Lake Toba IUCN Redlist Baseline

Pumped Storage Hydropower ESIA

Lake Toba, North Sumatra

Prepared for: GreenCorp LLC

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IFC PS6 Biodiversity Desktop Screening Report

Project: Lake Toba ESIA

Location: Lake Toba, North Sumatra

Report Date: 2026-03-02

Prepared by: BGL Spatial (Brian G. Long)

Client: GreenCorp LLC

Scope and Limitations

This report presents a **desktop screening** of threatened species (IUCN Red List categories Critically Endangered, Endangered, and Vulnerable) whose geographic ranges overlap the project Area of Interest (AOI). Species presence is inferred from IUCN Red List range data and has **not been confirmed through field surveys**.

The purpose of this screening is to identify species that may trigger Critical Habitat designation under **IFC Performance Standard 6 (PS6)** and to guide the allocation of field sampling effort for confirmation. All species discussed should be treated as **potentially present** until verified by targeted field surveys.

Species data has been sourced from the IUCN Red List assessment library. Narrative summaries have been generated using AI-assisted synthesis (Gemini Flash via pydantic-ai) from validated IUCN data only — no external information has been added.

Project Location

[See Figure 1 in Appendix: Project Location Map]

Executive Summary

A total of **46 threatened species** were identified as potentially present within the project AOI based on IUCN range data overlap:

- **Critically Endangered (CR):** 4 species
- **Endangered (EN):** 14 species
- **Vulnerable (VU):** 25 species

The presence of Critically Endangered species, if confirmed, would trigger **Critical Habitat** designation under IFC PS6 Criterion 1. Targeted field surveys are strongly recommended to confirm or rule out occurrence.

Threatened Species Summary

Scientific Name	Common Name(s)	Status	Criteria	Trend
Asarcornis scutulata	White-winged Duck, White-winged Wood Duck	CR	A2bcde+3bcde+4bcde; C1+2a(i)	Decreasing
Dicerorhinus sumatrensis	Sumatran Rhinoceros, Rhinocéros de Sumatra, Rinoceronte de Sumatra	CR	A2cd+3cd+4cd; C2a(i); D	Decreasing
Manis javanica	Sunda Pangolin, Malayan Pangolin	CR	A2d+3d+4d	Decreasing
Manouria emys	Asian Giant Tortoise, Asian Tortoise, Black Giant Tortoise, Burmese Brown Tortoise, Burmese Mountain Tortoise, Six-legged Tortoise, Tortue brune	CR	A2cd+4cd	Decreasing
Cuon alpinus	Dhole, Asiatic Wild Dog, Indian Wild Dog, Red Dog	EN	C2a(i)	Decreasing
Cuora amboinensis	Southeast Asian Box Turtle, South Asian Box Turtle	EN	A2d	Decreasing
Garrulax bicolor	Sumatran Laughingthrush, Black-and-white Laughingthrush	EN	A2cd+3cd+4cd	Decreasing

Hylobates lar	Lar Gibbon, Common Gibbon, White-handed Gibbon	EN	A2cd+3cd	Decreasing
Macaca fascicularis	Long-tailed Macaque, Crab-eating Macaque, Cynomolgus Macaque	EN	A2cd+3cd+4cd	Decreasing
Macaca nemestrina	Southern Pig-tailed Macaque, Pig-tailed Macaque, Pigtail Macaque, Sunda Pig-tailed Macaque, Sundaland Pigtail Macaque	EN	A2cde+3cde	Decreasing
Numenius mada gascariensis	Far Eastern Curlew, Eastern Curlew	EN	A2bcd+4bcd	Decreasing
Nycticebus coucang	Greater Slow Loris, Slow Loris, Sunda Slow Loris	EN	A2acde+4acde	Decreasing
Panthera tigris	Tiger	EN	A2abcd	Decreasing
Presbytis sumatranus	—	EN	A2cd+4cd	Decreasing
Pteromyscus pulverulentus	Smoky Flying Squirrel	EN	A2c+3c+4c	Decreasing
Pteropus vampyrus	Large Flying-fox, Large Flying Fox, Malayan Flying Fox	EN	A2bcd	Decreasing
Scleropages formosus	Asian Arowana	EN	A2cd+4cd	Decreasing

Symphalangus syndactylus	Siamang	EN	A4cd	Decreasing
Acridotheres javanicus	Javan Myna	VU	A2d+3d+4d	Decreasing
Aonyx cinereus	Asian Small-clawed Otter, Oriental Small-clawed Otter, Small-clawed Otter	VU	A2cde+3cde	Decreasing
Arctictis binturong	Binturong, Bearcat	VU	A2cd+3cd+4cd	Decreasing
Calidris falcinellus	Broad-billed Sandpiper, Bécasseau falcinelle, ■■■■■■■■■■■■■■■■	VU	A2bc+4bc	Decreasing
Calidris ferruginea	Curlew Sandpiper, Bécasseau cocorli, ■■■■■■■■■■	VU	A2bcd+4bcd	Decreasing
Dyacopterus brooksi	Brooks’s Dyak Fruit Bat	VU	A4c	Decreasing
Elaphe taeniura	Cave Racer, Beauty Snake	VU	A2d	Decreasing
Halcyon pileata	Black-capped Kingfisher	VU	A2bcd+4bcd	Decreasing
Helarctos malayanus	Sun Bear, Malayan Sun Bear	VU	A2cd+3cd+4cd	Decreasing
Lutrogale perspicillata	Smooth-coated Otter, Indian Smooth-coated Otter	VU	A2cde+3cde	Decreasing

Maxomys inflatus	Broad-nosed Sumatran Maxomys, Fat-nosed Spiny Rat	VU	A3c	Decreasing
Maxomys rajah	Rajah Sundaic Maxomys, Rajah Spiny Rat	VU	A2c	Decreasing
Maxomys whiteheadi	Whitehead’s Sundaic Maxomys, Whitehead's Spiny Rat	VU	A2c	Decreasing
Mystacoleucus padangensis	—	VU	B1ab(iii,v)+2ab(iii,v)	Decreasing
Nemacheilus papillosus	—	VU	B1ab(iii)	Unknown
Neolissochilus thienemanni	Ihan	VU	B1ab(iii) ver 3.1	Decreasing
Oligodon pulcherrimus	—	VU	B1ab(iii)	Unknown
Ophiophagus hannah	King Cobra, Hamadryad	VU	A2acd	Decreasing
Parathelphusa maindroni	—	VU	D2	Unknown
Petinomys genibarbis	Whiskered Flying Squirrel	VU	A2c+3c+4c	Decreasing
Petinomys setosus	Temminck's Flying Squirrel	VU	A2c+3c+4c	Decreasing
Pluvialis squatarola	Grey Plover, Black-bellied Plover	VU	A2bcd+4bcd	Decreasing
Rousettus spinalatus	Bare-backed Rousette	VU	A4c	Decreasing
Rusa unicolor	Sambar, Indian Sambar, Sambar Deer	VU	A2cd+3cd+4cd	Decreasing

Trachypithecus cristatus	Silvery Lutung, Silvered Langur, Silvered Leaf Monkey, Silvered Monkey	VU	A2cd+3cd	Decreasing
Cochoa beccarii	Sumatran Cochoa	LC	ver 3.1	Decreasing
Erythropitta venusta	Graceful Pitta, Black-crowned Pitta	LC		Decreasing
Hydrornis schneideri	Schneider's Pitta	LC		Decreasing

Biodiversity Overview

The following figures summarise the full species assemblage (all IUCN categories) within the AOI.

[See Figure 2 in Appendix: IUCN Status Distribution]

[See Figure 3 in Appendix: Threatened vs Non-Threatened Species]

[See Figure 4 in Appendix: Conservation Status by Taxonomic Class]

[See Figure 5 in Appendix: Species Richness by Taxonomic Class]

[See Figure 6 in Appendix: Species Richness by Phylum]

[See Figure 7 in Appendix: Critically Endangered and Endangered Species]

Threatened Species Profiles

Each species profile below presents validated IUCN assessment data and AI-synthesised narratives framed for IFC PS6 screening. Profiles are ordered by threat level (CR → EN → VU), then alphabetically by scientific name.

Critically Endangered Species

***Asarcornis scutulata* (White-winged Duck, White-winged Wood Duck)**

IUCN Status: Critically Endangered (CR)

Criteria: A2bcde+3bcde+4bcde; C1+2a(i)

Assessment Year: 2024

Population Trend: Decreasing

Taxonomy: Aves > Anseriformes > Anatidae

IUCN Justification:

> *This iconic duck of South-East Asia's wetlands is on the verge of extinction. A combination of threats including habitat loss, disturbance and hunting have caused a precipitous decline over the past three generations (26 years), probably exceeding 80%. There are now likely only 150-400 mature individuals left, widely scattered in populations across its once vast range, many of which are probably now too small to be viable. The species likely has an extremely high chance of becoming extinct in the near future. It is therefore listed as Critically Endangered.*

Habitat and Ecology:

Asarcornis scutulata, also known as White-winged Duck, is potentially present in the AOI based on its IUCN range. This species inhabits stagnant or slow-flowing natural and artificial wetlands, within or adjacent to evergreen, deciduous or swamp forests, depending on tree-holes for roosting and nesting. Although lowlands below 400m provide optimum habitat, it may occur up to 1,400 m, especially on plateaux supporting sluggish perennial rivers and pools.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)

Threats:

The White-winged Duck faces ongoing threats including agro-industry farming, oil and gas drilling, mining and quarrying, and intentional and unintentional harvesting effects. Habitat loss and soil erosion from sedimentation also pose threats. These threats, occurring across a majority to minority scope, can cause slow to rapid declines, potentially impacting the species within the AOI.

Code	Threat	Timing	Scope	Severity
1.3	Tourism & recreation areas	Ongoing	Minority (<50%)	Negligible Declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Rapid Declines
3.1	Oil & gas drilling	Ongoing	Minority (<50%)	Slow, Significant Declines
3.2	Mining & quarrying	Ongoing	Minority (<50%)	Slow, Significant Declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Slow, Significant Declines
5.2.2	Unintentional effects (species is not the target)	Ongoing	Minority (<50%)	Negligible Declines
5.3.3	Unintentional effects: (subsist ence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, Significant Declines
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Rapid Declines
6.1	Recreational activities	Ongoing	Minority (<50%)	Negligible Declines
8.1.1	Unspecified species	Ongoing	Minority (<50%)	Slow, Significant Declines
9.3.2	Soil erosion, sedimentation	Ongoing	Majority (50-90%)	Slow, Significant Declines
11.1	Habitat shifting & alteration	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

Conservation actions for the White-winged Duck include site protection and management, invasive species control, habitat restoration, species recovery programs, reintroduction efforts, captive breeding, and awareness campaigns at national levels. Field verification is required to assess habitat suitability and current threats to inform targeted conservation in

the AOI.

- [1.1] Site/area protection
- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [2.3] Habitat & natural process restoration
- [3.2] Species recovery
- [3.3.1] Reintroduction
- [3.4.1] Captive breeding/artificial propagation
- [4.3] Awareness & communications
- [5.1.2] National level
- [5.4.2] National level

Geographic Range:

Historically, Asarcornis scutulata had a large range that extended through much of eastern South Asia, almost all of South-East Asia, and parts of the western Indonesian archipelago. In many of these range states, the species is now probably extinct, or nearly so. The species still occurs in India (Assam and Arunachal Pradesh), but it is probably now extinct in Bangladesh and was likely only ever a marginal visitor to Bhutan. Occurs in northern Myanmar, which is probably now a stronghold for the species and, very locally, still in western Thailand. In the latter, a reintroduced population (which is not yet known to be self-sustaining) is at Phu Khieo Wildlife Sanctuary. Almost certainly extinct in Peninsular Thailand and Peninsular Malaysia. The species is probably now extinct in Lao PDR and Viet Nam. The population in Cambodia is now greatly diminished with recent reports from only Preah Vihear. In Indonesia, remnant and fragmented populations remain on Sumatra, but it is probably extinct through much of the island, as it is on Java.

Countries: Cambodia, India, Indonesia, Myanmar, Thailand, Bangladesh, Lao People's Democratic Republic, Malaysia, Viet Nam, Bhutan

IFC PS6 Relevance:

The White-winged Duck is listed as Critically Endangered, triggering consideration under IFC PS6 for potential Critical Habitat. Field verification is required to confirm its presence and assess habitat criteria within the AOI.

***Dicerorhinus sumatrensis* (Sumatran Rhinoceros, Rhinocéros de Sumatra, Rinoceronte de Sumatra)**

IUCN Status: Critically Endangered (CR)

Criteria: A2cd+3cd+4cd; C2a(i); D

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Perissodactyla > Rhinocerotidae

IUCN Justification:

> *This species is listed as Critically Endangered due to very severe past declines of greater than 80% over three generations (generation length estimated at 20 years if using average age of parents in the population); and because there is a continuing decline of at least 30% within 10 years or 90% within three generations (cause is inferred to be poaching and habitat loss due to encroachment); and because its population size is estimated to number fewer than 250 mature individuals, with no subpopulation greater than 50 individuals, and it is experiencing a continuing decline (the cause of the decline is inferred to be poaching, habitat fragmentation, human disturbance, and habitat loss due to encroachment). We estimate that the probability of extinction in 3 generations (60 years) is 90%, without successful interventions. This could trigger criterion CR E for this species, however due to current uncertainty over its future and stronger evidence for criteria A, C and D being triggered for this species, criterion E is not applied for this assessment.*

Habitat and Ecology:

The Sumatran Rhinoceros potentially occurs in the AOI, inhabiting tropical rainforest and montane moss forest from lowlands up to 2500m elevation. It may also be found at forest margins and in secondary forest. The species favours hilly areas nearby water sources, exhibiting seasonal movements to higher elevations during lowland flooding. This species depends on salt licks and primarily occurs in primary forest, but may wander into secondary forests, especially during the dry season in search of water.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to the Sumatran Rhinoceros potentially present in the AOI include agro-industry farming, direct intentional use, and unintentional harvest effects. Work and other activities, such as infrastructure development, may also pose a threat. Droughts

could further impact the species. These threats, occurring at varying scales and severities, contribute to the species' Critically Endangered status and are relevant to IFC PS6 due to potential habitat degradation or direct harm.

Code	Threat	Timing	Scope	Severity
2.1.3	Agro-industry farming	Ongoing	Minority (<50%)	Slow, Significant Declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Rapid Declines
5.3.5	Motivation Unknown/Unrecorded	Past, Unlikely to Return	Majority (50-90%)	Causing/Could Cause Fluctuations
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Negligible Declines
6.3	Work & other activities	Ongoing	Whole (>90%)	Rapid Declines
7.1.3	Trend Unknown/ Unrecorded	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
10.1	Volcanoes	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
10.2	Earthquakes/tsunamis	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
11.2	Droughts	Ongoing	Whole (>90%)	Slow, Significant Declines

Conservation Actions:

Conservation actions potentially relevant to the AOI include site and resource protection, habitat management and restoration, harvest and trade management, and species recovery programs, including captive breeding. Formal education, training, and awareness programs are also in place. Conservation actions occur at sub-national, national, and international levels. Field verification is needed to determine the effectiveness of these conservation measures within the AOI.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.2] Species recovery
- [3.4.1] Captive breeding/artificial propagation
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.3] Sub-national level
- [5.4.1] International level
- [5.4.2] National level
- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

The Sumatran Rhinoceros once occurred from the foothills of the Himalayas in Bhutan and north-eastern India, through southern China (Yunnan), Myanmar, Thailand, Cambodia, Lao PDR, Viet Nam and the Malay Peninsula, and onto the islands of Sumatra and Borneo in Indonesia. The subspecies Dicerorhinus sumatrensis lasiotis formerly occurred in India, Bhutan, Bangladesh, and Myanmar. The subspecies Dicerorhinus sumatrensis harrissoni formerly occurred throughout the island of Borneo. Dicerorhinus sumatrensis sumatrensis formerly occurred in Thailand, Peninsular Malaysia, and Sumatra (Indonesia). Presently, the subspecies primarily occurs in three protected areas in Sumatra.

Countries: Indonesia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, India, Lao People's Democratic Republic, Malaysia, Thailand, Viet Nam, Myanmar

IFC PS6 Relevance:

The Sumatran Rhinoceros is listed as Critically Endangered and therefore relevant to IFC PS6. Field verification is required to confirm its presence within the AOI and to assess potential impacts on its habitat.

***Manis javanica* (Sunda Pangolin, Malayan Pangolin)**

IUCN Status: Critically Endangered (CR)

Criteria: A2d+3d+4d

Assessment Year: 2019

Population Trend: Decreasing

Taxonomy: Mammalia > Pholidota > Manidae

IUCN Justification:

This species is listed as Critically Endangered (A2d+3d+4d). It is inferred that populations have declined by 80% over the past 21 years (three generations, generation length estimated at seven years, i.e. 1998- 2019) based on overexploitation from hunting and poaching (A2d). Being precautionary, the species is listed as Critically Endangered (A3d+4d), both looking forward three generations (2019-2040) and looking backward one generations and forward two generations (2012-2033). This is based on very high levels of harvest for commercial trafficking of live and dead individuals, industrially processed frozen pangolins, and scales, seemingly across the species' range, combined with ongoing exploitation for local use. Quantifying the extent of exploitation spatially is difficult but it seems likely that Singapore and smaller islands (e.g., those surrounding mainland and island Southeast Asia in the species' range) may be the only localities where overexploitation is not a threat. This predicament is compounded by a number of factors including the likelihood that governance and law enforcement changes on a level needed to prevent the overexploitation of the species are unlikely to occur within three generations time. Additionally, there is currently weak evidence that demand reduction efforts in key consumer countries for Asian pangolin products and derivatives, which theoretically could lead to a reduction in harvest, are effective. Meanwhile, the incentives for harvesting and illegally trading in the species are universally high based on the high financial value of pangolin parts and derivatives.

Habitat and Ecology:

The Sunda Pangolin (Manis javanica) is potentially present in the Area of Interest. This species inhabits a variety of habitats from primary and secondary forests, including lowland dipterocarp and mangrove forests, to cultivated areas such as oil palm and rubber plantations, and near human settlements. The species has been recorded from sea level up to 1,700m asl. It is primarily nocturnal and solitary, feeding on ants and termites, and sleeps in tree hollows, burrows, or fallen logs.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Artificial/Terrestrial - Arable Land, Artificial/Terrestrial - Pastureland, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Urban Areas, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest, Artificial/Aquatic - Canals and Drainage Channels, Ditches, Other

Threats:

Key threats to the Sunda Pangolin potentially present in the Area of Interest include intentional use (hunting/poaching), unintentional effects of bycatch, and habitat loss from housing, roads, and dams. These threats are ongoing and contribute to rapid population declines. The primary driver is overexploitation for commercial trade, driven by demand for scales and meat, despite CITES Appendix I listing.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
4.1	Roads & railroads	Ongoing	Unknown	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid declines
5.1.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Rapid declines
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Unknown	Unknown
7.2.11	Dams (size unknown)	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for the Sunda Pangolin include harvest and trade management, training, and awareness programs at international, national, and sub-national levels. Field surveys are needed to verify the species' presence and habitat use within the Area of Interest, and to assess the effectiveness of existing conservation measures. Further investigation into local threats and trade dynamics is warranted.

- [3.1.1] Harvest management
- [3.1.2] Trade management
- [4.2] Training
- [4.3] Awareness & communications
- [5.4.1] International level
- [5.4.2] National level
- [5.4.3] Sub-national level

Geographic Range:

The Sunda Pangolin is widely distributed geographically, occurring across mainland and island Southeast Asia, from central Myanmar south through western, southeasterrn and southern Thailand, lowland Lao People's Democratic Republic (PDR), central and southern

Viet Nam, Cambodia, Peninsular Malaysia and Singapore. It then occurs on Sumatra, Java and adjacent islands (Indonesia), and Borneo (Malaysia, Indonesia and Brunei Darussalam) and surrounding islands. The northern and western limits of its range are poorly known. The species probably does not widely occur above 600 m asl in the northern part of its range, though it has been recorded up to 1,700 m asl on Borneo. It is suspected that the species has been extirpated from some lowland areas of Lao PDR, Myanmar and Thailand.

Countries: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Singapore, Thailand, Viet Nam

IFC PS6 Relevance:

The Sunda Pangolin is listed as Critically Endangered and therefore is relevant to IFC PS6. Field verification is required to confirm the species' presence and assess the potential for Critical Habitat triggers.

***Manouria emys* (Asian Giant Tortoise, Asian Tortoise, Black Giant Tortoise, Burmese Brown Tortoise, Burmese Mountain Tortoise, Six-legged Tortoise, Tortue brune)**

IUCN Status: Critically Endangered (CR)

Criteria: A2cd+4cd

Assessment Year: 2019

Population Trend: Decreasing

Taxonomy: Reptilia > Testudines > Testudinidae

IUCN Justification:

Manouria emys is in severe decline. Based on habitat loss rates alone, half the area of suitable lowland and mid-elevation evergreen forest has been degraded and lost in the past half century throughout its range. In addition, the species has suffered long-term subsistence collection and intensive commercial exploitation for East Asian consumption trade in recent years. Overall, the species has declined by at least 80% in the past three generations (135 years). This decline is expected to continue as turtle exploitation through most of its range remains beyond effective control, subsistence collection and poaching occurs widely even in some protected areas, and forest loss continues across much of its remaining range. This species qualifies for listing as Critically Endangered under criteria A2cd+4cd.

Habitat and Ecology:

Manouria emys, the Asian Giant Tortoise, potentially inhabits the AOI based on its known distribution in subtropical and tropical moist lowland and montane evergreen forests. This species occupies elevations from 600 to 1,500 m. It favors moist habitats near water sources, often burrowing in damp soil, and utilizes bamboo forests, dry evergreen forests, stream courses, and swampy stream edges.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Manouria emys potentially present in the AOI include habitat shifting and alteration, droughts, small-holder farming, agro-industry plantations, roads and railroads, and recreational activities, all of which are ongoing and causing rapid declines. The species is also subject to intentional use as a target, with unintentional effects from other activities and subsistence harvesting contributing to its decline. These threats are relevant to IFC PS6 due to their potential to cause habitat degradation and population declines.

Code	Threat	Timing	Scope	Severity
11.1	Habitat shifting & alteration	Ongoing	Whole (>90%)	Rapid Declines
11.2	Droughts	Unknown	Minority (50%)	Causing/Could Cause Fluctuations
2.1.2	Small-holder farming	Ongoing	Majority (50-90%)	Rapid Declines
2.2.2	Agro-industry plantations	Ongoing	Majority (50-90%)	Rapid Declines
2.2.3	Scale Unknown/ Unrecorded	Ongoing	Majority (50-90%)	Rapid Declines
2.3.4	Scale Unknown/ Unrecorded	Ongoing	Majority (50-90%)	Rapid Declines
4.1	Roads & railroads	Ongoing	Majority (50-90%)	Rapid Declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.1.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.2.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.3.3	Unintentional effects: (subsist ence/small scale) [harvest]	Ongoing	Majority (50-90%)	Rapid Declines
6.1	Recreational activities	Ongoing	Majority (50-90%)	Rapid Declines

Conservation Actions:

A variety of conservation actions are in place or needed for Manouria emys, including site and resource protection, habitat management and restoration, harvest and trade management, species recovery efforts such as reintroduction and captive breeding, and

education and awareness programs. Field verification is required within the AOI to assess the effectiveness of these measures and to determine if additional conservation actions are needed. Surveys should focus on areas of suitable habitat to confirm presence and assess potential impacts.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.2] Species recovery
- [3.3.1] Reintroduction
- [3.3.2] Benign introduction
- [3.4.1] Captive breeding/artificial propagation
- [3.4.2] Genome resource bank
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.2] National level
- [5.1.4] Scale unspecified
- [5.4.2] National level
- [5.4.3] Sub-national level
- [5.4.4] Scale unspecified
- [6.1] Linked enterprises & livelihood alternatives
- [6.2] Substitution
- [6.3] Market forces
- [6.4] Conservation payments
- [6.5] Non-monetary values

Geographic Range:

Manouria emys occurs from Bangladesh and northeastern India through mid-elevation hilly areas of Myanmar, and western and southern Thailand through Malaysia and Indonesia (including Sumatra and Borneo) (Iverson 1992, Platt et al. 2018). Its presence in Brunei is uncertain. Records from Lao PDR, Viet Nam and southern China likely refer to M. impressa and/or traded animals. The subspecies M. e. emys inhabits Thailand south of the Phang-nga-Surat Gap, Malaysia, Borneo and Sumatra. The subspecies M. e. phayrei occurs from Peninsular Thailand northwards through Myanmar to the northeastern Indian and eastern Bangladeshi hill tracts.

Countries: Bangladesh, India, Indonesia, Malaysia, Myanmar, Thailand

IFC PS6 Relevance:

Manouria emys is listed as Critically Endangered on the IUCN Red List; therefore, it is relevant to IFC PS6. Field verification is required to confirm the species' presence within the AOI and to assess whether Critical Habitat is triggered.

Endangered Species

***Cuon alpinus* (Dhole, Asiatic Wild Dog, Indian Wild Dog, Red Dog)**

IUCN Status: Endangered (EN)

Criteria: C2a(i)

Assessment Year: 2015

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Canidae

IUCN Justification:

> *Dholes have disappeared from most of their historical range. Populations are still declining in most areas due to several main threats which include depletion of prey base, habitat loss, persecution due to livestock predation, disease transmission from domestic dogs, and possibly interspecific competition. Although there is uncertainty in our estimation, we calculate a total population of 4,500-10,500 individuals, of which only 949-2,215 are mature individuals. Most if not all current subpopulations of Dholes are relatively small and isolated, and often exhibit severe fluctuations in numbers. One of the largest remaining subpopulations of dholes was estimated to contain 207-304 individuals, of which only 44-64 were mature individuals. Therefore, Dholes warrant listing as Endangered under criterion C2a(i).*

Habitat and Ecology:

Based on IUCN range data, the Dhole, an Endangered canid, is potentially present in the Area of Interest. This species occupies a wide variety of habitats including tropical dry and moist deciduous forests, evergreen and semi-evergreen forests, temperate deciduous forests, boreal forests, dry thorn forests, grassland–scrub–forest mosaics, temperate steppe, and alpine steppe. The Dhole has been recorded at elevations ranging from sea level to 5300m.

Habitat Types: Forest - Boreal, Forest - Temperate, Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Grassland - Temperate, Grassland - Subtropical/Tropical Dry, Grassland - Subtropical/Tropical High Altitude

Threats:

The Dhole faces several ongoing threats, potentially impacting populations within the Area of Interest. These include small-holder and agro-industry farming which result in slow significant declines. Hunting and trapping of terrestrial animals and invasive species also pose threats, potentially exacerbated by the species' fragmented distribution.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (<50%)	Negligible Declines
2.1.2	Small-holder farming	Ongoing	Majority (50-90%)	Negligible Declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Slow, Significant Declines
5.1.2	Hunting & trapping terrestrial animals	Ongoing	Majority (50-90%)	Slow, Significant Declines
5.1.3	Hunting & trapping terrestrial animals	Ongoing	Majority (50-90%)	Slow, Significant Declines
8.1.2	Invasive non-native/alien species	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

Conservation actions for the Dhole include site/area management, national-level conservation strategies, and conservation payments. Field surveys are needed to verify Dhole presence and assess habitat suitability within the Area of Interest. Further investigation should focus on confirming the effectiveness of current conservation measures and identifying opportunities for targeted interventions.

- [2.1] Site/area management
- [5.4.2] National level
- [6.4] Conservation payments

Geographic Range:

Historically, Dholes occurred throughout South and East Asia, to as far north as the southern parts of the Russian Federation (including the Amur region and upper Lena River north of Lake Baikal), and as far west as the mountains ranging from eastern Kazakhstan to northern Pakistan (Altai, Tian Shan, Pamir and western Himalayan mountains). Dholes have disappeared from >75% of their historic range, and most remaining populations are fragmented and still appear to be declining. They are likely extirpated from Central and East Asian regions including the Russian Federation, Mongolia, Kazakhstan, Kyrgyzstan, Afghanistan, Tajikistan and Uzbekistan. Dholes still occur in forest reserves in Bangladesh, Bhutan, Cambodia, China, India, Indonesia (Sumatra and Java), Lao PDR, Malaysia, Myanmar, Nepal, and Thailand. In Viet Nam, there are very few recent confirmed records and they are likely extirpated.

Countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Thailand, Viet Nam

IFC PS6 Relevance:

The Dhole is listed as Endangered on the IUCN Red List, triggering consideration under IFC PS6. Field verification is required to confirm the species' presence within the Area of Interest and assess the potential for Critical Habitat designation.

***Cuora amboinensis* (Southeast Asian Box Turtle, South Asian Box Turtle)**

IUCN Status: Endangered (EN)

Criteria: A2d

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Reptilia > Testudines > Geoemydidae

IUCN Justification:

> *Populations across the range of Cuora amboinensis have declined substantially; quantitative data to estimate the overall decline are needed. It is suspected that the species has suffered an overall population decline of 50–80% over the past three generations due to widespread intensive exploitation, that has not ceased. It is therefore listed as Endangered.*

Habitat and Ecology:

Cuora amboinensis, the Southeast Asian Box Turtle, is potentially present in the Area of Interest. This species inhabits standing water bodies, preferring lowland swampy areas with dense vegetation, but also occurs in intermittent streams, mangrove creeks, rice paddies, and irrigation canals. It has been recorded from tidal areas up to 400m altitude and feeds on various plant and animal matter.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha), Artificial/Aquatic - Ponds (below 8ha), Artificial/Aquatic - Seasonally Flooded Agricultural Land, Artificial/Aquatic - Canals and Drainage Channels, Ditches

Threats:

The Southeast Asian Box Turtle faces several ongoing threats, including small-holder plantations, mining and quarrying, and harvest for consumption and trade. Intentional harvest on a large scale is causing rapid population declines. Unintentional harvest also contributes to slow, significant declines. The timing and scope of some threats, such as scale unknown/unrecorded and type unknown/unrecorded threats, are not well-defined.

Code	Threat	Timing	Scope	Severity
2.2.1	Small-holder plantations	Ongoing	Minority (<50%)	Negligible Declines
2.4.3	Scale Unknown/ Unrecorded	Ongoing	Unknown	Negligible Declines
3.2	Mining & quarrying	Ongoing	Unknown	Causing/Could Cause Fluctuations
4.1	Roads & railroads	Future	Minority (<50%)	Negligible Declines
5.4.2	Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Rapid Declines
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Slow, Significant Declines
9.3.4	Type Unknown/ Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Various conservation actions are in place or needed for the Southeast Asian Box Turtle, including site and resource protection, harvest and trade management, captive breeding, training, and awareness programs at national and international levels. Further investigation is needed to determine the effectiveness of these measures and to identify any additional conservation needs within the Area of Interest. Field verification is required to confirm the species' presence and evaluate habitat suitability.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.4.1] Captive breeding/artificial propagation
- [4.2] Training
- [4.3] Awareness & communications

- [5.1.2] National level
- [5.1.4] Scale unspecified
- [5.4.1] International level
- [5.4.2] National level
- [5.4.4] Scale unspecified
- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

Cuora amboinensis occurs throughout Southeast Asia from northeastern India and the hills of eastern Bangladesh through mainland Southeast Asia, but not entering the hill and mountain areas north and east of the Mekong. It occurs throughout the Southeast Asian archipelago, from the Nicobar Islands through Indonesia to the Moluccas and throughout the Philippines. There is a single record from Timor, but it is possibly introduced there.

Countries: Bangladesh, Brunei Darussalam, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam

IFC PS6 Relevance:

The Southeast Asian Box Turtle is listed as Endangered. It is therefore relevant to IFC PS6, triggering a need for field verification to confirm its presence and assess potential critical habitat within the Area of Interest.

***Garrulax bicolor* (Sumatran Laughingthrush, Black-and-white Laughingthrush)**

IUCN Status: Endangered (EN)

Criteria: A2cd+3cd+4cd

Assessment Year: 2021

Population Trend: Decreasing

Taxonomy: Aves > Passeriformes > Leiotrichidae

IUCN Justification:

> *The species has suffered a very rapid, ongoing population decline due to trapping for trade compounded by habitat loss. Local extinctions had been observed across much of the range within the past 10-15 years concurrent with price increases and reduced availability in the market. Recent information further suggests trade and harvest has*

continued at a rapid scale. For these reasons Sumatran Laughingthrush is evaluated as Endangered.

Habitat and Ecology:

Garrulax bicolor, also known as Sumatran Laughingthrush, is potentially present in the Area of Interest based on IUCN range data. This species inhabits broadleaf, evergreen montane forests, and may occur in secondary forests, at elevations between 750-2000m. The species has also been reported (though unsubstantiated) in lowland forests. It is known to live in flocks in the middle and lower storeys of the forest, sometimes foraging on the ground.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

The Sumatran Laughingthrush faces ongoing threats from intentional trapping for the cage bird trade, resulting in rapid population declines. Unintentional effects from harvesting also contribute to slow, significant declines. The scope of these threats affects the majority (50-90%) of the population, making them relevant considerations for IFC PS6.

Code	Threat	Timing	Scope	Severity
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid declines
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines

Conservation Actions:

Several conservation actions are in place, including captive breeding programs and international and national-level protections. Field verification is required to assess the effectiveness of these measures within the Area of Interest. Surveys should focus on confirming the presence and extent of suitable habitat to inform appropriate mitigation and monitoring strategies.

- [3.4.1] Captive breeding/artificial propagation
- [5.1.1] International level
- [5.1.2] National level

Geographic Range:

Garrulax bicolor was originally distributed along the length of the montane spine of Sumatra, Indonesia, from Aceh in the north to Lampung in the south, and was reportedly common. Recent evidence suggests that it has undergone a very considerable decline and become rare and locally extinct at several locations where it present less than a decade ago. Since 2012 there have been few records away from Aceh province.

Countries: Indonesia

IFC PS6 Relevance:

Garrulax bicolor is listed as Endangered and therefore may trigger Critical Habitat under IFC PS6. Field verification is required to confirm its presence within the Area of Interest and assess habitat suitability.

***Hylobates lar* (Lar Gibbon, Common Gibbon, White-handed Gibbon)**

IUCN Status: Endangered (EN)

Criteria: A2cd+3cd

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Hylobatidae

IUCN Justification:

This species is listed as Endangered as it is believed to have undergone a decline of more than 50% in the last three generations (45 years) due to rampant forest loss in addition to loss of mature individuals due to hunting and capture for the pet and photo-prop trade (Marshall et al. 1972; Geissmann 1991; Tunhikorn et al. 1994; Round and Brockelman 1998; Nijman et al. 2009; Campbell et al. 2015; Osterberg et al. 2015). The species as a whole is found in northern Sumatra (Indonesia), throughout Peninsular Malaysia (except for a narrow strip between the Perak and Mudah Rivers, where H. agilis occurs), north through southern and eastern Myanmar (east of the Salween River), most of Thailand (though not in the north-east; Marshall et al. 1972), and marginally into southern China, though now extirpated there (Grueter et al. 2009). Over the coming 45 years, this decline is suspected to reach similar proportions due to continuing habitat loss, fragmentation and the impact of wildlife trade on this species.

Habitat and Ecology:

The Lar Gibbon (Hylobates lar) is potentially present in the Area of Interest. This species inhabits evergreen, semi-evergreen, and mixed evergreen-deciduous forests, including regenerating secondary and selectively logged forests. It is predominantly a lowland species, found from near sea level up to 1,500 m. The species' diet is largely frugivorous, consisting mainly of figs, as well as young shoots, leaves, flowers, and insects.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

The Lar Gibbon faces ongoing threats from shifting agriculture, small-holder farming, agro-industry farming, and roads and railroads. It is also subject to intentional hunting and capture, potentially for subsistence, the pet trade, or other unrecorded motivations. The timing of these threats is ongoing, but the scope and severity are unknown.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
2.1.3	Agro-industry farming	Ongoing	Unknown	Unknown
4.1	Roads & railroads	Ongoing	Unknown	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for the Lar Gibbon include site/area protection and management, resource and habitat protection, harvest management, and awareness and communications initiatives at both national and local levels. Further field verification is needed to assess the effectiveness of these measures within the Area of Interest and to determine the need for additional targeted conservation efforts.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management
- [4.3] Awareness & communications
- [5.4.2] National level

Geographic Range:

The species as a whole is found in northern Sumatra (Indonesia), throughout Peninsular Malaysia (except for a narrow strip between the Perak and Mudah Rivers, where H. agilis occurs), north through southern and eastern Myanmar (east of the Salween River), most of Thailand (though not in the north-east; Marshall et al. 1972), and marginally into southern China, though now extirpated there (Grueter et al. 2009). The break in distribution between Perak and Muda/Thepa Rivers on the Malaysian Peninsula is genuine (Carpenter 1940, Geissmann 1984, Harcourt and Schwartz 2001, Matsudaira et al. 2013). The species also occurs in a small area of northwestern Lao PDR (west of the Mekong River). The range formerly extended into southeastern Thailand, where it was parapatric with H. pileatus (Brockelman 1978, Brockelman and Gittins 1984, Phoonjampa and Brockelman 2008). It is unclear whether the population on Phuket (Thailand) is native, but they certainly have been introduced or reintroduced (Osterberg et al. 2014, 2015). The species is extirpated in China (Grueter et al. 2009, Li et al. 2018).

Countries: Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, China

IFC PS6 Relevance:

The Lar Gibbon is listed as Endangered on the IUCN Red List. As such, it warrants consideration under IFC PS6, and its potential presence requires field verification to assess critical habitat triggers.

***Macaca fascicularis* (Long-tailed Macaque, Crab-eating Macaque, Cynomolgus Macaque)**

IUCN Status: Endangered (EN)

Criteria: A2cd+3cd+4cd

Assessment Year: 2025

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Cercopithecidae

IUCN Justification:

> *The Long-tailed Macaque (Macaca fascicularis) has been assessed as Endangered due to an inferred 50-70% decline over the past three generations (30 years) due to habitat loss and high levels of exploitation. In addition, as the threats facing the species and levels of exploitation have not been mitigated and are continuing at a similar pace, it is suspected that the species will continue to experience a population decline at a similar rate (50-70%) over the coming three generations (30 years).*

Habitat and Ecology:

The Long-tailed Macaque is a habitat generalist, potentially present in a wide variety of habitats within the Area of Interest (AOI). These include various forest types (dry, moist lowland, mangrove, swamp, montane), savanna, shrubland, grassland, and wetlands, up to an elevation of 2250m. The species also adapts to human-altered habitats such as agricultural areas, rural settlements, and urban areas, making anthropogenic ecologies an important aspect of its natural ecology.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Savanna - Dry, Savanna - Moist, Shrubland - Subtropical/Tropical Dry, Shrubland - Subtropical/Tropical Moist, Shrubland - Subtropical/Tropical High Altitude, Grassland - Subtropical/Tropical Dry, Grassland - Subtropical/Tropical Seasonally Wet/Flooded, Grassland - Subtropical/Tropical High Altitude, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks, Wetlands (inland) - Shrub Dominated Wetlands, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Freshwater Springs and Oases, Caves and Subterranean Habitats (non-aquatic) - Caves, Marine Intertidal - Rocky Shoreline, Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc, Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches, Marine Intertidal - Mud Flats and Salt Flats, Marine Intertidal - Mangrove Submerged Roots, Artificial/Terrestrial - Arable Land, Artificial/Terrestrial - Pastureland, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Urban Areas, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest, Introduced vegetation

Threats:

Key threats to the Long-tailed Macaque potentially present in the AOI include habitat loss from housing, urban areas, agriculture, and plantations. The species is also subject to intentional use and persecution, resulting in very rapid population declines. These threats are ongoing and could have significant impacts within the project's area of influence.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Majority (50-90%)	Slow, Significant Declines
1.2	Commercial & industrial areas	Ongoing	Minority (<50%)	Slow, Significant Declines
1.3	Tourism & recreation areas	Ongoing	Minority (<50%)	Slow, Significant Declines
2.1.1	Shifting agriculture	Ongoing	Minority (<50%)	Slow, Significant Declines
2.1.2	Small-holder farming	Ongoing	Minority (<50%)	Slow, Significant Declines
2.1.3	Agro-industry farming	Ongoing	Minority (<50%)	Slow, Significant Declines
2.2.1	Small-holder plantations	Ongoing	Minority (<50%)	Slow, Significant Declines
2.2.2	Agro-industry plantations	Ongoing	Minority (<50%)	Slow, Significant Declines
2.3.1	Nomadic grazing	Ongoing	Minority (<50%)	Slow, Significant Declines
2.3.2	Small-holder grazing, ranching or farming	Ongoing	Minority (<50%)	Slow, Significant Declines
2.3.3	Agro-industry grazing, ranching or farming	Ongoing	Minority (<50%)	Slow, Significant Declines
2.4.1	Subsistence/artisinal aquaculture	Ongoing	Minority (<50%)	Slow, Significant Declines
2.4.2	Industrial aquaculture	Ongoing	Minority (<50%)	Slow, Significant Declines
3.3	Renewable energy	Ongoing	Minority (<50%)	Slow, Significant Declines

4.1	Roads & railroads	Ongoing	Minority (<50%)	Slow, Significant Declines
5.1.1	Intentional use (species is the target)	Ongoing	Whole (>90%)	Very Rapid Declines
5.1.3	Persecution/control	Ongoing	Whole (>90%)	Very Rapid Declines
6.1	Recreational activities	Ongoing	Minority (<50%)	Slow, Significant Declines
10.2	Earthquakes/tsunamis	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
11.1	Habitat shifting & alteration	Ongoing	Minority (<50%)	Slow, Significant Declines
11.5	Other impacts	Ongoing	Minority (<50%)	Slow, Significant Declines

Conservation Actions:

Several conservation actions are in place or needed for the Long-tailed Macaque. These include site and resource protection, harvest and trade management, education and awareness programs, and livelihood alternatives. Field surveys should verify habitat types and assess the effectiveness of existing conservation measures within the AOI.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.1.3] Limiting population growth
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.1] International level
- [5.1.2] National level
- [5.1.3] Sub-national level

- [5.1.4] Scale unspecified
- [6.1] Linked enterprises & livelihood alternatives
- [6.2] Substitution
- [6.3] Market forces

Geographic Range:

Macaca fascicularis is widely distributed across South and Southeast Asia. In South Asia, the species remains in the Nicobar Islands (India). In Southeast Asia, it occurs from Myanmar through Thailand, Cambodia, Lao PDR, and Viet Nam, extending south through the Thai-Malay peninsula into the Indonesian islands, including Borneo, Sumatra, Java, and throughout the Philippines. It is considered extinct in Bangladesh. Known introduced populations occur in Mauritius, Palau, and Papua New Guinea.

Countries: Brunei Darussalam, Cambodia, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam, Bangladesh, Mauritius, Palau, Papua New Guinea

IFC PS6 Relevance:

The Long-tailed Macaque is listed as Endangered on the IUCN Red List, indicating potential relevance to IFC PS6. Field verification is required to confirm the species' presence and assess habitat within the AOI for critical habitat triggers.

***Macaca nemestrina* (Southern Pig-tailed Macaque, Pig-tailed Macaque, Pigtail Macaque, Sunda Pig-tailed Macaque, Sundaland Pigtail Macaque)**

IUCN Status: Endangered (EN)

Criteria: A2cde+3cde

Assessment Year: 2022

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Cercopithecidae

IUCN Justification:

This species is assessed as Endangered based on a suspected ongoing population reduction of at least 50% in the past three generations (approximately 33 years for this species), which is likely to continue into the future if the threats are not addressed. This population reduction is suspected due to the ongoing conversion of

their prime habitat to other land use forms, leading to permanent habitat loss and degradation. This includes conversion of lowland tropical rainforest to large-scale oil palm monocultures and other crops (e.g., durian, rubber) and for mining activities through clear felling; habitat degradation due to selective logging for timber extraction and the construction of roads and linear infrastructure, and other large-scale urban and industrial development projects (e.g., the establishment of Indonesia's new capital city Nusantara in Kalimantan), draining of peat swamps, and seasonal forest burning that will likely become more severe due to predicted extreme weather events in the region. The incidences of road casualties have also steadily increased over the past years. Although this species is reported to be able to make use of anthropogenically-impacted habitats such as agricultural landscapes and urban areas, it is sensitive to severe habitat disturbance and clear-cutting, leading to a local decline in site occupancy of 10% over four years from 2013 to 2017. A high recorded mean infant mortality of 66% (range 30–100% between 2014–2021) within the first year in disturbed habitat indicates that this species is not as adaptable to anthropogenic landscapes as previously thought. Where the species persists, there is hunting and trapping for the illegal pet trade, for biomedical research and export, and for human consumption. They are often persecuted as crop pests and during other frequent human-macaque conflicts, leading to continued negative public perception of the species. Together with the observed extremely high annual infant mortality rate in human-impacted areas, possibly due to pollutants, and the inferred likely decrease in genetic diversity of populations in highly fragmented landscapes, this paints a concerning outlook for the long-term survival of this species.

Habitat and Ecology:

Macaca nemestrina, the Southern Pig-tailed Macaque, is potentially present in the AOI based on IUCN range data. This species occupies a variety of habitats, including lowland primary and secondary forests, coastal, swamp, and montane forests, from sea level up to 1,900 m, but is best adapted to lowland and hill dipterocarp forests below 900 m. It is also found in agricultural areas, hillside farms, and fringes of urban environments, as well as oil palm plantations. The species is diurnal, using both terrestrial and arboreal habitats.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Artificial/Terrestrial - Arable Land, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Urban Areas, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest

Threats:

The Southern Pig-tailed Macaque faces numerous ongoing threats across its range. Habitat loss and degradation from agriculture (shifting, small-holder, and agro-industry farming and plantations), urbanization, and infrastructure development are significant concerns. The species is also subject to hunting and trapping for the pet trade, biomedical research, and human consumption, as well as persecution as a crop pest. Other threats include fire, ecosystem modification, herbicides and pesticides, earthquakes, droughts, and storms.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
1.2	Commercial & industrial areas	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
1.3	Tourism & recreation areas	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
2.1.1	Shifting agriculture	Ongoing	Majority (50-90%)	Slow, Significant Declines
2.1.2	Small-holder farming	Ongoing	Majority (50-90%)	Slow, Significant Declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Very Rapid Declines
2.2.2	Agro-industry plantations	Ongoing	Majority (50-90%)	Very Rapid Declines
2.3.3	Agro-industry grazing, ranching or farming	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
3.1	Oil & gas drilling	Ongoing	Minority (<50%)	Rapid Declines
4.1	Roads & railroads	Ongoing	Minority (<50%)	Rapid Declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
5.1.3	Persecution/control	Ongoing	Minority (<50%)	Slow, Significant Declines
6.1	Recreational activities	Ongoing	Majority (50-90%)	Slow, Significant Declines
7.1.1	Increase in fire frequency/intensity	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations

7.3	Other ecosystem modifications	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
9.3.3	Herbicides and pesticides	Ongoing	Majority (50-90%)	Slow, Significant Declines
10.2	Earthquakes/tsunamis	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
11.2	Droughts	Ongoing	Majority (50-90%)	Slow, Significant Declines
11.4	Storms & flooding	Ongoing	Majority (50-90%)	Slow, Significant Declines

Conservation Actions:

Several conservation actions are in place or needed to protect the Southern Pig-tailed Macaque. These include site and area protection, resource and habitat protection, site and area management, and habitat restoration. Trade management and national-level species protection measures are also relevant. Field verification is required to confirm species presence and evaluate habitat quality to inform targeted conservation actions within the Area of Interest.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.1.2] Trade management
- [5.1.2] National level
- [5.4.2] National level

Geographic Range:

This species is found in Brunei, Indonesia (Bangka, Kalimantan Borneo, and Sumatra), Malaysia (Peninsular Malaysia; Sabah and Sarawak in Borneo), and southern Thailand (from Surat Thani-Krabi depression N8–9° to the Malaysian border). It is apparently native to a few offshore islands such as Pulau Tioman (east coast of Peninsular Malaysia) and Batam (Riau Archipelago off the southern tip of the Malay peninsula). There were small, introduced populations in the Natuna Islands and a few released individuals in Pulau

Pinang and Singapore in the past that did not establish a viable population. The precise geographic boundary between M. nemestrina and M. leonina is not well-defined. The natural species boundary may lie further south at the Surat Thani–Krabi depression (N8–9°). While the extent of occurrence (EOO) for this species is quite large (ca 1.3 million km^2) the actual area of occupancy (AOO) is likely much smaller and likely heavily fragmented. For example, calculations for Peninsular Malaysia show that of the 131,600 km^2 available land area, only approximately half of it constitutes potential Macaca nemestrina habitat.

Countries: Brunei Darussalam, Indonesia, Malaysia, Thailand

IFC PS6 Relevance:

Macaca nemestrina is listed as Endangered. Field verification is required to confirm its presence and assess habitat suitability, which will inform the need for a Critical Habitat Assessment under IFC PS6.

***Numenius madagascariensis* (Far Eastern Curlew, Eastern Curlew)**

IUCN Status: Endangered (EN)

Criteria: A2bcd+4bcd

Assessment Year: 2024

Population Trend: Decreasing

Taxonomy: Aves > Charadriiformes > Scolopacidae

IUCN Justification:

> *Numenius madagascariensis is listed as Endangered because of estimated rapid population declines over the past three generations (25 years). The main cause of these declines is thought to be widespread land reclamation on its staging grounds in East Asia, but hunting, disturbance, and habitat conversion elsewhere have also been identified as plausible threats.*

Habitat and Ecology:

Numenius madagascariensis, the Far Eastern Curlew, is potentially present in the AOI based on its IUCN range. This species occupies a variety of habitats, including boreal forests, inland wetlands (bogs, marshes, swamps, lakes), and marine neritic and intertidal zones (estuaries, sandy/shingle beaches, mud flats, salt marshes). It utilizes open mossy bogs, wet meadows, and swampy lake shores for breeding, and coastal habitats with

seagrass meadows for foraging during the non-breeding season. The species' elevation range is not stated.

Habitat Types: Forest - Boreal, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Marine Neritic - Estuaries, Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc, Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches, Marine Intertidal - Mud Flats and Salt Flats, Marine Intertidal - Salt Marshes (Emergent Grasses)

Threats:

The Far Eastern Curlew faces numerous ongoing threats, many of which are relevant to IFC PS6. Habitat loss and degradation from housing, commercial/industrial development, tourism, agro-industry farming, and aquaculture (both subsistence and industrial) are significant concerns. Additional threats include oil & gas drilling, renewable energy development, hunting, disturbance, invasive species (e.g., Spartina alterniflora), and climate change-related habitat alteration and storms/flooding.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (<50%)	Rapid declines
1.2	Commercial & industrial areas	Ongoing	Minority (<50%)	Rapid declines
1.3	Tourism & recreation areas	Ongoing	Minority (<50%)	Slow, significant declines
2.1.3	Agro-industry farming	Ongoing	Minority (<50%)	Slow, significant declines
2.4.1	Subsistence/artisinal aquaculture	Ongoing	Minority (<50%)	Slow, significant declines
2.4.2	Industrial aquaculture	Ongoing	Majority (50-90%)	Slow, significant declines
3.1	Oil & gas drilling	Ongoing	Minority (<50%)	Negligible declines
3.3	Renewable energy	Ongoing	Minority (<50%)	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Minority (<50%)	Unknown
5.1.2	Unintentional effects (species is not the target)	Ongoing	Minority (<50%)	Unknown
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Negligible declines
6.1	Recreational activities	Ongoing	Minority (<50%)	Negligible declines
8.1.2	Named species (Spartina alterniflora)	Ongoing	Minority (<50%)	Rapid declines
9.3.4	Type Unknown/ Unrecorded	Ongoing	Minority (<50%)	Unknown

11.1	Habitat shifting & alteration	Future	Whole (>90%)	Unknown
11.4	Storms & flooding	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

Several conservation actions are in place or needed for the Far Eastern Curlew. These include resource and habitat protection, site/area management, invasive species control, habitat restoration, and awareness/communications programs. Conservation actions are also in place at the national level in some regions. Field verification is required to assess the effectiveness of these measures within the AOI and to determine if additional actions are needed.

- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [2.3] Habitat & natural process restoration
- [4.3] Awareness & communications
- [5.1.2] National level

Geographic Range:

This species breeds in eastern Russia, from the upper reaches of the Nizhnyaya Tunguska river east though the Verkhoyarsk mountains to Kamchatka, and south to Primorye (del Hoyo et al. 1996). Most birds apparently breed in the far south-east of the mapped range (see Supplementary Information: Hansen et al. 2022). The Yellow Sea region of Democratic People's Republic of Korea, Republic of Korea and China is a particularly important stopover site on northward and southward migration. It has been recorded as a passage migrant in Japan, Brunei, Bangladesh, Thailand, Viet Nam, Philippines, Malaysia and Singapore, with up to 75% of the population wintering in Australia (Lilleyman et al. 2021). The remaining proportion of the population winters in China, Indonesia, Papua New Guinea, and New Zealand (del Hoyo et al. 1996).

Countries: Macao, Cambodia, Christmas Island, Korea, Democratic People's Republic of, Korea, Republic of, Lao People's Democratic Republic, Micronesia, Federated States of, Mongolia, Myanmar, New Caledonia, Norfolk Island, Palau, Solomon Islands, Vanuatu, Viet Nam, Australia, Brunei Darussalam, China, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, Papua New Guinea, Philippines, Russian Federation, Singapore, Taiwan, Province of China, Thailand, Timor-Leste

IFC PS6 Relevance:

The Far Eastern Curlew is listed as Endangered, triggering potential Critical Habitat considerations under IFC PS6. Field verification is required to confirm the species' presence within the AOI and to assess habitat suitability and potential impacts from the project.

***Nycticebus coucang* (Greater Slow Loris, Slow Loris, Sunda Slow Loris)**

IUCN Status: Endangered (EN)

Criteria: A2acde+4acde

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Lorisidae

IUCN Justification:

> *Greater Slow Loris is listed as Endangered, due to past and continuing loss of habitat and past and continued severe pressures from hunting for pet trade, the species is under severe threat from hybridization with other invasive loris species that are being introduced into its native range. Populations in Sumatra are under severe pressure from pet trade. Populations in Sumatra, Java, Singapore, Thailand are severely impacted by the release of other loris species, whose medium and long term impacts is suspected to be highly detrimental to the species. Although the species can survive in plantations and home gardens, the increasing loss of primary habitats throughout the range is suspected to have major impact on the species, which is suspected to have declined by more than 50% in population over three generations (approximately 24 years), and given the continuing threats to the habitat and populations from hybridization and hunting, it is suspected to continue to decline at the same rate in the next 20 years.*

Habitat and Ecology:

The Greater Slow Loris is potentially present in the AOI. This arboreal, nocturnal species inhabits primary and secondary lowland forest, gardens, and plantations, from sea level to 100m elevation. In Sumatra, it favors secondary tree fall areas in primary rainforest, disturbed areas, and home gardens.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens

Threats:

The Greater Slow Loris faces ongoing threats relevant to IFC PS6, including agro-industry farming and plantations impacting a majority to minority of the population with slow, significant declines. Intentional use for the pet trade also affects a majority of the population with similar impacts. Persecution/control measures pose a threat to a minority of the population.

Code	Threat	Timing	Scope	Severity
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Slow, significant declines
2.2.2	Agro-industry plantations	Ongoing	Minority (50%)	Slow, significant declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Slow, significant declines
5.1.3	Persecution/control	Ongoing	Minority (50%)	Slow, significant declines
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for the Greater Slow Loris include site and resource protection, area management, and harvest management. Awareness and communications initiatives are in place at national levels. Field verification is needed to assess habitat suitability and conservation needs within the Area of Influence.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management
- [4.3] Awareness & communications
- [5.4.2] National level

Geographic Range:

This species occurs in Indonesia (southern Sumatra south of the Batang Toru River, Batam and Galang in the Riau Archipelago, and Pulau Tebingtinggi and Bunguran in the

North Natuna Islands), Malaysia (on the Peninsula and the island of Pulau Tioman), southern peninsular Thailand (suggested from the Isthmus of Kra southward, but forms as far as Tai Rom Yen National Park accord to N. bengalensis), and Singapore (Groves 2001; KAI. Nekaris pers. comm; M. Shekelle pers. comm.)

Countries: Indonesia, Malaysia, Singapore, Thailand

IFC PS6 Relevance:

The Greater Slow Loris is listed as Endangered. Its potential presence triggers the need for field verification to assess Critical Habitat eligibility under IFC PS6.

***Panthera tigris* (Tiger)**

IUCN Status: Endangered (EN)

Criteria: A2abcd

Assessment Year: 2022

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Felidae

IUCN Justification:

> *The Tiger is listed as Endangered under criterion A2abcd. Based on the evidence of Tiger population and/or range declines across the 30-year assessment period (upper bound of GL (7-10 years)) in at least nine of the 13 countries, which had extant Tiger subpopulations at the beginning of the assessment period, we applied a conservative precautionary approach to the assessment. Evidence indicates that Tigers have undergone a range contraction of >50% over the past three generations leading to a suspected population reduction of >50%, thereby satisfying subcriterion A2c. Decline is largely due to poaching and habitat loss. While numbers have increased in some sites, particularly in India and Nepal, they have also declined in key areas, especially in mainland SE Asia.*

Habitat and Ecology:

Based on IUCN range data, the Tiger *Panthera tigris* is potentially present in the AOI. This species inhabits a variety of forest, savanna, shrubland, and grassland habitats, from tropical to boreal zones, up to an elevation of 4500m. Habitat generalists, Tigers require sufficient prey base of large ungulates.

Habitat Types: Forest - Boreal, Forest - Temperate, Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Savanna - Moist, Shrubland - Boreal, Shrubland - Temperate, Shrubland - Subtropical/Tropical Dry, Shrubland - Subtropical/Tropical Moist, Grassland - Temperate, Grassland - Subtropical/Tropical Dry, Grassland - Subtropical/Tropical Seasonally Wet/Flooded, Grassland - Subtropical/Tropical High Altitude, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest

Threats:

Key threats to the Tiger include hunting and trapping, annual and perennial non-timber crops, wood and pulp plantations, and livestock farming. These threats have an ongoing timing, with scope varying from minority to whole, and severity ranging from causing fluctuations to very rapid declines. Oil and gas drilling is also a potential threat.

Code	Threat	Timing	Scope	Severity
2.1.1	Annual & perennial non-timber crops	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
2.1.2	Annual & perennial non-timber crops	Ongoing	Minority (<50%)	Slow, Significant Declines
2.1.3	Annual & perennial non-timber crops	Past, Unlikely to Return	Minority (<50%)	Very Rapid Declines
2.2.1	Wood & pulp plantations	Ongoing	Minority (<50%)	Slow, Significant Declines
2.2.2	Wood & pulp plantations	Past, Unlikely to Return	Minority (<50%)	Rapid Declines
2.3.2	Livestock farming & ranching	Ongoing	Minority (<50%)	Slow, Significant Declines
3.1	Oil & gas drilling	Past, Likely to Return	Majority (50-90%)	Very Rapid Declines
3.2	Mining & quarrying	Ongoing	Unknown	Causing/Could Cause Fluctuations
4.1	Roads & railroads	Ongoing	Minority (<50%)	Slow, Significant Declines
5.1.1	Hunting & trapping terrestrial animals	Ongoing	Whole (>90%)	Very Rapid Declines
5.1.2	Hunting & trapping terrestrial animals	Ongoing	Minority (<50%)	Slow, Significant Declines

5.1.3	Hunting & trapping terrestrial animals	Ongoing	Minority (<50%)	Rapid Declines
5.3.3	Logging & wood harvesting	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
5.3.4	Logging & wood harvesting	Ongoing	Minority (<50%)	Slow, Significant Declines
6.2	War, civil unrest & military exercises	Ongoing	Minority (<50%)	Rapid Declines
7.1.1	Fire & fire suppression	Ongoing	Minority (<50%)	Unknown
7.2.1	Dams & water m anagement/use	Ongoing	Unknown	Causing/Could Cause Fluctuations
9.2.1	Industrial & military effluents	Ongoing	Minority (<50%)	Unknown
11.4	Storms & flooding	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

A variety of conservation actions are in place for the Tiger, including site/area protection and management, habitat restoration, species recovery programs, and harvest/trade management. Further actions include captive breeding, reintroduction programs, education and training, and policy/regulation implementation. Field verification is required to assess the effectiveness of these measures within the Area of Interest.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.2] Species recovery

- [3.3.1] Reintroduction
- [3.4.1] Captive breeding/artificial propagation
- [3.4.2] Genome resource bank
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.1] International level
- [5.1.2] National level
- [5.1.3] Sub-national level
- [5.2] Policies and regulations
- [5.3] Private sector standards & codes
- [5.4.1] International level
- [5.4.2] National level
- [5.4.3] Sub-national level
- [6.1] Linked enterprises & livelihood alternatives
- [6.2] Substitution
- [6.3] Market forces
- [6.4] Conservation payments
- [6.5] Non-monetary values

Geographic Range:

Tigers once inhabited a wide range of countries in Asia, spanning from Turkey in the west to the eastern coast of Russia, and from the Indonesian islands of Java and Bali in the south to 55°N latitude in the far east of Russia. Over the past 100 years, Tigers have disappeared from Singapore, Bali, Java, Hong Kong, central Asia, and most of mainland China. Tigers now occupy less than 7% of their historical range. Breeding subpopulations are confirmed in Bangladesh, Bhutan, China, India, Indonesia, Malaysia, Myanmar, Nepal, Russia, and Thailand.

Countries: Bangladesh, Bhutan, China, India, Indonesia, Malaysia, Myanmar, Nepal, Russian Federation, Thailand

IFC PS6 Relevance:

The Tiger is listed as Endangered and therefore relevant to IFC PS6. Field verification is required to confirm the species' presence and assess habitat quality within the Area of Interest.

Presbytis sumatranus

IUCN Status: Endangered (EN)

Criteria: A2cd+4cd

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Cercopithecidae

IUCN Justification:

> *The habitat in which Presbytis sumatranus lives is experiencing conversion to agriculture and the species is targeted for illegal collecting for the pet trade. Although forest loss has probably exceeded 70% over 30 years, the population is suspected to have declined by 50% in three generations (30 years approximately) and is continuing to decline.*

Habitat and Ecology:

Presbytis sumatranus, potentially present in the AOI based on IUCN range data, inhabits secondary growth forests, lowland and hill rainforests, and old growth forest, at elevations of 100-1000m. This langur feeds on raw, unripe fruit, young leaves, mature leaves, seeds and flowers. They are presumed to live in one male groups, defending ‘exclusive’ territories.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Presbytis sumatranus, relevant to IFC PS6, include ongoing agro-industry farming and plantations impacting the majority of the species' range, leading to slow, significant declines. The species is also subject to intentional use through illegal collecting for the pet trade, which is occurring throughout the majority of the range and causing rapid declines.

Code	Threat	Timing	Scope	Severity
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Slow, significant declines
2.2.2	Agro-industry plantations	Ongoing	Majority (50-90%)	Slow, significant declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid declines

Conservation Actions:

Reported conservation actions for Presbytis sumatranus include site/area protection and management, species recovery programs, and awareness and communications initiatives. Field verification is recommended to determine if the project area overlaps with critical habitat and to assess the effectiveness of existing conservation measures.

- [1.1] Site/area protection
- [2.1] Site/area management
- [3.2] Species recovery
- [4.3] Awareness & communications

Geographic Range:

Presbytis sumatranus occurs in Western and North Central Sumatra (Northern Islands and the western coasts, south of Simpang Kiri River, North of Gunung Talamay, E coast of Wampu River, Barumun River, South East Rokan River and Batu Islands). It occurs in the Batang Gadis National Park (Meyer et al. 2011).

Countries: Indonesia

IFC PS6 Relevance:

Presbytis sumatranus is listed as Endangered and therefore relevant to IFC PS6. Field verification is required to confirm species presence and habitat within the AOI to assess critical habitat triggers.

***Pteromyscus pulverulentus* (Smoky Flying Squirrel)**

IUCN Status: Endangered (EN)

Criteria: A2c+3c+4c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Sciuridae

IUCN Justification:

> *This species is assessed as Endangered due to an expected population decline over more than 50% in the past and the future inferred from the extensive and rapid habitat loss.*

Habitat and Ecology:

The Smoky Flying Squirrel (Pteromyscus pulverulentus) is potentially present in the Area of Interest (AOI) based on IUCN range data. This nocturnal species inhabits tall, undisturbed lowland primary forest, utilizing tree hollows for shelter and nests. It has been recorded up to 3,000m asl, though it is less common at higher elevations. Breeding occurs throughout the year, peaking from April to June.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

The Smoky Flying Squirrel is threatened by habitat loss and degradation from housing and urban areas, shifting agriculture, and small-holder farming. The timing of these threats is ongoing, but the scope and severity are unknown. The IUCN Red List also identifies a threat with unknown motivation, timing, scope and severity, which could potentially impact the species within the AOI.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Currently, there is no conservation action data available for the Smoky Flying Squirrel. Given the threats to this species and its 'Endangered' status, field verification is recommended to confirm its presence within the AOI and assess habitat characteristics. Further investigation is needed to determine appropriate conservation measures.

Geographic Range:

This species has been recorded from southern Thailand, Peninsular Malaysia (from Selangor and Pahang, to Johore) including the island of Penang (Medway 1983). It also occurs in Sumatra and Borneo (including Kalimantan, Sabah, Sarawak and Brunei Darussalam) (Thorington et al. 2012).

Countries: Brunei Darussalam, Indonesia, Malaysia, Thailand

IFC PS6 Relevance:

The Smoky Flying Squirrel is listed as 'Endangered' on the IUCN Red List. As such, it requires field verification to determine its presence within the AOI and assess the potential for Critical Habitat triggers under IFC PS6.

***Pteropus vampyrus* (Large Flying-fox, Large Flying Fox, Malayan Flying Fox)**

IUCN Status: Endangered (EN)

Criteria: A2bcd

Assessment Year: 2022

Population Trend: Decreasing

Taxonomy: Mammalia > Chiroptera > Pteropodidae

IUCN Justification:

Pteropus vampyrus is assessed as Endangered under criterion A (EN A2bcd) due to the significant loss of the species' lowland forest habitat, known and inferred amount of hunting/persecution of this species over the last 25 years, and the documented drastic decrease in reported sightings throughout Southeast Asia. Its global population and number of mature individuals are suspected to have declined by at least 50% over three generations (24–25 years, based on a generation length of 8.1 years; Pacifici et al. 2013). This estimated rate of decline is based on >37% forest loss (measured using Hansen et al. 2013) and the demonstrated direct relationship between forest habitat area and population size (Mildenstein 2012) and the intensive

and unsustainable hunting pressure across its range that could lead to local extirpations for decades to come (Struebig et al. 2007, Epstein et al. 2009, Harrison et al. 2011, Paz and Gonzalez 2021, Mohd-Azlan et al. 2022).

Habitat and Ecology:

Pteropus vampyrus, also known as the Large Flying Fox, is potentially present in the AOI based on IUCN range data. This species inhabits subtropical and tropical moist lowland and montane forests, mangrove vegetation, and wetlands up to 1,250m asl. It roosts in primary and secondary forests, beaches, mangroves, and hill forests, often near agricultural areas, showing preference for undisturbed native forests but utilizing both forest and agricultural areas for foraging. The species is known to migrate long distances seasonally to track fruit and flower availability.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Moist Montane, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens

Threats:

Key threats to Pteropus vampyrus include shifting and small-holder agriculture, agro-industry farming, intentional use (hunting), recreational activities, and storms and flooding. These threats are generally ongoing and range in scope from majority to whole of the population, resulting in slow, significant declines and potential fluctuations. Hunting pressure is a significant concern, potentially leading to local extirpations, particularly during durian flowering or fruiting seasons.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Whole (>90%)	Slow, Significant Declines
2.1.2	Small-holder farming	Ongoing	Whole (>90%)	Slow, Significant Declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Slow, Significant Declines
5.1.1	Intentional use (species is the target)	Ongoing	Whole (>90%)	Rapid Declines
6.1	Recreational activities	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
11.4	Storms & flooding	Ongoing	Whole (>90%)	Slow, Significant Declines
12.1	Other threat	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations

Conservation Actions:

Conservation actions for Pteropus vampyrus include site and resource protection, habitat management and restoration, harvest and trade management, and species recovery programs. Awareness and communications initiatives, national and sub-national policies and regulations, and private sector standards are also relevant. Field verification is needed to assess habitat suitability and the effectiveness of existing conservation measures within the AOI.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [3.2] Species recovery
- [4.3] Awareness & communications

- [5.1.2] National level
- [5.1.3] Sub-national level
- [5.2] Policies and regulations
- [5.3] Private sector standards & codes
- [5.4.2] National level
- [5.4.3] Sub-national level

Geographic Range:

This species is generally found in forest from sea level to 1,250 m asl throughout much of continental and insular Southeast Asia, although its preferred lowland forest habitats are now fragmented across much of its historical range. On continental Southeast Asia, it has been reported from southern Viet Nam, Cambodia, Thailand, and through much of Peninsular Malaysia. Despite its historical ubiquity in Singapore, there are currently no roosts recorded from there, but visiting individuals have been spotted on rare occasions most recently. Among the insular Southeast Asian countries, the species is found across the Philippines (except for the Batanes/Babuyan region). On Borneo, the species is found throughout much of Kalimantan (Indonesia), Sabah (Malaysia), and some parts of Sarawak (Malaysia). Occasional sightings of small numbers of individuals are reported from across Brunei. It is found over much of western Indonesia and the Lesser Sunda Islands, being recorded from parts of Sumatra and its surrounding islands, Java, Bali, West Nusa Tenggara (Lombok and Sumbawa islands), and East Nusa Tenggara (Flores, Sumba, Timor, and Komodo islands). It is likely to be extant in Timor-Leste as well.

Countries: Cambodia, Indonesia, Malaysia, Philippines, Thailand, Viet Nam, Brunei Darussalam, Singapore, Timor-Leste

IFC PS6 Relevance:

Pteropus vampyrus is listed as Endangered on the IUCN Red List, making it potentially relevant to IFC PS6 Critical Habitat assessment. Field verification is required to confirm the species' presence and habitat use within the AOI.

***Scleropages formosus* (Asian Arowana)**

IUCN Status: Endangered (EN)

Criteria: A2cd+4cd

Assessment Year: 2019

Population Trend: Decreasing

Taxonomy: Actinopterygii > Osteoglossiformes > Osteoglossidae

IUCN Justification:

> *The population of this species is at very low densities throughout its range following significant declines in the past. This has been a highly valued species in the international aquarium trade since the 1970s and has been listed on Appendix I of CITES since 1975. There are a number of registered CITES breeders in Asia and the specimens they produce can be imported into several nations. Other nations restrict or prohibit possession of this species. Illegal trade does occur. Habitat degradation throughout the species' range, caused by a variety of human activities, is now its main threat. For example, a number of swamp habitats have been transformed into agricultural land. Areas of forested habitat have been logged and transformed into plantations. Forest fires have impacted most of the species' range in Indonesia, especially peat swamp forests.*

Populations in Cambodia, Thailand and the Malay Peninsula have declined by 90% since 2010 (C. Vidthayanon pers. comm. 2019) and populations in Cambodia were reported to be declining prior to this (Rowley et al. 2008) and are continuing to do so. Three generations are equivalent to 12-21 years and the decline is considered to be of at least the same magnitude over this period. No data on population trends are available for other parts of the range, but they are likely to be in decline given ongoing threats. If all other populations were stable then this would support a decline of approximately 45% and if all were declining at the same rate as those in Cambodia, Thailand and the Malay Peninsula this would support a decline of approximately 90%. Based on this, this species is assessed as Endangered as the majority of the range (50-80%) falls within the thresholds for this category. This population decline is based on a decline in area of occupancy, extent of occurrence and habitat quality, and levels of exploitation. Given the ongoing habitat degradation in South-east Asia, more information is needed on the wild populations' status. Further taxonomic study is required to confirm the taxonomic status of populations of the species across its range.

Habitat and Ecology:

Scleropages formosus, the Asian Arowana, potentially occurs in various inland wetland habitats within the AOI, including rivers, streams, creeks, bogs, marshes, swamps, peatlands, and freshwater lakes, as well as artificial ponds, aquaculture ponds, canals, and drainage channels. This species prefers lakes, deep swamps, flooded forests, and slow-moving rivers with dense overhanging vegetation. The Asian Arowana is carnivorous, with a diet including insects, vertebrates, arachnids, small fish, and roots and tubers.

Habitat Types: Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Artificial/Aquatic - Ponds (below 8ha), Artificial/Aquatic - Aquaculture Ponds, Artificial/Aquatic - Canals and Drainage Channels, Ditches

Threats:

Key threats to Scleropages formosus potentially present within the AOI include small-holder and agro-industry farming, mining and quarrying, roads and railroads, unsustainable harvesting, unintentional harvesting effects, increased fire frequency, dams, and other ecosystem modifications. Harvesting for the aquarium trade and subsistence fisheries may pose a significant threat. Habitat degradation, particularly the conversion of swamp habitats to agricultural land and forested areas to plantations, is also a major concern.

Code	Threat	Timing	Scope	Severity
2.1.2	Small-holder farming	Ongoing	Minority (50%)	Unknown
2.1.3	Agro-industry farming	Ongoing	Minority (50%)	Unknown
3.2	Mining & quarrying	Ongoing	Minority (50%)	Unknown
4.1	Roads & railroads	Ongoing	Minority (50%)	Unknown
5.4.1	Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (50%)	Unknown
7.1.1	Increase in fire frequency/intensity	Ongoing	Minority (50%)	Unknown
7.2.11	Dams (size unknown)	Ongoing	Unknown	Unknown
7.3	Other ecosystem modifications	Ongoing	Majority (50-90%)	Unknown

Conservation Actions:

Conservation actions for Scleropages formosus include site/area protection, harvest management, trade management, awareness and communications initiatives, and national-level actions. Given the potential presence of this species within the AOI, field verification is needed to assess population status and habitat condition. Further surveys are recommended to confirm the effectiveness of existing conservation measures and determine the need for additional interventions.

- [1.1] Site/area protection
- [3.1.1] Harvest management
- [3.1.2] Trade management

- [4.3] Awareness & communications
- [5.4.2] National level

Geographic Range:

This species occurs in the Mekong basin in Viet Nam and Cambodia, south-eastern Thailand, the Malay Peninsula from Sungai Golok southwards, as well as in Borneo and Sumatra, Indonesia. This species was also introduced to Singapore. Individuals in Myanmar that were previously assigned to this species are now valid as S. inscriptus.

Countries: Cambodia, Indonesia, Malaysia, Thailand, Viet Nam, Singapore

IFC PS6 Relevance:

Scleropages formosus is listed as Endangered on the IUCN Red List and is therefore relevant to IFC PS6. Field verification is required to confirm its presence within the AOI and assess whether Critical Habitat criteria are triggered.

***Symphalangus syndactylus* (Siamang)**

IUCN Status: Endangered (EN)

Criteria: A4cd

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Hylobatidae

IUCN Justification:

> *Symphalangus syndactylus is considered Endangered based on a past and projected population reduction of at least 50% over the course of three generations (45 years; 2004-2048), the decline due primarily to habitat degradation, fragmentation, and loss (mainly as a result of expanding agriculture, land clearance through fire, and road building), in addition to hunting for pet trade and in some areas of their distribution human consumption. Should the rate of forest loss continue to increase, this species' status could easily become critical, so close monitoring is essential.*

Habitat and Ecology:

Symphalangus syndactylus, commonly known as the Siamang, is potentially present in the AOI based on IUCN range data. This species inhabits primary and secondary

semi-deciduous and tropical evergreen forests, utilizing all levels of the canopy, with emergent trees required for resting and sleeping. Siamangs can persist in secondary forests, though at lower densities, and range from lowland areas up to 2,000 m in elevation.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Symphalangus syndactylus include habitat degradation, fragmentation, and loss from expanding agriculture (shifting, small-holder, and agro-industry farming), land clearance through fire, road building, and plantations. Mining and quarrying activities also pose a threat. The species is further threatened by hunting for the pet trade and, in some areas, for human consumption. These threats are ongoing and may have a significant impact on the species.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
2.1.3	Agro-industry farming	Ongoing	Unknown	Unknown
2.2.1	Small-holder plantations	Ongoing	Unknown	Unknown
2.2.2	Agro-industry plantations	Ongoing	Unknown	Unknown
3.2	Mining & quarrying	Ongoing	Unknown	Unknown
4.1			Unknown,severity:	

Conservation Actions:

Conservation actions for Symphalangus syndactylus include site and area protection, resource and habitat protection, site and area management, and habitat and natural

process restoration. Harvest and trade management strategies are also in place, along with awareness and communications initiatives at national and sub-national levels. Field verification is needed to assess the effectiveness of these measures within the AOI and to determine if additional conservation efforts are warranted.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [4.3] Awareness & communications
- [5.4.2] National level
- [5.4.3] Sub-national level

Geographic Range:

This species is found in Indonesia (Barisan Mountains of west-central Sumatra and piedmont/peneplain of eastern Sumatra), Malaysia (mountains of the Malay Peninsula south of the Perak River), and a small area of southern peninsular Thailand. It may have formerly occurred on the island of Bangka (Indonesia) as well. Reports of this species from Myanmar are almost certainly erroneous.

Countries: Indonesia, Malaysia, Thailand

IFC PS6 Relevance:

Symphalangus syndactylus is listed as Endangered on the IUCN Red List and is therefore relevant to IFC PS6. Field verification is required to confirm the species' presence within the AOI and to assess the potential for Critical Habitat triggers.

Vulnerable Species

***Acridotheres javanicus* (Javan Myna)**

IUCN Status: Vulnerable (VU)

Criteria: A2d+3d+4d

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Aves > Passeriformes > Sturnidae

IUCN Justification:

> *Widespread and illegal trapping for the cagebird trade is apparently resulting in a rapid population reduction. The species therefore qualifies as Vulnerable.*

Habitat and Ecology:

Based on IUCN range data, the Javan Myna is potentially present in the AOI. This species inhabits grassland, wetlands, pastureland, and rural gardens, occurring in cultivated, grassy areas and scrub. It has been observed in urban or cultivated areas, playing fields, and airfields. The Javan Myna's natural range includes Java and Bali.

Habitat Types: Grassland - Subtropical/Tropical Dry, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Artificial/Terrestrial - Pastureland, Artificial/Terrestrial - Rural Gardens

Threats:

The Javan Myna faces ongoing threats, primarily from intentional trapping for the cagebird trade, which is causing rapid population declines across its range. The species is also potentially threatened by herbicides and pesticides, although the scope and severity of this threat are not fully known. These threats are relevant to IFC PS6, as they may impact the species' ability to maintain viable populations within its natural habitat.

Code	Threat	Timing	Scope	Severity
5.1.1	Intentional use (species is the target)	Ongoing	Whole (>90%)	Rapid declines
9.3.3	Herbicides and pesticides	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for the Javan Myna include trade management and interventions at the international level. Further field verification is needed within the AOI to confirm the species' presence and assess the effectiveness of existing conservation measures. Surveys should focus on areas of suitable habitat and assess the magnitude of trapping pressure.

- [3.1.2] Trade management

- [5.4.1] International level

Geographic Range:

Javan Myna is naturally found only on Java and Bali, but has established introduced populations in Taiwan, Singapore, Thailand, Sumatra, Lesser Sundas and Puerto Rico and may be established in Japan (Craig and Feare 2020, eBird 2020).

Countries: Indonesia, Malaysia, Puerto Rico, Singapore, Thailand, Japan

IFC PS6 Relevance:

The Javan Myna is listed as Vulnerable on the IUCN Red List. Its potential presence in the AOI requires field verification to assess critical habitat triggers under IFC PS6.

***Aonyx cinereus* (Asian Small-clawed Otter, Oriental Small-clawed Otter, Small-clawed Otter)**

IUCN Status: Vulnerable (VU)

Criteria: A2cde+3cde

Assessment Year: 2021

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Mustelidae

IUCN Justification:

Asian Small-clawed Otter (Aonyx cinereus) has undergone a dramatic decline in China, with only three records from 2006 to the present. In India, its distribution range has decreased. Given the extent of loss of habitat that is occurring in south and southeast Asia and the intensity of poaching the reduction in population has been observed in many parts of its range. Massive destruction of wetland forests in Indonesia has reduced the species' habitat, and also habitat conversion to oil palm plantations in Sabah. The threats to Small-clawed Otter are prominent in its western range, so much so that over the last 60 years its range has shrunk considerably moving west to east from Himachal Pradesh to Assam. Likewise, in Indochina, the range of the species is shrinking, and hunting appears to play a major role in its rapid decline in the eastern end of its global range. Although quantitative data on population sizes and trends are lacking, it is suspected that the global population of the Asian Small-clawed Otter has declined by >30% over the past 30 years (three generations). Further aggravation of the ongoing threats to the species, due to lack or failure of

adequate conservation and protective measures, may lead to a suspected future decline in population by at least 30% over the next 30 years. In view of these, the species has been listed as Vulnerable under criterion A2cde+3cde.

Habitat and Ecology:

The Asian Small-clawed Otter (Aonyx cinereus) is potentially present in the AOI. This species inhabits wetland systems with pools and stagnant water less than 1m deep, including freshwater swamps, meandering rivers, mangroves and tidal pools, and high-altitude stream pools. It can also be found in irrigated rice fields and riparian reserves within oil palm plantations, from sea level to 2000m.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Grassland - Subtropical/Tropical Seasonally Wet/Flooded, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks, Wetlands (inland) - Shrub Dominated Wetlands, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha), Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Freshwater Springs and Oases, Wetlands (inland) - Permanent Inland Deltas, Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes, Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Lakes and Flats, Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools, Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Marshes/Pools, Marine Neritic - Estuaries, Marine Intertidal - Salt Marshes (Emergent Grasses), Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Marine Coastal/Supratidal - Coastal Freshwater Lakes, Artificial/Aquatic & Marine - Ponds (below 8ha), Artificial/Aquatic & Marine - Aquaculture Ponds, Artificial/Aquatic & Marine - Irrigated Land (includes irrigation channels), Artificial/Aquatic & Marine - Seasonally Flooded Agricultural Land, Artificial/Aquatic & Marine - Canals and Drainage Channels, Ditches

Threats:

Key threats to the Asian Small-clawed Otter include housing and urban areas, shifting agriculture, agro-industry farming, roads and railroads, intentional use (target species), and unintentional effects from fishing. These threats are considered ongoing, with scope ranging from majority to whole of the population, and severity ranging from causing fluctuations to very rapid declines. Climate change-related threats such as habitat shifting,

droughts, and storms are potential future concerns.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Whole (>90%)	Rapid declines
2.1.1	Shifting agriculture	Ongoing	Majority (50-90%)	Rapid declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Rapid declines
2.4.3	Scale Unknown/ Unrecorded (Marine & freshwater aquaculture)	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
4.1	Roads & railroads	Ongoing	Majority (50-90%)	Rapid declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Very Rapid Declines
5.1.2	Unintentional effects (species is not the target)	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
5.1.3	Persecution/control	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
5.3.5	Motivation Unknown/Unrecorded (Logging & wood harvesting)	Ongoing	Minority (<50%)	Causing/Could Cause Fluctuations
5.4.4	Unintentional effects: (large scale) [harvest] (Fishing & harvesting aquatic resources)	Ongoing	Majority (50-90%)	Very Rapid Declines
7.2.11	Dams (size unknown)	Ongoing	Majority (50-90%)	Rapid declines

7.3	Other ecosystem modifications	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
9.1.1	Sewage	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
9.1.2	Run-off	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
9.1.3	Type Unknown/ Unrecorded (Domestic & urban waste water)	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
9.2.3	Type Unknown/ Unrecorded (Industrial & military effluents)	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
9.3.4	Type Unknown/ Unrecorded (Agricultural & forestry effluents)	Ongoing	Majority (50-90%)	Causing/Could Cause Fluctuations
11.1	Habitat shifting & alteration	Future	Majority (50-90%)	Causing/Could Cause Fluctuations
11.2	Droughts	Future	Majority (50-90%)	Causing/Could Cause Fluctuations
11.4	Storms & flooding	Future	Majority (50-90%)	Causing/Could Cause Fluctuations

Conservation Actions:

Conservation actions for the Asian Small-clawed Otter include site and area protection, resource and habitat protection, species recovery, training, awareness and communications, and linked enterprises and livelihood alternatives. Further investigation is required to determine the effectiveness of these measures and if additional conservation efforts are needed within the AOI. Field verification is needed to confirm habitat suitability

and species presence.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.2] Species recovery
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.3] Sub-national level
- [5.4.3] Sub-national level
- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

The Asian Small-clawed Otter has a large distribution range, extending from India in South Asia eastwards through Southeast Asia to Palawan (Philippines), Taiwan and southern China. In India it occurs in West Bengal, Assam and Arunachal Pradesh as well as in southern Indian hill ranges of Coorg (Karnataka), Ashambu, Nilgiri and Palni hills (Tamil Nadu) and some places in Kerala. It used to occur in the Western Himalayan foothills (Himachal Pradesh). It inhabits in Malay peninsula, Sumatra including small islands in eastern part of Sumatra, Java and Borneo. It also occurs in all parts of Borneo Sabah, Sarawak and Kalimantan up to 1,300 m on Usun Apau, Sarawak. Established wild populations exist in England after escaping from captivity.

Countries: Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Philippines, Singapore, Taiwan, Thailand, Viet Nam, United Kingdom

IFC PS6 Relevance:

The Asian Small-clawed Otter is listed as Vulnerable on the IUCN Red List and therefore requires consideration under IFC PS6. Field verification is required to confirm the species' presence and habitat use within the AOI.

***Arctictis binturong* (Binturong, Bearcat)**

IUCN Status: Vulnerable (VU)

Criteria: A2cd+3cd+4cd

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Viverridae

IUCN Justification:

This species is listed as Vulnerable because of a population decline, estimated to be more than 30% over the last 18 years (three generations), inferred from shrinkage in distribution through habitat destruction and degradation, as well as over-exploitation (for both local use and wildlife trade). Habitat loss over this period has been the predominant driver of decline in the southern (Sundaic) portion of the range, where a significant proportion of lowland habitats have been converted to other land-uses that do not support the species e.g. oil palm plantations. In the northern portion of the range the rampant hunting and trade of mammals in this size-class (within northern South-east Asia and up into China), within which Binturong is a significant part, has severely depressed populations even within remaining large blocks of little-degraded forest. Populations in the northern range continue to be threatened by wildlife hunting and by the recent proliferation of agro-industries and other forms of forest conversion in the region, which are causing habitat loss in some protected areas that potentially still hold the species. Thus the species is considered to be experiencing population declines sufficient to meet the threshold for Vulnerable in this northern part of its range on the basis of actual or potential levels of exploitation, with habitat loss being an additional factor. In the Sundaic portion of the range, habitat loss has been severe in the lowlands. Major declines can be inferred based on decline in area of occupancy and habitat quality. Lowland forest habitats are thought to be the most suitable, and on this basis the populations in the Sundaic portion of the range are also judged to be declining at rates sufficient to warrant listing as Vulnerable, mainly through habitat loss compounded with killing and capture.

Habitat and Ecology:

The Binturong (Arctictis binturong) is potentially present in the AOI. This species is primarily arboreal and inhabits subtropical/tropical moist lowland, swamp, and montane forests, as well as heavily degraded former forest. While it prefers mature forest, it has been recorded in logged forests and may occur from sea level up to 3,000 m elevation.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest

Threats:

Key threats to the Binturong include habitat loss from agro-industry plantations and small-holder plantations, and exploitation through intentional hunting and unintentional capture. These threats are ongoing, with habitat loss impacting a majority of the population and exploitation affecting the whole population. The severity of these threats ranges from slow, significant declines to rapid declines.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (50%)	Negligible declines
2.1.2	Small-holder farming	Ongoing	Minority (50%)	Negligible declines
2.1.3	Agro-industry farming	Ongoing	Minority (50%)	Slow, significant declines
2.2.1	Small-holder plantations	Ongoing	Majority (50-90%)	Slow, significant declines
2.2.2	Agro-industry plantations	Ongoing	Majority (50-90%)	Rapid declines
5.1.1	Intentional use (species is the target)	Ongoing	Whole (>90%)	Rapid declines
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Whole (>90%)	Slow, significant declines
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines

Conservation Actions:

Conservation actions for the Binturong include resource and habitat protection, site/area management, harvest and trade management, training, and awareness and communications initiatives at national and sub-national levels. Further field verification is needed to assess the effectiveness of these measures within the AOI and to determine the need for additional targeted conservation efforts.

- [1.2] Resource & habitat protection
- [2.1] Site/area management

- [3.1.1] Harvest management
- [3.1.2] Trade management
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.2] National level
- [5.1.3] Sub-national level
- [5.2] Policies and regulations
- [5.4.2] National level
- [5.4.3] Sub-national level

Geographic Range:

The Binturong is widespread in South and South-east Asia occurring from eastern Nepal, Bangladesh, north-east India and southern China through mainland and island South-east Asia, south-east to Java (Indonesia) and occurring also on the Philippine islands of Calauit and Palawan. In North-east India it is known from all the states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, West Bengal (northern parts), Sikkim and Tripura. In Bhutan, it has been camera trapped in Royal Manas National Park and is predicted to be present in other southern parts. In Bangladesh, there are confirmed sightings from the north-east, the Chittagong Hill Tracts, and Cox’s Bazar district. Eastern Nepal represents the western limit of the species's range. It occurred formerly in Guangxi and Yunnan provinces of southern China, with few recent records outside Yunnan. It potentially occurred historically in Singapore. There are no confirmed records from Brunei, likely due to poor survey effort. It occurs from sea level up to 3,000 m a.s.l.

Countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Philippines, Thailand, Viet Nam

IFC PS6 Relevance:

The Binturong is listed as Vulnerable on the IUCN Red List and therefore requires consideration under IFC PS6. Field verification is required to confirm the species' presence and assess the potential for Critical Habitat designation.

***Calidris falcinellus* (Broad-billed Sandpiper, Bécasseau falcinelle, ■■■■■■■ ■■■■■ ■■■■■■■■)**

IUCN Status: Vulnerable (VU)

Criteria: A2bc+4bc

Assessment Year: 2024

Population Trend: Decreasing

Taxonomy: Aves > Charadriiformes > Scolopacidae

IUCN Justification:

Calidris falcinellus is listed as Vulnerable because of estimated declines likely exceeding 30% in the past three generations (13 years). The causes of these declines are not well unknown, but the drainage of peatlands for forestry in its European breeding grounds has been suggested as a very likely contributor to declines. Across its passage and wintering grounds it is also exposed to numerous other threats, including habitat loss due to land reclamation, hunting and disturbance from fishing activities. To account for various uncertainties in the data collected, C. falcinellus is estimated to have declined by 30-49% over the past three generations (13 years: 2011-2024), and this reduction is also likely to be true for the window 2014-2026, thus qualifying this species for Vulnerable under Criterion A4, as well as A2.

Habitat and Ecology:

Based on IUCN range data, Calidris falcinellus, the Broad-billed Sandpiper, may be present in the Area of Interest. This species breeds in wet bogs and open peatlands, typically above 200m in Scandinavia and northwest Russia, and in wet Arctic tundra in Siberia. During migration and winter, it uses muddy and boggy areas on shores, shallow lagoons, temporary swamps, flooded rice fields, and intertidal mudflats. This species has been recorded from sea level up to 2000m.

Habitat Types: Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Tundra Wetlands (incl. pools and temporary waters from snowmelt), Marine Intertidal - Mud Flats and Salt Flats, Marine Intertidal - Salt Marshes (Emergent Grasses), Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Marine Coastal/Supratidal - Coastal Freshwater Lakes, Artificial/Aquatic & Marine - Salt Exploitation Sites, Artificial/Aquatic & Marine - Wastewater Treatment Areas, Artificial/Aquatic & Marine - Irrigated Land (includes irrigation channels), Artificial/Aquatic & Marine - Seasonally Flooded Agricultural Land

Threats:

The Broad-billed Sandpiper faces several ongoing threats across its range. These include habitat loss from housing, commercial and industrial development, agro-industrial plantations, and other unidentified habitat destruction. It is also threatened by oil and gas drilling, mining, renewable energy development, hunting, disturbance from fishing activities, recreational activities and invasive species. The timing is ongoing, the scope is minority, and the severity of these threats are generally unknown, which is relevant in the context of IFC PS6.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (<50%)	Unknown
1.2	Commercial & industrial areas	Ongoing	Minority (<50%)	Unknown
2.2.2	Agro-industry plantations	Ongoing	Minority (<50%)	Slow, significant declines
2.4.3	Scale Unknown/ Unrecorded (Marine & freshwater aquaculture)	Ongoing	Minority (<50%)	Unknown
3.1	Oil & gas drilling	Ongoing	Minority (<50%)	Unknown
3.2	Mining & quarrying	Ongoing	Minority (<50%)	Unknown
3.3	Renewable energy	Ongoing	Minority (<50%)	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Minority (<50%)	Unknown
5.1.2	Unintentional effects (species is not the target) (terrestrial)	Ongoing	Unknown	Unknown
5.4.3	Unintentional effects: (subsist ence/small scale) [harvest] (aquatic)	Ongoing	Unknown	Unknown
5.4.4	Unintentional effects: (large scale) [harvest] (aquatic)	Ongoing	Minority (<50%)	Unknown
6.1	Recreational activities	Ongoing	Minority (<50%)	Unknown

8.1.2	Named species (Invasive species)	Ongoing	Minority (<50%)	Unknown
9.3.4	Type Unknown/ Unrecorded (Agricultural & forestry effluents)	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

Several conservation actions are in place for the Broad-billed Sandpiper, including site and area protection, and resource and habitat protection, and site/area management. Further field verification is needed to assess habitat suitability and conservation requirements within the Area of Interest. Surveys should focus on confirming breeding, migration, and wintering habitat use to inform appropriate mitigation and conservation strategies.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1] Population trends

Geographic Range:

Two subspecies: nominate C. f. falcinellus breeds in Scandinavia and north-west Russia, while C. f. sibirica breeds in north-east Siberia. The former winters widely across east Africa and Arabia to western India and Sri Lanka, while the latter winters in east India, throughout South-East Asia, the Philippines, Indonesia and Australia.

Countries: Afghanistan, Albania, Algeria, Andorra, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Bhutan, Bosnia and Herzegovina, British Indian Ocean Territory, Brunei Darussalam, Bulgaria, Cambodia, Cameroon, Central African Republic, Chad, Chile, China, Christmas Island, Cocos (Keeling) Islands, Congo, Congo, The Democratic Republic of the, Croatia, Cyprus, Czechia, Denmark, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, Faroe Islands, Finland, France, Georgia, Germany, Greece, Guernsey, Holy See (Vatican City State), Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Islamic Republic of, Iraq, Ireland, Isle of Man, Israel, Italy, Japan, Jersey, Jordan, Kazakhstan, Kenya, Korea, Democratic People's Republic of, Korea, Republic of, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Macao, Malaysia, Maldives, Mali, Malta, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Nepal, Netherlands,

New Zealand, Niger, Nigeria, North Macedonia, Norway, Oman, Pakistan, Palau, Palestine, State of, Papua New Guinea, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Rwanda, San Marino, Saudi Arabia, Serbia, Seychelles, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, South Sudan, Spain, Sri Lanka, Sudan, Svalbard and Jan Mayen, Sweden, Switzerland, Syrian Arab Republic, Taiwan, Province of China, Tajikistan, Tanzania, United Republic of, Thailand, Timor-Leste, Tunisia, Turkmenistan, Türkiye, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uzbekistan, Viet Nam, Yemen, Zambia

IFC PS6 Relevance:

Calidris falcinellus is listed as Vulnerable on the IUCN Red List, potentially triggering Critical Habitat status under IFC PS6. Field verification is required to confirm the species' presence and habitat use within the Area of Interest.

***Calidris ferruginea* (Curlew Sandpiper, Bécasseau cocorli, ■■■■■ ■■■■■)**

IUCN Status: Vulnerable (VU)

Criteria: A2bcd+4bcd

Assessment Year: 2024

Population Trend: Decreasing

Taxonomy: Aves > Charadriiformes > Scolopacidae

IUCN Justification:

> *Recent monitoring data have shown that this widely distributed species has probably declined by 30-49% over the past three generations (15 years). The exact causes of declines are unknown, but are likely to include habitat loss and degradation (particularly on stopover and wintering grounds) and climate change impacts (particularly affecting breeding productivity), as well as disturbance and hunting.*

Habitat and Ecology:

The Curlew Sandpiper (Calidris ferruginea) potentially occurs in the AOI, based on its IUCN Red List range data. This species utilizes a variety of habitats, including tundra, freshwater and saline lakes, coral reefs, estuaries, and various intertidal zones. It breeds in low-lying Arctic tundra with marshy depressions and winters in coastal lagoons, mudflats, and inland wetlands, with an elevation range up to 2000m.

Habitat Types: Grassland - Tundra, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha), Wetlands (inland) - Tundra Wetlands (incl. pools and temporary waters from snowmelt), Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes, Marine Neritic - Estuaries, Marine Intertidal - Rocky Shoreline, Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc, Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches, Marine Intertidal - Mud Flats and Salt Flats, Marine Intertidal - Tidepools, Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Artificial/Aquatic & Marine - Water Storage Areas (over 8ha), Artificial/Aquatic & Marine - Salt Exploitation Sites, Artificial/Aquatic & Marine - Irrigated Land (includes irrigation channels), Artificial/Aquatic & Marine - Seasonally Flooded Agricultural Land

Threats:

The Curlew Sandpiper is subject to several ongoing and future threats, potentially impacting populations within the AOI. These include residential and commercial development, agriculture and aquaculture, transportation corridors, biological resource use (hunting), human disturbance, natural system modifications, invasive species, pollution, and climate change. Climate change is expected to have a broad impact across the species' range.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (<50%)	Unknown
1.2	Commercial & industrial areas	Ongoing	Minority (<50%)	Unknown
2.1.3	Agro-industry farming	Ongoing	Minority (<50%)	Unknown
2.4.2	Industrial aquaculture	Ongoing	Minority (<50%)	Unknown
4.1	Roads & railroads	Ongoing	Minority (<50%)	Negligible declines
5.1.1	Intentional use (species is the target)	Ongoing	Minority (<50%)	Unknown
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Unknown
5.4.4	Unintentional effects: (large scale) [harvest]	Ongoing	Minority (<50%)	Unknown
6.1	Recreational activities	Ongoing	Minority (<50%)	Unknown
7.2.2	Abstraction of surface water (commercial use)	Ongoing	Minority (<50%)	Unknown
7.2.4	Abstraction of surface water (unknown use)	Ongoing	Minority (<50%)	Unknown
7.2.11	Dams (size unknown)	Ongoing	Minority (<50%)	Unknown
8.1.2	Named species (Spartina maritima)	Ongoing	Minority (<50%)	Slow, significant declines

8.1.2	Named species (Clostridium botulinum)	Future	Minority (<50%)	Unknown
8.5.2	Named species (Viral/prion-induced diseases)	Future	Majority (50-90%)	Rapid declines
9.2.1	Oil spills	Ongoing	Minority (<50%)	Negligible declines
9.3.3	Herbicides and pesticides	Ongoing	Minority (<50%)	Negligible declines
11.1	Habitat shifting & alteration	Ongoing	Whole (>90%)	Unknown

Conservation Actions:

Several conservation actions are in place or needed for the Curlew Sandpiper. These include site and area protection, resource and habitat protection, site and area management, awareness and communications, and policies and regulations. Field verification is required to assess habitat suitability and confirm the presence of the species within the AOI, as well as evaluate the effectiveness of existing conservation measures.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [4.3] Awareness & communications
- [5.2] Policies and regulations
- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

The species breeds across Arctic Siberia from the Chosa Bay to Kolyuchinskaya Gulf (north Chukotskiy Peninsula) (Russia), and winters from sub-Saharan Africa through the Middle East and south and south-east Asia to Australasia.

Countries: Afghanistan, Albania, Algeria, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Central African Republic, Chad, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Democratic People's Republic of, Korea, Republic of, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon,

Luxembourg, Mali, Mauritius, Micronesia, Federated States of, Moldova, Mongolia, Montenegro, Nepal, Netherlands, New Caledonia, Niger, North Macedonia, Norway, Palau, Poland, Romania, Réunion, Serbia, Slovakia, Solomon Islands, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Turkmenistan, Türkiye, Ukraine, United Kingdom, Uzbekistan, Zambia, Australia, Bahrain, Bangladesh, Benin, Botswana, British Indian Ocean Territory, Brunei Darussalam, Burundi, Cabo Verde, Cambodia, Cameroon, Chile, China, Christmas Island, Comoros, Congo, Congo, The Democratic Republic of the, Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, French Southern Territories, Gabon, Gambia, Ghana, Gibraltar, Guinea, Guinea-Bissau, Hong Kong, India, Indonesia, Iran, Islamic Republic of, Iraq, Israel, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Macao, Madagascar, Malawi, Malaysia, Maldives, Malta, Mauritania, Mayotte, Morocco, Mozambique, Myanmar, Namibia, New Zealand, Nigeria, Oman, Pakistan, Palestine, State of, Papua New Guinea, Philippines, Portugal, Qatar, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Somalia, South Africa, South Sudan, Spain, Sri Lanka, Sudan, Taiwan, Province of China, Tanzania, United Republic of, Thailand, Timor-Leste, Togo, Tunisia, Uganda, United Arab Emirates, Viet Nam, Western Sahara, Yemen, Zimbabwe, Costa Rica, Trinidad and Tobago, Anguilla, Antigua and Barbuda, Barbados, Bermuda, Bhutan, Canada, Dominica, Ecuador, Grenada, Guadeloupe, Iceland, Marshall Islands, Martinique, Mexico, Montserrat, Peru, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Svalbard and Jan Mayen, Virgin Islands, British

IFC PS6 Relevance:

The Curlew Sandpiper is listed as Vulnerable on the IUCN Red List; therefore, it requires consideration under IFC PS6. Field verification is required to confirm its presence within the AOI and assess the potential for Critical Habitat triggers.

***Dyacopterus brooksi* (Brooks's Dyak Fruit Bat)**

IUCN Status: Vulnerable (VU)

Criteria: A4c

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Chiroptera > Pteropodidae

IUCN Justification:

Dyacopterus brooksi is assessed as Vulnerable under criterion A4c because this forest dependent species is experiencing an ongoing population decline inferred to be at least 30% over three (3) generations (GL = 5 years, Pacifici et al. 2013), including the past and the future, based on current and predicted rates of deforestation on Sumatra. This species is uncommon, and endemic to Sumatra where primary forest is being rapidly lost.

Habitat and Ecology:

Dyacopterus brooksi, also known as Brooks's Dyak Fruit Bat, is potentially present in the AOI based on IUCN range data. This species inhabits subtropical or tropical moist lowland forests. Most specimens have been collected in lowland mature forests, though the species has also been found in secondary forest. There is a continuing decline in the area, extent, and quality of its habitat.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland

Threats:

Key threats to Dyacopterus brooksi include housing and urban areas, small-holder farming, agro-industry farming, and threats whose motivation and trend are unknown. These threats are ongoing, with scope ranging from the majority to the whole of the population, and are causing slow, significant declines. These threats are relevant to IFC PS6, as habitat loss and degradation can trigger critical habitat status.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Majority (50-90%)	Slow, significant declines
2.1.2	Small-holder farming	Ongoing	Whole (>90%)	Slow, significant declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Majority (50-90%)	Slow, significant declines
7.1.3	Trend Unknown/ Unrecorded	Ongoing	Whole (>90%)	Slow, significant declines

Conservation Actions:

Conservation actions for Dyacopterus brooksi include site/area protection and management, resource and habitat protection and restoration, species recovery efforts,

and awareness and communications programs. Conservation also involves policies, regulations, and private sector standards at both national and sub-national levels. Field verification is needed to assess the effectiveness of these measures within the AOI and inform further conservation planning.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.2] Species recovery
- [4.3] Awareness & communications
- [5.1.2] National level
- [5.1.3] Sub-national level
- [5.2] Policies and regulations
- [5.3] Private sector standards & codes
- [5.4.2] National level
- [5.4.3] Sub-national level

Geographic Range:

This species occurs across Sumatra, in Indonesia. The type locality is in southern Sumatra, 150 km north of Bencoolen, upper Ketuan River, Lebang Tandai. There are two specimens tentatively called Dyacopterus brooksi from Lalat Barai Reserve Station in Kayan Metareng Nature Reserve in northeast Kalimantan (Helgen et al. 2007).

Countries: Indonesia

IFC PS6 Relevance:

Dyacopterus brooksi is listed as Vulnerable and potentially present in the AOI, making it relevant for IFC PS6 critical habitat screening. Field verification is required to confirm the species' presence and assess habitat quality.

***Elaphe taeniura* (Cave Racer, Beauty Snake)**

IUCN Status: Vulnerable (VU)

Criteria: A2d

Assessment Year: 2021

Population Trend: Decreasing

Taxonomy: Reptilia > Squamata > Colubridae

IUCN Justification:

> *Listed as Vulnerable, in view of a possible population decline estimated at over 30% over the past ten years (principally in China) resulting from overexploitation for the food and skin trade.*

Habitat and Ecology:

Based on IUCN range data, Elaphe taeniura (Cave Racer, Beauty Snake) is potentially present in the Area of Interest. This species inhabits hilly and rugged terrain with wet and dry forests, grasslands, scrublands, plantations, rural gardens, and caves, from coastal areas to 3,000m asl. As a true cave-dwelling snake, surveys should target karst regions with cave systems.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Shrubland - Subtropical/Tropical High Altitude, Caves and Subterranean Habitats (non-aquatic) - Caves, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens

Threats:

The Cave Racer faces ongoing threats including housing and urban development, agriculture, livestock farming, roads, invasive species, and collection for food, skins, and the pet trade. Collection for use and trade appears to be a widespread threat impacting a majority of the population. The scope and severity of most threats are not well-defined in available data.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.4	Annual & perennial non-timber crops (Scale Unknown/Unrecorded)	Ongoing	Unknown	Unknown
2.2.3	Wood & pulp plantations (Scale Unknown/Unrecorded)	Ongoing	Unknown	Unknown
2.3.4	Livestock farming & ranching (Scale Unknown/Unrecorded)	Ongoing	Unknown	Unknown
4.1	Roads & railroads	Ongoing	Minority (<50%)	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Unknown
8.1.2	Invasive non-native/alien species/diseases	Ongoing	Minority (<50%)	Unknown
8.1.2	Invasive non-native/alien species/diseases	Ongoing	Minority (<50%)	Unknown

Conservation Actions:

Conservation actions for the Cave Racer include harvest and trade management, particularly addressing collection for food, skins, and the pet trade. Given the potential for the species to be heavily collected, field verification should assess trade and harvest pressures in the AOI. Surveys are needed to confirm habitat use and evaluate the effectiveness of current conservation measures.

- [3.1.1] Harvest management

- [3.1.2] Trade management

Geographic Range:

This species occurs from northeastern India across mainland China to Taiwan and the Ryukyu Islands (Japan), southward to Sumatra (Indonesia) and Borneo. There are unconfirmed records from the Primorskiy Territory of Russia and its native range may have extended as far north as the Yangtze River Valley in China. It is found at elevations from coastal areas up to 3,000 m asl.

Countries: Brunei Darussalam, China, India, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Myanmar, Taiwan, Province of China, Thailand

IFC PS6 Relevance:

Elaphe taeniura is listed as Vulnerable (VU) on the IUCN Red List and therefore may be relevant to IFC PS6. Field verification is required to confirm its presence and assess habitat within the Area of Interest.

***Halcyon pileata* (Black-capped Kingfisher)**

IUCN Status: Vulnerable (VU)

Criteria: A2bcd+4bcd

Assessment Year: 2022

Population Trend: Decreasing

Taxonomy: Aves > Coraciiformes > Alcedinidae

IUCN Justification:

> *Although this species has an extremely large range and likely exceeds 10,000 mature individuals, the population trend appears to be decreasing with occupancy and reporting rate trends suggesting rapid declines within the past three generations; primarily as a result of intensive riparian management. For this reason the species is evaluated as Vulnerable.*

Habitat and Ecology:

Halcyon pileata, the Black-capped Kingfisher, is potentially present in the AOI based on its known habitat preferences and elevation range (up to 1,525m). This species occupies a variety of habitats, including temperate and tropical forests, mangroves, wooded

seashores, creeks, lagoons, estuaries, rice fields, and gardens. It may be found inland or in coastal areas, foraging on insects, frogs, reptiles, fish, and crabs.

Habitat Types: Forest - Temperate, Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha), Marine Neritic - Estuaries, Marine Intertidal - Rocky Shoreline, Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Marine Coastal/Supratidal - Coastal Freshwater Lakes, Artificial/Terrestrial - Arable Land, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Urban Areas

Threats:

The Black-capped Kingfisher faces ongoing threats, including unintentional effects from biological resource use and other ecosystem modifications. Ecosystem modifications are estimated to impact a majority (50-90%) of the population's range, leading to rapid declines. These threats may be relevant to IFC PS6, particularly if project activities exacerbate habitat degradation or resource depletion within the species' range.

Code	Threat	Timing	Scope	Severity
5.1.2	Unintentional effects (biological resource use)	Ongoing	Unknown	Unknown
7.3	Other ecosystem modifications	Ongoing	Majority (50-90%)	Rapid Declines

Conservation Actions:

Currently, no specific conservation actions are documented for the Black-capped Kingfisher in the available data. Field verification is needed to assess the species' presence and habitat use within the AOI, and to determine if specific conservation measures are warranted to mitigate potential impacts. Further investigation is required to determine appropriate conservation actions, if any, are required.

Geographic Range:

The species breeds from Korea, east, central & southern China (from Liaoning to east Gansu and south to Hainan) and northern Indochina. It winters south to India, Sri Lanka, Myanmar, Indochina, Malay Peninsula, Andaman and Nicobar Is, Greater Sundas,

Sulawesi and southern Philippines (Woodall and Kirwan 2020).

Countries: Hong Kong, Lao People's Democratic Republic, Myanmar, China, India, Korea, Democratic People's Republic of, Korea, Republic of, Bangladesh, Brunei Darussalam, Cambodia, Malaysia, Philippines, Singapore, Thailand, Viet Nam, Indonesia, Japan, Nepal, Pakistan, Russian Federation, Sri Lanka, Taiwan, Province of China

IFC PS6 Relevance:

The Black-capped Kingfisher is listed as Vulnerable (VU) on the IUCN Red List; therefore, it requires consideration under IFC PS6. Field verification is required to confirm its presence within the AOI and to assess the potential for Critical Habitat triggers.

***Helarctos malayanus* (Sun Bear, Malayan Sun Bear)**

IUCN Status: Vulnerable (VU)

Criteria: A2cd+3cd+4cd

Assessment Year: 2017

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Ursidae

IUCN Justification:

Sun Bears are declining across their range. Although lacking direct empirical estimates of population trends, country experts from the IUCN SSC Bear Specialist Group made subjective estimates of rates of population loss over three generations (30 years in the past, a 30-year window overlapping the present, and 30 years into the future) based on dwindling geographic ranges, loss and degradation of habitat, and high levels of exploitation. Weighting each country's estimate of population change by the country's areal proportion of the geographic range yielded an overall estimated decline of *35% for the past 30 years, and* *40% or more for time periods including the future. Thus, this species meets the criterion A threshold for Vulnerable. Deforestation rates and reported high volumes of hunting and trade throughout the Sun Bear range form the basis for this assessment. Sun Bears are forest dependent species, and, thus area of forest loss is directly linked with population decline. Southeast Asia, which comprises nearly all of the species global range, has experienced a higher relative rate of forest loss over the past 30 years than any other part of the world (Sodhi et al. 2004, 2010; Miettinen et al. 2011; Margono et al. 2012, 2014; Dong et al. 2014). Extent of occurrence (EOO) appears to be shrinking, with just a few individuals left in China and Bangladesh, and rapid decline in Vietnam (projected 50–80% decline in*

the next 30 years). Area of occupancy (AOO) is declining and becoming increasingly fragmented, most noticeably in Borneo and Sumatra. In mainland Southeast Asia, some patches in southern Myanmar, central Thailand, southern Cambodia, and southern Vietnam appear to be completely isolated. Deforestation and degradation is expected to continue into the future. Coupled with this, and the persistent trade in bears and bear parts, sun bear populations are expected to decline even more rapidly in the future.

Habitat and Ecology:

The Sun Bear is a forest-dependent species potentially present in the AOI, favouring interior mature and heterogeneously structured primary forests. It occupies both seasonal evergreen and deciduous forests in mainland Southeast Asia and aseasonal evergreen rainforests in Malaysia, Sumatra, and Borneo. The species has been recorded at elevations ranging from 1 to 3000 meters.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Dry, Shrubland - Subtropical/Tropical Moist, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest

Threats:

Key threats to the Sun Bear include deforestation from shifting agriculture, small-holder farming, agro-industry farming, and plantations, with agro-industry plantations potentially causing very rapid declines. Additional threats arise from oil and gas drilling, mining, roads and railroads, and hunting (both intentional and unintentional). Large dams may also contribute to population declines.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Majority (50-90%)	Unknown
2.1.2	Small-holder farming	Ongoing	Majority (50-90%)	Unknown
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Unknown
2.2.1	Small-holder plantations	Ongoing	Minority (<50%)	Negligible Declines
2.2.2	Agro-industry plantations	Ongoing	Minority (<50%)	Very Rapid Declines
3.1	Oil & gas drilling	Ongoing	Unknown	Unknown
3.2	Mining & quarrying	Ongoing	Unknown	Unknown
4.1	Roads & railroads	Future	Majority (50-90%)	Slow, Significant Declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.1.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Rapid Declines
5.1.3	Persecution/control	Ongoing	Majority (50-90%)	Rapid Declines
5.3.1	Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Unknown
5.3.2	Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Unknown
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Unknown

5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Unknown
7.2.10	Large dams	Ongoing	Minority (<50%)	Very Rapid Declines
7.2.11	Dams (size unknown)	Ongoing	Minority (<50%)	Very Rapid Declines

Conservation Actions:

Conservation actions for the Sun Bear include site and resource protection, habitat restoration, harvest and trade management, and education and awareness programs at international, national, and sub-national levels. Field verification is required to assess the effectiveness of these measures within the AOI and determine if additional targeted conservation actions are needed.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.1] International level
- [5.4.1] International level
- [5.4.2] National level
- [5.4.3] Sub-national level
- [5.4.4] Scale unspecified

Geographic Range:

The historic range of this species (within 500 years) extended across much of Southeast Asia, from Borneo and Sumatra north to at least Yunnan Province, China. Fossil records from the Pleistocene have been found much farther north (Erdbrink 1953). Assam, in northeast India, marks the northwestern confirmed historic range limit (Wroughton 1916,

Higgins 1932). Reports of Sun Bears formerly occupying the Terai of Nepal (Hodgson 1844) appear to be erroneous. In the northeast, the range extends to northeastern Vietnam (Erdbrink 1953). The southern-most range limit is Indonesia; there are no records of Sun Bears ever occurring farther east than Borneo. Records exist from the Island of Java from middle late Pleistocene (Erdbrink 1953) but there is no evidence of occurrence there within historic times.

In present day, Sun Bears occur patchily through much of the former range, and have been locally extirpated from many areas. This is particularly evident in Thailand, where bears are mainly limited to a patchwork of protected areas separated by expanses of agriculture (Kanchanasakha et al. 2010). The range extends westward to southern Bangladesh and northeastern India (West Garo Hills, Meghalaya), northwards to eastern Arunachal Pradesh (Chauhan 2006; Choudhury 2011; Sethy and Chauhan 2012, 2013) and northern Myanmar. The Sun Bear's range is sympatric with Asiatic Black Bears (Ursus thibetanus) across mainland Southeast Asia to about 9°N latitude (in peninsular Thailand), south of which Asiatic Black Bears do not occur. In the Sundaic region, its range extends south and eastwards to Sumatra and Borneo respectively (Steinmetz 2011).

Countries: Bangladesh, Brunei Darussalam, Cambodia, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, Viet Nam

IFC PS6 Relevance:

The Sun Bear is listed as Vulnerable and therefore relevant to IFC PS6. Its potential presence in the AOI requires field verification to assess habitat suitability and confirm the potential for Critical Habitat triggers.

***Lutrogale perspicillata* (Smooth-coated Otter, Indian Smooth-coated Otter)**

IUCN Status: Vulnerable (VU)

Criteria: A2cde+3cde

Assessment Year: 2021

Population Trend: Decreasing

Taxonomy: Mammalia > Carnivora > Mustelidae

IUCN Justification:

> *Smooth-coated Otter is essentially an otter of lowlands and floodplains. The most severe threat to the species is habitat degradation and loss due to increasing*

anthropogenic pressure on wetlands and waterways. Much of the species' natural habitats have been lost to development activities, including the construction of large-scale hydroelectric projects, reclamation for settlements and agriculture. In addition, aquatic ecosystems are increasingly being polluted by eutrophication and accumulation of persistent pesticides such as chlorinated hydrocarbons and organophosphates through agricultural runoffs. This poses a threat not only to the otter populations living in the habitats, but also negatively impacts the aquatic prey biomass that the otters rely on. The aquatic prey biomass for otters has been depleted by humans. This is due to the increase in human population over the last century and the lack of effective rural development programmes in policies in order to be able to address the problems of poverty, thereby forcing people to be increasingly dependent on natural resources. In the entire south and southeast Asia there is severe conflict between otters and humans, because of poverty and the recent increases in aquaculture activities leading to indiscriminate killing of otters, either through direct persecution or indirectly through accidental trapping and drowning in fishing gear. Prevalent poaching pressure is affecting its survival. The increasing illegal wildlife trade of Smooth-coated Otter for their pelts, as pets, or for traditional medicine poses a direct threat to the species. The effect of climate change will also negatively impact the availability of aquatic habitats. It is suspected that the global population of the Smooth-coated Otter has declined by more than 30% over the past 30 years (or three generations) (criteria A2) owing to an inferred decline on area of occupancy (AOO), extent of occurrence (EOO), and/or habitat quality (subcriteria c, d, e). Further aggravation of these threats may lead to a suspected future decline in population by at least 30% over the next 30 years.

Habitat and Ecology:

Based on IUCN range data, the Smooth-coated Otter may be present in the AOI. This species inhabits lowland floodplains and is adapted to various habitats, including rivers, lakes, peat swamp forests, mangroves, estuaries, and rice fields. It has been recorded up to 700m elevation. The Smooth-coated Otter uses both natural and disturbed habitats, showing some resilience to human activity.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Grassland - Subtropical/Tropical Seasonally Wet/Flooded, Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks, Wetlands (inland) - Shrub Dominated Wetlands, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha), Wetlands (inland) - Permanent

Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Freshwater Springs and Oases, Wetlands (inland) - Permanent Inland Deltas, Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes, Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Lakes and Flats, Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools, Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Marshes/Pools, Marine Neritic - Estuaries, Marine Intertidal - Salt Marshes (Emergent Grasses), Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Marine Coastal/Supratidal - Coastal Freshwater Lakes, Artificial/Aquatic & Marine - Water Storage Areas (over 8ha), Artificial/Aquatic & Marine - Ponds (below 8ha), Artificial/Aquatic & Marine - Aquaculture Ponds, Artificial/Aquatic & Marine - Wastewater Treatment Areas, Artificial/Aquatic & Marine - Irrigated Land (includes irrigation channels), Artificial/Aquatic & Marine - Seasonally Flooded Agricultural Land, Artificial/Aquatic & Marine - Canals and Drainage Channels, Ditches

Threats:

The Smooth-coated Otter faces several ongoing threats, including habitat degradation and loss from housing, agriculture, and aquaculture. Additional threats include roads, intentional and unintentional trapping, logging, persecution, dams, pollution from sewage and industrial/agricultural effluents, and climate change-related droughts, storms and flooding. These threats, occurring across the species' range, have contributed to a suspected population decline of over 30% in the past 30 years, making the species relevant to IFC PS6.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Whole (>90%)	Rapid declines
2.1.1	Shifting agriculture	Ongoing	Majority (50-90%)	Slow, significant declines
2.4.3	Scale Unknown/ Unrecorded (Marine & freshwater aquaculture)	Ongoing	Majority (50-90%)	Rapid declines
4.1	Roads & railroads	Ongoing	Majority (50-90%)	Rapid declines
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Very rapid declines
5.1.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations
5.3.5	Motivation Unknown/Unrecorded (Logging & wood harvesting)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations
5.4.5	Persecution/control	Ongoing	Majority (50-90%)	Slow, significant declines
7.2.11	Dams (size unknown) (Dams & water management/use)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations
9.1.1	Sewage (Domestic & urban waste water)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations
9.2.3	Type Unknown/ Unrecorded (Industrial & military effluents)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations

9.3.4	Type Unknown/ Unrecorded (Agricultural & forestry effluents)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations
11.2	Droughts	Future	Whole (>90%)	Causing/could cause fluctuations
11.4	Storms & flooding	Future	Whole (>90%)	Causing/could cause fluctuations

Conservation Actions:

Conservation actions for the Smooth-coated Otter include site and resource protection, habitat management and restoration, education, training, awareness programs, and livelihood alternatives. Further field verification is required to assess the presence and conservation needs of the species within the AOI. Surveys should focus on confirming habitat suitability and the effectiveness of existing conservation measures.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [4.1] Formal education
- [4.2] Training
- [4.3] Awareness & communications
- [5.1.3] Sub-national level
- [5.4.4] Scale unspecified
- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

The Smooth-coated Otter is distributed throughout South Asia and Southeast Asia. Its distribution is continuous from Indonesia, through Southeast Asia, and westwards from southern China to India and Pakistan, with an isolated subpopulation in Iraq. Its presence has been confirmed from Pakistan, India, Nepal, Bhutan, Bangladesh, southwest China, Myanmar, Thailand, Singapore, Viet Nam, Malaysia (Peninsular Malaysia, Sabah and Sarawak), and Indonesia (Kalimantan, Sumatra, Java) and Brunei. There are no recent

records from China, where it is considered possibly extinct.

Countries: Bangladesh, Bhutan, Brunei Darussalam, Cambodia, India, Indonesia, Iraq, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Pakistan, Singapore, Thailand, Viet Nam, China

IFC PS6 Relevance:

The Smooth-coated Otter is listed as Vulnerable and has experienced significant habitat loss and population decline. The species is therefore potentially relevant to IFC PS6, triggering a need for field verification to confirm its presence and assess critical habitat criteria within the AOI.

***Maxomys inflatus* (Broad-nosed Sumatran Maxomys, Fat-nosed Spiny Rat)**

IUCN Status: Vulnerable (VU)

Criteria: A3c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Muridae

IUCN Justification:

> *Listed as Vulnerable as the species is believed to be confined to lower and mid-montane elevations, and is presumably being affected by extensive loss of forest in the lower elevations of its range in particular such that it is predicted to undergo a decline of more than 30% over the next ten years based on loss of habitat.*

Habitat and Ecology:

Maxomys inflatus, also known as the Broad-nosed Sumatran Maxomys, is a terrestrial species potentially present in the AOI. It inhabits tropical evergreen forest in low to middle montane regions, with an elevation range of 900-1500m. The species has been recorded in western Sumatra.

Habitat Types: Forest - Subtropical/Tropical Moist Montane, Forest - Subtropical/Tropical Moist Lowland

Threats:

The key threats to Maxomys inflatus are ongoing and include housing and urban areas, shifting agriculture, small-holder farming, and hunting/collecting (motivation unknown). The scope and severity of these threats are currently unknown, but are presumed to be contributing to habitat loss.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Site/area management is listed as a conservation action for Maxomys inflatus. Further field verification is required to confirm habitat suitability and species presence in the AOI, and to assess the effectiveness of current conservation measures.

- [2.1] Site/area management

Geographic Range:

This species is known only from the mountains of western Sumatra (Musser and Carleton 2005). At the type locality, Korinchi peak, it has been recorded at elevations between about 900 and 1,500 m, but was apparently not recorded at higher elevations during the course of survey work (Robinson and Kloss 1916, 1918).

Countries: Indonesia

IFC PS6 Relevance:

Maxomys inflatus is listed as Vulnerable on the IUCN Red List and therefore may trigger Critical Habitat under IFC PS6. Field verification is required to confirm the species' presence and habitat use within the AOI.

***Maxomys rajah* (Rajah Sundaic Maxomys, Rajah Spiny Rat)**

IUCN Status: Vulnerable (VU)

Criteria: A2c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Muridae

IUCN Justification:

> *This species is assessed as Vulnerable because of a population decline, estimated to be more than 30% over the last ten years, inferred from extensive loss and degradation of its lowland forest habitat.*

Habitat and Ecology:

Maxomys rajah, also known as the Rajah Sundaic Maxomys or Rajah Spiny Rat, is potentially present in the Area of Interest (AOI) based on IUCN range data. This species inhabits primary and disturbed lowland evergreen tropical forests, up to an elevation of 1,100 m. It is not typically found outside of forest areas, though transient individuals have been detected in oil palm habitats adjacent to forests.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland

Threats:

The key threats to Maxomys rajah include housing and urban areas, shifting agriculture, small-holder farming, and other threats with unknown motivations. These threats are ongoing, but their scope and severity are not clearly defined in the available data. The impact of these threats may be particularly relevant to IFC PS6, given the species' reliance on undisturbed forest habitat.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Currently, there are no conservation actions documented for Maxomys rajah in the available data. Field verification is recommended to assess the species' presence and habitat within the AOI, and to determine appropriate conservation measures if needed.

Geographic Range:

This species is found in peninsular Thailand south of the Isthmus of Kra, Peninsular Malaysia, Riau Archipelago, Sumatra, and the island of Borneo (Brunei, Malaysia and Indonesia). It has been recorded from sea level to 1,100 m.

Countries: Brunei Darussalam, Indonesia, Malaysia, Thailand

IFC PS6 Relevance:

Maxomys rajah is listed as Vulnerable and therefore may be relevant to IFC PS6 critical habitat screening. Field verification is required to confirm its presence and habitat characteristics within the AOI.

***Maxomys whiteheadi* (Whitehead's Sundaic Maxomys, Whitehead's Spiny Rat)**

IUCN Status: Vulnerable (VU)

Criteria: A2c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Muridae

IUCN Justification:

> *This species is assessed as Vulnerable as it is believed to have undergone a decline of more than 30% over the last 10 years as inferred from rate of forest loss in the region, particularly in the lowlands of Sumatra and Borneo.*

Habitat and Ecology:

Maxomys whiteheadi, also known as Whitehead's Sundaic Maxomys, is a terrestrial species potentially present in the AOI based on its known distribution in the Malay Peninsula, Sumatra, Borneo, and Thailand. This species inhabits forest, rice paddies (when near forests), acacia plantations, mangrove swamps, and secondary forests. It has been recorded from lowlands up to 2,100m asl.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Rural Gardens

Threats:

Key threats to Maxomys whiteheadi include housing and urban areas, shifting agriculture, small-holder farming, and other threats with unknown motivations. These threats are ongoing, but their scope and severity are not clearly defined in available data. The impact of these threats on the species' habitat within the AOI requires further investigation in the context of IFC PS6.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Currently, there are no specific conservation actions documented for Maxomys whiteheadi. Further field verification is needed to assess the species' presence and habitat within the AOI. Surveys should focus on potential threats and habitat quality to inform appropriate conservation measures.

Geographic Range:

This species is found in peninsular Thailand (south of the Isthmus of Kra), the Malay Peninsula, Sumatra, Borneo, and other islands off the northern coast of Borneo (Musser and Carleton 2005).

Countries: Brunei Darussalam, Indonesia, Malaysia, Thailand

IFC PS6 Relevance:

Maxomys whiteheadi is listed as Vulnerable on the IUCN Red List; therefore, it requires consideration under IFC PS6. Field verification is required to confirm its presence and assess habitat within the AOI to determine the relevance of Critical Habitat criteria.

Mystacoleucus padangensis

IUCN Status: Vulnerable (VU)

Criteria: B1ab(iii,v)+2ab(iii,v)

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Actinopterygii > Cypriniformes > Cyprinidae

IUCN Justification:

This barb is listed as Vulnerable primarily due to its very small natural range in Lake Singkarak with its extent of occurrence (EOO) and area of occupancy (AOO) both of 168 km^2. The number of locations is estimated to be around 6-10 based on the number of urbanized towns around Lake Singkarak. This species is experiencing a continuing decline of number of mature individuals due to overfishing, and a decline in habitat quality due to pollution. Nevertheless, the fish has been introduced to two separate waterbodies, the adjacent Anai river basin westward from Lake Singkarak and the distant Lake Toba in northern Sumatra, and has become established creating two subpopulations with very high abundance. Conservation action is needed to give Lake Singkarak a special conservation status and to commission a species management to Mystacoleucus padangensis there. Further studies are required to determine the population size of the species and to monitor the harvest level trend.

Habitat and Ecology:

Mystacoleucus padangensis, a benthopelagic barb, is potentially present in the AOI. This species is endemic to Lake Singkarak in Sumatra, Indonesia, and has been introduced to Lake Toba and the Anai river basin. It inhabits permanent rivers, streams, and freshwater lakes, and migrates to inlet tributaries with fast-flowing, clear water for spawning. The species feeds on detritus and phytoplankton when young, and zooplankton as adults.

Habitat Types: Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls), Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)

Threats:

Key threats to Mystacoleucus padangensis potentially present in the AOI include housing and urban areas, small-holder farming, and both unintentional and intentional harvesting. Sewage, soil erosion, sedimentation, and herbicides/pesticides also pose potential threats. Harvesting is occurring at both small and large scales, with the latter potentially causing

very rapid declines. The timing for all threats is ongoing.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Unknown	Unknown
5.4.1	Intentional use: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Slow, Significant Declines
5.4.2	Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Very Rapid Declines
9.1.1	Sewage	Ongoing	Unknown	Unknown
9.3.2	Soil erosion, sedimentation	Ongoing	Unknown	Unknown
9.3.3	Herbicides and pesticides	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for Mystacoleucus padangensis potentially present in the AOI include site/area management and harvest management. The IUCN Red List assessment recommends giving Lake Singkarak a special conservation status and commissioning a species management plan. Field verification is needed to determine population size and monitor harvest level trends within the AOI.

- [2.1] Site/area management
- [3.1.1] Harvest management

Geographic Range:

The fish is endemic to Lake Singkarak, a lake in the upper reach of the Indragiri basin in western central Sumatra, Indonesia. The fish has been introduced to Lake Toba, a lake in

the upper reach of the Asahan basin in northern Sumatra, and has been recorded to be highly abundant in the southern part of Lake Toba. It has also been accidentally introduced westward to the nearby Anai river basin almost two decades ago through a water canal from Singkarak's hydroelectric system and it has become an established breeding population in the Anai basin. Its extent of occurrence (EOO) is estimated at 168 km^2 (native range only). The number of locations in Lake Singkarak alone is estimated to range at 6-10 on the basis of the approximate number of urbanized towns around Lake Singkarak.

Countries: Indonesia

IFC PS6 Relevance:

Mystacoleucus padangensis is listed as Vulnerable on the IUCN Red List and is therefore potentially relevant to IFC PS6. Field verification is required to confirm the species' presence within the AOI and to assess habitat characteristics and potential critical habitat triggers.

Nemacheilus papillosus

IUCN Status: Vulnerable (VU)

Criteria: B1ab(iii)

Assessment Year: 2020

Population Trend: Unknown

Taxonomy: Actinopterygii > Cypriniformes > Balitoridae

IUCN Justification:

> *Nemacheilus papillosus is distributed in northern Sumatra and occurs in Lake Toba, Balige. Within this lake, this species faces threats of habitat degredation, pollution and the effects of the invasive species Eichhornia crassipes. While it is possibly declining in parts of its range, the overall distribution, population size and trend is unknown, as well as possible utilisation, severity of threats and conservation efforts. However, given the small area of the lake, it is estimated that there are at most 10 threat-based locations. Therefore, together with an estimated extent of occurrence (EOO) of 2,229 km^2 and ongoing habitat degradation, this species is assessed as Vulnerable. However, it is in need of further research to confirm its risk of extinction.*

Habitat and Ecology:

Nemacheilus papillosus is a freshwater fish potentially present in the Area of Interest, based on its known distribution in northern Sumatra, including Lake Toba. This species inhabits permanent freshwater lakes and may also occur in freshwater rivers, given the habitat preferences of similar species. They likely feed on small invertebrates, algae, and detritus from the bottom of the water body. Further investigation is needed to confirm specific habitat preferences and ecological roles within the Area of Interest.

Habitat Types: Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)

Threats:

The IUCN Red List indicates that Nemacheilus papillosus faces ongoing threats, including unintentional harvesting effects, the presence of the invasive species Eichhornia crassipes, soil erosion, and sedimentation. The scope and severity of these threats are currently unknown. These threats could lead to habitat degradation within the Area of Interest, potentially impacting the species' persistence.

Code	Threat	Timing	Scope	Severity
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Unknown	Unknown
8.1.2	Named species (Eichhornia crassipes)	Ongoing	Unknown	Unknown
9.3.2	Soil erosion, sedimentation	Ongoing	Unknown	Unknown
9.3.4	Type Unknown/ Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

The IUCN Red List indicates several conservation actions are relevant for Nemacheilus papillosus, including site and area protection, resource and habitat protection, site and area management, invasive species control, and awareness and communications. Field surveys should verify the presence of the species, assess habitat condition, and evaluate the need for targeted conservation measures within the Area of Interest. Further research is needed to confirm the species' risk of extinction.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection

- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [4.3] Awareness & communications

Geographic Range:

Nemacheilus papillosus is distributed in northern Sumatra. The type locality is Lake Toba, Balige (Kottelat 2013, Hadiaty and Yamahira 2014). The surface area of the lake is 1,130 km^2 and the calculated extent of occurrence is 2,229 km^2. More information is needed in regards to this species and its overall distribution.

Countries: Indonesia

IFC PS6 Relevance:

Nemacheilus papillosus is listed as Vulnerable on the IUCN Red List; therefore, it requires consideration under IFC PS6. Field verification is required to confirm the species' presence and assess habitat suitability within the Area of Interest.

***Neolissochilus thienemanni* (Ihan)**

IUCN Status: Vulnerable (VU)

Criteria: B1ab(iii) ver 3.1

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Actinopterygii > Cypriniformes > Cyprinidae

IUCN Justification:

> *The carp Neolissochilus thienemanni is listed as Vulnerable. It has a restricted extent of occurrence (EOO) estimated at 5,239 km^2. The species is also impacted by a major threat at a range-wide scale, which is overfishing, in addition to some other more localised threats, which are causing a decline in the quality of habitat. There are 6-10 locations based on this threat. Therefore, this species is assessed as Vulnerable.*

Habitat and Ecology:

Neolissochilus thienemanni, also known as Ihan, is a benthic carp inhabiting permanent and seasonal freshwater lakes greater than 8ha, and upper reaches of river basins. This

species favours fast-flowing, clear water over gravel and rocky substrate. While potentially present in Lake Toba, its presence requires verification, as the lake and its tributaries are experiencing habitat degradation. The species has been recorded at elevations within the upper reaches of the Asahan basin in North Sumatra.

Habitat Types: Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha)

Threats:

The major threat to Neolissochilus thienemanni is overfishing, with the intentional use of the species for subsistence causing rapid declines. Additional threats include housing and urban areas, small-holder farming, unintentional harvesting effects, and impacts from named species such as Cyprinus carpio and Oreochromis niloticus. Sewage, soil erosion, sedimentation, and herbicides/pesticides also pose ongoing threats. The scope and severity of many of these threats are unknown.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
5.3.4	Unintentional effects: (large scale) [harvest]	Ongoing	Unknown	Unknown
5.4.1	Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Rapid Declines
8.1.2	Named species (Cyprinus carpio)	Ongoing	Unknown	Unknown
8.1.2	Named species (Oreochromis niloticus)	Ongoing	Unknown	Unknown
9.1.1	Sewage	Ongoing	Unknown	Unknown
9.3.2	Soil erosion, sedimentation	Ongoing	Unknown	Unknown
9.3.3	Herbicides and pesticides	Ongoing	Unknown	Causing/Could Cause Fluctuations

Conservation Actions:

Conservation actions for Neolissochilus thienemanni include site/area protection, resource and habitat protection, and harvest management. Given the species' declining population and threats to its habitat, field verification is required to confirm its presence within the AOI and assess the effectiveness of existing conservation measures. Further investigation is needed to quantify population size and habitat quality. Consideration should be given to community engagement, given the species' use in local traditions and as a food source.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [3.1.1] Harvest management

Geographic Range:

This fish is endemic to Lake Toba and the inlet upstream tributaries of the lake that are situated along the upper reaches of the Asahan basin in North Sumatra, while it has also been recorded from the Lae Renun River, an upstream tributary of the Alas basin adjacent to Lake Toba (Ahl 1933, Rachmad et al. 2019). Its extent of occurrence (EOO) is estimated at 5,239 km^2. The species is estimated to occur in 6-10 locations.

Countries: Indonesia

IFC PS6 Relevance:

Neolissochilus thienemanni is listed as Vulnerable on the IUCN Red List and therefore triggers consideration under IFC PS6. Field verification is required to confirm its presence within the Area of Interest and assess the potential for Critical Habitat designation.

Oligodon pulcherrimus

IUCN Status: Vulnerable (VU)

Criteria: B1ab(iii)

Assessment Year: 2012

Population Trend: Unknown

Taxonomy: Reptilia > Squamata > Colubridae

IUCN Justification:

> *O. pulcherrimus is known only from three records collected in the early 20th Century, and the species is expected to have a true extent occurrence within the intervening area somewhat less than 20,000 km^2. The quality of forest habitat throughout this snake's range is known to be declining due to deforestation for agriculture and is likely to continue in the future, and the species is only known from three locations. Therefore the species is listed as Vulnerable and is in urgent need of more research work on its population status, distribution, habitat preferences and threats.*

Habitat and Ecology:

Oligodon pulcherrimus, a snake species, is potentially present within the AOI based on IUCN range data. This species inhabits subtropical/tropical moist lowland and montane forests, with known occurrences in areas like Bakongan, Batak Mountains and Balinka, Indonesia. The sub-district of Bakongan predominantly consists of lowland forest with

marshy areas, while the Batak Mountains and Balinka are at higher elevations. Its known elevation range is 800-1,200 m asl.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to O. pulcherrimus potentially include housing and urban areas, small-holder farming, agro-industry farming, and threats with unknown motivation. These threats are indicated to be ongoing, but their scope and severity are unknown based on available data. The quality of forest habitat throughout this snake's range is known to be declining due to deforestation for agriculture.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
2.1.3	Agro-industry farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for O. pulcherrimus include in-place land/water protection and management. Further research work is needed on its population status, distribution, habitat preferences and threats. Field verification is recommended to confirm the species' presence and assess habitat quality within the AOI.

- [1.1] In-Place Land/Water Protection and Management

Geographic Range:

This species is known from Bakongan (Aceh), Batak Mountains (North Sumatra),and Balinka and Bukit Tinggi (West Sumatra) in Indonesia. All the localities recorded are between 800 and 1,200 m. asl. and all the records date from the beginning of the the 20th Century. While the extent of occurrence is unclear, the area between the three known localities is around 20,200 km^2, and includes large areas of terrain at lower altitudes which is presumed to be unsuitable for this mountain snake. It is therefore provisionally

considered to have an extent of occurrence below 20,000 km^2.

Countries: Indonesia

IFC PS6 Relevance:

Oligodon pulcherrimus is listed as Vulnerable (VU) on the IUCN Red List, potentially triggering Critical Habitat assessment under IFC PS6. Field verification is required to confirm the species' presence within the AOI.

***Ophiophagus hannah* (King Cobra, Hamadryad)**

IUCN Status: Vulnerable (VU)

Criteria: A2acd

Assessment Year: 2012

Population Trend: Decreasing

Taxonomy: Reptilia > Squamata > Elapidae

IUCN Justification:

> *Ophiophagus hannah has been assessed as Vulnerable. This species has a wide distribution range, however, it is not common in any area in which it occurs (with the apparent exception of Thailand, and there only in forested areas), is very rare in much of its range, and has experienced local population declines of over 80% over 10 years in parts of its range. Pressure on this species from both habitat loss and exploitation are high throughout this snake's range, and while no quantitative population data is available, it can be conservatively estimated that the population size has declined globally by at least 30% over an estimated three-generation period of 15-18 years. More detailed population monitoring in the more poorly-known parts of this snake's range may reveal that this is a conservative estimate.*

Habitat and Ecology:

Based on IUCN range data, Ophiophagus hannah, the King Cobra, may be present in the AOI. This species occupies a variety of habitats from pristine to degraded forests, mangrove swamps, and agricultural areas, potentially up to 2,000m elevation. It has been reported from subtropical/tropical moist lowland and montane forests, shrubland, grassland, swamps, arable land, and even irrigated land. This species is known to build nests of dead leaves.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Shrubland - Subtropical/Tropical Moist, Grassland - Subtropical/Tropical High Altitude, Wetlands (inland) - Shrub Dominated Wetlands, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Artificial/Terrestrial - Arable Land, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest, Artificial/Aquatic & Marine - Irrigated Land (includes irrigation channels)

Threats:

Key threats to the King Cobra potentially present in the AOI include agriculture, hunting, and logging. Agriculture and aquaculture activities, specifically annual and perennial non-timber crops, pose an ongoing threat with a majority scope, but unknown severity. Hunting and trapping, both for intentional use and persecution, also present ongoing threats with a majority scope, leading to slow, significant declines. Logging and wood harvesting activities further contribute to the threats faced by this species.

Code	Threat	Timing	Scope	Severity
2.1.4	Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.4. Scale Unknown/ Unrecorded	Ongoing	Majority (50-90%)	Unknown
5.1.1	Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Slow, significant declines
5.1.3	Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Majority (50-90%)	Unknown
5.3.5	Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.5. Motivation Unknown/Unrecorded	Ongoing	Majority (50-90%)	Unknown

Conservation Actions:

Conservation actions for the King Cobra include site/area management, trade management, and awareness and communications initiatives. Field surveys are needed to confirm the species' presence and habitat use within the AOI. Understanding local population status and threats will inform appropriate conservation measures, potentially including habitat protection and regulation of harvesting and trade.

- [2.1] Site/area management
- [3.1.2] Trade management

- [4.3] Awareness & communications

Geographic Range:

The King Cobra is widely distributed in South and Southeast Asia, from Nepal (where it is found throughout the lowlands of the Therai region - Schleich and Kästle 2002) and India (from Uttarakhand in Western Himalayas to Eastern Himalayas, down south along the Eastern Ghats up to northern Andhra Pradesh, and in the Western Ghats south of Maharashtra) across southern China (including Hainan Island), southward to the Philippines (where it is widespread) and Indonesia east as far as Sulawesi and Bali (where there are recent records from Negara [R.P.H. Lilley pers. obs. 2011]; Smith 1943, Zhao and Adler 1993, David and Vogel 1996, Whitaker and Captain 2004), as well as the Malaysian territories of Sarawak and Sabah, and Brunei (where a recent record exists from Kuala Belalong Field Centre - J.M. Dehling unpubl. data), on the island of Borneo. It occurs in the Andaman and Nicobar Islands, but is absent from Little Andaman and from the Mentawai Islands off Sumatra. It has a maximum recorded elevation of 2,000 m asl. (Smith 1943).

Countries: Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Philippines, Singapore, Thailand, Viet Nam

IFC PS6 Relevance:

The King Cobra is listed as Vulnerable on the IUCN Red List; therefore, field verification is required to confirm its presence within the AOI. If present, further assessment against IFC PS6 criteria is warranted to determine the potential for Critical Habitat designation.

Parathelphusa maindroni

IUCN Status: Vulnerable (VU)

Criteria: D2

Assessment Year: 2008

Population Trend: Unknown

Taxonomy: Malacostraca > Decapoda > Gecarcinucidae

IUCN Justification:

The assessment by Ng & Yeo (2007) was followed. Listed as Vulnerable under D2 because all individuals are from five localities, and its habitat is highly threatened by land reclamation from swamps with their consequent destruction.

Habitat and Ecology:

Parathelphusa maindroni is a primarily aquatic freshwater crab potentially present in the Area of Interest (AOI), based on IUCN range data. This species inhabits acidic freshwater swamps (pH 4.5-5.5) and blackwater peat swamps (pH 3.5). Its elevation range is not specified. Field verification is required to confirm the presence and extent of suitable habitat within the AOI.

Habitat Types: Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands

Threats:

The key threats to Parathelphusa maindroni are ongoing and include housing and urban areas (1.1), and other unknown/unrecorded threats (9.1.3). The scope and severity of these threats are unknown. These threats could lead to habitat loss and degradation relevant to IFC PS6, but further investigation is needed to assess the specific impacts within the AOI.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Unknown	Unknown
9.1.3	Type Unknown/ Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

The IUCN Red List indicates that site/area management (2.1) is a conservation action in place for Parathelphusa maindroni. Further investigation is needed to determine the specific management measures and their effectiveness in the AOI. Field surveys should focus on identifying and assessing the condition of swamp habitats, and evaluating the potential for conservation management.

- [2.1] Site/area management

Geographic Range:

Malaysia: Widespread throughout Peninsular Malaysia. Indonesia: Sumatra: Also found in eastern Sumatra.

Countries: Indonesia, Malaysia

IFC PS6 Relevance:

Parathelphusa maindroni is listed as Vulnerable (VU) under the IUCN Red List criteria D2, making it potentially relevant to IFC PS6 Critical Habitat screening. Field verification is required to confirm the species' presence and assess habitat condition within the AOI.

***Petinomys genibarbis* (Whiskered Flying Squirrel)**

IUCN Status: Vulnerable (VU)

Criteria: A2c+3c+4c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Sciuridae

IUCN Justification:

> *This species is assessed as Vulnerable due to a suspected population decline of at least 30% over three generations in the past and future, based on the rate of forest loss in lowland areas throughout the species' range.*

Habitat and Ecology:

Based on IUCN range data, Petinomys genibarbis, the Whiskered Flying Squirrel, is potentially present in the Area of Interest. This species is an arboreal and nocturnal mammal inhabiting lowland tall primary and secondary forests, and potentially tree plantations, up to 450m elevation. Given its preference for lowland forests, habitat loss and degradation could impact local populations.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Artificial/Terrestrial - Plantations

Threats:

The Whiskered Flying Squirrel faces ongoing threats from shifting agriculture, small-holder farming, agro-industry farming, and hunting. The scope and severity of these threats are not fully known, but forest loss is suspected to be driving population declines. Hunting is permitted with a license in Sabah, with harvested individuals used for local consumption or sale as wild meat.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Unknown	Unknown
2.1.2	Small-holder farming	Ongoing	Unknown	Unknown
2.1.3	Agro-industry farming	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Site/area management is listed as a conservation action for the Whiskered Flying Squirrel. Further field verification is required to confirm the species' presence and assess habitat suitability within the Area of Interest. Surveys should focus on lowland forest areas to determine potential impacts from the identified threats and inform appropriate mitigation measures.

- [2.1] Site/area management

Geographic Range:

This species is found on Sumatra, Java, Peninsular Malaysia, Sarawak and Sabah (Malaysia), Brunei Darussalam and Kalimantan (Thorington et al. 2012, Jackson 2012).

Countries: Brunei Darussalam, Indonesia, Malaysia

IFC PS6 Relevance:

The Whiskered Flying Squirrel is listed as Vulnerable on the IUCN Red List. As such, it requires consideration under IFC PS6, specifically regarding potential impacts on critical habitat. Field verification is required to confirm its presence within the Area of Interest.

***Petinomys setosus* (Temminck's Flying Squirrel)**

IUCN Status: Vulnerable (VU)

Criteria: A2c+3c+4c

Assessment Year: 2016

Population Trend: Decreasing

Taxonomy: Mammalia > Rodentia > Sciuridae

IUCN Justification:

> *This species is assessed as Vulnerable due to a suspected population decline over more than 30% in the past 10 years, and expected in the future 10 years. This reduction is suspected based on the extensive and rapid habitat loss in the majority of its range, specifically the southern portion.*

Habitat and Ecology:

Temminck's Flying Squirrel is a nocturnal, arboreal species potentially present in the AOI based on IUCN range data. It inhabits subtropical/tropical dry, moist lowland, and moist montane forests. In the northern part of its range (Myanmar, Thailand), it occurs at higher elevations, while in the southern part (Malay Peninsula, Sumatra, Borneo) it has been recorded in wet primary forests and rubber plantations. The species feeds on seeds and fruit.

Habitat Types: Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Temminck's Flying Squirrel potentially present in the AOI include shifting agriculture, small-holder farming, and agro-industry farming. The timing of these threats is ongoing. Additionally, the motivation for some threats is unknown or unrecorded. These threats may contribute to habitat loss and population decline, which are relevant considerations under IFC PS6.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing		
2.1.2	Small-holder farming	Ongoing		
2.1.3	Agro-industry farming	Ongoing		
5.3.5	Motivation Unknown/Unrecorded	Ongoing		

Conservation Actions:

Limited data is available regarding specific conservation actions for Temminck's Flying Squirrel. Site/area management is listed as a conservation action. Field verification is needed to assess the species' presence and habitat condition within the AOI, and to determine appropriate conservation measures.

- [2.1] Site/area management

Geographic Range:

This species is patchily distributed in northern Myanmar, northern Thailand and southern Thailand, with another population found on the Malay Peninsula. It is also found in Sumatra, and northern Borneo (Thorington and Hoffmann 2005) in Brunei, Sabah, Sarawak and north eastern Kalimantan (Thorington et al. 2012, Jackson 2012).

Countries: Brunei Darussalam, Indonesia, Malaysia, Myanmar, Thailand

IFC PS6 Relevance:

Temminck's Flying Squirrel is listed as Vulnerable on the IUCN Red List, making it potentially relevant to IFC PS6 critical habitat screening. Field verification is required to confirm its presence and assess habitat within the AOI.

***Pluvialis squatarola* (Grey Plover, Black-bellied Plover)**

IUCN Status: Vulnerable (VU)

Criteria: A2bcd+4bcd

Assessment Year: 2024

Population Trend: Decreasing

Taxonomy: Aves > Charadriiformes > Charadriidae

IUCN Justification:

> *While Pluvialis squatarola remains a widespread and abundant species it is listed as Vulnerable in response to increasing evidence for rapid population declines over the past three generations (23 years), estimated to be more than 30%. The exact causes of these declines are unknown, but a myriad of plausible threats have been identified including habitat loss and degradation, disturbance and hunting.*

Habitat and Ecology:

Pluvialis squatarola, also known as Grey Plover or Black-bellied Plover, is potentially present within the Area of Interest based on its extensive IUCN range data. This species nests in the high Arctic, favouring dry stony tundra with sedge, moss, lichen, grass or dwarf birch, peat ridges in tundra marshes, dry exposed ridges, riverbanks, raised sand or gravel beaches, and rocky slopes. Outside the breeding season, it frequents intertidal mudflats, saltmarshes, sandflats, and beaches of oceanic coastlines, bays, and estuaries, and may also be found inland on lakes, pools, or grasslands during migration. Its elevation range is not specified.

Habitat Types: Grassland - Tundra, Wetlands (inland) - Permanent Freshwater Lakes (over 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha), Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha), Wetlands (inland) - Tundra Wetlands (incl. pools and temporary waters from snowmelt), Marine Intertidal - Rocky Shoreline, Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc, Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches, Marine Intertidal - Mud Flats and Salt Flats, Marine Intertidal - Tidepools, Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes, Marine Coastal/Supratidal - Coastal Freshwater Lakes, Artificial/Aquatic & Marine - Aquaculture Ponds, Artificial/Aquatic & Marine - Wastewater Treatment Areas, Artificial/Aquatic & Marine - Seasonally Flooded Agricultural Land

Threats:

The Grey Plover faces a variety of ongoing threats across its range. These include habitat shifting and alteration impacting over 90% of the population, as well as housing, urban, commercial and industrial area development, subsistence and industrial aquaculture, oil and gas drilling, renewable energy projects, recreational activities, work and other activities, invasive species, sewage, and pollution. Hunting, both intentional and unintentional, also poses a threat to the species. The scope and severity of many of these threats are unknown.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing	Minority (<50%)	Unknown
1.2	Commercial & industrial areas	Ongoing	Minority (<50%)	Unknown
2.4.1	Subsistence/artisinal aquaculture	Ongoing	Minority (<50%)	Unknown
2.4.2	Industrial aquaculture	Ongoing	Minority (<50%)	Unknown
3.1	Oil & gas drilling	Ongoing	Minority (<50%)	Unknown
3.3	Renewable energy	Ongoing	Minority (<50%)	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Majority (50-90%)	Unknown
5.1.2	Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Unknown
5.4.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Unknown
6.1	Recreational activities	Ongoing	Minority (<50%)	Unknown
6.3	Work & other activities	Ongoing	Minority (<50%)	Unknown
8.1.2	Invasive non-native/alien species/diseases	Ongoing	Minority (<50%)	Unknown
9.1.1	Sewage	Ongoing	Minority (<50%)	Unknown
9.2.3			Minority (<50%)	Unknown,timing:
11.1	Habitat shifting & alteration	Ongoing	Whole (>90%)	Unknown

Conservation Actions:

Several conservation actions are in place or needed to protect Pluvialis squatarola. These include resource and habitat protection, site and area management, invasive species control, and the implementation of policies and regulations. Given the potential presence of this species within the Area of Interest, field verification is recommended to assess habitat suitability and potential impacts from project activities.

- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.2] Invasive/problematic species control
- [5.2] Policies and regulations

Geographic Range:

Breeds in Arctic Russia from the Kanin Peninsula to Chukotskiy and Anadyrskaya, and Alaska, USA, to Melville Peninsula and Baffin Island (Canada). Birds winter widely on coastlines of North and South America, Europe, Africa, South Asia, South-East Asia and Australasia, with birds occurring in virtually every country when on migration.

Countries: Serbia, Afghanistan, Armenia, Austria, Belarus, Bolivia, Botswana, Burundi, Chad, Cook Islands, Czechia, Estonia, Eswatini, Ethiopia, Faroe Islands, Fiji, Finland, Greenland, Hungary, Iceland, Kazakhstan, Kyrgyzstan, Laos, Latvia, Lesotho, Luxembourg, Malawi, Mali, Marshall Islands, Micronesia, Mongolia, Nauru, Nepal, Niger, North Macedonia, Norway, Paraguay, Poland, Rwanda, Saint Helena, Ascension and Tristan da Cunha, Saint Pierre and Miquelon, Slovakia, South Sudan, Sweden, Switzerland, Tajikistan, Uganda, Ukraine, Zambia, Zimbabwe, Albania, Algeria, Angola, Anguilla, Antigua and Barbuda, Argentina, Aruba, Australia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bermuda, Bonaire, Bosnia and Herzegovina, Brazil, British Indian Ocean Territory, Brunei Darussalam, Bulgaria, Cabo Verde, Cambodia, Cameroon, Canada, Cayman Islands, Chile, China, Christmas Island, Colombia, Comoros, Congo, Democratic Republic of the Congo, Costa Rica, Croatia, Cuba, Curacao, Cyprus, Cote d'Ivoire, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, France, French Guiana, French Southern Territories, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guam, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Ireland, Isle of Man, Israel, Italy, Jamaica, Japan, Jersey, Jordan, Kenya, North Korea, South Korea, Kuwait, Lebanon, Liberia, Libya, Madagascar, Malaysia, Maldives, Malta, Martinique, Mauritania, Mauritius, Mayotte, Mexico, Monaco, Montenegro, Montserrat, Morocco, Mozambique, Myanmar,

Namibia, Netherlands, New Caledonia, Nicaragua, Nigeria, Northern Mariana Islands, Oman, Pakistan, Palau, Palestine, Panama, Papua New Guinea, Peru, Philippines, Portugal, Puerto Rico, Qatar, Romania, Russia, Reunion, Saint Barthelemy, Saint Kitts and Nevis, Saint Lucia, Saint Martin, Saint Vincent and the Grenadines, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Sint Maarten, Slovenia, Solomon Islands, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Syria, Taiwan, Tanzania, Thailand, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Turkmenistan, Turks and Caicos Islands, Turkey, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Vietnam, British Virgin Islands, United States Virgin Islands, Western Sahara, Yemen, Svalbard and Jan Mayen

IFC PS6 Relevance:

Pluvialis squatarola is listed as Vulnerable on the IUCN Red List and therefore relevant for IFC PS6 screening. Field verification is required to confirm the species' presence within the Area of Interest and to evaluate the potential for Critical Habitat triggers.

***Rousettus spinalatus* (Bare-backed Rousette)**

IUCN Status: Vulnerable (VU)

Criteria: A4c

Assessment Year: 2021

Population Trend: Decreasing

Taxonomy: Mammalia > Chiroptera > Pteropodidae

IUCN Justification:

> *Rousettus spinalatus is assessed as Vulnerable under criterion A4c as this forest and cave dependent species is estimated to have experienced a population decline of more than 30–35% over the past 10 years and is projected to continue for at least the next 5 years (2010 to 2025; 15 years total; three generations; GL = 5 years; Pacifici et al. 2013) due to the past and continuing loss of forest foraging habitat and cave roosting habitat.*

Habitat and Ecology:

Rousettus spinalatus, the Bare-backed Rousette, is potentially present in the AOI. This species is reportedly forest-dependent, documented in secondary forests, and known to forage in orchards. It roosts in caves, sometimes co-roosting with R. amplexicaudatus. The species has an elevational range from sea level to 1100m.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Caves and Subterranean Habitats (non-aquatic) - Caves

Threats:

The Bare-backed Rousette faces ongoing threats from habitat loss and degradation due to shifting agriculture, small-holder farming, agro-industry farming and plantations. Recreational activities, work activities, and increased fire frequency/intensity also pose threats. These threats are considered to have a scope of Majority (50-90%) to Whole (>90%) and a Severity of Slow, significant declines, which is relevant to IFC PS6 risk assessment.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Majority (50-90%)	Slow, significant declines
2.1.2	Small-holder farming	Ongoing	Majority (50-90%)	Slow, significant declines
2.1.3	Agro-industry farming	Ongoing	Majority (50-90%)	Slow, significant declines
2.2.1	Small-holder plantations	Ongoing	Majority (50-90%)	Slow, significant declines
2.2.2	Agro-industry plantations	Ongoing	Majority (50-90%)	Slow, significant declines
6.1	Recreational activities	Ongoing	Whole (>90%)	Slow, significant declines
6.3	Work & other activities	Ongoing	Whole (>90%)	Slow, significant declines
7.1.1	Increase in fire frequency/intensity	Ongoing	Majority (50-90%)	Slow, significant declines

Conservation Actions:

Reported conservation actions for the Bare-backed Rousette include site/area protection and management, resource and habitat protection and restoration, species recovery programs, and awareness and communications initiatives. Field surveys are needed to verify the presence of the species and its habitat requirements within the AOI, and to assess the effectiveness of any existing conservation measures.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [2.3] Habitat & natural process restoration
- [3.2] Species recovery
- [4.3] Awareness & communications

Geographic Range:

Rousettus spinalatus is only known from northern Sumatra (near Medan or near Prapat) in Indonesia, from northern Borneo in Sabah and Sarawak (Malaysia) (Francis 1989, Payne et al. 1985, Simmons 2005), and Brunei (Fukuda et al. 2009). One specimen was collected from a cave in central Kalimantan (Indonesian Borneo; M. Sinaga pers. comm.).

Countries: Brunei Darussalam, Indonesia, Malaysia

IFC PS6 Relevance:

Rousettus spinalatus is listed as Vulnerable (VU) on the IUCN Red List. Its threatened status and dependence on forest and cave habitats indicate its potential relevance to IFC PS6. Field verification is required to confirm its presence and assess critical habitat triggers.

***Rusa unicolor* (Sambar, Indian Sambar, Sambar Deer)**

IUCN Status: Vulnerable (VU)

Criteria: A2cd+3cd+4cd

Assessment Year: 2015

Population Trend: Decreasing

Taxonomy: Mammalia > Cetartiodactyla > Cervidae

IUCN Justification:

Sambar is listed as Vulnerable through sustained declines across its range. These vary in severity between regions, and in some areas considerably exceed the threshold for Vulnerable. In the last three generations (taken to be 24–30 years), declines in mainland South-east Asia (Viet Nam, Lao PDR, Thailand, Cambodia, Myanmar, Malaysia), Bangladesh, and possibly Borneo and Sumatra have exceeded

50%, probably by a substantial margin. Despite this Sambar remains common in some localized logged, unprotected areas on Borneo, such as the Hose Mountains of Sarawak (where a national park is proposed but not yet enforced), but only where human access is difficult. The overall decline rate in India has been less, given the presence of large populations in a fair number of well-secured protected areas which have probably remained stable, but a decline rate averaging 30% is reasonable in India outside these areas (i.e. in the less effective protected areas and outside the protected areas network), and in Sri Lanka and Nepal. The global population trend is still considered to be a decline somewhere between 30 and 50 % over three generations, for the past, present and future.

Habitat and Ecology:

Based on IUCN range data, the Sambar (Rusa unicolor) is potentially present in the Area of Interest. This species occupies a wide variety of forest types from thorn and arid forests to moist montane forests and temperate-latitude woodlands, and has been recorded at elevations ranging from sea level to 3900m. The Sambar is tolerant of habitat degradation and can be found in various disturbed habitats including heavily degraded former forest and plantations.

Habitat Types: Forest - Temperate, Forest - Subtropical/Tropical Dry, Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane, Savanna - Dry, Savanna - Moist, Shrubland - Subtropical/Tropical Dry, Shrubland - Subtropical/Tropical Moist, Shrubland - Subtropical/Tropical High Altitude, Grassland - Subtropical/Tropical Seasonally Wet/Flooded, Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands, Artificial/Terrestrial - Plantations, Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest

Threats:

Key threats to the Sambar include housing and urban areas, agro-industry farming and plantations, mining and quarrying, and roads and railroads. Direct hunting and use for food, medicinal products, and trophies also pose significant threats, with the motivation often unknown or unrecorded. These threats are considered ongoing and future, and vary in scope and severity.

Code	Threat	Timing	Scope	Severity
1.1	Housing & urban areas	Ongoing		
2.1.3	Agro-industry farming	Ongoing		
2.2.2	Agro-industry plantations	Ongoing		
3.2	Mining & quarrying	Future		
4.1	Roads & railroads	Ongoing		
5.1.1	Intentional use (species is the target)	Ongoing		
5.3.5	Motivation Unknown/Unrecorded	Ongoing		

Conservation Actions:

Conservation actions for the Sambar include site and area protection and management, resource and habitat protection, harvest and trade management, and awareness and communications initiatives at international, national, and sub-national levels. Linked enterprises and livelihood alternatives are also listed as conservation actions. Field verification is needed to assess the effectiveness of these measures and to determine if additional actions are required within the Area of Interest.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management
- [3.1.2] Trade management
- [4.3] Awareness & communications
- [5.1.1] International level
- [5.4.1] International level
- [5.4.2] National level
- [5.4.3] Sub-national level

- [6.1] Linked enterprises & livelihood alternatives

Geographic Range:

The Sambar extends from India and Sri Lanka east along the southern Himalayas (including Nepal and Bhutan) through much of south China (including Hainan Island) to Taiwan (where it occurs in the central and eastern parts). Further south it occurs in Bangladesh, throughout mainland Southeast Asia (Myanmar, Thailand, Lao PDR, Cambodia, Viet Nam, West Malaysia) and many of the main islands of the Greater Sundas (excepting Java): Sumatra, Siberut, Sipora, Pagi and Nias islands (all Indonesia), and Borneo (Malaysia, Indonesia, and Brunei). The current distribution is now highly fragmented in much of this range. The species has been introduced widely outside its native range, including Australia, New Zealand, South Africa (Western Cape), and the United States (California, Florida, Texas).

Countries: Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Sri Lanka, Taiwan, Province of China, Thailand, Viet Nam

IFC PS6 Relevance:

The Sambar is listed as Vulnerable on the IUCN Red List and is therefore potentially relevant to IFC PS6 critical habitat screening. Field verification is required to confirm the species' presence within the Area of Interest and to assess habitat suitability.

***Trachypithecus cristatus* (Silvery Lutung, Silvered Langur, Silvered Leaf Monkey, Silvered Monkey)**

IUCN Status: Vulnerable (VU)

Criteria: A2cd+3cd

Assessment Year: 2020

Population Trend: Decreasing

Taxonomy: Mammalia > Primates > Cercopithecidae

IUCN Justification:

> *Considering the extensive habitat loss from forest fires and clearance for oil palm plantations and hunting for pet trade that has taken place within the range of the species, there has been a suspected decline probably at a rate of more than 30% over the past three generations (approximately 36 years), thus qualifying if for listing*

as Vulnerable under criterion A2cd. Given the continuing rate of decline in habitat as per the World Forest Status report in the habitat and increased hunting, the species is expected to decline at the same rate in the future thus also qualifying for criterion A3cd.

Habitat and Ecology:

Trachypithecus cristatus, also known as Silvery Lutung, is potentially present in the AOI based on IUCN range data. This species inhabits subtropical and tropical moist lowland, mangrove, swamp, and montane forests, and is occasionally found in plantations. Most information comes from studies in Peninsular Malaysia and Borneo, where it is known from riparian and mangrove forests. In Sumatra, it occupies primary and secondary forests, including riverine, swamp, and coastal habitats. The species has an elevation range from sea level to 300 meters.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level, Forest - Subtropical/Tropical Swamp, Forest - Subtropical/Tropical Moist Montane, Artificial/Terrestrial - Plantations

Threats:

The Silvery Lutung faces ongoing threats from agro-industry farming and plantations. Hunting and collection for the pet trade, coupled with unknown motivations, also pose a risk. The scope and severity of these threats are not well-defined in available data, though habitat loss is suspected to be driving population declines, potentially exceeding 30% over three generations. Further investigation is needed to determine the precise impact of these threats within the project area in accordance with IFC PS6.

Code	Threat	Timing	Scope	Severity
2.1.3	Agro-industry farming	Ongoing	Unknown	Unknown
2.2.2	Agro-industry plantations	Ongoing	Unknown	Unknown
5.1.1	Intentional use (species is the target)	Ongoing	Unknown	Unknown
5.3.5	Motivation Unknown/Unrecorded	Ongoing	Unknown	Unknown
7.1.3	Trend Unknown/ Unrecorded	Ongoing	Unknown	Unknown

Conservation Actions:

Conservation actions for the Silvery Lutung include site and area protection, as well as resource and habitat protection measures. Site and area management and harvest management are also listed as conservation actions. Field verification is required to assess the effectiveness of existing conservation efforts and determine if additional measures are needed to mitigate project impacts. Targeted surveys are recommended to confirm species presence and evaluate habitat quality.

- [1.1] Site/area protection
- [1.2] Resource & habitat protection
- [2.1] Site/area management
- [3.1.1] Harvest management

Geographic Range:

This species occurs in Brunei, Indonesia (Bangka, Belitung, Kalimantan Borneo, the Natuna Islands, Lingga, Bintang, Sugi, Jombol, and Bakang in the Riau Archipelago, and Sumatra), and Malaysia (Sabah and Sarawak Borneo, and a strip along the western coast of the Peninsula). It might occur on Batam in the Riau Archipelago as well (Groves 2001).

Countries: Brunei Darussalam, Indonesia, Malaysia

IFC PS6 Relevance:

The Silvery Lutung is listed as Vulnerable on the IUCN Red List. As such, it is potentially relevant to IFC PS6 critical habitat screening. Field verification is required to confirm presence and assess habitat within the AOI.

LC Species

***Cochoa beccarii* (Sumatran Cochoa)**

IUCN Status: Least Concern (LC)

Criteria: ver 3.1

Assessment Year: 2023

Population Trend: Decreasing

Taxonomy: Aves > Passeriformes > Turdidae

IUCN Justification:

This species has a large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 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 three generations). The population size is unknown, but is not suspected to be sufficiently small to 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.

Habitat and Ecology:

Based on IUCN range data, Cochoa beccarii, also known as Sumatran Cochoa, is potentially present in the Area of Interest (AOI). This species inhabits the middle and upper storeys of tropical lower montane forest between 1,000 m and 2,200 m. It is considered likely to be largely sedentary, but may make some local seasonal movements. Systems: Terrestrial.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Cochoa beccarii potentially present in the AOI include shifting agriculture and agro-industry farming, both of which are ongoing, affect a minority of the population's scope (<50%), and cause slow, significant declines. The species is also subject to intentional use (it is the target), and unintentional effects from harvesting, both of which are ongoing and affect a minority of the population, with the former causing negligible declines and the latter slow significant declines.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Minority (<50%)	Slow, significant declines
2.1.3	Agro-industry farming	Ongoing	Minority (<50%)	Slow, significant declines
5.1.1	Intentional use (species is the target)	Ongoing	Minority (<50%)	Negligible declines
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Slow, significant declines

Conservation Actions:

There is no conservation action data available for Cochoa beccarii. Field verification is recommended to ascertain local population status, habitat condition, and the presence of threats.

Geographic Range:

Cochoa beccarii is endemic to the mountains of Sumatra, Indonesia.

Countries: Indonesia

IFC PS6 Relevance:

Cochoa beccarii is relevant to IFC PS6 assessment due to its restricted range and potential habitat overlap with the project area. Field verification is required to confirm its presence and assess the potential for Critical Habitat triggers.

***Erythropitta venusta* (Graceful Pitta, Black-crowned Pitta)**

IUCN Status: Least Concern (LC)

Criteria: —

Assessment Year: 2023

Population Trend: Decreasing

Taxonomy: Aves > Passeriformes > Pittidae

IUCN Justification:

> *This species has a large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 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 three generations). The population size is unknown, but is not suspected to be sufficiently small to 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.*

Habitat and Ecology:

Erythropitta venusta, also known as Graceful Pitta or Black-crowned Pitta, is potentially present in the Area of Interest. This species inhabits the floor and undergrowth of hill dipterocarp and lower montane rainforest from 400 m to 1,400 m, frequenting dark, damp areas, in particular ravines under dense cover. It is apparently common at 700-1,100 m. In general, it is skulking and difficult to observe.

Habitat Types: Forest - Subtropical/Tropical Moist Lowland, Forest - Subtropical/Tropical Moist Montane

Threats:

Key threats to Erythropitta venusta include shifting agriculture, small-holder farming, and unintentional harvesting effects. These threats are ongoing, affecting a minority of the population's scope, and causing slow, significant declines. The potential for trapping should be investigated, given its impact on other Sundaic pittas.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Minority (<50%)	Slow, significant declines
2.1.2	Small-holder farming	Ongoing	Minority (<50%)	Slow, significant declines
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Slow, significant declines

Conservation Actions:

Conservation actions for Erythropitta venusta are currently focused at the sub-national level. Field verification is needed to assess the efficacy of these measures and determine if additional conservation actions are required within the Area of Interest. Further investigation is warranted to confirm the absence of trapping within the project area.

- [5.4.3] Sub-national level

Geographic Range:

Erythropitta venusta is endemic to the highlands of Sumatra, Indonesia (Eaton et al. 2021, eBird 2022).

Countries: Indonesia

IFC PS6 Relevance:

Erythropitta venusta is relevant to IFC PS6 critical habitat screening due to its limited distribution and potential habitat overlap with the project area. Field verification is required to confirm its presence and assess habitat suitability.

***Hydrornis schneideri* (Schneider's Pitta)**

IUCN Status: Least Concern (LC)

Criteria: —

Assessment Year: 2023

Population Trend: Decreasing

Taxonomy: Aves > Passeriformes > Pittidae

IUCN Justification:

This species has a large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 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 three generations). The population size is unknown, but is not suspected to be sufficiently small to 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.

Habitat and Ecology:

Hydrornis schneideri, also known as Schneider's Pitta, is potentially present in the Area of Interest (AOI) based on its known habitat preferences and elevation range (900-2,400m). This species inhabits the floor and undergrowth of primary and selectively logged tropical lower and upper montane rainforest. The species is endemic to the mountains of Sumatra, Indonesia.

Habitat Types: Forest - Subtropical/Tropical Moist Montane

Threats:

The key threats to Hydrornis schneideri include shifting agriculture, small-holder farming, and unintentional effects of subsistence harvesting. These threats are ongoing, affecting a minority of the population's range (<50%), and causing slow, significant declines. The threats should be considered in the context of IFC PS6, and their potential impacts on critical habitat.

Code	Threat	Timing	Scope	Severity
2.1.1	Shifting agriculture	Ongoing	Minority (<50%)	Slow, Significant Declines
2.1.2	Small-holder farming	Ongoing	Minority (<50%)	Slow, Significant Declines
5.3.3	Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (<50%)	Slow, Significant Declines

Conservation Actions:

Conservation actions for Hydrornis schneideri are currently limited to sub-national level initiatives. Further investigation through field surveys is needed to assess the effectiveness of these measures and determine if additional conservation actions are required within the AOI. Field verification is recommended to ascertain the species' presence and habitat use.

- [5.4.3] Sub-national level

Geographic Range:

Hydrornis schneideri is endemic to the mountains of Sumatra, Indonesia.

Countries: Indonesia

IFC PS6 Relevance:

Hydrornis schneideri is relevant to IFC PS6 critical habitat screening due to its IUCN status and the presence of potential threats within its range. While currently listed as Least Concern, the decreasing population trend and ongoing habitat loss warrant field verification to confirm its presence and assess habitat criticality within the AOI.

Recommendations

Based on this desktop screening, the following actions are recommended:

1. **Targeted Field Surveys**: Conduct species-specific surveys within the AOI to confirm or rule out the presence of the 46 threatened species identified in this screening.

1. **Priority Species**: The 4 Critically Endangered species (*Asarcornis scutulata*, *Dicerorhinus sumatrensis*, *Manis javanica*, *Manouria emys*) should receive highest survey priority as their confirmed presence would trigger Critical Habitat under IFC PS6 Criterion 1.

1. **Critical Habitat Assessment**: Following field verification, a formal IFC PS6 Critical Habitat assessment should be conducted incorporating confirmed species records, habitat mapping, and ecosystem-level analysis.

1. **Biodiversity Action Plan**: For any confirmed threatened species, develop species-specific management measures consistent with IFC PS6 requirements for net gain (Critical Habitat) or no net loss (Natural Habitat).

References

- IUCN (2024). The IUCN Red List of Threatened Species. Version 2024-1. https://www.iucnredlist.org
- IFC (2012). Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. International Finance Corporation, World Bank Group.

Appendix A - Figures and Maps

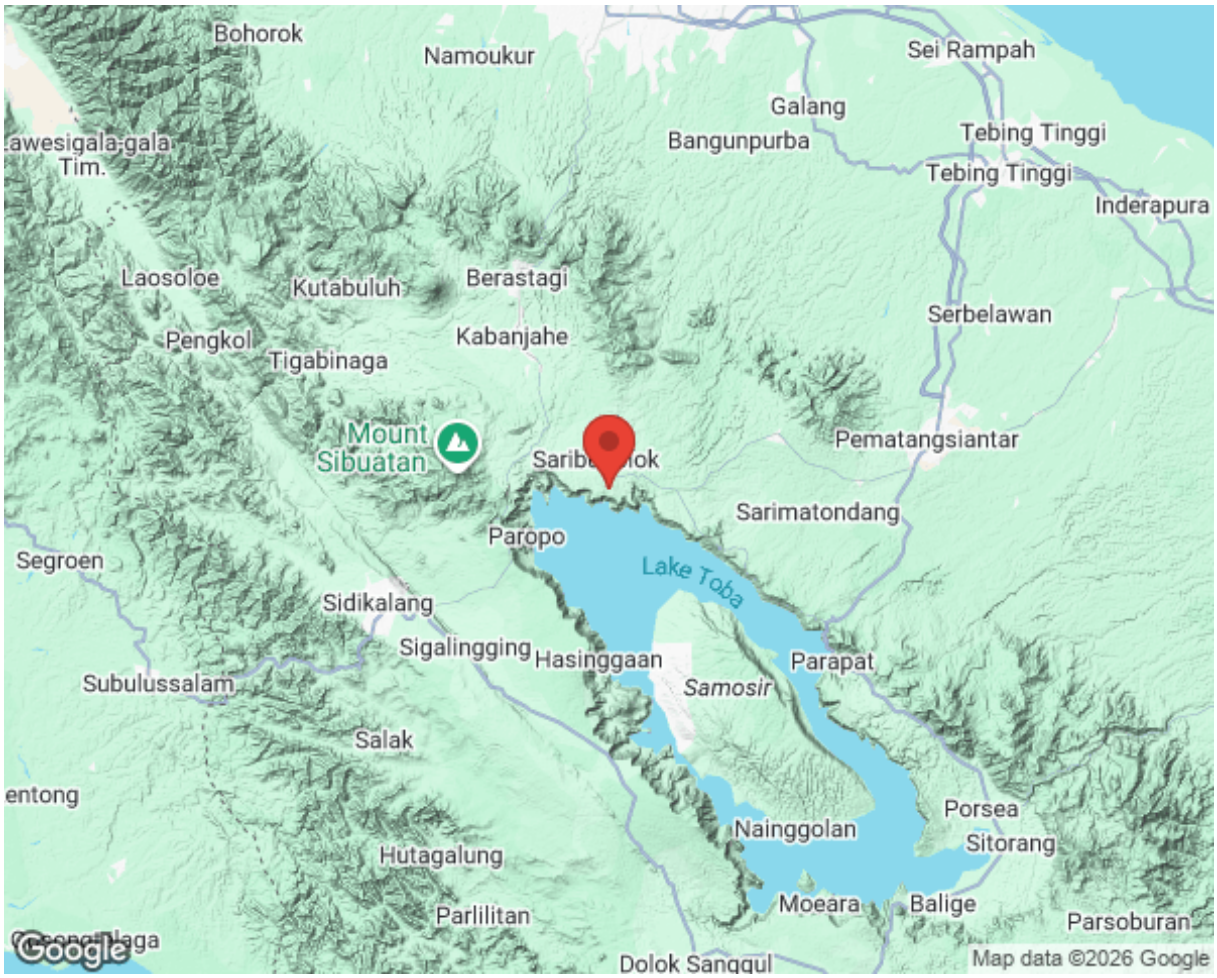

Figure 1: Project Location Map

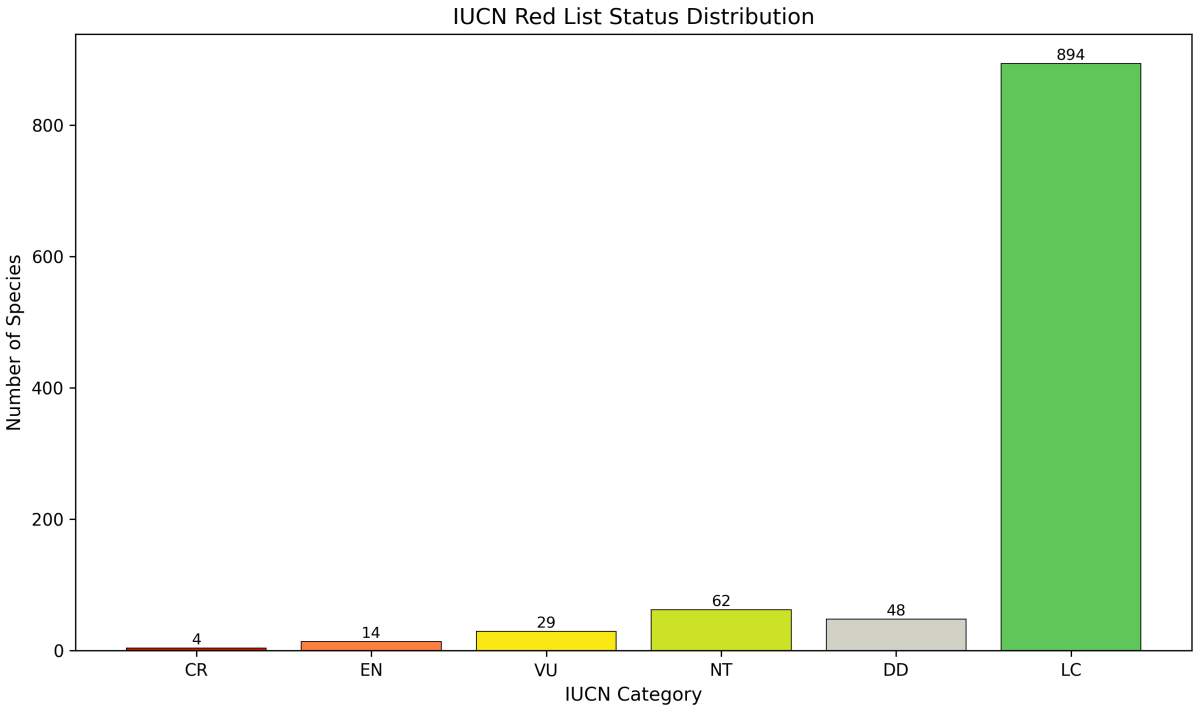

Figure 2: IUCN Status Distribution

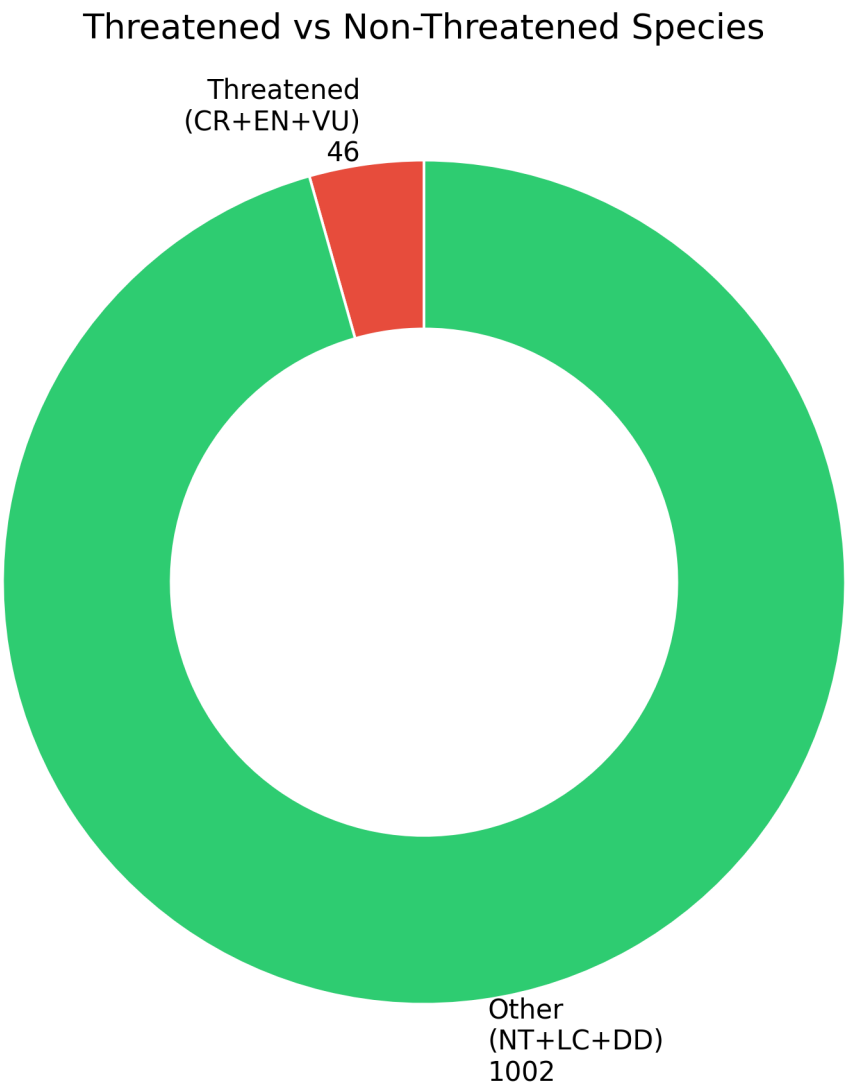

Figure 3: Threatened vs Non-Threatened Species

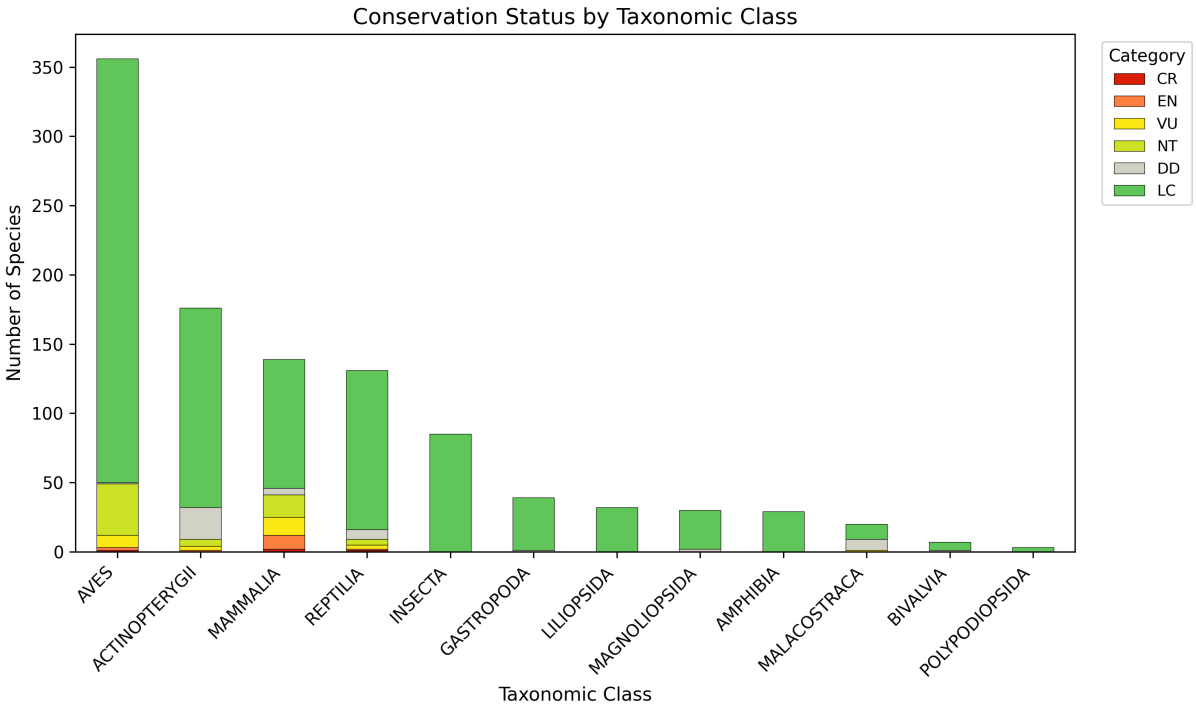

Figure 4: Conservation Status by Taxonomic Class

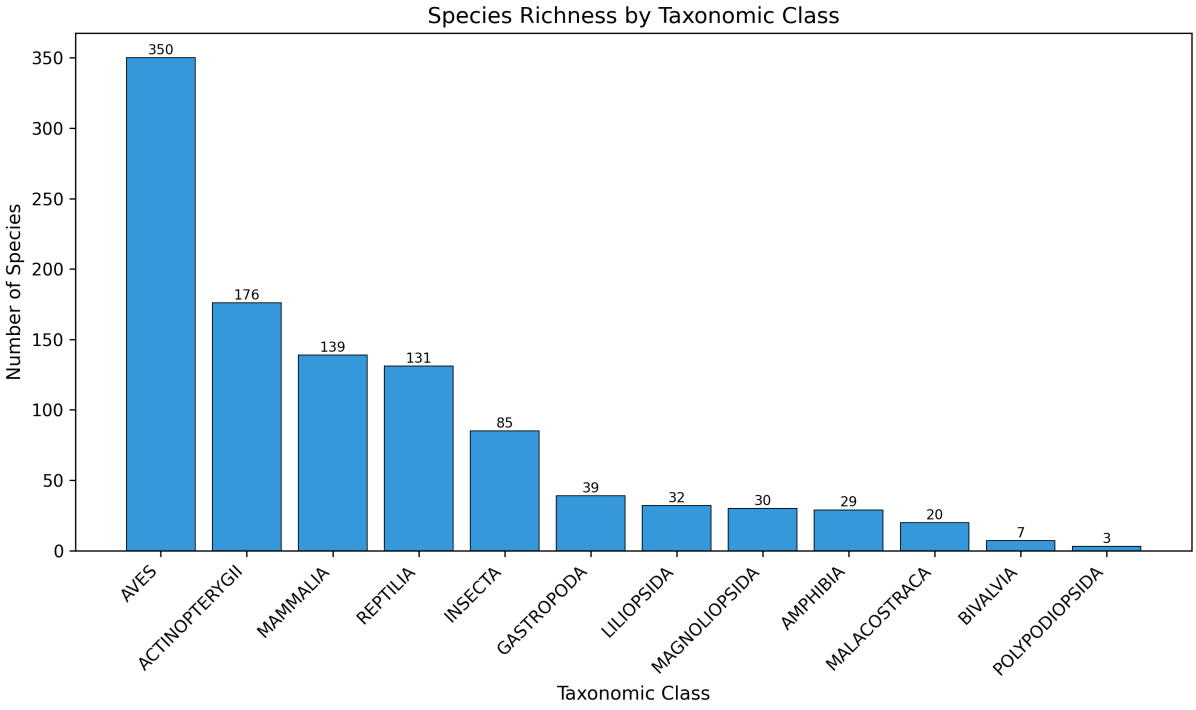

Figure 5: Species Richness by Taxonomic Class

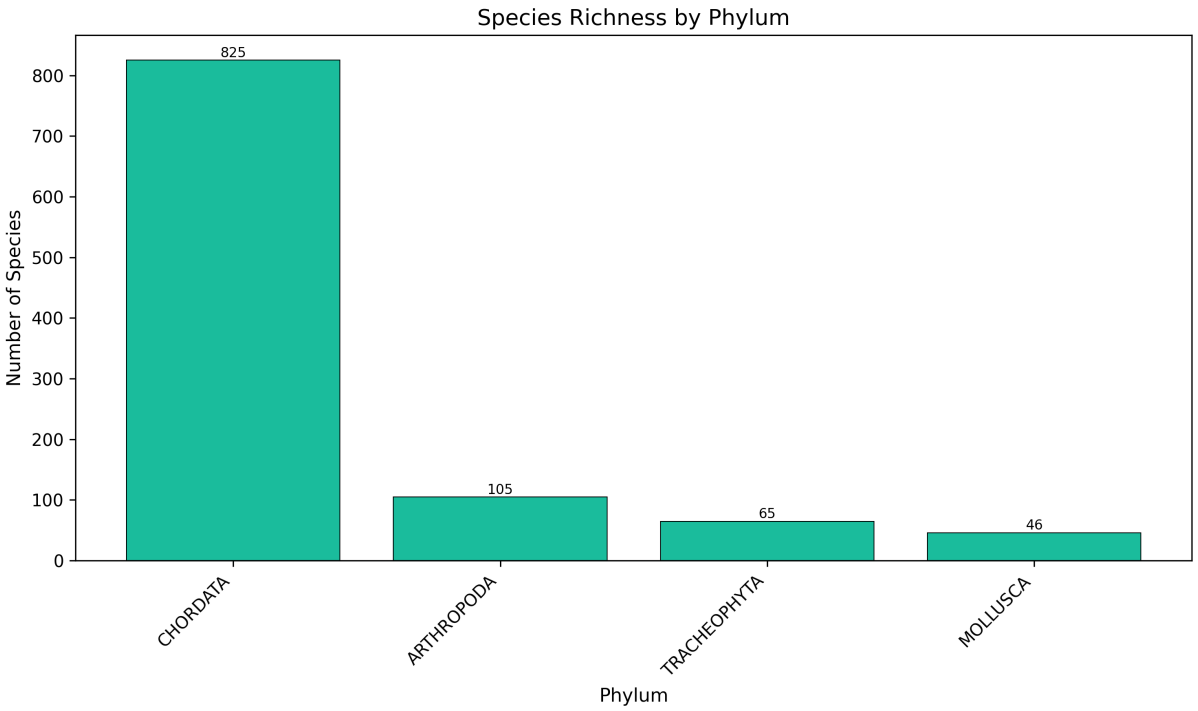

Figure 6: Species Richness by Phylum

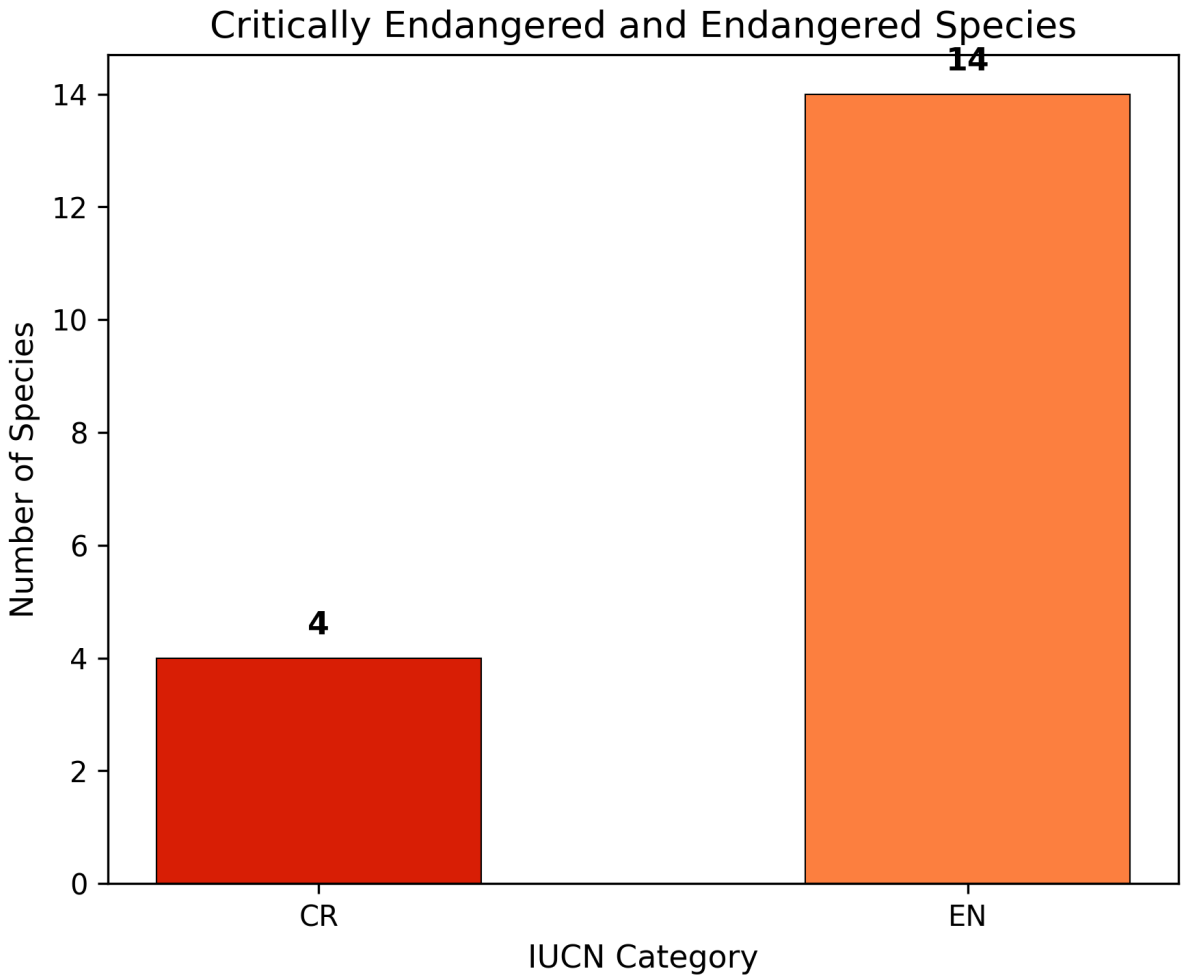

Figure 7: Critically Endangered and Endangered Species