats: Hunting, habitat changes

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, collisions with ships, dredging

Level of potential impacts: High

Mitigation measures: Specific measures (4.8), protection of the estuary

Residual impacts: Dredging

Level of residual impacts: None (construction), Neutral (operation – offset by positive effects of protection)

References:

Powell, J. & Kouadio, A. 2008. *Trichechus senegalensis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.22 *Sousa teuszii*

French name: Dauphin à bosse de l'Atlantique

Guinean name:

English name: Atlantic Humpbacked Dolphin

Taxonomic information: Marine mammal of the Delphinidae family

IUCN status: Vulnerable C2a(i) ver 3.1 (2012)

Other status: -

Overall distribution: Eastern tropical Atlantic

Local distribution: Rio Nuñez estuary

Habitat: Shallow coastal and estuarine waters

Overall population: ? A few thousand

Threats: Loss of habitat, hunting, accidents

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Underwater noise, collisions with ships, dredging

Level of potential impacts: High

Mitigation measures: Specific measures (4.8), protection of the estuary

Residual impacts: Dredging

Level of residual impacts: None (construction), Neutral (operation – offset by positive effects of protection)

References:

Ross, G. J. B. 2002. Humpback dolphins *Sousa chinensis*, *S. plumbea*, and *S. teuszii*. In: W. F. Perrin, B. Wursig and J. G. M. Thewissen (eds), *Encyclopedia of Marine Mammals*, pp. 585-589. Academic Press.

Van Waerebeek, K., Barnett, L., Camara, A., Cham, A., Diallo, M., Djiba, A., Jallow, A., Ndiaye, E., Ould-Bilal, A. O. S. and Bamy, I. L. 2004. Distribution, status, and biology of the Atlantic humpback dolphin, *Sousa teuszii* (Kukenthal, 1892). *Aquatic Mammals* 30(1): 56-83.

Reeves, R., Collins, T., Jefferson, T.A., Karkzmarski, L., Laidre, K., O’Corry-Crowe, G., Rojas-Bracho, L., Secchi, E., Sloaten, E., Smith, B.D., Wang, J.Y. & Zhou, K. 2012. *Sousa teuszii*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.23 *Khaya senegalensis*

French name: -

Guinean name: -

English name: African Mahogany

Taxonomic information: Tree of the Meliaceae family

IUCN status: Vulnerable A1cd ver 2.3 (needs updating - 1998)

Other status: -

Overall distribution: Equatorial Africa

Local distribution: Plateaus of N'dangara, Bidikoum, Silidara and Sangarédi (BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi), Kagnaka.

Habitat: Wooded savanna

Overall population: ?

Threats: Logging

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Logging

Level of potential impacts: Low

Mitigation measures: None

Residual impacts: A small number may be cut down (but the vast majority of clearing is done on open sites).

Level of residual impacts: Low

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 1: Botanical baseline survey in Guinea for Compagnie des Bauxites de Guinée (CBG). 44 p.

BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi.

World Conservation Monitoring Centre 1998. *Khaya senegalensis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

4.3.24 *Milicia regia*

French name: -

Guinean name: -

English name: -

Taxonomic information: Tree of the Moraceae family

IUCN status: Vulnerable A1cd ver 2.3 (needs updating - 1998)

Other status: -

Overall distribution: West Africa

Local distribution: Near Boulléré (identification uncertain)

Habitat: Gallery forest

Overall population: ?

Threats: Logging

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: None (habitat not normally subject to clearing)

Level of potential impacts: None

Mitigation measures: None

Residual impacts: None

Level of residual impacts: None

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 1: Botanical baseline survey in Guinea for Compagnie des Bauxites de Guinée (CBG). 44 p.

African Regional Workshop (Conservation & Sustainable Management of Trees, Zimbabwe, July 1996) 1998. *Milicia regia*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

4.3.25 *Albizia ferruginea*

French name: -

Guinean name: Lengé

English name: Albizia

Taxonomic information: Tree of the Leguminosae family

IUCN status: Vulnerable A1cd ver 2.3 (needs updating - 1997)

Other status: -

Overall distribution: Equatorial Africa

Local distribution: Plateaus of N'dangara, Bidikoum, Silidara and Sangarédi (BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi.)

Habitat:

Overall population: ?

Threats: Logging

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Logging

Level of potential impacts: Low

Mitigation measures: None

Residual impacts: A small number may be cut down (but the vast majority of clearing is done on open sites).

Level of residual impacts: Low

References:

BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi.

Hawthorne, W. 1998. *Albizia ferruginea*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

4.3.26 *Afzelia africana*

French name: Savanna Doussié

Guinean name:

English name: Afzelia

Taxonomic information: Tree of the Leguminosae family

IUCN status: Vulnerable A1d ver 2.3 (needs updating - 1998)

Other status: -

Overall distribution: Equatorial Africa

Local distribution: Plateaus of Bidikoum, Silidara and Sangarédi (BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi.)

Habitat: Dry forests

Overall population: ?

Threats: Logging

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Logging

Level of potential impacts: Low

Mitigation measures: None

Residual impacts: A small number may be cut down (but the vast majority of clearing is done on open sites).

Level of residual impacts: Low

References:

BERCA-Baara. 2003. Inventaire de la flore des plateaus de Sangarédi.

African Regional Workshop (Conservation & Sustainable Management of Trees, Zimbabwe, July 1996) 1998. *Azelia africana*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

4.3.27 *Epiplatys hildegardae*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchiidae family

IUCN status: Vulnerable D2 ver 3.1

Other status: -

Overall distribution: Very limited range in southeastern Guinea (Nzérékoré)

Local distribution: Sangarédi

Habitat: Small, calm watercourses, benthic and nonmigratory

Overall population: ?

Threats: ?

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, very restricted range

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

<http://www.fishbase.org/summary/Epiplatys-hildegardae.html>

Huber, J.H., 1996. Killi-Data 1996. Updated checklist of taxonomic names, collecting localities and bibliographic references of oviparous Cyprinodont fishes (Atherinomorpha, Pisces). Société française d'ichtyologie, Muséum national d'Histoire naturelle, Paris, France, 399 p

Lalèyè, P. 2010. *Epiplatys hildegardae*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.28 *Epiplatys guineensis*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchiidae family

IUCN status: Vulnerable D2 ver 3.1 (2010)

Other status: -

Overall distribution: Guinea (Fouta Djalon)

Local distribution: Sangarédi

Habitat: Small, calm watercourses, benthic and nonmigratory

Overall population: ?

Threats: ?

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, restricted range

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

<http://www.fishbase.org/summary/Epiplatys-guineensis.html>

Lalèyè, P. 2010. *Epiplatys guineensis*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.29 *Limosa limosa*

French name: Barge à queue noire

Guinean name:

English name: Black-tailed Godwit

Taxonomic information: Aquatic bird (wader) of the Scolopacidae family

IUCN status: Near Threatened – v.3.1 (2012)

Other status: -

Overall distribution: Nests in the northern palearctic region and winters in Africa and Asia

Local distribution: Kamsar

Habitat: Winters in a wide range of habitats near fresh or brackish water

Overall population: 600,000 but the numbers are declining

Threats: Loss of habitats, hunting

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of habitat

Level of potential impacts: Medium

Mitigation measures: Protection of estuarine habitat

Residual impacts: Positive through protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 7: A survey of the birds of Kamsar. 13 p

BirdLife International 2012. *Limosa limosa*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.30 *Numenius arquata*

French name: Courlis cendré

Guinean name:

English name: Eurasian Curlew

Taxonomic information: Aquatic bird (wader) of the Scolopacidae family

IUCN status: Near Threatened – v.3.1

Other status: -

Overall distribution: Nests in the northern palearctic region and winters in Africa and Asia

Local distribution: Kamsar

Habitat: Winters in coastal habitats

Overall population: Estimates vary greatly

Threats: Habitat losses, disturbances

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Loss of habitat

Level of potential impacts: Medium

Mitigation measures: Protection of estuarine habitat

Residual impacts: Positive as a result of protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 7: A survey of the birds of Kamsar. 13 p

BirdLife International 2012. *Numenius arquata*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 11 September 2014.

4.3.31 *Caracal aurata*

French name: Chat doré africain

Guinean name:

English name: African Golden Cat

Taxonomic information: Small cat of the Felidae family

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Equatorial Africa, with apparent separation between the populations of West and Central Africa

Local distribution:

Habitat: Forest

Overall population: More than 10,000?

Threats: Habitat destruction and hunting

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, scarcity in the region

Potential impacts: Evidence of sensitivity to disturbances

Level of potential impacts: High

Mitigation measures: Specific noise-abatement measures

Residual impacts: Human presence, noise, etc.

Level of residual impacts: Medium

References:

Henschel, P., Breitenmoser-Wursten, C.& Sogbohossou, E. 2008. *Caracal aurata*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 September 2014.

4.3.32 *Rhinoptera marginata*

French name: -

Guinean name: -

English name: Lusitanian Cownose Ray

Taxonomic information: Marine fish of the Myliobatidae family (rays)

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Eastern Atlantic, from Portugal to Guinea

Local distribution:

Habitat: Warm waters along the coast

Overall population: ?

Threats: Fishing

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Dredging

Level of potential impacts: Medium

Mitigation measures:

Residual impacts: Effects of dredging

Level of residual impacts: Medium

References:

McEachran, J.D. and B. Séret, 1990. Rhinopteridae. p. 71-72. In J.C. Quero, J.C. Hureau, C. Karrer, A. Post and L. Saldanha (eds.) Check-list of the fishes of the eastern tropical Atlantic (CLOFETA). JNICT, Lisbon; SEI, Paris; and UNESCO, Paris. Vol. 1.

<http://www.fishbase.org/summary/Rhinoptera-marginata.html>

Notarbartolo di Sciara, G., Serena, F., Ducrocq, M. & Séret, B. 2009. Rhinoptera marginata. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

4.3.33 *Scriptaphyosemion roloffii*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchiidae family (African rivulines)

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Liberia, Sierra Leone, Guinea (very limited in the Guinée forestière region)

Local distribution: Its presence in the Sangarédi region represents an extension of its range.

Habitat: Small, slow-moving watercourses

Overall population: ?

Threats: Threats to habitats, use in the aquarium trade

Value: Medium (second-priority species)

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Huber, J.H., 1996. Killi-Data 1996. Updated checklist of taxonomic names, collecting localities and bibliographic references of oviparous Cyprinodont fishes (Atherinomorpha, Pisces). Société Française d'Ichtyologie, Muséum national d'Histoire naturelle, Paris, France, 399 p.

<http://www.fishbase.org/summary/Scriptaphyosemion-roloffii.html>

Lalèyè, P. 2010. Scriptaphyosemion roloffii. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

4.3.34 *Ichthyborus quadrilineatus*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Distichodontidae family

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Guinea, Guinea-Bissau, Senegal, Sierra Leone

Local distribution: Sangarédi

Habitat: Pelagic, freshwater species

Overall population: ?

Threats: Habitat changes, fishing

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Gosse, J.-P. and E.J. Coenen, 1990. Distichodontidae. p. 237-260. In C. Lévêque, D. Paugy and G.G. Teugels (eds.) Faune des poissons d'eaux douces and saumâtres de l'Afrique de l'Ouest. Tome I. Coll. Faune Tropicale n° XXVIII. Musée Royal de l'Afrique Centrale, Tervuren and O.R.S.T.O.M., Paris, 384 p

<http://www.fishbase.org/summary/Ichthyborus-quadrilineatus.html>

Bouso, T. & Lalèyè, P. 2010. *Ichthyborus quadrilineatus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

4.3.35 *Malapterurus barbatus*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Malapteruridae family (electric catfish). Species described in 2002 by Norris.

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Guinea, Liberia, Sierra Leone

Local distribution: Sangarédi

Habitat: Bottom of slow-moving freshwater. Hunts at night.

Overall population: ?

Threats: Threats to habitats, use in the aquarium trade

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Norris, S.M., 2002. A revision of the African electric catfishes, family Malapteruridae (Teleostei, Siluriformes), with erection of a new genus and descriptions of fourteen new species, and an annotated bibliography. Ann. Mus. R. Afr. Centr., Sci. Zool., 289:1-155.

Lalèyè, P. 2010. Malapterurus barbatus. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

<http://www.fishbase.org/summary/Malapterurus-barbatus.html>

4.3.36 *Malapterurus stiasnyae*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Malapteruridae family (electric catfish). Species described in 2002 by Norris.

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Fouta Djallon in Guinea, Sierra Leone and Liberia

Local distribution: Its presence in the Sangarédi region represents an extension of its range.

Habitat: Bottom of slow-moving freshwater. Hunts at night.

Overall population: ?

Threats: Threats to habitats, use in the aquarium trade.

Value: Medium (second-priority species)

Justification of importance rating: IUCN status

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Norris, S.M., 2002. A revision of the African electric catfishes, family Malapteruridae (Teleostei, Siluriformes), with erection of a new genus and descriptions of fourteen new species, and an annotated bibliography. Ann. Mus. R. Afr. Centr., Sci. Zool., 289:1-155.

Lalèyè, P. 2010. *Malapterurus stiasnyae*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

<http://www.fishbase.org/summary/Malapterurus-stiasnyae.html>

4.3.37 *Malapterurus teugelsi*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Malapteruridae family (electric catfish). Species described in 2002 by Norris.

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for Vulnerable status given its very limited range)

Other status: -

Overall distribution: Cogon River in Guinea (only known habitat)

Local distribution: Sangarédi

Habitat: Rocks or roots in slow-moving freshwater. Hunts at night.

Overall population: ?

Threats: ?

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, very restricted range

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Norris, S.M., 2002. A revision of the African electric catfishes, family Malapteruridae (Teleostei, Siluriformes), with erection of a new genus and descriptions of fourteen new species, and an annotated bibliography. Ann. Mus. R. Afr. Centr., Sci. Zool., 289:1-155.

<http://www.fishbase.de/summary/Malapterurus-teugelsi.html>

Lalèyè, P. 2010. *Malapterurus teugelsi*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

4.3.38 *Paramphilius trichomycteroides*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Amphiidae family (type of catfish)

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Guinea (Fouta Djallon), Sierra Leone and Liberia (and perhaps mistakenly in Ethiopia)

Local distribution: Its presence in the Sangarédi region represents an extension of its range.

Habitat: Freshwater demersal fish

Overall population: ?

Threats: Loss of habitat, fishing

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, restricted distribution

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Skelton, P.H. and G.G. Teugels, 1986. Amphiliidae. p. 54-65. In J. Daget, J.-P. Gosse and D.F.E. Thys van den Audenaerde (eds.) Check-list of the freshwater fishes of Africa (CLOFFA). ISNB, Brussels; MRAC, Tervuren; and ORSTOM, Paris. Vol. 2.

Bouso, T. & Lalèyè, P. 2010. *Paramphilius trichomycteroides*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014

<http://www.fishbase.org/summary/Paramphilius-trichomycteroides.html>

4.3.39 *Petrocephalus levequei*

French name: -

Guinean name: -

English name: Elephantfish

Taxonomic information: Freshwater fish of the Mormyridae family. Species described in 1990 by Bigorne and Paugy.

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Guinea, Guinea-Bissau, Sierra Leone

Local distribution: Sangarédi

Habitat: Demersal fish

Overall population: ?

Threats: Threats to habitats: deforestation

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, restricted range

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Bigorne, R., 1990. Mormyridae. p. 122-184. In C. Lévêque, D. Paugy and G.G. Teugels (eds.) Faune des poissons d'eaux saumâtres d'Afrique de l'Ouest. tome 1. Faune Trop. 28. Musée Royal de l'Afrique Centrale, Tervuren, and ORSTOM, Paris.

Stiassny M., G. G. Teugels, C. Hopkins C., 2007. Poissons d'eaux douces et saumâtres de Basse Guinée, ouest de l'Afrique centrale. Collection Faune et Flore tropicales 42 - Musée Royal de l'Afrique Centrale, Tervuren, and ORSTOM, Paris

Entsua-Mensah, M. 2010. *Petrocephalus levequei*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 25 August 2014.

<http://www.fishbase.org/summary/speciessummary.php?id=5217>

4.3.40 *Epiplatys olbrechtsi ssp. olbrechtsi*

French name: -

Guinean name: -

English name: -

Taxonomic information: Freshwater fish of the Nothobranchidae family

IUCN status: Near Threatened – v.3.1 (very close to meeting the criteria for VU status)

Other status: -

Overall distribution: Guinea, Ivory Coast, Liberia

Local distribution: Sangarédi

Habitat: Freshwater demersal fish

Overall population: ?

Threats: Loss of habitat, use in the aquarium trade

Value: Medium (second-priority species)

Justification of importance rating: IUCN status, restricted range

Potential impacts: Habitat destruction, impacts on water quality (aluminum)

Level of potential impacts: Medium

Mitigation measures: Protection of gallery forests, specific measures (4.8)

Residual impacts: Increased aluminum, offset by habitat protection

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 4: Inventories of fish and aquatic macroinvertebrates. 53 p

Entsua-Mensah, M. 2010. *Epiplatys olbrechtsi* ssp. *olbrechtsi*. The IUCN Red List of Threatened Species. Version 2014.2.

4.3.41 *Philothamnus cf semivariiegatus*

French name: -

Guinean name: -

English name: - (Spotted Bush Snake, for *Philothamnus semivariiegatus*)

Taxonomic information: Species of tree-dwelling green snake of the Colubridae family. Related to *Philothamnus semivariiegatus*, but has distinctive scales. In the process of being described.

IUCN status: - None, new species. *Philothamnus semivariiegatus* has not yet been assessed.

Other status: -

Overall distribution: According to Chirio (2012), it is [translation] "...known throughout West Africa (Trape & Mané 2006) but not described to date; common from Senegal to Cameroon in the Sudanese and Guinean savanna, it prefers wetter habitats...".

Local distribution: Chirio (2012) observed it in Kogon Lenguéré. Observed in Kalinka Roundé southwest of the Sangarédi study area during the work done in 2013.

Habitat: Relatively wet habitats

Overall population: ?

Threats: ?

Value: Medium (second-priority species)

Justification of importance rating: No current IUCN status because the species has not been described, but of second priority because its range is probably quite extensive.

Potential impacts: Habitat destruction, but unlikely

Level of potential impacts: Medium

Mitigation measures: Habitat protection

Residual impacts: None

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 8: Inventory of Reptiles in the Sangarédi Region for the CBG Bauxite Mine Expansion Project. 67 p.

Chirio L. 2012: Inventaire des reptiles de la région de Sangarédi (Guinée: Afrique de l'Ouest) - Bull. Soc. Herp. Fr., 144: 67-100.

4.3.42 *Crocodylus niloticus (suchus)*

French name: Crocodile du Nil

Guinean name:

English name: Nile Crocodile (West African Nile Crocodile)

Taxonomic information: Complex taxonomic status. In fact, there are probably two species. The West African species is rarer.

IUCN status: LC, but the assessment is dated (1996) and recent genetic information is lacking.

Other status: -

Overall distribution: Africa

Local distribution: Seen in Kamsar in 2013 but not in Sangarédi. Does exist in Sangarédi region (Chirio 2012), in particular along the Cogon.

Habitat: Variable

Overall population: ?

Threats:

Value: Medium (second-priority species)

Justification of importance rating: It is likely that the individuals present belong to a rarer species.

Potential impacts: Habitat destruction, noise, collisions, etc.

Level of potential impacts: Medium

Mitigation measures: Habitat protection

Residual impacts: Habitat protection offsets other factors

Level of residual impacts: Neutral

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 8: Inventory of Reptiles in the Sangarédi Region for the CBG Bauxite Mine Expansion Project. 67 p.

Chirio L. 2012: Inventaire des reptiles de la région de Sangarédi (Guinée: Afrique de l'Ouest) - Bull. Soc. Herp. Fr., 144: 67-100.

Hekkala, E., Shirley, M.H., Amato, G., Austin, J.D., Charter, S., Thorbjarnarson, J., Vliet, K.A., Houck, M.L., Desalle, R. and Blum, M.J. (2011). An ancient icon reveals new mysteries: mummy DNA resurrects a cryptic species within the Nile crocodile. *Molecular Ecology*, 20: 4195–4215.

Crocodile Specialist Group 1996. *Crocodylus niloticus*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 09 September 2014.

4.3.43 *Rungia eriostachya*

French name:

Guinean name:

English name:

Taxonomic information: Shrub of the Acanthaceae family

IUCN status: NE

Other status: -

Overall distribution: Senegal, Guinea-Bissau, Guinea

Local distribution: On the banks of the Woupilili near Paragogo

Habitat:

Overall population:

Threats:

Value: Medium (second-priority species)

Justification of importance rating: Considered rare

Potential impacts: Unlikely, given the habitat

Level of potential impacts: None

Mitigation measures: Habitat protection

Residual impacts: Positive

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 1: Botanical baseline survey in Guinea for Compagnie des Bauxites de Guinée (CBG). 44 p.

4.3.44 *Terminalia scutifera*

French name: -

Guinean name: -

English name: -

Taxonomic information: Small tree of the Combretaceae family

IUCN status: NE

Other status: -

Overall distribution: Coastal regions of Guinea-Bissau, Guinea and Sierra Leone

Local distribution: Taïgbé Island

Habitat: Mangrove

Overall population: ?

Threats: Destruction of mangroves

Value: Medium (second-priority species)

Justification of importance rating: Range-restricted species

Potential impacts: None as a consequence of the Project

Level of potential impacts: None

Mitigation measures: Habitat protection

Residual impacts: Protection of the estuarine mangroves would have a positive effect.

Level of residual impacts: Medium positive

References:

ÉEM, 2014. Biology Baseline Study - Environmental and Social Impact Assessment of the CBG Mine Expansion Project. Annexe 1: Botanical baseline survey in Guinea for Compagnie des Bauxites de Guinée (CBG). 44 p.

Jansen, P.C.M., 2005. *Terminalia scutifera* Planch. ex M.A.Lawson In: Jansen, P.C.M. & Cardon, D. (eds). PROTA 3: Dyes and tannins/Colorants and tanins. [CD-Rom]. PROTA, Wageningen, Pays Bas.