NATIONAL RED LIST

of Threatened Species in Myanmar

2020 | DECEMBER

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Ministry of Natural Resources and Environmental Conservation

First Edition, 2020

Published by: Ministry of Natural Resources and Environmental Conservation, Nay Pyi Taw, Myanmar

Citation: MONREC (2020), National Red List of Threatened Species in Myanmar, Ministry of Natural Resources and Environmental Conservation, Nay Pyi Taw, Myanmar

Cover/ Back Photos, Layout Graphic: Min Hein Htike/ WCS

Printed in: Yangon, Myanmar

FOREWORD

Myanmar's Natural Heritage is an irreplaceable resource, and its conservation is the duty of all citizens. The Ministry of Natural Resources and Environmental Conservation (MONREC) is ensuring that the status of biodiversity is being improved through safeguarding ecosystems, species and genetic diversity. We regularly promote some of our most iconic wildlife species such as Tigers, Asian Elephants, White-browed Nuthatch and Burmese Star Tortoise but these are just a sliver of our country's incredible biological diversity. With this book I am pleased to welcome our First National Red List of Threatened Species in Myanmar.

Over the past three years, we have reviewed many of Myanmar's threatened species through a series of workshops and trainings to understand species populations, status and threats. This process has also strengthened our necessary network of national experts in Myanmar that we need to encourage and expand for future generations. We recognize the roles of our local experts, university students and faculties, national and international conservation NGOs and government expertise that have all been strengthened through this process. We can now apply our improved understanding of biodiversity and the capacity of our national expertise to understand our threatened species and informing conservation priorities.

As a signatory of the Convention of Biological Diversity, Myanmar is responsible to achieve our global commitments and ensure that our biodiversity resources will be conserved, for many generations to come, through our National Biodiversity Strategy and Action Plan (2015-2020). The NBSAP highlighted Aichi Target 12, that the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained by 2020. This process for developing our National Red List of Threatened Species in Myanmar is a significant achievement to meet the targeted activities of NBSAP.

We see our First Edition of the National Red List of Threatened Species as a starting point to improve our conservation, research and management of these threatened populations and ensure that rare species will be saved, common species will remain common and that all lives will continue to thrive in Myanmar.

H. E. U Ohn Winn

Union Minister

Ministry of Natural Resources and Environmental Conservation

PREFACE

The valuable biodiversity of Myanmar is an integral part of our country's future. Through the Forest Department we manage our protected areas, our forests and important wetlands, and the management of our zoological and botanical gardens. We also strive to reach Myanmar's global commitments to the Convention on Biological Diversity (CBD), the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) for the protection and management of our biodiversity.

Through all of these activities we have developed and tracked our progress through Myanmar's National Biodiversity Strategy and Action Plan (NBSAP) and have reached our targets set out for 2015 to 2020. By developing this National Red List of Threatened Species in Myanmar we have worked towards ***Aichi Target 12: By 2020, the extinction of known threatened species have been prevented and their conservation status, particularly of those most in decline, have been improved and sustained.*** Through this book we have also reached ***Target 12.3: By 2020, a National Red List of selected taxa has been produced*** based on a series of trainings and workshops on species assessment building our national expertise to use IUCN's red listing criteria.

This book is a starting point for our National Red List to build stronger skills and begin an ongoing process to document and monitor species populations across the country. In this book, some selected taxa particularly mammals, birds and reptiles have been assessed for national level conservation status. It is very important to continue our work on this process to cover all threatened taxa in Myanmar, and to support the integration of expertise, data, and capacity of different stakeholders from government institutions, universities, NGOs, and INGOs to ensure our biodiversity treasures will continue to be studied, managed and protected for future generations.

Dr. Nyi Nyi Kyaw

Director General

Forest Department

Ministry of Natural Resources and Environmental Conservation

ACKNOWLEDGEMENTS

The National Red List of Threatened Species in Myanmar would not have been possible without the extensive support, guidance and experience of many technical experts from Myanmar and overseas, and we are very grateful for them sharing their knowledge. The Red List was achieved under the leadership of the Myanmar Forest Department, with continuous technical, financial, and logistical support from the Wildlife Conservation Society (WCS). Comprehensive technical support was given by James Tallant, from the Global Red List Unit of the International Union for the Conservation of Nature (IUCN), as well as Dr. Monica Böhm from the Institute of Zoology from the Zoological Society of London (ZSL).

The publication is a result of the profound collaboration and knowledge sharing of those who involved in a series of consultation workshops, as well as regular feedback on draft documents, mainly under the structure and support of the UNDP-GEF 5 project, *Strengthening Sustainability of Protected Areas Management in Myanmar (2015-2020)*.

We would like express our special thanks to all participants and technical experts for their contributions in terms of species information, photographs, maps and their tireless efforts to complete the assessment process as well as for all their contributions to the text. The contributors are gratefully listed in Appendix 1 of the main document. Additional thanks to those who provided their photographs of rare and endangered species and gave permission to use them in this important publication.

The National Red List of Threatened Species in Myanmar has been a highly collaborative effort, under the leadership of the Nature and Wildlife Conservation Division, Forest Department, Ministry of Natural Resources and Environmental Conservation, with important engagement of Myanmar Universities and technical experts, as well as local conservation organisations including Friends of Wildlife (FoW), Myanmar Bird and Nature Society (MBNS), Biodiversity and Nature Conservation Association (BANCA), and international organisations including the Wildlife Conservation Society (WCS), the World Wide Fund for Nature (WWF), Fauna & Flora International (FFI), Instituto Oikos, and the Turtle Survival Alliance (TSA).

SUMMARY

The Myanmar National Red List of threatened species contributes to the GEF funded *"Strengthening Sustainability of Protected Area Management in Myanmar"* project. To support the National Biodiversity Strategy Action Plan (2015-2020), Target 12 for commitment to prevent the extinction of known threatened species and improve their conservation status, the National Red List of some selected taxa has been produced. This report summarizes the assessment process and its results with detailed descriptions for some selected threatened species in Myanmar.

The assessment process has been initiated in 2017 with the guidance for Forest Department (FD) and technical supports from the IUCN. In 2018, the Ministry of Natural Resources and Environmental Conservation (MoNREC) officially formed the coordination committee and five national working groups for mammal, bird, plant, aquatic, reptile & amphibian species. The FD organized five national level training workshops followed by the series of internal discussions among the working group members revealed the ever first results of national red list for threatened species in Myanmar. The inputs from the national universities, research institutes, individual experts, international and national experts from conservation organizations maximized the results of species assessment.

Regarding the data availability, some mammals, birds and reptiles & amphibians have been assessed and some were described in details for this first edition. The results were summarized as follows:

Group	Total number known in Myanmar	Globally threatened species in Myanmar	Assessed in National Red List	Detailed description
Mammals	329	84	44	32
Birds	1147	173	31	21
Reptiles	410	n/a	110	31

Among the national level assessed species, 2 Critically Endangered, 17 Endangered, 10 Vulnerable, 2 Near Threatened and 1 Least Concern species were counted for mammals. For avifauna, 16 Critically Endangered, 4 Endangered and 1 Vulnerable species were documented. For turtle and tortoise, 21 Critically Endangered, 3 Endangered, 2 Vulnerable, 4 Least Concern species were recorded. Only one crocodile was listed as Endangered species for this report.

The continuation of assessment process is highly recommended in order to support the national commitment for the improvement of conservation status of threatened species in Myanmar. Conservation planning will be key to identify what are the best conservation actions and where to apply them to reduce the risk of extinction for Myanmar's threatened species.

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I. INTRODUCTION

Eastern Hoolock Gibbon (Male) at Htamanthi Wildlife Sanctuary
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I. INTRODUCTION

1. Background

The Myanmar National Biodiversity Strategy and Action Plan 2015 - 2020 set one target and two actions being addressed in this First Edition of the Myanmar National Red List.

Target 12.3 states that 'by 2020, a National Red List of selected taxa has been produced' along with the following two actions:

Action 12.3.1 Conduct Red List assessments for key taxa, with a particular focus on endemic species and

Action 12.3.2 Hold training workshops to build capacity on application of the Red List categories and criteria.

From 2017 until 2020, the Ministry of Natural Resources and Environmental Conservation (MONREC) through the Nature and Wildlife Conservation Division (NWCD), developed the first National Red List of threatened species with the supports of WCS, WWF, and IUCN. This process focused on organizing a series of assessor training workshops in Naypyidaw. Over 70 participants representing Forest Department, WCS, WWF, FFI, Instituto Oikos, BANCA, Myanmar Floriculturist Association, Taunggyi University, Yangon University, Mandalay University, and Myitkyina University, and many other organizations and individual experts attended the training workshops (see contributors lists in Appendix 1).

In addition to building national capacity in the use of the IUCN Red List categories and criteria, the formal establishment of five National Red List Working Groups – focusing on mammals, birds, reptiles and amphibians, plants, and aquatic species with the approval of MONREC. This first document covers only some taxa for mammals, birds and reptiles. There are still additional works to be done to complete remaining reptiles, amphibians, plants and aquatic species.

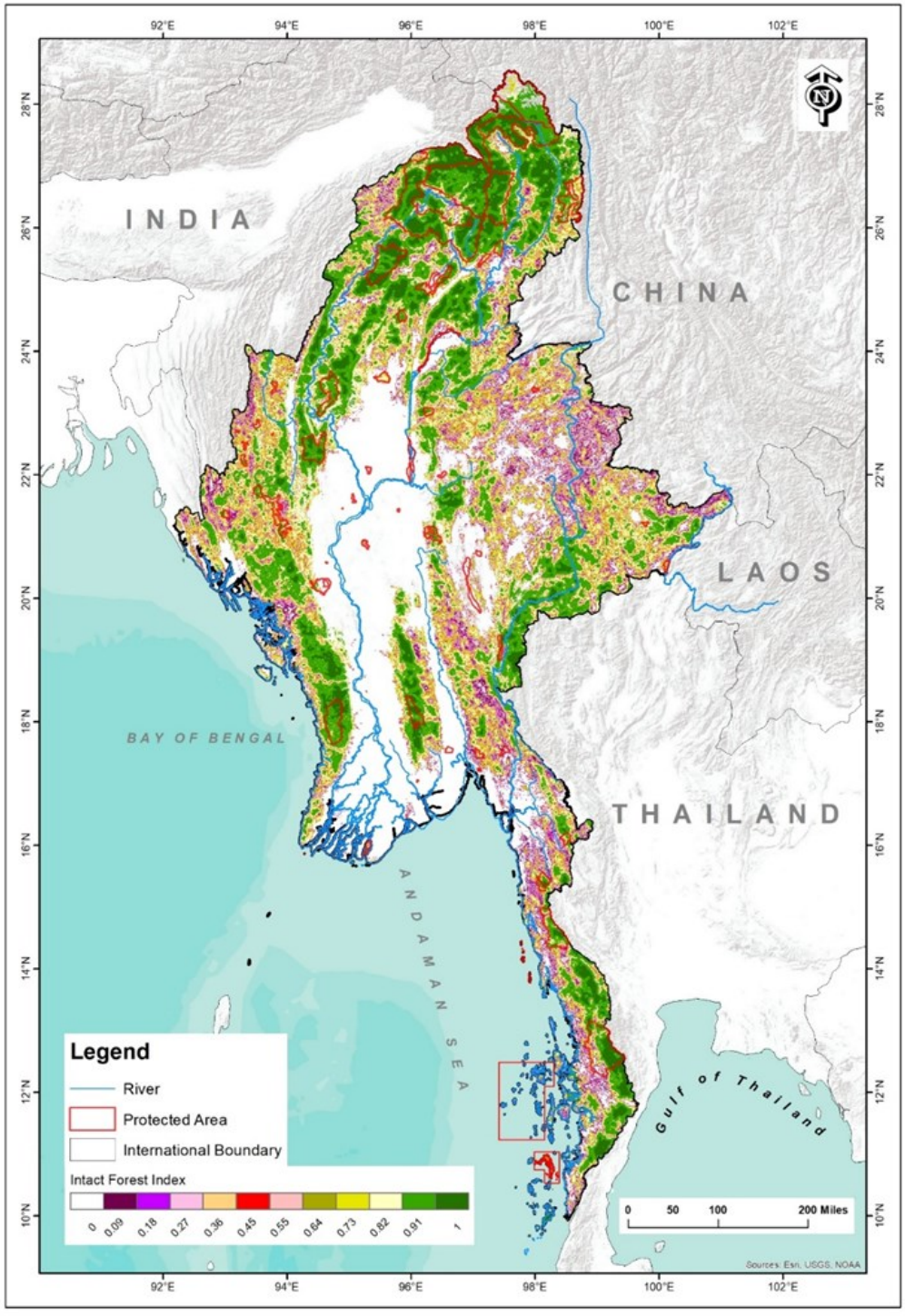
2. Objectives

The assessment on National Red List of Threatened Species in Myanmar had two main objectives:

1. To assess the status of threatened species using for the first time data reported by collaborating experts throughout Myanmar
2. To contribute to regional conservation planning through provision of an up-to-date dataset of the mammals, birds and reptiles in Myanmar.

The assessment provides this summary report on the status of threatened mammals, birds and reptiles along with background and other interpretative material.

Figure.1 Intact Forest Condition of Myanmar (2019)
Source: WCS



3. The Country and Biodiversity

Myanmar's wildlife includes a mix of species from north, south and southeast Asia, which find shelter in a wide range of habitats throughout the country. Snow-capped and remote Himalayan Mountains crown the north, and serve as the headwaters for some of Myanmar's major rivers. The rivers flow through wide, central plains and down to mangrove-lined river deltas before emptying into the Bay of Bengal. Along the country's southern tail, the coastal waters abound with coral reefs amidst more than 800 islands of the Mergui archipelago. A wide diversity of ecosystems is represented in Myanmar, including mixed wet evergreen, dry evergreen, deciduous, and montane forests. There are also patches of shrub lands and woodlands on karst limestone outcrops and, in some coastal areas, scattered heath forests. In addition, a wide variety of distinctive, localized vegetation formations occur, including lowland floodplain swamps, mangroves, and seasonally inundated grasslands.

Specifically, Myanmar hosts 15 biodiversity corridors. These play a key role in maintaining landscape connectivity between key biodiversity areas, thus preserving ecological processes and safeguarding against the potential impacts of climate change. Myanmar supports one of the most diverse, yet imperiled chelonian faunas in Southeast Asia. At least 26 species of freshwater turtles and tortoises are known to occur in Myanmar, including eleven endemic forms. Despite such high levels of diversity turtle populations face severe threats from rampant commercial and subsistence harvesting, and habitat destruction.

Myanmar has 49 Globally Threatened mammal species as well as 16 Near-Threatened and 26 Data Deficient mammal species. Of these, Rhinoceros have almost become extinct in the wild and other species like Asian elephants, Tigers, and Snub-Nosed Monkeys are severely threatened with extinction.

There are over 100 fish species listed as vulnerable many of them are species of sharks. Most species of shark are threatened by intensive fishing pressure for fins and meat. Heavy harvest using disruptive techniques such as electric and dynamite fishing are at the root of sharp declines in fisheries populations across Myanmar waters. There are 47 Globally Threatened bird species in Myanmar with seven listed as Critically Endangered. There is a suite of rare but widespread species reliant on undisturbed forested streams, however increasing deforestation and habitat degradation is posing their future at a stake.

II. NATIONAL RED LIST ASSESSMENT

Malayan Sunbear at Htamanthi Wildlife Sanctuary
©WCS

II. NATIONAL RED LIST ASSESSMENT

1. IUCN Red list

The IUCN Red List of Threatened Species is the world's most comprehensive information source on the global conservation status of plant, animal and fungi species. It is based on an objective system for assessing the risk of extinction of a species should no conservation actions taken (IUCN, 2019). Species are assigned to one of eight categories of threat based on whether they meet criteria linked to population trend, population size and structure and geographic range. Species are listed as Critically Endangered, Endangered or Vulnerable and these are called as threatened species.

The IUCN Red list is not just a register of names and associated threat categories, but it is rich compendium of information on the threats to the species, their ecological requirements, where they live, and information on conservation actions that can be used to reduce or prevent extinctions.

2. National IUCN Red List Assessment Process

The National Red List assessment has been carried out in a three-step process. First, the assessors have determined which taxa and which national population to access (STEP-ONE). Next, the national population for each taxon is evaluated according to the IUCN Red List categories and criteria (IUCN 2001, 2012), and a preliminary category is assigned (STEP-TWO).

The effect of populations of the same taxon in neighboring regions on the national population is then considered, the preliminary category is up-or down listed if appropriate (STEP-THREE). Thus, the final categorization reflects the extinctions risk for the taxon within the regions being evaluated, having considered potential interactions with populations outside that region.

3. The Process of Preparing the 2020 National Red List

To implement and publish the 2020 National Red List, the workshops and meetings for National Red List of Threatened Species in Myanmar were conducted six times. The first workshop was carried out in July 2017 and the second workshop was held in September 2017. After these

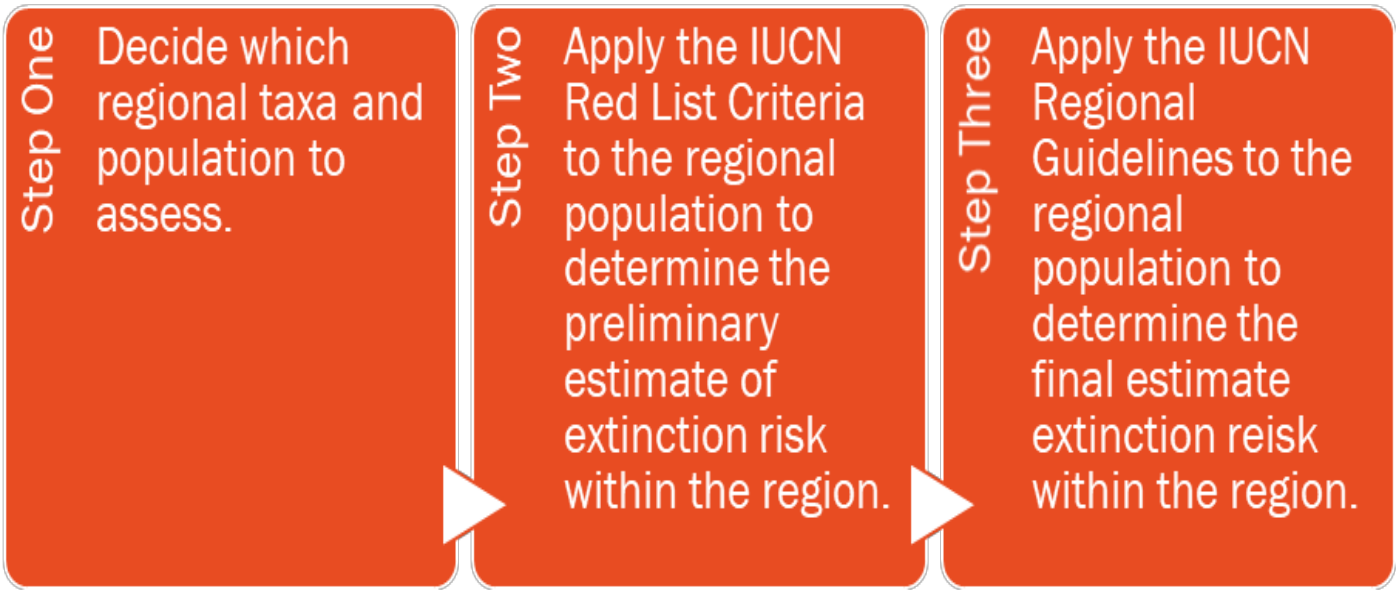


Figure.1 The process of assessing the extinction risk of taxa at the regional level and national level

Source: Guidelines for Application of IUCN Red List Criteria at Regional and National Level (Version 4.0)

workshops, the working groups for National Red List of Threatened Species have been formed according to the Gazettement (No.34/2018) of MONREC on 28 March 2018. The working groups for the Red List are:

⇒ Mammal Species Working Group

⇒ Bird Species Working Group

⇒ Reptile and Amphibian Working Group

⇒ Aquatic species working Group

⇒ Flora Species Working Group, and

⇒ Coordination Committee

And then, we conducted the third workshops in 2018 July, and as a result, we could explore the approaches how to identify the National Red List of Threatened Species for each category. Additionally, we could list some amphibians and reptiles species into National Red List.

The fourth workshop continued in January 2019. This workshop has also conducted for the assessment on the National Red List status of mammals species. The fifth National Red List Refreshment Training Workshop was held at August 2019 and refining the red list assessment of mammals, birds, turtle and reptiles. During the assessment process, 44 mammals out of 329 in total (13%), 31 birds out of 1147 in total (2.8%) and 110 reptiles & amphibians out of 410 in total (27%) were assessed for national level red list species. Among these assessed species, only 32 mammals (74 %), 21 birds (66%) and 31 reptiles

No.	Activities	Date	Participants	Activities
1	1st IUCN red list Training Workshop	July, 2017	28	Capacity Building on National Red List Assessment
2	2nd IUCN red list Training Workshop	September, 2017	66	Pre planning for National Red List assessment Process
3	Organizing (5) Committee for species of each family	March, 2018	-	Working groups, for each categories, were founded
4	3rd IUCN red list Training Workshop	July, 2018	70	Reptile and Amphibian Species were evaluated
5	4th IUCN red list Training Workshop	January, 2019	43	Mammals Species were Evaluated
6	5th IUCN red list Training Workshop	August, 2019	56	Evaluated Species were finalized and refined.

Table 1: List of workshops conducted for the preparing National Red List of Threatened Species.

(29%) were scripted for the detailed description as a first edition of the National Red List of threatened species in Myanmar (see Appendix 2 , 3, 4 for mammal, bird , reptile & amphibian, respectively).

4. The Regional Red List Categories

All taxa listed as Critically Endangered qualify for Vulnerable and Endangered, and all listed as Endangered qualify for Vulnerable. Together these categories are described as 'threatened'. The threatened categories form a part of the overall scheme. It will be possible to place all taxa into one of the categories. A representation of the relationships between the categories is shown in the following figure.

The IUCN Red List Categories (IUCN 2001, 2012) are used unaltered at regional levels, with three exceptions or adjustments.

a) EXTINCT (EX): A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

b) EXTINCT in the WILD (EW): The category of Extinct in the Wild (EW) should be assigned only to taxa that are extinct in the wild across their entire natural range, including the region, but that are extant in cultivation, in captivity, or as a naturalized population (or populations) outside the past range. If a taxon is (globally) EW but extant as a naturalized population within the region, the regional population should not be evaluated according to the IUCN Criteria, but should still be considered of conservation importance and preserved as a relict of a taxon which is Extinct in the Wild. It may also be considered an important source of individuals for re-introduction efforts within its natural range.

c) REGIONALLY EXTINCT (RE): Taxa extinct within the region but extant in other parts of the world should be classified as Regionally Extinct (RE). A taxon is RE when there is no reasonable doubt that the last individual potentially capable of reproduction within the region has died or disappeared from the region or, in the case of a former visiting taxon, individuals no longer visit the region. It is not possible to set any general rules for a time period since the last observation before taxa are classified as RE. This will depend on how much effort has been devoted to searches for the taxon, which in turn will vary, both with organism and region. If the regional authority decides to adopt any time frames for RE assessments, these should be clearly specified. Populations of long-lived individuals that have ceased to reproduce within the region (e.g. as a

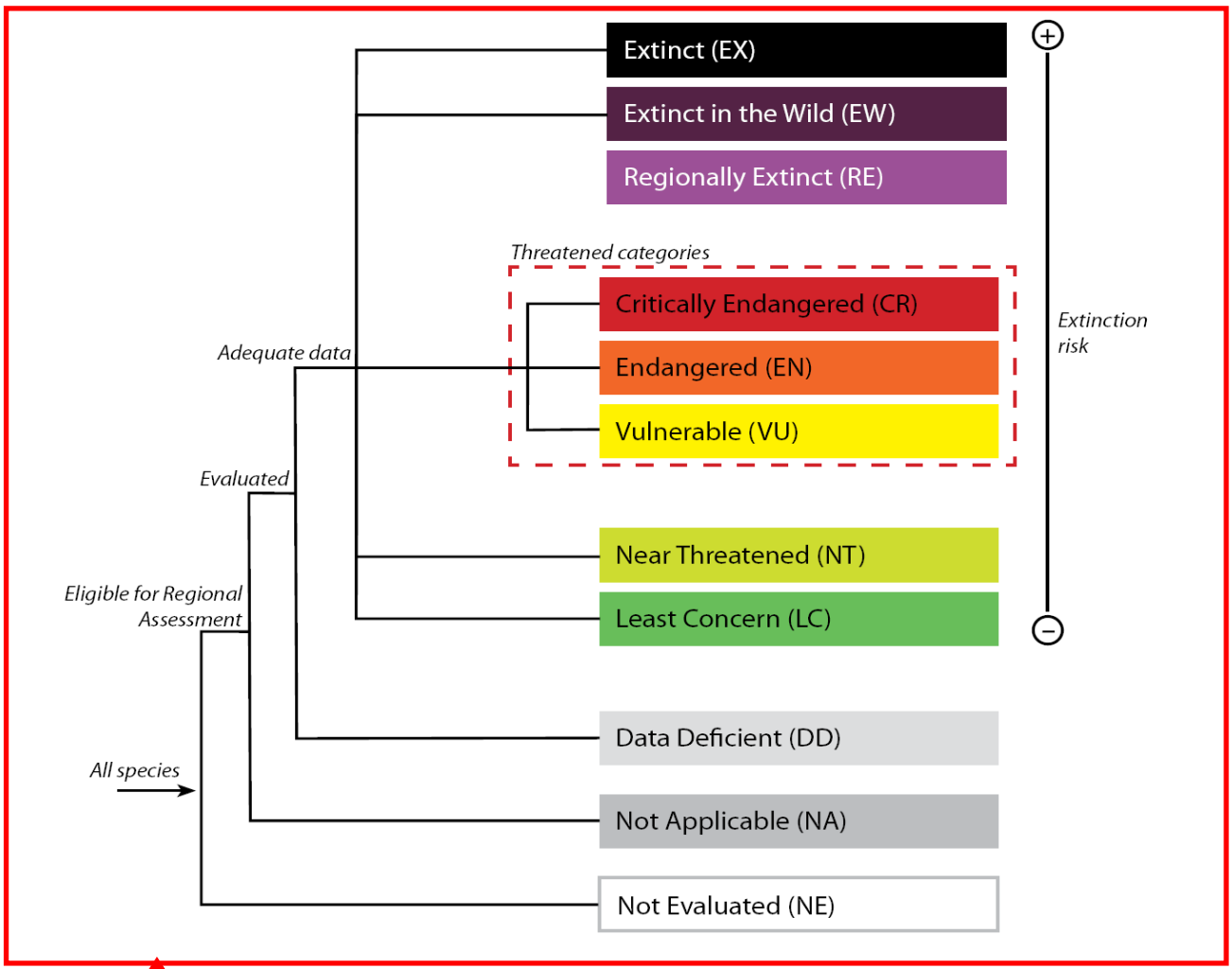


Figure 2 - IUCN Red List Categories at the regional level (IUCN 2003)

result of a deteriorating environment) should be regarded as potentially capable of reproduction and consequently should not be classified as RE. On the other hand, vagrant individuals of a formerly regionally breeding taxon that reach the region should not be regarded as potentially capable of reproduction.

d) CRITICALLY ENDANGERED (CR): A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

e) ENDANGERED (EN): A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

f) VULNERABLE (VU): A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

g) NEAR THREATENED (NT): A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

h) LEAST CONCERN (LC): A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

i) DATA DEFICIENT (DD): A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

j) NOT APPLICABLE (NA): Taxa not eligible for assessment at the regional level (mainly introduced taxa and vagrants) should be assigned the category Not Applicable (NA). The addition of the categories Regionally Extinct and Not Applicable means that there are 11 possible categories for regional assessments.

k) NOT EVALUATED (NE): A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

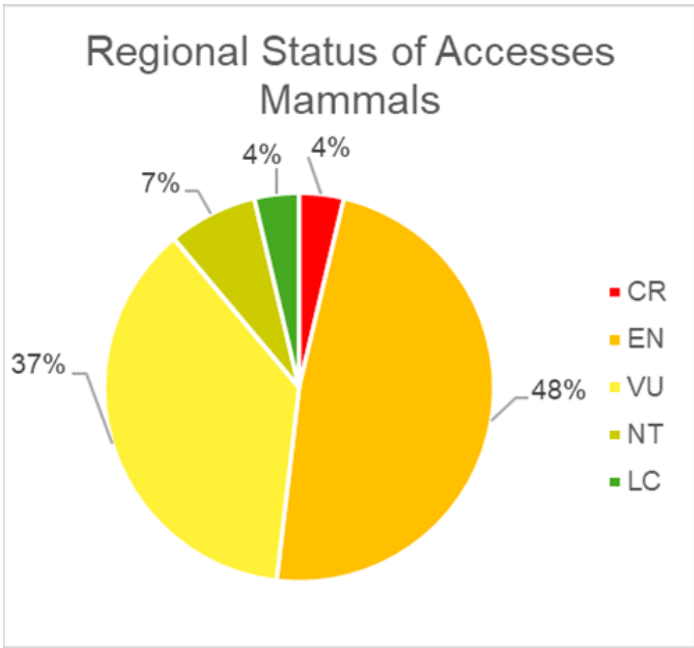
III. SPECIES ACCOUNT

Mammals

Bengal Tiger Occurred at Htamanthi Wildlife Sanctuary
©WCS

Summary of National Red List Status of Mammals

A total of 44 mammals (13%) out of 329 were assessed during the process. However, only 31 species were scripted for detailed description and among them 89% are threatened with extinction in Myanmar. Of these, two are Critically Endangered, seventeen are Endangered and nine are Vulnerable. A further two (7%) were considered to be Near Threatened. One species (4%) is listed as Least Concern (Figure 4). Table 2 summarizes the detailed description list of 32 mammals in terms of both national and global status.



No.	Common Name	Scientific name	Status in Myanmar	Global Status
1	Tiger	*Panthera tigris*	CR	EN
2	Myanmar Snub-nosed Monkey	*Rhinopithecus strykeri*	CR	CR
3	Eld's Deer	*Rucervus eldii*	EN	EN
4	Phayre's Langur	*Trachypithecus phayrei*	EN	EN
5	Western Hoolock Gibbon	*Hoolock hoolock*	EN	EN
6	Lar Gibbon	*Hylobates lar*	EN	EN
7	Asian Elephant/ Indian Elephant	*Elephas maximus*	EN	EN
8	Shortridge's Langur	*Trachypithecus shortridgei*	EN	EN
9	Banteng	*Bos javanicus*	EN	EN
10	Malay Tapir	*Tapirus indicus*	EN	EN

No.	Common Name	Scientific name	Status in Myanmar	Global Status
11	Greater short- nosed Fruit Bat	*Cynopterus sphinx*	EN	LC
12	Skywalker Gibbon	*Hoolock tianxing*	EN	NA
13	Marbled Cat	*Pardofelis marmorata*	EN	NT
14	Fishing Cat	*Prionailurus viverrinus*	EN	VU
15	Dusky Langur	*Trachypithecus obscurus*	EN	NT
16	Tail-less Leaf-nosed Bat	*Coelops frithii*	EN	NT
17	Shield-faced Roundleaf Bat	*Hipposideros lylei*	EN	LC
18	Leopard	*Panthera pardus*	EN	VU
19	Clouded Leopard	*Neofelis nebulosa*	EN	VU
20	Burmese Long-tailed Macaque	*Macaca fascicularis aurea*	VU	NA
21	Tenasserim Langur	*Trachypithecus barbei Blyth*	VU	DD
22	Asiatic Black Bear	*Ursus thibetanus*	VU	VU
23	Malayan Sun Bear	*Helarctos malayanus*	VU	VU
24	Eastern Hoolock Gibbon	*Hoolock leuconedys*	VU	VU
25	Kitti's Hog-nosed Bat/ Bumble Bat	*Craseonycteris thonglongyai*	VU	NT
26	Rhesus Macaque, Rhesus Monkey	*Macaca mulatta*	VU	LC
27	Lesser Short-nosed Fruit Bat	*Cynopterus brachyotis*	VU	LC
28	Asiatic Golden Cat	*Catopuma temminckii*	VU	NT
29	Leopard Cat	*Prionailurus bengalensis*	NT	LC
30	Lesser Oriental Chevrotain	*Tragulus kanchil*	NT	LC
31	Jungle Cat	*Felis chaus*	LC	LC

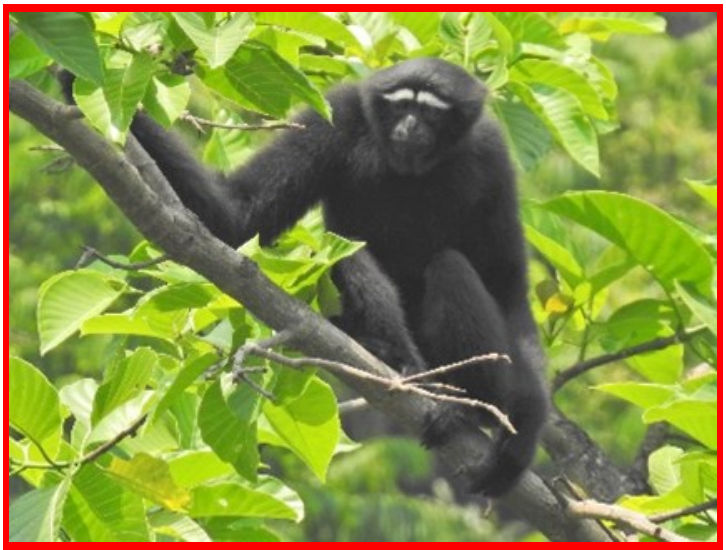
ENDANGERED A2acd+3cd+4acd

Western Hoolock Gibbon | **Order: Primates**

Hoolock hoolock (Harlan, 1834) | **Family: Hylobatidae**

Anauk-pine-myauk- hlwe-kyaw (Myet-khon-phyu)

Justification: The species has to be declined by at least 50% over the past 40 years (approximately three generations) mainly from hunting and habitat loss. Over the coming 40 years, this decline is assumed to reach similar proportions due to continuing habitat loss.



Western Hoolock Gibbon (male) in the proposed Mann Reserved Forest
©Aung Lin/FFI

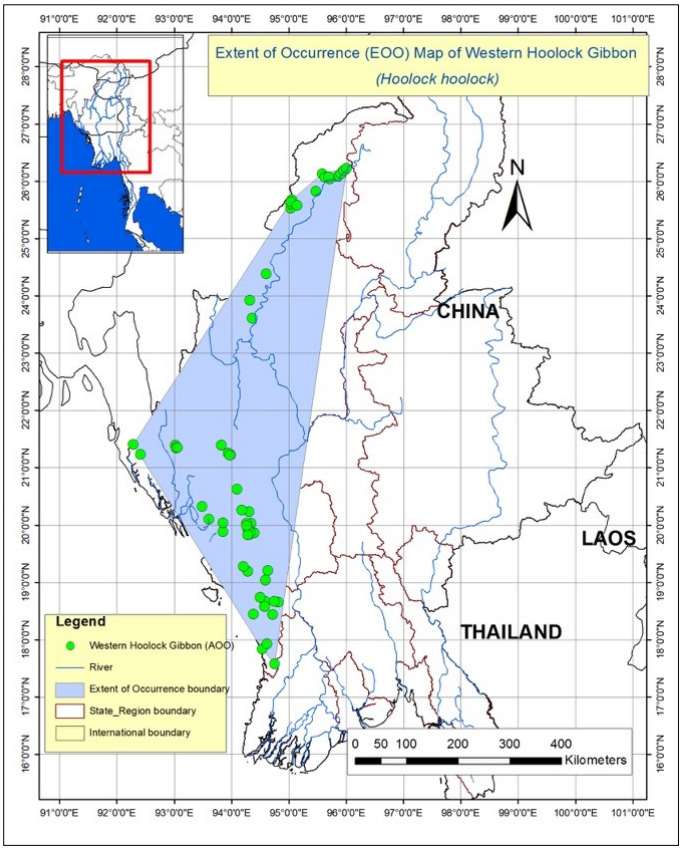
Measurements (cm): Head and body (450-650) (Francis, 2008 & 2019). Body weight (kg) : 6-9 (Francis, 2008 & 2019); Male 6.9 – Female 6.1 (Mittermeier *et al*., 2013).

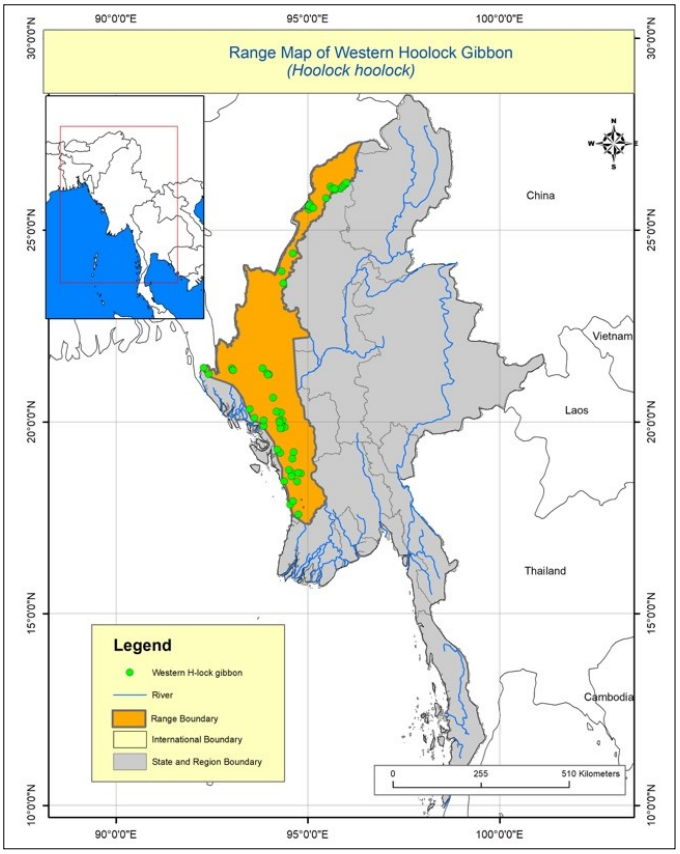
Distribution: Bangladesh and NE India between the Brahmaputra and Salween Rivers and to the South of the Brahmaputra and East of the Dibang rivers, extending into NW Myanmar (Francis, 2008 & 2019). In Myanmar, *H. hoolock* distribute mainly in west of Chindwin River, along the Rakhine Yoma, northern Rakhine state bordering Bangladesh and Naga Land (Geissmann *et al.,* 2013).

Habitat and Ecology: Primary tropical rainforest, evergreen and semi-evergreen forest, subtropical broadleaf hill forest, tropical moist deciduous forest, occasionally in bamboo thicket. Arboreal and diurnal, being most active from dawn until middle of afternoon. Occurs in small family groups of 3 to 6 individuals (Francis, 2008 & 2019).

Wild population: The generation length for *H. hoolock* is 13 years (https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1). Population trend is declining and estimated total population in Myanmar is ranged from 82,000 -110,000. Number of mature individuals estimated from 54,120 - 72,600. AOO of the species is 13,092 km^2 and its EOO covers 160,000 km^2 in its habitats (Geissmann *et al*, 2013).

Threats to survival: Although this species is being protected as of religious belief by some ethnical groups, they are threatened from anthropogenic activities. It is hunted for meat and brain for subsistence and commercial use. Additional threats include habitat fragmentation and degradation caused by illegal logging and road construction (Geissmann *et al*., 2013).





Conservation actions and research undertaken: *H. hoolock* is listed as completely protected animal according to the Conservation of Biodiversity and Protected Area Law (2018). The protected areas such as the Natmataung National Park and Rakhine Yoma Elephant Sanctuary where *H. hoolock* inhabiting are given conservation priority.

Community based conservation on *H. hoolock* is being carried out in Mann Reserve Forest, Northern Rakhine Yoma. Conservation awareness, population estimation, threat monitoring, distribution studies are also being implemented. The attempt on establishment of protected area is one of the conservation actions taken. The population survey on *H. hoolock* is also conducted in Southern Rakhine Yoma.

Conservation actions and research needed: Co-management with local communities for gibbon conservation, threats assessment to its survival, law enforcement to counter wildlife trade, public awareness, molecular study, population trend, KAP analysis are needed to conduct.

Use and Trade: The smoked head attaching its brain is used to be traded for medicinal purpose (Ngwe Lwin, *in personal comm.*). Live animals for pet trade and bush meat are also recorded (Geissmann *et al.*, 2013).

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm , Robert. J. Tizard

ENDANGERED A2acd

Lar Gibbon | **Order: Primates**

Hylobates lar (Linneaus, 1771) | **Family: Hylobatidae**

Myauk-Lwe-Kyaw-Let-Phyu

Justification: This species is believed to have undergone 50 % decline because of slow reproduction rate (birth interval is at least 3 years) and late maturity, severely fragmented habitats (due to commercial plantation), and high hunting pressure for pet trade.

Lar Gibbon at Hlaing Bwe township, Kayin state

©No No Wai

Measurements (cm): Head and body (45.0-60.0) (Francis, 2008 & 2019)

Male 41.4; Female 41. 6 (Mittermeier *et al.,* 2013). Body weight (kg) : 4-7 kg (Francis, 2008 & 2019)

Male 4.1-7.3(n=43); Female 3.9-6.1 (n=37) (Mittermeier *et al.,* 2013)

Distribution: Globally distributes in Myanmar, Thailand, North-West Laos, Peninsular Malaysia and south Yunnan, China (Francis, 2008 & 2019). In Myanmar, the species occurs only in the east of the Thanlwin River particularly in the states of Shan, Kayah , Kayin , Mon , and Tanintharyi Region (Geissmann *et al.,* 2013).

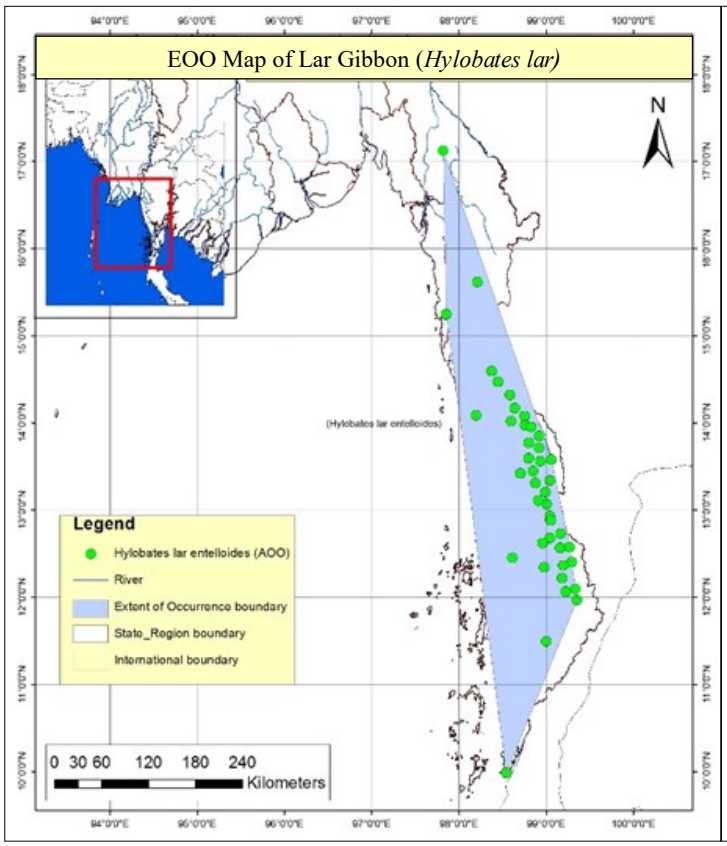
Habitat and Ecology: *H. lar* inhabits lowland forest to dipterocarp forest: mixed deciduous bamboo forests: evergreen, semi-evergreen, and wet evergreen forests; and even peat-swamp forests, mainly below 1,200 m above sea level (Mittermeier *et.al*, 2013).

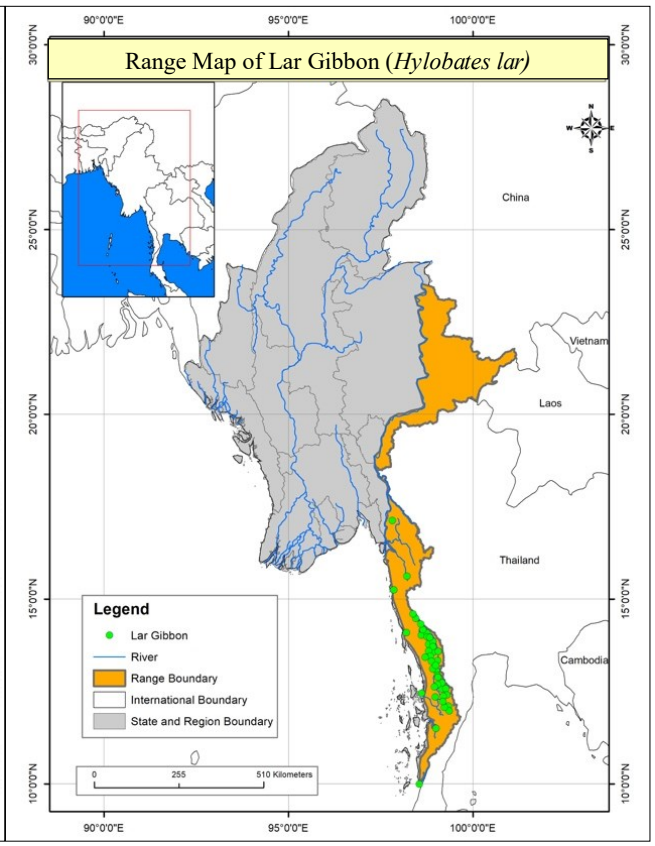
H. lar is diurnal and arboreal species, rarely descending to the ground. Normally lives in a family group with adult male and female including up to three offspring (Francis, 2008 & 2019).

Wild population: The generation length for *H. hoolock* is 15 years (https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1,). Population trend is declined with 50% rate. AOO of the species is 168 km^2 and its EOO covers 20,342.42 km^2 in its habitats.

Threats to survival: This species is facing severe habitat loss due to land conversion for commercial plantations.

Conservation actions and research undertaken: It is listed as completely protected animal





according to the Conservation of Biodiversity and Protected Area Law (2018). This species is given conservation priority particularly in the protected areas such as Tanintharyi Nature Reserve governed by the Myanmar Forest Department as well as indigenous community conserved areas. Public awareness for conservation of this species was conducted in the forested area along Lenya and Ngawon River in the southern Tanintharyi Region. Molecular study is being carried out by the researchers.

Conservation actions and research needed: Population survey and threat assessment should be conducted in order to have more conservation implementation.

Use and Trade: They are traded especially for pet.

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm

VULNERABLE VU A3 cd

Eastern Hoolock Gibbon | **Order: Primates**

Hoolock leuconedys (Groves, 1967) | **Family: Hylobatidae**

A-She-Paine-Myauk-Hlwe-Kyaw (Myat Khon Phyu)

Justification: Listed as Vulnerable because it is suspected that a population decline, projected to be more than 30%, would be met over the next three generations (approximately 40 years), inferred from habitat loss and hunting (Geissmann *et al.*, 2013).

Hoolock Gibbon inhabiting Indawgyi Biosphere Reserve
©Ngwe Lwin

Measurements (cm): Head and body (45-65) (Francis, 2008 & 2019). Body weight (kg): 6-9 kg (Francis, 2008 & 2019)

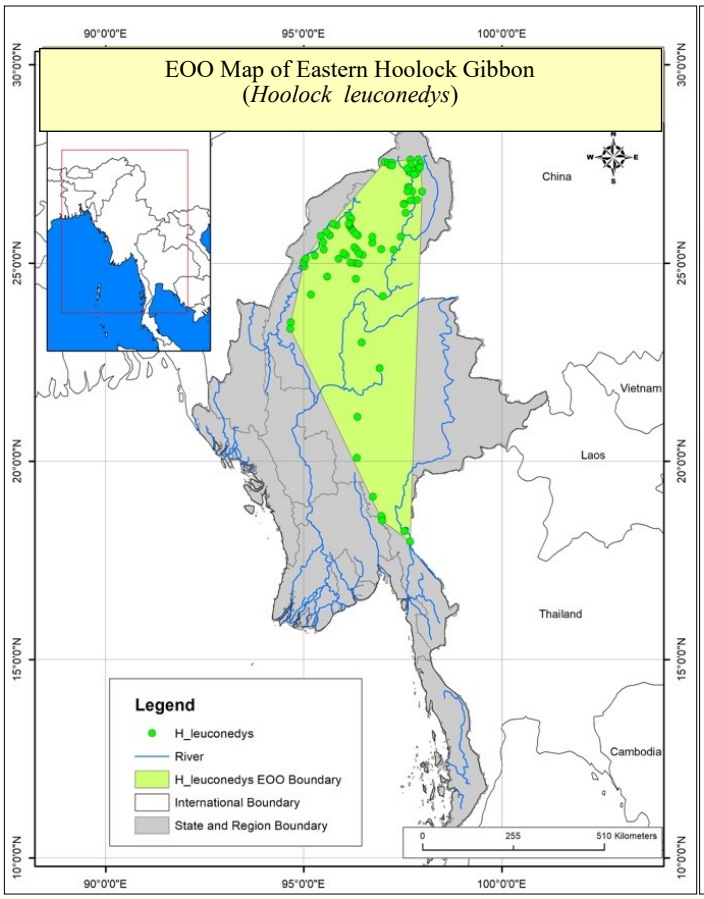
Distribution: Globally, *H.leuconedys* distributes *in* NE India, Assam, E Myanmar, S China in Yunnan Province. Major population of this species distributes in Myanmar while few population found in India. In Myanmar, this species can be found in the east of Chindwin and Ayeyarwaddy Rivers (Francis, 2008 & 2019) particularly in Kachin State, Kayin State and Sagaing Region. Small population can also be found in Shan State (Geissmann *et al.*, 2013).

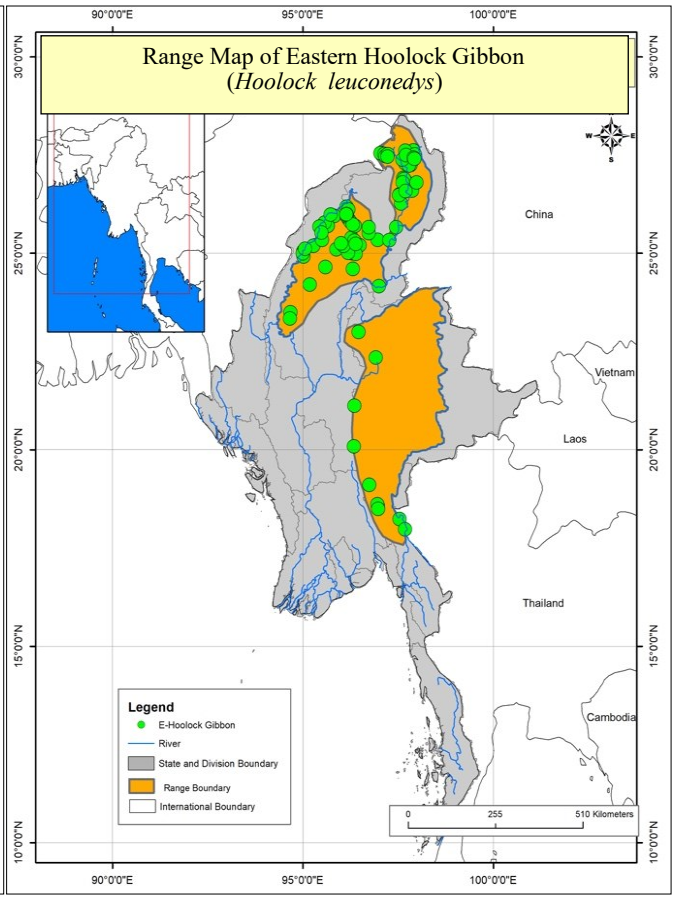
Habitat and Ecology: Primary tropical rainforest, evergreen and semi-evergreen forest, subtropical broadleaf hill forest, tropical moist deciduous forest, occasionally in bamboo thicket. Arboreal and diurnal, being most active from dawn until middle of afternoon. The group size of one family comprises of 3 to 6 individuals (Francis, 2008 & 2019).

Wild population: The generation length for *H. leuconedys* is 14 years (https:// datadryad.org/ resource/doi:10.5061/dryad.gd0m3/1). Population trend is declining and estimated total population in Myanmar is ranged from 310,000-370,000 total population. Number of mature individuals estimated from 204,600- 244,200 (2/3 of total individual). AOO of the species is 42,571 km^2 and its EOO covers 255,154 km^2 in its habitats (Geissmann *et al.,* 2013).

Threats to survival: Although this species is being protected as of religious belief by some ethnical groups, they are threatened from anthropogenic activities. It is hunted for meat and brain for subsistence and commercial use. Additional threats include habitat fragmentation and degradation caused by illegal logging and road construction (Geissmann *et al*., 2013).

Conservation actions and research undertaken: *H. leuconedys* is listed as completely protected





animal according to the Conservation of Biodiversity and Protected Area Law (2018). This species inhabits Hponkanrazi Wildlife Sanctuary, Pi Taung Wildlife Sanctuary, Indawgyi Wildlife Sanctuary, Htamanthi Wildlife Sanctuary and Proposed Maharmyaing Wildlife Sanctuary.

The population survey, distribution study, law enforcement and public awareness are being conducted in Hponkanrazi Wildlife Sanctuary, Indawgyi Wildlife Sanctuary, Htamanthi Wildlife Sanctuary and Proposed Maharmyaing Wildlife Sanctuary. The behavioural study is being conducted in the Indawgyi Lake Wildlife Sanctuary.

Conservation actions and research needed: Co-management with local communities for gibbon conservation is needed to implement. Threats assessment to its survival, law enforcement to counter wildlife trade, public awareness, molecular study, population trend should be conducted. Knowledge, attitude and practice on species conservation is also needed to analyse.

Use and Trade: The smoked head attaching its brain is used to be traded for medicinal purpose live animals for pet trade and bush meat are also recorded (Geissmann *et al.*, 2013).

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monika Bohn

ENDANGERED B1,a,b (ii, iii, iv)

Skywalker Gibbon | **Order: Primates**

Hoolock tianxing | **Family: Hylobatidae**

Myauk-Hlwe-Kyaw

Justification: Listed as Endangered in national level because the extent of occurrence of this species is believed to be approximately 900 km^2 and its habitat is declining due to land conversion particularly massive banana plantations.

Adult female of Sky Walker Gibbon
©Fan Pengfei

Measurements (cm): Head and body (unknown), Body weight (kg) : unknown

Distribution: This species only occurs in South China and East Myanmar, east of N'mai Kha River and Ayeyarwaddy River. Southern most distribution of *H. tianxing* in Myanmar is likely to be Shweli River flowing to the Ayeyarwaddy River near Bamaw (Fan *et al.,* 2017).

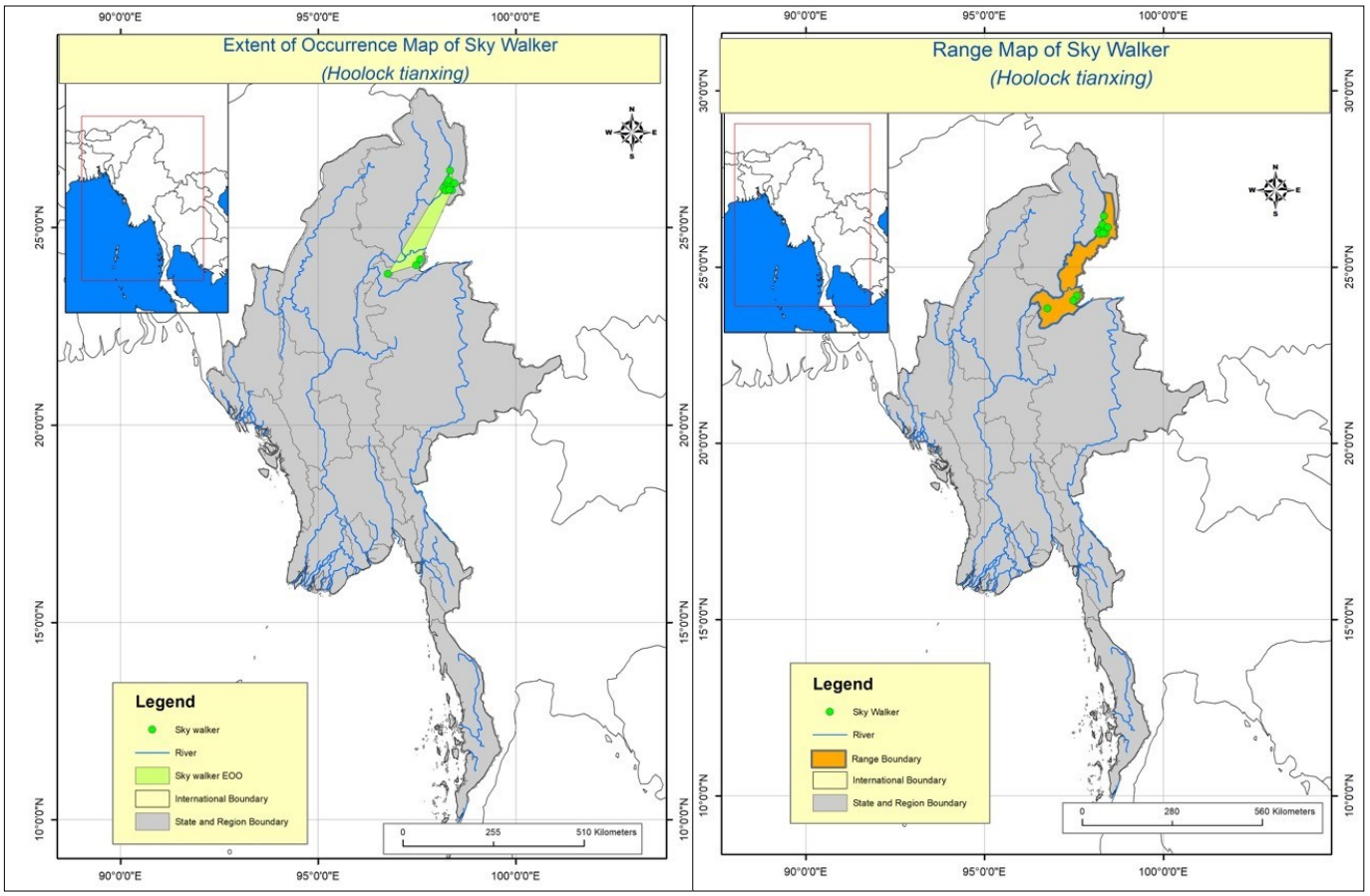
Habitat and Ecology: Primary tropical rainforest, evergreen and semi-evergreen forest, subtropical broadleaf hill forest, tropical moist deciduous forest, occasionally in bamboo thicket. Arboreal and diurnal, being most active from dawn until middle of afternoon. The group size of one family comprises of 3 to 6 individuals (Fan *et al.,* 2017). This species split from *H. leuconedys* in 2017 by the Chinese primatologists as a new species (Fan *et al.,* 2017).

Wild population: No information on the wild population in Myanmar. The EOO of the species covers 863 km^2 in its habitats.

Threats to survival: Hunting is supposed to be high for both subsistence and commercial uses because its distribution is closed to the areas with high demand on bush meat. Moreover, there is habitat loss due to the agriculture expansion according to Nijman (2015).

Conservation actions and research undertaken: *H. tianxiang* is listed as completely protected species under the Conservation of Biodiversity and Protected Area Law (2018). There is no specific conservation activity for this species except the management implementations of Imawbum National Park and its surrounding areas.

Conservation actions and research needed: Co-management with local communities for its conservation is needed to implement. Threats assessment to its survival, law enforcement for counter



wildlife trade, public awareness, molecular study, population trend should be conducted. Knowledge, Attitude & Practice on species conservation is also needed to analyze.

Use and Trade: The smoked head attaching its brain is used to be traded for medicinal purpose. Live animals for pet trade and bush meat are also recorded (Geissmann *et al.*, 2013).

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm

VULNERABLE A2abcde; B2ab (i,ii,iii,iv,v)

Burmese Long-tailed Macaque, Crab-eating Macaque **Order: Primates**

Macaca fascicularis aurea I.Geoffroy [1831] **Family: Cercopithecidae**

Myauk-ta-nga

Justification: The subspecies of *Macaca fascicularis aurea* is listed as Data Deficient in IUCN (Ong & Richardson 2008). In Myanmar, some habituated groups in religious areas have increased their population due to food availability. Co-existence between human and non-human primates may lead to conflicts near human habitation, while populations away from human habitation have declined by human activities such as habitat loss, habitat degradation, hunting and wildlife trade.

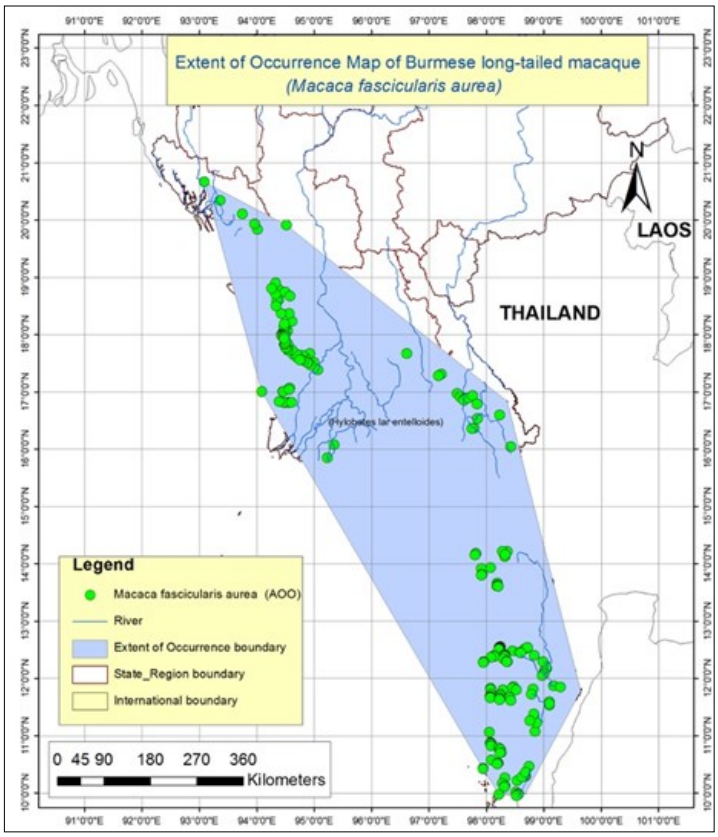
Burmese Long-tailed Macaque inhabiting at Bayin Nyi Cave in Kayin State ©Ngwe Lwin

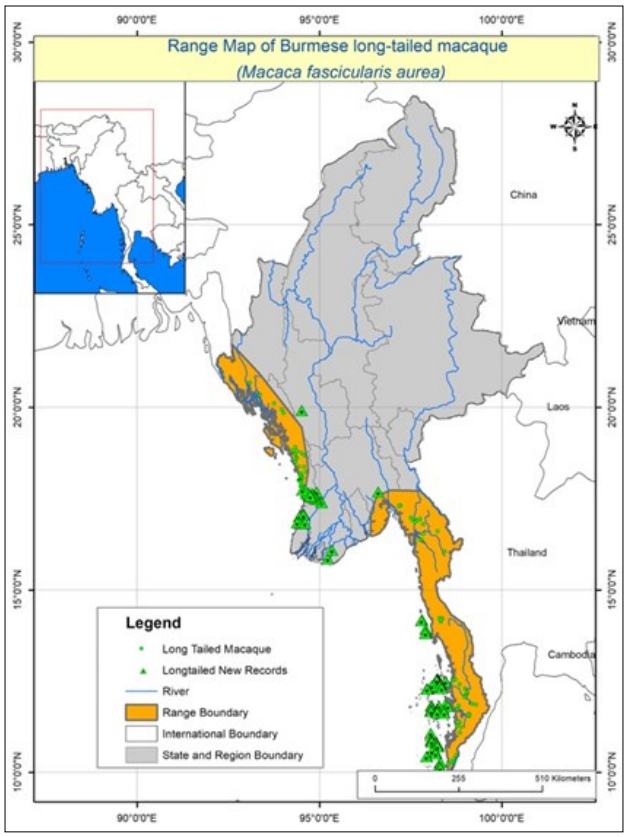
Measurements (cm): Head & Body Length (HBL); 51±5.6 (male), 46±1.9(female). Tail Length (TL); 57±2.7 (male),50±1.5 (female). Relative Tail Length (RTL); 112±8.76% (male) 108.82±3.58%(female) Body weight (kg): Adult Male; 7.24±1.94 Adult Female; 5.05±0.76 (Aye Mi San, 2007)

Distribution: Subspecies *M. fascicularis aurea* is distributed mainly in Myanmar and only 3 locations in Thailand. They inhabit Myanmar's coastal region from the north-western border (21˚N; Rakhine Coastal Region) to the Ayeyarwady delta, Gulf of Murtaban to southernmost border (9˚58'N; Tanintharyi Region including Myeik Archipelago) according to Aye Mi San & Hamada, 2011.

Habitat and Ecology: *M. f. aurea* inhabits evergreen rainforest, limestone mountain forest, and mangrove forest (Mittermeier *et al*., 2013). It is an omnivore so it can adapt well in island habitats where molluscs and crustaceans are abundant. *M. f. aurea* has unique tool-use behavior in mangrove habitat (Gumert, 2018). The group size ranges from 30 to 80 individuals, sometimes up to 100. The reproductive season lasts from March to July in Myanmar. The lactation period coincides with the rainy season, the highest food availability period (Aye Mi San, 2007).

Wild population: The generation length for *Macaca fascicularis* is 14 years https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1 . Population trend is increasing in limestone habitats near human habitation, but inbreeding occurs in these isolated populations. The estimated total population in Myanmar ranges from 11,130-107,900 individuals (Aye Mi San & Hamada, 2011). AOO of the species is 380 km^2 and its EOO covers 272,200 km^2 in its habitats.





Threats to survival: Habitat fragmentation, habitat degradation and habitat loss due to infrastructure development, logging, and cement production in limestone mountains; hunting for protein sources and wildlife trade are threats to their survival.

Conservation actions and research undertaken: *M. fascicularis* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Law enforcement and effective conservation strategy are needed be implemented. Habitat conservation, genetic conservation and species conservation should be promoted in Myanmar. The unique stone -tool use behavior in long-tailed macaques should be studied in island groups (Gumert,2008). This subspecies has Evolutionary Significant Units (ESU), therefore molecular study is needed to delineate the evolutionary history of the macaques. The public awareness program (How can human and monkey co-exist in same habitat?) needs to be delivered to local community, and law enforcement is needed to prohibit wildlife trade.

Use and Trade: Hunting for protein sources, model for biomedical research, trophies and live animal smuggling were observed especially near border areas.

Assessors: Aye Mi San, Naw May Lay Thant, Ngwe Lwin, Aung Ye Tun, Nyan Hlaing, Michael D. Gumert, Hiroyuki Tanaka, and Yuzuru Hamada.

Reviewers: James Tallant, Monica Böhm

VULNERABLE B2 b (i, ii)

Rhesus Macaque, Rhesus Monkey **Order: Primates**

Macaca mulatta (Zimmermann, 1780) **Family: Cercopithecidae**

Myauk-sat

Justification: In natural habitats, the Rhesus Macaque (*Macaca mulatta*) is facing threats from anthropogenic activities (e.g. hunting and wildlife trade), therefore it is likely that in these areas, the population will be gradually declining. Habituated groups in Central Myanmar can adapt well in human habitation and their populations are gradually increasing. This might lead to human and non-human primate conflicts in areas of co-existence.

Rhesus Macaque inhabiting at Pho Win Taung ©Ngwe Lwin

Measurements (cm): Head & Body Length (HBL): 41- 66 (male), 37 – 58 (female), Tail Length (TL): 12.5 - 31(male), 12.5 - 28 (female), Relative Tail Length (RTL): <70%, Body weight (kg): Adult Male: 4 – 14.1, Adult Female: 3 – 10 (Mittermeier *et al*.,2013)

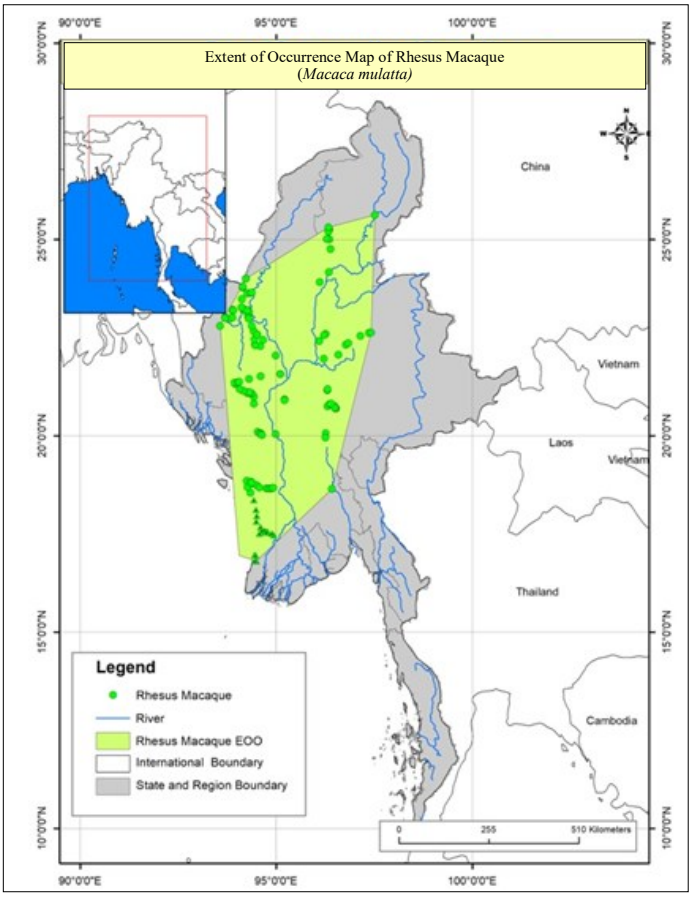
Distribution: The Rhesus Macaque (*Macaca mulatta*) is distributed throughout Myanmar except the southern part of the country such as Mon, Kayin and Tanintharyi. Myanmar Rhesus Macaque macaques are composed of haplo-groups of India and China (Smith and McDonough, 2005).

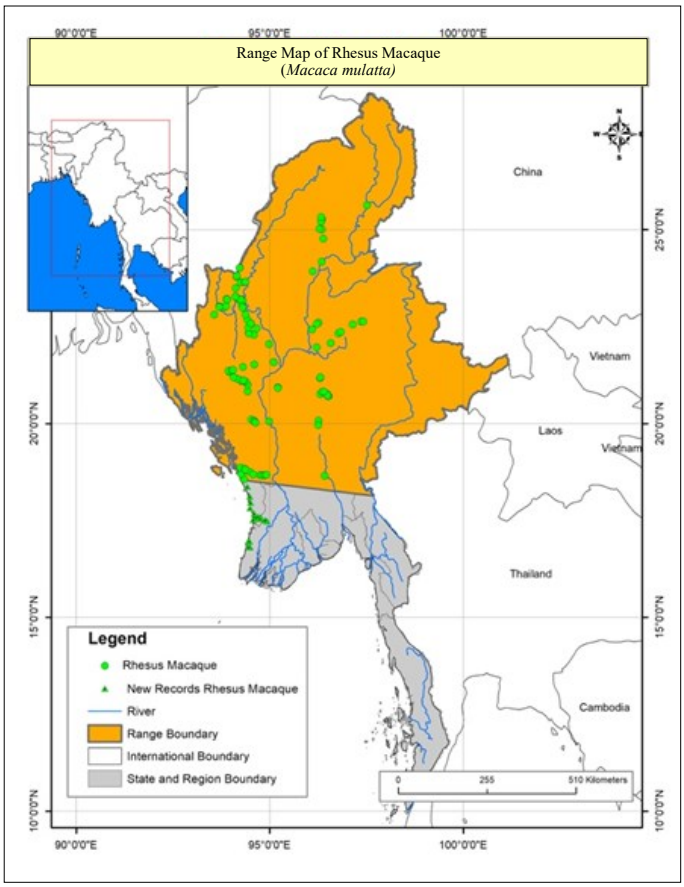
Habitat and Ecology: *M. mulatta* inhabits mixed deciduous forest, evergreen forest and secondary forest (Mittermeier *et al*.,2013). This species can live as a commensal with humans in some areas of Myanmar. Although they are omnivores, they prefer fruits, seeds, shoot and insects.

Wild population: Exact population data of this species is unknown. The generation length for *Macaca mulatta* is 14 years https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1. Group size ranges from 80 to 200 individuals in some provisioned areas such as Mt. Popa, Po-win-taung, Ye-ta-gon-taung, Nga-mauk-taung and Kyauk-taw-taung. Overpopulation was observed in Hlawga Wildlife Park (ca. 1,000 individuals), where they are breeding year-round due to the surplus of food. AOO of the species is 476 km^2 and its EOO covers 268017.782 km^2 in its habitats.

Threats to survival: Habitat fragmentation, habitat loss and degradation, hunting for consumption and wildlife trade are threats to the species.

Conservation actions and research undertaken: *M. mulatta* was designated as normally protected





animals according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Law enforcement and effective conservation strategy are needed to be strengthened. Habitat conservation, genetic conservation and species conservation should be promoted in Myanmar.

The genetic sequence of Myanmar rhesus macaques is closely related with Indian Origin rhesus macaque: their genetic structure is significantly suited for biomedical research. Therefore, effective conservation action should be implemented for wild rhesus groups in natural habitats. Additional molecular study of *M. mulatta* is needed. The public awareness program (How can human and monkey co-exist in same habitat?) needs to be delivered to local community, and law enforcement is needed to prohibit wildlife trade.

Use and Trade: Hunting for protein sources, model for biomedical research, trophies and live animal trade occurred especially near border areas.

Assessors: Aye Mi San, Naw May Lay Thant, Ngwe Lwin, Aung Ye Tun, Nyan Hlaing, and Yuzuru Hamada.

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2 abcd;C1

Myanmar Snub-nosed Monkey | **Order: Primates**

***Rhinopithecus strykeri* (Geissmann *et al*., 2010)** | **Family: Cercopithecidae**

Na-Kaunglan-Myauk, Myauk-Na-Tauk-Tel

Justification: The distribution of Myanmar Snub-nosed Monkey (*Rhinopithecus strykeri*) is extremely limited and very small population (267-337 individuals) occurs in north eastern Myanmar. Hunting pressure and habitat loss are major threats affecting on its small population.

Myanmar Snub-nosed Monkey inhabiting in the Imawbum area ©FFI

Measurements (cm): Head and body c. 55.5 (Male); c. 54 (Female), Body weight (kg): c. 14 (Male); c. 8.5 (Female), Tail Length (cm): c. 78 (Male); c. 68 (Female) (Mittermeier *et al*., 2013)

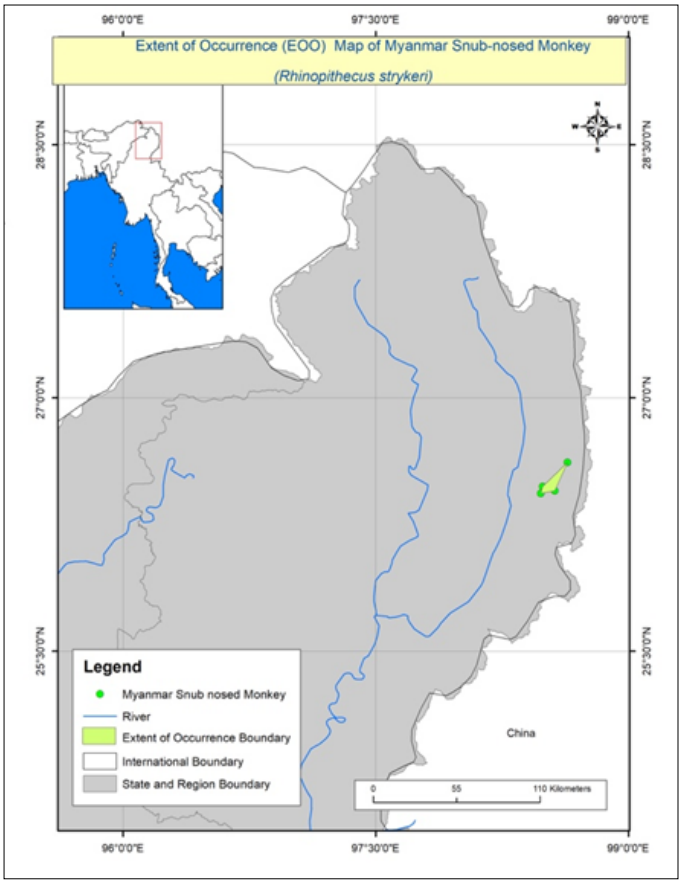
Distribution: Globally, *R. strykeri* distributes in North-east Myanmar (Imawbum area in Kachin State) and Southern China (Gaolilgongshan National Nature Reserve, Yunnan Province) (Francis, 2008 & 2019). In Myanmar, it occurs on the mountain range between east of N'mai Kha River and China-Myanmar Border. Mainly inhabits around the Maw River (Geissmann *et al.,* 2010).

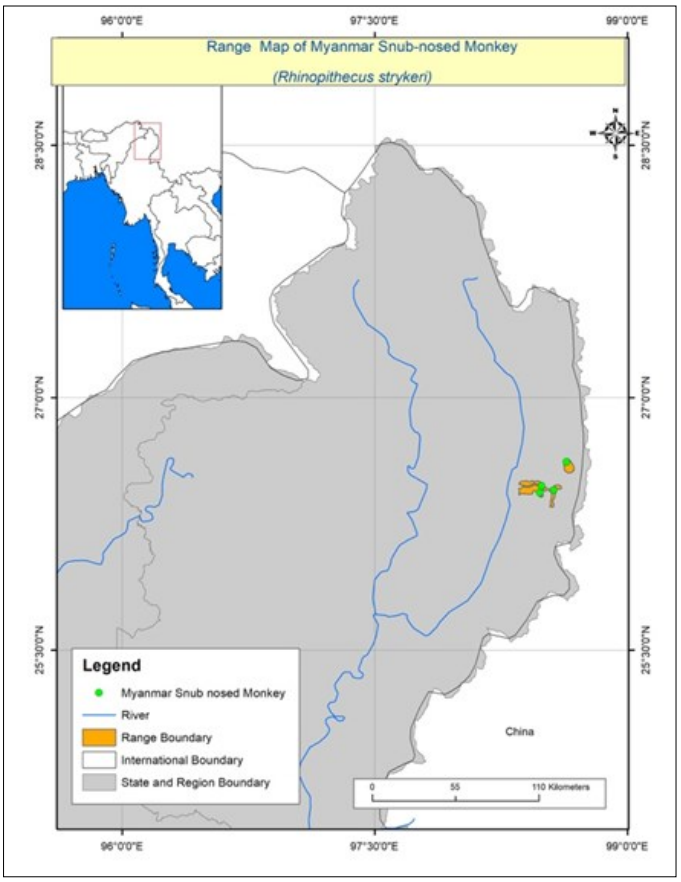
Habitat and Ecology: It can be found in mountain broadleaf and coniferous forests in northern Myanmar, primarily at the altitudes of 2,400 -3,300 m but often down to the lower elevation especially in winter. Largely arboreal but also travels to the ground. Home range for a troop is estimated up to 23 km^2 (Francis, 2008 & 2019).

Wild population: The generation length for *R. strykeri* is 6 years (https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1). Population trend is declining and estimated total number of mature individuals in Myanmar is ranged from 267-337. AOO of the species is between 41-71 km^2 and its EOO covers 607.37 km^2 in its habitats (Geissmann *et al.,* 2010).

Threats to survival: *R. strykeri* is threatened from hunting for subsistence and habitat loss due to illegal logging (Nijman, 2015).

Conservation actions and research undertaken: *R. stryken* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018). Community based conservation is being conducted for legal protection. The major distribution area was proposed as





Imawbum National Park since 2012 (Dirk, 2017). The conservation activities include conservation awareness, population estimation, and threat monitoring and distribution study. It was proposed as a national protected animal by law.

Conservation actions and research needed: Co-management should be conducted along with the establishment of the national park. Population and molecular study should be initiated.

Use and Trade: No information of trade.

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm

VULNERABLE A2acd; B2ab (i,ii,iii,iv,v); C2a(i,ii)

Tenasserim Langur | **Order: Primates**

Trachypithecus barbei Blyth [1847] | **Family: Cercopithecidae**

Tanintharyi-myauk-myee-shay

Justification: *Trachypithecus barbei* has a small population and a very restricted distribution range in Myanmar. Loss of habitats, high level of consumption for medical effects and anthropogenic activities are threatening the survival of this species.

Tenasserim Langur inhabiting in Tanintharyi Nature Reserve ©FoW

Measurements (cm):

Head & Body Length (HBL): 50 -70, Tail Length (TL): 70-80, Body weight (kg): ca 6-9 (Mittermeier *et al.*, 2013)

Distribution: *T. barbei* is distributed in southeast Myanmar and western Thailand. This species inhabits Tanintharyi Region particularly in Tanintharyi Nature Reserve, Myintmoletkhat Range and forested areas along the Ngawon and Lenyar Rivers.

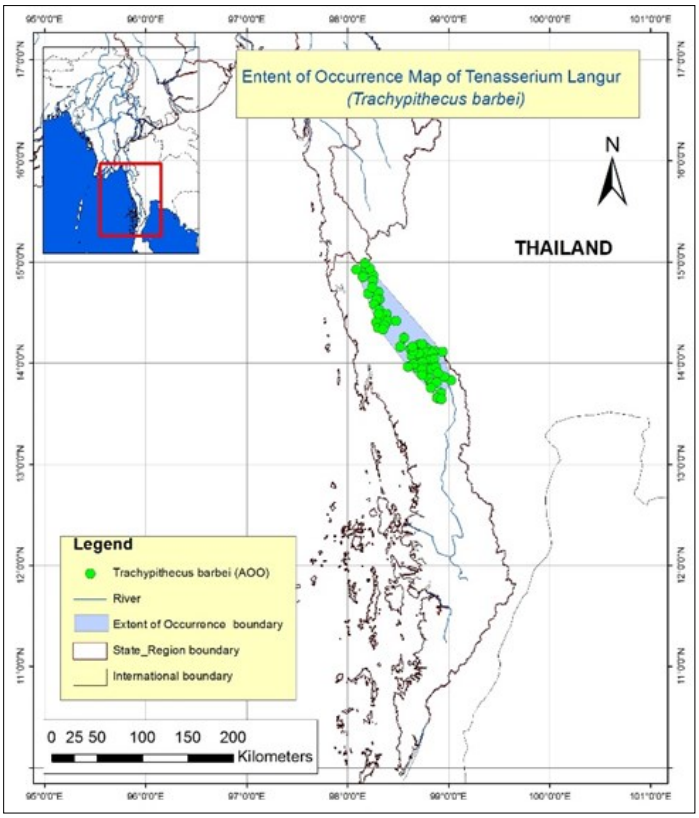
Habitat and Ecology: Mixed deciduous dipterocarp and moist evergreen forest in Tanintharyi region in the southern part of Myanmar.

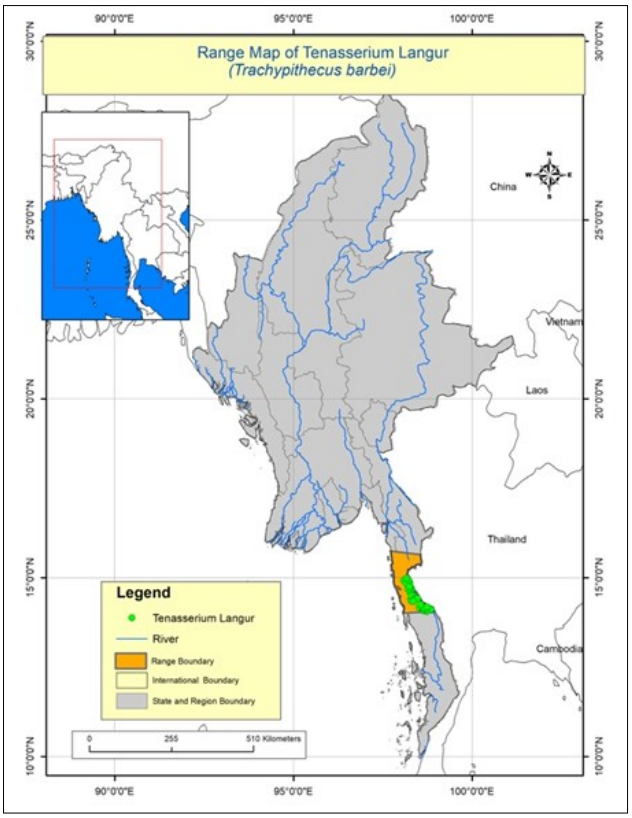
Wild population: The generation length for *T. barbei* is 11 years (https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1). Population size is unknown, but the population is declining due to hunting pressure and habitat degradation. As of Forest Resources Assessment (2015), deforestation rate in Myanmar between 1975 to 2010 is 50 %. AOO of the species is 268 km^2 and EOO is 49,691 km^2.

Threats to survival: Forest deterioration and hunting for food and medicine.

Conservation actions and research undertaken: *T. barbei* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018). The ecology, population abundance and distribution of *T. barbei* was studied in Tanintharyi Nature Reserve (TNRP, 2016).

Conservation actions and research needed: An effective law enforcement and conservation strategy on this specific species need to be strengthened. Co-management for species conservation needs to be implemented in the small range of this species. Molecular, ecological, and behavioral studies should be expanded and a population status assessment is needed. A Threat assessment on this species' survival is





needed to inform effective law enforcement actions and increased public awareness.

Use and Trade: Pet trade**,** hunting for food and traditional medicine.

Assessors: Naw May Lay Thant, Aye Mi San, Ngwe Lwin, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm , Robert J. Tizard

ENDANGERED B2ab (i,ii,iii,iv,v)

Dusky Langur | **Order: Primates**

***Trachypithecus obscurus* (Reid, 1837)** | **Family: Cercopithecidae**

Myauk-myet-queen-nyo

Justification: Dusky Langur (*Trachypithecus obscurus)* is facing with habitat loss and hunting for protein sources and population is declining. The insular population have been very restricted distribution makes them more vulnerable. Population and conservation status should be conducted particularly for the insular groups.

Dusky Langur inhabiting in Dusky Langur inhabiting Taungpharu RF, Tannintharyi ©Kaung Set Niang/ FD

Measurements (cm):

Head & Body Length (HBL): 42 -68 (male), 43-60 (female), Tail Length (TL): 64-81 (male), 57-79 (female), Body weight (kg): 6.1-9.1 (male), 5-8.6 (female) (Mittermeier *et al*., 2013).

Distribution: Southern Myanmar particularly Mon, Kayin, Tanintharyi, and Myeik Archipelago.

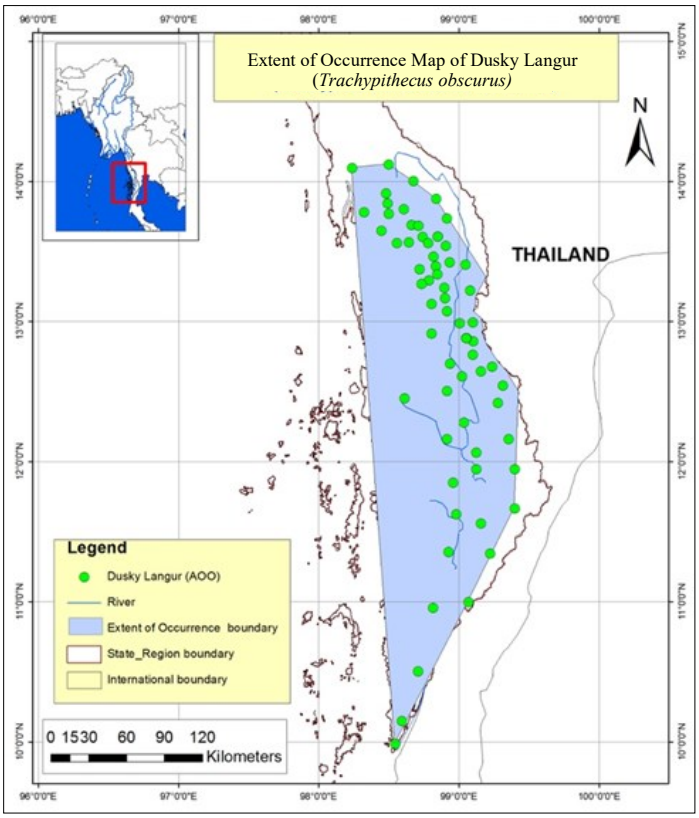
Habitat and Ecology: Primary, secondary, lowland sub-montane and montane forest, up to elevations of 1800 m, prefer old growth forests, scrub areas, rubber tree plantations and gardens, islands in the Myeik Archipelago (Mittermeier *et al*., 2013).

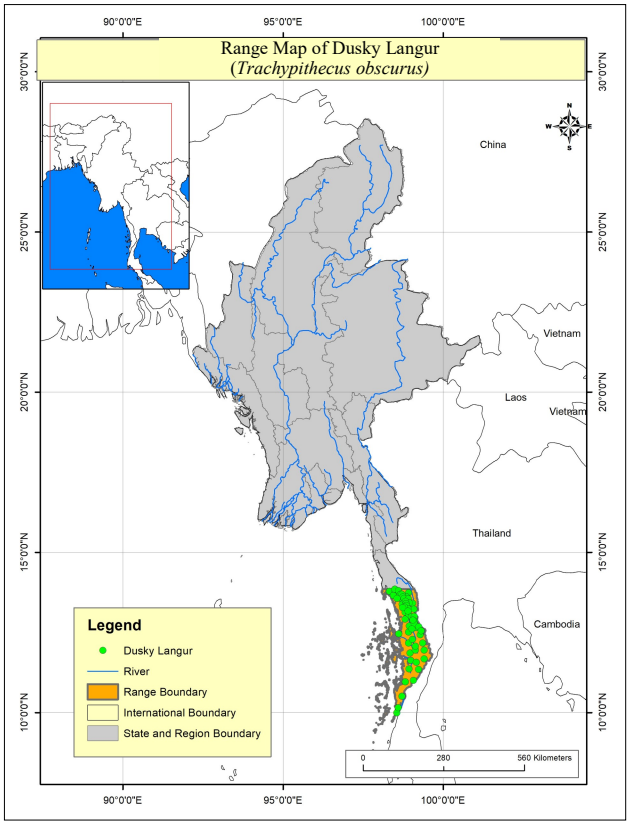
Wild population: The generation length for *T. obscurus* is 11 years (https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1). Population size is unknown, but the population is declining due to hunting pressure and habitat degradation due to deforestation rate in Myanmar between 1975 to 2010 is 50% (Forest Resources Assessment, 2015). AOO of the species is 280 km^2 and its EOO covers 7,847.7 km^2 in its available habitats.

Threats to survival: Hunting for food and habitat loss and degradation, mainly because of expanding oil palm plantations, agriculture and urbanization.

Conservation actions and research undertaken: *T. obscurus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Co-management for species conservation is highly needed to implement. Molecular study, ecology, behavior study and current population status are





needed. Threats assessment on the species survival is needed to conduct effective law enforcement along with public awareness. Opportunistic record along with other focal species survey in the protected areas and its habitats.

Use and Trade: Hunting for food and traditional medicine.

Assessors: Aye Mi San, Naw May Lay Thant, Myint Myint Than, Aung Ye Tun, Nyan Hlaing, Ngwe Lwin

Reviewers: James Tallant, Monica Böhm

ENDANGERED A2acd; B2ab(i,ii,iii)

Phayre's Langur | **Order: Primates**

Trachypithecus phayrei (Blyth, 1847) | **Family: Cercopithecidae**

Myauk-myet-kween-phyu

Justification: Severally isolated and highly hunting pressure due to eating gallstone for medicinal effects. It is inferred to have continuous decline in population.

Phayre's Langur inhabiting in Alaungdaw Kathapa National Park © Ye Min Aung

Measurements (cm): Head and body (male 42- 60; female 44-57). Tail Length (cm): male 75-86; female 72-80. Body weight (kg): male 5.7-9.1; female 6.4-7.5 (Mittermeier et al., 2013).

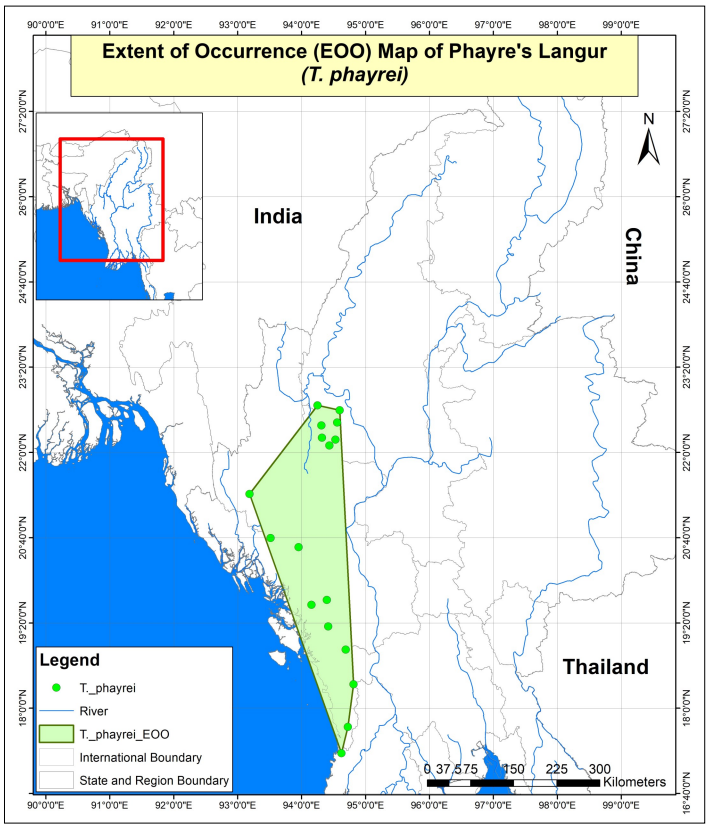
Distribution: Western Rakhine Yoma through to Ayeyarwaddy costal area and Sagaing Region throughout Pontaung-Ponnyar Range. There are some population recorded in Alaungdaw Kathapa National Park.

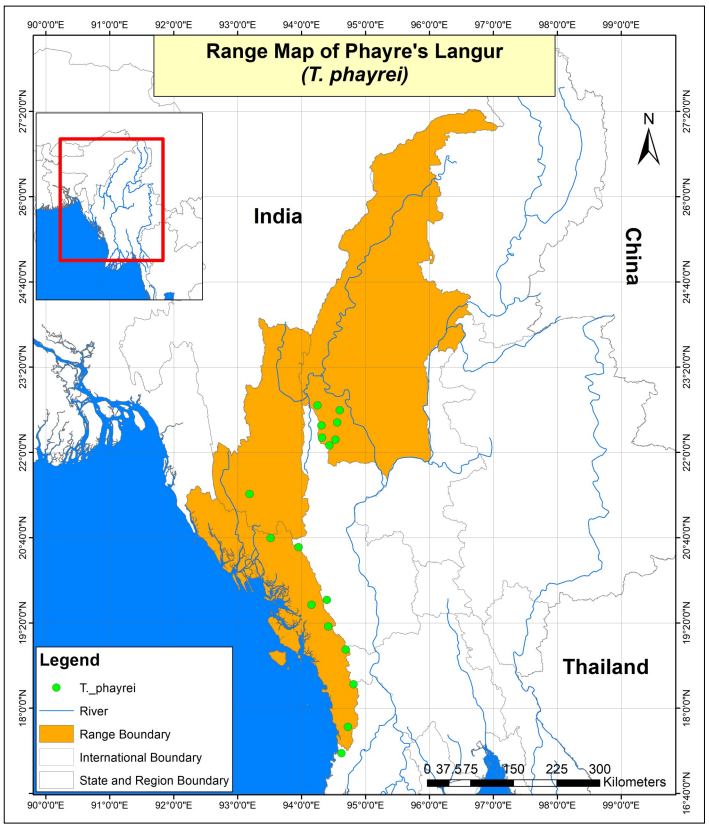
Habitat and Ecology: Primary and secondary high-elevation evergreen, semi-evergreen, and mixed moist deciduous forests throughout most of its range. It can also be found in tea plantations (Mittermeier *et al*., 2013). The species is adaptable to different habitats.

Wild population: The generation length for *T.phayrei* is 11 years https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1 . Population trend is declined and limited information on total population in Myanmar. AOO of the species is 68 km^2 and its EOO cover 533,330 km^2 in its available habitats.

Threats to survival: Forest destruction, habitat fragmentation, hunting for its gall stone as traditional medicines and bush meat.

Conservation actions and research undertaken: *T. phayrei* was designated as completely protected animals according to the Conservation of Biodiversity and Protected Area Law (2018) and as Endangered species (IUCN, 2020). Molecular study and population abundance for Alaungdaw Kathapa National Park were conducted in 2010 (Thant *et. al*., 2013).





Conservation actions and research needed: Co-management for species conservation is highly needed to implement. Molecular study, ecology, behavior study and current population status are needed. Threats assessment on the species survival is needed to conduct effective law enforcement along with public awareness.

Use and Trade: Its gallstones are used in traditional medicine. Bush meat for protein.

Assessors: Naw May Lay Thant, Aye Mi San, Ngwe Lwin, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm , Robert J. Tizard

ENDANGERED A2 cd

Shortridge's Langur **Order: Primates**

Trachypithecus shortridgei **Wroughton, 1915** **Family: Cercopithecidae**

Shortridge's Langur, Myauk-myee-shay

Justification: Listed as Endangered as there is reason to believe the species has declined by at least 50% over the past three generations (36 years, given a generation length of 12 years) due primarily to hunting and habitat loss.

Shortridge's Langur inhabiting at Indawgyi Biosphere Reserve ©FFI

Measurements (cm): Head and body, HB 67-72 cm, Tail, T 95-104 cm (Mittermeier *et al*., 2013), Body weight (kg): no data

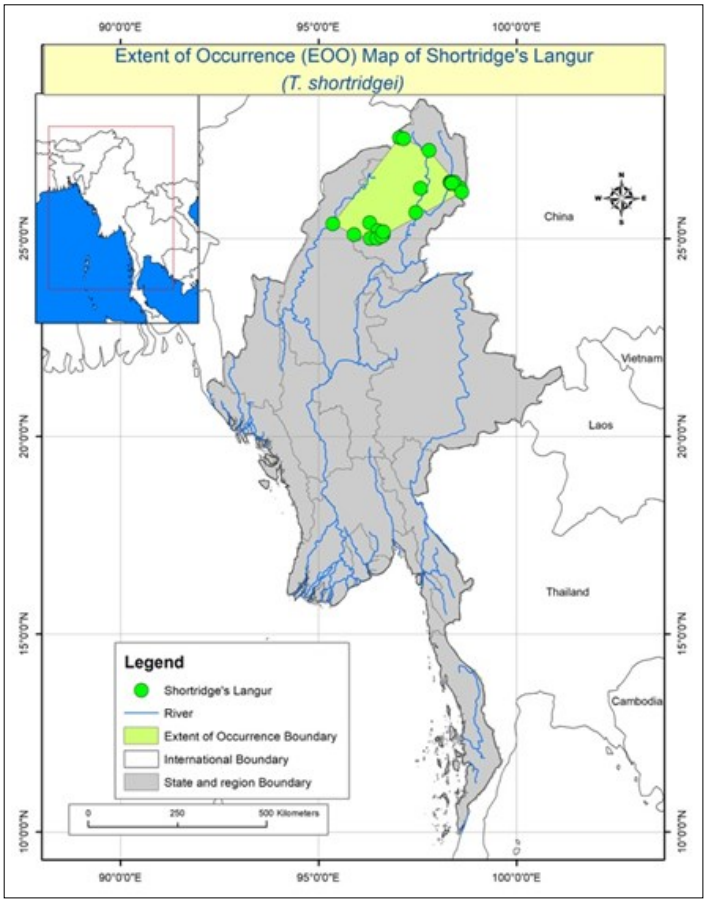
Distribution: North Eastern Myanmar, East of the Chindwin River and in South Western China. (Mittermeier *et al*., 2013). In Myanmar, the species in known from these Protected Areas: Hkakaborazi National Park, Hponkanrazi Wildlife Sanctuary, Hukaung Valley Wildlife Sanctuary, Imawbum National Park (Proposed), Bumhpabum Wildlife Sanctuary, Indawgyi Wildlife Sanctuary and Htamanthi Wildlife Sanctuary.

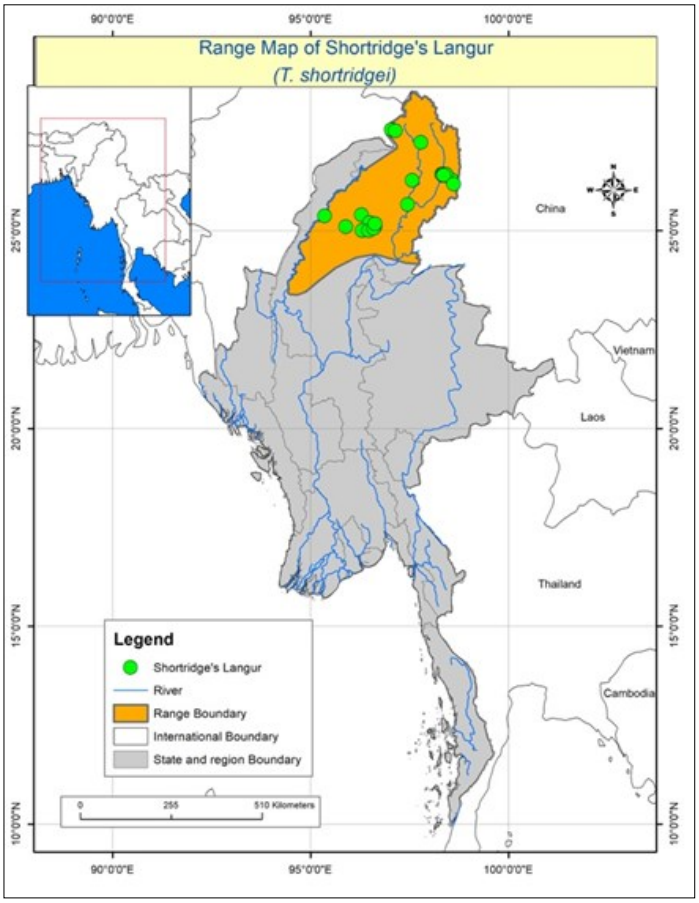
Habitat and Ecology Largely arboreal, feeding on leaves, but often comes down to ground. Closed canopy, lowland, broadleaved evergreen forest, semi-evergreen and mixed deciduous forest at elevation of 200 -2500 m (Mittermeier *et al*., 2013).

Wild population: The generation length for *Trachypithecus shortridgei* is 11 years https://datadryad.org/resource/doi:10.5061/dryad.gd0m3/1. Population trend is declining and we cannot estimate total population in Myanmar. AOO of the species is 88 km^2 and its EOO is 47,729 km^2.

Threats to survival: Hunting for meat, trophies and live trade (pets), illegal logging and road construction causing habitat fragmentation and degradation.

Conservation actions and research undertaken: *T. shortridgei* was designated as normally protected animals according to the Conservation of Biodiversity and Protected Area Law (2018). It is listed as CITES Appendix I and classified as Endangered (Htun *et al*., 2008). Shortridge's Langur is protected in Myanmar and China. Primate Conservation activities have documented the





distribution through surveys in Hponkanrazi Wildlife Sanctuary, the proposed Imawbum National Park, Indawgyi Wildlife Sanctuary and Htamanthi Wildlife Sanctuary.

Conservation actions and research needed: Co-management with local communities for primate conservation, threats assessment to its survival, law enforcement for counter wildlife trade, public awareness, Molecular study, population trend, Knowledge Altitude Practice analysis needed to promote in Myanmar.

Use and Trade: Hunting for meat, trophies and live trade (pets)

Assessors: Ngwe Lwin, Naw May Lay Thant, Aye Mi San, Myint Myint Than, Aung Ye Tun, Nyan Hlaing

Reviewers: James Tallant, Monica Böhm , Robert J. Tizard

ENDANGERED B2ab(ii, iii, iv, v)

Tail-less leaf-nosed bat **Order: Chiroptera**

Coelops frithii **Blyth, 1848** **Family: Hipposideridae**

Linno

Justification: This species is listed as Endangered according to its occurrence in small area and known only from a few localities in Myanmar. This species also has only a small population size under 16 mature individuals. The recent survey around Loikaw Township indicated that this species disappeared completely from its original habitat due to cave modification in order to attract the visitors as a tourism site (Oo, 2016). Over the coming 10 years (approximately three generations), the population is likely to decline due primarily to human activities that will cause loss of habitat and also maternity colony sites.

Tail-less leaf-nosed bat
©Bat Working Group

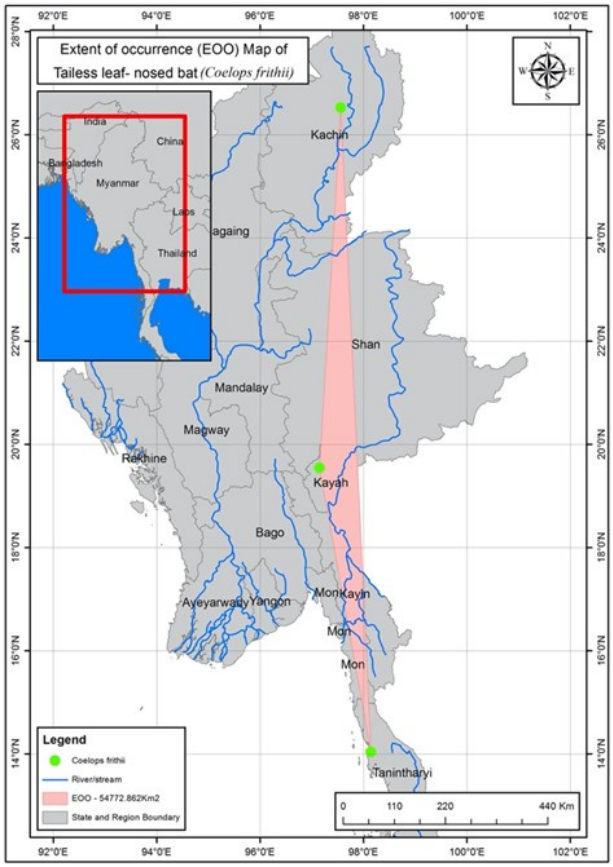
Measurements (cm): HB=3.06, FA=3.57, HF=0.68, E=1.37, Body mass =5.0 g

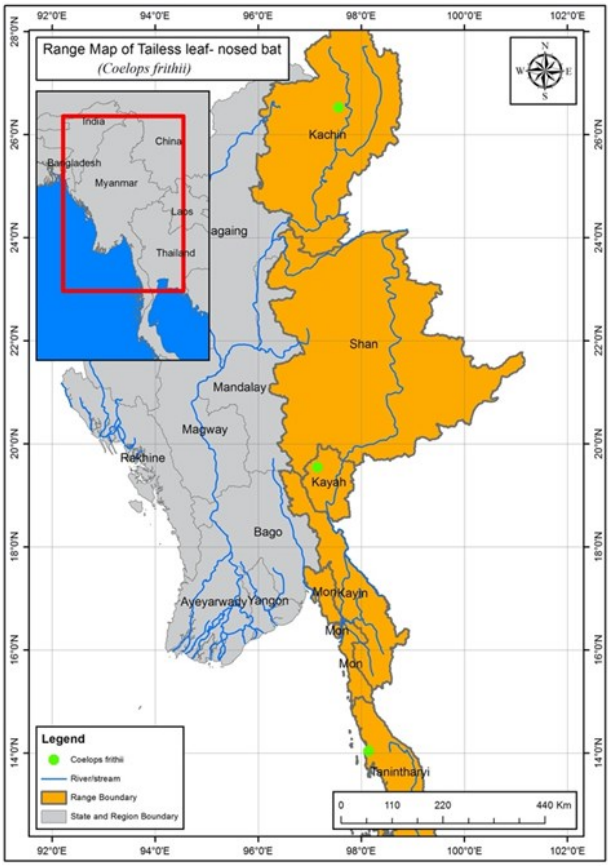
Distribution: It is also known from the Kachin State to small limestone caves in eastern and southern parts of Myanmar; Kayah State and Tanintharyi Region.

Habitat and ecology: A small subpopulation of this species is known from a small cave in the vicinity of the waterfall in Kayah and also a cave near a river in Dawei Township, Tanintharyi Region. Lekaguk & McNeely (1977) stated that this species is a forest species which usually roosts in hollow trees or caves and typical colony size is sixteen or less. Generation length of *Coelops frithii* is 3.5 years. Although total subpopulation was 15 individuals (Moe Moe Khine, 2006) in Kayah State and only 2 individuals in Tanintharyi Region (Latt Latt Htwe, 2011) and all these individuals totally disappeared in these study sites. In Myanmar, the information of this species is very limited and it could be determined as a rare species.

Wild population: Moe Moe Khine (2006) and Latt Latt Htwe (2011) recorded a small numbers of this species in Kayah State and Tanintharyi Region respectively.

Threats to survival: This species is threatened by human disturbance of roost sites and habitat loss, degradation and deforestation.





Conservation actions and research undertaken: The researches for their distribution and reproductive ecology are still needed in Myanmar. It is necessary to protect the natural limestone caves in the karst area for the supreme habitats of this small animal. Public awareness is important to protect species.

Use and Trade: Food consumption

Assessors: Moe Moe Khine, Sai Sein Lin Oo, Aye Aye Khaing, Aung Htet Oo, Khin Maung Swe

Reviewer: Monica Böhm

VUNERABLE B2ab(v):C1

Kitti's hog-nosed Bat/ Bumble bat **Order: Chiroptera**

Craseonycteris thonglongyai **Hill, 1974** **Family: Craseonycteridae**

Kitti's Wet-nakhan Linno/ Ba-done Linno

Justification: This species listed as vulnerable. This species is very small for the fitness of natural selection and is continuing declined by at least 50% over the past 14 years (approximately three generations) due primarily to human disturbance that causes breeding roosting site. Its habitat threatening by the production of raw materials for the cement factories in limestone area. Over the coming 14 years, this decline is likely to reach similar proportions due to continuing habitat loss.

Kitti's Hog-nosed Bat/ Bumble bat

© Medhi Yokubol

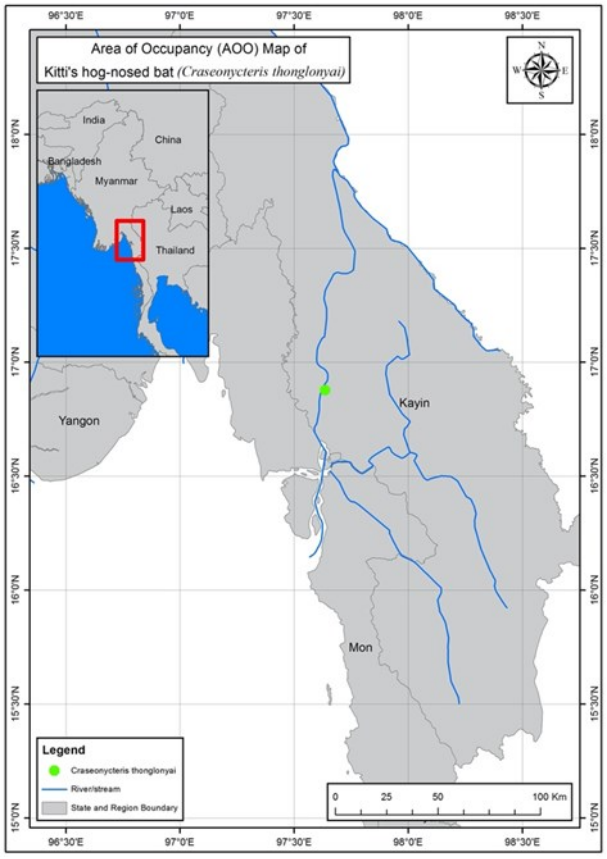
Measurements (cm): HB=3.47, FA=2.4, HF-0.43, Tib=1.26, E-1.12, body mass-2.0 gm

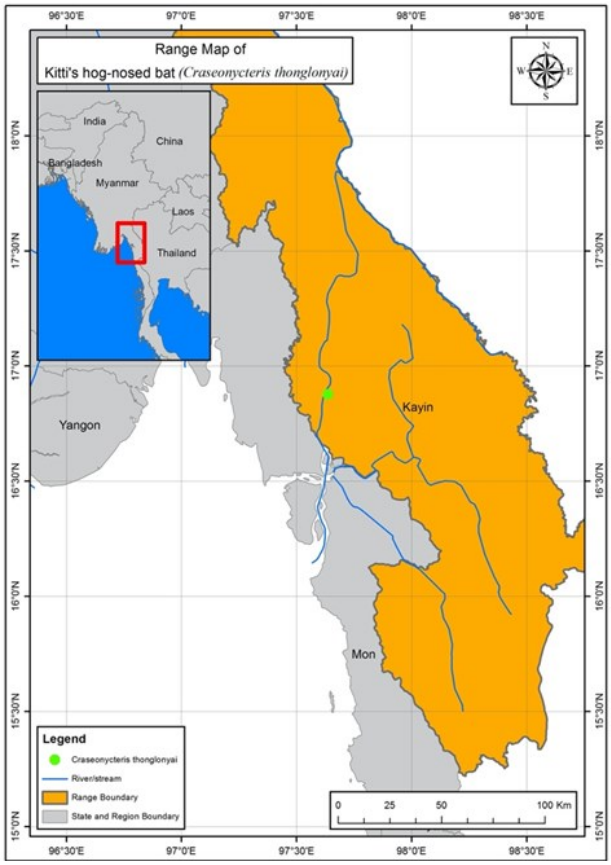
Distribution: The species distributes in the limestone caves in the western bank of Than Lwin River, Kayan State and northeastern aspects of Kayon Hill, Mon State.

Habitat and Ecology: The limestone caves in the dry evergreen or deciduous forest are roosting sites of this species. Their forging ground is paddy field and forage the insects. The feeding behavior is choosing the insects by size, not by the kinds. Their mating season is in the late cool season and early summer and breeds in April and May (incubation period is 70-80 days). Generation length of *Craseonycterus thonglongyai* is 13. 4 years. The growth rate of this species is very fast, become adults within one year (Bates et al., 2008).

Wild population: Although total population was 1500 individuals (Pereiera, et al., (2006) and was 3770 individuals (Pacifici *et al*., 2013), recent assessment indicates population decline. Maximum number of mature females was less than 2500. A total of 1853 individuals of this species was recorded in Kywe Cave, Yethae Pyan Village near Hpa- an, Kayin state (Khin Khin Kyaw, 2010).

Threats to survival: Human disturbance of tourism, quarrying for cement production, modification of the cave by religious persons are major threats to this species. Utilization of





chemical fertilizers, pesticides and weedicides are indirect threats.

Conservation actions and research undertaken: Public awareness of ecological and economic values of bat species is needed. Survey on the population estimate and geographic distribution is also necessary. Law enforcement should be implemented.

Use and Trade: Hunting for meat.

Assessors: Khin Maung Swe, Moe Moe Khine, Aye Aye Khine, Sai Sein Linn Oo, Aung Htet Oo

Reviewers: Monica Böhm

VULNERABLE C1

Lesser short-nosed fruit bat **Order: Chiroptera**

Cynopterus brachyotis **Müller, 1838** **Family: Pteropidae**

Linn Swe

Justification: This species is listed as vulnerable according to its occurrence in large area of Myanmar though this species also has relatively few mature individuals per locality. Over the coming 10.5 years (approximately three generations), the population is likely to decline slowly due primarily to human activities especially gold mining in Kachin State that will cause habitat degradation. Regular netting in farmlands and orchards will also cause the population decline slowly.

Lesser short-nosed fruit bat

© Bat Working Group

Measurements (cm): HB=8.06, FA=6.023, HF=1.156, E=1.93

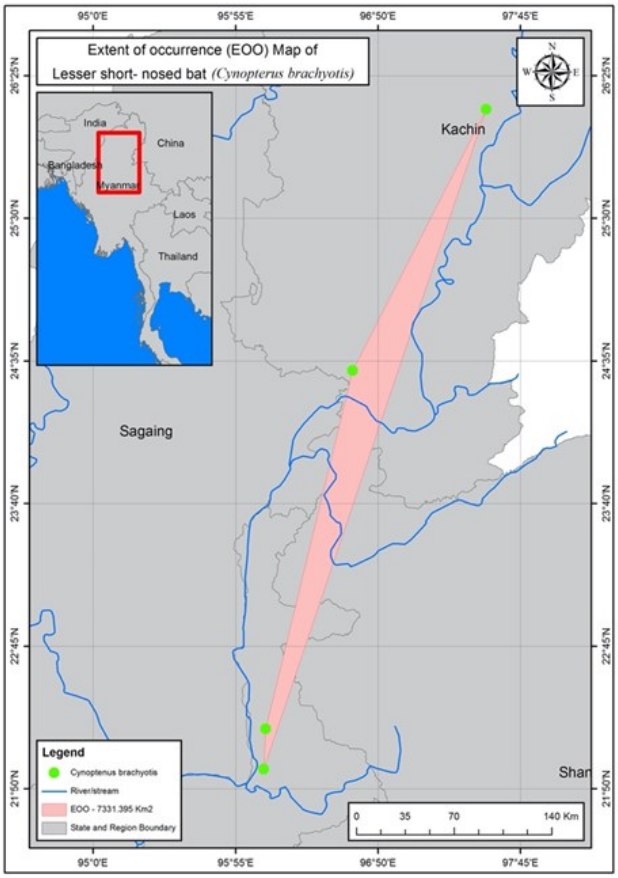
Distribution: It is known from and distributed in Kachin and Rakhine States and Bago Region, and Tanintharyi Region. In Myanmar, this species is restricted to only a few localities; northern, western and southern part of Myanmar.

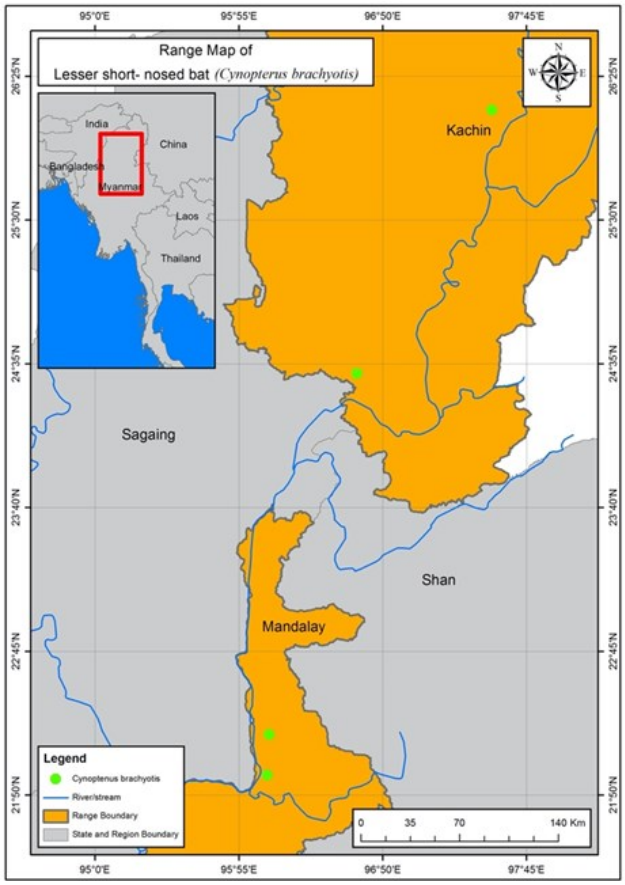
Habitat and Ecology: Bates and Harisons (1997) stated that this species was captured near the place covered with thick vegetation. In Myitsone area, the junction of Ayeyarwaddy River in Kachin, a total of three individuals of *C. branchyotis* were collected in open area near the river bank covered with bamboo, bushes and sparse small vegetation (Aung Lu, 2012). Generation length of *C. branchyotis* is 3.5 years. In Myanmar, the information of this species is very limited and it could be determined as a less common species.

Wild population: The recent survey around Myitsone area indicated that only a few individuals (5 individuals) were recorded (Aung Lu, 2012). There may be fewer than 10,000 mature individuals across the country (EOO > 350,000 km^2).

Threats to survival: This species is vulnerable caused by hunting for food consumption as well as habitat and forest degradation.

Conservation actions and research undertaken: It is necessary to raise the distribution study, public awareness for local community about ecology of the species and environmental





benefits (e.g. pollination) in the distributed area of this bat species and law enforcement. The researches who are interested in reproductive ecology and population status are still needed in Myanmar.

Use and Trade: Food consumption

Assessors: Khin Maung Swe, Moe Moe Khine, Aung Lu, Aye Aye Khaing, Sai Sein Lin Oo, Khin Mar Myint, Khine Swe Wah, Aung Htet Oo

Reviewer: Monica Böhm

ENDANGERED b (ii) (v)

Greater short- nosed fruit bat **Order: Chiroptera**

Cynopterus sphinx **(Vahl, 1797)** **Family: Pteropidae**

Linn Swe

Justification: This species listed as endangered although its occurrence is in large area of Myanmar. This species has only a small sub population size under 10 mature individuals. Over the coming 10.5 years (approximately three generations), the population is likely to decline due primarily to human activities that will cause habitat degrading and also threats to maternity colony sites. Regular netting in farmlands and orchards will also cause slowly the population decline.

Greater short-nosed fruit bat

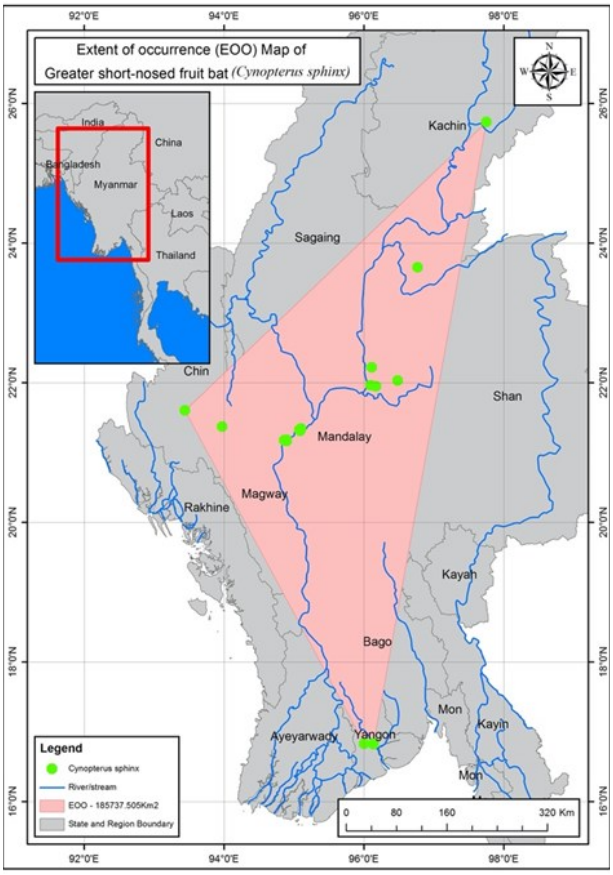
© Bat Working Group

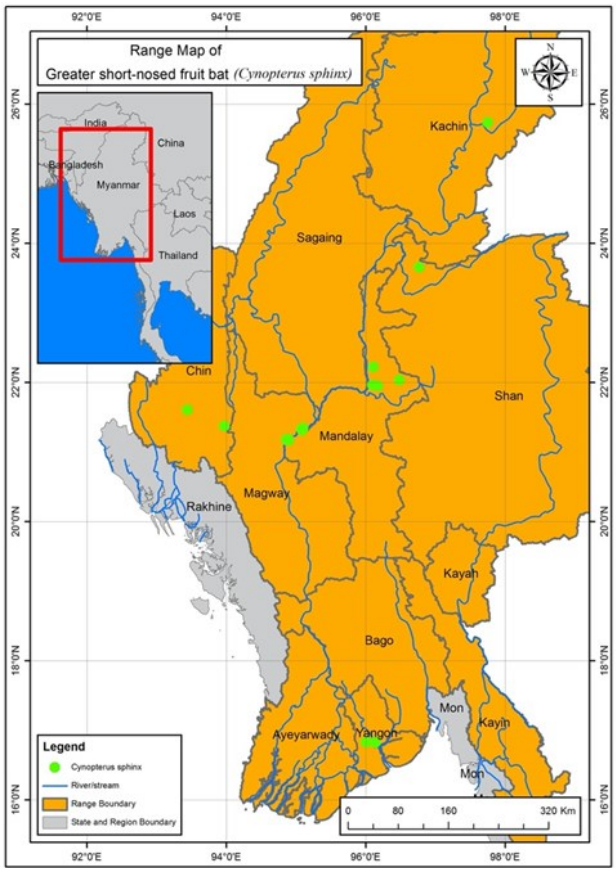
Measurements (cm): HB = 7.60 - 11.3, FA = 6.40 - 7.90, HF = 1.26 - 1.8, E = 1.75 - 2.4mm, body mass = 60 g.

Distribution: It is distributed in the Indian subcontinent. It is widely distributed in Myanmar and no report was found in Karen State and Tanintharyi Region.

Habitat and Ecology: Bamboo forest, banana plantation area, vegetation semi-forested and open habitats, plantations, human dwelling and other buildings. This species was recently recorded with a small subpopulation at the ceiling of four old hostels in University of Yangon and two temples in Bagan area (Su Su Hlaing, 2005 and Aung Aung, 2009 and May Myo Nyunt, 2010). Bate and Harrison (1977) stated that this species is not restricted in any single habitat type but tend to be most abundant in agricultural area. Generation length of *Cynopterus sphinx* is 10.5 years. The primary cause of continuous decline in population of this species is found in agricultural land and rural area due to netting not only for prevention the feeding fruits but also for meat and medicinal purpose. It could be suspected to slow population decline due to hunting of the species for meat.

Wild population: Su Su Hlaing (2005) and Aung Aung (2009) reported that they recorded a small numbers of this species (2~15 individuals) at the study sites of Yangon and Mandalay Regions respectively. Aung Lu mentioned that 45 individuals amounting to 153 captures using netting analysis were recorded during October 2009 to May 2011 in Myitsone area, the junction of the Ayeyarwaddy River in Kachin State.





Threats to survival: This species is nearly threatened by hunting for meat.

Conservation actions and research undertaken: The researches for reproductive ecology and population status are still needed in Myanmar. It is necessary to raise the awareness for local community about ecology of the species and environmental benefits (e.g. pollination) to its distributed area. Still needed for population survey and additional population surveys in previously unstudied areas. Still needed for population survey and additional population surveys in previously unstudied areas.

Use and Trade: Food consumption

Assessors: Moe Moe Khine, Sai Sein Lin Oo, Aye Aye Khaing, Aung Htet Oo, Khin Maung Swe

Reviewer: Monica Böhm

ENDANGERED C1

Shield-faced Roundleaf Bat — **Order: Chiroptera**

Hipposideros lylei ***Thomas, 1938*** — **Family: Hipposideridae**

Linno

Justification: This species listed as endangered as declining the population due to habitat degradation/loss and hunting. Although the existence range of this species is large, its occurrence is only from a few localities in eastern part of Myanmar.

Shield-faced Roundleaf Bat

© Bat Working Group

Measurements (cm): HB=7.11, FA=7.15, HF=1.66 mm, E=2.17 mm, body mass - 40.0g

Distribution: It has been reported in Kachin, Karen, Kayah, Mon and Shan States.

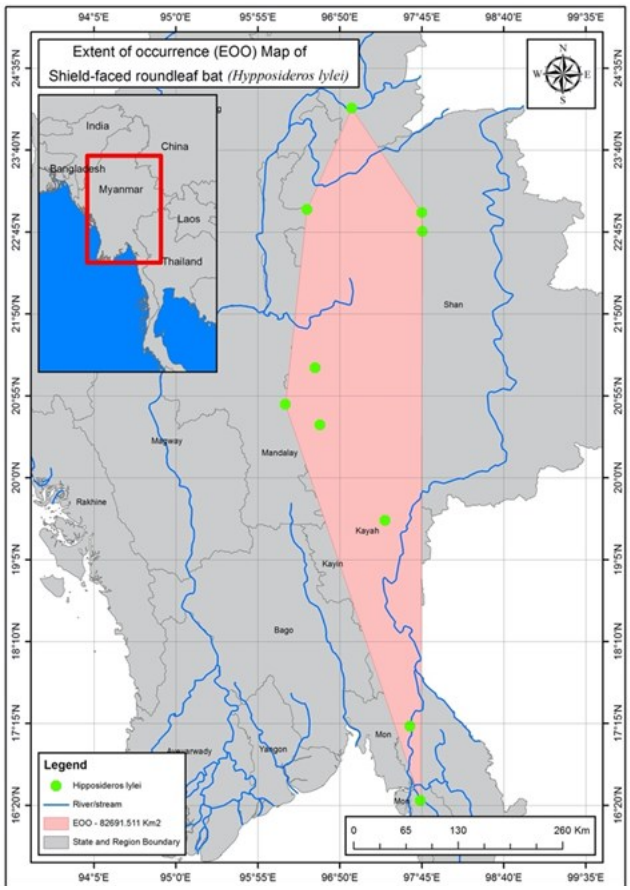
Habitat and Ecology: A subpopulation (~ 65 individuals) of this species is known from a large cave in Kayah State. Although the cave and bats including this species is being protected by the monk as a religious site in the study area (Moe Moe Khine, 2006), this medium sized bat species is continuing decline in population due to hunting for food consumption in their foraging area. Over 15 years of three generation length, this species is likely to face the habitat degradation and loss due to cave renovation for tourism site in Kayah and Shan States. This is the localized threat.

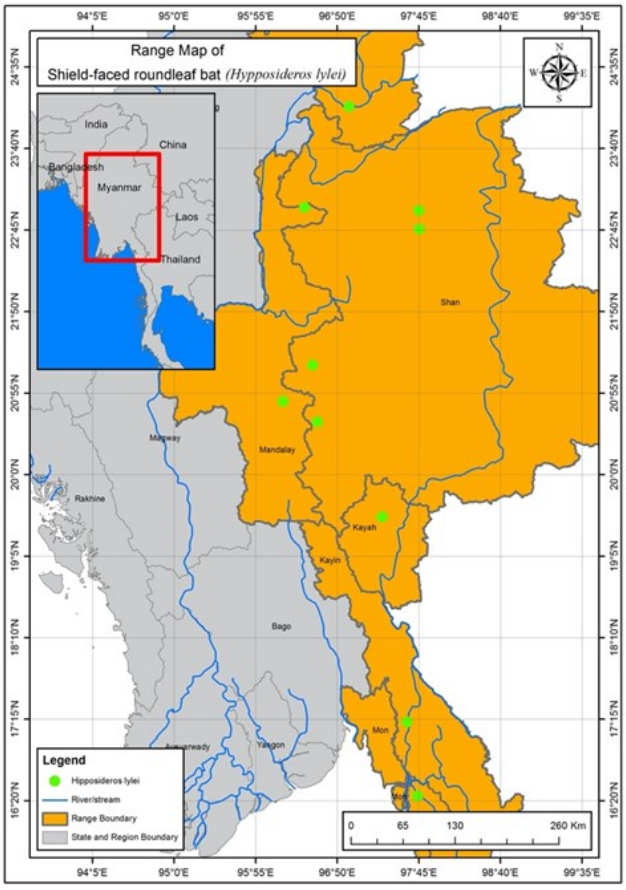
Wild population: Moe Moe Khine (2006) reported that *H. lylei* was recorded three roosting subpopulations, each with a number of individuals under 100 individuals in Thirisanda Cave, Lawpita Village, Loikaw, Kayah State. Nan Lao Kham (2013) recorded a roosting subpopulation with a number of 30 individuals in Shwe Gu Cave, Lashio, Northern Shan State.

Threats to survival: This species is threatened by human disturbance of roost sites and habitat loss, degradation and deforestation.

Conservation actions and research undertaken: The researches for their distribution and population status are still needed in Myanmar. Public awareness is needed to conserve this species.

Use and Trade: Food consumption.





Assessors: Moe Moe Khine, Sai Sein Lin Oo, Aye Aye Khaing, Aung Htet Oo, Khin Maung Swe, Khin Mar Myint, Khaing Swe Wah

Reviewer: Monica Böhm

CRITICALLY ENDANGERED C1+2a(i); D

Tiger **Order: Carnivora**

Panthera tigris **(Linnaeus, 1758)** **Family: Felidae**

Kyarr

Justification: Listed as CR C1+2a(i), D because the number of mature individuals is less than 50, and population size and AOO continue to decline due to threats such as poaching and trade, habitat fragmentation, prey depletion and weak of law enforcement. There are only two subpopulations, one in the Northern and the other in the Southern landscape, each likely holding less than 50 mature individuals.

Bengal Tiger Captured through the camera trap survey in Northern Myanmar © WCS

Measurements (cm): Head to Body Length; 2900 in length. Females are slightly smaller 2500 in length. Body weight (kg): Male weigh about 220 kg. Females are slightly smaller with an average weight of 140 kg.

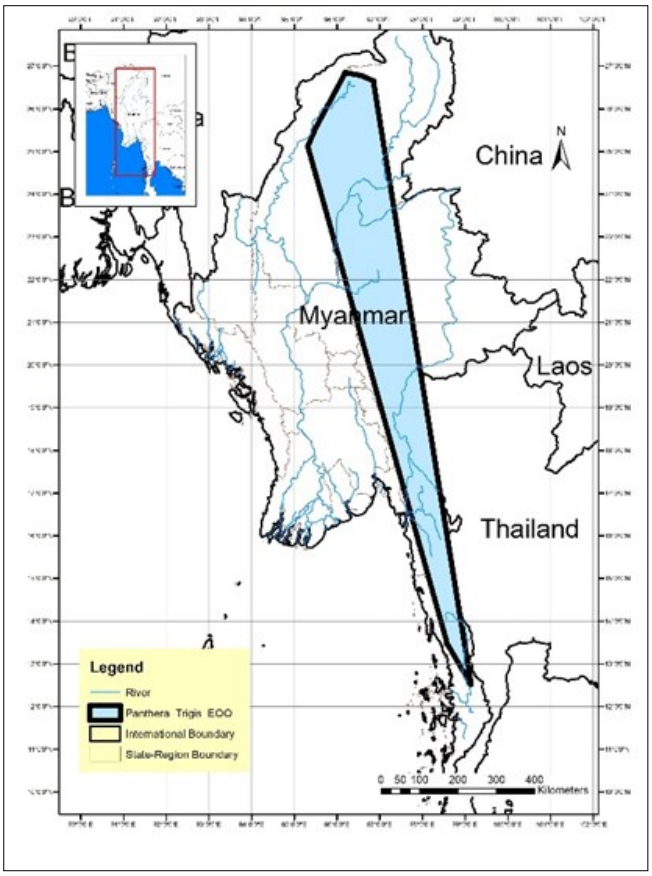
Distribution: Bangladesh; Bhutan; China; India; Indonesia; Lao People's Democratic Republic; Malaysia (Peninsular Malaysia); Myanmar; Nepal; Russian Federation; Thailand. In Myanmar, the species is confined to protected areas: Hukaung Valley Wildlife Sanctuary, Htamanthi Wildlife Sanctuary, Lenya Reserve Forest, Proposed Tanintharyi National Park, Tanintharyi Nature Reserve, Myint-moh Lat-Khart KBA.

Habitat and Ecology: In Myanmar, camera trap surveys have confirmed the presence of breeding tigers in several areas in the Tanintharyi region, from the proposed Tanintharyi National Park in the north to the Lenya Reserve Forest and its extension in the south. Moreover, tigers have been confirmed in northern Kachin state and northern Sagaing region which retains extensive areas of lowland evergreen, semi-evergreen, and mixed deciduous forests.

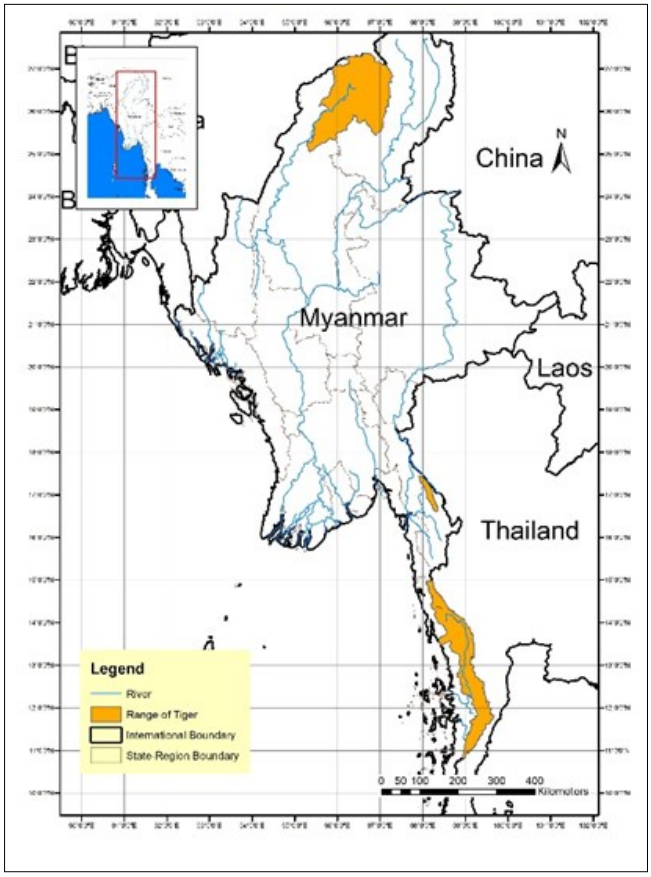
Wild population: Historically, tigers were quite abundant in Myanmar, and were actually considered a pest species, and thus killed by the thousands. Now, there are only few tigers remaining (<30 mature individuals) in very specific areas in Myanmar. The population trend is likely to continue to decline due to the presence of threats from habitat loss and poaching. Tiger population (>150 individuals) was estimated based on National Tiger Survey (1999-2002). Again, based on the current tiger survey (2014-2018), at least 22 individuals were detected, from which not more than 50 mature individuals could be inferred since most of the camera traps were deployed in the locations of the most likely presence.

Threats to survival: In Myanmar, poaching and trade, depletion of prey species and habitat fragmentation are threatening the species. Major threats are agriculture (livestock farming & grazing), commercial and industrial areas, biological resource use, mining & quarrying, human intrusions and disturbance, natural system modifications like damming and road construction.

Extent of Occurrence (EOO) Map of *Panthera trigris*



Range Map of *Panthera trigris*



Conservation actions and research undertaken: Many of the areas of tiger presence happen to be in areas of contested authority which makes law enforcement difficult. The same goes for research, hence some areas of tiger presence have not been surveyed in the recent years, such as Hukaung Valley, and some areas in Tanintharyi. Research in other areas however are on-going, and law enforcement, both on-site and along the trade routes are needed to be strengthened. Camera trapping and analysis, population monitoring, community engagement, law enforcement with SMART patrolling, established National Tiger Action Plan, site conservation plan, community-based patrolling and awareness raising, community -led natural resource management were done for tiger conservation.

Conservation actions and research needed: Site/ area protection, resource & habitat protection, site/ area management plan, habitat & natural process restoration, species recovery, education & awareness, policy development (national level), livelihood, economic & other incentives, linked enterprises & livelihood alternative, connectivity analysis across different habitat patches; standardization of monitoring methodology; monitoring of habitat and forest loss; poaching and illegal activity monitoring are still need to do more.

Use and Trade: Most demand originates from China and Vietnam. Tiger parts and derivatives are among the most coveted, making this the most immediate and extreme threat to tiger survival.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Min Hein Htike, Theint Thandar Bol, Okkar Myo,

Reviewers: James Tallant, Monica Böhm

ENDANGERED C2 a (i) (ii)

Leopard **Order: Carnivora**

Panthera pardus **(Linnaeus, 1758)** **Family: Felidae**

Kyarr-Thit

Justification: Leopard populations have been declining according to conservation monitoring efforts from various international and national conservation organizations. The data are not enough to accurately estimate the rate of decline although assessors suspect that it is at some rate between 10-20% across the country in the next 18 years (two generations). Regardless, the data were enough to estimate the population at each separate location defined by non-connectivity, which turned out to be less than 50 individual for each sub-population. Therefore, leopard qualifies as Endangered under C2 a (i) (ii).

Leopard Captured through the camera trap survey in Northern Myanmar © WCS

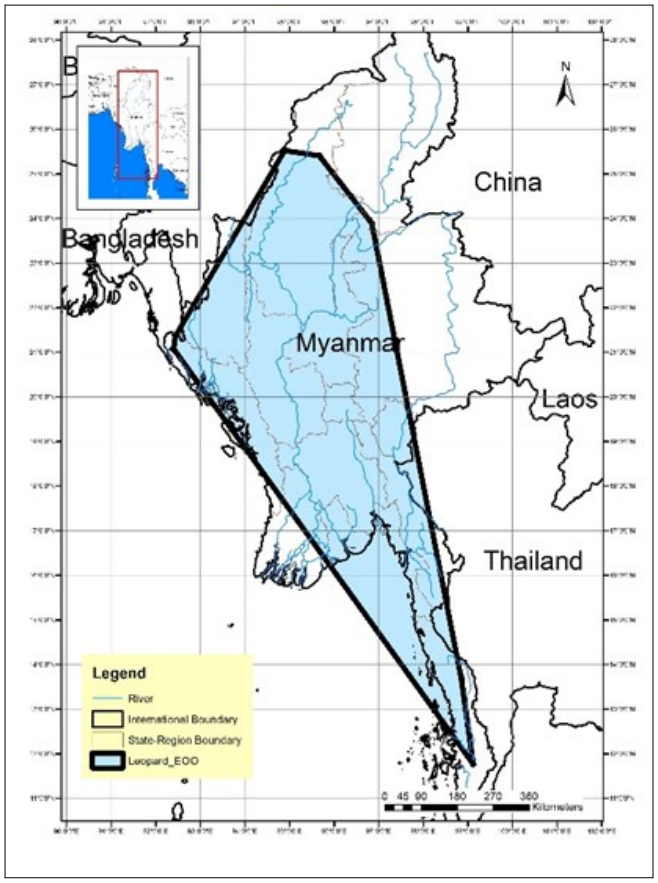
Measurements (cm): Males stand 60–70 cm at the shoulder, while females are 57–64 cm tall. The head-and-body length ranges between 90 and 196 cm, with a 66 -102 cm long tail. Body weight (kg): 37–90 kg and females 28–60 kg

Distribution: Leopard distribution has been divided into two geographic regions: Africa (except Saharan desert), and Asia (Stein et al. 2016). Its wide distribution reflects its ability to inhabit diverse habitats and consume a wide range of prey. In Myanmar; Hukaung Valley Wildlife Sanctuary, Htamanthi Wildlife Sanctuary, Lenya Reserve Forest, Proposed Tanintharyi National Park, Kayin State, Alaungdaw-Kathapa National Park and Proposed Maharmyaing Wildlife Sanctuary, Rakhine Yoma Elephant Range, Tanintharyi Nature Reserve.

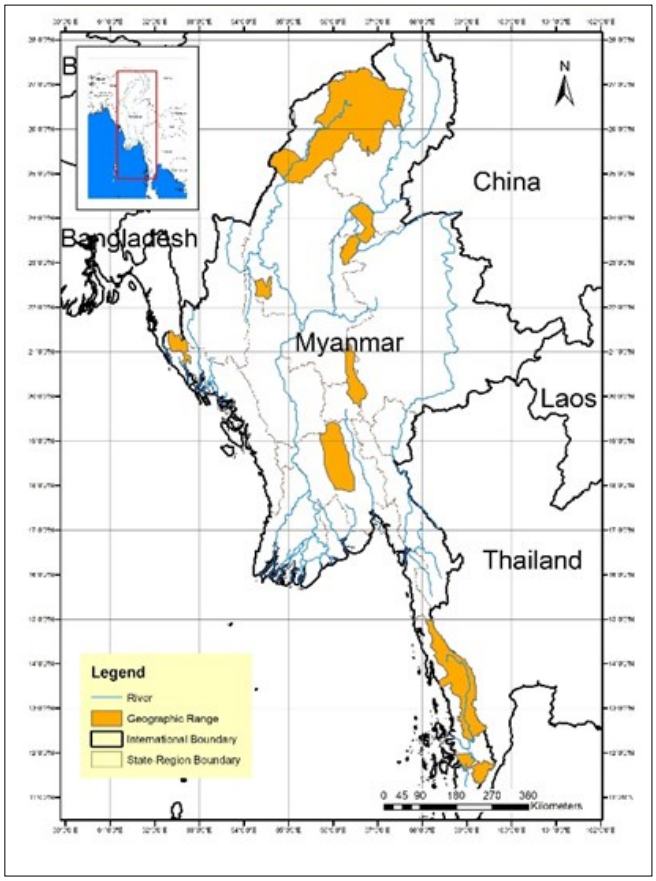
Habitat and Ecology: Hill forests, semi-deciduous forest, lowland evergreen, mixed deciduous forest, semi-evergreen forest.

Wild population: In Myanmar, the current occurrence of the leopard is witnessed in 11.3% of its historical range. During the period of 1999 to 2004, out of 18 survey areas throughout the country, only 9 resulted in the presence of the leopard. Since then, its distribution has likely decreased due to increased poaching (Rostro-García et al., 2016). The estimated population is 223-670 individuals with 94-281 mature and breeding adults in the total area of 74,440 km2 (Rostro-

Extent of Occurrence (EOO) Map of *Panthera pardus*



Range Map of *Panthera pardus*



Garía et al., 2016).

Threats to survival: Agriculture expansion, commercial and industrial areas, biological resource use (hunting and collecting terrestrial animals), mining, human intrusions and disturbance, road construction, natural system modifications (7.2 Dams & water management/ use)

Conservation actions and research undertaken: : Camera trapping and analyzing, population monitoring, community engagement, law enforcement with SMART patrolling in Htamanthi WS and gazetted PAs.

Conservation actions and research needed: Law Enforcement and awareness raising programmes in Northern Forest Complex outside of Htamanthi WS and outside of PAs in other parts of the country.

Use and Trade: Used for meat, body parts especially skin, canines and bones, traditional medicine—are in demand from China

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Min Hein Htike, Theint Thandar Bol, Okka Myo, Paing Soe, Zin Mar Hein

Reviewers: Monica Böhm

ENDANGERED EN C1

Clouded Leopard **Order: Carnivora**

***Neofelis nebulosa* (Griffith, 1821)** **Family: Felidae**

Inn-Kyarr

Justification: Mature population estimation based on density (0.6-3.05/100 km2), according to the paper of Naing.et.al (2017). EOO is manipulated based on density. Mainly due to illegal trading, habitat loss/deforestation, we assumed that EN C1.

Clouded Leopard Captured through the camera trap survey in Northern Myanmar © WCS

Measurements (cm):

Clouded leopards have a head-body length of 24-43 inches (60-110 cm) with a 24-35 inch (60-90 cm) tail. Body weight (kg): They weigh 24-50 pounds (11-22 kg). Females are smaller than males.

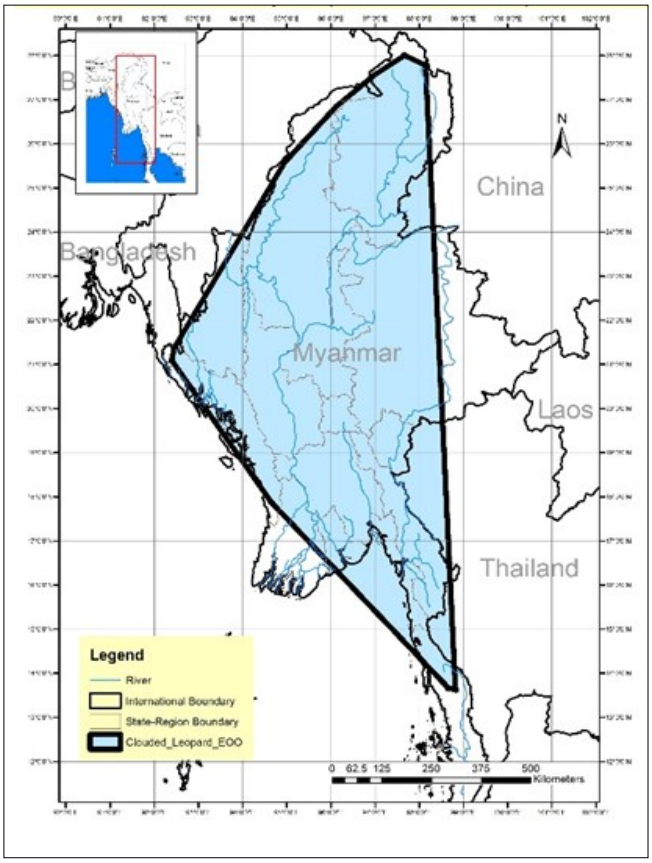
Distribution: The Clouded Leopard is found from the Himalayan foothills in Nepal through mainland Southeast Asia into China (Nowell and Jackson 1996). Countries of Occurrence are Bangladesh; Bhutan; Cambodia; China; India; Lao People's Democratic Republic; Malaysia (Peninsular Malaysia); Myanmar; Nepal; Thailand; Viet Nam. In Myanmar Clouded Leopard can occur at Hukaung Valley Wildlife Sanctuary, Htamanthi Wildlife Sanctuary, Proposed Lenya National Park, Proposed Tanintharyi National Park, Myintmoelatkhant Area, Kayin State, Alaungdaw Katha National Park, Maharmyaing Area, Saramayi Area, Paunglaung Area, Bago Yoma, Rakhine Yoma, Bwaypar (proposed protected area), Hkakaborazi National Park, Hphonkanrazi Wildlife Sanctuary, Emawbon, Bonpharbon Area.

Habitat and Ecology: The species is “very thinly distributed, and generally located in dense evergreen forests in the north and south of Burma” (Zaw et al, 2014), mixed deciduous forest, semi -evergreen forest, and lowland evergreen. There is a record that clouded leopard eat otter (PERCOMM.).

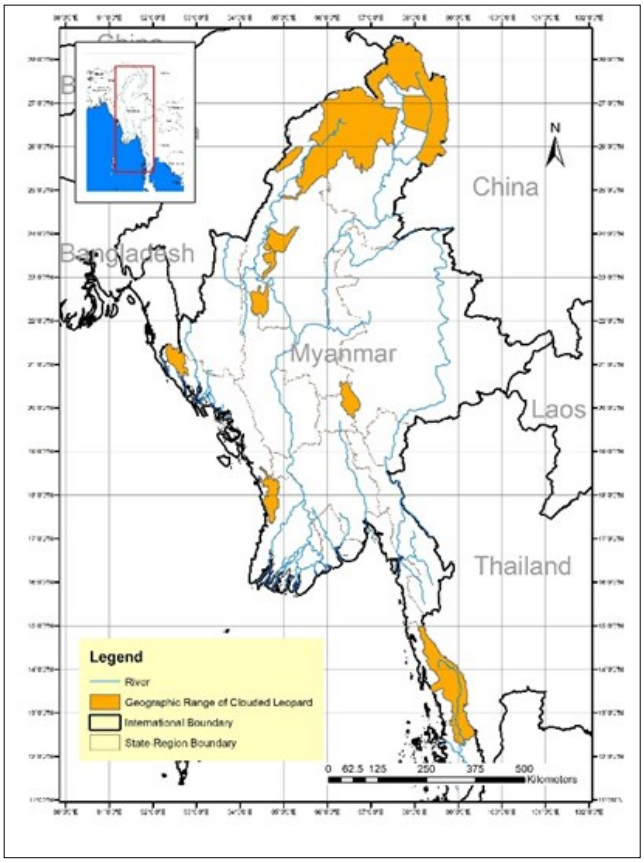
Wild population: There is no country wide estimation. Clouded leopard was the second most recorded cat with 111 independent events from 13 survey areas. (Zaw et al, 2014) 3.05 ± in Htamanthi Wildlife Sanctuary.

Threats to survival: Pouching and trade, habitat loss are main threats for clouded leopard in Myanmar. Agriculture expansion, commercial and industrial areas, biological resource use, mining, human intrusions and disturbance, deforestation, road construction can also be noted as

Extent of Occurrence (EOO) Map of *Neofelis nebulosa*



Range Map of *Neofelis nebulosa*



major threats to the species (using IUCN Threat Classification Scheme).

Conservation actions and research undertaken: Monitoring and evaluation on species habitat and threats are conducted in Htamanthi Wildlife Sanctuary and Southern Tanintharyi from 2014 to present. Camera trapping and analyzing, population monitoring, community engagement, law enforcement with SMART patrolling. *N. nebulosa* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Enhance law enforcement and awareness, long-term monitoring on existing and extended areas. Baseline survey for existing area needed. Ecological research of clouded leopard is required.

Use and Trade: Skin, bone and canine are the most wanted body parts in trade of *N. nebulosa.*

Assessors: Than Zaw, Hla Naing, Dr. Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Okka Myo, Paing Soe, Min Hein Htike, Theint Thandar Bol

Reviewers: Monnika Bohm

VULNERABLE C1

Asiatic Golden Cat, Golden Cat, Temminck's Cat **Order: Carnivora**

***Catopuma temminckii* (Vigors & Horsfield, 1827)** **Family: Felidae**

Kyarr-Min, Kyaung-Min

Justification: Asiatic Golden Cat population in Myanmar is likely to be between 2500 and 10000. Its habitat has decreased in the past ten years and is continuing to decrease. Hunting is also a threat since the species is hunted for trade. It meets the Criterion C1 for VU category. While there are populations in the neighboring regions, because of the small home range, migration is suspected to not play a significant role for its population for the region.

Asiatic Golden Cat Captured through the camera trap survey in Northern Myanmar © WCS

Measurements (cm): Head to Body Length; Adult Male and Female 66~105cm. Body weight (kg): Adult Male and Female; 12~15 kg

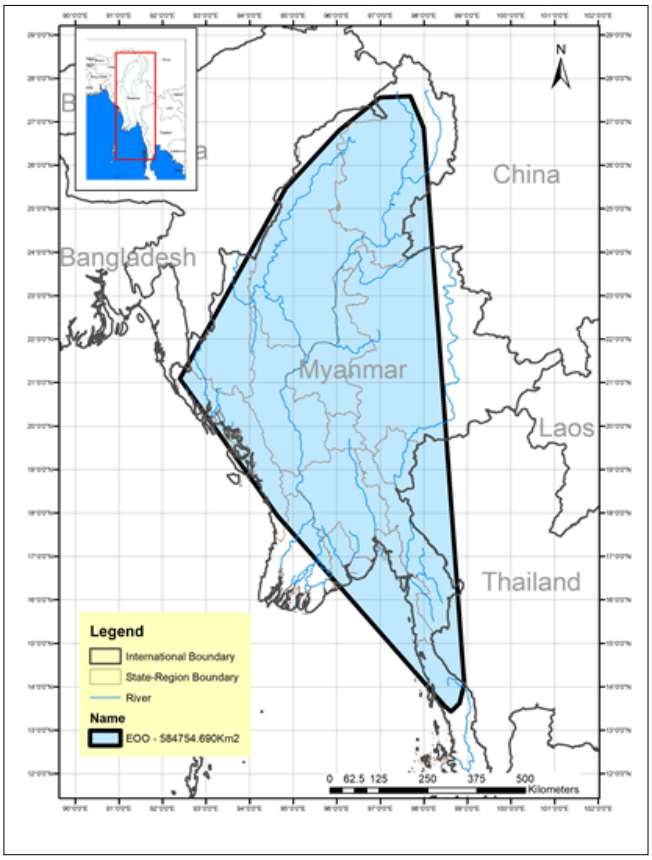
Distribution: Bangladesh; Bhutan; Cambodia; China; India; Indonesia (Sumatera); Lao People's Democratic Republic; Malaysia; Myanmar; Nepal; Thailand; Viet Nam. Distribution in Myanmar, Hukaung Valley Wildlife Sanctuary, Hkakaborazi National Park, Hponkanrazi Wildlife Sanctuary, Indawgyi Wildlife Sanctuary, Imaw Bum Area, Sumpra Bum Area, Htamanthi Wildlife Sanctuary, Lenya Reserve Forest, Proposed Tanintharyi National Park, Tanintharyi Nature Reserve, Kayin State, Alaungdaw Kathapa National Park, Bago Yoma, Naung Mung Area, Khaung Lan Hpu Area, Propose Maharmyaing Wildlife Sanctuary, Myintmoe Letkhat Area, Rakhine Yoma, Palet Wa Area, Mt. Saramati Area, Rakhine Yoma Elephant Range, Pauk Sa area near Nga Hpe.

Habitat and Ecology: Previous records from Myanmar were in thick or moderately thick forest at altitudes between 760m and 1,300m (Tun Yin 1967). The species occurs in evergreen forest, semi evergreen forest, mixed deciduous forest, deciduous forest.

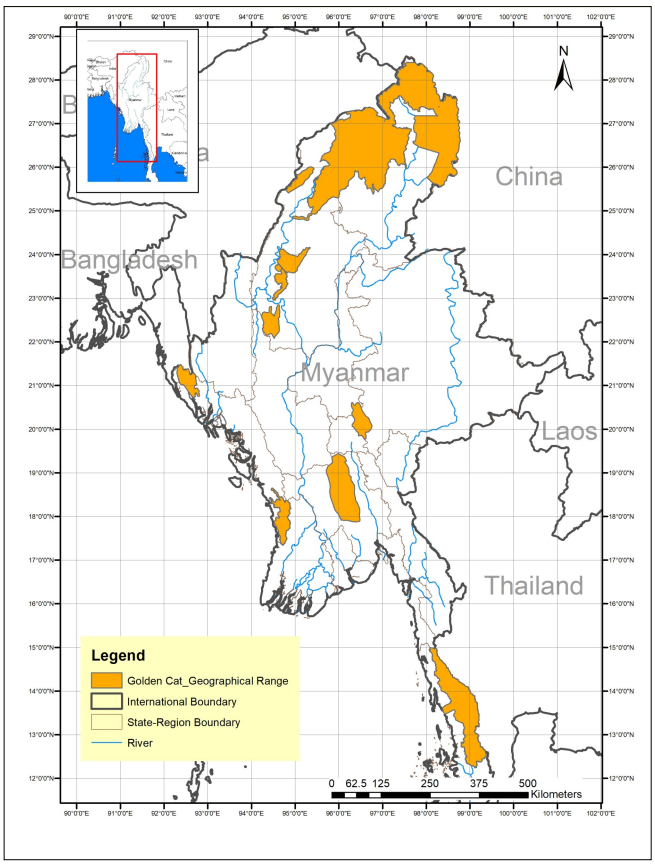
Wild population: Asiatic Golden Cat was camera-trapped in 12 survey areas with 55 independent events (occurring from the southernmost to the northernmost survey areas) (Zaw et al, 2014). Habitat loss, degradation and poaching, as with other medium and small cats, have caused this species to decline. We believe that this species has decreased by around 20% over the past three generations (close to 20 years) due to forest loss and poaching. Asiatic golden cat is recorded across Myanmar according to camera trap surveys and opportunistic searches in the villages, hunting camps and markets as mentioned in Zaw et al. (2014), hence, the assessment team suspects that the species is still widespread, although the population in Myanmar is likely to be less than 10000 individuals.

Threats to survival: In Myanmar, the species is threatened by habitat loss, and hunting.

Extent of Occurrence (EOO) Map of *Catopuma temminckii*



Range Map *Catopuma temminckii*



Conservation actions and research undertaken: For this species, monitoring and density estimation in several sites was conducted in Myanmar. Camera trapping and analysis, population monitoring, community engagement, law enforcement with SMART patrolling are also done in its range even though most of these actions are not particularly targeted for this species. *C. temminckill* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Law enforcement, combating wildlife crime and patrolling are needed. Ecological research, population estimation, population trend research and trade assessment are needed.

Use and Trade: Skin has turned up in illegal wildlife markets (Nijman and Shepherd, 2015). The species is illegally traded especially for its skin, canines, claws, and bones and it is also used as trophy in traditional ceremony and traditional Chinese medicine.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Okka Myo, Min Hein Htike, Theint Thandar Bol

Reviewers: James Tallant, Monica Böhm

ENDANGERED B2 a,b(i, ii, iii,v); C1

Marbled Cat **Order: Carnivora**

***Pardofelis marmorata* (Martin, 1837)** **Family: Felidae**

Kyaung-Tha-Lin

Justification: The final assessment is EN B2 a,b(i, ii, iii,v); C1. due to lower mature population based on the paper of Naing et al, (2017), in Htamanthi wildlife Sanctuary. Population estimation in each location is needed. Hunting and habitat loss is major concern for this species. Besides, ecological data and additional threats assessment are required in each site.

Marbled Cat © Terry Whittaker

Measurements (cm): Marbled cats range from 45 to 62 cm (18 to 24 in) in head-body length with a 35 to 55 cm (14 to 22 in) long and thickly furred tail. Body weight (kg): Recorded weights vary between 2 and 5 kg (4.4 and 11.0 lb.).

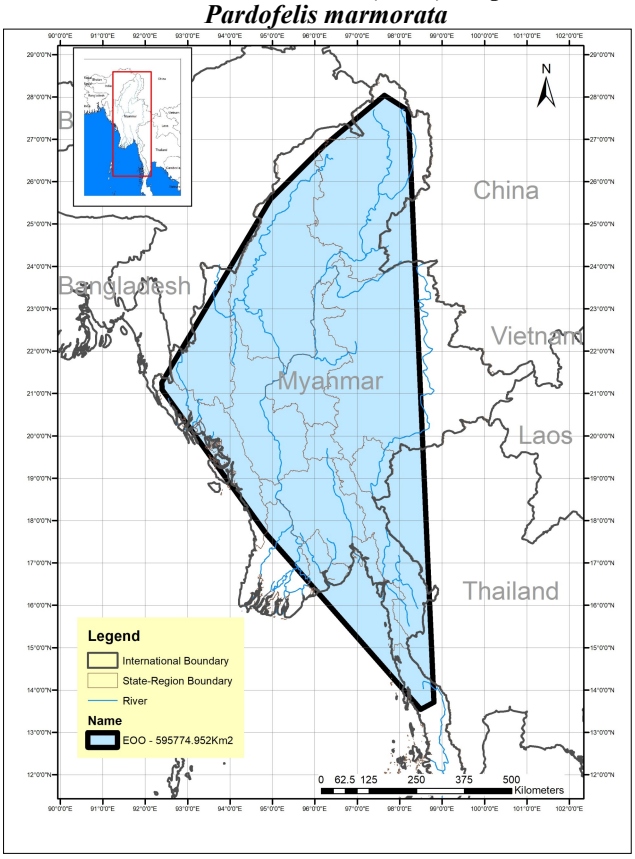
Distribution: Distributed globally in Nepal eastward to south west China, mainland Southeast Asia, Borneo, Sumatra, Myanmar, Thailand, Cambodia, north-east India, Bangladesh. As distribution in Myanmar, marbled cat can occur at Hkakaborazi National Park, Hponkanrazi Wildlife Sanctuary, Hukaung Valley Wildlife Sanctuary, Somparabon Area, Chipwe yar, Wu Sote, Htamanthi Wildlife Sanctuary, Saramaryi Area, Imawbum Wildlife Sanctuary, Indawgyi Wildlife Sanctuary, Bago Yoma, Northern Landscape- Myitsone, Lasa, Tanintharyi Range, Tarchileik, Monglar, Eastern Shan State – Yat Sauk,Northern Rakhine Yoma.

Habitat and Ecology: Marbled cat's habitat are evergreen forest, semi-evergreen forest, mixed deciduous forest, deciduous forest, lowland evergreen Forest.

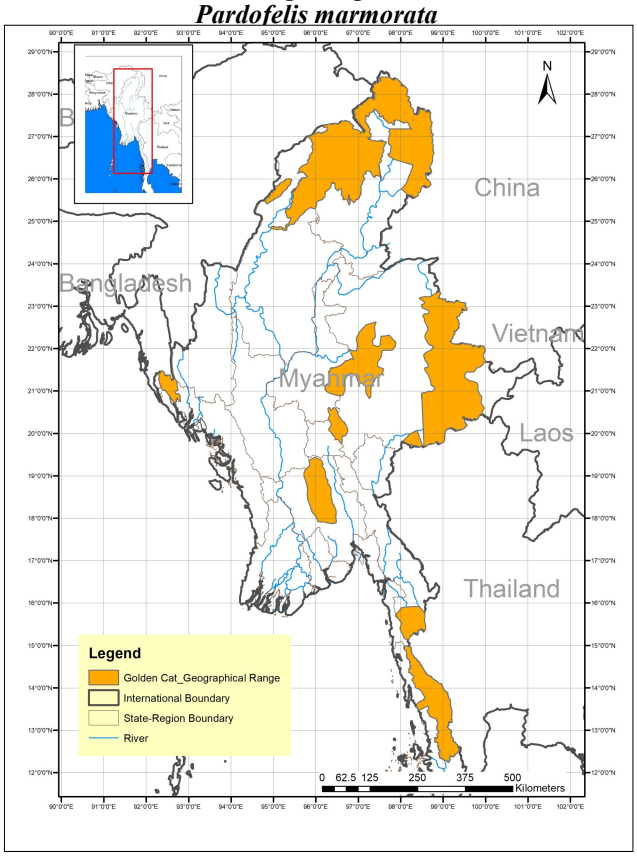
Wild population: The population density of marbled cats was 8.75 ±SD2.6 individuals per 100 km^2 (Naing et al, 2017). In Myanmar, it is estimated that there are 9 sub population and 1800 mature individuals according to the field research data. However, the wild population trend is declining.

Threats to survival: In Myanmar, poaching and trade, depletion of prey species and habitat fragmentation threaten the species. Major threats are agriculture (livestock farming & grazing), commercial and industrial areas, biological resource use, mining & quarrying, human intrusions and disturbance, natural system modifications like damming and road construction.

Extent of Occurrence (EOO) Map of *Pardofelis marmorata*



Range Map of *Pardofelis marmorata*



Conservation actions and research undertaken: For this species, monitoring and destiny estimation in sites was conducted in Myanmar such as camera trapping and analyzing, population monitoring, community engagement, law enforcement with SMART patrolling.

Conservation actions and research needed: Law enforcement, combating wildlife crime and patrolling are needed. In addition, ecological research, population estimation, population trend research and trade assessment of marbled cat are also needed.

Use and Trade: The species is illegally traded especially skin, canine, claws, bone are also used as trophy in traditional ceremony and traditional Chinese medicine.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Min Hein Htike, Theint Thandar Bol, Okkar Myo,

Reviewers: James Tallant, Monica Böhm

NEAR THREATENED

Jungle Cat **Order: Carnivora**

***Felis chaus* (Schreber, 1777)** **Family: Felidae**

Kyaung-ba, Taw-Kyaung

Justification: The assessment classification for this species is primarily based on the fact it is very rarely recorded in camera trap surveys across Myanmar in different forest types. Although the accurate population counts are not possible, the low photo capture rates would generally mean that the actual population itself is now very low. The assessment team estimated that the jungle cat population across Myanmar is less than 2500, and each sub population does not exceed more than 50 individuals.

Jungle Cat Captured through the camera trap survey in Northern Myanmar © WCS

Jungle cat is found in very few sites in Myanmar, hence AOO is very low, while its populations are severely fragmented as the sites where jungle cat is found are either separated by urbanization (e.g. Hlawga Park and Rakhine Yoma separated by one of Myanmar's most densely populated areas) or by natural barriers (e.g. the Ayeyawaddy River between Shwesettaw and Popa), or are simply too far from each other.

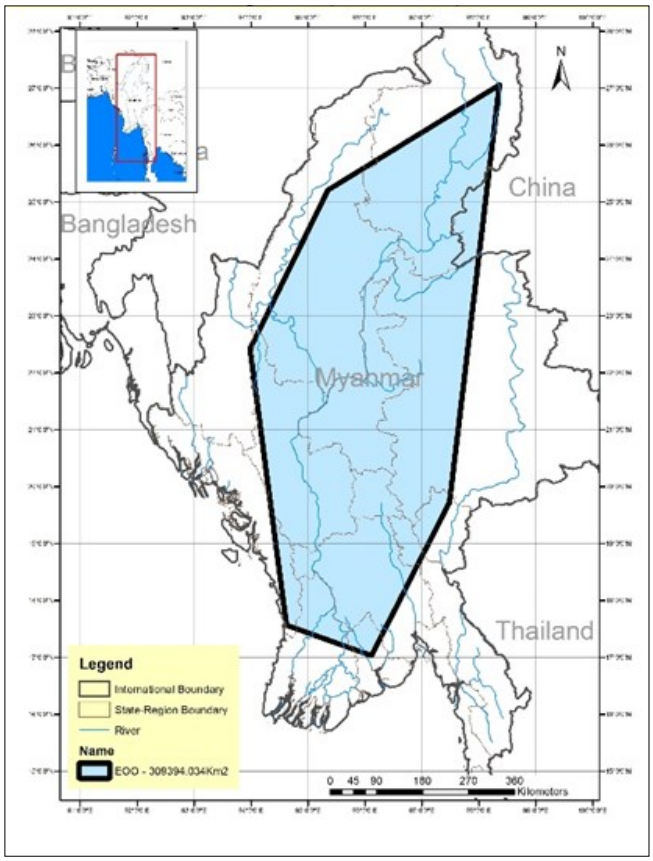
Measurements (cm): Body Length: 59-76, Shoulder: 36, Body weight: 2-16 kg

Distribution: European population is marginal and declining while populations in China and SE Asia have started declining recently. However, the species is considered common in Southern Asia. (Gray et al. 2016). Distribution in Myanmar are; Hlawga Park, Htamanthi Wildlife Sanctuary, Northern Landscape - Khaunglanhphu, proposed Tanintharyi National Park, Alaungdaw Kathpa National Park, Shwesattaw Wildlife Sanctuary, Popa Mountain Park, Chin Hill, Shwe U Daung Wildlife Sanctuary, Gwa - Rkhine State, Indawgyi Wildlife Sanctuary.

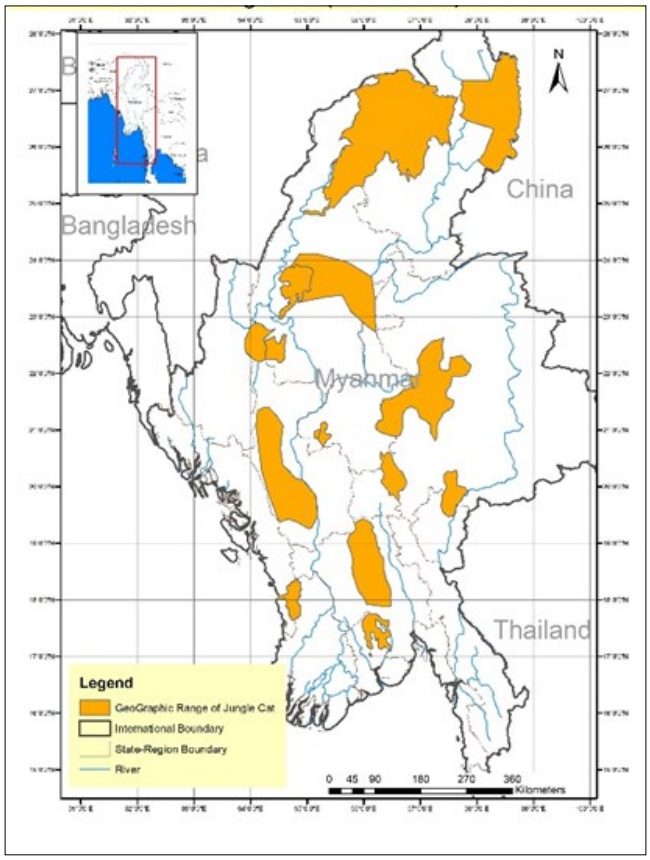
Habitat and Ecology: In Southeast Asia, jungle cats are strongly associated with open deciduous habitats (Duckworth et al. 2005, Gray et al. 2014). In Myanmar, jungle cats were recorded mainly in Indaing forest, Than-dahat forest, deciduous forest, degraded forest and nearby human settlement. They often have close contact with human settlement and attack human domestic animals such as chicken and duck.

Wild population: Jungle cats show up very rarely in the camera trap survey efforts in various forest types. This could either be partly because the survey efforts were mainly in the intact forest habitats which are not ideal for jungle cats, or more likely, because of the genuine rarity of the species.

Extent of Occurrence (EOO) Map of *Felis chaus*



Range Map of *Felis chaus*



Threats to survival: The biggest threat to the jungle cat is presumed to be poaching. Lack of protection under Myanmar's current laws for the species poses a threat to combat poaching of the jungle cat.

Conservation actions and research undertaken: Camera trapping, community engagement, law enforcement with SMART patrolling in PAs were conducted.

Conservation actions and research needed: Urgent evaluation of its status is needed, especially as it appears very rarely in the camera trap surveys and therefore could be very close to extirpation from Myanmar. *F. chaus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Use and Trade: The species is traded as shown by records of jungle cat parts in trade mentioned in Zaw et al. (2014). Its skin is probably most traded although other parts, as with other small and medium cats, could also be traded. The species can also be hunted for meat.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein, Thida Oo, Nay Myo Shwe, Paing Soe, Min Hein Htike, Theint Thandar Bol, Okkar Myo,

Reviewers: Monica Böhm

ENDANGERED B2 ab(iii,iv)

Fishing Cat | **Order: Carnivora**

Prionailurus viverrinus (**Bennett, 1833**) | **Family: Felidae**

Kyaung-ba, Kyaung-ta-nga

Justification: Although there is not enough population estimation data for the Fishing Cat, the species at present has a limited AOO of 24 km^2, a small number of locations (less than or equal to 5 based on the threats of hunting and habitat loss which would affect each subpopulation separately) and continuing declining in habitat and locations. Therefore, this species is assumed to be EN B2ab (iii, iv).

Fishing Cat
©Fletcher and Baylis

Measurements (cm): The measurements of *P. viverrinus* are as follow: length 65.8 to 85.7, tail 25.4 to 28.0, hind foot 13.4 to 15.8, and the ears are 4.7 to 5.1 in length. Fishing cats stand over 35.0 high at shoulder level. Body weight (kg): 6.3 to 11.8 kgs depending on gender.

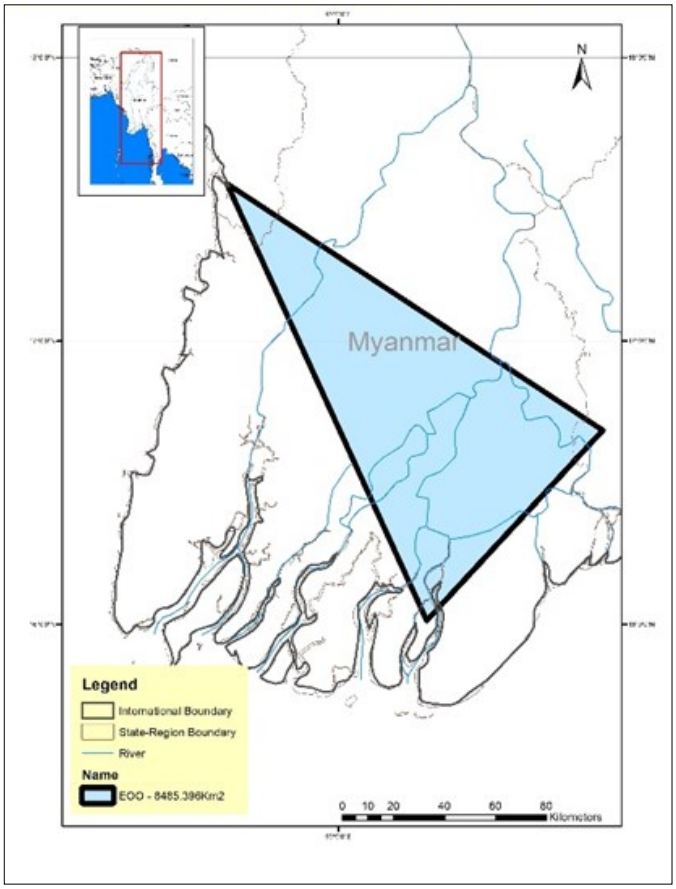
Distribution: The Fishing Cat (*Prionailurus viverrinus)* is a small, wetland-dependent cat with an extensive albeit discontinuous geographic range in Southern and Southeastern Asia (Mukherjee et al. 2016; Chutipong et al. 2019; Poudel et al. 2019). Native to Bangladesh, Cambodia, India, Myanmar, Nepal, Pakistan, Sri Lanka, and Thailand. In Myanmar, there are only two certain field records: one from the early 20th century in the Hukaung Valley in the north, and one from Meinmahla Kyun Wildlife Sanctuary in the Ayeyarwady delta in or around 2015 (Than Zaw et al,. 2016). Recent news from opportunistic camera trap surveys confirmed the fishing cat's presence in the Ayeyarwady delta (Naing Lin & Steve G. Platt, 2019). This corroborates reports that a few captive individuals in the country are said to be descendants of animals captured in or around the 1990s in the Ayeyarwady delta (Than Zaw et al. 2014). Specifically, the species has been reported from Ma-Upin, Mainmahla Kyun, Twin tay, Latputta, Gwa, and Kyeintale.

Habitat and Ecology: Mangrove forests, grass swamps, Ayeyarwaddy delta and other wetlands areas are their habitat. The species occurs in evergreen forest, semi evergreen forest, mixed deciduous forest, deciduous forest.

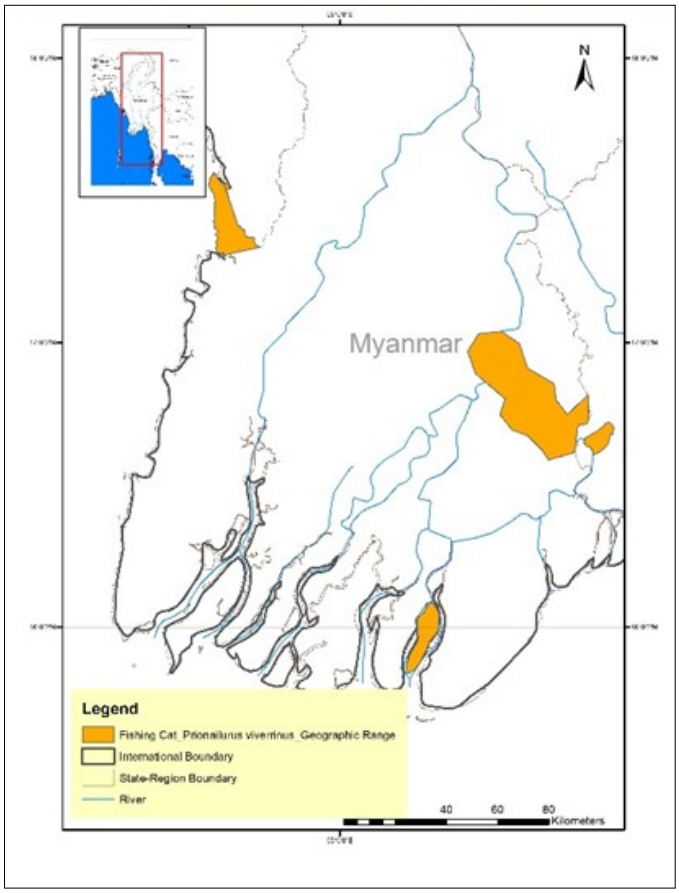
Wild population: The population data on the occurrence and distribution of Fishing Cat in Myanmar are sparse (Than Zaw et al. 2014; Mukherjee et al. 2016). While population size is unknown, the species occurs in five sub-populations; the population trend is thought to be declining. The fishing cat subpopulation in Hukaung might be extirpated due to severe mining for gold, amber and jade and over exploitation of fishery resources using dynamite fishing.

Threats to survival Habitat destruction, particularly of coastal mangrove forests, is of great

Extent of Occurrence (EOO) Map of *Prionailurus viverrinus*



Range Map of *Prionailurus viverrinus*



concern for Fishing Cat conservation both globally (Sunquist & Sunquist 2002) and specifically in the Ayeyarwady Delta (Mukherjee et al. 2016).

Conservation actions and research undertaken: : For this species, camera trapping and analysis, population monitoring, and community engagement are conducting in their respective range. *P. viverrinus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Population monitoring, law enforcement with SMART patrolling, and raising awareness are needed. Given the availability of habitat and confirmed occurrences of the Fishing Cat in the Ayeyarwady Delta, this region should be prioritized for initial survey efforts. Follow-up efforts should target wetlands throughout the coastal zone, particularly those in Rakhine and Mon states and Tanintharyi Region where significant tracts of mangrove forests, grass swamps, and other wetlands still remain. Importantly, survey efforts should not be restricted to coastal habitats (Naing et al, 2019)

Use and Trade: It is recorded that 37 Fishing Cat skins were offered for sale at illicit wildlife markets in Tachilek during 1991–1992, although the origin of these skins could not be determined with any degree of certainty. (Naing et al, 2019).

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Min Hein Htike, Theint Thandar Bol, Okkar Myo,

Reviewers: James Tallant, Monica Böhm

NEAR THREATENED

Leopard Cat **Order: Carnivora**

***Prionailurus bengalensis* (Kerr, 1792)** **Family: Felidae**

Thit-kyaung, Thit-kyoke, Kyaung-kwet

Justification: Even though there is habitat loss, this species is widespread throughout the country and not intentionally hunted. The reduction rate is estimated based on camera trap data and above threatened category thresholds. However, given the relatively restricted AOO and estimated continuing decline in habitat and number of mature individuals (based on camera trap records), the species qualifies as Near Threatened.

Leopard Cat

© Joanna Ross and Andrew Hearn

Measurements (cm): Body Length 45-65cm, Tail Length 20-30cm, Body weight: 1.6-8Kg

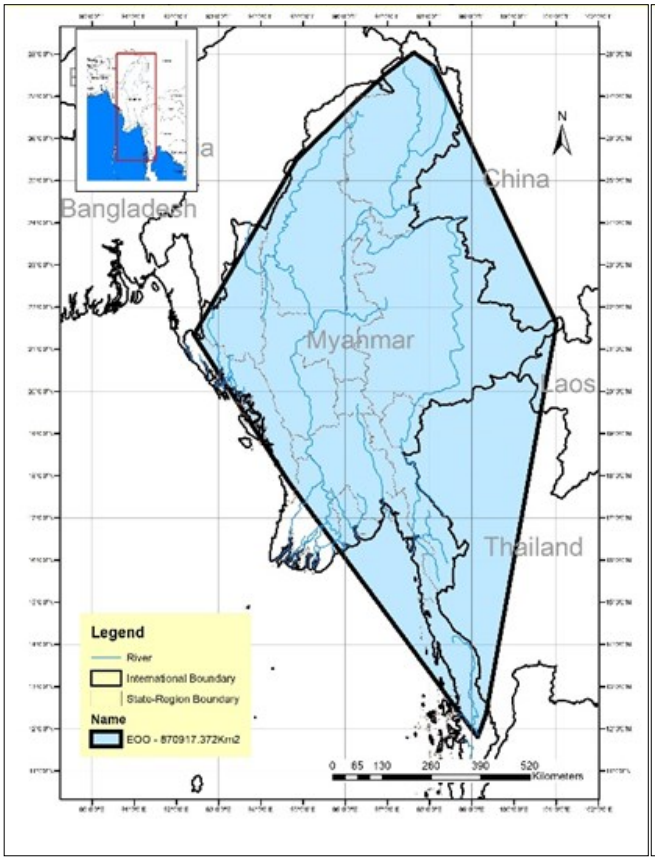
Distribution: The native range of the leopard cat (*Prionailurus bengalensis*) is continental South, Southeast and East Asia, where it ranges from Afghanistan in the west to China, Japan (Nansei-shoto), Korea and Russia in the east and as far south as Malaysia, Singapore and some of the Indonesian islands (Jawa, Kalimantan and Sumatera) (Ross et.al., 2015). In Myanmar, their distribution are Htamanthi Wildlife Sanctuary, Northern Landscape- Myitsone, Liezar, proposed Tinantharyi National Park, Tarchileik, Minlar, Alaungdaw Kathpa National Park, Eastern Shan State.

Habitat and Ecology: Leopard cats can occur in a wide variety of habitats from tropical rainforest to temperate broadleaf and, marginally, coniferous forest, as well as shrub forest and successional grasslands. In Myanmar, the leopard cat's habitat is in thick or moderately thick forest.

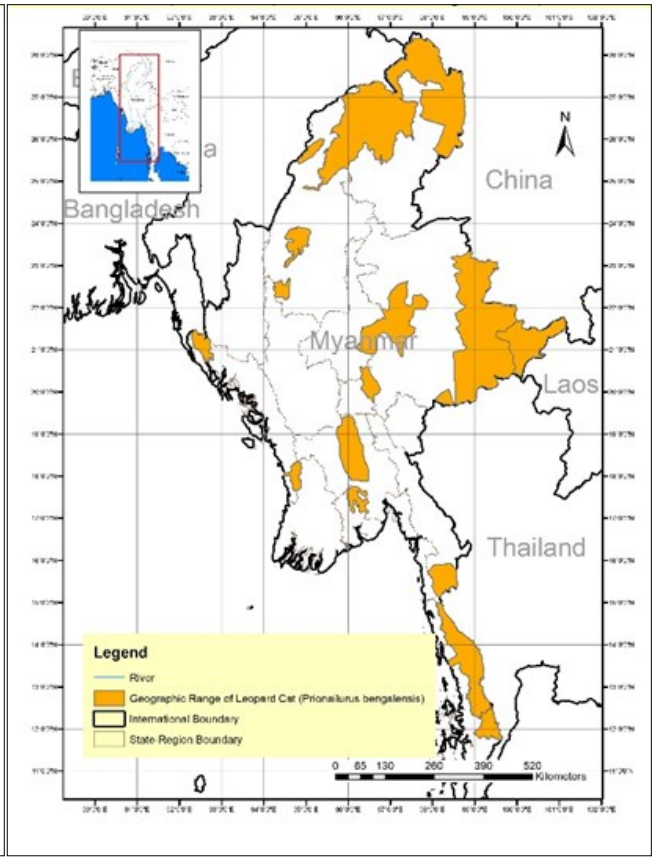
Wild population: In Myanmar, the Leopard cat was the most commonly and widely recorded species, occurring from the southernmost to the northernmost survey areas, with 151 independent events coming from 15 survey areas. There were 11 records of remains (SOM T11) and two sightings (Zaw et al, 2014).

Threats to survival: Although this species is less dependent on forest cover than others, habitat loss and fragmentation is still a threat across most of its range (Nowell and Jackson 1996),

Extent of Occurrence (EOO) Map of *Prionailurus bengalensis*



Range Map of *Prionailurus bengalensis*



primarily from infrastructure and agricultural development and logging. There is also some hunting of the species, but the species is not the main Target of hunters.

Conservation actions and research undertaken: Camera trapping, community engagement, law enforcement with SMART patrolling in Protected Areas. Ecology and conservation research of small carnivores was conducted (Su Su, 2003). *P. bengalensis* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: The species is found in numerous protected areas in Myanmar but illegal hunting and trading of it is still increasing. So, a clearer understanding of the Leopard Cat's use of its habitat and the effect of habitat disturbance are needed to better plan for its conservation.

Use and Trade: Leopard Cat skins are traded internationally for the fur trade, primarily for coats. Skins are also used as decorations in some parts of its range. The species is also consumed as meat in the local market.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Okkar Myo, Min Hein Htike, Theint Thandar Bol

Reviewers: Monica Böhm

ENDANGERED A2acd+4cd; C2a(i)

Asian Elephant, Indian Elephant — **Order: Proboscidea**

Elephas maximus (Linnaeus, 1758) — **Family: Elephantidae**

Sin

Justification: The Asian Elephant *(Elephas maximus)* is listed as Endangered as there is reason to believe that the species has declined by at least 67% over the past 50 years (approximately: 2 generations) due primarily to hunting, human elephant conflict and habitat loss. There is no reason to believe that the rate of decline would have been lower when considering population reduction over three generations. Over the coming 50 years, this decline likely to continue at similar levels due to continuing habitat loss and trade demand. Although there are wild elephants still occurring countrywide, the elephant population in Myanmar will be continuing to decline due to these threats.

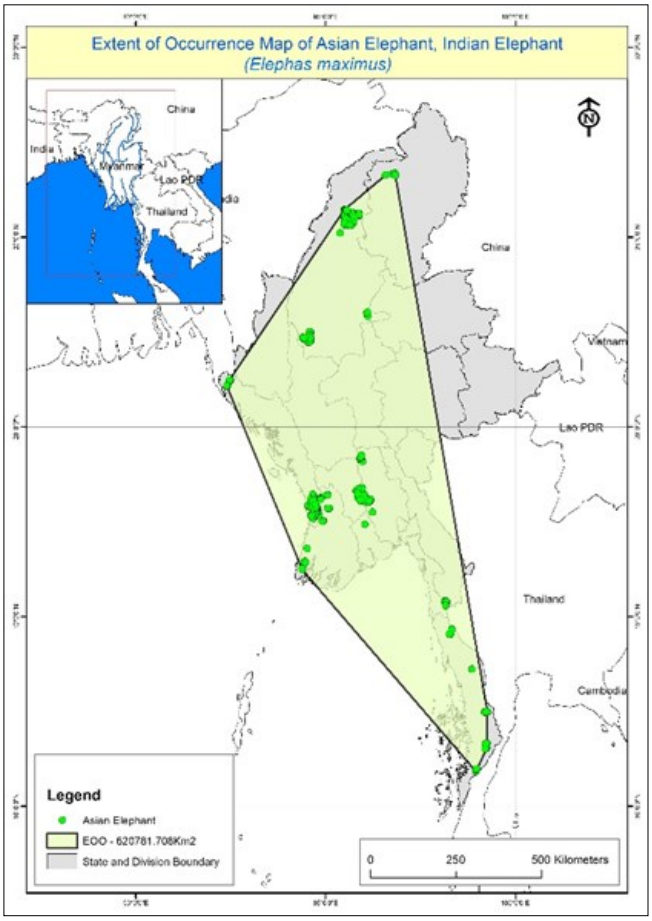
Asian Elephant at Rakhine Roma Elephant Range
© wcs

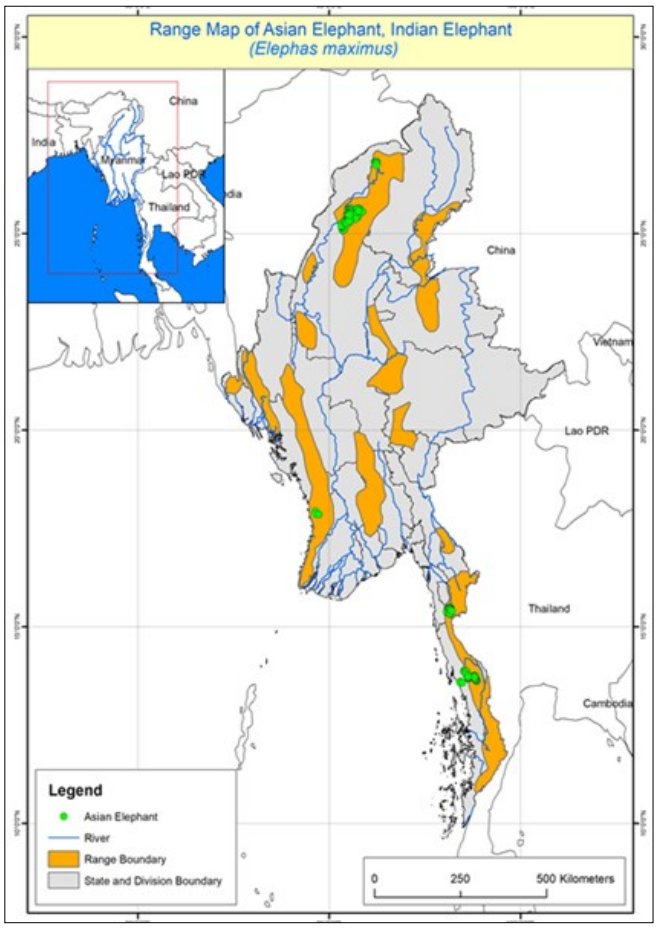
Measurements (cm): Shoulder Height (male 275 ; female 240), Body Length (550-650 m), Tail (120-150 m), Body weight (kg) : male 4064; female 2743.

Distribution: Bangladesh, Bhutan, India (including the Andaman Islands), Nepal, and Sri Lanka in South Asia and Cambodia, China, Indonesia, Lao PDR, Myanmar and Malaysia in Southeast Asia. The Asian elephant has a wide, but highly fragmented, distribution in Myanmar. Thesix ain areas of elephant abundance are: the Northern Hill Ranges; the Western Hill Ranges; Bago Yoma (central Myanmar); Tanintharyi Yoma (in the south, bordering Thailand); Ayeyarwady Delta; and Shan State or eastern Yoma.

Habitat and Ecology: This species occurs in tropical evergreen forest, semi-evergreen forest, moist deciduous forest, dry deciduous forest, secondary forests and scrublands. Currently, forests in Myanmar are declining rapidly with an annual loss of 0.94% with less than 38% of forests now considered intact. Terrestrial.

Wild population: Estimate for the global population size of the Asian elephant was 41,410–52,345 (Sukumar 2003 , Choudhury et al. 2008). Up until the 1970s, expert-opinion based estimates of the wild population were at more than 6,000 animals in Myanmar (Leimgruber et al. 2011). The guesstimate for the wild elephant population was fewer than 2,000 elephants in 2017 in Myanmar. The current population estimate in Myanmar is 1,500-2,000 individuals (including juveniles). From this, we inferred a population size reduction of at least 50% over the last three generations. If threats continue, these may potentially lead to extinction of the wild population within 30 years.





Threats to survival: Habitat loss, fragmentation, and degradation (a reduction in habitat quality); illegal killing (e.g. for ivory, skin, teeth and other products or in retaliation for human–elephant conflict); and the genetic and demographic problems that result from small population size and isolation.

Conservation actions and research undertaken: Myanmar Elephant Conservation Action Plan (2018-2021) has already been developed and is now being implemented. Law enforcement, distribution studies, human-elephant conflict mitigation, counter wildlife trade, public awareness raising. *E. maximus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Cooperation with government agencies for elephant conservation.

Use and Trade: Sale of elephant skin for pharmaceutical products and ivory product for luxuries.

Assessors: Htet Arkar Aung, Zarni Aung, Kyaw Khaung Thant Zin, Toe Tet Zeya, Sapai Min, Margaret Nyein Nyein Myint

Reviewers: James Tallant, Monica Böhm

VULNERABLE A2cd+4cd

Asiatic black bear

Ursus thibetanus **(G. Cuvier, 1823)** **Order: Carnivora**

Himawunta Wet Won, Myin Won **Family: Ursidae**

Justification: Asiatic Black Bear *(Ursus thibetanus)* is listed as Vulnerable as there is reason to believe that the species has declined by at least 30% over the past 3 generations due primarily to hunting and habitat loss. Over the coming 50 years, this decline likely to reach similar proportions due to continuing habitat loss and trade demand. Although there are black bears still occurring country wide, their population in Myanmar will be continuing to decline due to the threats.

Asiatic Black Bear at the Htamanthi Wildlife Sanctuary © WCS

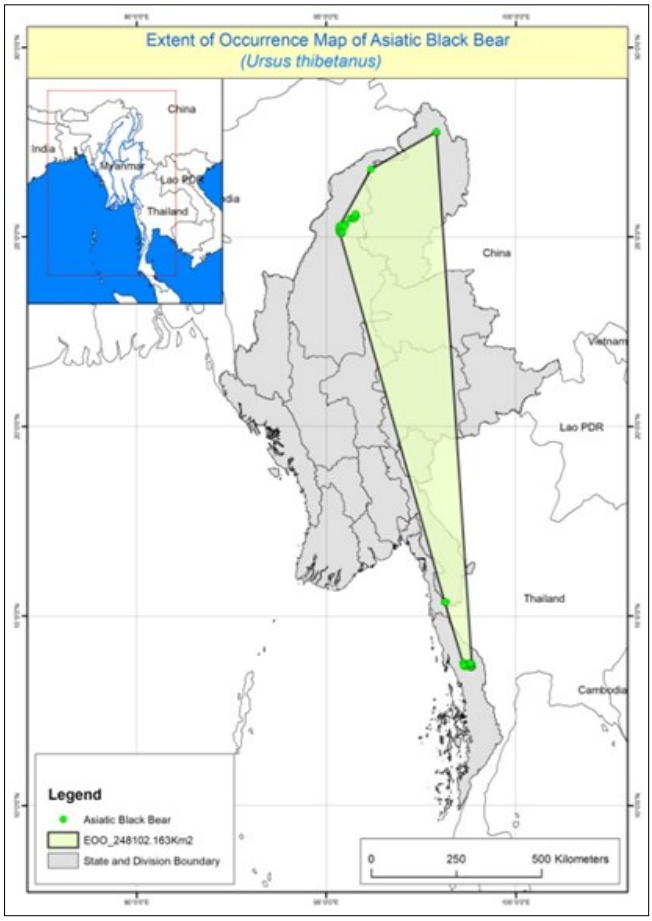
Measurements (cm): Shoulder Height (70-100), Body Length (120-190), Tail (11), Body weight (kg) : male 60-200; female 40-125

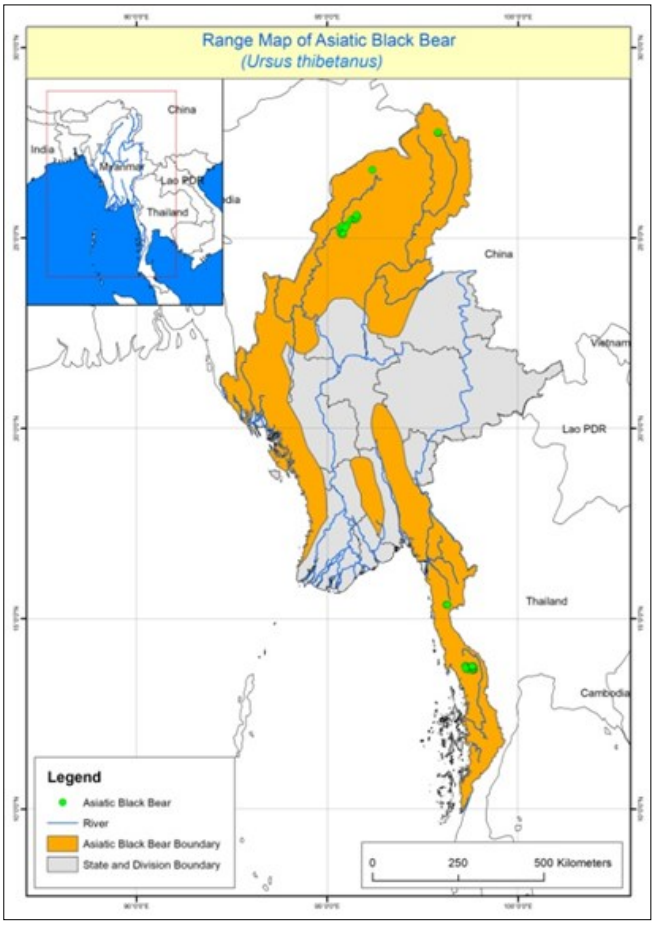
Distribution: Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Iran, Japan, Republic of Korea, Democratic People's Republic of Korea, Lao, Myanmar, Nepal, Pakistan, Russia, Taiwan, Thailand and Vietnam**.** In Myanmar—Southern Rakhine, Hukaung WS, Hkakaborazi National Park, Htamanthi WS, Tanintharyi, Mon and Kayin State.

Habitat and Ecology: This species occurs in a variety of forested habitats, both broad-leaved and coniferous, from lowland to higher altitudes (Garshelis & Steinmetz 2016).

Wild population: The generation length for *Ursus thibetanus* is 10 years. It is difficult to estimate the population of either bear species, even in surveyed areas. However, indices such as relative abundance from each survey site can provide some information on relative status. According to Forest Resource Assessment by FAO, during 1975-2010, Myanmar lost around 50% of its closed forest area which are the main habitat of the species. Overall, this suggests that population trends for this species are declining, with an inferred population reduction of more than 30% over the past three generations, a trend which is projected to occur at a similar rate into the future.

Threats to survival: Hunting for meat, trophies, medicine, live trade, and illegal logging and





road construction causing habitat fragmentation and degradation.

Conservation actions and research undertaken: *U. thibetanus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018). Law enforcement, public awareness, population estimation, and distribution study were also conducted.

Conservation actions and research needed: Need to establish a Bear Action Plan and technical support for bear population size.

Use and Trade: Hunting for meat, trophies and medicine and live trade.

Assessors: Zarni Aung, Kyaw Kaung Thant Zin, Toe Tet Zaya, Htet Arkar Aung, Sapai Min, Margaret Nyein Nyein Myint

Reviewers: James Tallant, Monica Böhm

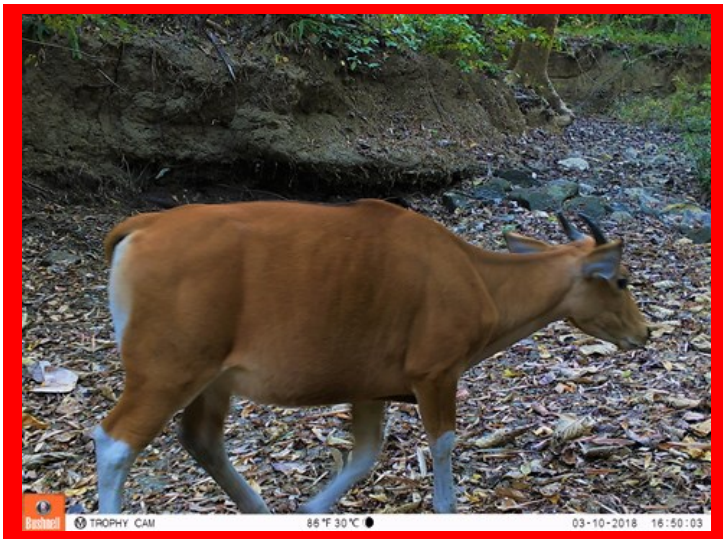
ENDANGERED A2cd+3cd; B2ab(ii, iii, iv), C2a(ii)

Banteng

Bos javanicus (d'Alton, 1823) **Order: Cetartiodactyla**

Taw Nwar, Sai **Family: Bovidae**

Justification: Banteng (*Bos javanicus)* is listed as endangered species because of IUCN global assessment and declining population. There are also several serious threats to the species such as habitat loss, hunting and hybridization with captive livestorcks. Banteng is becoming very hard to find and the species population in Myanmar will be continued to decline.



Benteng recorded in North Zamari
©FRI/FoW

Measurements (cm): Shoulder Height (155-165), Length (245-35), Tail (60), Body weight (kg) : 400-900

Distribution: Wild banteng currently occurs on Java and possibly Bali, in Kalimantan [Indonesian Borneo], Sabah [part of Malaysian Borneo], Myanmar, Thailand, Cambodia and, probably, Lao PDR and Vietnam.

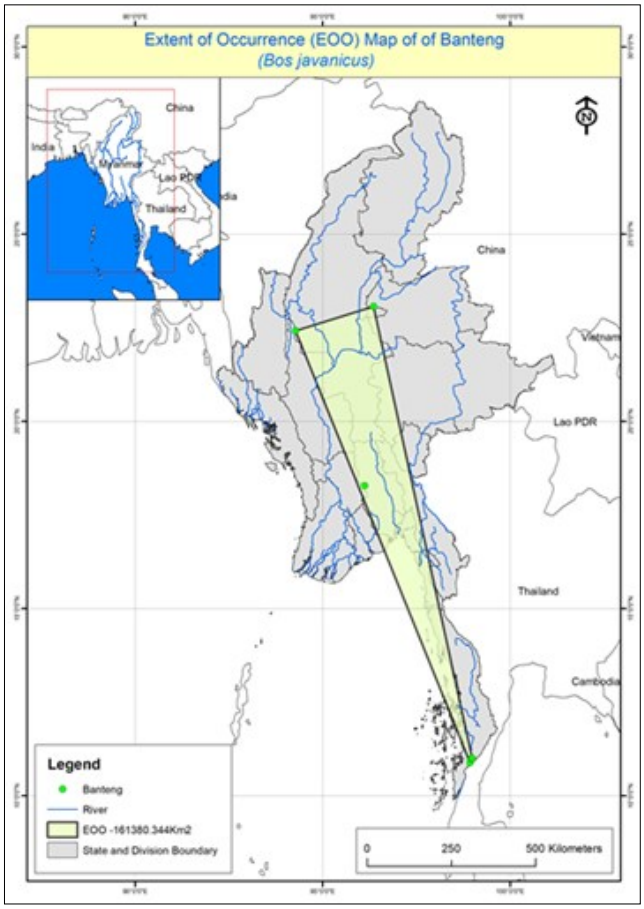
Habitat and Ecology: Banteng generally occurs from sea level up to at least 2,100 m asl (Hoogerwerf 1970, National Research Council 1983, Pudyatmoko 2004, S. Hedges pers. comm. 2008 in Gardner et al. 2016). The observed maximum elevation of Banteng in Sabah is approximately 1,330 m a.s.l. (et al. 2016).

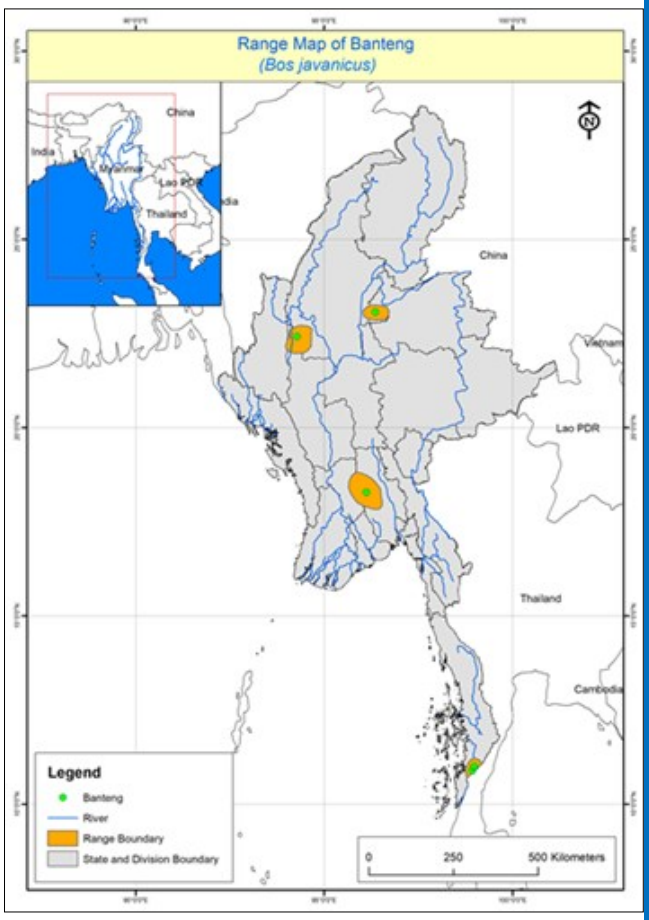
In Myanmar, Banteng is reported to prefer flat or undulating terrain with light deciduous (particularly dipterocarp indaing forest) or mixed deciduous and evergreen forest (Peacock 1933, Wharton 1968, Tun Yin 1967, Prater 1971).

Banteng reportedly drink large quantities of water and prefer feeding grounds near a permanent water supply (Hoogerwerf 1970). Mineral licks are also an important feature of Banteng habitat. (Halder 1976, Payne et al. 1985, Alikodra 1987, S. Hedges pers. obs.).

Wild population: There is no solid information on the wild population status and trends of this species in Myanmar. However, judging from various camera trap surveys and patrol data, we assume that its wild population is less than 250.

Threats to survival: Habitat loss, hunting and hybridization with captive livestock are the main threats to the species.





Conservation actions and research undertaken: There are no specific conservation actions in place for the Banteng. It does occur in four protected areas in Myanmar: Mahamyaing (Proposed Wildlife Sanctuary), Alaungtawkathapha National Park, North Zamari Wildlife Sanctuary (Bago Yoma) and Shwe U Daung Wildlife Sanctuary. All these protected areas are legally protected. *B. javanicus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: There are no specific conservation actions in place for the Banteng.

Use and Trade: Banteng is hunted for trade and trophy skulls with horns.

Assessors: Zarni Aung, Toe Tet Zaya, Htet Arkar Aung, Kyaw Khaung Thant Zin, Su Su, Sapai Min, Margaret Nyein Nyein Myint

Reviewers: James Tallant, Monica Böhm

EN B2ab (i,ii,iii,iv,v); C1

Eld's Deer (Thamin) **Order:** Cetartiodactyla

Rucervus eldii thamin **(McClelland, 1842)** **Family:** Cervidae

Thamin, Shwe Thamin

Justification: Eld's Deer is listed as EN B2 ab (i,ii,iii,iv,v) because of area of occupancy (AOO) is less than 500 km^2 and number of locations is ≤5 based on the threat of poaching. The number of mature individuals, habitat and area of occupancy continue to decline, given additional threats of Human intrusions & disturbance. Over the coming 50 years, this decline likely to reach similar proportions due to continuing habitat loss and trade demand.

Eld's Deer at Chatthin Wildlife Sanctuary
©FFI

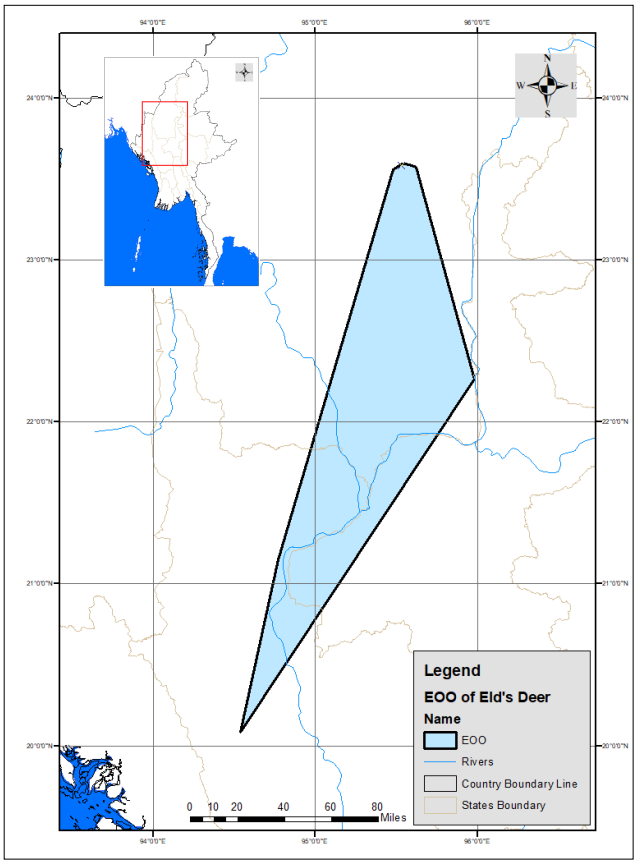
Measurements (cm): Head–body length: 150–180, Shoulder height: 110–125, Tail length: 20–30, Antler length: 99.

Distribution: Endemic to Myanmar. Some are kept in zoo outside of Myanmar. Particularly, they are distributed in Chatthin Wildlife Sanctuary and Shwesattaw Wildlife Sanctuary, Shane-ma-kar – Wetllet Township, Shin-ma-taung Hill in central dry zone, and Tanze Township. Based on both habitat extent and size of remaining patches, Myanmar and Cambodia are the pre-eminent countries for Eld's Deer. Globally found in India, Lao and China too .

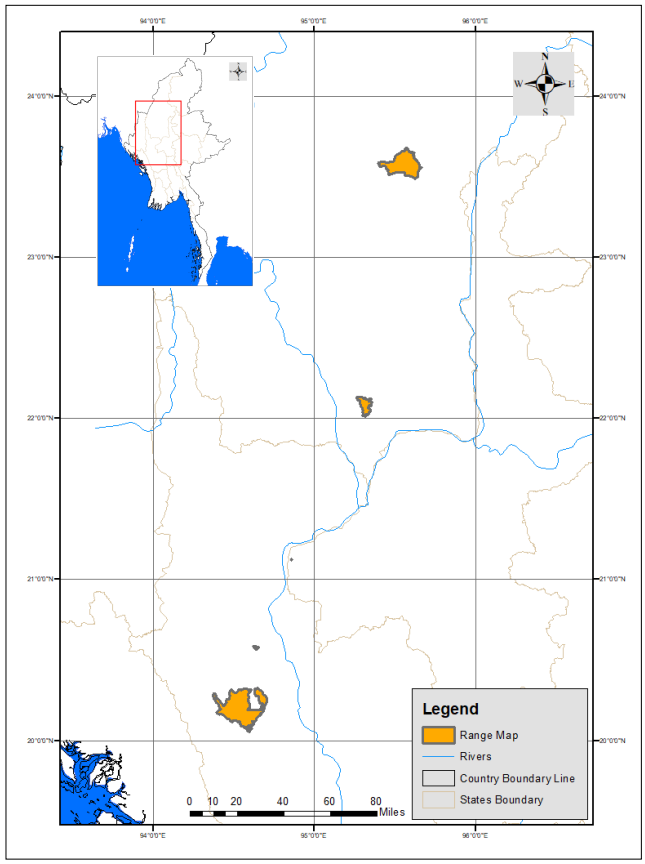
Habitat and Ecology: Generally, they are distributed in Indaing forest, degraded forest, mixed deciduous forest, grassland. The quality and extent of their natural habitat are continuing declining.

Wild population: There are three recognized subspecies of Eld's deer and by the 1990s, one subspecies (*Rucervus eldii eldii*) was confined to a single wetland in India, a second (*Rucervuseldii siamensis*) was extirpated from Thailand and Vietnam with scattered reports in Lao PDR and Cambodia, and the third (*Rucervus eldii thamin*) was extirpated from Thailand, with isolated populations still occurring in Myanmar The wild populations of *R. eldii siamensis* in eastern Cambodia are the largest for that subspecies. The largest remaining populations of *R. eldii thamin* are in Myanmar, and regional estimates estimate >90% of these animals reside along a crescent of forests between the Central Dry Zone and the Chin Hills to the west.

EOO of *Rucervus eldii thamin*



Range Map of *Rucervus eldii thamin*



Threats to survival: The major threats to Eld's deer (Thamin) are poaching with snares, other form of hunting, and domestic animals especially dogs.

Conservation actions and research undertaken: Monitoring and research have been being conducted in Chatthin Wildlife Sanctuary and Shwesattaw Wildlife Sanctuary. *R. eldii thamin* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Law enforcement, combating wildlife crime and law enforcement action to take on arrested snares in Wildlife Sanctuaries.

Use and Trade: Eld's deer (Thamin) is hunted for food as meat, their skin and antlers are traded as trophies.

Assessors: Than Zaw, Hla Naing, Myint Thein, Myo Min Tun, Su Su, Margaret Nyein Nyein Myint, Thida Oo, Nay Myo Shwe, Paing Soe, Min Hein Htike, Theint Thandar Bol, Okkar Myo,

Reviewers: James Tallant, Monica Böhm

Vulnerable VU A2cd+A4cd

Malayan Sun Bear

Helarctos malayanus (Raffles, 1821) **Order**: Carnivora

Ma Lay Wet Won/ Pa Shuu Wet Won (Khway Won) **Family**: Ursidae

Justification: Sun Bear (*Helarctos malayanus*) is listed as Vulnerable as there is reason to believe that the species has declined by at least 30% over the past 3 generations due primarily to hunting and habitat loss. Over the coming 50 years, this decline rate is likely to reach similar proportions due to continuing habitat loss and trade demand. Although there are sun bears still occurring countrywide, the sun bear population in Myanmar will be continuing to decline due to the threats.

Malayan sun bear at Htamanthi Wildlife Sanctuary ©WCS

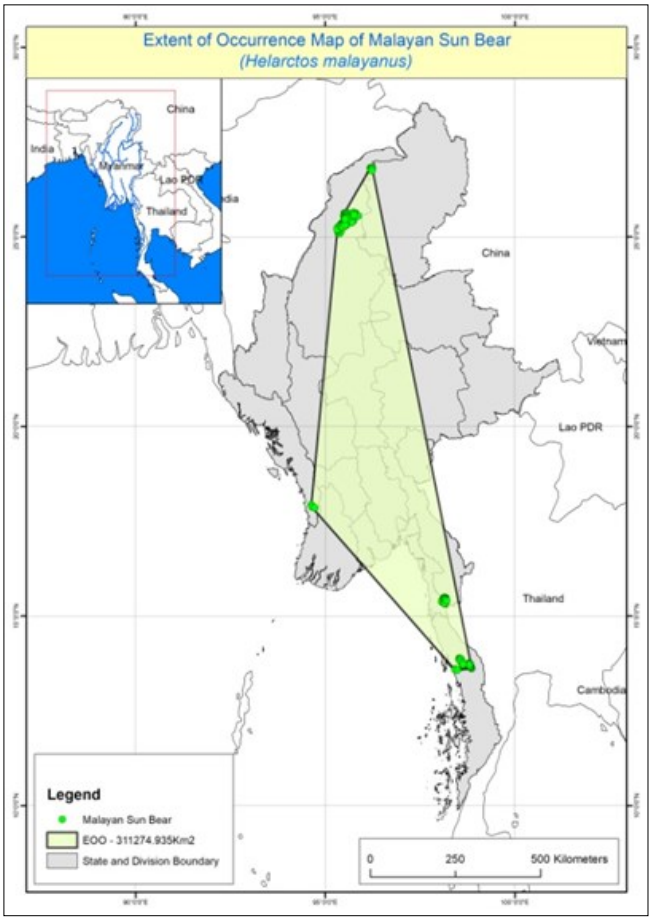
Measurements (cm): Shoulder Head and body (male, female between 100 and 140 centimeters), Body weight (kg) : male, female adults weigh 25–65 kilograms

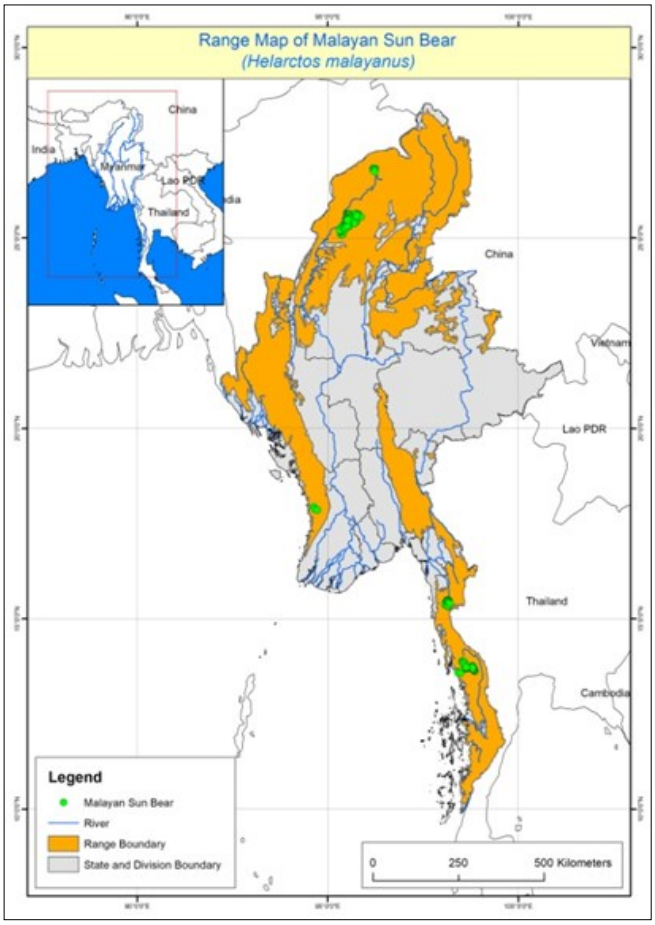
Distribution: Southeast Asia Region (Except Singapore) , Bangladesh , India**.** Kachin State , Upper Sagaing Region , Southern Rakhine , Mon State , Tanintharyi Region.

Habitat and Ecology: Sun Bears are a forest-dependent species, favoring interior mature and/or heterogeneously structured primary forests (Augeri 2005).

Wild population: The generation length for *Helarctos malayanus* is 10 years. It is difficult to estimate the population of either bear species, even in surveyed areas. However, indices such as relative abundance from each survey site can provide some information on relative status. According to Forest Resource Assessment by FAO, during 1975-2010, Myanmar lost around 50% of its closed forest area which are the main habitat of the species. Overall, this suggests that population trends for this species are declining, with an inferred population reduction of more than 30% over the past three generations, a trend which is projected to occur at a similar rate into the future.

Threats to survival: Hunting for meat, trophies, medicine and live trade, illegal logging and road construction causing habitat fragmentation and degradation.





Conservation actions and research undertaken: *H. malayanus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018). Law enforcement, public awareness, population estimation, distribution study were conducted recently in Myanmar.

Conservation actions and research needed: Need to establish a Bear Action Plan and technical support for bear population size.

Use and Trade: Hunting for meat, medicine and live trade.

Assessors: Zarni Aung, Kyaw Khaung Thant Zin, Toe Tet Zaya, Htet Arkar Aung, Sapai Min, Margaret Nyein Nyein Myint

Reviewers: James Tallant, Monica Böhm

ENDANGERED A2cd+3cd; B2ab(ii, iii, iv), C2a(ii)

Malay Tapir

***Tapirus indicus* (Desmarest, 1819)** **Order: Perissodactyla**

Kyant Thu Taw (or) Ta La Shu (Dawei) **Family: Tapiridae**

Justification: Malay Tapir *(Tapirus indicus)* is listed as Endangered as there is reason to believe that the species population has declined by at least 50% over the past 33 years (approximately: 3 generations) primarily due to agricultural land conversions led to habitat loss and accidental hunting are major threats to the species. There is no reason to believe that the rate of decline would have been lower when considering population reduction over three generations. Number of mature individuals is lower than 250 in the Tanintharyi nature reserve of southern part of Myanmar.

Malay Tapir at Sountern Myanmar
© WCS

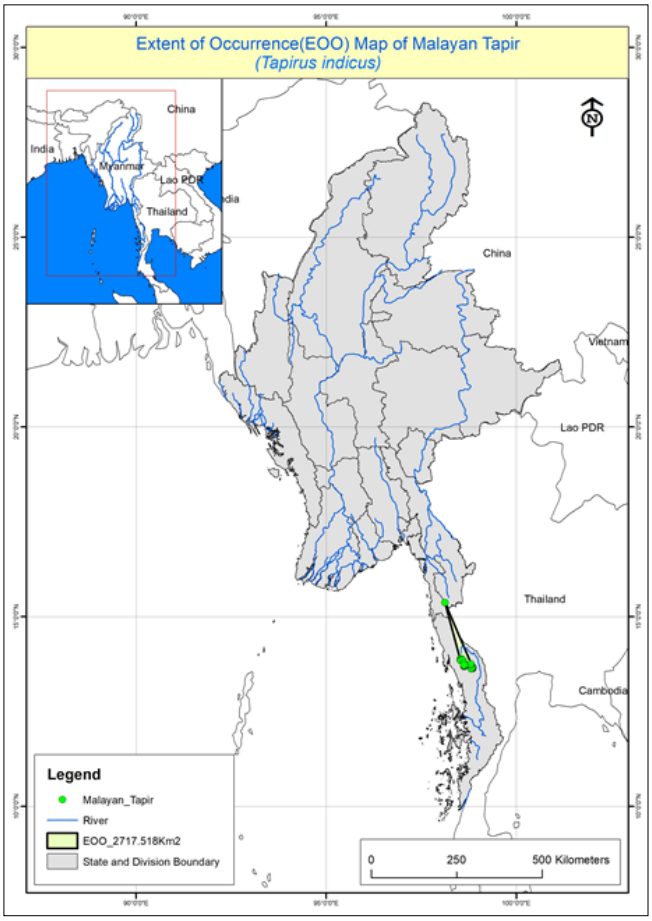
Measurements (cm): Shoulder Height (90-110); Length (180-250), Tail (5-10), Body weight (kg) : 250-320

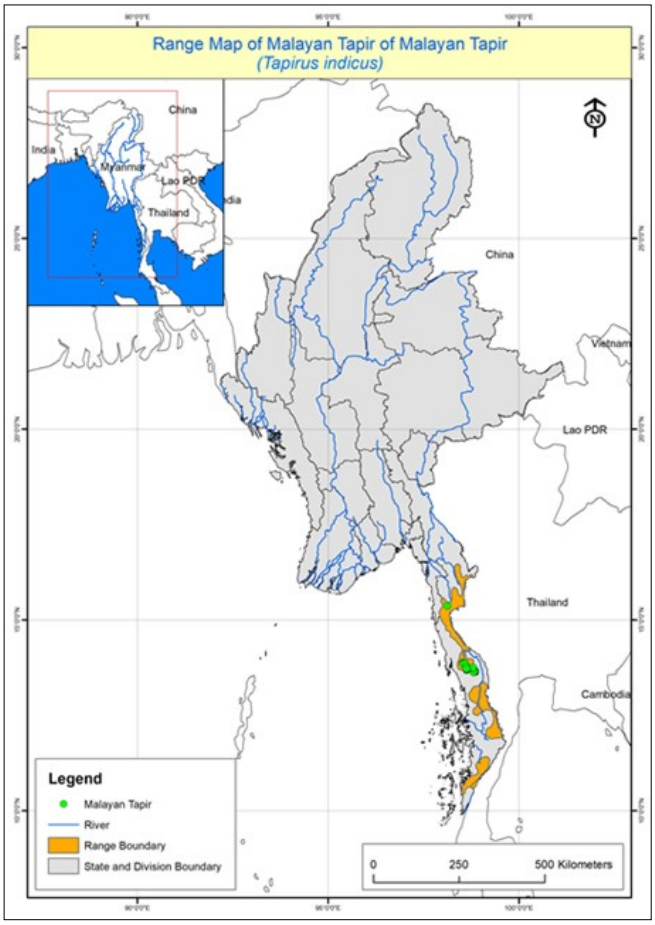
Distribution: Malay Tapir is found in central and southern parts of Sumatra (Indonesia), on the mainland Peninsular Malaysia, Thailand and Myanmar. The occurrence of this particular species can be distinguished into three relatively distinct sub-populations: Thailand-Myanmar, South Thailand and Peninsular, and finally Sumatra including southern and central parts. Tanitharyi region, Mon state and Karen state in Myanmar. Mainly recorded in Taninthayi range such as Lehnya (RF), Nga Wun (RF), Parchan (RF), Thein Khun and Thagyet (RF), Taninthayi Proposed National Park, Myint mo Let Khant, Taninthayi Nature Reserve and Me Ka Tha Wildlife Sanctuary and surrounding in Karean State.

Habitat and Ecology: The species is lowland evergreen specialist and can be found in southern part of Myanmar. Mainly active at night, and mortality and natality rate is unknown (Shwe & Lynam 2016).

Wild population: N/A

Threats to survival: Agriculture and land clearing for commercial crop is major threats to the species. Habitat loss and accidental hunting are also threatening the species population.





Conservation actions and research undertaken: *T. indicus* is listed as completely protected species according to the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Urgent protection is needed. Legal protection and community based conservation is most suitable actions. Ecological research and destination estimation is needed.

Use and Trade: This species is not target species for hunt buy opportunistic hunt in the area.

Assessors: Su Su, Zarni Aung, Kyaw Khaung Thant Zin , Toe Tet Zaya, Sapai Min, Margaret Nyein Nyein Myint, Nay Myo Shwe

Reviewers: James Tallant, Monica Böhm

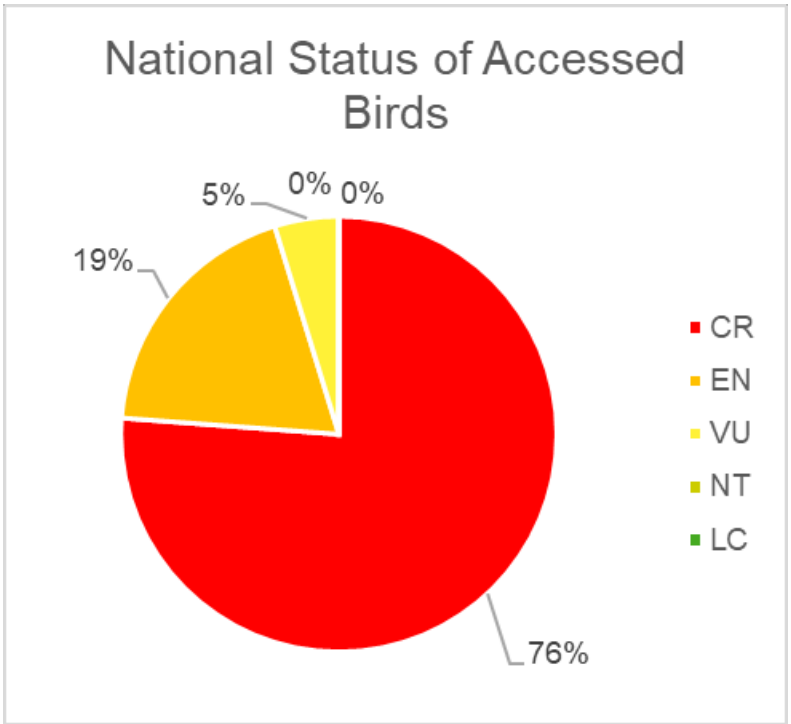
III. SPECIES ACCOUNT

Birds

White-bellied Heron at Hukaung Velley Wildlife Sanctuary
© Thet Zaw Naing

Summary of National Red List Status of Birds

A total of 31 (2.8%) birds out of 1147 were assessed during this process. Among these assessed species, only 21 species were scripted for detailed description and all species (100%) are threatened with extinction in Myanmar. Of these, 16 are Critically Endangered, 4 are Endangered and 1 is Vulnerable. The following table summarizes the detailed description list of 21 bird species in terms of national and global status.



No.	Common Name	*Scientific name*	Status in Myanmar	Global Status
1	Yellow-breasted Bunting	*Emberiza aureola*	CR	CR
2	Baer's Pochard	*Aythya baeri*	CR	CR
3	Spoon-billed Sandpiper	*Calidris pygmaea*	CR	CR
4	Greater Adjutant	*Leptoptilos dubius*	CR	EN
5	River Tern	*Sterna aurantia*	CR	NT

No.	Common Name	*Scientific name*	Status in Myanmar	Global Status
6	Gurney's Pitta	*Hydrornis gurneyi*	CR	CR
7	Slender-billed Vulture	*Gyps tenuirostris*	CR	CR
8	Black-bellied Tern	*Sterna acuticauda*	CR	EN
9	Black-necked Stork	*Ephippiorhynchus asiaticus*	CR	NT
10	Storm's Stork	*Ciconia stormi*	CR	EN
11	White-winged Duck	*Asarcornis scutulata*	CR	EN
12	Beach Thick-knee	*Esacus magnirostris*	CR	NT
13	Jerdon's Babbler	*Chrysomma altirostre*	CR	VU
14	White-bellied Heron	*Ardea insignis*	CR	CR
15	White-crowned Hornbill	*Berenicornis comatus*	CR	EN
16	Helmeted Hornbill	*Rhinoplax vigil*	CR	CR
17	Rufous-necked Hornbill	*Aceros nipalensis*	EN	VU
18	Green Peafowl	*Pavo muticus*	EN	EN
19	White-browed Nuthatch	*Sitta victoriae*	EN	EN
20	Spot-billed Pelican	*Pelecanus philippensis*	EN	NT
21	Sarus Crane	*Antigone antigone*	VU	VU

Critically Endangered A2cd+3cd+4cd; C2a(ii)

Baer's Pochard — **Order: Anseriformes**

Aythya baeri **(Radde, 1863)** — **Family: Anatidae**

Poe-Chat-Gaung-Sane

Justification: This critically endangered Baer's Pochard (*Aythya baeri)* was last recorded in Myanmar in 2003. From 2016 to recent days, the numbers of Baer's Pochard records are gradually going down from 12 at one wintering site to a small number spreading in many important wintering sites in Myanmar. The habitat loss, the wetland degradation and the hunting are the key factors threatening this species.

Baer's Pochard at Paleik Inn
© Lay Win

Measurements (cm): 41-47

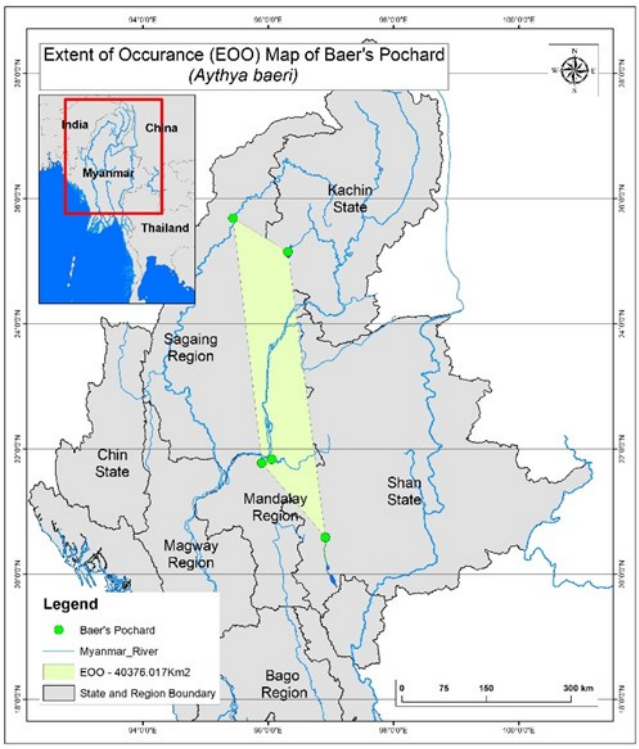
Distribution: This species usually winters in Kaung Hein Lake in Sagaing Region, Indawgyi Wetland Wildlife Sanctuary in Kachin State, Pyu Lake and Paleik Lake in Mandalay Region, and Inle Wetland Wildlife Sanctuary in Shan State.

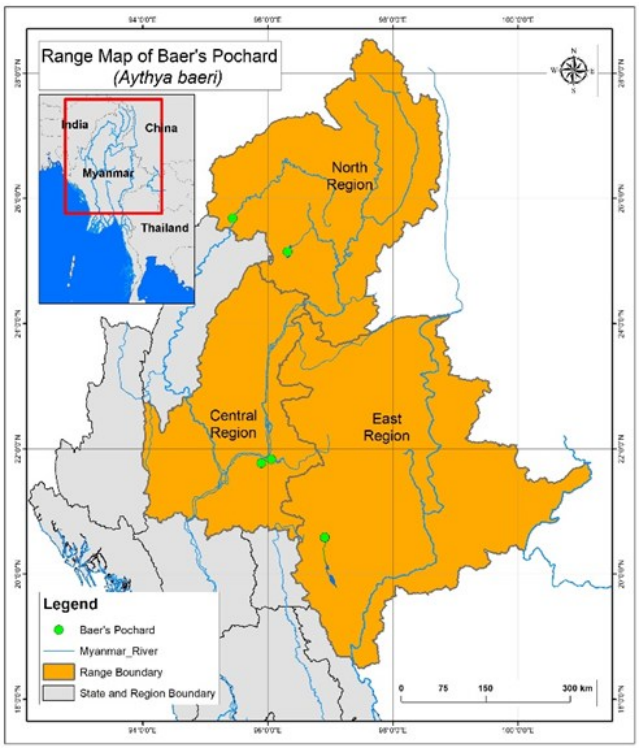
Habitat and Ecology: Baer's Pochard prefers the well-vegetated freshwater wetlands such as lakes, ponds and reservoirs in open-country.

Wild population: The generation length for *A. baeri* is 7.6 years https://www.iucnredlist.org/species/22680384/154436811. Population trend is decreasing and the population of this species was estimated <50 individuals. AOO of the species is 20 km^2 and its EOO covers 40376.017 km^2 in its available habitats.

Threats to survival: Habitat degradation (e.g. drying up of waterbodies in Paleik Lake for rice harvesting) and hunting by the use of poisoned baits are the main threats at their wintering sites. Human presence (e.g. tourism and fishermen) may also cause indirect effects through disturbance.

Conservation actions and research undertaken: This species is completely protected by the Conservation of Biodiversity and Protected Area Law (2018). Some wintering sites lie within protected areas such as Indawgyi Wetland Wildlife Sanctuary, Inle Wetland Wildlife Sanctuary. Biodiversity And Nature Conservation Association (BANCA) has monitored the





wintering assessment survey the Baer's Pochard and other migratory water bird species in Central Myanmar since 2016. BANCA has collaborated with the local community conservation group (Shwe-Kan-Thar-Yar Nature Conservation Association) by making the CEPA activities and supporting the conservation training, and conducting education awareness program to village school and local people in Pyu Lake. In Mandalay region, it has the wetland committee to save not only the Baer's Pochard and other migratory water birds species, but also the priority wetland areas.

Conservation actions and research needed: Protect, manage and restore the potential wetlands where the species might winter. To enforce the law to protect this species from hunting, promote conservation awareness raising campaign targeting the community closed to their wintering sites. Regular surveys and researches are needed at all possible wintering areas to know its ecology, changes to in population, key threats and make recommendation to Policy maker.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw. Thaung Htut, Lay Win

Reviewers: Monica Böhm

Critically Endangered B2ab(ii,iii,v)

Yellow-breasted Bunting | **Order : Passeriformes**

***Emberiza aureola* (Pallas, 1773)** | **Family : Emberizidae**

Sar-War-Kyar

Justification: The population of once fairly common and locally abundant songbird has undergone declining rapidly in Myanmar, primary causes are probably excessive trapping by mist-nets, fried and sold as snack; put them in cage to sell for their freedom to gain merit. The conversion of its wintering habitat to agricultural use is another cause. It is therefore classified as Critically Endangered.

Yellow-breasted Bunting at Wakema, Ayeyarwaddy Region
© Thet Zaw Naing

Measurements (cm): 14-15.5

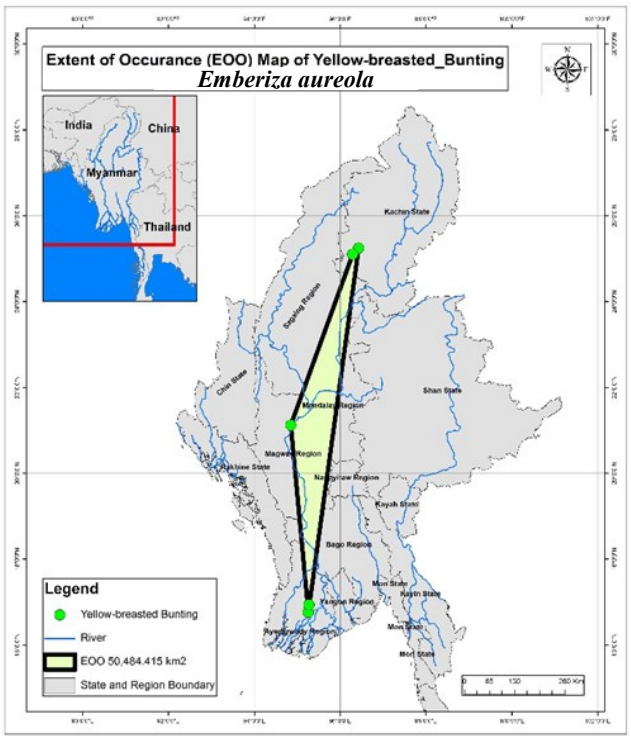
Distribution: The species is wintering commonly at Indawgyi wildlife Sanctuary and Tanai in Kachin State, Ayeyarwady River (Bagan Section) in central Myanmar and Wakema, Pantanaw in Ayeyarwaddy Delta.

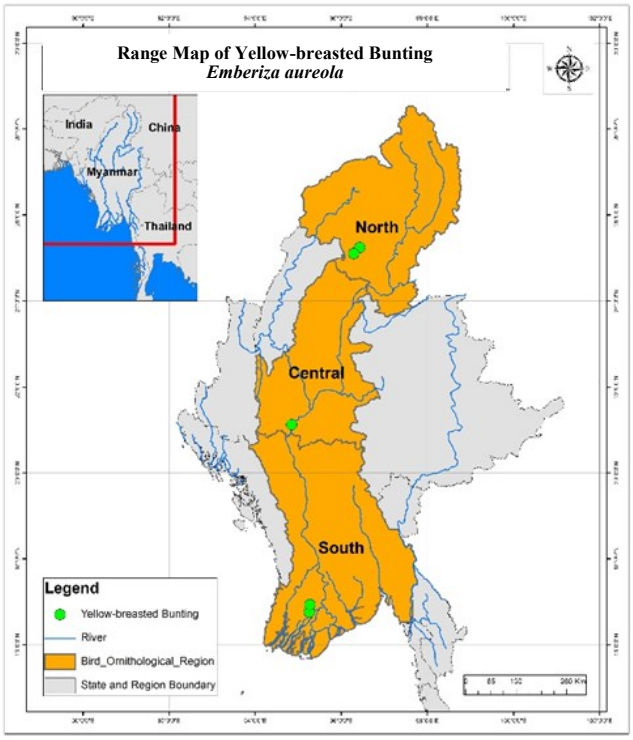
Habitat and Ecology: This species occurs in winters, in large flocks in cultivated areas, rice fields and grasslands, preferring scrubby dry-water rice fields for foraging, reedbeds for roosting.

Wild population: The generation length for *E. aureola* is 3.6 years https://www.iucnredlist.org/species/22720966/60294370. Population trend is decreasing and the population of this species was estimated <500 individuals. AOO of the species is 20 km^2 and its EOO covers 50,484.415 km^2 in its available habitats.

Threats to survival: This species is threatened by trapping in mist-nets for sale and consumption as snack and they are also offered for sale to be released for merit as traditional belief. Destruction of their roosting reedbeds is also another threat.

Conservation actions and research undertaken: This species is completely protected by Conservation of Biodiversity and Protected Area Law (2018). This species is being monitored by Wildlife Conservation Society - Myanmar Program since 2016.





Conservation actions and research needed: To enforce the law to protect this species from trapping, promote conservation awareness raising campaign targeting the community to protect their wintering sites. There is a need for research on the species distribution, threats and habitat requirements within Myanmar, and regular monitoring of the population is recommended.

Use and Trade: This species is eaten as snack and also traded for merit-releasing.

Assessors: Thaung Htut, Pyae Phyo Aung, Htet Lin Kyaw, Lay Win, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED C2a(i); D

Beach Thick-knee **Order: Charadriiformes**

***Esacus magnirostris* (Vieillot, 1818)** **Family: Burhinidae**

Gaung-Me-Main-Zein

Justification: Unsustainable overfishing and human disturbance (such as leisure activities, collecting shellfish) have been a huge problem for this species due to loss of habitat, low reproductive rate, and widespread increase both in numbers of introduced predators and in human disturbance of beaches.

Beach Thick-knee recorded in Tanintharyi Region
© Lay Win

Measurements (cm): 51–57 cm

Distribution: Their distribution are beaches and islands in Tanintharyi (Tenasserim).

Habitat and Ecology: This species is exclusively coastal, and occurs on islands and mainland beaches.

Wild population: The generation length for E. magnirostris is 10.5 years https:// www.iucnredlist.org/species/22728621/94992570. Population trend is declining and the population of this species was estimated <50 individuals. AOO of the species is 28 km^2 and its EOO covers 10734 km^2 in its available habitats.

Threats to survival: Human disturbance and predators are the main threats.

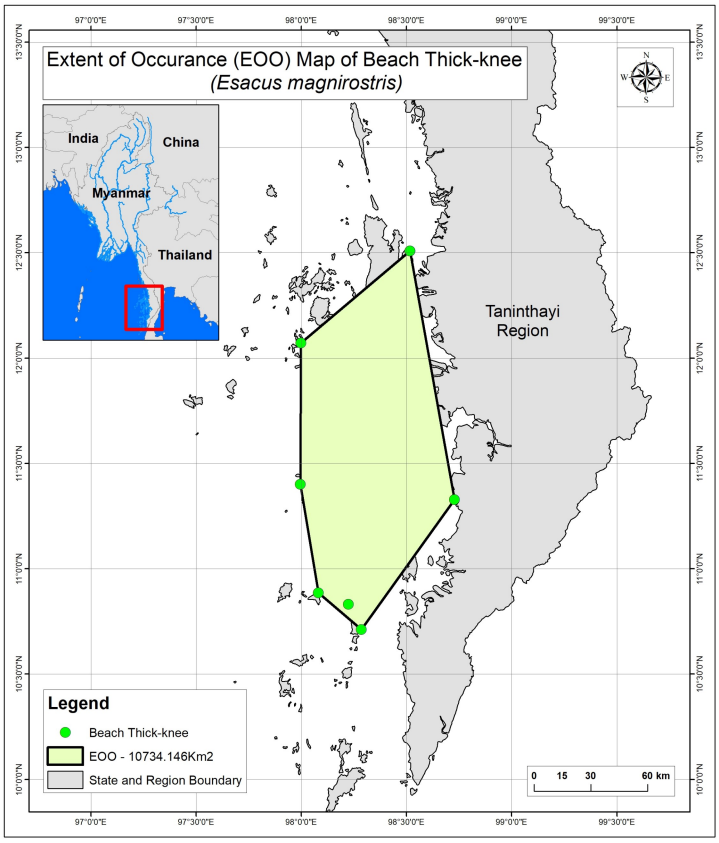
Conservation actions and research undertaken: There are no specific conservation actions in place for this species, but some breeding sites are located in Lampi Marine National Park.

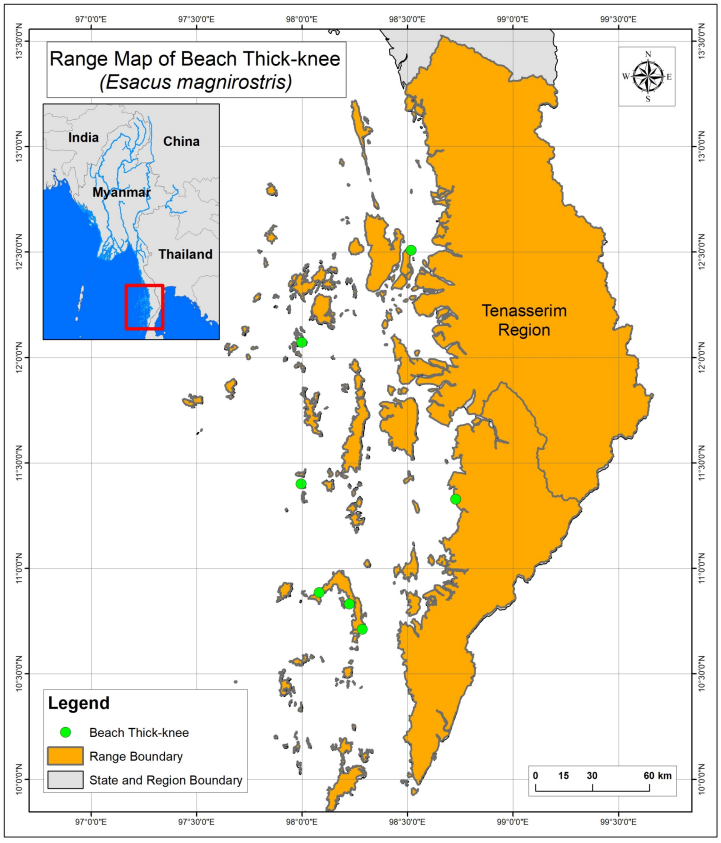
Conservation actions and research needed: Locate and control the places they inhabit from human disturbance and domestic dogs. Monitoring of populations is needed to determine trends in this species over time**.**

Use and Trade: This species is not used or traded.

Assessors: Thaung Htut, Lay Win, Nyo Nyo Aung, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm


Extent of Occurance (EOO) Map of Beach Thick-knee
(Esacus magnirostris)
India
China
Myanmar
Thailand
Taninthayi
Region
Legend
Beach Thick-knee
EOO - 10734.146Km2
State and Region Boundary
0 15 30 60 km


Range Map of Beach Thick-knee
(Esacus magnirostris)
India
China
Myanmar
Thailand
Tenasserim
Region
Legend
Beach Thick-knee
Range Boundary
State and Region Boundary
0 15 30 60 km

CRITICALLY ENDANGERED A2acde; C2a(i); D

Black-bellied Tern **Order: Charadriiformes**

***Sterna acuticauda* (Gray, 1832)** **Family: Laridae**

Myit-tway-bike-me

Justification: This species is very rare and now possibly extinct in neighbouring countries such as Thailand, Laos, Cambodia, China and Vietnam. The majority of the global population is widespread in India, Pakistan and Nepal. Even though this species is not migratory and geographically not possible to colonise here in Myanmar, the Myanmar population can still grow by themselves.

Black-bellied Tern in Ayeyarwady River
© Thet Zaw Naing

Measurements (cm): 32–35

Distribution: Ayeyarwaddy River -Pyay-Bhamo Section, Indawgyi Lake Wildlife Sancturary, Chindwin River.

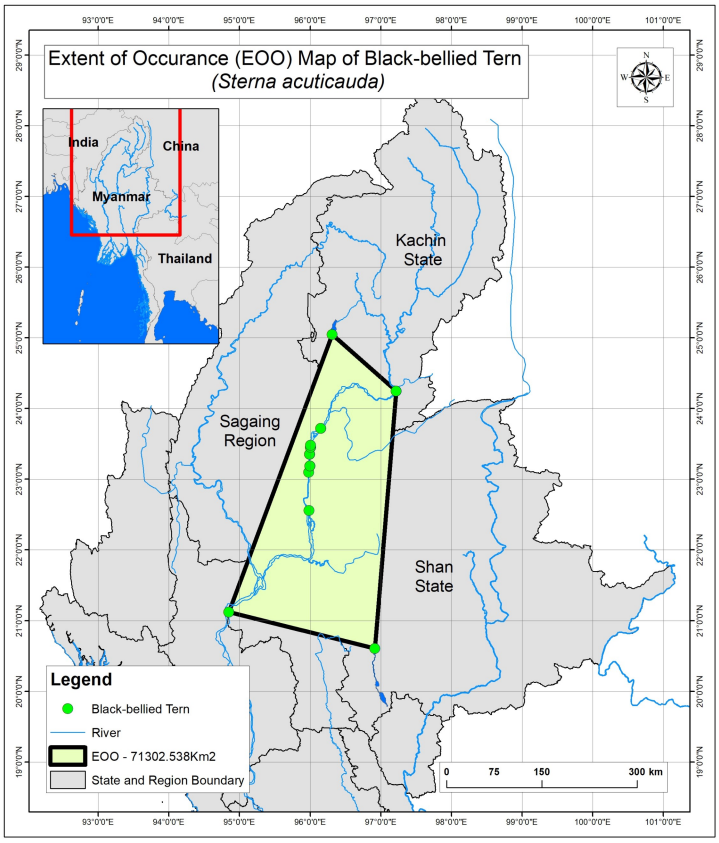
Habitat and Ecology: This species is found on large rivers and inland lakes. It forages along rivers and lakes, and over paddies, ditches and village ponds.

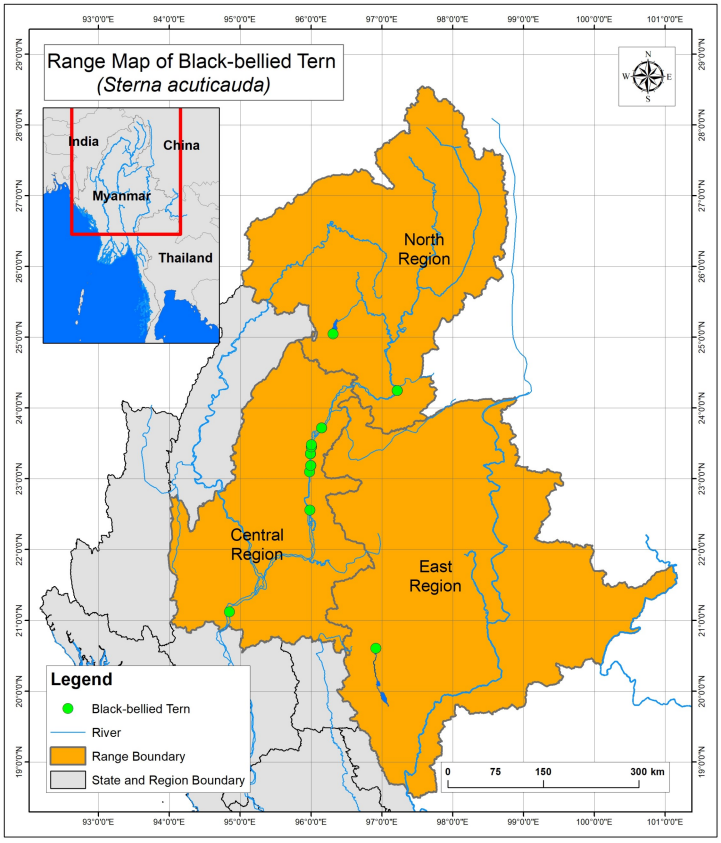
Wild population: The generation length for S. acuticauda is 11 years https://www.iucnredlist.org/species/22694711/110488626. Population trend is declining and the population of this species was estimated <50 individuals. AOO of the species is 44 km^2 and its EOO covers 56310 km^2 in its available habitats.

Threats to survival: Loss of breeding habitats, eggs collected for food, cattle grazing on breeding ground, predators, collecting grass for animal food, and pollution.

Conservation actions and research undertaken: WCS Myanmar Program is nest-guarding the main breeding sites in Myanmar. Also this species is completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: There is a need to carry out awareness-raising activities to mitigate human disturbance on the breeding grounds of this species. It is important to regularly monitor the population, distribution and threat.





Use and Trade: This species is not used or traded.

Assessors: Thaung Htut, Lay Win, Nyo Nyo Aung, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A3c

Black-necked Stork — Order: iconiiformes

Ephippiorhynchus asiaticus (Latham, 1790) — Family: Ciconiidae

Hnget-Kalar/Ton-Kalar

Justification: Globally Near Threatened, considered Critically Endangered regionally as Asia subspecies *E. a. asiaticus* is scarce and declining in Myanmar and neighboring countries and projected to continue in declining due to ongoing threats such as habitat loss, hunting and overfishing. Only a few sightings of small numbers are reported from Kachin State.

Black-necked Stork at Hukaung Valley Wildlife Sanctuary © Thet Zaw Naing

Measurements (cm): 110-137

Distribution: Hukaung Valley Wildlife Sanctuary and Indawgyi Lake Wildlife Sanctuary.

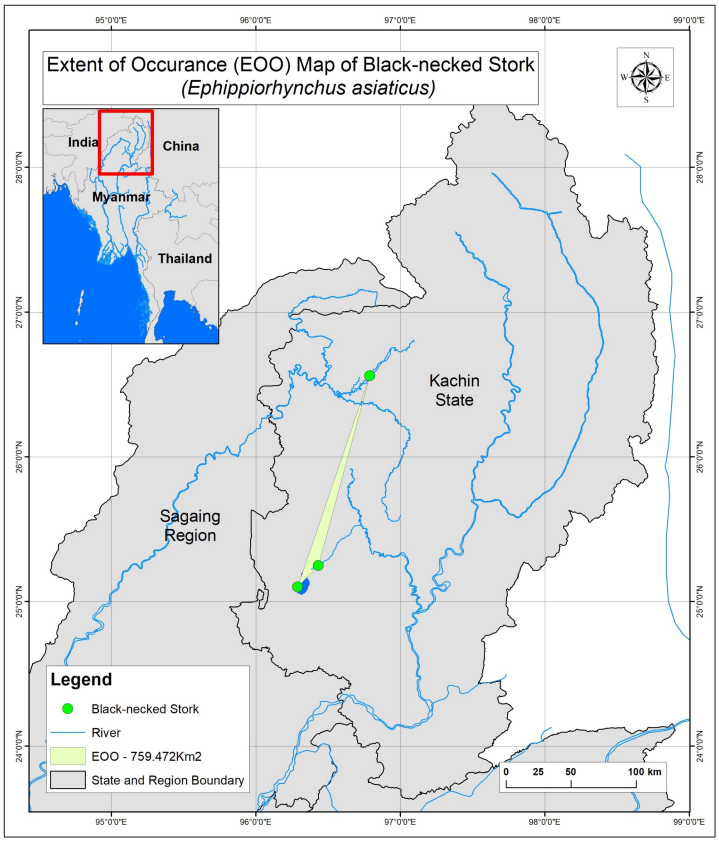
Habitat and Ecology: It occurs on freshwater, natural wetland habitats such as lakes, ponds, marshes, flooded grasslands, oxbow lakes, swamps, rivers and water meadows. It also occurs at times on dry floodplains, irrigated crops: especially rice paddies, and in open, grassy woodland.

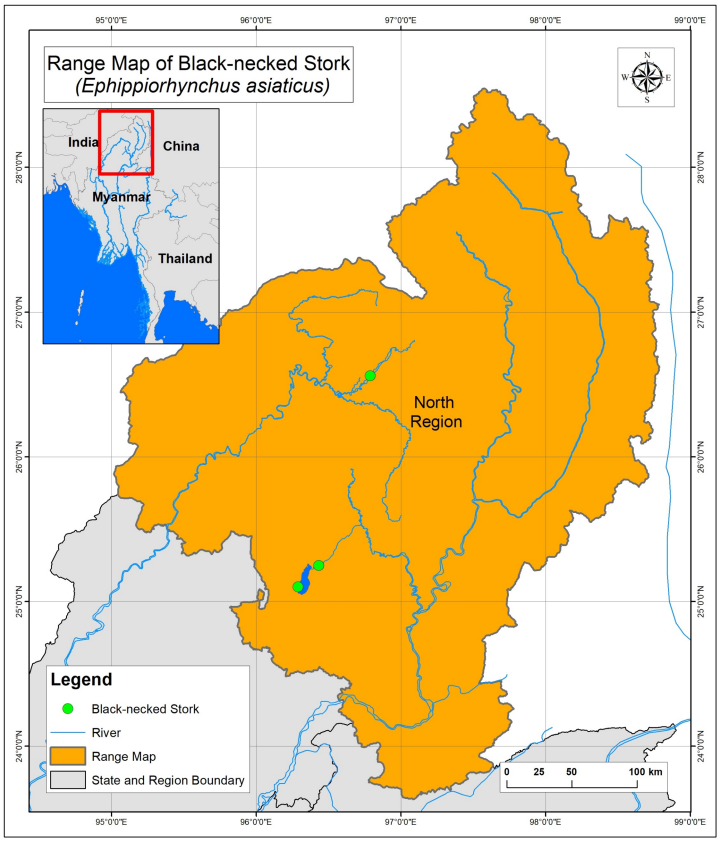
Wild population: The generation length for E. asiaticus is 16.1 years (https://www.iucnredlist.org/species/22697702/93631316). Population trend is decreasing and the population of this species was estimated <50 individuals. AOO of the species is 12 km^2 and its EOO covers 760 km^2 in its available habitats.

Threats to survival: This subspecies is threatened by habitat loss due to conversion of wetlands to fields, felling of nest-trees, overfishing, overgrazing, hunting and excessive capture for zoos.

Conservation actions and research undertaken: This species is completely protected under Conservation of Biodiversity and Protected Area Law (2018). Its locations occur in some protected areas in Myanmar.

Conservation actions and research needed: The regular monitoring is needed for this





species' population and distribution. Species conservation and law enforcement is urgently needed to protect this species from extinction. Species survey and recovery action plan should be established by local and international conservationists and researchers.

Use and Trade: This species is not used or traded.

Assessors: Lay Win, Thaung Htut, Pyae Phyo Aung, Htet Lin Kyaw, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A2abcd; C2a(i); D

Greater Adjutant — Order: Ciconiiformes

Leptoptilos dubius (J. F. Gmelin, 1789) — Family: Ciconiidae

Hnget-gyi-don-sat

Justification: Once common and with huge numbers of breeding in Myanmar, this species went into decline catastrophically and is now on the brink of regional extinction. With the many ongoing threats, a rapid recovery of this species cannot be expected.

Greater Adjutant at Yangon Zoo
© Thet Zaw Naing

Measurements (cm): 120-152

Distribution: Near Putao in north of Kachin State, Thit Son Dam in central Myanmar, Meinmahla Kyun Wildlife Sanctuary in Ayeyarwaddy Delta.

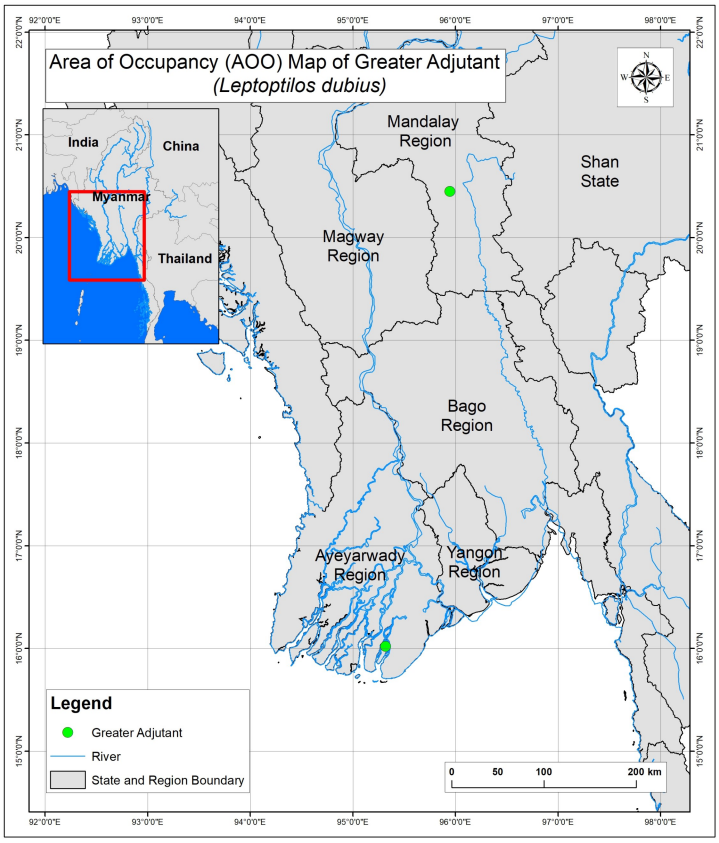
Habitat and Ecology: This species is found in inland-wetlands and coastal wetlands in Myanmar, nesting in tall trees with closed canopies.

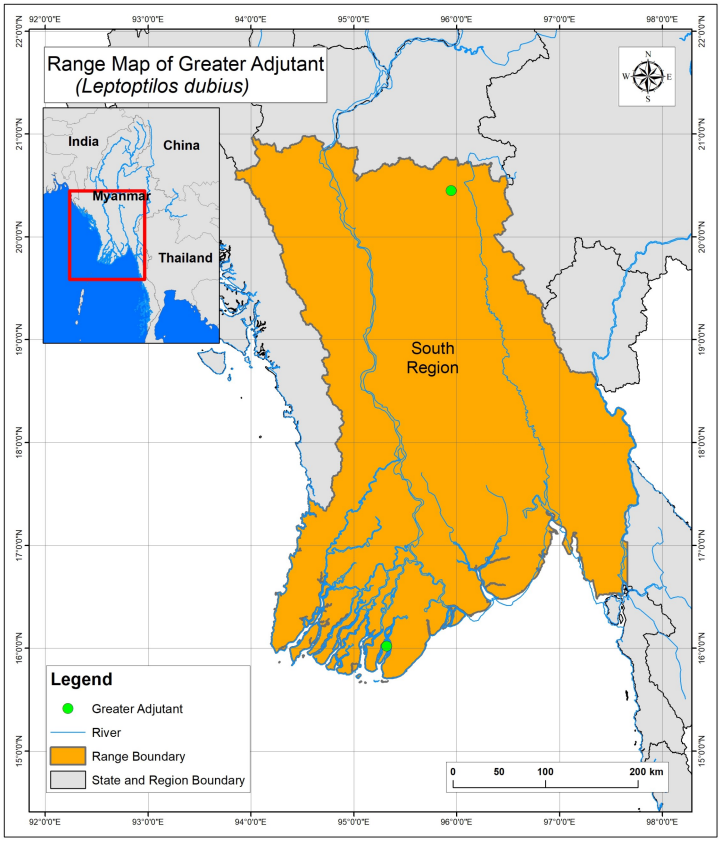
Wild population: The generation length for L. dubius is 15 years https://www.iucnredlist.org/species/22697721/93633471. Population trend is declining and limited information on total population in Myanmar. The population of this species was estimated <50 individuals. AOO of the species is 12 km^2 and its EOO covers 17248 km^2 in its available habitats.

Threats to survival: Habitat destruction, poison fishing, pesticides used in garbage dumps, low breeding success probably due to diseases.

Conservation actions and research undertaken: No conservation action is carried out for this species as their distribution in Myanmar is not known. The species is however completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Public awareness is needed to conserve this rare species and view the possibility of reintroducing this species from neighboring populations and/or through captive breeding. Survey and research for this species are needed to determine its population, distribution and threats.





Use and Trade: This species is not used or traded.

Assessors: Thaung Htut, Lay Win, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

ENDANGERED A2acd; C2a(i)

Green Peafowl **Order :Galliformes**

***Pavo muticus* (Linnaeus, 1766)** **Family: Phasianidae**

Daung-Sein

Justification: The population of this species is declining due to the hunting, bird trade, habitat loss and degradation. Its train feathers are used for decoration. Distributed widespread in Myanmar, but only a few sightings were reported. Population size of fewer than 1000 mature individuals is estimated, and is thought to have declined by >50% over the past three generations (and continues to decline at a similar rate into the future).

Green Peafowl at Hlawgar Wildlife Park
© ThetZaw Naing

Measurements (cm): 180–250 (Male), 100-110 (Female)

Distribution: North Zarmayi (Bago Region), Mindon (Magway Region), Kyaukme (northern Shan State) and Heho (Southern Shan State), Hukaung Valley Tiger Reserve (Kachin State).

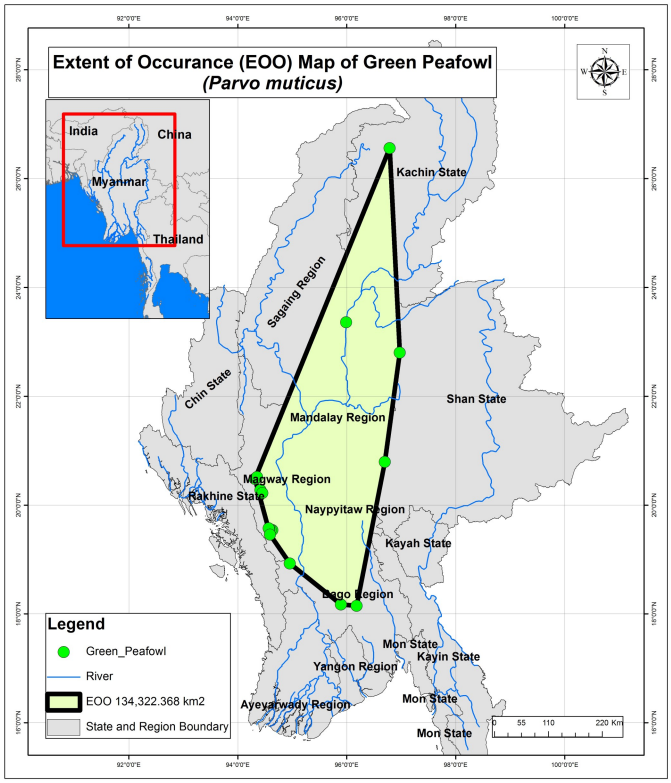
Habitat and Ecology: It inhabits primary and secondary in evergreen and deciduous forest-types, sometimes in paddy fields where closed to the forest edge, grassland, and crop plantation.

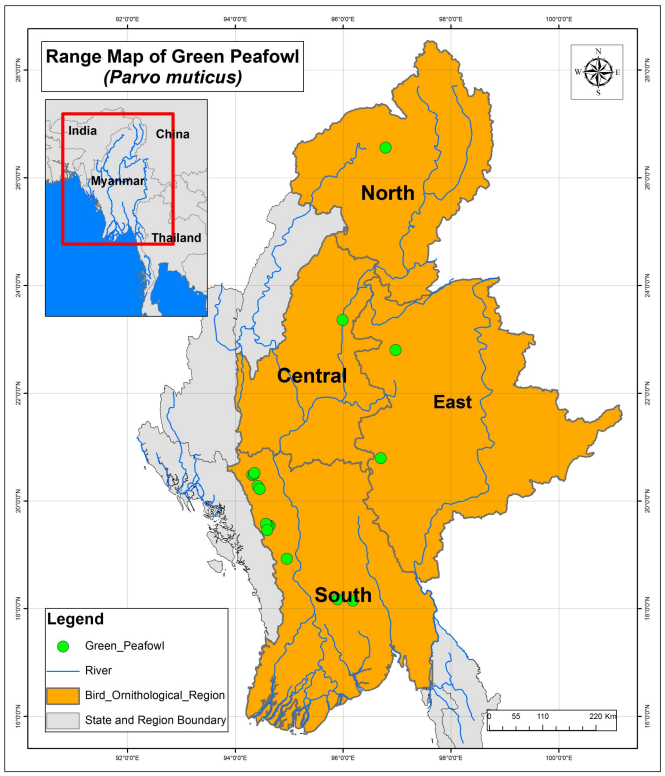
Wild population: The generation length for P. muticus is 6.1 years https://www.iucnredlist.org/species/22679440/131749282. Population trend is decreasing and the population of this species was estimated <1000 individuals. AOO of the species is 68 km^2 and its EOO covers 134322 km^2 in its available habitats.

Threats to survival: The habitats are gradually shrinking due to the shifting cultivation and human intrusion. Hunting, logging and forest fire are other pressure for their survival. Collecting eggs and incubated by hen for trading as pet is causing the wild species decreasing. free ranging dogs is additional threats species in the fragmented area.

Conservation actions and research undertaken: Some locations are situated in protected areas. Also, this species is completely protected by Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: There is a need to carry out awareness-raising





activities to mitigate the threats of this species. Further surveys are required to monitor the population, distribution and threat in its potential habitats.

Use and Trade: This species is used for bush meat and also traded as pet.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A2acd; C2a(i,ii)

Gurney's Pitta **Order:Passeriformes**

***Hydrornis gurneyi* (Hume, 1875)** **Family: Pittidae**

Taung-Ngone-Yin-Me

Justification: This species is a Thai-Myanmar endemic and very rare, but now possibly extinct in Thailand (Philip D. Round, 2014). The forest and its bird species are threatened by deforestation, fragmentation, logging and hunting pressure. The species has declined by more than 90% over the past three generations with a current population size of fewer than 50 mature individuals. The species has therefore been assessed as Critically Endangered within Myanmar.

Gurney's Pitta at Lenya Forest
© Lay Win

Measurements (cm): 21

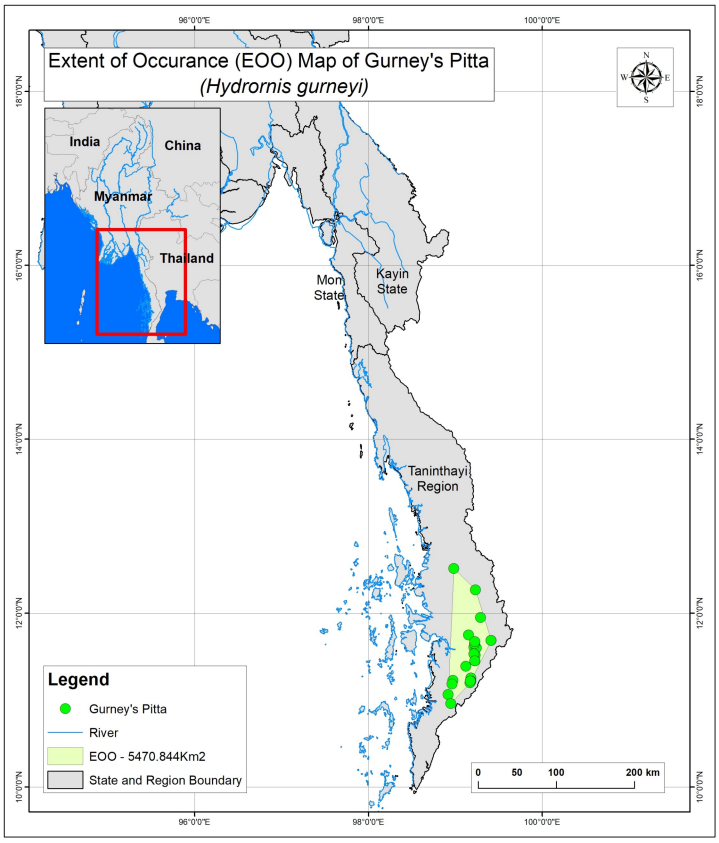
Distribution: Southern Tanintharyi (Tenasserim).

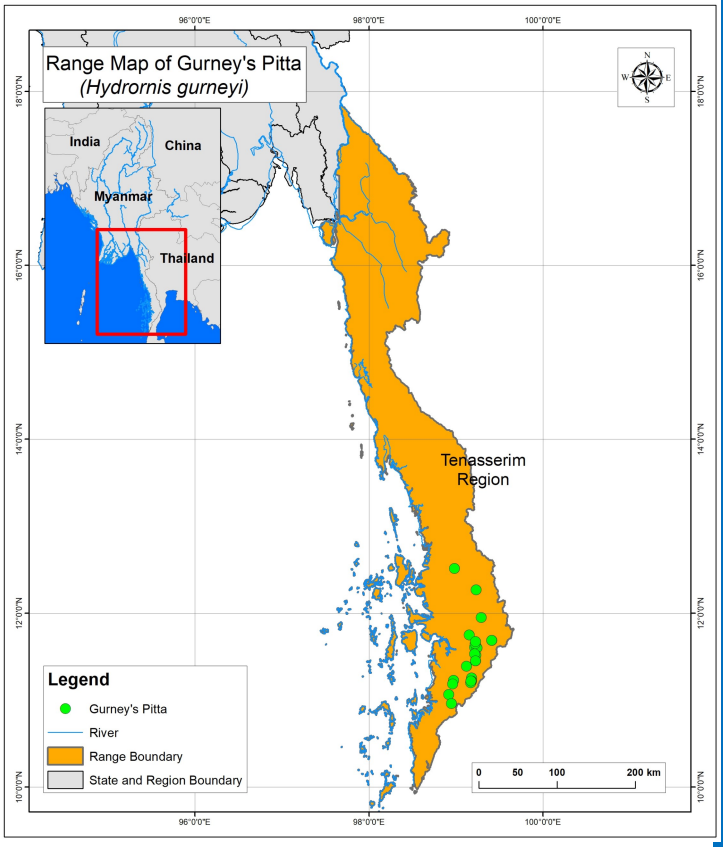
Habitat and Ecology: It occurs in Sundaic level lowland forest, usually below 160m in flat areas with slopes less than ten degrees (Donald et al. 2014). It feeds mainly on earthworms and it breeds during the wet season from end of April to August in Myanmar.

Wild population: The generation length for H. gurneyi is 4.2 years https://www.iucnredlist.org/species/22698628/118262214. Population trend is decreasing and limited information on total population in Myanmar. The population of this species was estimated <250 individuals. AOO of the species is 84 km^2 and its EOO covers 6470 km^2 in its available habitats.

Threats to survival: Habitat lost due to clearance of lowland forests in southern Myanmar and conversion of forest into oil-palm plantations, perennial crops such as rubber and betel nut plantation.

Conservation actions and research undertaken: Gurney's Pitta research programme was started in 2003 in Myanmar until 2019 Biodiversity And Nature Conservation Association (BANCA). In 2013, another project aimed at conserving remaining lowland forest and its habitat was led by Fauna & Flora International (FFI) with plans to designate Lenya National Park as National Park which was called off recently. For long-term conservation of this species, a





Gurney's Pitta Working Group was formed by local community in two areas in 2018, a process led by BANCA. The species is completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: All stakeholders work closely together to conserve the remaining lowland forest and designate as a National Park. The area should be opened up to eco-/wildlife tourism to create job opportunities for local communities. To monitor regularly population, distribution and threats at known sites.

Use and Trade: This species is not used or traded in Myanmar, but there is some unconfirmed information from local residents that this species is being caught for illegal trade to Thailand.

Assessors: Lay Win, Htet Lin Kyaw, Thaung Htut, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED C2a(i,ii); D

Helmeted Hornbill — **Order: Bucerotiformes**

Rhinoplax vigil **(Forster, 1781)** — **Family: Bucerotidae**

Auk-Chin-Hmee-Shay

Justification: This species was uplisted from Near Threatened to Critically Endangered in the IUCN Red List in 2015 due to the high hunting pressure and illegal trade (Hii, 2015). Major threats such as forest loss from illegal logging and trades for their casques and tail feathers are still ongoing and the survival of this forest-dependent species is very challenging.

Helmeted Hornbill flying in Tanintharyi
© Lay Win

Measurements (cm): 110–120

Distribution: It is only found in Sundaic low-land forests of Tanintharyi (Tenasserim) in southern Myanmar.

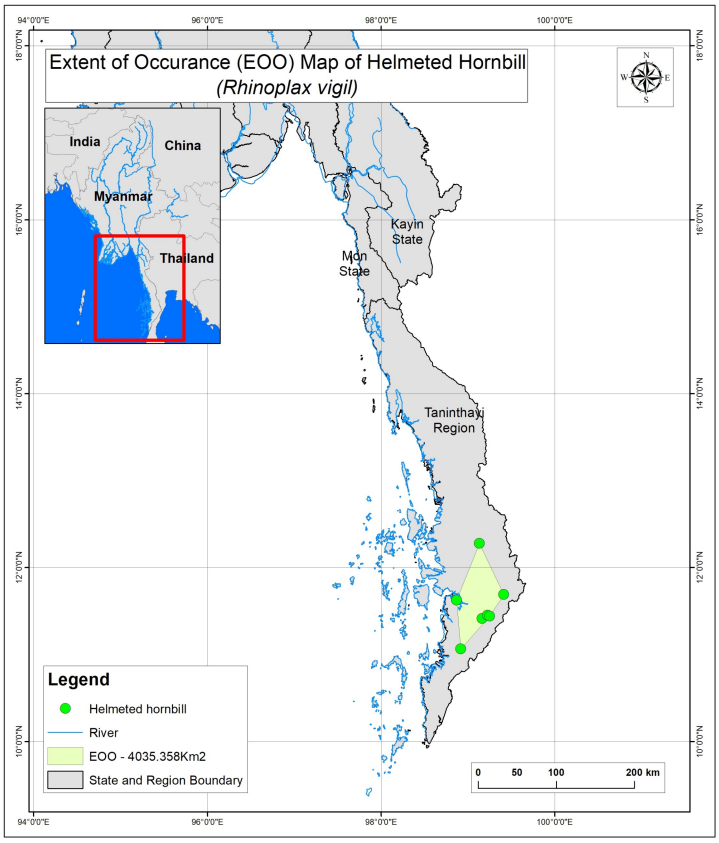
Habitat and Ecology: It inhabits primary and secondary semi-evergreen forest and it feeds on small animals and fig fruits.

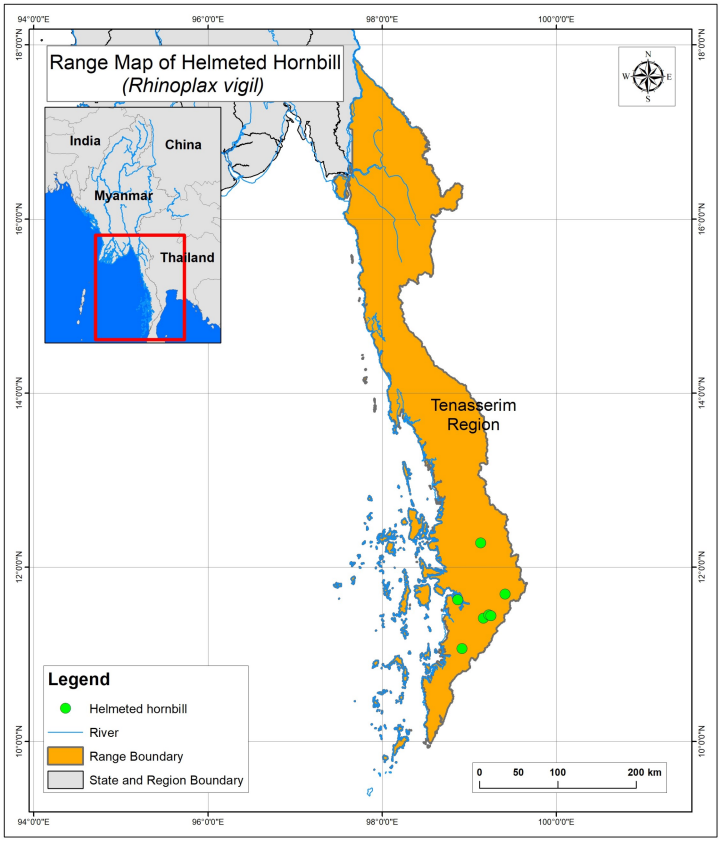
Wild population: The generation length for R. vigil is 19.8 years https://www.iucnredlist.org/species/22682464/134206677. Population trend is declining and the population of this species was estimated <50 individuals. AOO of the species is 28 km^2 and its EOO covers 4035.358 km^2 in its available habitats.

Threats to survival: Habitat loss from logging and large-scale agro-industry farming, and wildlife trade are the major threats.

Conservation actions and research undertaken: There are no specific conservation actions in place for this species at the moment, but BANCA is conducting research into the population and distribution to understand the current status of this species as Birdlife's partner for future conservation. The species is however completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Implementation and enforcement of Law to combat the threats. Survey and research for this species are needed to determine its population, distribution and threats.





Use and Trade: This species is illegally traded for its casque.

Assessors: Lay Win, Thaung Htut, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED C2a(i)

Jerdon's Babbler **Order: Passeriformes**

***Chrysomma altirostre* (Jerdon, 1862)** **Family: Sylviidae**

Kine-Swae

Justification: A rapid decline in population is suspected to be continuing as a result of ongoing threats - converting grasslands to farmlands and urban/industrial development. Furthermore, none of this species habitats are protected in Myanmar. Globally listed as Vulnerable for known 3 sub-species, This species in Myanmar is probably separate species and its threats mentioned above are still ongoing. It therefore qualifies as Critically Endangered regionally.

Jerdon's Babbler in Ayeyarwaddy Delta
© Lay Win

Measurements (cm): 17

Distribution: North of Yangon and Ayeyarwady Delta in South Myanmar

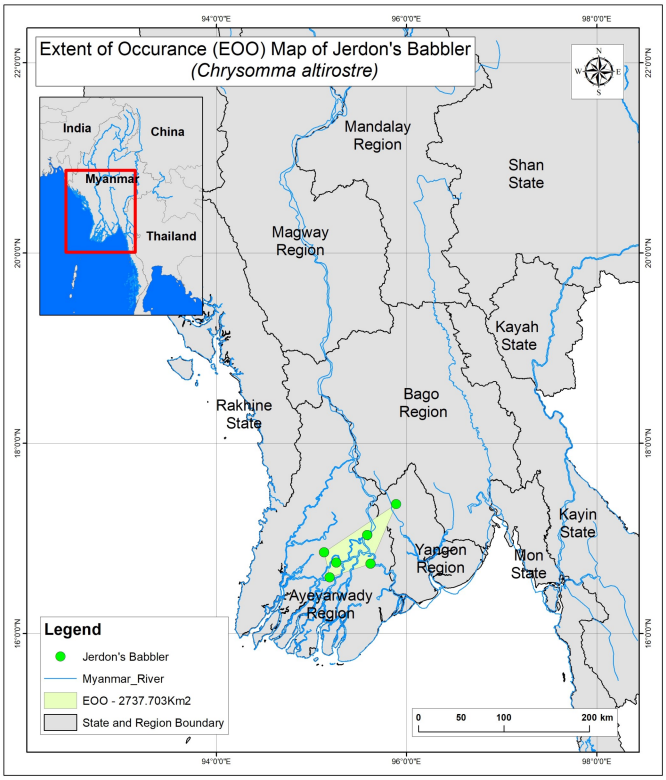
Habitat and Ecology: Tall grassland and reedbed of various types and riverine grassy islands, in lowlands closed to river and open water. Usually encountered in pairs or small groups.

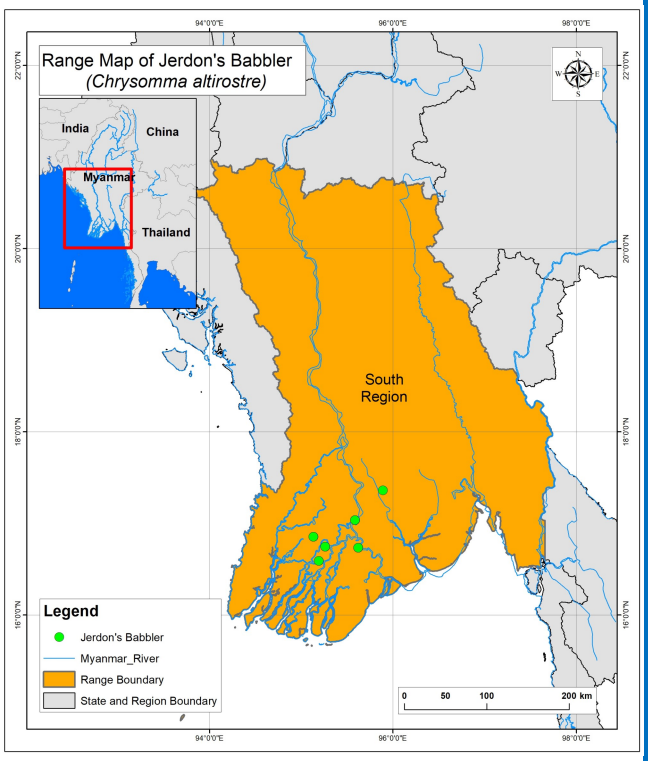
Wild population: The generation length for C. altirostre is 4.4 years https://www.iucnredlist.org/species/22716326/111106627. Population trend is decreasing and the population of this species was estimated <250 individuals. AOO of the species is 24 km^2 and its EOO covers 3242 km^2 in its available habitats.

Threats to survival: Conversion for agriculture and fish ponds, harvesting for fodder and building materials, excessive burning to produce green growth are the main threats to their natural habitat.

Conservation actions and research undertaken: WCS Myanmar Program is doing research on this species and initiating community conservation action in one of its main habitats. Also, this species is completely protected under Conservation of Biodiversity and Protected Area Law (2018). Education/awareness campaigns are conducted throughout the range where this species is rediscovered.

Conservation actions and research needed: Monitor regularly the population, distribution





and threats at known sites and conduct further surveys to other potential habitats. Protect the grasslands where this species is inhabiting through education and awareness.

Use and Trade: This species is not used or traded.

Assessors: Thaung Htut, Lay Win, Nyo Nyo Aung, Pyae Phyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A2acd; C2a(i)

River Tern | **Order: Charadriiformes**

***Sterna aurantia* (Gray, 1831)** | **Family: Laridae**

Myit-tway-zin-yaw

Justification: This species is listed Near-threatened in IUCN Red list and global and South-east Asia populations were decreasing in the past 3 generations. This species is listed to Critically Endangered regionally due to human disturbance and animal grazing especially in breeding season on the sandbars in Ayeyarwady and Chindwin Rivers causing destruction of nests, nest abandonment and low breeding success.

River Tern in Chindwin River
© Thet Zaw Naing

Measurements (cm): 38-46

Distribution: Ayeyarwady River, Chindwin river and Gulf of Mottama.

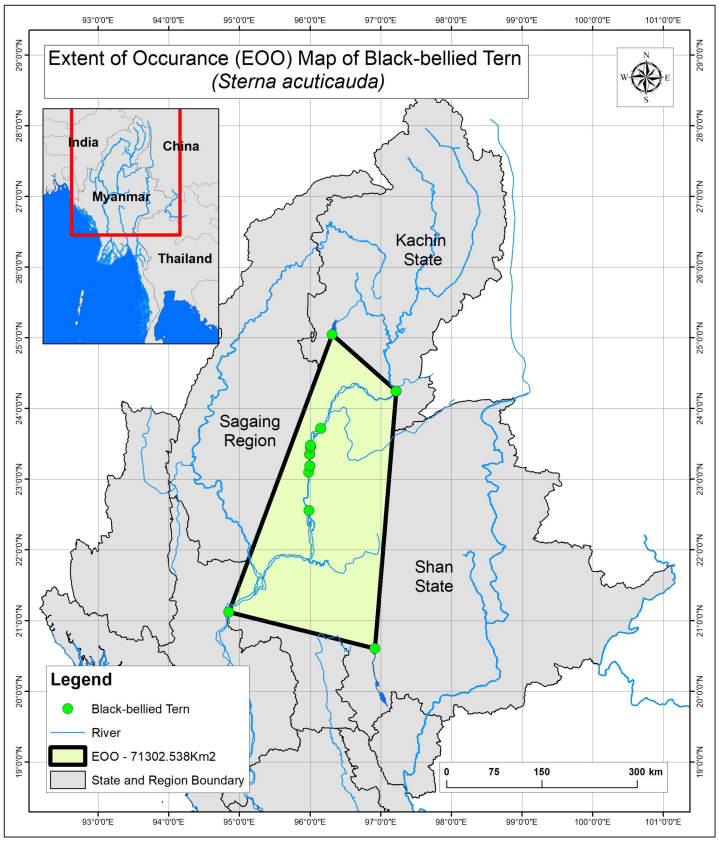
Habitat and Ecology: It occurs mainly on sandy islands of freshwater lakes and rivers. Feeds mainly over fresh water. Rare along the coast, where it feeds in estuaries and over mudflats.

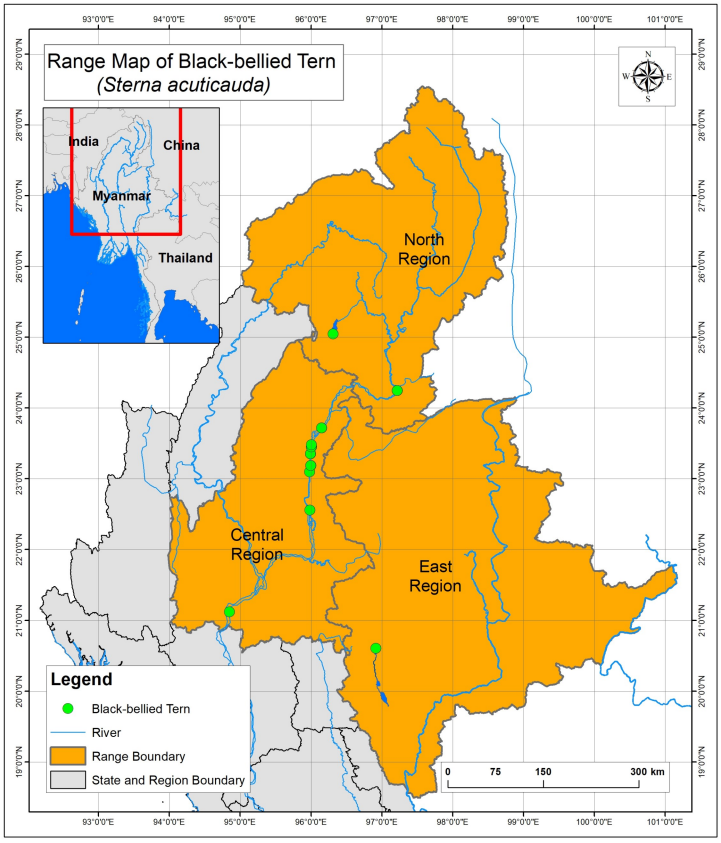
Wild population: The generation length for S. aurantia is 10.1 years https://www.iucnredlist.org/species/22694537/93456605. Population trend is decreasing and the population of this species was estimated <100 individuals. AOO of the species is 76 km2 and its EOO covers 161216 km2 in its available habitats.

Threats to survival: Its breeding habitats are vulnerable to predation, human disturbance and cattle grazing. Eggs collected for food and flooding also pose a major threat for the decline.

Conservation actions and research undertaken: Wildlife Conservation Society (WCS) have been working on nest protection programme and education programme to the villages near to the nesting sites in Chindwin area. This species is completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Carry out surveys to know more about population and distribution of this widely distributed but poorly known species. Nest protection programme should be taken place at all known nesting sites. Educating local community to





mitigate the human disturbance to breeding sandbars.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw

Reviewers: Monica Böhm

ENDANGERED A2abcd

Rufous-necked Hornbill **Order: Bucerotiformes**

***Aceros nipalensis* (Hodgson, 1829)** **Family: Bucerotidae**

Auk-chin-lae-bin-ne

Justification: This species is completely protected and occurs in some protected areas in Myanmar. But law enforcement on hunting and illegal logging is in urgent need to prevent their habitat loss and needed to conduct awareness raising to local community.

Rufous-necked Hornbill at Chaung Sone, Hponkanrazi Wildlife Sanctuary
© Thet Win

Rufous-necked Hornbill is assessed as Vulnerable species due to drastic decline in its population purely due to habitat destruction and hunting. In Myanmar, it is considered Endangered as threats such as logging their nesting trees, food availability and hunting are still ongoing. Protected areas are their last chance for next generations but law enforcement and awareness raising are urgent needed to protect them indeed. Conservation payment to local community can be proceeded by promoting community conservation approach from protecting birds in some areas.

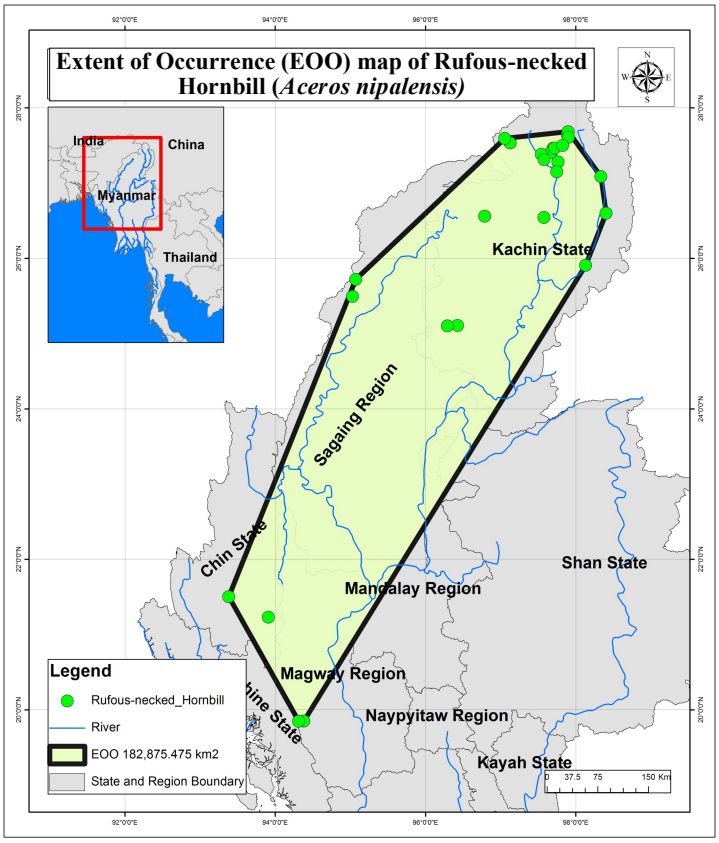
Measurements (cm): 117

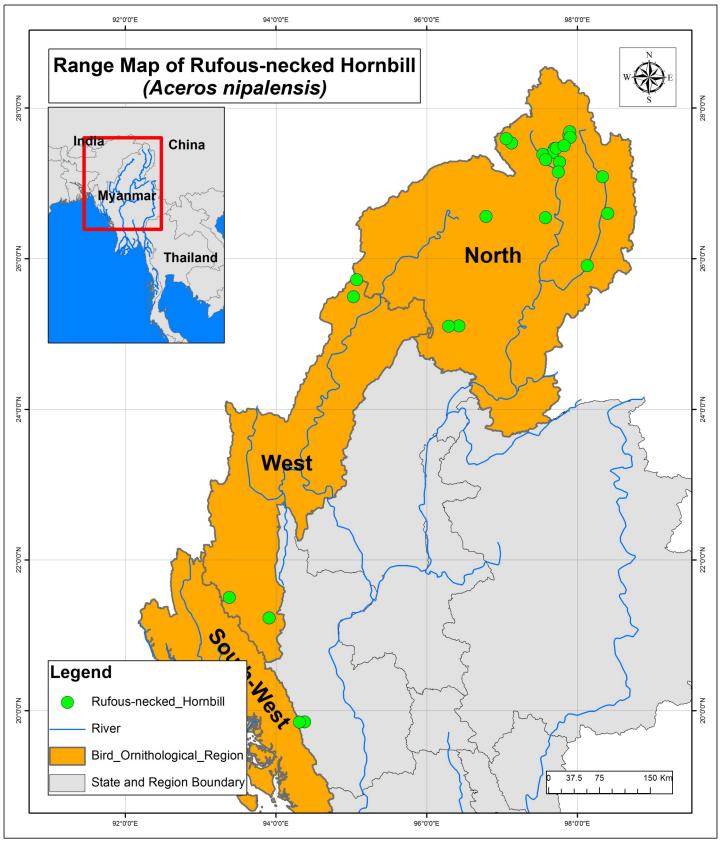
Distribution: Indawgyi Wildlife Sanctuary, Hukaung Valley Wildlife Sanctuary, Hkakabo Razi National Park in Kachin State, Natmataung National Park and Matupi in Chin State, Naga Hills in North Western Sagaing Region, and Ngape in Magwe Region.

Habitat and Ecology: This species inhabits subtropical primary evergreen forests and deciduous forests in Myanmar. Generally the species is considered sedentary and territorial, but there is some evidence of seasonal movements. They can occur in pairs or groups of 4-5 individuals. Being fruit eaters, seed dispersal agents and predators for forest insect pests, the hornbills are regarded as “Farmers of the Forests”.

Wild population: The generation length for A. nipalensis is 19 years https://www.iucnredlist.org/species/22682510/131867116. Population trend is decreasing and the population of this species was estimated <700 individuals. AOO of the species is 104 km2 and its EOO covers 182875.475 km2 in its available habitats.

Threats to survival: The feeding and nesting habits of this species are dependent on large trees which makes it especially susceptible to deforestation and habitat degradation through logging, shifting cultivation and clearance for agriculture (Datta 2009, Naniwadekar





et al. 2015). Hunting and trapping for food and traditional decorations also cause declines in the population of this species. Hunting is the primary threat to the species in Putao region. In this area, the casque with bill is used for traditional head decoration (Bran Shaung and Myint Kyaw, 2018).

Conservation actions and research undertaken: This species is completely protected under Conservation of Biodiversity and Protected Area Law (2018). This species occurs in some protected areas (Indawgyi Lake Wildlife Sanctuary, Hukaung Valley Wildlife Sanctuary, and Hkakaborazi National Park and Natmataung National Park) in Myanmar.

Conservation actions and research needed: Sustainable Forest Management and educational awareness activities for hornbills and conservation in general are needed. Create tourism opportunity for bird watchers and researchers in its habitats to create local income. Scientific researches are needed to know about its feeding, nesting and breeding success.

Use and Trade: The casque with bill is used for traditional decoration on head of local people and for household goods and the species is used as food by humans.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw.

Reviewers: Monica Böhm

VULNERABLE D1

Sarus Crane **Order: Gruiformes**

***Antigone antigone* (Linnaeus, 1758)** **Family: Gruidae**

Gyo-gyar-gaung-ni

Justification: South-east Asia subspecies sharpii can be found in Myanmar in a few locations with viable colonies in Ayeyarwaddy Delta and Rakhine State. But agricultural expansion and industrial development are the main threats for their habitat loss. Environmental education for local community is required to protect the nests, eggs and the chicks in Myanmar.

Gathering of Sarus Crane in Ayeyarwaddy Delta
© Lay Win

Measurements (cm): 120-152

Distribution: Ayeyarwaddy Delta, Indawgyi Lake in Kachin State, Rakhine State, Inle Lake in southern Shan State.

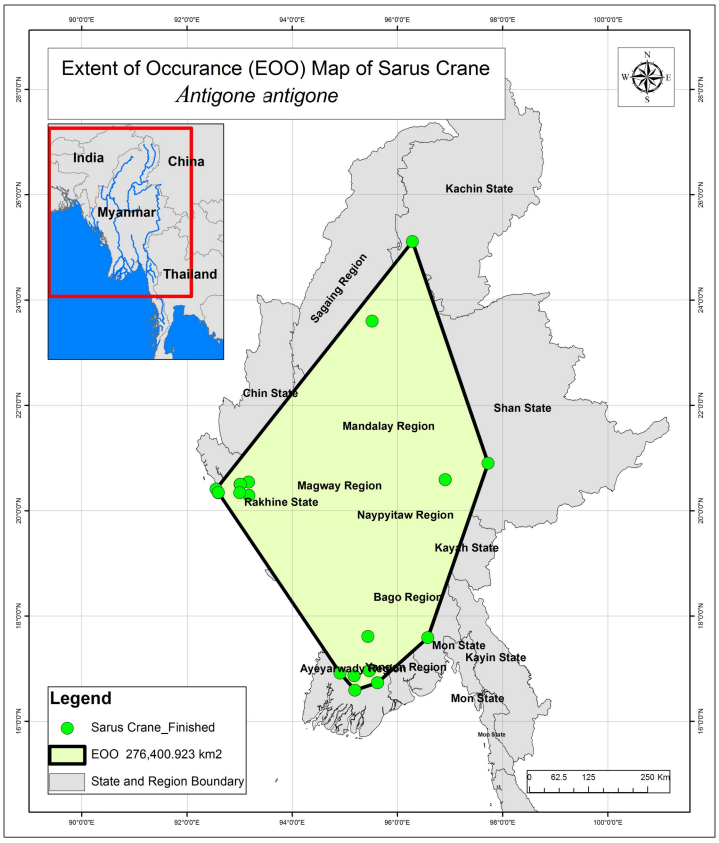
Habitat and Ecology: This species is found in paddy fields, wet grassland and shallow wetlands.

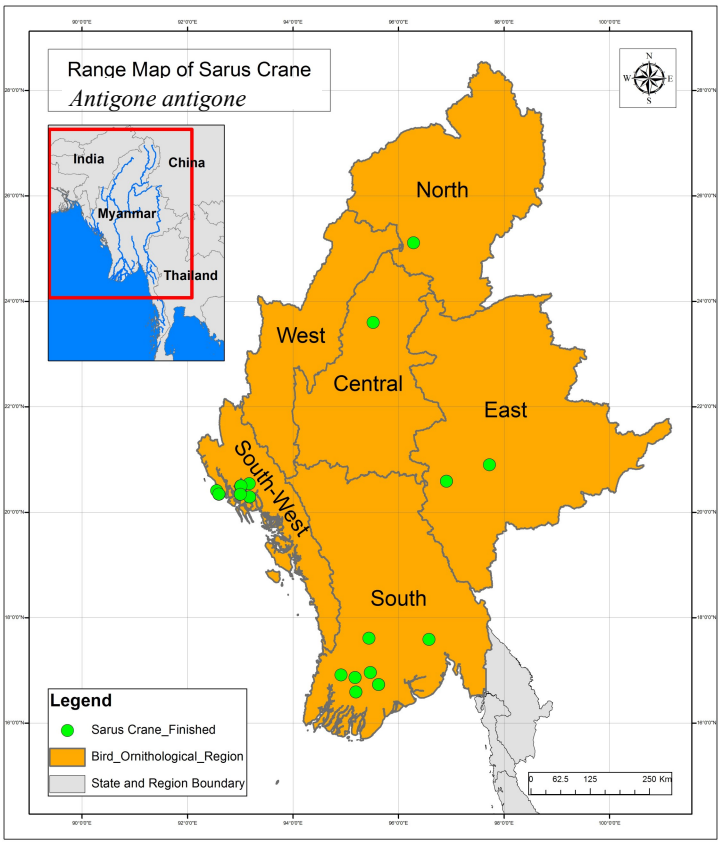
Wild population: The generation length for *A. antigone* is 15.6 years https://www.iucnredlist.org/species/22692064/93335364. Population trend is decreasing and the population of this species was estimated <800 individuals. AOO of the species is 72 km2 and its EOO covers 276400 km2 in its available habitats.

Threats to survival: Agriculture expansion, conversion of land to fish ponds, human disturbance, chemical fertilizer and heavy pesticide use in agriculture are their main threats.

Conservation actions and research undertaken: WCS Myanmar is working on Sarus Crane conservation in Ayeyarwaddy Delta. The species is also completely protected under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Alternative way of agriculture practice, land -use management, creation of community livelihood through ecotourism are needed to conserve this species. Regular monitoring of this species is required to determine its population, distribution and threats.





Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Daewi Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A2acd+A3acd; C1+C2a(i,ii)

Slender-billed Vulture | **Order: Accipitriformes**

***Gyps tenuirostris* (Gray, 1844)** | **Family: Accipitridae**

La-Da-Hnote-thi-shae

Justification: This species is classified as Critically Endangered in IUCN Red List for Threatened Species because its population is declining rapidly, mainly as a result of feeding on carcasses of farm animals treated with veterinary drug diclofenac. In Myanmar, the main reason for decline is probably reduction in ungulate populations due to transforming into industrial farming resulting in lack of carcasses for vultures.

Slender-billed Vulture at Inn Daw Chaung outflow of Indawgyi Lake © Lay Win

Measurements (cm): 77-103

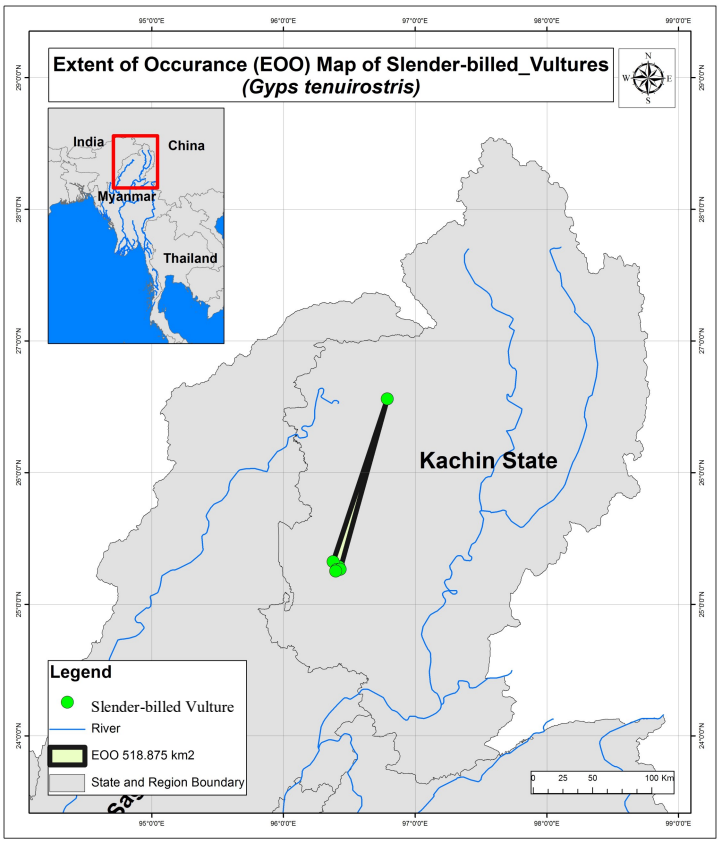
Distribution: Shan State, Kachin State, Chin State, Sagaing Region.

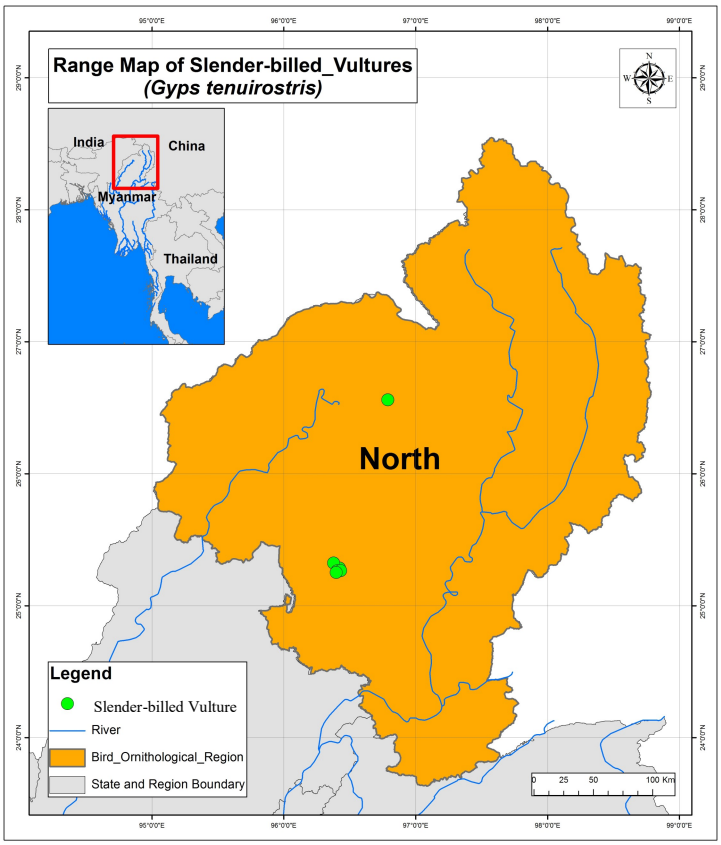
Habitat and Ecology: It inhabits open country and partially wooded areas, often found near village and slaughterhouse. Found with other vultures at carcasses. No breeding record in Myanmar as yet.

Wild population: The generation length for *G. tenuirostris* is 16 years https://www.iucnredlist.org/species/22729460/117367614. Population trend is decreasing and the population of this species was estimated <1000 individuals. AOO of the species is 24 km^2 and its EOO covers 519 km^2 in its available habitats.

Threats to survival: Vulture surveys in Myanmar indicate a continued decline in Gyps populations, mainly due to food scarcity i.e. decline in number of wild and free-ranging domestic ungulates.

Conservation actions and research undertaken: Myanmar Vulture Working Group (MVWG) was formed in October 2018 and has already updated the Myanmar Vulture Action Plan - 2007 to 2019. MVWG has collaborated with the international organization, Saving Asia's Vultures from Extinction (SAVE) to research and conserve the Vultures in Myanmar. Also, this species is completely protected under the Conservation of Biodiversity and Protected Area Law (2018). As members of MVWG, Fauna and Flora International (FFI) is taking initiation with the





under-cover survey of diclofenac used and population assessment in Northern Part of Myanmar, and Biodiversity And Nature Conservation Association (BANCA) is working on diclofenac used survey, population survey and education awareness in Shan State with the aim to establish the Vulture Safe Zone in Northern part of Myanmar.

Conservation actions and research needed: Take assessment of diclofenac (NSAIDs) used in livestock in the areas where the species occurred. A captive-breeding program and Supplemental Feeding 'Vulture Restaurant' is also suggestible. The regular monitoring is needed for this species's population and distribution. And Vulture Save Zones should be established as well.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw.

Reviewers: Monica Böhm

CRITICALLY ENDANGERED A2ab+A3bc; C2a(i,ii)

Spoon-billed Sandpiper — Order: Charadriiformes

Calidris pygmaea (Linnaeus, 1758) — Family: Scolopacidae

Yay-Nyaunt-Hnote-Wine

Justification: This small migratory wader winters in Myanmar from October to April. This species is listed as Critically Endangered because it has an extremely small population that is declining extremely rapidly. This is because of a number of factors, including habitat loss along the migration route and in wintering areas, where tidal flats are reclaimed for industrial, infrastructure and aquaculture which are compounded by disturbance, pollution, net trapping and the effects of climate change.

Spoon-billed Sandpiper at Gulf of Mottama
©Lay Win

Measurements (cm): 14-16

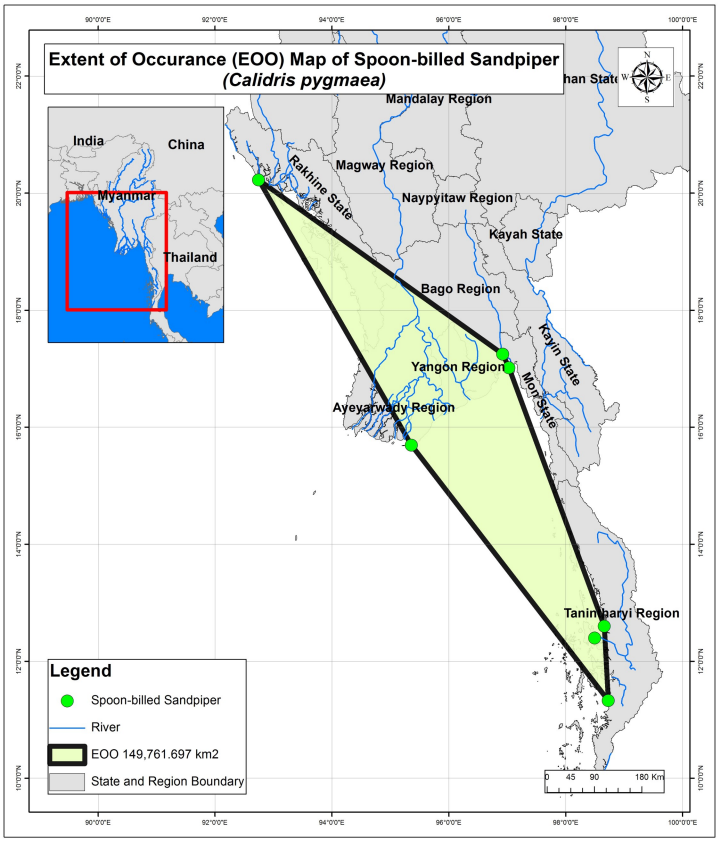
Distribution: Gulf of Mottama (Bago Region, Mon State), Nanthar Island (Rakhine State), Myeik and Boatpyin (Tanintharyi Region) and Ayeyarwady Delta.

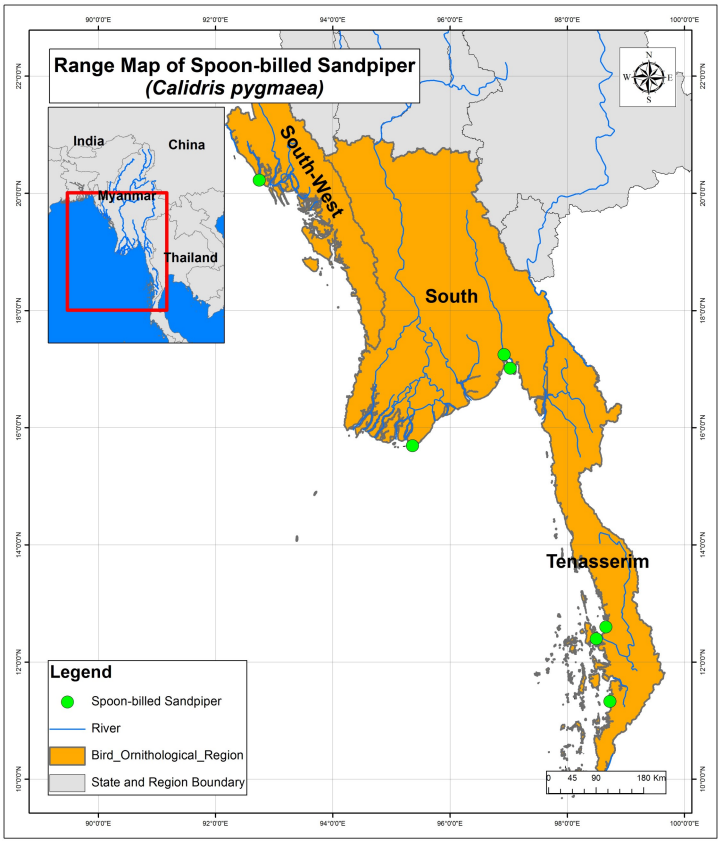
Habitat and Ecology: This species inhabits marine terrestrial habitats, such as tidal mudflats, sandy shorelines, sand bars, spits, saltpans and sandy beaches.

Wild population: The generation length for *C. pygmaea* is 6.3 years https://www.iucnredlist.org/species/22693452/134202771. Population trend is decreasing and the population of this species was estimated <150 individuals. AOO of the species is 32 km2 and its EOO covers 151,255 km2 in its available habitats.

Threats to survival: Habitat loss due to aquaculture and sand mining, habitat degradation due to solid waste and pollution, net trapping for food are main threats in their wintering areas in Myanmar.

Conservation actions and research undertaken: This species' main wintering site Gulf of Mottama has been designated as Ramsar Site and Biodiversity And Nature Conservation Association (BANCA) and all partner organizations are conserving the area through education and awareness programme, changing livelihoods for bird hunters, and supporting fund for livelihood. The Spoon-billed Sandpiper Task Force supports the national partner BANCA in implementing





necessary conservation action, carrying out regular monitoring and researching wintering sites. BANCA also receives support to mitigate hunting pressure on Spoon-billed Sandpiper at all four wintering sites too. This species is completely protected under the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: There is a need to ensure the protection of its all wintering site in Myanmar as Protected Areas, and trapping of shorebirds by net should also be banned. Local community should also be educated about the plight of this species with conservation concepts. Surveys should be done regularly along the coastline where there is potential habitat.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw, Kyaw Zay Ya

Reviewers: Monica Böhm

ENDANGERED B2ab(i,ii,iii)

Spot-billed Pelican — **Order: Pelecaniformes**

Pelecanus philippensis **(Gmelin, 1789)** — **Family: Pelecanidae**

Wun-po / Hnget-gyi-wun-po

Justification: This species is once a common and breeder in Myanmar and it is now suffering a huge decline in numbers due to habitat loss and degradation in Myanmar. Although species population in Myanmar is decreasing, there are stabilized population outside area of Myanmar and even in some area of India is increasing in population (H. Taher in litt. 2016). Therefore, we can expect the population from neighbouring countries.

Spot-billed Pelican in Hukaung Valley
© Thet Zaw Naing

Measurements (cm): 127-152

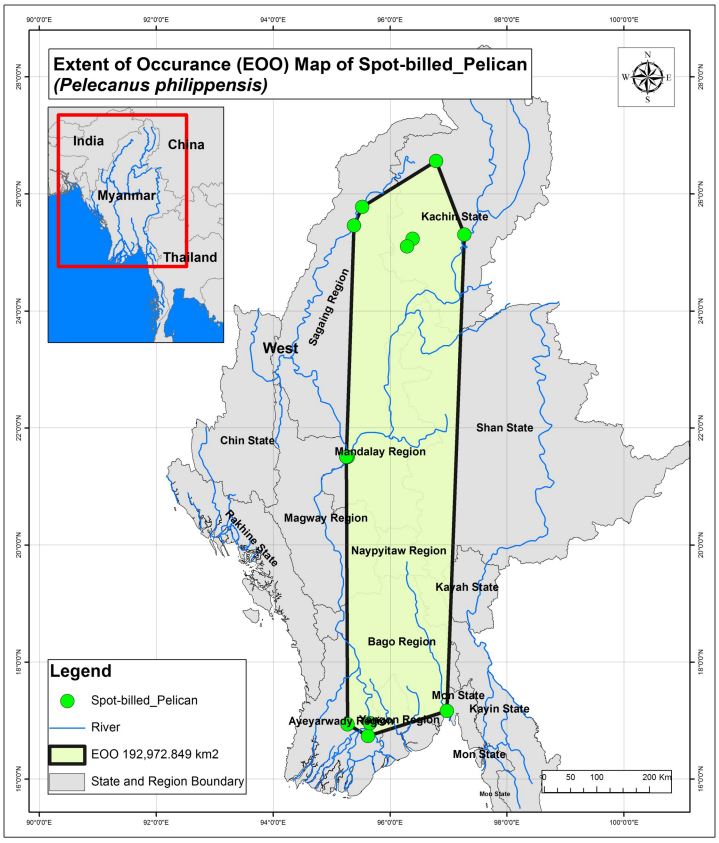
Distribution: Hukaung Valley Wildlife Sanctuary and Indawgyi Wildlife Sanctuary, Ma Lin Village (near Htamanthi Wildlife Sanctuary), Chindwin River (Htamanthi section), Ayeyarwaddy River (Myitkyina section), Pauk wetland (Chaung Oo), Inmagyi wetland (Myaung), Maubin, Nyaung Don, Pan Ta Naw in Ayeyarwaddy Delta, Gulf of Mottama

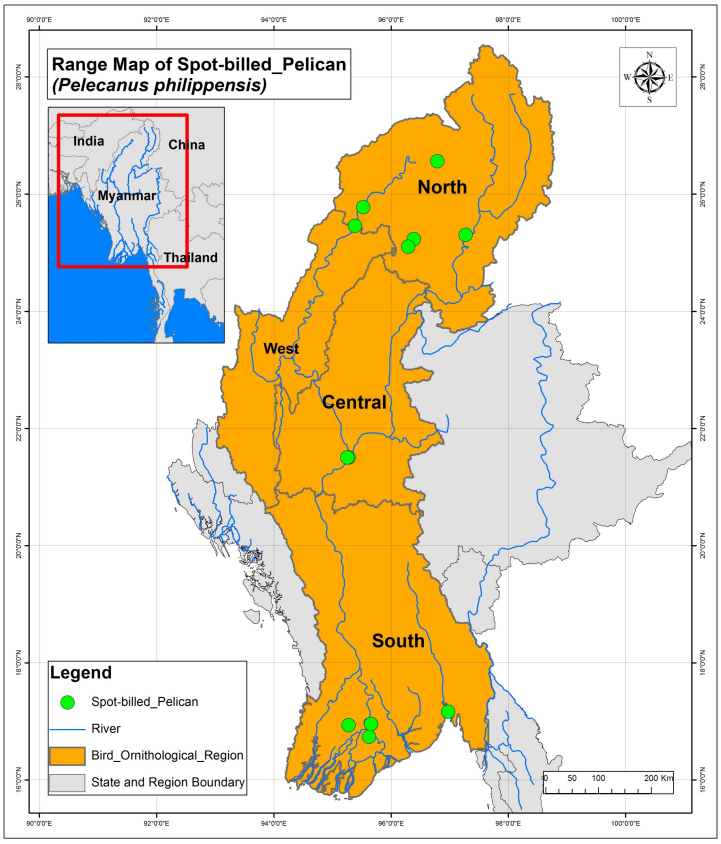
Habitat and Ecology: This species inhabits a variety of deep and shallow wetlands, freshwater and saline, open and forested (S. Subramanya in litt. 2016, H. Taher in litt. 2016). It roosts on trees. It feeds mainly on fish.

Wild population: The generation length for *P. philippensis* is 15.4 years https://www.iucnredlist.org/species/22697604/117970266. Population trend is decreasing and the population of this species was estimated <700 individuals. AOO of the species is 48 km^2 and its EOO covers 192972.849 km^2 in its available habitats.

Threats to survival: The significant threats to this species are loss of feeding sites, degradation of wetland habitats, hunting, human disturbance, felling of roosting trees, overexploitation in fishing, conversion of wetlands to agriculture and aquaculture.

Conservation actions and research undertaken: This species is completely protected under





the Conservation of Biodiversity and Protected Area Law (2018). Some of its locations are situated in Protected Areas in Myanmar.

Conservation actions and research needed: Carry out surveys to know more about population and distribution of this formally a common to abundant breeder in Myanmar. Promote conservation actions and education/ awareness programme across an entire range.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw

Reviewers: Monica Böhm

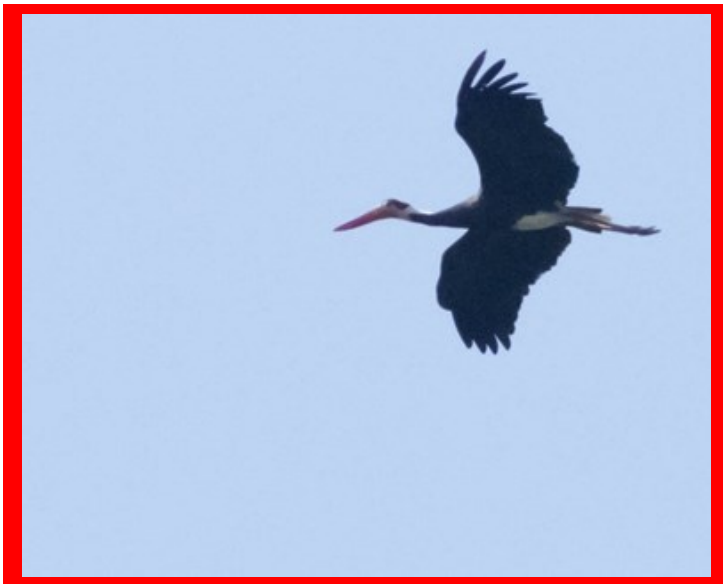
CRITICALLY ENDANGERED B1AB(i,ii,iii,iv,v)

Storm's Stork — **Order :Ciconiiformes**

***Ciconia stormi* (Blasius, 1896)** — **Family: Ciconiidae**

Chi-Khin-Soot-Hnote-Ni

Justification: This probably rarest of all storks after *Leptotilus dubius* is listed as Critically Endangered in Myanmar because it has restricted habitat and low densities which is very rapidly declining, due to extensive logging activities throughout its range and conversion to oil-palm plantations. And the population outside Myanmar is also dramatically declining.



Storm's Stork at Ngawun Forest © Ye Min Aung

Measurement (cm): 75-91

Distribution: The species occurs only in Ngawun Reserve Forest, in Southern Tenasserim.

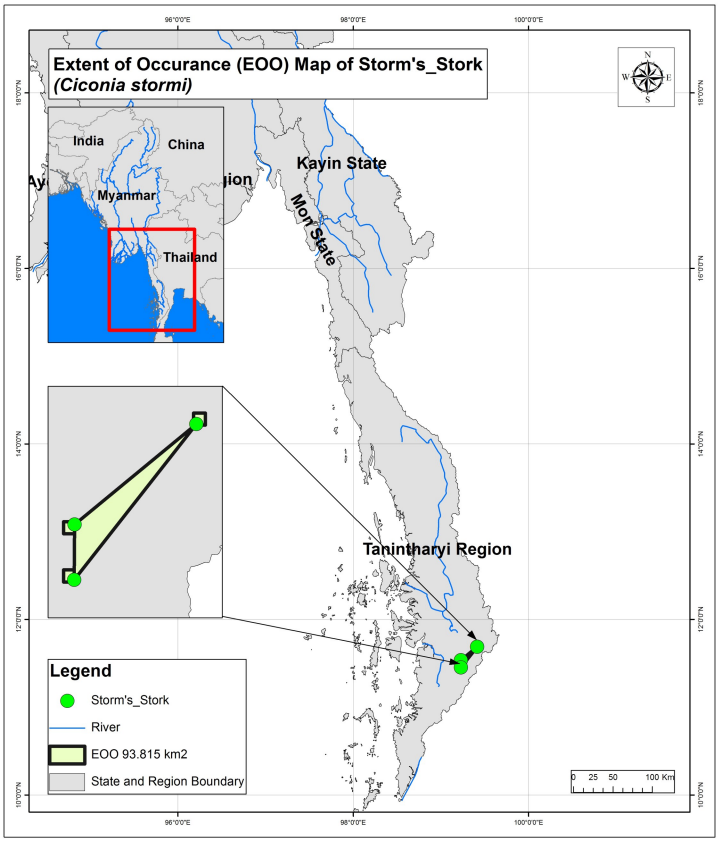
Habitat and Ecology: This solitary tree nester occurs in low density in large undisturbed tall evergreen, semi-evergreen lowland forests, and often seen by rivers.

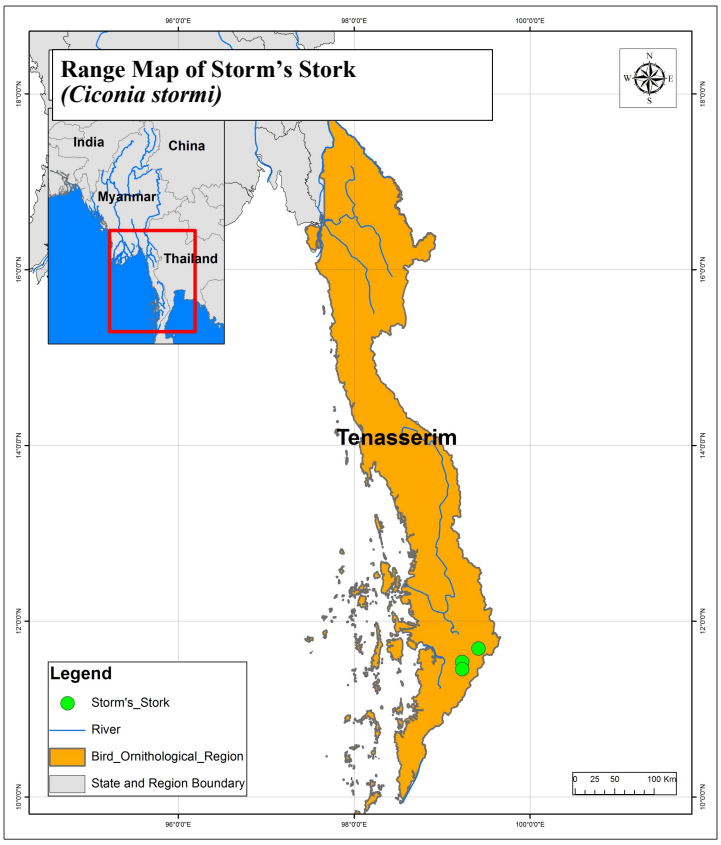
Wild population: The generation length for *C. stormi* is 16.1 years https://www.iucnredlist.org/species/22697685/110066434. Population trend is decreasing and the population of this species was estimated <50 individuals. AOO of the species is 12 km2 and its EOO covers 94 km2 in its available habitats.

Threats to survival: Habitat loss due to loss of lowland Sundaic forest for the establishment of palm oil plantation along with encroachment from surrounding human settlements, is the main threat for this species. In addition, with no legal protection, this species was imperiled by poaching.

Conservation actions and research undertaken: This species is completely protected under the Conservation of Biodiversity and Protected Area Law (2018). However, the area this species occurs is not a protected area with different areas being managed by the Forest Department and the Karen National Union (KNU) where no conservation and management actions can be systematically implemented.

Conservation actions and research needed: Implement conservation actions particularly for





this co-managed area and community conserved areas. Promote conservation awareness raising campaign targeting from decision makers to grassroots levels, also using the media. Collaboration of INGOs, NGOs and universities is essential and needs to be enhanced for coordinated research programs related to conservation actions.

Use and Trade: This species is not used or traded.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thuya Htut, Htet Linn Kyaw, Pyae Phyo Aung

Reviewers: Monica Böhm

CRITICALLY ENDANGERED C2a(i); D

White-bellied Heron **Order: Pelecaniformes**

***Ardea insignis* (Hume, 1878)** **Family: Ardeidae**

Nga-Hit-Wan-Phyu

Justification: This heron was up-listed to Critically Endangered on the global IUCN Red List in 2007 because it has an extremely small and rapidly declining population. This decline is mirrored in Myanmar and is projected to increase in the near future as habitat destruction, over-exploitation of resources and human disturbance are the main threats and still ongoing. This species is not a migrant and its range is approximate 30 km (breeding and non-breeding). So, we cannot expect immigrants from outside the region. We therefore anticipate not enough increase in its population to meet the category to down-list in near future.

White-bellied Heron at Hukaung Valley Wildlife Sanctuary
© Thet Zaw Naing

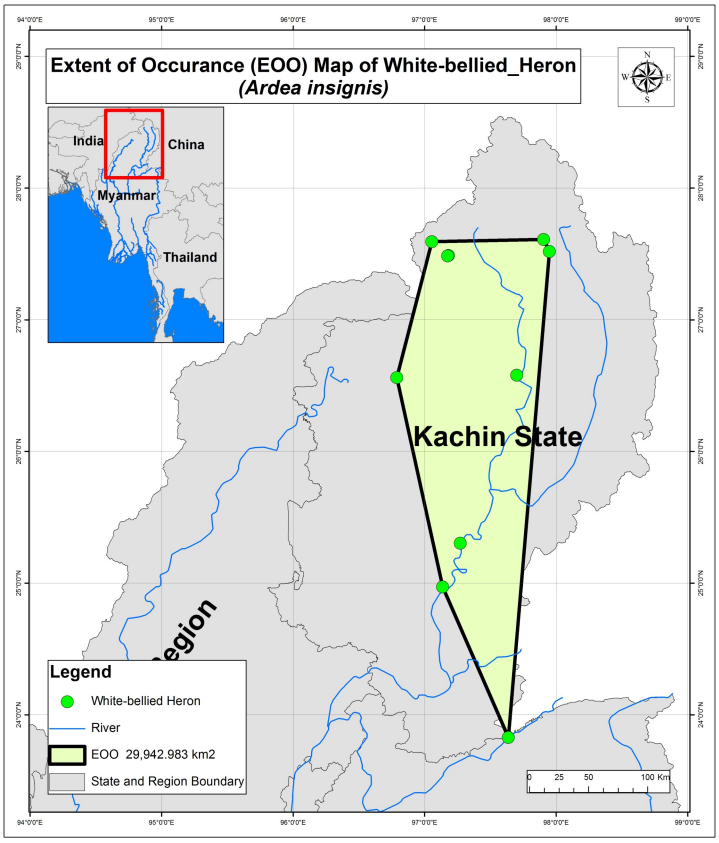
Measurements (cm): 127

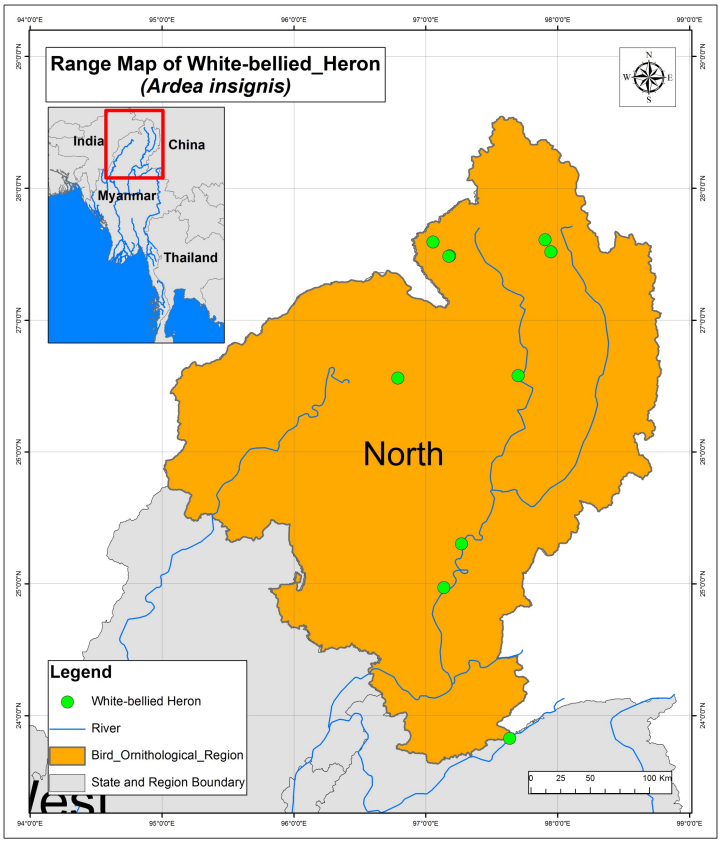
Distribution: Nam Sang Chaung (south of Myitkyina), Mali Hka River, Hukaung Valley Wildlife Sanctuary, Hponkanrazi Wildlife Sanctuary, Lansarhtu and Gawleihtu in Naung Mung, Shwe Li River near Ma Bain, Ayeyarwaddy River (Myitkyina – Bamaw section).

Habitat and Ecology: Inland swamps, marshes, terrain and stretches of rivers and streams in subtropical broadleaf forest. Seems dependent on areas with mature forest during breeding season whereas in non-breeding season it seems more content to use slow-flowing rivers and even grassy marshes.

Wild population: The generation length for *A. insignis* is 10.5 years https://www.iucnredlist.org/species/22697021/134201407. Population trend is decreasing and the population of this species was estimated <50 individuals. AOO of the species is 40 km^2 and its EOO covers 29,942.983 km^2 in its available habitats.

Threats to survival: Habitat destruction seems to have been largescale and devastating throughout Burma. Main threats presumed to be widespread loss, degradation and disturbance of forest and wetlands, the latter degraded by pollution, rapid growth of aquatic vegetation, and over-exploitation of resources, while more locally poaching is thought to be a significant threat.





Conservation actions and research undertaken: In Myanmar between 2009 and 2011, a series of survey trips for this rare species were conducted. Due to civil unrest in Northern Myanmar, the project was subsequently no longer possible to proceed. Local communities and officials are well aware of this highly sensitive species through education and workshops. It is also completely protected under the Conservation of Biodiversity and Protected Area Law (2018). Some of the areas this species occurs are in Protected Areas such as Hukaung Valley Wildlife Sanctuary and Hpokan Razi Wildlife Sanctuary in Myanmar.

Conservation actions and research needed: Improve conservation actions in Protected Areas. Promote conservation awareness initiatives in the areas supporting populations. Conduct surveys in the potential habitats in Myanmar to determine the distribution, population status and ecological requirements of this species.

Use and Trade: This species is hunted for food.

Assessors: Thaung Htut, Pyae Phyo Aung, Htet Lin Kyaw, Lay Win, Kyaw Zay Ya

Reviewers: Monica Böhm

ENDANGERED B1+2ab(i,ii,iii,v)

White-browed Nuthatch **Order: Passeriformes**

***Sitta victoriae* (Rippon, 1904)** **Family: Sittidae**

Myat-Khone-Phyu-Hgnat-Pyar-Chauk

Justification: The White-browed Nuthatch (*Sitta Victoriae*) is endemic to Myanmar, where it can only be found in the Mount Victoria area of West Myanmar. It has a small and declining population and range. Its population size and trends are unclear but it appears to have declined overall based on recent findings and surveys. With on-going threats the species is suffering, we considered endangered in Myanmar.

White-browed Nuthatch at Natmataung National Park
© Thaung Htut

Measurements (cm): 11.5

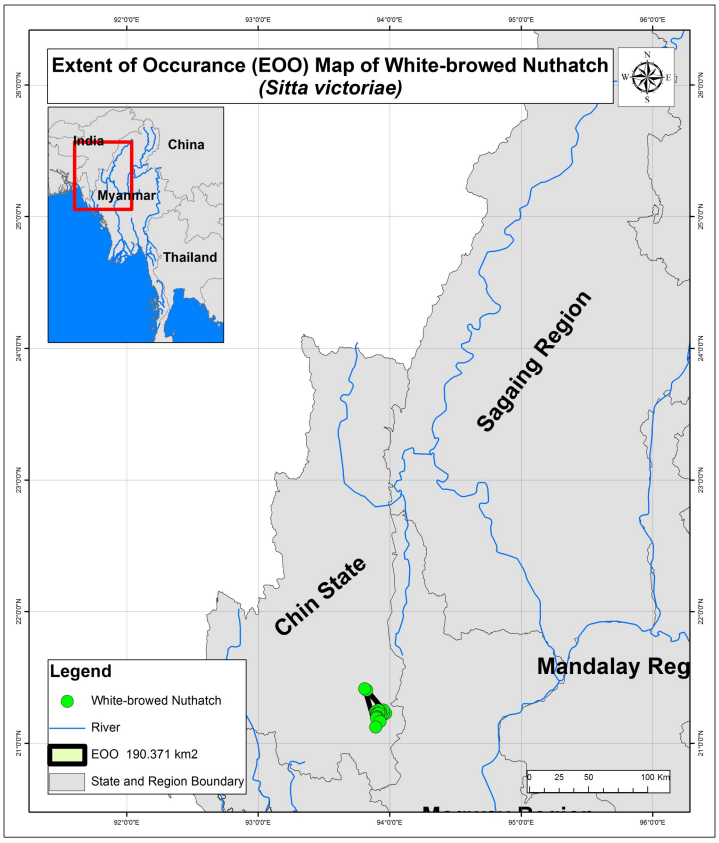
Distribution: Mt Victoria and nearby Mindat (Natmataung National Park, Southern Chin Hills) in West Myanmar.

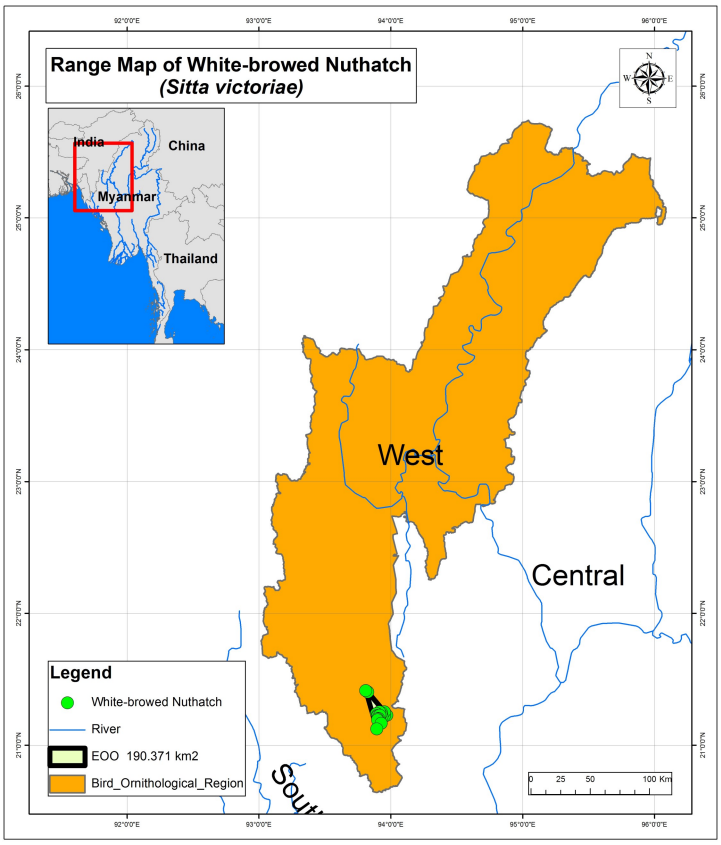
Habitat and Ecology: It prefers the subtropical and tropical moist montane forests. This species occurs in Oak-rhododendron (Quercus-Rhododendron) forest. Recorded between 2300-3000 m above sea level. Food small insects. Usually found singly or in pairs, only occasionally in small flocks of up to four individuals.

Wild population: The generation length for *Sitta victoriae* is 4 years https://www.iucnredlist.org/species/22711167/94281752. Population trend is decreasing and the population of this species was estimated <200 individuals. AOO of the species is 60 km^2 and its EOO covers 190 km^2 in its available habitats.

Threats to survival: This species is highly restricted range, Mt Victoria lies within Natma Taung National Park, but this appears to offer little protection; forest has been cleared below 2000 m and is degraded between 2000 m and 2500 m. Road construction, human settlement and motor-bikers to the summit are main threats for their natural habitat.

Conservation actions and research undertaken: This restricted range species occurs in Protected Area, Natma Taung National Park and it is also completely protected under the Conservation of Biodiversity and Protected Area Law (2018).





Conservation actions and research needed: Enforce regulations on logging, shifting cultivation and hunting within Natma Taung National Park. Promote conservation awareness initiatives in Chin Hills communities aimed at reducing habitat loss and fragmentation resulting from shifting cultivation. Conduct surveys in montane forest in the southern Chin Hills to determine the exact range, status and conservation requirements of this species.

Use and Trade: This species is hunted for food by using birdlimes.

Assessors: Thet Zaw Naing, Kyaw Myo Naing, Nay Myo Hlaing, Saw Moses, Thiri Dae We Aung, Branshaung, Thiri Sandar Zaw, Win Thura Htut, Htet Linn Kyaw

Reviewers: Monica Böhm

CRITICALLY ENDANGERED C2a(i); D

White-Crowned Hornbill | **Order: Bucerotiformes**

***Berenicornis comatus* (Raffles, 1822)** | **Family: Bucerotidae**

Auk-Chin-Gaung-Phyu

Justification: Due to ongoing threat of deforestation, the population of this species is declining rapidly and only a small numbers observed throughout its range. Low reproductive rate and dependence upon large trees for nesting make this forest-dependent species Critically Endangered.

White-crowned Hornbill at Lenya Reserved Forest © Lay Win

Measurements (cm): 75–80

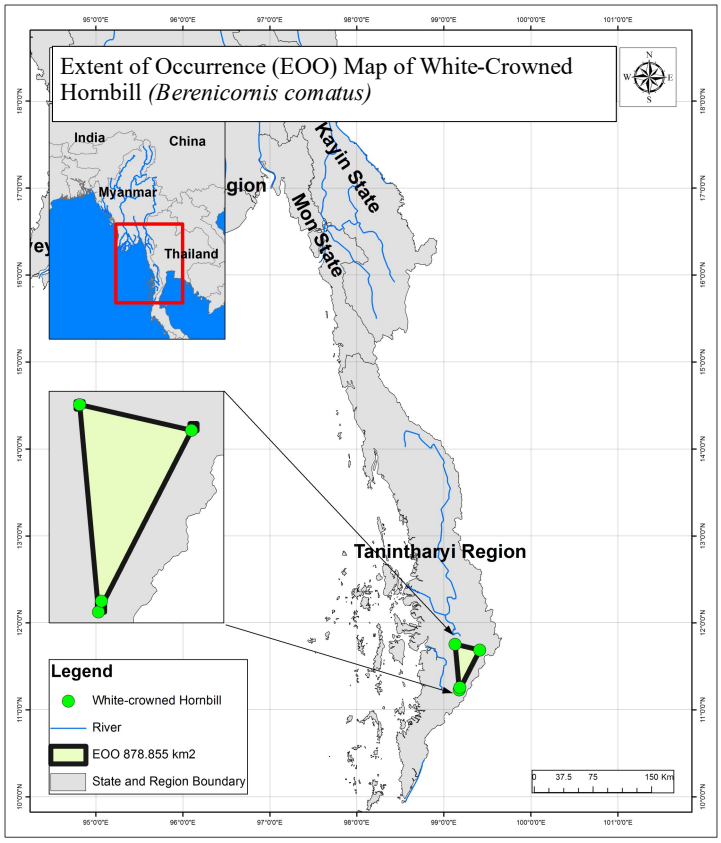
Distribution: This species has been found in the Sundaic lowland forest at Ngawun Reserve Forest and Lenya Reserve Forest in southern Tanintharyi (Tenasserim) Region.

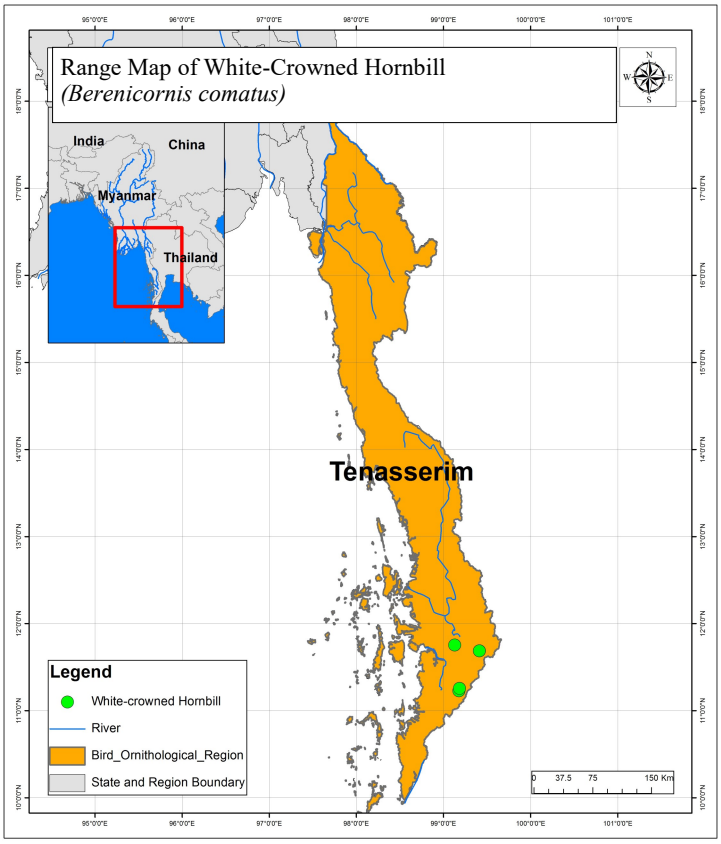
Habitat and Ecology: This species is inhabiting semi-evergreen, evergreen and sundaic lowland forest in Myanmar. It mainly feeds on fruits, small animals and insects.

Wild population: The generation length for *B. comatus* is 19 years https://www.iucnredlist.org/species/22682507/132272549. Population trend is decreasing and the population of this species was estimated <50 individuals. AOO of the species is 16 km^2 and its EOO covers 878.855 km^2 in its available habitats.

Threats to survival: Habitat loss due to clearance of lowland forest in southern Myanmar and conversion of forest into oil-palm plantations and other perennial crops such as rubber and betel nut plantations.

Conservation actions and research undertaken: BANCA is conducting research on the population and distribution to understand the current status of this species and develop future conservation actions. There is no conservation activity targeting this species at the moment. However, this species is completely protected under the Conservation of Biodiversity and Protected Area Law (2018).





Conservation actions and research needed: Public awareness and proper land-use management are required to conserve this species. Regular monitoring of the distribution and population of this species, and research into its life history and ecology are needed.

Use and Trade: This species is not used or traded.

Assessors: Lay Win, Thaung Htut, Pyae Phyo Aung, Nyo Nyo Aung, Kyaw Zay Ya

Reviewers: Monica Böhm

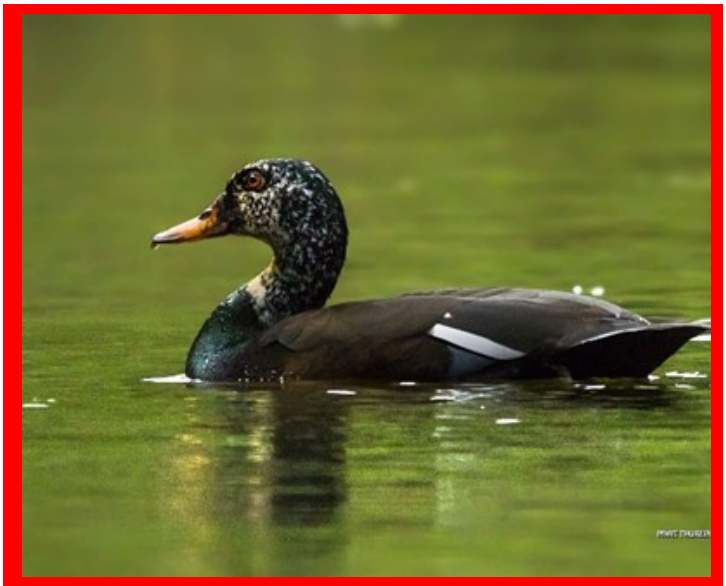
CRITICALLY ENDANGERED B2ab(ii,iii,iv,v)

White-winged Duck — **Order: Anseriformes**

***Asarcornis scutulata* (S. Müller, 1842)** — **Family: Anatidae**

Taw-bae-man-darli / Kyoe-khway

Justification: Mainly sedentary, with no more than local movements on record, there is unlikely to be significant immigration from outside Myanmar to augment the Myanmar population. As species tends to be both solitary and secretive, overall numbers very difficult to estimate, but situation is clearly precarious. BirdLife International estimates current population in wild at just 250–999 mature individuals in an overall range 370,000 km². White-winged Duck *Asarcornis scutulata* occurs in north-east India, Bhutan, Bangladesh, Myanmar, Thailand, Vietnam, Cambodia and Indonesia (Choudhury 2007, Tordoff et al. 2007, Robson 2008, Selvan et al. 2013, Renner et al. 2015) and is listed as Endangered (BirdLife International 2018). Information from Myanmar post-1948 is lacking, especially from Kachin State in the far north and listed as Critically Endangered in Myanmar. Threat and population trend should be surveyed for accurate status throughout its range.



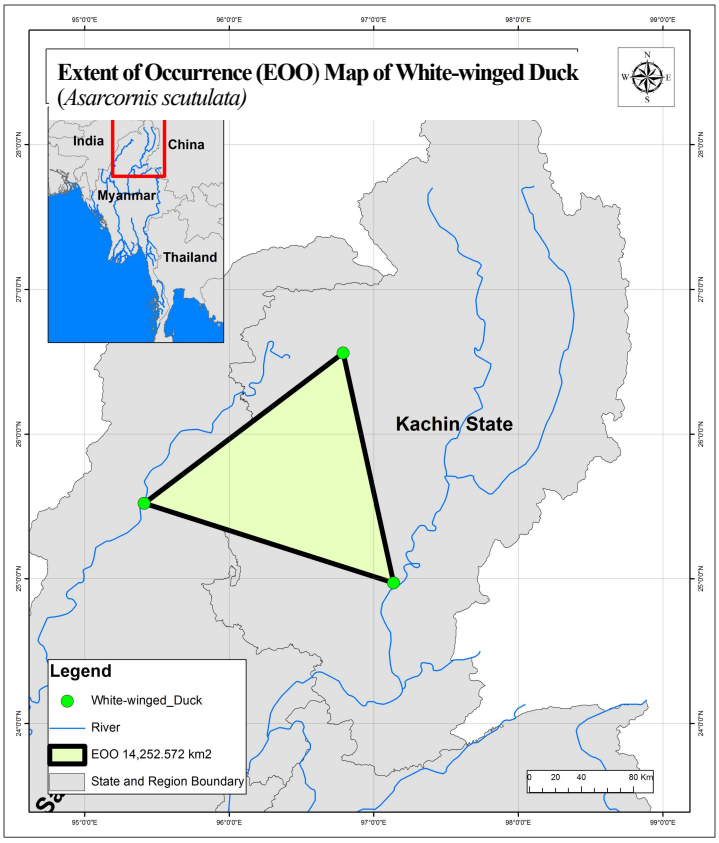
White-winged Duck at Htamanthi Wildlife Sanctuary
© Myat Thurein

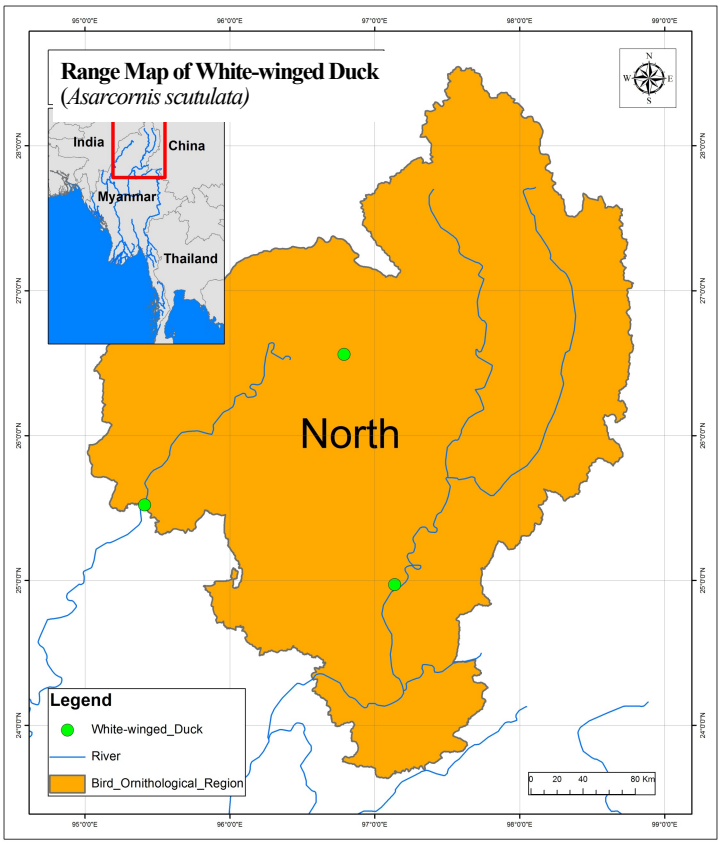
Measurements (cm): 66-81

Distribution: In Myanmar, the species has been recorded in Hukaung Valley Wildlife Sanctuary and Nam Sang Chaung in Kachin State, and Htamanthi Wildlife Sanctuary in Sagaing Region.

Habitat and Ecology: A tropical forest species, inhabiting undisturbed, oxbow lakes, secluded pools and marshes in dense, freshwater and peat swampy forest in Myanmar.

Wild population: The generation length for *A. scutulata* is 7.8 years https://www.iucnredlist.org/species/22680064/110103586. Population trend is decreasing and the population of this species was estimated <100 individuals. However, there are few reliably-documented records of White-winged Duck from Myanmar. AOO of the species is 12 km^2





and its EOO covers 14,252.572 km^2 in its available habitats.

Threats to survival: Threats include expansion of agriculture and associated pesticide use, loss of large trees with nesting hole, collection of fuelwood, human encroachment and poaching, collection of eggs and ducklings are potentially all significant.

Conservation actions and research undertaken: This species occurs in some protected areas (Hukaung Vallley Wildlife Sanctuary, Htamanthi Wildlife Sanctuary) in Myanmar. This species is also completely protected under the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Each pair thought to require at least c. 100 ha of well-conserved habitat. Urgent need for adequate network of well-protected reserves (loss of tall trees used for nesting might be a local problem) and strict control of hunting which is still rampant throughout most of range; provision of nest boxes might also prove a useful conservation too.

Use and Trade: This species is hunted for food. Eggs and ducklings are collected for food or pets.

Assessors: Thaung Htut, Pyae Phyo Aung, Htet Lin Kyaw, Lay Win, Kyaw Zay Ya

Reviewers: Monica Böhm

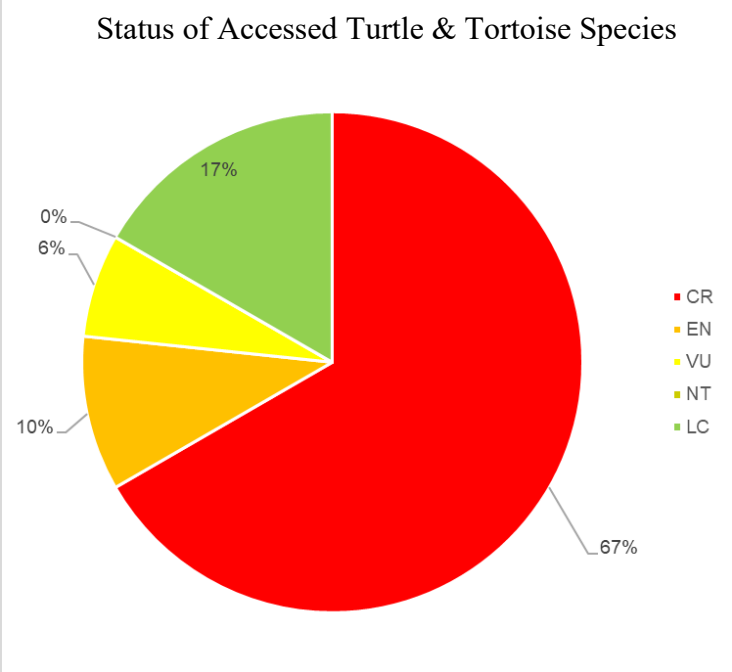
III. SPECIES ACCOUNT

Turtles and Crocodiles

Burmese Star Totise at Central Dry Zone Myanmar
© WCS

Summary of National Red List Status of Turtle & Tortoise Species

A total of 110 (27%) reptiles & amphibians out of 410 were assessed during this process. Among these assessed species, only 30 turtle & tortoise and 1 crocodile species were scripted for the detailed description for this report. All 30 turtle & tortoise species (100%) are threatened with extinction in Myanmar, of these 21 are Critically Endangered, 3 are Endangered and 2 are Vulnerable and 4 are Least Concern. Only one crocodile was assessed as Endangered species. The following table summarizes the detailed description list of 31 reptiles & amphibians in terms of national and global status.



No.	Common Name	*Scientific name*	Status in Myanmar	Global Status
1	Burmese Star Tortoise	*Geochelone platynota*	CR	CR
2	Burmese Roofed Turtle	*Batagur trivittata*	CR	CR
3	Leatherback Turtle	*Dermochelys coriacea*	CR	VU
4	Hawksbill Turtle	*Eretmochelys imbricata*	CR	CR
5	Loggerhead Turtle	*Caretta caretta*	CR	VU
6	Green Turtle	*Chelonia mydas*	CR	EN
7	Olive Ridley Turtle	*Lepidochelys olivacea*	CR	VU
8	Keeled Box Turtle	*Cuora mouhotii*	CR	EN
9	Spiny Turtle	*Heosemys spinosa*	CR	EN
10	Elongated Tortoise/ Yellow	*Indotestudo elongata*	CR	CR

No.	Common Name	*Scientific name*	Status in Myanmar	Global Status
11	Burmese Narrow-headed Softshell Turtle	*Chitra vandijki*	CR	NA
12	Arakan Forest Turtle	*Heosemys depressa*	CR	CR
13	Impressed Tortoise	*Manouria impressa*	CR	VU
14	Burmese Peacock Softshell Turtle	*Nilssonia formosa*	CR	EN
15	Burmese Softshell Turtle	*Amyda ornata phayrei*	CR	NA
16	Giant Asian Pond Turtle	*Heosemys grandis*	CR	VU
17	Black Marsh Turtle	*Siebenrockiella crassicollis*	CR	VU
18	Northern River Terrapin, Northern Mangrove Terrapin, Four-toed Terrapin, River Terrapin	*Batagur baska*	CR	CR
19	Southern River Terrapin, Southern Mangrove Terrapin	*Batagur affinis*	CR	CR
20	Myanmar Box Turtle	*Cuora amboinensis*	CR	VU
21	Big-headed Turtle	*Playsterenon megacephalum*	CR	EN
22	Asian Brown Tortoise, Asian Giant Tortoise	*Manouria emys*	EN	CR
23	Burmese Eyed Turtle	*Morenia ocellata*	EN	VU
24	Malayan Snail-eating Turtle	*Malayemys subtrijuga*	EN	VU
25	Myanmar Black Turtle	*Melanochelys trijuga edeniana*	VU	NT
26	Malayan Softshell Turtle	*Dogania subplana*	VU	LC
27	Indian Flapshell Turtle	*Lissemys punctata*	LC	LC
28	Burmese Flapshell Turtle	*Lissemys scutata*	LC	DD
29	Myanmar Brown Leaf Turtle	*Cyclemys fusca*	LC	NA
30	Oldhma's Leaf Turtle	*Cyclemys oldhamii*	LC	NA
31	Salt-water Crocodile	*Crocodylus porosus*	EN	LC

CRITICALLY ENDANGERED A2cde

Burmese Softshell Turtle — **Order:Testudines**

Amyda ornata phayrei — **Family:Trionychidae**

Gabar Leik, Leik Padee, Bee Won Leik

Justification: At the species level, *A.ornata* has been assessed as CR A2cde due to a population reduction of more than 80% over the last three generations, largely due to consumptive pressure and habitat loss. In Myanmar, the endemic subspecies *Amyda o. phayrei* is considered CR A2cde due to having undergone and even more rapid population reduction during this same period, for the same reasons.

Burmese Softshell Turtle
© Win Ko Ko

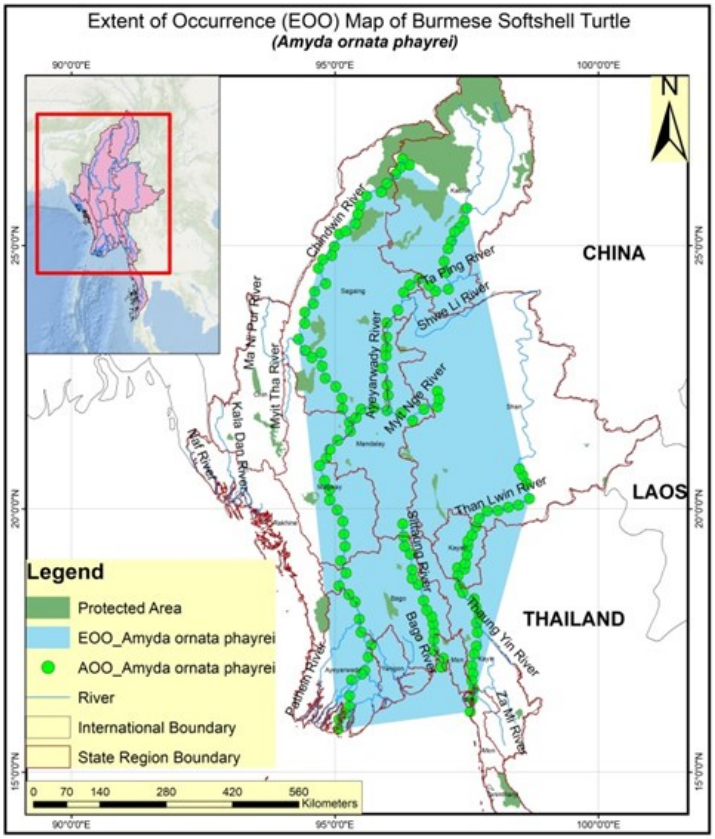
Distribution: : *A.cartilaginea* is found across much of South and Southeast Asia, including India, Bangladesh, Thailand, Lao PDR, Cambodia, and Vietnam. The subspecies *Amyda ornata phayrei* is endemic to throughout Myanmar.

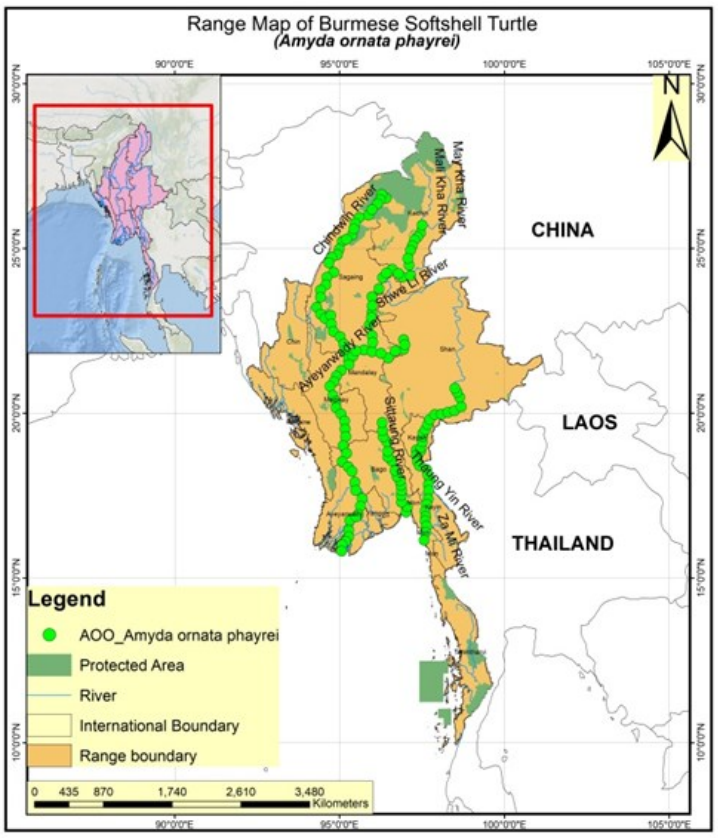
Habitat and Ecology: *Amyda ornata phayrei* inhabits upland streams with pools, muddy slow-flowing lowland streams, large rivers, ponds, swamps and lakes. This species feeds on freshwater vegetation.

Wild population: : The population size is unknown because of little population data available. Before 1985, this species was considered common in forested habitat; however, since then there has been evidence of severe population decline (suspected decline of more than 80% over the last 72 years (3 generations) due to exploitation associated with improved road links with China and habitat degradation). Now it is considered very rare. AOO of the species is 1384 km^2 and its EOO covers 636131.110 km^2 in its habitats.

Threats to survival: Harvesting for local consumption and international food trade. Habitat degradation (siltation following deforestation, pollution due to illegal gold mining, conversion to rice paddies).

Conservation actions and research undertaken: Captive breeding is needed. Research is needed to gain a greater understanding of population size, life history, captive breeding, husbandry, and potential release sites. It is listed as CITES Appendix II and a completely protected





species in Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Captive breeding is needed; however captive breeding of softshell turtles is difficult. Research is needed to gain a greater understanding of population size, life history, captive breeding, husbandry, and potential release sites.

Use and Trade: This species is targeted for local consumption and international food trade (particularly with China). It has been sold for approx. $200/individual.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cde; B1ab(iii) + 2ab(iii); D

Northern River Terrapin, Northern Mangrove Terrapin, Four-toed Terrapin, River Terrapin

Batagur baska **Order : Testudines**

Yay Ngan Leik, Thaung Leik **Family: Geoemydidae**

Justification Only three female individuals of this species are known to occur in Myanmar (in two isolated pagoda ponds), and without genetic testing, it is not possible to confirm that these individuals are *B. baska*, and not *B. affinis*. As a result, it has an extremely small population size, and a very restricted distribution, with severe fragmentation (neither subpopulation is viable) and continuing decline in habitat quality. Overharvesting of eggs and adults, and severe degradation of its estuarine habitat over the past 75 years has resulted in a decline in population size of more than 90%. As such it can be considered Critically Endangered under criteria A, B, and D.

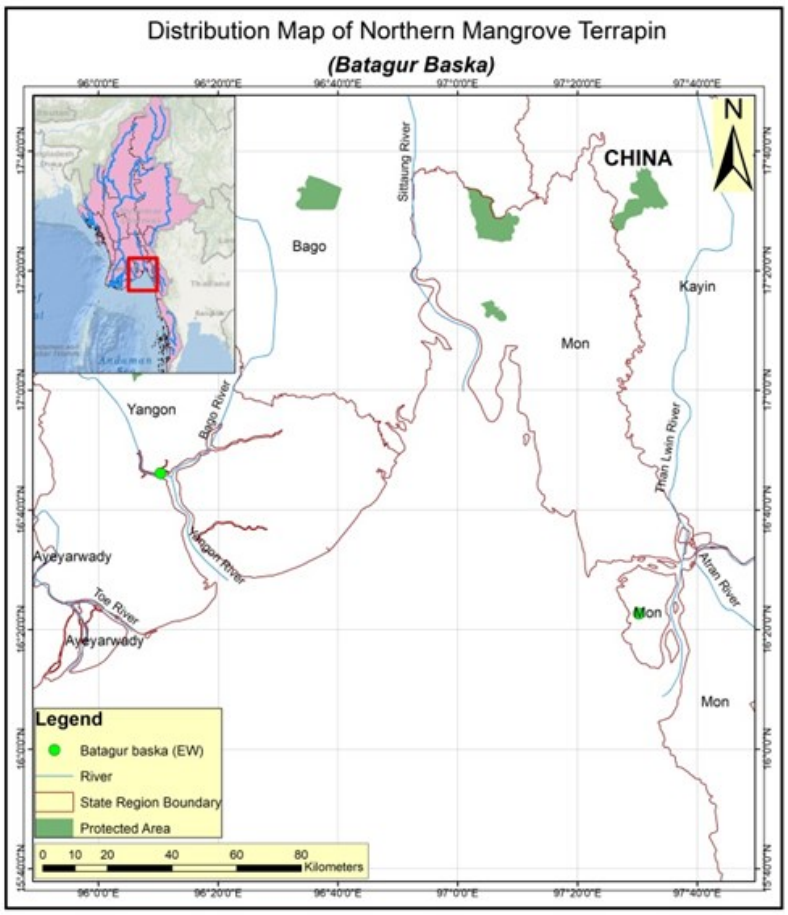
Northern River Terrapin
© Kalyar Platt

Distribution: This species was historically found across much of India, Bangladesh, and Myanmar. Is now limited to the Sundabans area of India and Bangladesh, plus three individuals in Myanmar? This species was historically distributed in Ayeyarwady Region and Rakhine State of Myanmar.

Habitat and Ecology: *B.baska* is a highly aquatic species, associated with estuarine river sections, with nesting taking place on large sand banks. This species is omnivorous, feeding on riverside plants and fruits (including mangrove fruits), mollusks, and fishes. Females produce a single clutch per year of about 18-33 eggs.

Wild population: Historically it was numerous in the Ayeyarwady delta (Maxwell 1911), but population had declined to a few nesting animals in the early 1900s (Moll 1985). There have been no records from the wild in recent years, despite surveys of suitable habitat. Now, there are three female individuals, believed to be *B.baska*, are known from two pagoda ponds in Yangon and near Mawlamyaing. AOO of the species is 8 km^2 and its EOO covers 8 km^2 in its habitats.

Threats to survival: Harvesting of eggs, Habitat destruction (including sand mining and clearing of mangrove habitat for fuelwood, shrimp farming, and other aquaculture development),



Fishing by-catch and illegal harvesting. Water pollution associated with shrimp farms.

Conservation actions and research undertaken: It is listed as CITES Appendix I and a completely protected species in Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Captive breeding program is needed. Researches are needed to confirm population status. Genetic studies are needed to confirm species of captive individuals.

Use and Trade: Eggs are harvested for local consumption. Adults are also caught as fishing by -catch, and harvested for food purposes (local consumption and international trade).

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2bcd; B1ab(i,ii,iii) + 2ab(i,ii,iii); D

Burmese Roofed Turtle — Order: Testudines

Batagur trivittata — Family: Geoemydidae

Teik Leik, Leik Khone, Khon Hna Sin Kye Leik

Justification: *Batagur trivittata* is assessed as Critically Endangered as it has experienced a catastrophic population decline over the past 3 generations (conservatively assumed to be 25-30 years generation time) as a result of egg collection and direct take of adults and juveniles, declining from thousands of adults to fewer than 10 mature animals left in the wild, representing about a 99% decline. Correspondingly, the species has disappeared from nearly its entire geographical range, being restricted to one remnant population. The remaining confirmed population is currently under threat from local dredging for gold at its nesting site, and possibly from the entire region being flooded by a planned reservoir.

Burmese Roofed Turtle
© Win Ko Ko

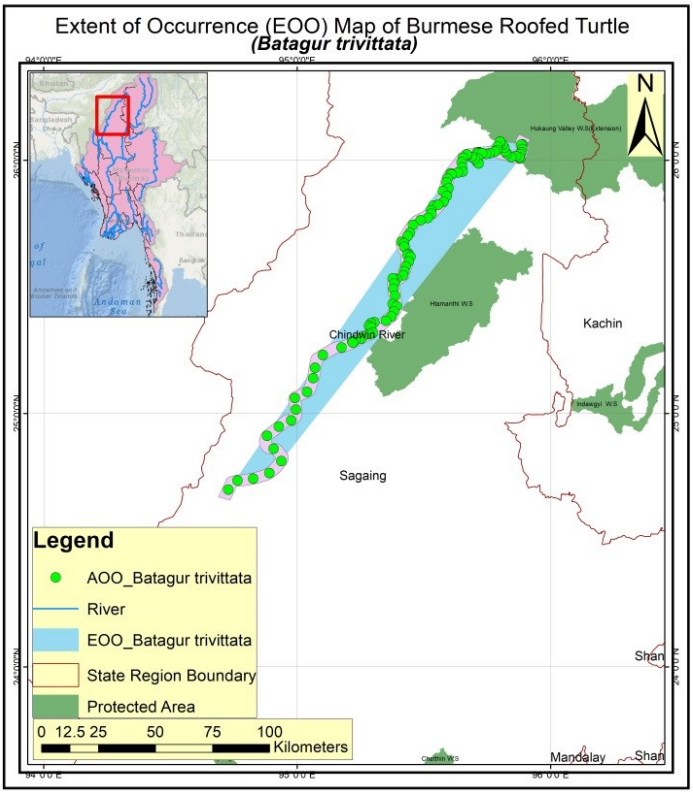
Distribution: *B.trivittata* was historically occurred throughout the Ayeyarwady-Chindwin system, as well as the Sittaung and lower Thanlwin (Salween) rivers of Myanmar. It is currently restricted to a short stretch of the upper Chindwin, with the farthest animals some 80km apart on the river, although anecdotal observations suggest incidental occurrence over a 200 km stretch (K. Platt, unpubl. data). It occurs at elevations of about 150 to 200m above sea level.

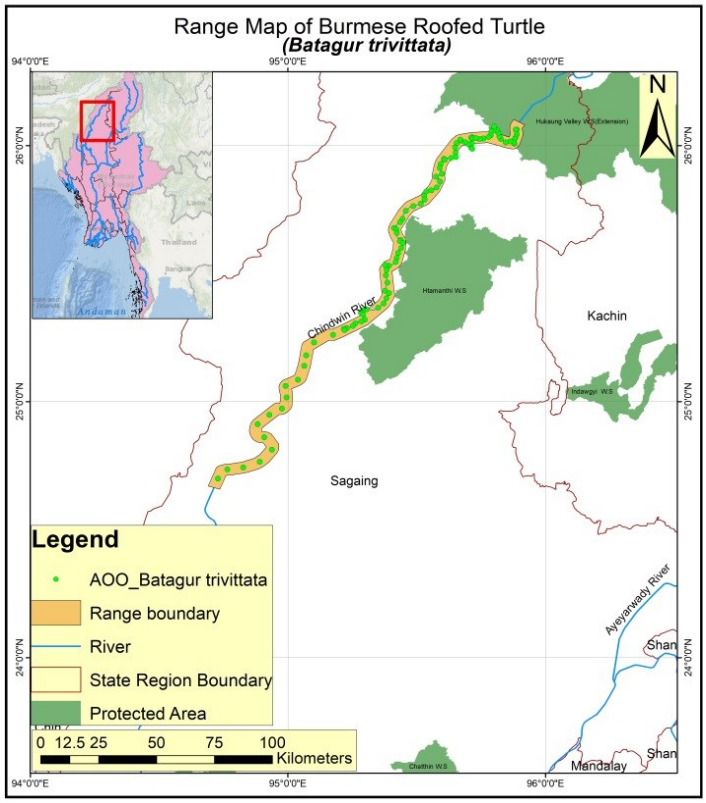
Habitat and Ecology: This species is a large, vegetarian, freshwater turtle which inhabits large rivers, and uses terrestrial nest sites on sandy banks. In historical times, some populations nested on sandy sea beaches in the Ayeyarwady estuary. Age at maturity and longevity are unknown; by analogy with the similar *B. kachuga*, maturity may be as late as 15-20 years of age, and generation time is likely to be well over 25-30 years.

Wild Population: The generation length of this species is (25) years. The population size is 10 individuals in the wild and captive population of about 900 sub-adults. Less than 10 nesting females are known along the Chindwin River, with genetic studies suggesting that only 3 males are reproducing. Persistence of the species was recorded for the Doke-tha-wady (tributary of middle Ayeyarwady) in 2004, but the river section concerned has been dammed since then and follow-up surveys have failed to locate animals or anecdotal indications of their continuing survival.

In addition, a few adults are maintained in captivity in Mandalay. This represents a major total population reduction compared to the last available data from 1900 and 1935, when the species was still widespread and relatively abundant throughout its original range, with nesting aggregations of dozens to thousands of animals having been reported (Theobald 1968; Maxwell 1911; Smith 1931). AOO of the species is 9 km^2 and its EOO covers 80 km^2 in its habitats.

Threats to survival: This species has been extensively exploited through intensive collection of its eggs from its well-known, predictable nesting sites, and through direct take of adults and juveniles for subsistence consumption and export into the live turtle trade to supply demand from





East Asia. In addition, its last remaining cluster of nesting sites in the upper Chindwin is at severe risk from the impacts of gold dredging and plans for a hydroelectric reservoir which, if constructed, would flood the remaining range and nest sites of the species (K. Platt, pers. comm. 2018). The species continues to be impacted by habitat degradation, principally this is increased turbidity of water resulting from sedimentation flows from upstream deforestation (for instance in Nagaland, India) (K. Platt, pers. comm. 2018). An additional impact is through illegal fishing practices within the species range, including poison fishing, dynamite fishing etc. (K. Platt, pers. comm. 2018). Males move extensively around the river system and are impacted/lost more readily; this can reduce the fertility of the number of eggs laid by the females within the protected areas (K. Platt, pers. comm. 2018).

Conservation actions and research undertaken: *Batagur trivittata* is restricted from legal international trade by inclusion in CITES Appendix II; the species is also completely protected species in Conservation of Biodiversity and Protected Area Law (2018). In-situ nest protection efforts have been underway at the Chindwin nesting site since 2005. There are about 900 animals in four different assurance colonies in Myanmar; and an assurance colony at Singapore Zoo (K. Platt, pers. comm. 2018). The Mandalay assurance colony is currently breeding; other assurance colonies are not yet reproducing (K. Platt, pers. comm 2018). Four captive females (including one F1 female) have reproduced in captivity, representing an independent assurance colony. Hatchlings are head-started in the safety of a local facility. The first release took place in 2011 (7 males); in 2015; 30 males and 30 females were released; in March 2018; 15 males and 15 females were released with 20 more males released in November 2018 (K. Platt, pers. comm 2018) and 20 males and 20 females were released in March 2020.

Conservation actions and research needed: Existing conservation efforts should be continued. More control of illegal fishing is needed. Establishment of "fishing free zone" of core habitat needed. Research needed about relationship between mothers and offspring, to inform future head-starting conservation efforts.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

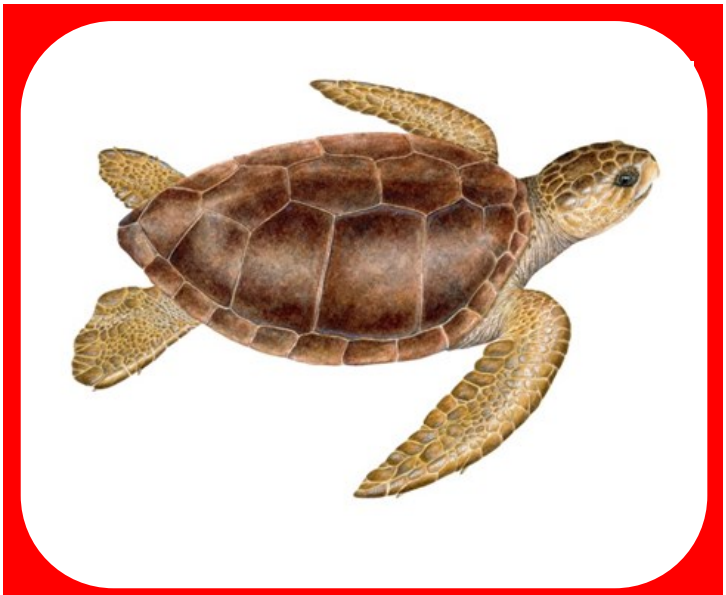
CRITICALLY ENDANGERED A2bcde;C1

Loggerhead Turtle | **Order: Testudines**

Caretta caretta | **Family: Cheloniidae**

Leik Khway

Justification: Globally, this species has been assessed as vulnerable under criterion A, as a result of a 48% - 67% decline in population size over the last three generations. In Myanmar specifically, we believe that this species is Critically Endangered, with a more than 80% decline in population size over the last three generations (based on nesting data), and a very small population size (less than 250 mature individuals) that is continuing to decline at a rapid rate.



Loggerhead Turtle
© INTERNET

Distribution: This species is globally distributed throughout the subtropical and temperate regions of the Mediterranean Sea and Pacific, India, and Atlantic Oceans. Potentially found in all coastal areas, however there is significant doubt regarding its presence in Myanmar. It is likely that the record of its presence in Myanmar is due to a misidentification. The Myanmar Fisheries Department has no records of its presence over the past 20 years.

Habitat and Ecology: *C.caretta* is a marine turtle and highly migratory. It uses a wide range of widely separated localities and habitats during their lifetime. It migrates long distances between breeding and foraging grounds.

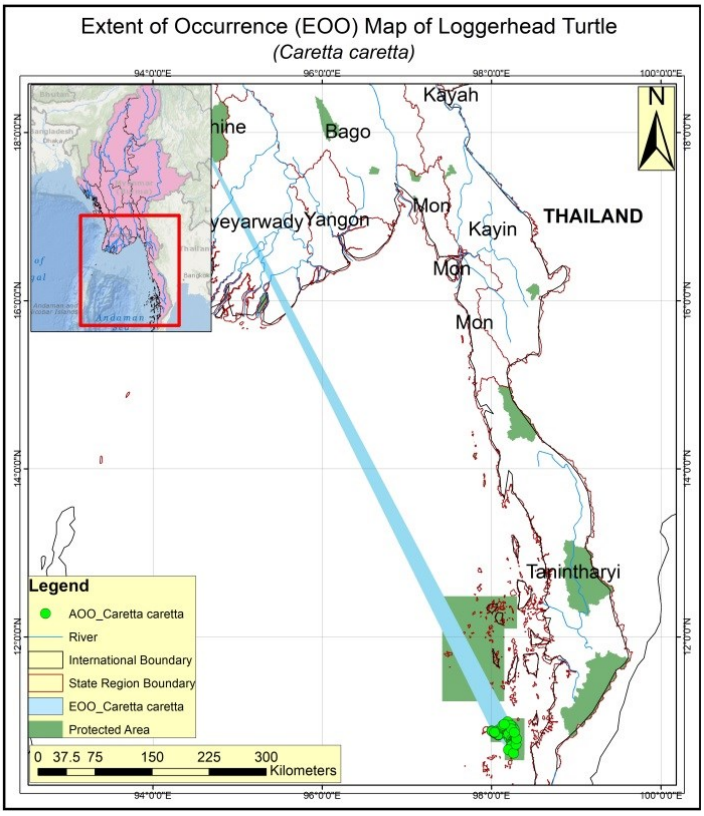
Wild population: The population trend is declining and the population size is less than 10 nesting females in Myanmar coastal beaches. AOO of the species is 368 km^2 and its EOO covers 273656.727 km^2 in its habitats.

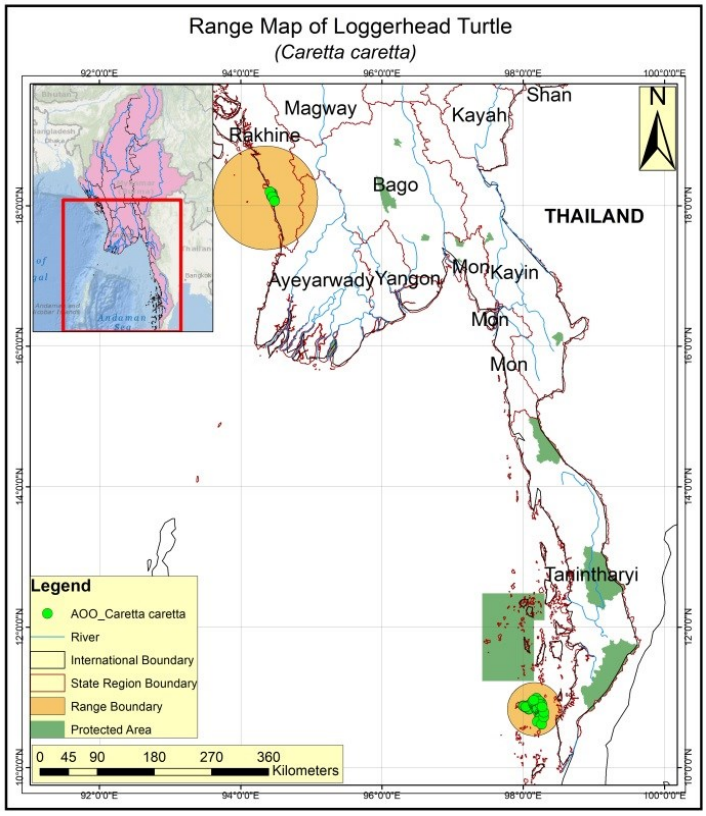
Threats to survival: N/A

Conservation actions and research undertaken: N/A

Conservation actions and research needed: N/A

Use and Trade: N/A





Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2bcde;C1

Green Turtle
Chelonia mydas
Pyin Thar Leik

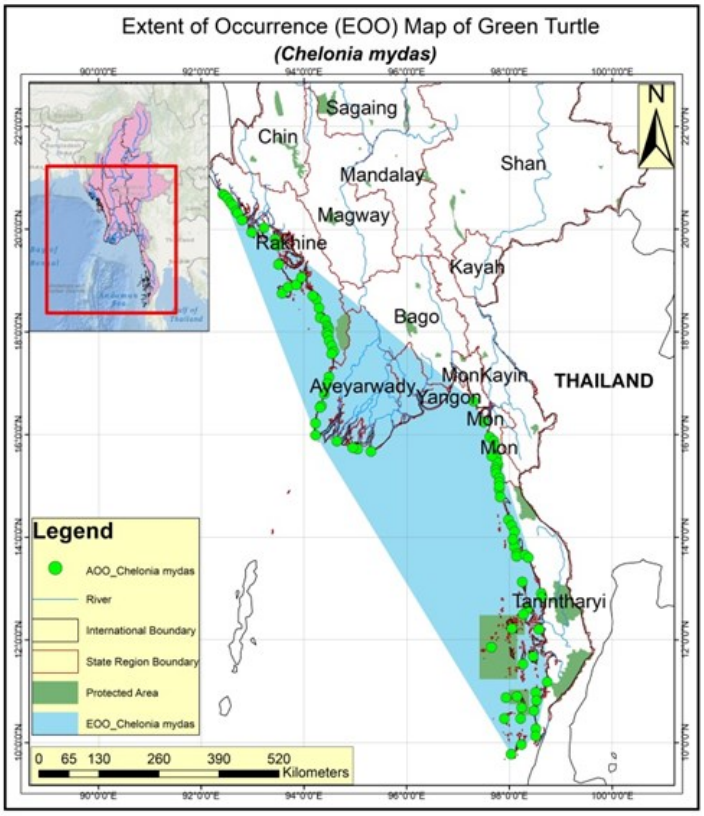
Order: Testudines
Family: Cheloniidae

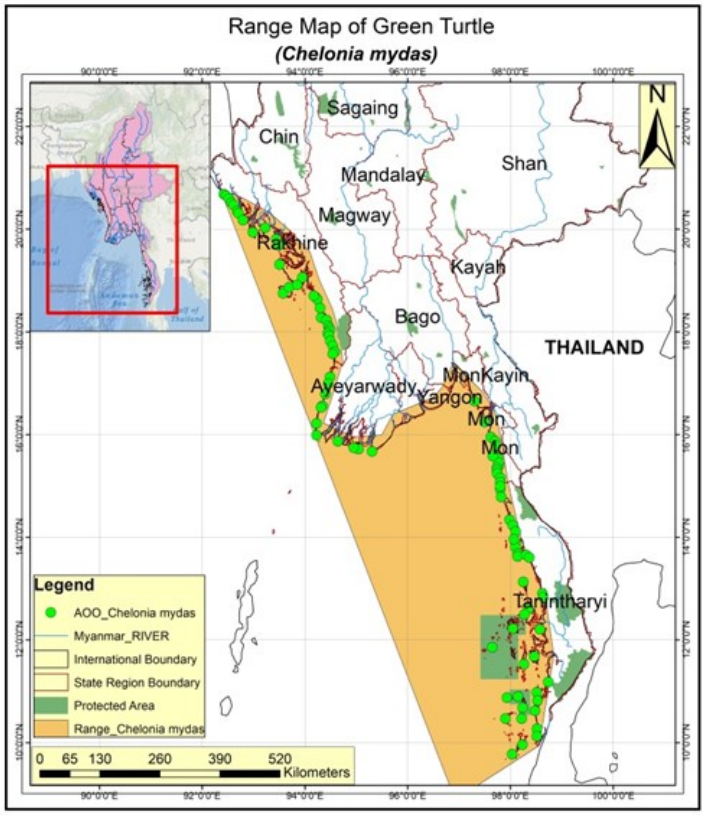
Justification: Globally, this species has been assessed as Endangered under criterion A, as a result of a 48% - 67% decline in population size over the last three generations. In Myanmar specifically, we believe that this species is Critically Endangered, with a more than 80% decline in population size over the last three generations (based on nesting data), and a very small population size (less than 250 mature individuals) that is continuing to decline at a rapid rate.

Green Turtle
© Internet

Distribution: *C.mydas* is a circumglobal distribution, occurring throughout tropical and some subtropical waters (Atlantic Ocean, Indian Ocean, Mediterranean Sea, and Pacific Ocean). It is highly migratory, undertaking complex movements and migrations through geographically disparate habitats. Nesting occurs in more than 80 countries worldwide (Hirth 1997). Their movements within the marine environment are less understood but it is believed that green turtles inhabit coastal waters of over 140 countries (Groombridge and Luxmoore 1989). In Myanmar, this species is found all coastal areas, particularly at Nanthar Island (Rakhine State), Thameehla Island (Ayeyarwady Region), and Lampi Island (Tanintharyi Region).

Habitat and Ecology: *C.mydas* is a marine turtle and highly migratory, using a wide range of broadly separated localities and habitats during their lifetime. Hatchlings are thought to develop in ocean gyres. Sub-adults inhabit neritic areas rich in sea grass and/or marine algae. Adults undergo long breeding migrations between foraging grounds and nesting areas every few years. Migrations are carried out by both males and females and may traverse oceanic zones, often spanning thousands of kilometers. During non-breeding periods adults reside in coastal neritic feeding areas.





Wild population: Nesting data for this species in Myanmar is available covering the last 15 years. At one site, more than 250 nests were found in 2003, including more than 22,000 eggs. In 2018, 120 nests were found at this site, including about 5,000 eggs. During this period, a large number of nesting beaches were lost, resulting in an overall reduction in population size of more than 80% (about 1 generation). Before 2003 the population was likely to have been even higher. Therefore we can infer a reduction of more than 80% over the past 3 generations. AOO of the species is 368 km^2 and its EOO covers 273656.727 km^2 in its habitats.

Threats to survival: Eggs and adults are harvested from nesting grounds. Juveniles and adults are harvested from foraging grounds. Mortality due to bycatch in marine fisheries. Habitat degradation at nesting beaches and feeding areas. Sand dredging. Sedimentation at river mouths (covering sandy beaches with mud) as a result of deforestation. Disturbance of migrations and hatchlings due to bright lights of squid fishing boats.

Conservation actions and research undertaken: This species is listed as CITES Appendix I and listed as completely protected species by the Conservation of Biodiversity and Protected Area Law (2018). Two conservation hatcheries have been established by the Myanmar Fisheries Department in the last 20 years, one of which has been successful at rearing this species – at Thameehla Kyun (Diamond Island).

Conservation actions and research needed: Better protection of nesting beaches and enforcement of fisheries laws are needed.

Use and Trade: Eggs and adults are harvested for local consumption and commercial purposes.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd +4cd

Burmese Narrow-headed Softshell Turtle **Order: Testudines**

Chitra vandijki **Family: Trionychidae**

Sin Kyar Leik, Gaung Thay Leik, Shan Gyi Let Maung Leik, Leik Phaye

Justification: *Chitra vandijki* is listed as Critically Endangered, because there has been a decline estimated to be over 80% over the past three generations (largely through overharvesting), and continuing into the immediate future. It is difficult to confidently apply either the B criterion (relating to geographic range), or the C criterion (relating to small population) as this species is elusive and difficult to locate.

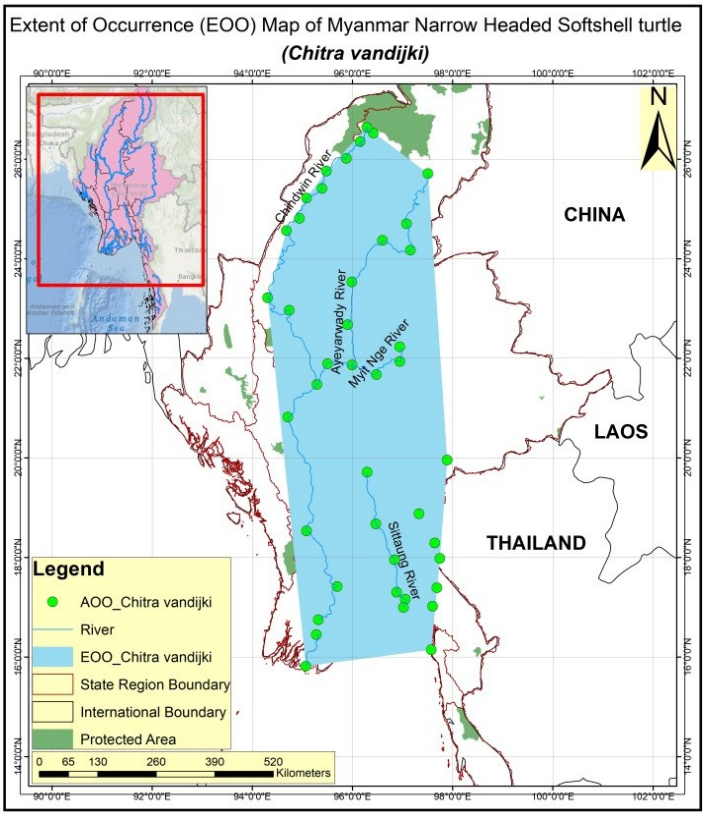
Burmese Narrow-headed Softshell Turtle
© Kyaw Moe

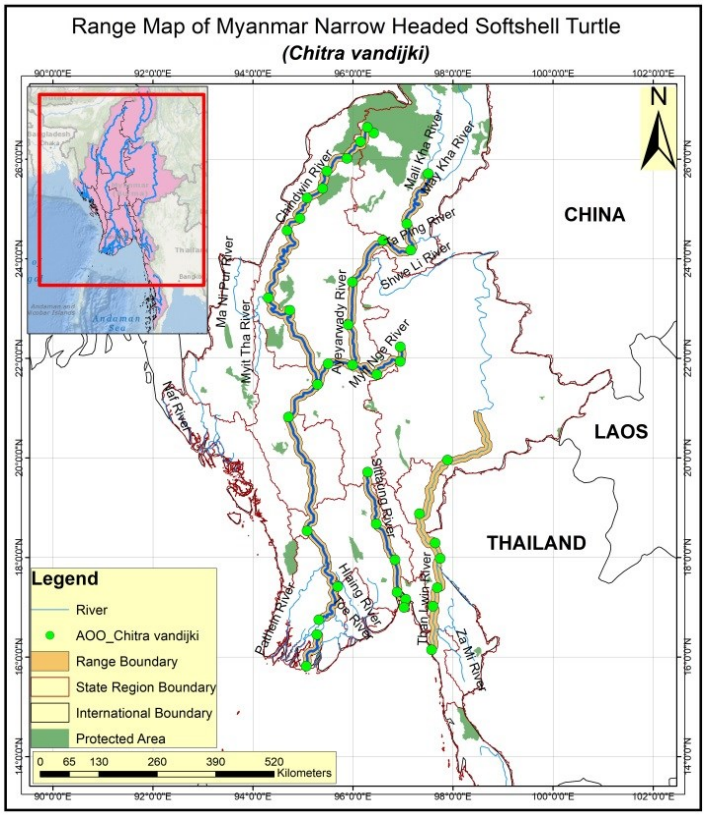
Distribution: *C.vandijki* is endemic to Myanmar. Confirmed records are available for the Ayeyarwady and Chindwin Rivers, and their tributaries (Platt et al. 2014), with more recent records from the Salween River and the Sittaung River (K. Platt, pers. comm. 2018). Ayeyarwady Region, Bago Region, Kachin State, Magwe Region, Mandalay Region, Mon State, Sagaing Region and Shan State.

Habitat and Ecology: This species is almost wholly aquatic, inhabiting medium to large lowland rivers with sandbanks suitable for nesting (Platt et al. 2014). Little is known about the ecology of *C. vandijki*, but its congeners reportedly eat fish, mollusks, crabs and shrimp. In captivity they are observed ambushing fish from a concealed position under sand (Pritchard 2001). Over 70 eggs have been found in a nest (K. Platt, pers. comm. 2018). Age of maturity is approximately 10-15 years based on the maturity of other *Chitra spp*. and 30-45 years is estimated as a generation length. Longevity is difficult to determine, but presumed to be long and could be over 100 years.

Wild population: Almost no data is available regarding population size, however reports from local villagers and fishermen suggest that the species is “rare to very rare” along the Ayeyarwady River (van Dijk 1994). Interviews by Kuchling et al. (2004), on the other hand, suggest that *C. vandijki* is not as rare in the upper Chindwin and Nan Tha Let rivers. It occurs about 300 m above sea level. It is rare in the Salween River and the Sittaung River (K. Platt pers. comm. 2018). An estimated population decline of more than 80% is suspected in the past three generations and continuing into the future as a result of exploitation and habitat degradation (Participants Singapore Red List Workshop 2018). AOO of the species is 168 km^2 and its EOO covers 349859.628 km^2 in its habitats.

Threats to survival: Soft-shell turtles have long been consumed locally for subsistence. However since the mid-1990s, international trade of live turtles into southern China has significantly increased. In addition to over-exploitation, *C. vandijki* is likely impacted by gold mining activities within its limited range, and the use of explosives and poisons for fishing and





habitat degradation along the Ayeyarwady and Chindwin rivers (Kuchling et al. 2004). Local fishermen often kill this species as it bites through fishing nets, and community engagement to protect this turtle is difficult (K. Platt, pers. comm. 2018).

Conservation actions and research undertaken: *Chitra vandijki* is included in CITES Appendix II, and presumably is designated as normally protected by the Conservation of Biodiversity and Protected Area Law (2018). However, enforcement of legislation is often lax and largely ineffectual in preventing trade from Myanmar to southern China (Platt et al. 2014). *Chitra vandijki* is known from the Htamanthi Wildlife Sanctuary and there are seven confiscated animals in a large pond in Htamanthi Village (K. Platt, pers. comm. 2018). Captive breeding of this species is difficult (K. Platt, pers. comm. 2018). Nest translocation prior to flooding. Incubate ex-situ, and release immediately. This species is a completely protected species under Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Improved protection. Law enforcement of illegal fishing methods. Education and public awareness. Research needed to confirm population size.

Use and Trade: Hunted for local consumption and international food markets. Sometimes killed in retaliation for damaging fishing nets. Juveniles are collected for pet trade.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2d

Myanmar Box Turtle | **Order: Testudines**

Cuora amboinensis lineata | **Family: Geoemydidae**

Leik Yin Kyo

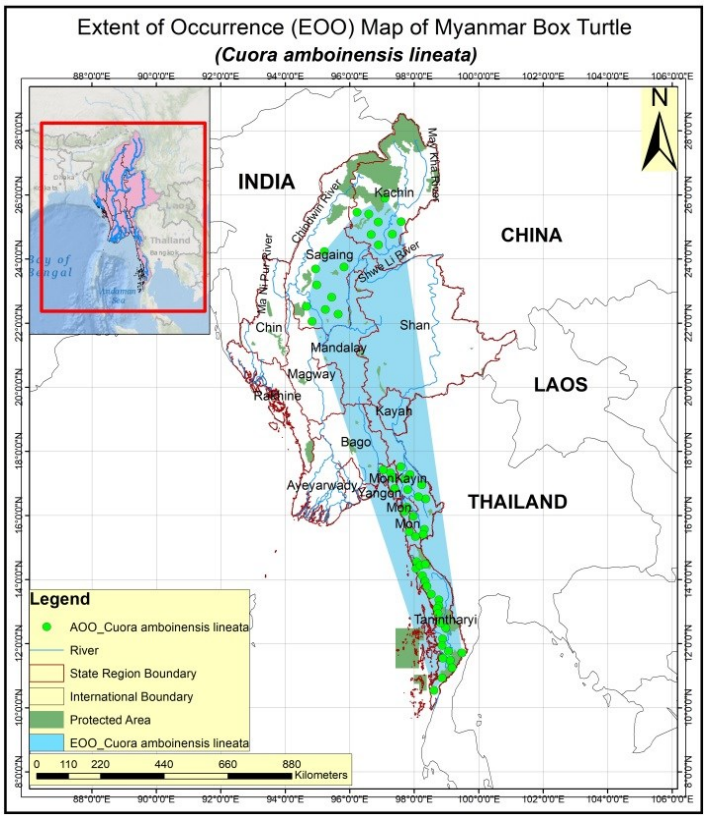
Justification: Globally, *C. amboinensis* has been assessed as being vulnerable, due to a suspected decline in population size of 50-80% over the past three generations due to widespread intensive exploitation. In Myanmar, due to levels of exploitation, we suspect that the rate of decline in population size of *Cuora a. lineata* over the last three generations is greater than this, at over 80%. As such, we assessed this subspecies as being Critically Endangered.

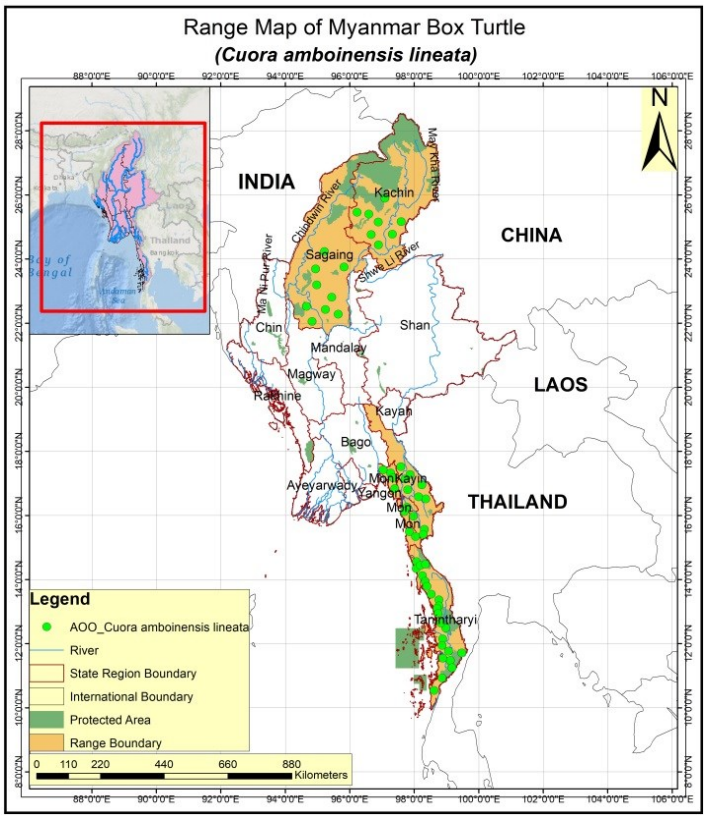
Myanmar Box Turtle
© WCS(Tiger Team)

Distribution: The species *C.amboinensis* is found throughout Southeast Asia, from north-eastern 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. The subspecies *lineata* is endemic to Myanmar; Kachin State, Kayah State, Kayin State, Mon State, Shan State, Tanintharyi Region.

Habitat and Ecology: This species is largely restricted to standing water bodies, but opportunistically inhabits most types of water bodies except large rivers and reservoirs. It prefers lowland swampy areas with dense vegetation, but also occurs in intermittent streams in hill forest areas, mangrove creeks, rice paddies and irrigation canals, from tidal areas up to about 400 m altitude (Das 1991; van Dijk 1998; Schoppe and Das 2010). This species feeds on a wide variety of plant and animal matter; aquatic and terrestrial plants, fruits, molluscs, crustaceans, worms, insect larvae and mushrooms have all been reported in the diet (Schoppe and Das 2010). Animals may reach nearly 25 cm (Lim and Das 1999), but usually remain smaller (Schoppe and Das 2010). Maturity has been reported at 13 cm carapace length for males and 15 cm carapace length for females, at 6 years. Schoppe (pers. obs.) presumes that it takes approx. 4.5–5 years to attain maturity in captivity and at least one more year to reach that stage in the wild (Schoppe and Das 2010). Females usually produce 1 or 2 clutches of 1-5 eggs per year. (review in Das 1991).

Wild population: Generation length is estimated at 18 years (age of first reproduction = 6 years x 3). Three generations correspond to 54 years. At the species level, a reduction of 50-80% is suspected





based on the level of exploitation. Although no quantitative data is available, we believe that the situation for the *lineata* subspecies is likely to be similar to this, or even worse. AOO of the species is 152 km^2 and its EOO covers 314107.421 km^2 in its habitats.

Threats to survival: Harvesting for local consumption international food trade. Habitat degradation (siltation following deforestation, pollution due to illegal gold mining, conversion to rice paddies).

Conservation actions and research undertaken: It is listed as CITES Appendix II and this is a completely protected species in Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Captive breeding is needed; however captive breeding of softshell turtles is difficult. Research is needed to gain a greater understanding of population size, life history, captive breeding, husbandry, and potential release sites.

Use and Trade: Illegal trade for consumption and traditional Chinese medicine. Sometimes, it is also hunted for local consumption. Habitat destruction (wetland conversion to agricultural land) is a less significant threat, as the species is capable of inhabiting rice agricultural landscapes.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd

Keeled Box Turtle | **Order: Testudines**

Cuora mouhotii | **Family: Geoemydidae**

Kan Leik, Taung Leik Thay

Justification: Globally, this species is considered to be endangered as a result of a suspected reduction in population size of 50-80% over the last three generations, due to intensive collection. In Myanmar, we suspect that the rate of reduction is likely to be higher than this (over 80%), and as such assess the species to be Critically Endangered.

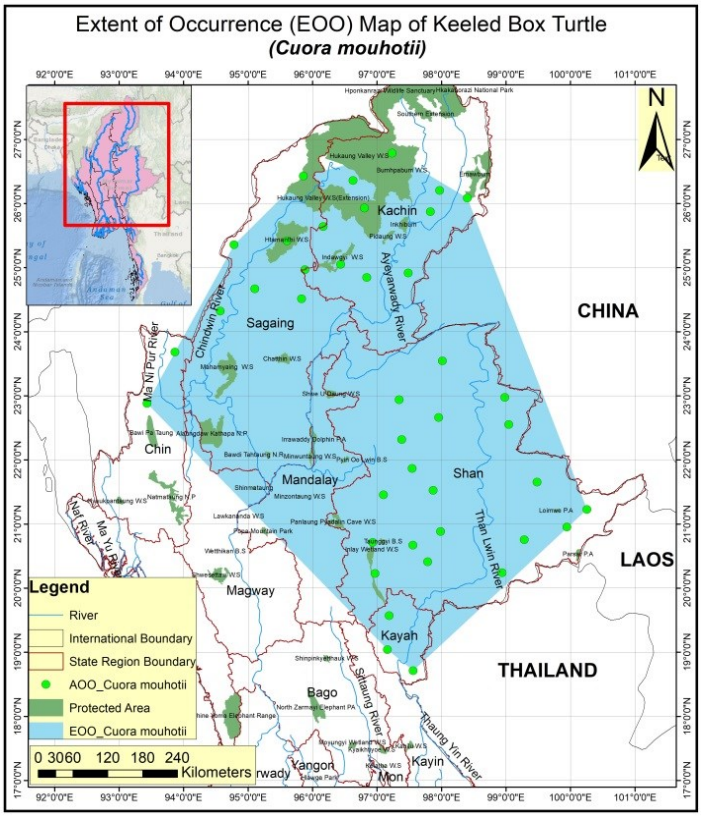
Keeled Box Turtle
© Than Zaw

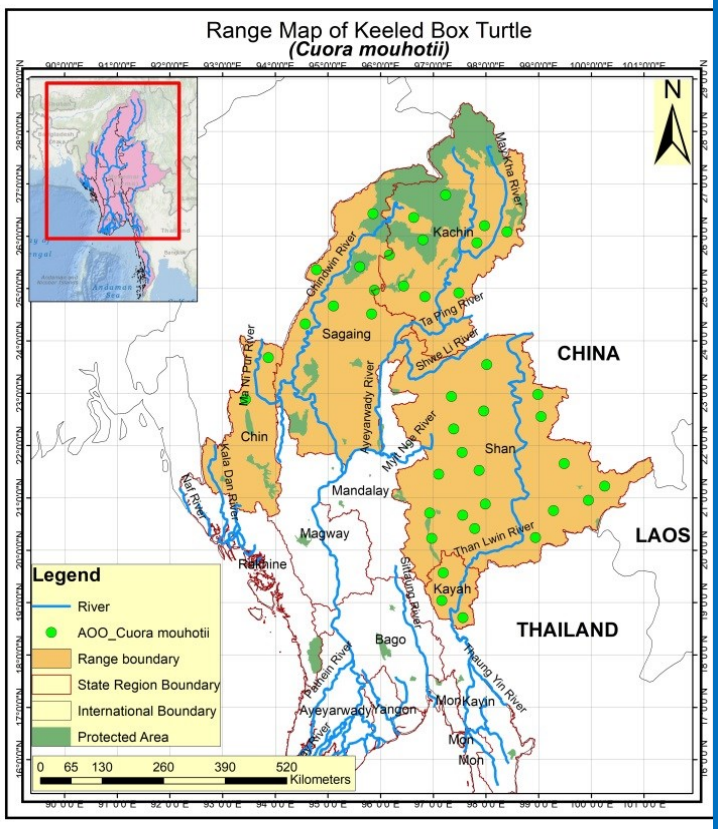
Distribution: This species can be found across much of South and Southeast Asia. Vietnam, Thailand, Bangladesh, Bhutan, China, India, Lao PDR and Myanmar. In Myanmar, it was found at high elevations in Chin State, Kachin State, Kayah State, Sagaing Region, and Shan State.

Habitat and Ecology: This species inhabits mainly tropical moist evergreen forests with low undergrowth and leaf litter. Its general distribution pattern appears to be correlated with limestone/karst topography (Stuart et al. 2001). It reaches up to 18 cm carapace length (Das 1991). Females produce small clutches of 4-6 eggs (Brägger 2001). In China, under agriculture conditions, it is reported to lay 2-4 eggs per clutch (Shi et al. 2011).

Wild population: Generation length is estimated at 25 years (age of first reproduction = 10 years, longevity = 50 years, reproductive period = 40 years, z = 0.3). Three generations is 75 years. No population data is available for Myanmar, however it is considered to be very rare in Myanmar, with a very restricted distribution. Globally, it is suspected to have undergone a reduction in population size of 50-80% in the last 75 years, based on levels of exploitation. The rate of reduction in Myanmar is likely to be the same, or higher. Population size in Myanmar is likely to be lower than 250 mature individuals. AOO of the species is 164 km^2 and its EOO covers 367075.168 km^2 in its habitats.

Threats to survival: Harvesting for international trade (food, and also as pets). A total of at least 354 live specimens, in 37 shipments, were reported as seized from illegal trade during the





period 2000-2015 (CITES CoP17 Doc73). As an old -growth forest specialist, this species is particularly sensitive to habitat loss.

Conservation actions and research undertaken: The need for cool air temperatures makes this species difficult to conserve ex-situ in Myanmar. Most ex-situ conservation facilities do not have reliable air conditioning. It is listed as CITES Appendix II and a completely protected species in Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Habitat restoration is a priority for conservation of this species, due to extensive deforestation. Law enforcement and population status information is urgently needed.

Use and Trade: Targeted for international food trade particularly for China. Turtles fetch a price of $200 each, or $170/kg. It is seizured infrequently due to low population size.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

LEAST CONCERN

Myanmar Brown Leaf Turtle | **Order: Testudines**

Cyclemys fusca | **Family: Geoemydidae**

Leik Pote, Phet Leik, Leik Pu

Justification: *Cyclemys fusca* is listed as Least Concern, as although there is extensive trade in the species for the East Asian food market, there does not appear to be a marked decline in populations and the species remains widespread and common within Myanmar.

Myanmar Brown Leaf Turtle
© Kalyar Platt

Distribution: Considered endemic to Myanmar, where it is widespread throughout much of the country in a wide variety of habitats. It potentially also occurs in Bangladesh and parts of India, but no records have been confirmed. It can be found from ~175 to 1,000 m above sea level. In Myanmar, this species can be found in Chin State, Rakhine State, Sagaing Region, Ayeyarwady Region, and Magwe Region.

Habitat and Ecology: Rocky streams (with boulders), in mountainous areas and lowlands. It can also be found on the forest floor, where it is typically associated with dry stream beds (K. Platt, pers. comm. 2018). The age of maturity is estimated to be about seven years, longevity is not well known and it is an omnivorous.

Wild population: This species is common and widespread, despite the impact of trade. AOO of the species is 7224 km^2 and its EOO covers 343342.354 km^2 in its habitats.

Threats to survival: No serious threats. It doesn't appear to be significantly impacted by continuing trade.

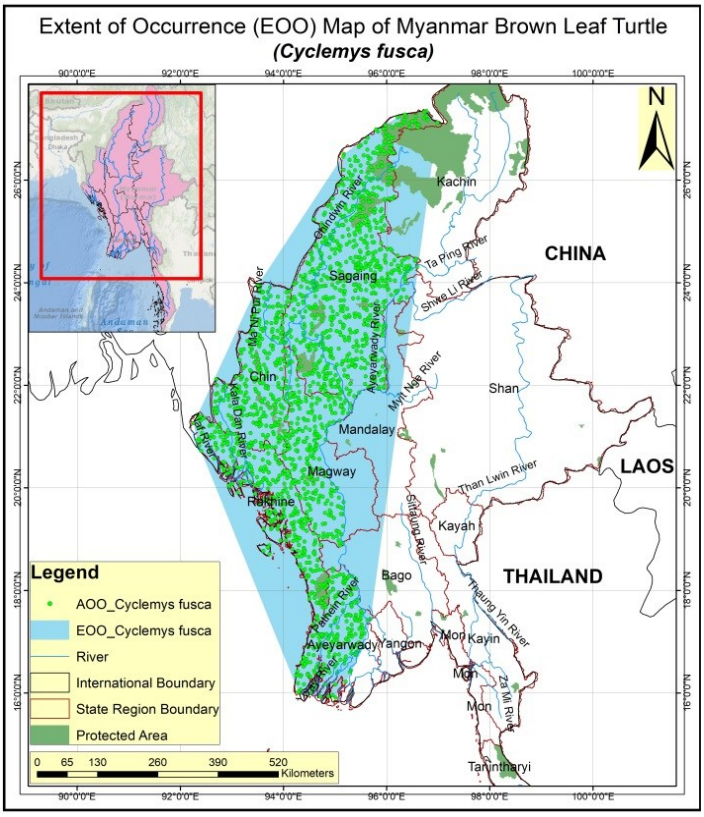
Conservation actions and research undertaken: Not considered a priority for conservation efforts. It is listed in CITES Appendix II and a normally protected species in Conservation of Biodiversity and Protected Area Law (2018).

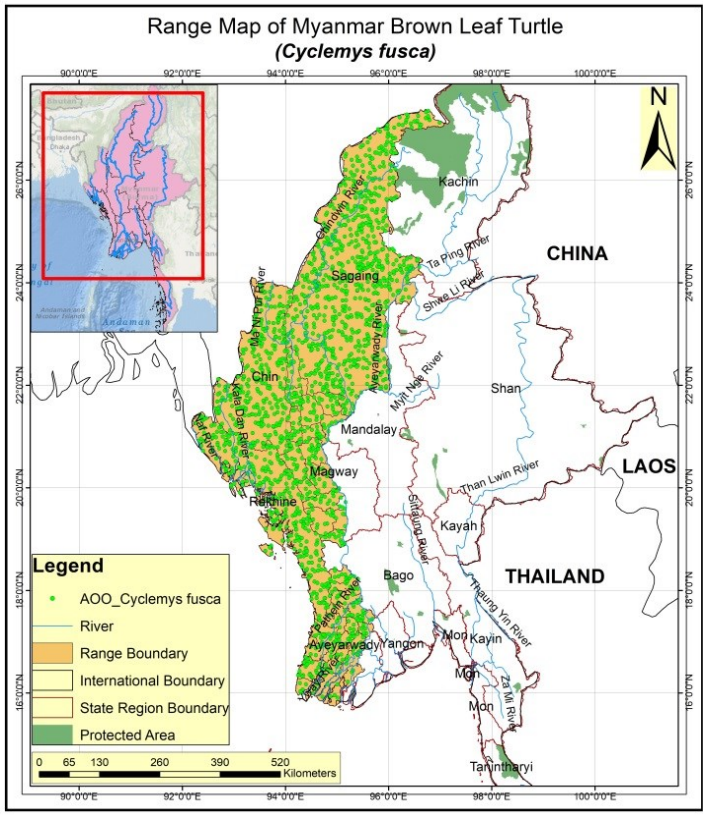
Conservation actions and research needed: - N/A

Use and Trade: Collected for international food. Not commonly consumed in Myanmar.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm


Extent of Occurrence (EOO) Map of Myanmar Brown Leaf Turtle
(Cyclemys fusca)
N
CHINA
LAOS
THAILAND
Kachin
Sagaing
Chin
Shan
Mandalay
Magway
Rakhine
Kayah
Bago
Ayeyarwady
Yangon
Mon
Kayin
Tanintharyi
Chindwin River
Ta Ping River
Shwe Li River
Ayeyarwady River
Myit Nge River
Than Lwin River
Sittaung River
Thaung Yin River
Za Mi River
Legend
AOO_Cyclemys fusca
EOO_Cyclemys fusca
River
International Boundary
State Region Boundary
Protected Area
0 65 130 260 390 520
Kilometers


Range Map of Myanmar Brown Leaf Turtle
(Cyclemys fusca)
N
CHINA
LAOS
THAILAND
Kachin
Sagaing
Chin
Shan
Mandalay
Magway
Rakhine
Kayah
Bago
Ayeyarwady
Yangon
Mon
Kayin
Tanintharyi
Chindwin River
Ta Ping River
Shwe Li River
Ayeyarwady River
Myit Nge River
Than Lwin River
Sittaung River
Thaung Yin River
Za Mi River
Legend
AOO_Cyclemys fusca
River
Range Boundary
International Boundary
State Region Boundary
Protected Area
0 65 130 260 390 520
Kilometers

LEAST CONCERN

Oldham's Leaf Turtle — **Order: Testudines**

Cyclemys oldhamii — **Family: Geoemydidae**

Leik Pote, Phet Leik, Leik Pu

Justification: It is common and widespread in Myanmar, and does not appear to be undergoing declines in population size.

Oldham's Leaf Turtle
© Kalyar Platt

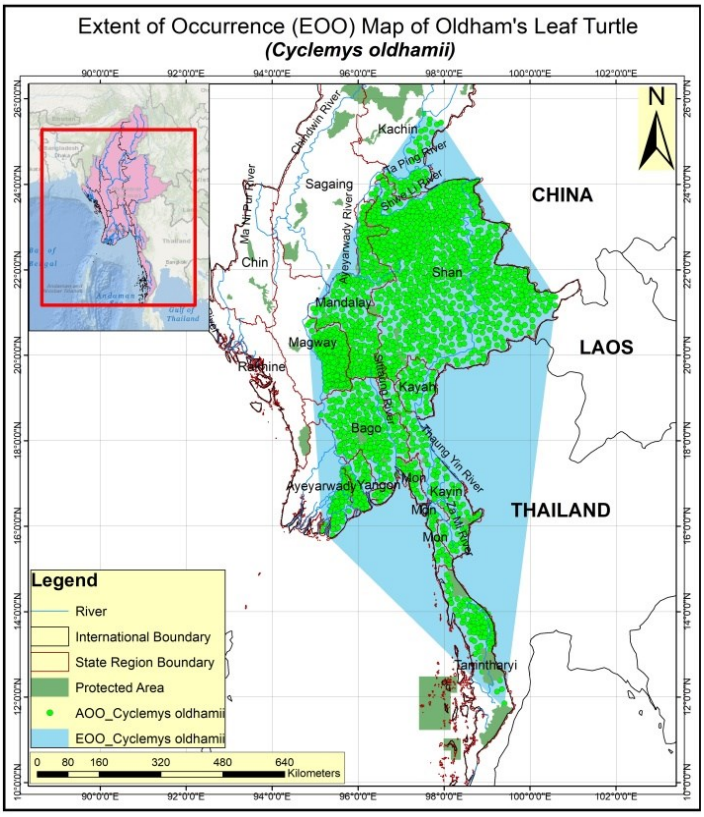
Distribution: While recent taxonomic changes make it challenging to define the range of *Cyclemys oldhamii* precisely, it is understood to range from eastern Myanmar through much of Thailand and Lao PDR, central and southern Vietnam, and northern Cambodia. Previous records from West Malaysia, Sumatra, Java and Borneo are now attributed to *C. enigmatica* (Fritz et al. 2008). Records from southern Yunnan (China) likely were based on trade specimens. In Myanmar, it inhabits Kachin State, Kayah State, Bago Region, Shan State, Mon State, Kayin State, Mandalay Region and Tanintharyi Region.

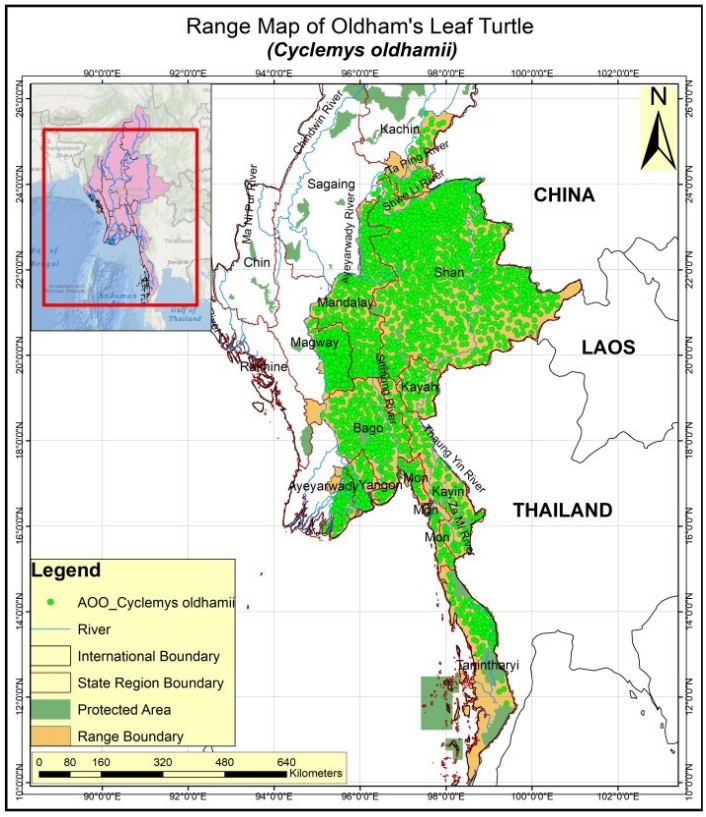
Habitat and Ecology: This species mainly inhabits rocky streams and adjoining stream valley areas in mountains and lowlands up to an altitude of 1000 m but usually lower (Das 1991; van Dijk 1998). Feeds on a variety of fruits, small animal preys, and scavenge when an opportunity presents itself (van Dijk 1998). Turtles of the *Cyclemys oldhamii* group can attain up to 26 cm carapace length (Das 1991). Age at maturity has been reported as 10-12 years, and generation time as 3 times that, at 30 years (Nutphand 1979). Females can produce up to 5 clutches of 2-4 eggs annually.

Wild population: Common and widespread, despite the impact of trade. AOO of the species is 8444 km^2 and its EOO covers 601346.855 km^2 in its habitats.

Threats to survival: No significant threats – harvesting pressure does not appear to be causing declines in population size.

Conservation actions and research undertaken: It is listed as CITES Appendix II and not considered as a priority for targeted conservation efforts.





Conservation actions and research needed: Taxonomic resolution is urgently needed.

Use and Trade: Collected for international food. Not commonly consumed in Myanmar.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2bcde

Leatherback Turtle **Order: Testudines**

Dermochelys coriacea **Family: Dermochelyidae**

Leik Zaung Yar

Justification: This species is extremely threatened in Myanmar due to uncontrolled egg collection, destruction of nesting beaches, and adult mortality associated with fishing by catch particularly illegal trawling. The population size is inferred to have declined by more than 80% in the past three generations. Therefore, we assess the species to be Critically Endangered.

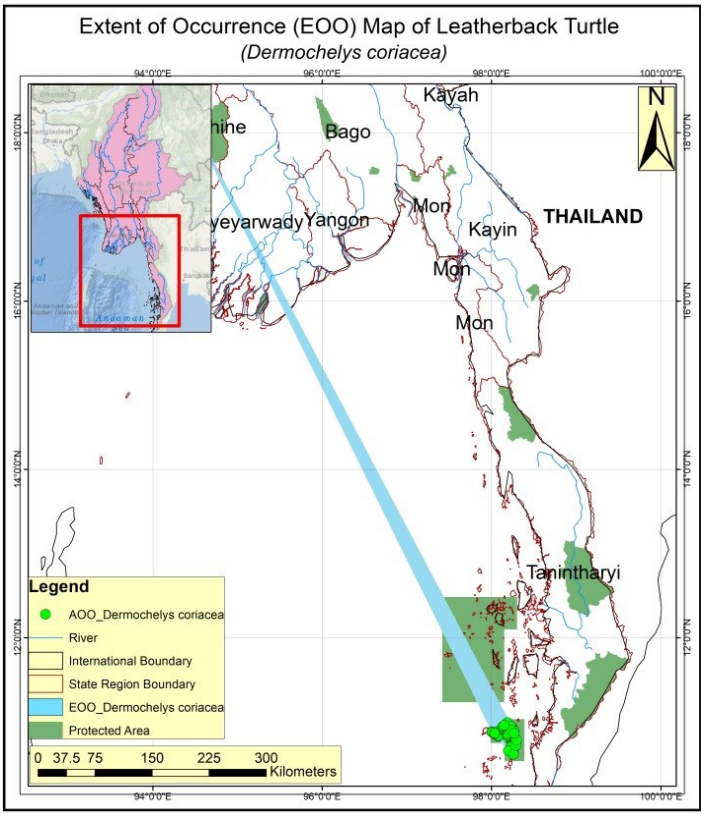
Leatherback Turtle
© Internet

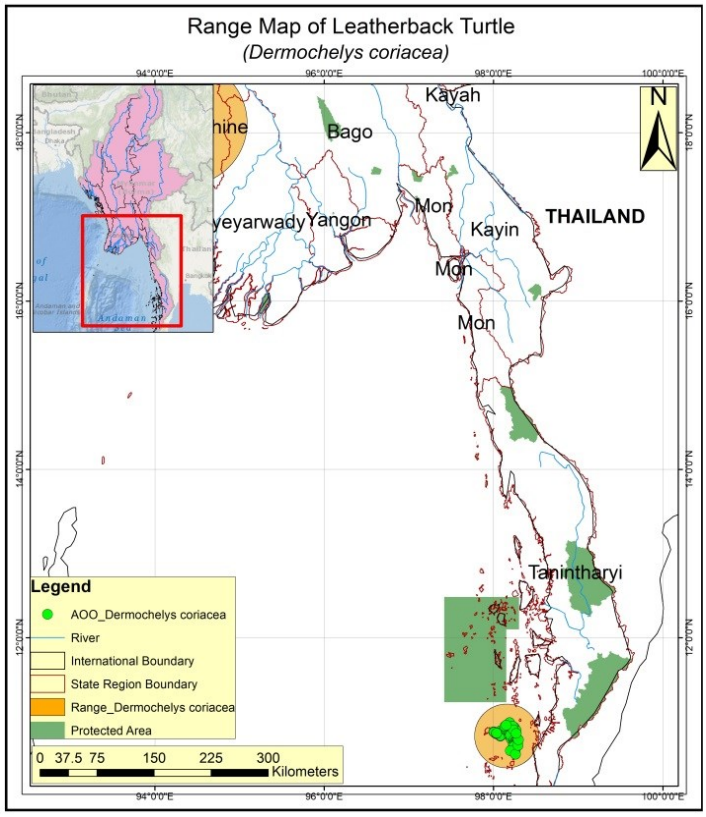
Distribution: *D.coriacea* is a circumglobal distribution, with nesting sites on tropical sandy beaches and foraging ranges that extend into temperate and sub-polar latitudes. See Eckert et al. (2012) for review of Leatherback geographic range. Pacific Ocean, Indian Ocean, Atlantic Ocean. This species can be found in all coastal areas in Myanmar.

Habitat and Ecology: This species is an oceanic, deep-diving marine turtle, inhabiting tropical, subtropical, and subpolar seas. Make extensive migrations between different feeding areas at different seasons, and to and from nesting areas. It nests on coastal beaches. It returns to nest at hatching beach once reaching maturity (approx. 30 years). Feed predominantly on jellyfishes, salps and siphonophores. Females usually produce several (3-10) clutches of 60-90 eggs in a reproductive season, and typically have a re-migration interval of multiple years (2+) between subsequent reproductive seasons. For a thorough review of Leatherback biology, please see Eckert et al. (2012).

Wild population: Population size in Myanmar has undergone a dramatic reduction (more than 80% in the past 3 generations) as a result of uncontrolled egg collection, destruction of nesting beaches, and mortality resulting from extensive illegal trawling (without use of Turtle Exclusion Devices). AOO of the species is 220 km^2 and its EOO covers 14026.493 km^2 in its habitats.

Threats to survival: By catch of illegal offshore fishing (trawling). Egg collection for





consumption and commercial purposes. Offshore oil exploration. Nest destruction by dogs. Sand-dredging. Pollution – plastic and other debris. Plastic pollution is particularly problematic for this species because waste plastic bags resemble their preferred food source (jellyfish). Climate change leading to changes in seawater temperature (impacting food sources) and nesting temperatures (impacting sex determination).

Conservation actions and research undertaken: It is listed as CITES Appendix I and CMS Appendices I and II. This species is a completely protected species in Conservation of Biodiversity and Protected Area Law (2018). Significant conservation efforts are underway for this species globally, and in some places are generating positive conservation impacts. No specific conservation efforts are in place in Myanmar.

Conservation actions and research needed: Better protection of remaining nesting beaches.

Use and Trade: Eggs are collected from nests for consumption and sale.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

VULNERABLE A2cde

Malayan Softshell Turtle **Order: Testudines**

Dogania subplana **Family: Trionychidae**

Leik Kyi, Leik Pyawt

Justification: In Myanmar this species is suspected to have undergone a decline in population size of about 30% over the last three generations as a result of habitat destruction and degradation particularly due to agricultural pollution, and mortality due to destructive fishing techniques. As a result, it is considered to be vulnerable.

Malayan Softshell Turtle
© Peter Paul van Dijk

Distribution: *D.subplana* has been recorded from southern Myanmar, western and southern Thailand, west Malaysia, Sarawak and Sabah, Indonesia, Singapore, the Philippines, Brunei, Philippines and Singapore. In Myanmar, this species can be naturally found in Kayin State, Mon State and Tanintharyi Region.

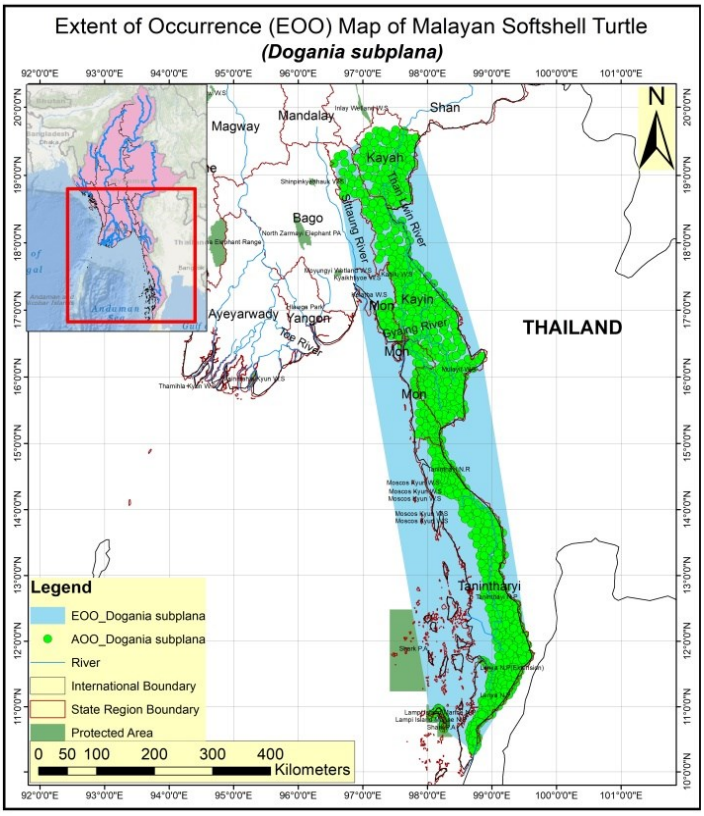
Habitat and Ecology: It inhabits clear and fast flowing water with rapids and water falls in forested environments, including secondary forest. It also present in semi-urban areas, rice fields, and abandoned mining pools. This species is omnivorous; consumes fish, crustaceans, insects, snails and mollusks. This species breeds at a very young age.

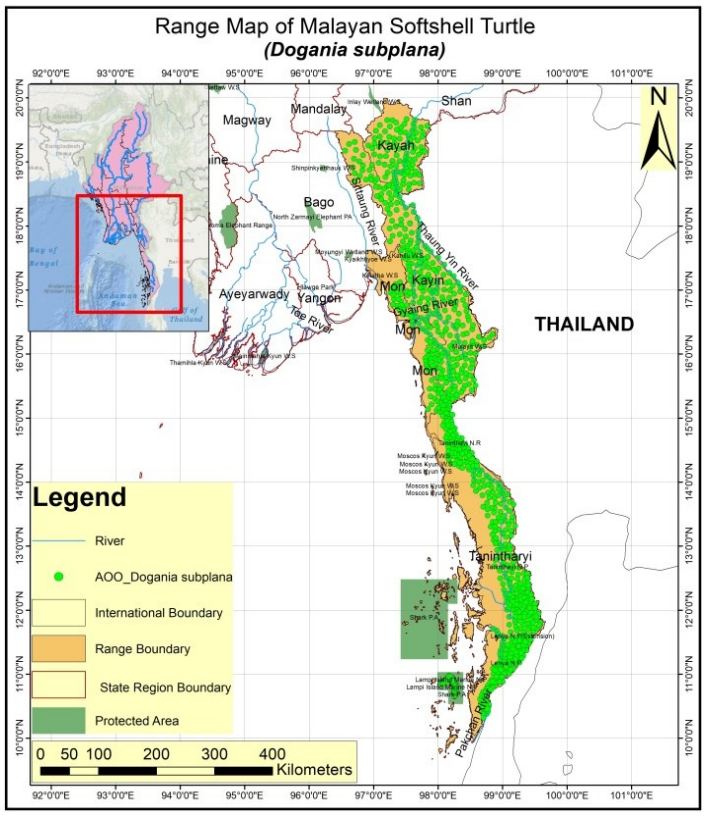
Wild population: This species is not common in Myanmar and restricted relatively small areas in the southern parts of the country. It is suspected reduction in population size based on rates of habitat destruction. AOO of the species is 3648 km^2 and its EOO covers 172187.866 km^2 in its habitats.

Threats to survival: Threatened by reductions in habitat quality associated with agricultural pollution (uncontrolled use of fertilizers and pesticides on agricultural plantations). Also destructive fishing methods (dynamite fishing, electrofishing, and poison fishing). It also depends on suitable habitat within forested areas, which is threatened by habitat destruction and degradation.

Conservation actions and research undertaken: This species is not currently targeted by any conservation efforts and listed as CITES Appendix II.

Conservation actions and research needed: Better law enforcement regarding fishing and





agricultural practices is urgently needed. Research is needed to better understand the conservation status of this species.

Use and Trade: Farmed extensively in China for food consumption. Juveniles are kept as pets. It was collected in Myanmar mostly as an accidental fishing by-catch. Adults are targeted for food collection, and juveniles are targeted as pets.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2bcde;C1

Hawksbill Turtle **Order: Testudines**

Eretmochelys imbricata **Family: Cheloniidae**

Leik Kyat Tu Yway

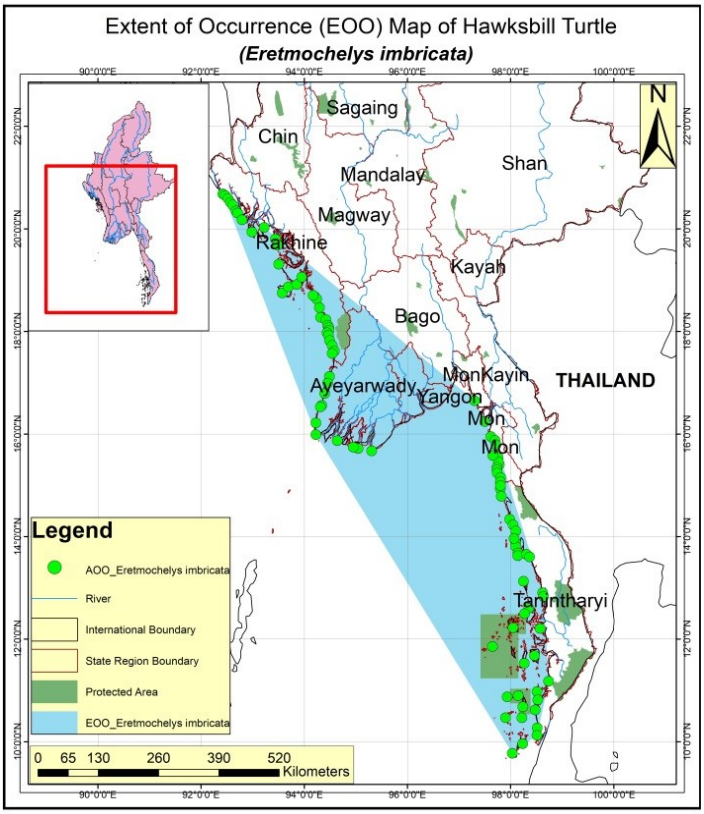
Justification: Globally, this species has been assessed as Critically Endangered under criterion A, as a result of a 48% - 67% decline in population size over the last three generations. In Myanmar specifically, we believe that this species is Critically Endangered, with a more than 80% decline in population size over the last three generations (based on nesting data), and a very small population size (less than 250 mature individuals) that is continuing to decline at a rapid rate.

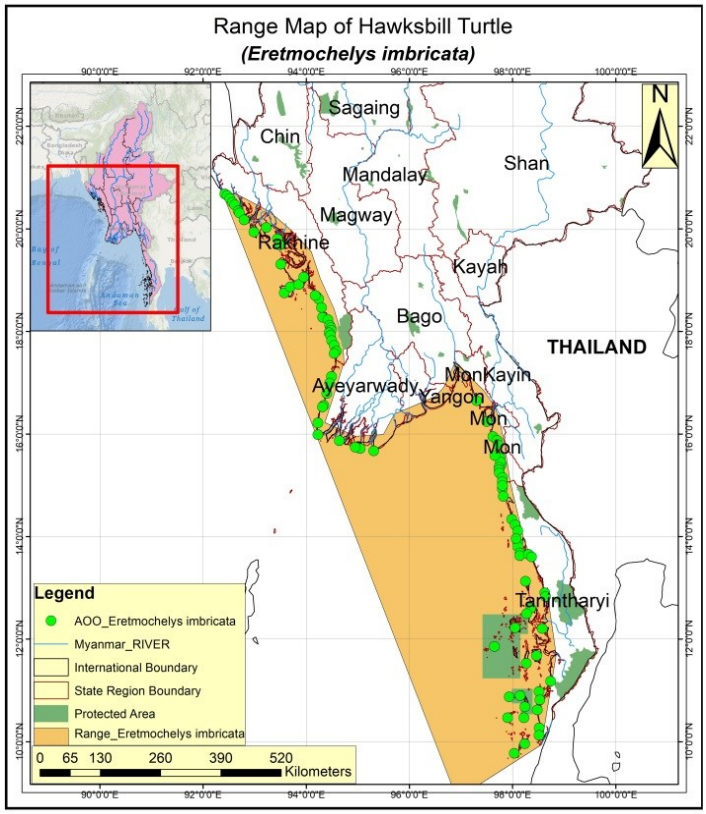
Hawksbill Turtle
© Internet

Distribution: Globally distributed throughout tropical and, to a lesser extent, subtropics at waters of the Atlantic Ocean, Indian Ocean, and Pacific Ocean. Migratory, with individuals undertaking complex movements through geographically disparate habitats during their lifetimes. (Groombridge and Luxmoore 1989, Baillie and Groombridge 1996). Nest in at least 70 countries, although much of it now only at low densities. It is believed to inhabit coastal waters in more than 108 countries. It can be found in all coastal areas in Myanmar.

Habitat and Ecology: Nest on sandy beaches throughout the tropics and subtropics. Highly migratory, using a wide range of broadly separated localities and habitats during their lifetimes (Wizell 1983). Hatchlings are believed to inhabit major gyre systems until they reach a carapace length of 20-30cm. Sub-adults inhabit neritic developmental foraging habitat that may comprise coral reefs, sea grass, algal beds, or mangrove bays and creeks (Musick and Limpus 1997) or mud flats (R. von Brandis unpubl. data). Once sexually mature, they undertake breeding migrations between foraging grounds and breeding areas at intervals of several years (Witzell 1983, Dobbs et al. 1999, Mortimer and Bresson 1999). Females tend to return to breed at their natal rookery (Bowen and Karl 1997), even though as juveniles they may have foraged at developmental habitats located hundreds or thousands of kilometers from the natal beach.

Wild population: Only a very small population nesting in Myanmar (less than 10 nests each





year). This species has undergone serious reductions in population size across its global range (more than 80% reduction over the past 3 generations). Rates of reduction in Myanmar have been similarly rapid. AOO of the species is 368 km^2 and its EOO covers 273656.727 km^2 in its habitats.

Threats to survival: Destruction of nesting habitat and foraging habitat (such as coral reefs). Hunting for meat and turtle's shell. Hybridization. Entanglement and ingestion of marine debris. Pollution (oil spills, etc.).

Conservation actions and research undertaken: One conservation project is in place in Myanmar, run by the Fisheries Department at Thameehla Kyun (Diamond Island), which includes a small number of Hawksbill Turtles. It is listed as CITES Appendix I and totally protected by the Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Protection of nesting beaches.

Use and Trade: Hunted for its shell (tortoise shell) – as a trophy, and to produce hair combs, guitar plectrums, and other decorative items. Eggs are collected for local consumption (approx. $1 per egg) and commercial purposes. Hunted for its meat.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A1cd

Burmese Star Tortoise — **Order: Testudines**

Geochelone platynota — **Family: Testudinidae**

Kye Leik, Leik Pinku, Magyi Leik

Justification: *Geochelone platynota* is listed as Critically Endangered. It was formerly extirpated in the wild, but has now been successfully reintroduced to two closely guarded wildlife sanctuary sites with an increasing, breeding population. Previously listed as CR A1cd as there had been (over the last three generations) an extensive loss of this species through over-collection and the impacts of some habitat loss (>90% of the total population declined over three generations). However, the reasons for this decline were understood, stopped and are being successfully reversed.

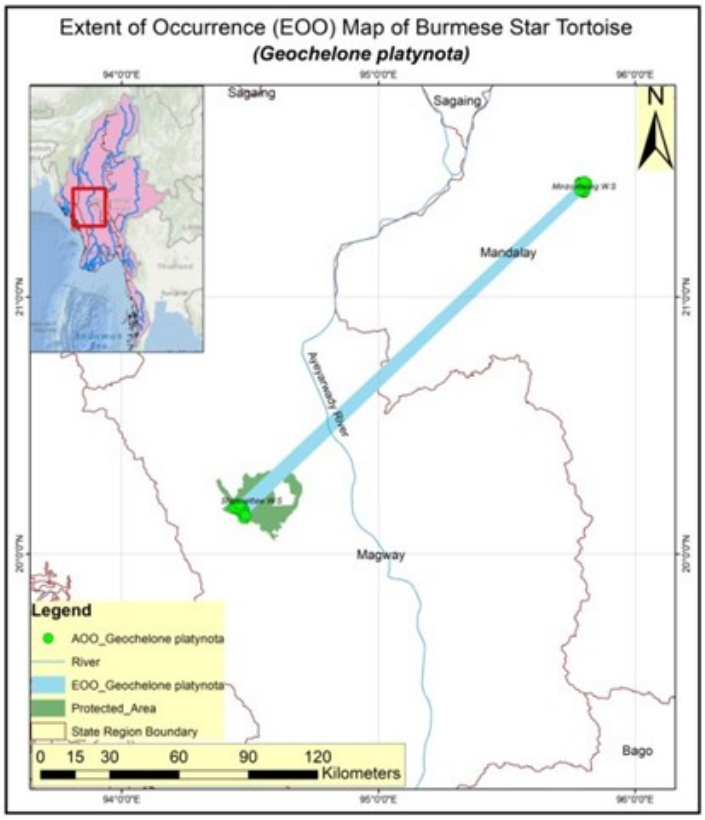
Burmese Star Tortoise
© Eleanor Briggs

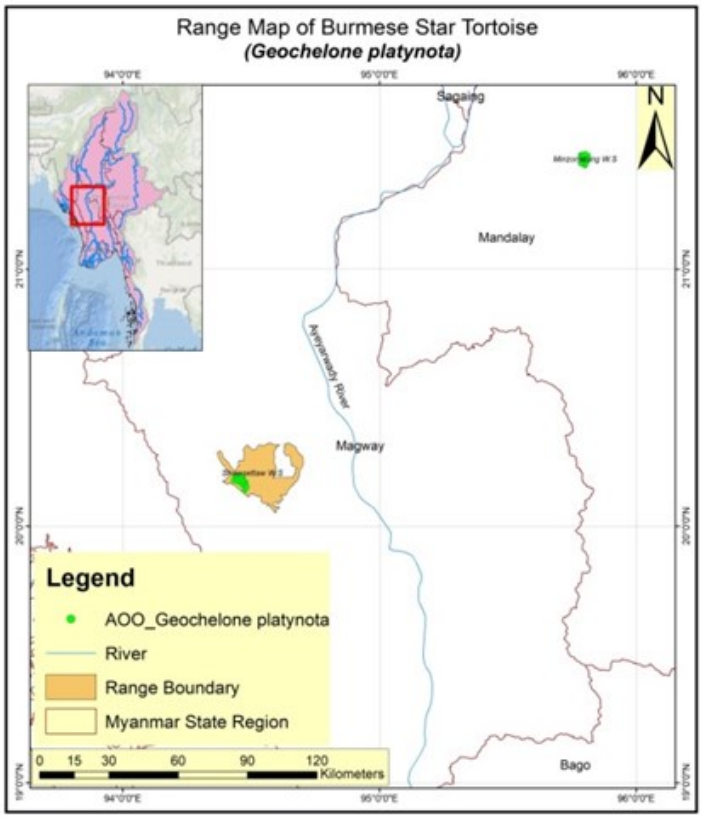
Distribution: Restricted to the dry zone of central Myanmar, where it is found at elevations of between 50 and 500 m above sea level. In Myanmar, Magwe Region, Mandalay Region and Sagaing Region.

Habitat and Ecology: *Geochelone platynota* inhabits dry zone scrub and open deciduous forest with dense grassy undergrowth. It has been observed consuming an array of foods including grasses, seeds, flowers, snails, insects, earthworms and meat (Platt et al. 2011). Thanda Swe (2004) observed a mean clutch size of 4.4 eggs, and females deposited 1 to 6 clutches each season (K. Platt pers. comm. 2018). Age of maturity is approximately 6 years; generation length is roughly estimated at 18 years; longevity may be more than 50 years (K. Platt pers. comm. 2018).

Wild population: This species is believed to have become extinct in the wild during the early 2000's. Since 2013 *G. platynota* has been successfully introduced into former localities of Minsontaung Wildlife Sanctuary and Shwe Settaw Wildlife Sanctuary. About 2,100 subadults (about five years old) were reintroduced, and these are reproducing in the wild, with 51 hatchlings encountered in surveys during 2017 (K. Platt pers. comm. 2018). The recent former location of Mya Leik Taung is now flooded resulting from regional hydrological development. AOO of the species is 56 km^2 and its EOO covers 1097.181 km^2 in its habitats.

Threats to survival: *G. platynota* is in high demand in the international pet trade. Although historically exploited for subsistence, a dramatic increase in harvest occurred in the mid-1990s following increasing demand Chinese wildlife markets (Platt et al. 2000). Juveniles are in especially high demand in the pet trade, whilst larger adults enter food and medicinal markets. Although harvesting has declined dramatically recently, due to the extirpation of wild populations,





continued commercial demand poses a serious impediment to reintroduction into the wild (Platt et al. 2011). In addition to over-exploitation, habitat degradation and fragmentation, as the result of conversion to agricultural lands, threaten *G. platynota.*

Conservation actions and research undertaken: A 2007 attempt to reintroduce *G. platynota* into Minsontaung was unsuccessful, with all tortoises poached, or disappearing within 6 months (Platt et al. 2011). A licensed commercial captive breeding operation exists in Bagan, however there are no exports currently from this facility following the CITES Appendix I listing. Ongoing reintroduction efforts are proving successful into the Minsontaung Wildlife Sanctuary and Shwe Settaw Wildlife Sanctuary (K. Platt, pers. comm. 2018). There is a target to reintroduce into six wildlife sanctuaries within Myanmar over the next ten years (K. Platt, pers. comm. 2018). Very tight security and enforcement is in place for the reintroduction sites, if this stops there is a likelihood of extensive poaching resuming (K. Platt, pers. comm. 2018). It is listed in CITES Appendix I and a completely protected species in Conservation of Biodiversity and Protected Area Law (2018). The current conservation actions undertaken are assurance colonies, reintroduction to the wild, education and awareness raising, law enforcement and long term monitoring.

Conservation actions and research needed: It is better to strengthen site protection. Genetic studies of species would be useful.

Use and Trade: The species was extensively over collected for the international pet trade ($500/individual for local hunters), resulting in extinction in the wild until recent successful reintroduction from captive assurance colonies.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd + 4cd

Arakan Forest Turtle **Order:Testudines**

Heosemys depressa **Family:Geoemydidae**

Yakhine Taung Leik, Leik Pyin

Justification: This species has a fairly restricted range within which there has been a continuing and very high level of habitat loss and related population reduction of >80% over three generations (estimated at 75 years) which is expected to continue for at least another generation.

Arakan Forest Turtle
© Kalyar Platt

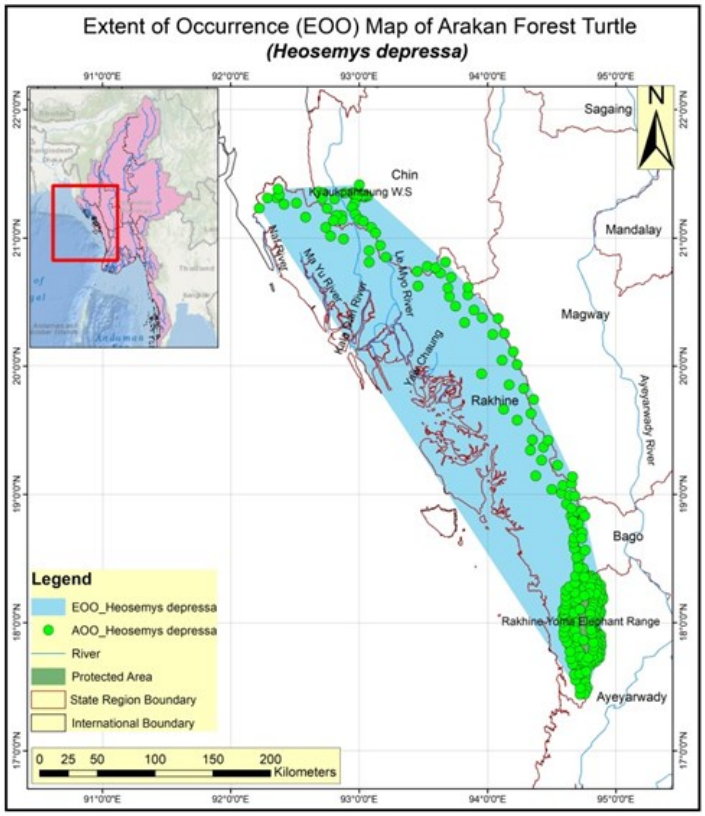
There is also extensive collection for subsistence use (more than for international trade), and the species typically has a low reproductive capacity.

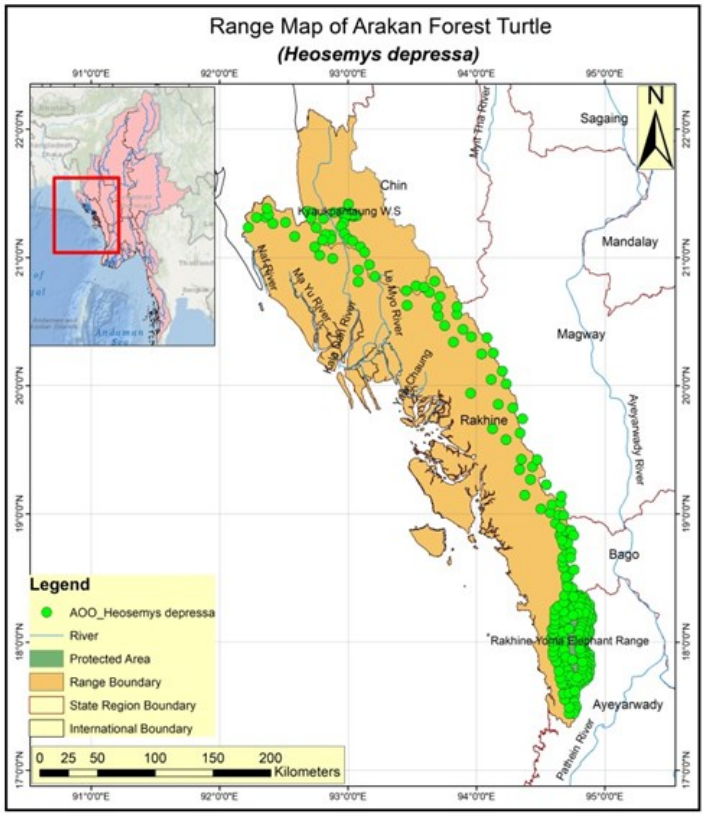
Distribution: This species is distributed from Gwa town (Rakhine state) in the south of Myanmar to Thanchi, Alikadam, and Nykhyangchori in southeastern Bangladesh. It is generally found under 600 m above sea level. It can be found in Myanmar and Bangladesh. In Myanmar, it can be found in Rakhine State, Western Ayeyarwady Region.

Habitat and Ecology: Mostly found in tropical evergreen forest and bamboo forest, often along small streams. It is more terrestrial than semi-aquatic, being dormant for about 9 months a year, moving large distances in the rainy season. It is a burrowing species (usually found under banana roots and leaf litter) and very good at climbing over slopes and rocks. Males fight viciously in the breeding season. In captivity, it perhaps matures at 7-9 years; with a generation length possibly of 21-27 years; longevity might be about 70+ years. Eggs about 3-7 in perhaps a single clutch per year.

Wild population: Was previously thought to be very rare, but more recent telemetry information suggests that it is more common than previously realized (although still a relatively rare species). Extensive habitat loss in the species range has been responsible for at least an 80% decline in population size since 2004, based on levels of exploitation and destruction of habitat (bamboo forest). We believe that the rate of reduction over the past 3 generations is likely to be even higher than this. AOO of the species is 1064 km^2 and its EOO covers 42292.704 km^2 in its habitats.

Threats to survival: Recent rediscovery of a few specimens in markets in Myanmar and across the border in China confirm the rarity and threatened status of this rarely-seen species. There are very few in international trade; collection for subsistence food by local people (Chin and





Rakhine people) is a greater threat to this species. Extensive habitat loss within the range of this species over the previous 75 years (roughly three generations) has significantly impacted the population. Shifting cultivation/slash & burn cultivation is a considerable threat to the species as is commercial logging. There is little law enforcement within the remote range of this species.

Conservation actions and research undertaken: Is found in the buffer zones of the Rakhine Yoma Elephant Sanctuary, and the Kyauk Pan Taung Wildlife Sanctuary, but not in the protected areas which are too high elevations for this species. It is listed in CITES Appendix II. Radio telemetry studies on two populations. Assurance colonies. Education and awareness-raising. Monitoring. A completely protected species in Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Better site protection needed. Found mostly outside of protected areas. Research is needed to gain a greater understanding of population size, life history, captive breeding, husbandry, and potential release sites.

Use and Trade: The international trade is relatively small and it is heavily hunted for local consumption by using domestic dogs.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cde

Giant Asian Pond Turtle **Order: Testudines**

Heosemys grandis **Family: Geoemydidae**

Thin Paung Leik, Leik Yin Ngan

Justification: This species is listed as Critically Endangered as it is suspected that its population has been reduced by over 80% in the past three generations, mainly due to exploitation for food consumption and habitat loss.

Giant Asian Pond Turtle
© Khin Myo Myo

Distribution: Southern Vietnam, the plain areas of Lao PDR, Cambodia, southeastern Myanmar, central, eastern, and peninsular Thailand, and western peninsular and central Malaysia. It was historically found in Ayeyarwady Region, Bago Region, Kachin State, Kayin State, Mandalay Region, Mon State, Sagaing Region, and Tanintharyi Region. However, it is now extirpated from much of this range, and now found mostly in Tanintharyi Region.

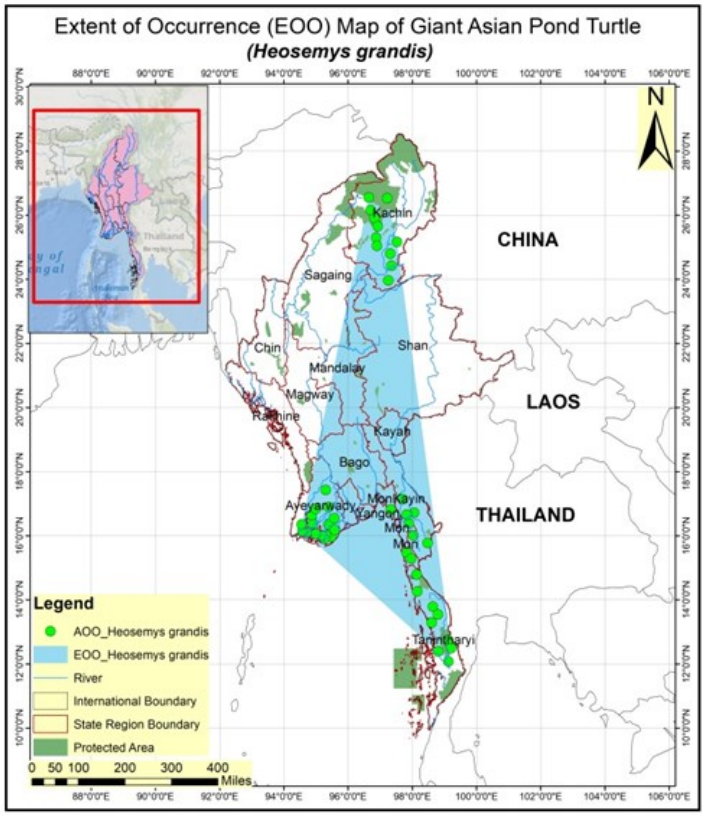
Habitat and Ecology: Inland waters, such as flooded forests, swamps, slow moving rivers, small streams, vegetated lakes, and marshes. Generation length is estimated at 37 years (age of first reproduction = 15 years, longevity = 70, reproductive period = 55, z = 0.4). Three generations is 111 years.

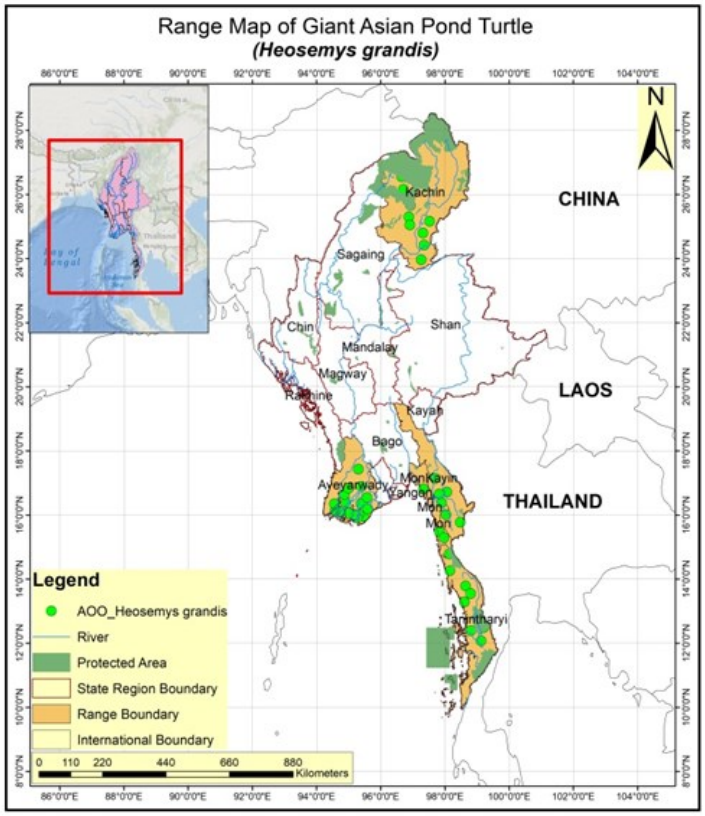
Wild population: This species was previously commonly found across Myanmar, but is now very rare. It is suspected to have undergone a reduction in population size of at least 80% over the last 111 years (3 generations), as a result of habitat loss, levels of exploitation, and pollution. AOO of the species is 184 km^2 and its EOO covers 404482.318 km^2 in its habitats.

Threats to survival: Main threats are habitat loss, exploitation for food trade, and pollution from pesticides, and fertilizers.

Conservation actions and research undertaken: It is listed in CITES Appendix II and completely protected Conservation of Biodiversity and Protected Area Law (2018). No specific conservation actions in place.

Conservation actions and research needed: It is to establish a captive breeding program.





Research are needed on current status of trends, population size, distribution, etc.

Use and Trade: Collected for food – both local consumption and international trade. Confiscations at international border are commonly found.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd

Spiny Turtle **Order: Testudines**

Heosemys spinosa **Family: Geoemydidae**

Nay Kyar Pan Leik, Yin Ngan Leik

Justification: This species is listed as Critically Endangered as its population is suspected to have been reduced by more than 80% in the last three generations due to intensive collection for consumption trade, pet trade, and degradation and loss of its lowland rainforest habitat.

Spiny Turtle
© Kalyar Platt

Distribution: Occurs in southernmost Myanmar, peninsular Malaysia, peninsular Thailand, Singapore, Sumatra, west and east Kalimantan, Brunei, west Sarawak and Sabah. It is also present in Tawi Tawi, Philippines, Thailand, peninsular Malaysia, Myanmar, Singapore, Indonesia (Sumatra, Kalimantan), Brunei, Sarawak, Sabah, and Philippines. In Myanmar, it can be found in Tanintharyi Region.

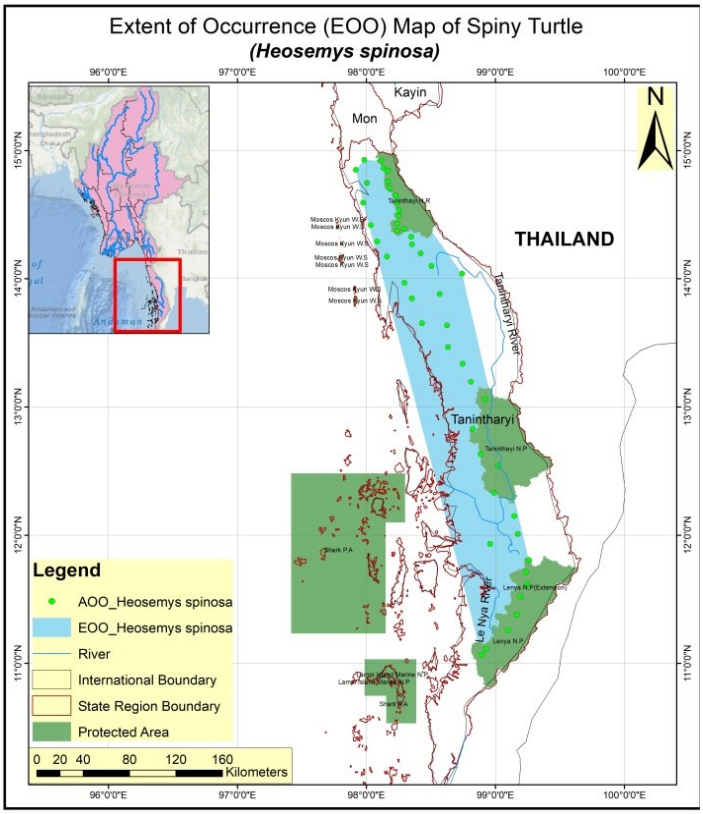
Habitat and Ecology: Small mountain streams in tropical evergreen forest. Largely frugivorous with some vegetation. Only found in closed, thick forest, with good canopy coverage. Generation length is estimated at 17 years (age of first reproduction = 7, lifespan = 35 years, reproductive period = 22 years, z = 0.35). Three generations is 51 years.

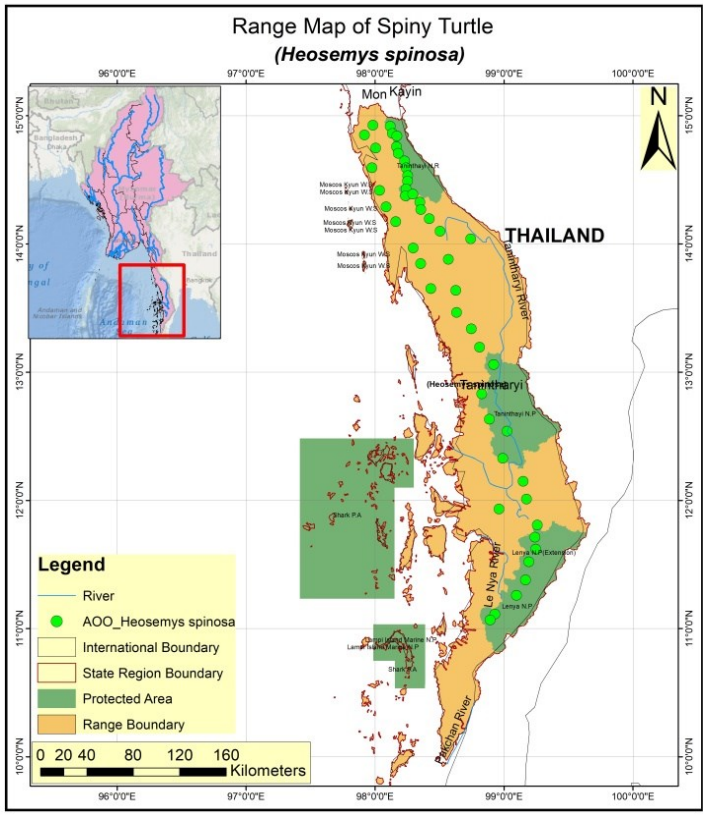
Wild population: Very rare in Myanmar. Likely to be less than 250 individuals remaining. Population has significantly declined, as a result of rapid loss of habitat (closed forest) over the last 50 years. AOO of the species is 192 km^2 and its EOO covers 23474.074 km^2 in its habitats.

Threats to survival: Juveniles are targeted for the pet trade, due to their distinctive appearance (like a small sunflower). Adults are collected for local consumption. Rarely found in international trade.

Conservation actions and research undertaken: is listed in CITES Appendix II and completely protected Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Plans to establish a rescue and captive breeding





centre in this region.

Use and Trade: Juveniles are targeted for the pet trade, due to their distinctive appearance (like a small sunflower). Adults are collected for local consumption. Rarely found in international trade.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd

Elongated Tortoise or Yellow tortoise **Order:Testudines**

Indotestudo elongata **Family: Testudinidae**

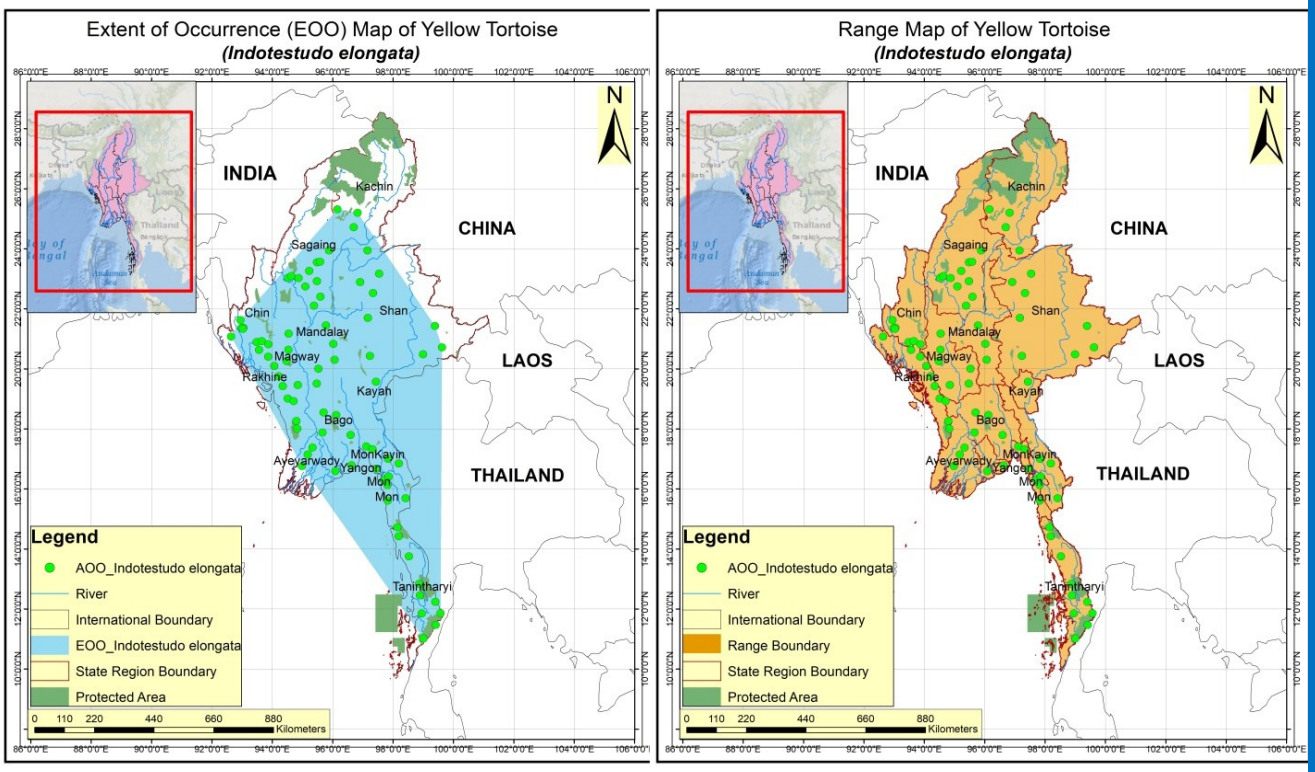
Leik Wah, Gin Leik, Ce Cho Leik, Taung Leik

Justification: This species has declined by at least 80% in the last 90 years (3 generations) as a result of habitat loss alone, and has additionally been extensively and intensively exploited for consumption and export trade. From its reproductive dynamics, this is a species that is slow to recover from population impacts, even by tortoise standards.

Elongated Tortoise or Yellow tortoise
© Kalyar Platt

Distribution: Widely distributed across South and Southeast Asia, from Kaleshar Wildlife Sanctuary in the foothills of Himalayas, through parts of northern and eastern India, Nepal, Bangladesh, Bhutan, much of Myanmar, Thailand, Cambodia, parts of Lao PDR and Vietnam, and northwestern peninsular Malaysia (Iverson 1992). It can be found throughout Myanmar, except at high elevation.

Habitat and Ecology: Elongated tortoises inhabit primarily deciduous forest types (Sal, Dry Dipterocarp, Mixed Deciduous forests) with open, broken canopy allowing sufficient light for a moderate to very dense undergrowth of grasses and herbs; during the dry, leafless season animals may retreat to evergreen stream gallery forest. Records are mostly from hilly areas from low altitude to about 600 m altitude. Local and seasonal movements are modest and seemingly random, tortoises apparently being confined to particular areas by features of habitat and topography (Moll 1989c; Das 1991; van Dijk 1998). *Indotestudo elongata* is primarily crepuscular, with activity in the early morning and late afternoon, avoiding extremely high air temperatures of up to 48°C in the forest in the middle of the day. During periods of inactivity, tortoises retreat into dense vegetation, alongside fallen debris, in buttresses of trees, in caves or burrows. The species appears to have large home ranges (Ihlow et al. 2014), signifying a need for large areas of suitable habitat to be protected. Elongated Tortoises consume a wide diversity of foods, feeding mainly on soft leaves and fruits, while mushrooms, carrion and carnivore scats are eaten when available (van Dijk 1998). Elongated tortoises of both sexes reach maturity at about 20 cm carapace length and a weight just over 1 kg, at an estimated age of 10-14 years (van Dijk 1998). Maximum size is usually 30 cm, but exceptional animals reach 35 cm carapace length. Hatchling size is approximately 4-5 cm (S. Schoppe, pers. comm. 2018). Females produce one or possibly two clutches of 1-5 eggs towards the end of the rainy season (van Dijk 1998). Generation time is estimated at a minimum of 30 years, but is likely to be substantially longer.



Wild population: Although this species is not particularly rare in Myanmar (and populations appear to be relatively stable), in the past it was very common. Therefore, we suspect a reduction in population size of 80% in the last 90 years, based on levels of exploitation. AOO of the species is 164 km^2 and its EOO covers 444867.979 km^2 in its habitats.

Threats to survival: Hunting for local consumption and international trade. (A total of 918 live speciems in 20 shipments were reported for seizures as international trade during the period of 2000-2015 (CITES CoP 17 Doc 73). Habitat destruction and degradation particularly as a result of shifting cultivation practices.

Conservation actions and research undertaken: Found in Shwe Settaw Wildlife Sanctuary, Rakhine Yoma Elephant Range, and Natma Taung National Park. It is listed in CITES Appendix II. One assurance colony and breeding program is in place. Rescue and cure at rehabilitation centers and release to the wild. To date about 400 tortoises have been rehabilitated and released to protected areas.

Conservation actions and research needed: Survival of re-released tortoises are needed to be assessed, and status of native populations are needed to be better understood, and are need to evaluate the success of current release program.

Use and Trade: Local consumption for food, pets, and traditional medicine. International trade primarily for food and traditional Chinese medicine. Seizures often include 3,000-4,000 individuals.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2bcde;C1

Olive Ridley Turtle — **Order: Testudines**

Lepidochelys olivacea — **Family: Cheloniidae**

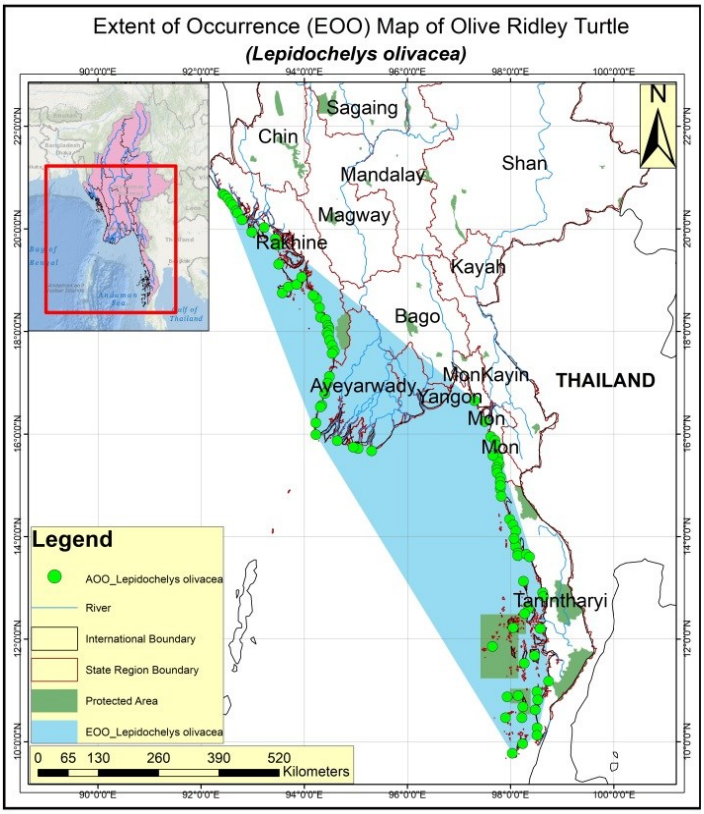
Leik Hlaung

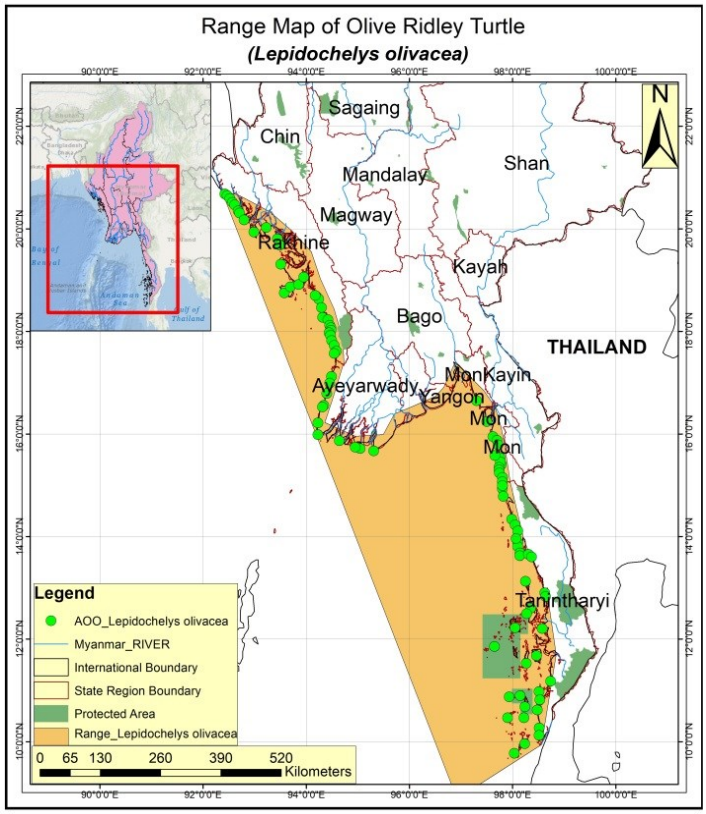
Justification: Globally, this species has been assessed as Critically Endangered under criterion A, as a result of a 48% - 67% decline in population size over the last three generations. In Myanmar specifically, we believe that this species is Critically Endangered, with a more than 80% decline in population size over the last three generations (based on nesting data), and a very small population size (less than 250 mature individuals) that is continuing to decline at a rapid rate.

Olive Ridley Turtle
© JJPhoto.dk

Distribution: This species has a circumtropical distribution, with nesting occurring throughout tropical waters, and migratory circuits in tropical and some subtropical areas such as Atlantic Ocean, Indian Ocean, and Pacific Ocean (Pritchard 1969). With very few exceptions, they are not known to move between ocean basins or to cross from one ocean border to the other. Within a region, Olive Ridleys may move between the oceanic and neritic zones (Plotkin et al. 1995, Shanker et al. 2003) or just occupy neritic waters (Pritchard 1976, Reichart 1993). Nesting occurs in nearly 60 countries worldwide. Migratory movements involve the coastal waters of over 80 countries. It is known to nest at only one site in Myanmar – Gayetgyi Island in Ayeyarwady Division.

Habitat and Ecology: The species has a complex life cycle, which requires a range of geographically separated localities and multiple habitats (Márquez 1990). Nest on coastal sandy beaches. Neonates develop in the ocean, drifting passively with major currents that disperse them far from their natal sites. Juveniles are believed to occur in similar habitats as the adults (i.e. pelagic waters) where they forage on gelatinous prey such as jellyfish, salps, and tunicates (Kopitsky et al. 2004). Adults migrate towards coastal zones for mating and nesting. Post-breeding migrations are complex, with pathways varying annually (Plotkin 1994) and with no apparent migratory corridors, swimming hundreds or thousands of kilometers over large ocean expanses (Morreale et al. 2007).





Wild population: 340 nests (36,000 eggs) were found at Gayetgyi Island in 1999. 20 nests (2,500 eggs) were found in 2018. As a result we can infer a reduction in population size of 94% over 19 years (about 1 generation). As the population size was likely stable or greater prior to 1999, we believe that the rate of reduction over the past 3 generations was similar, or greater than this. AOO of the species is 368 km^2 and its EOO covers 273656.727 km^2 in its habitats.

Threats to survival: Harvesting of eggs for local consumption and commercial purposes is the main threat to this species in Myanmar (Cornelius et al. 2007). Other threats include mortality as a result of by-catch in commercial fisheries (particularly illegal trawling), harvesting of adults for food, habitat destruction and degradation (particularly of nesting beaches), and climate change leading to changes in nesting temperature (impacting sex determination).

Conservation actions and research undertaken: It is listed in CITES Appendix I and completely protected by Conservation of Biodiversity and Protected Area Law (2018). One hatchery has been established by the Myanmar Fisheries Department, but has not been effective, due to lack of funding support, and intense threats at this site particularly for illegal trawling.

Conservation actions and research needed: Better protection of nesting sites, and enforcement of fisheries laws.

Use and Trade: Harvesting of eggs for local consumption and commercial purposes.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

LEAST CONCERN

Indian Flapshell Turtle — **Order: Testudines**

Lissemys punctata — **Family: Trionychidae**

Pyauk Sinchaw Leik, Leik Pyawt

Justification: This species is assessed as Least Concern in Myanmar as it is reasonably abundant, and its population size is either stable, or only declining at a low rate.

Distribution: Inhabits especially the entire Indian subcontinent except the Tahr Desert, from the Indus to the Brahmaputra, from the Himalayan foothills of India and Nepal to Bangladesh and extreme western Myanmar. It can be found in Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan, Sri Lanka. In Myanmar, its distribution is northern parts of Rakhine State adjacent to Bangladesh and India.

Indian Flapshell Turtle
©Peter Paul van Dijk

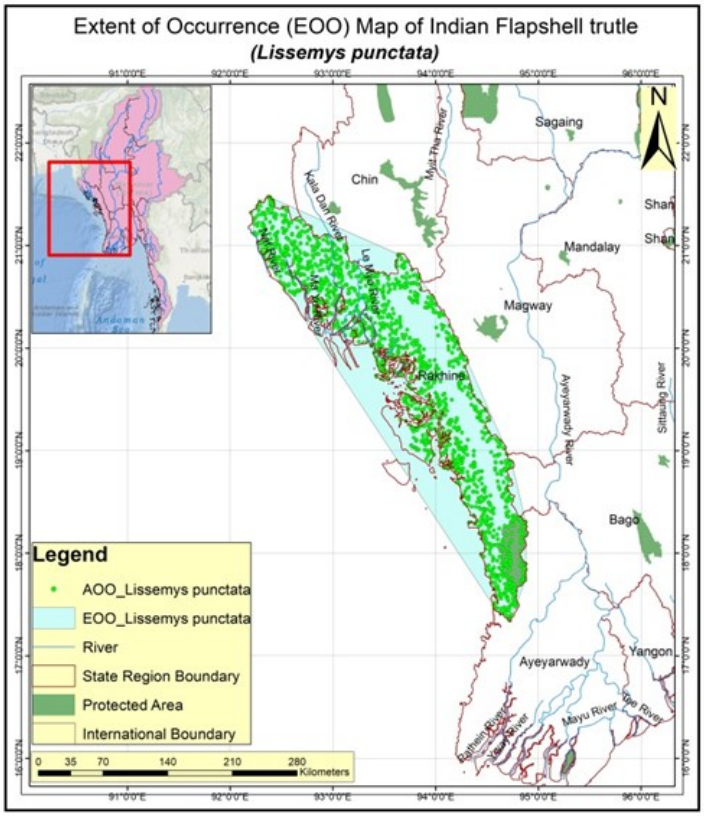
Habitat and Ecology: Inhabits a wide variety of aquatic environments, including rivers, streams, irrigation canals, marshes, swamps, wetlands, and rice paddies. Aestivates buried in mud during dry season. Omnivorous; consumes fish, crustaceans, amphibians, and aquatic vegetation. Reach maturity at 2 years and produce a relatively large number of offspring.

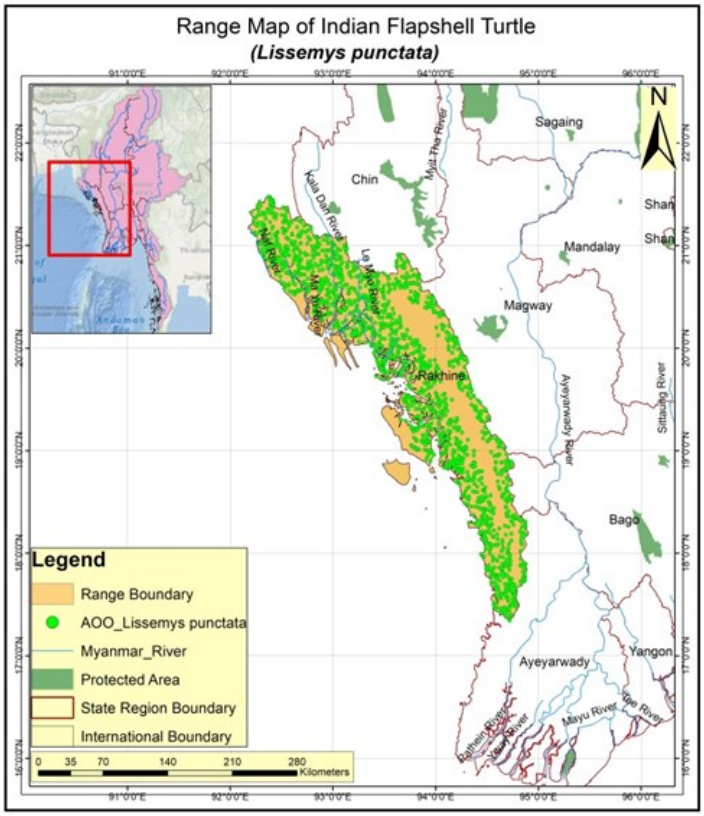
Wild population: Generally considered common or abundant. Population size is decreasing across the global range (30% over the last three generations) as a result of exploitation and habitat loss. However, the population in Myanmar is likely to be stable, or only decreasing very slowly. Possibly slowly decreasing. AOO of the species is 5712 km^2 and its EOO covers 47498.256 km^2 in its habitats.

Threats to survival: Some collection for local consumption and merit release.

Conservation actions and research undertaken: Not considered a priority for conservation efforts. It is listed in CITES Appendix II.

Conservation actions and research needed: Better protection of nesting sites, and enforcement of fisheries laws.





Use and Trade: Rarely eaten by local people, due to skin patterns looking like an injury or skin disease. Sometimes collected for "merit release". Not seen in international trade. Nests are hard to find in the wild – making them relatively safe from egg collection.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

LEAST CONCERN

Burmese Flapshell Turtle — **Order: Testudines**

Lissemys scutata — **Family: Trionychidae**

Sin Chaw Leik, Yay Leik, Leik Pyaung

Justification: *Lissemys scutata* is listed as Least Concern, as while it remains traded in substantial numbers for East Asian food markets, large populations remain in the wild and the species is not declining at a rate that would indicate listing at a higher category.

Burmese Flapshell Turtle
©Ohn Mar Cho

Distribution: Endemic to Myanmar, where it is found throughout the country except for the highlands.

Habitat and Ecology: Typically associated with paddy fields and lowland seasonal wetlands. Animals can be encountered in most water bodies, and may even be found aestivating in the mud of dried ponds (K. Platt, pers. comm. 2018). Age of maturity may be four years; with a generation length of about 12 years; it has a longevity suspected to be about 30 years.

Wild population: Large populations remain in the wild, which do not appear to be declining (K. Platt, pers. comm. 2018). AOO of the species is 6116 km^2 and its EOO covers 511657.639 km^2 in its habitats.

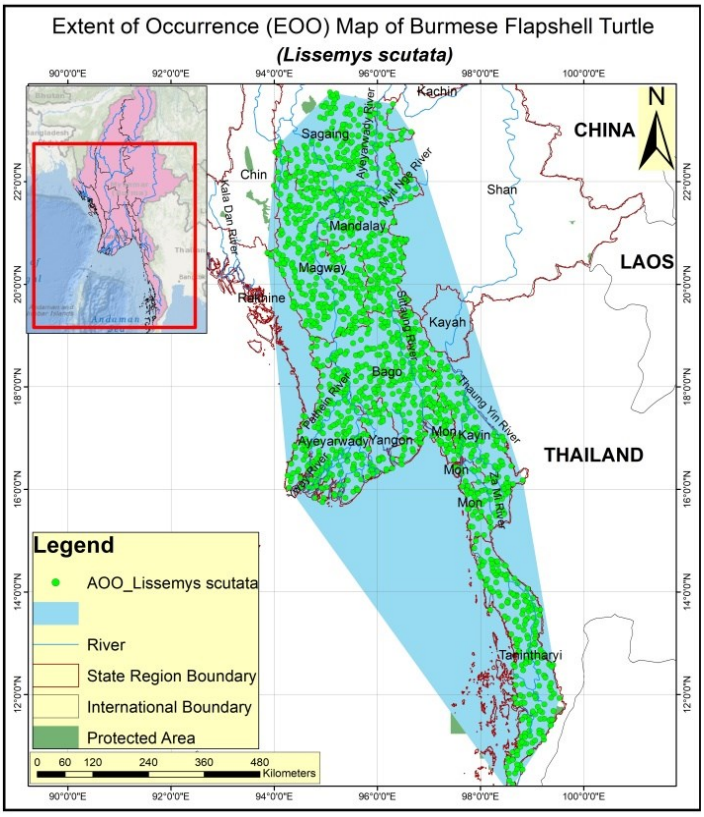
Threats to survival: *L. scutata* is traded in substantial numbers in East Asian food markets, and is still being exported to China for food (turtle stew etc.). The trade does not appear to be substantially impacting this species currently even though there is intense collection, the reason for this is uncertain, and requires additional study. There is very limited pet trade in this species.

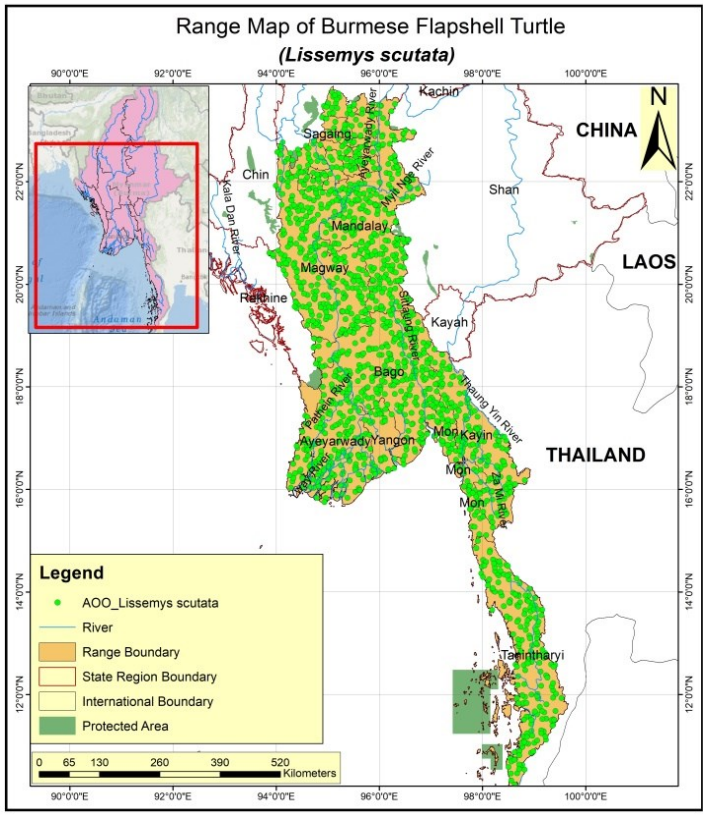
Conservation actions and research undertaken: Included in CITES Appendix II and it is present in many protected areas. Normally protected species under Conservation of Biodiversity and Protected Area Law (2018), due to being endemic.

Conservation actions and research needed: Natural history is not well understood.

Use and Trade: Hunted for local consumption and trade to China for food.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing





Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

ENDANGERED A2cde

Malayan Snail-eating Turtle **Order:Testudines**

Malayemys subtrijuga **Family: Geoemydidae**

Gaung Kyar Leik

Justification Globally this species is considered Endangered, as rates of reduction across its global range are inferred to be about 25% over the last three generations. In Myanmar, however, the rate of reduction during this time period is inferred to be 50% (primarily based on levels of exploitation). As a result the species is assessed as being Endangered in Myanmar.

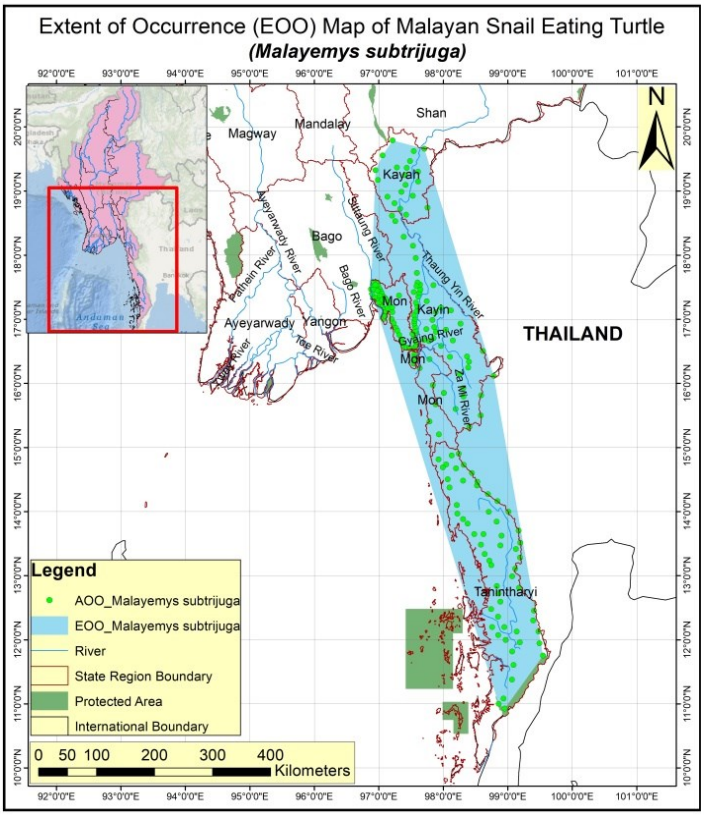
Malayan Snail-eating Turtle
© Douglas Hendrie

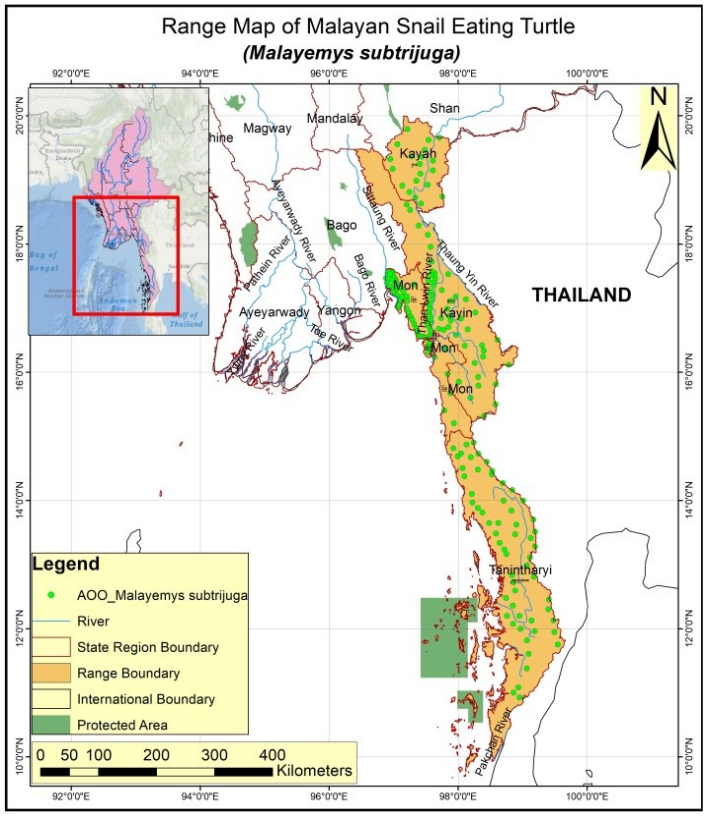
Distribution: *Malayemys subtrijuga* occurs in central Cambodia, southernmost Lao, and the Mekong delta region and south central Vietnam. The species may also be present in Cambodia, Indonesia (Java, Sumatra), Myanmar, Lao PDR, Thailand, Vietnam. In Myanmar, it can also be found in Kayah State, Kayin State, Mon State, and Tanintharyi Region.

Habitat and Ecology: Ponds, canals, creeks, marshes, paddy fields with soft-bottoms and aquatic vegetation. Feeds mostly on snails, also on worms, aquatic insects, crustaceans, and small fish. Generation length is estimated at 10 years (age of first reproduction = 5 years, lifespan = 20 years, reproduction period = 15, z = 0.4). Three generations is 30 years.

Wild population: This species has undergone a reduction in population size of around 25% across its global range over the last 30 years (3 generations) as a result of exploitation for food. However, the rate of reduction in Myanmar during this same period is considered likely to be at least 50%. Despite its decline, it is still seen in reasonably high numbers in pagoda ponds. AOO of the species is 764 km^2 and its EOO covers 120758.398 km^2 in its habitats.

Threats to survival: The main threat to this species is exploitation for food. Other threats include habitat destruction from logging and conversion to agricultural land and pollution. They are particularly susceptible to this as they are a bottom-dwelling and bottom-





feeding species.

Conservation actions and research undertaken: It is listed in CITES Appendix II and normally protected by Conservation of Biodiversity and Protected Area Law (2018). No specific conservation actions currently in place.

Conservation actions and research needed: Plans to establish a captive breeding program. Research needed on population status and trends.

Use and Trade: Heavily collected for food – both local consumption and international trade. In Myanmar, egg collection is not common for this species.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

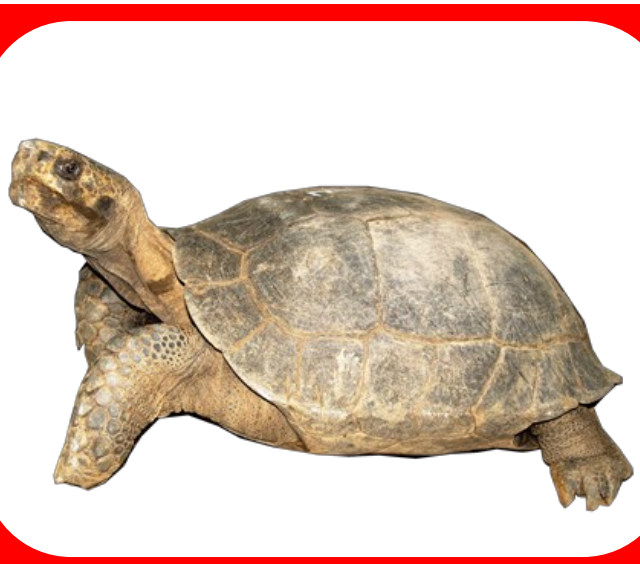
CRITICALLY ENDANGERED A2cd +4cd

Asian Brown Tortoise, Asian Giant Tortoise **Order:Testudines**

Manouria emys Manouria e. phayrei **Family: Testudinidae**

Leik Maung, Chay Chauk Chaung Leik, Pane Paung Leik

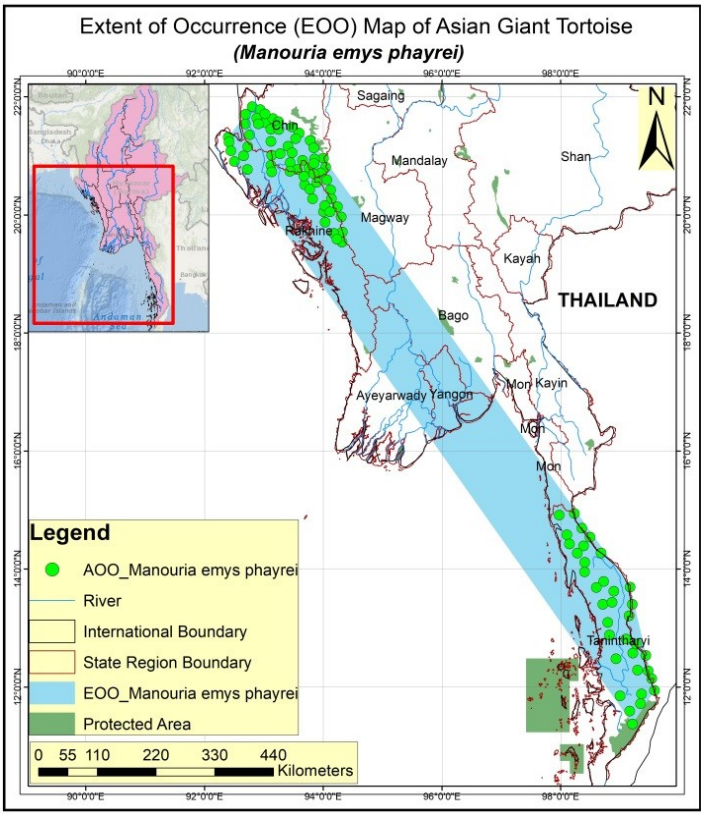
Justification: *Manouria emys* is in severe decline, as a result of loss and degradation of suitable lowland and mid-elevation evergreen forest, and long-term subsistence collection and intensive commercial exploitation for East Asian consumption trade in recent years. Overall, the species has declined by at least 80% in the past 3 generations. This decline is expected to continue as turtle exploitation remains beyond effective control, subsistence collection and poaching occurs widely even, and forest loss continues.

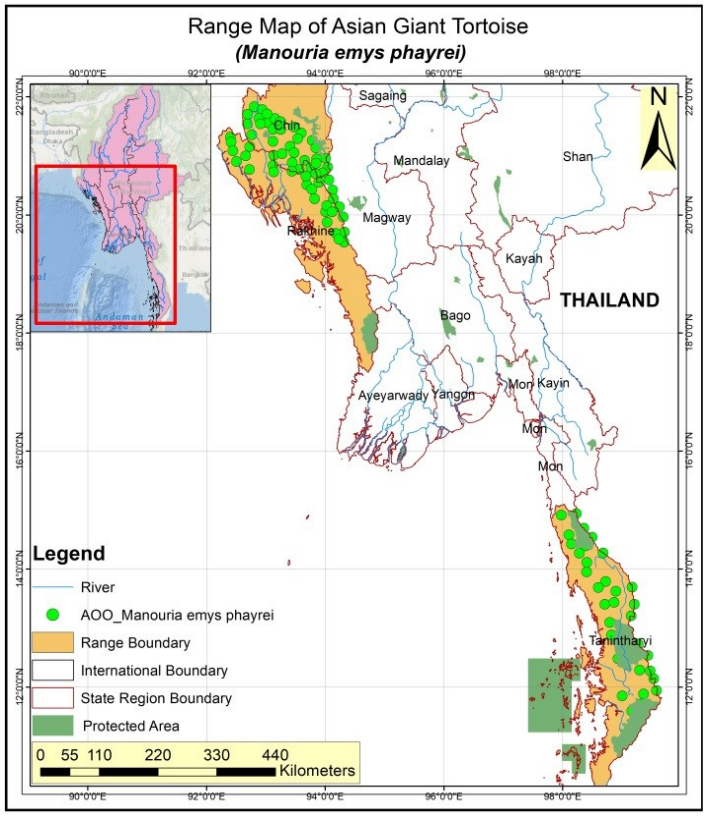


Asian Brown Tortoise
© Kalyar Platt

Distribution: *Manouria emys* occurs from Bangladesh and northeastern India through Myanmar, and western and southern Thailand through Malaysia, Sumatra and Borneo (Iverson 1992). Records from Laos, Vietnam and southern China likely refer to *M. impressa* and/or traded animals. Subspecies *M. e. emys* inhabits Thailand south of the Phang-nga-Surat Gap, Malaysia, Borneo and Sumatra. *M. e. phayrei* occurs from Peninsular Thailand northwards through Myanmar to the north-eastern Indian and eastern Bangladeshi hill tracts. Bangladesh, India, Indonesia, Malaysia, Myanmar, Singapore, and Thailand. *Manouria e. phayrei* subspecies is found in Myanmar and Thailand. In Myanmar, *M.e.phayei* can be found in Chin State, Kayin State, Mon State and Tanintharyi Region. It was historically found also in Rakhine State.

Habitat and Ecology: Exclusively inhabits evergreen forest and bamboo forest, from lowland regions up to altitudes of about 1,000m (typically 600-1,500m). Typically found near water and frequently burrow in damp soil (Nutphand 1979). Diet includes bamboo shoots, tubers and other juicy vegetation (Nutaphand 1979) and some invertebrates and frogs (Humphrey and Bain 1990). *M. e. phayrei* reaches 60 cm carapace length and 37 kg (Nutphand 1979). Size and age at maturity have apparently not been reported. The interactive behaviour of this species is quite complex, with elaborate dominance and courtship rituals. In captivity, a nest is constructed by the female by sweeping leaf litter backwards to form a nest mound. In this mound, a clutch of on average 35 (range 15-51, N=24) spherical or slightly elongate eggs (41-54 mm diameter, weight 46-80 g) are laid, with larger females typically producing more eggs. The nest is defended against potential predators by the female during the first few days. In captivity, *M. e. phayrei* reaches sexuality maturity at about 15 years (Fahz 2010). Longevity of this subspecies has been recorded





up to 20 years, but it is likely to be much longer (Slavens and Slavens 2000). Generation length is estimated at about 45 years (three times age of maturity).

Wild population: This species is rare, and declining. It is suspected to have undergone a reduction in population size of more than 80% across its global range over the last 135 years (3 generations), which will continue for at least another generation due to exploitation pressures and reduced area of occupancy. The rate of reduction in Myanmar during this period is likely to be similar, or even higher. The population in the western part of the country (Rakhine State) is likely to have been extirpated in the early 2000's (K. Platt, pers. comm. 2018). AOO of the species is 384 km^2 and its EOO covers 168417.499 km^2 in its habitats.

Threats to survival: Harvesting for local consumption and international food trade. Also threatened by habitat loss resulting from logging, and conversion of forest to agricultural land. They require good quality evergreen forest.

Conservation actions and research undertaken: It is listed in CITES Appendix II and completely protected by Conservation of Biodiversity and Protected Area Law (2018). Two assurance colonies have been established, with breeding success. A pilot release and radio-tracking program has started (6 tortoises), and will be scaled-up if successful.

Conservation actions and research needed: Research needed to better understand the population status, and life-history.

Use and Trade: As a large tortoise species (the largest in Asia), this species is targeted for food – both local consumption and international trade (primarily with China). It is also collected for the pet trade.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd + 4cd

Impressed Tortoise **Order:Testudines**

Manouria impressa **Family: Testudinidae**

Leik Tet, Taung Leik Gyi

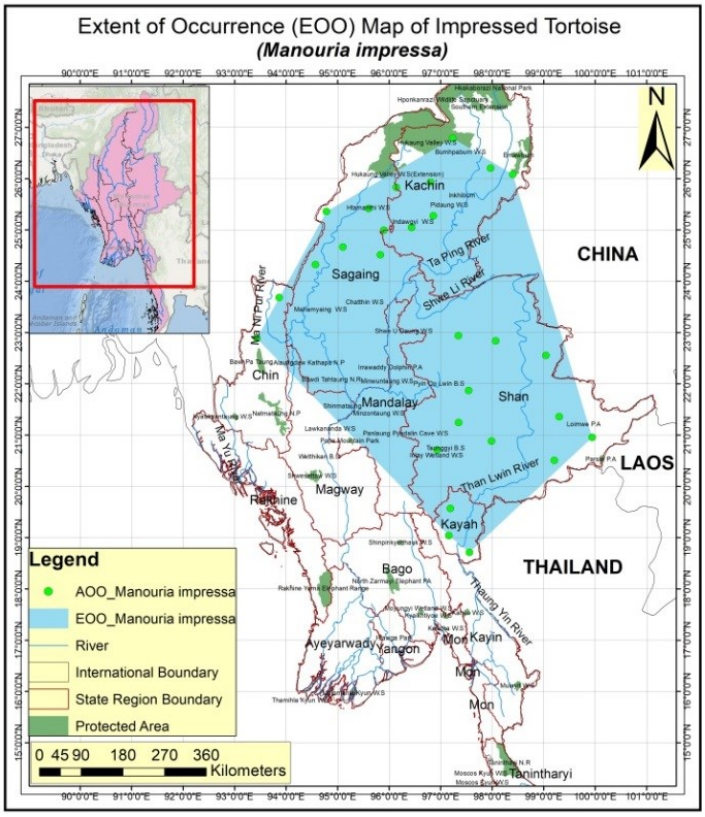
Justification: This species is listed as Critically Endangered as it is suspected that the population has been reduced by more than 80% in the last three generations, due to both the destruction of its habitat and overharvesting for local consumption and international food trade.

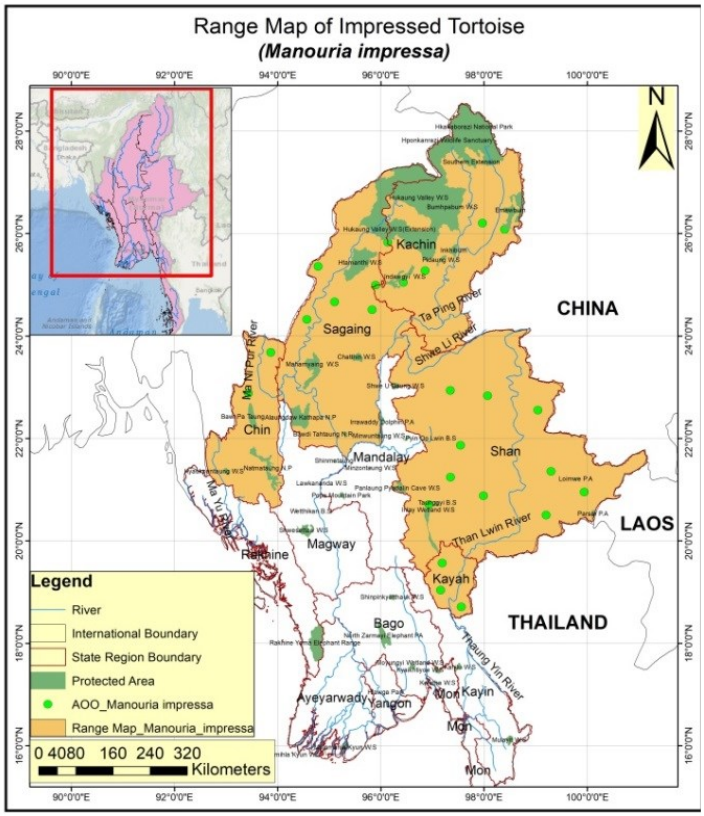
Impressed Tortoise
© Kalyar Platt

Distribution: Occurs in the northern, western and eastern hills in Myanmar, the western edge of northeastern and northwestern Thailand, northeastern Lao, along the mountain range in Vietnam, southwestern Cambodia and western peninsular Malaysia. In China, it is reported from Hainan, Guangxi and Yunnan. It inhabits in Cambodia, China, Lao PDR, Malaysia, Vietnam, Myanmar and Thailand. In Myanmar, it can be found in Kachin State, Kayah State, Rakhine State and Shan State.

Habitat and Ecology: Inhabits evergreen and mixed deciduous hill forest between 900 and 1,600m elevation. Does not tolerate degraded forests. It was historically found in all mountainous areas in Myanmar. They shelter underneath logs where they are inactive for long periods of the year (aestivate) and feed on mushroom during the raining days. They used to shelter in green plants during the rest of the active period. Generation length is estimated at 19 years (age of first reproduction = 12 years, lifespan = 35 years, reproductive period = 23 years, z = 0.3). Three generations correspond to 57 years.

Wild population: A cryptic species that can occur at relatively high densities in appropriate habitat. Population size is declining across its global range (50-80% reduction in the last 3 generations), although populations are stable in Thailand, Malaysia, and perhaps China. Very rare in Myanmar. Only confirmed from a small number of sites. Rates of population decline in Myanmar during the last 3 generations are likely to be greater than 80%, as a result of trade, overconsumption, and habitat loss due to agriculture and logging. AOO of the species is 112 km^2 and its EOO covers 349375.755 km^2 in its habitats.





Threats to survival: Habitat destruction (evergreen, and mixed deciduous hill forest have declined significantly) as a result of logging and conversion to agricultural land. Also direct exploitation.

Conservation actions and research undertaken: CITES Appendix II. No specific conservation actions in place. Very difficult to breed ex-situ, as they require cool air temperatures, and have a very specific diet.

Conservation actions and research needed: Research needed in population status and trends, and husbandry techniques.

Use and Trade: Hunted for food – both local consumption and international trade (primarily with China). Appears occasionally in international pet trade.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

VULNERABLE A2c

Myanmar Black Turtle **Order:Testudines**

Melanochelys trijuga edeniana **Family: Geoemydidae**

Leik Pote, Leik Pattar, Leik Chay Pan

Justification: This highly adaptable subspecies is still relatively common in Myanmar, however is suspected to have undergone a reduction in population size of at least 30% in the last three generations (45 years) primarily as a result of habitat destruction and degradation. As a result, it is assessed as Vulnerable.

Myanmar Black Turtle
© Kalyar Platt

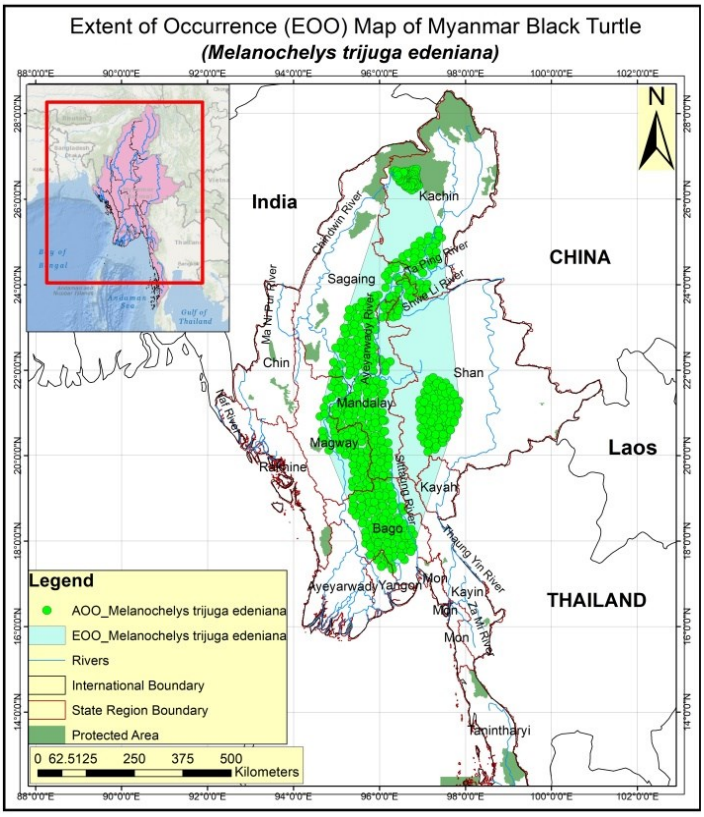
Distribution: The species is found across most of India, Bangladesh, Maldives, southern Nepal, and Sri Lanka (Iverson 1992; Das 1991, 1995). The subspecies *M. t. edeniana* is endemic to Myanmar, and found in lowlands and low hill areas from the northern Ayeyarwady to Tanintharyi (Iverson 1992). In Myanmar, it can be found in Bago Region, Kachin State, Magwe Region, Mandalay Region, Sagaing Region and Shan State.

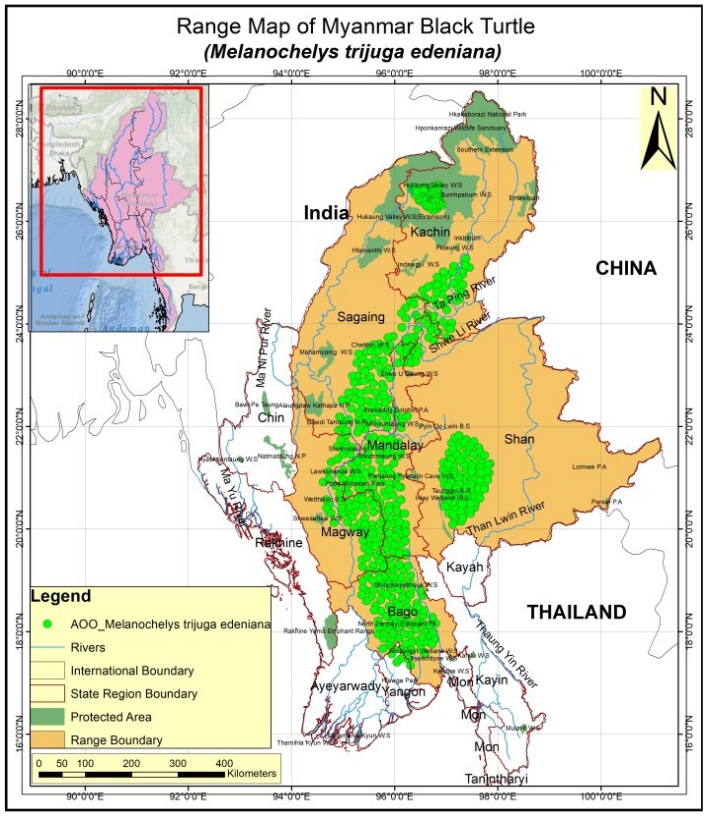
Habitat and Ecology: A highly adaptable semi-aquatic species, using both natural and man-made ponds, temple ponds, pools, and other waterbodies with aquatic vegetation. Also encountered in rivers and other flowing waters (Das 1991). Feeds opportunistically on a variety of animal and plant foods (Das 1991). Primarily crepuscular or nocturnal, seen foraging after dark along the edges of waterbodies. Maximum size, and presumably size at maturity, vary substantially between the different subspecies. Probably matures in about 5 years (I. Das pers. comm. 2018). Generation length is about 15 years. Two to six clutches comprising one to four eggs are laid in a year; though there may be some variability between subspecies (review in Das 1991).

Wild population: Commonly found. Likely to be decreasing, but not at a high rate. AOO of the species is 2544 km^2 and its EOO covers 221079.512 km^2 in its habitats.

Threats to survival: Habitat destruction is main threat to survival.

Conservation actions and research undertaken: Not a conservation priority, due to





populations being relatively secure. It is listed in CITES Appendix II and normally protected by Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Natural history is not well understood. Research is needed to improve this.

Use and Trade: Not regularly hunted for household consumption, due to bad smell.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

ENDANGERED A2cd + 4cd

Burmese Eyed Turtle **Order:Testudines**

Morenia ocellata **Family:Geoemydidae**

Sauk Leik, Myanmar Myat Lone Leik

Justification: *Morenia ocellata* is listed as Endangered based on a suspected decline of over 50% over the previous three generations (approximately 60 years), resulting from over collection from the wild and continuing habitat loss in parts of the species range.

Burmese Eyed Turtle
© Kalyar Platt

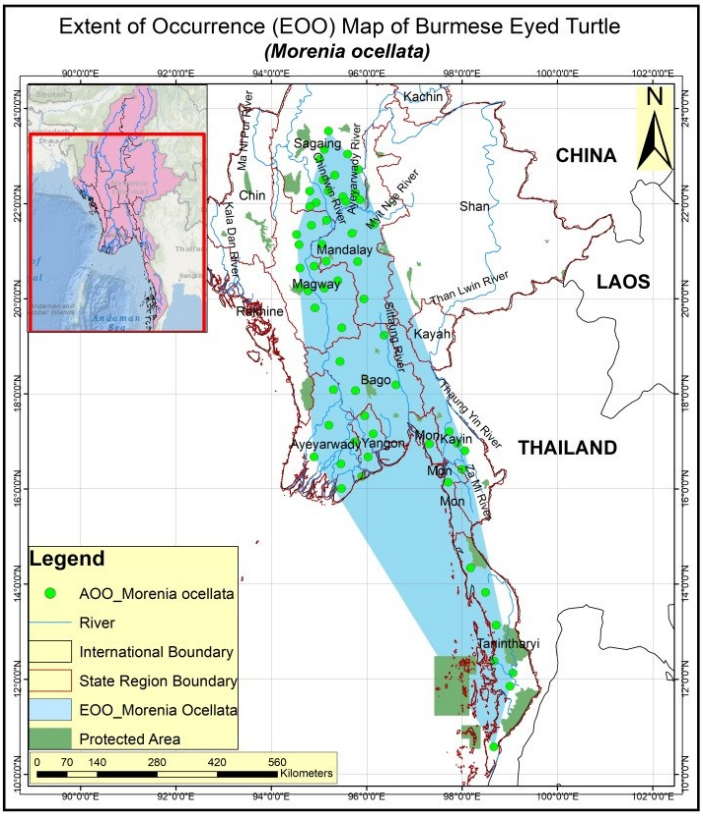
Distribution: It was generally considered restricted to lowland parts of southern Myanmar, however more recently has been recorded to occur sparsely in upland Myanmar (Platt et al. 2005; Kuchling et al. 2006). It is found from sea level to just 500 m above sea level. It can be found throughout Myanmar, except at high elevations.

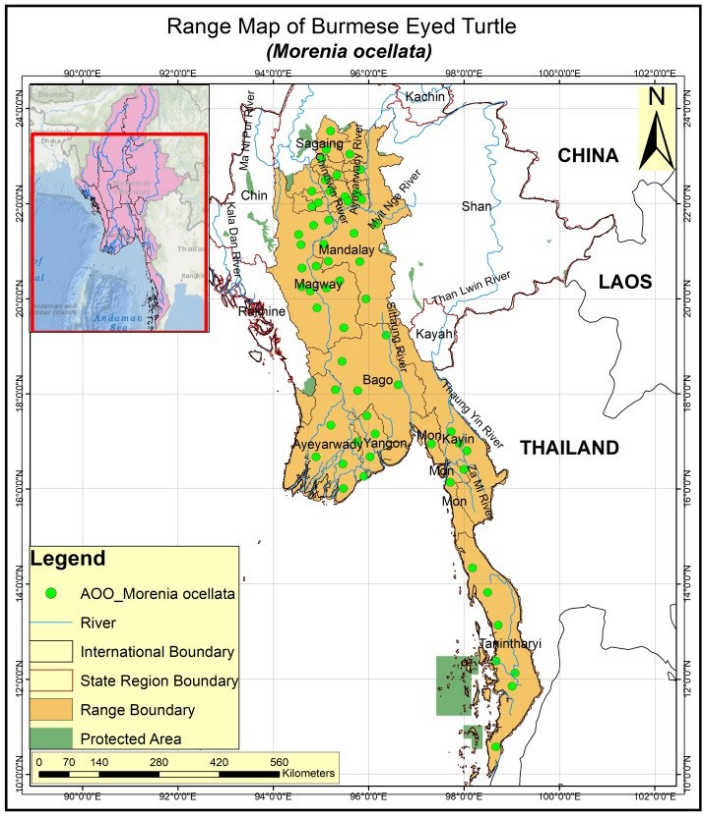
Habitat and Ecology: *Morenia ocellata* has been reported as aquatic and herbivorous (Smith 1931). It has been reported in the inundated plains in lower Myanmar, in paddy fields, streams, ponds, and perhaps slow-flowing channels of rivers (Maung and Ko Ko 2002). Clutches of 5-8 (Maung and Ko Ko 2002) and 10-15 (Thorbjarnarson et al. 2000) have been recorded. Up to 17 eggs per clutch, with perhaps one clutch per year was reported by K. Platt (pers. comm 2018). Age of maturity is perhaps 7 years; with a generation length of perhaps 21 years; longevity of about 70 years (K. Platt pers. comm. 2018).

Wild population: Population size is considered to be declining based on food market turnover. There has been a suspected decrease of over 50% in the past three generations and continuing, though it is still considered common in Myanmar and is still present in trade. AOO of the species is 240 km^2 and its EOO covers 300400.133 km^2 in its habitats.

Threats to survival: Hunting for local consumption, and for release in pagoda ponds. Pet trade. Habitat destruction (mangrove loss through conversion to shrimp ponds and charcoal production).

Conservation actions and research undertaken: It is listed in CITES Appendix I and





completely protected by Conservation of Biodiversity and Protected Area Law (2018). It occurs in a few protected areas in Myanmar. Eggs are collected from pagoda ponds. Incubated ex-situ in two breeding colonies, and released into the wild (100-200 each year).

Conservation actions and research needed: Law enforcement on illegal wildlife trafficking. Life history is not well understood. Research needed to address this, to inform reintroduction efforts. Radio telemetry is needed for released turtles.

Use and Trade: Traditionally hunted in large numbers for food. Local consumption continues to present and international trade occurs from Myanmar to China, although this is currently fairly limited. Large numbers continue to be harvested from the wild for release in pagoda ponds, which is leading to declines in wild populations. Although the pet trade in Myanmar has been traditionally negligible, some specimens have been reported for sale in aquariums and pet shops.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cd + 4cd

Burmese Peacock Softshell Turtle **Order: Testudines**

Nilssonia formosa **Family: Trionychidae**

Lay Kwet Leik, Wa Lay Lone Leik, Gaung Thay Leik

Justification: *Nilssonia formosa* is listed as Critically Endangered, because there is suspected to have been more than an 80% decline in the global population over the past three generations (estimated at a 90 year period). This is continuing in response to ongoing exploitation and habitat loss.

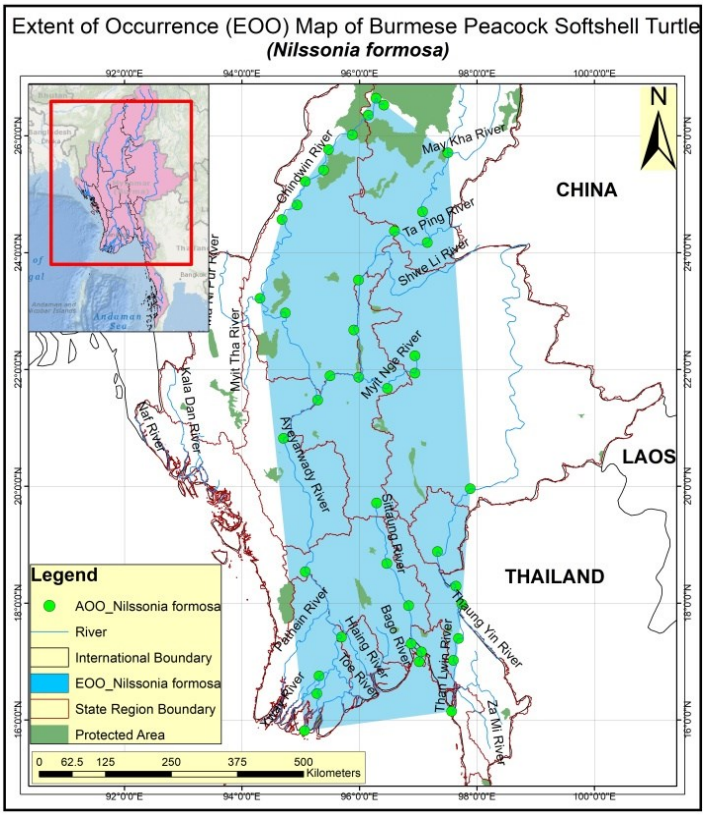
Burmese Peacock Softshell Turtle
© Kalyar Platt

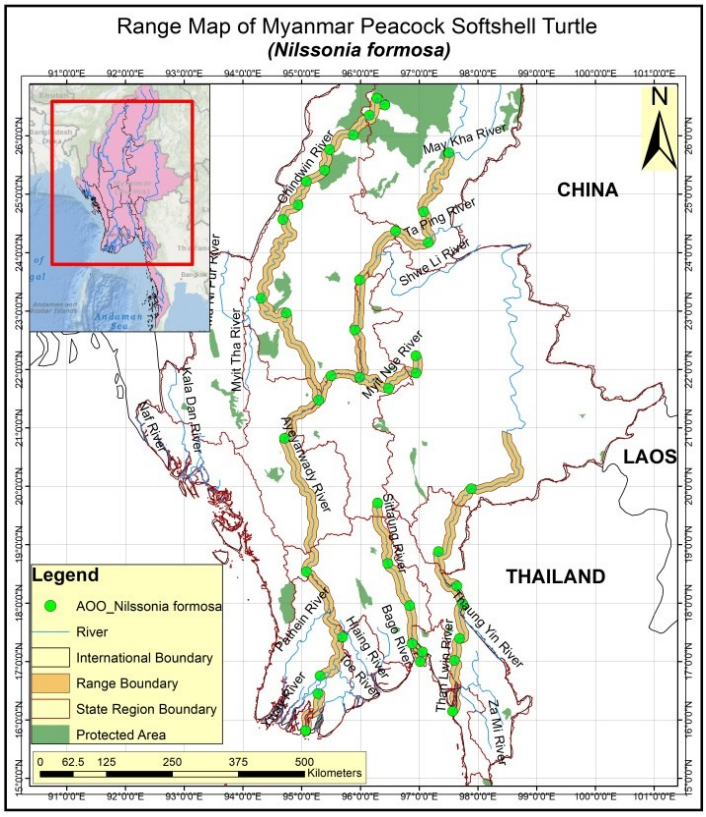
Distribution: Endemic to Myanmar, and it is found in three main rivers: the Ayeyarwady River, the Chindwin River, and the Sittaung River. It occurs throughout much of these rivers in low numbers. The species might range into Yunnan (China) although this is not confirmed. It has been recorded from sea level to about 200 m above sea level. In Myanmar, it can be found in Ayeyarwady Region, Bago Region, Kachin State, Kayin State, Kayah State, Magwe Region, Mandalay Region, Mon State, Sagaing Region, Shan State and Tanintharyi Region.

Habitat and Ecology: A highly aquatic and largely carnivorous turtle that is associated with large rivers with a sandy substrate. Eggs are laid on sandbanks in the river; about 20 eggs are laid in each clutch, it is not known how many clutches a female may lay in a year (K. Platt, pers. comm. 2018). Age of maturity of related species is about 10 years, it is, therefore, suggested that this species has a generation length of 30 years; the longevity is not known.

Wild population: It was previously abundant, particularly in pagoda ponds, and throughout Myanmar's major rivers. Rapid (more than 80%) decline in population size suspected over the last 90 years (3 generations), and continuing into the future, as a result of exploitation and habitat degradation. Now it is considered as rare species. AOO of the species is 168 km^2 and its EOO covers 349859.628 km^2 in its habitats.

Threats to survival: *Nilssonia formosa* was traded in some numbers in the East Asian food trade, but it is now infrequently encountered. Eggs are harvested by local people in Myanmar (P.





Praschag, pers. comm. 2018). Additional important threats include: increased sedimentation and high boat traffic for rivers; illegal fishing (dynamite, electroshock, poison); continuing settlement by people on riverside habitat; gold mining impacts. It is uncommon to rare in the wild, and has a life history particularly sensitive to exploitation of adults.

Conservation actions and research undertaken: *Nilssonia formosa* is not listed in the CITES Appendices and completely protected by Conservation of Biodiversity and Protected Area Law (2018), but needs to be included to address trade on the importing side. There is a small population in Htamanthi Wildlife Sanctuary (K. Platt, pers. comm. 2018). Captive breeding at Mandalay Zoo and has a number of hatchlings (K. Platt, pers. comm. 2018). Successful captive breeding programme in place, but only very low numbers. Some nest protection in place.

Conservation actions and research needed: Effective law enforcement is needed particularly at international borders. Education and awareness-raising is necessary.

Use and Trade: Juveniles are targeted for international pet trade. Adults are targeted for domestic and international food trade (primarily with China).

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2d

Big-headed Turtle **Order: Testudines**

Platysternon megacephalum **Family: Platysternidae**

Leik Kyat Tu Yway, Pote Thin Nyo Leik, Hput Leik

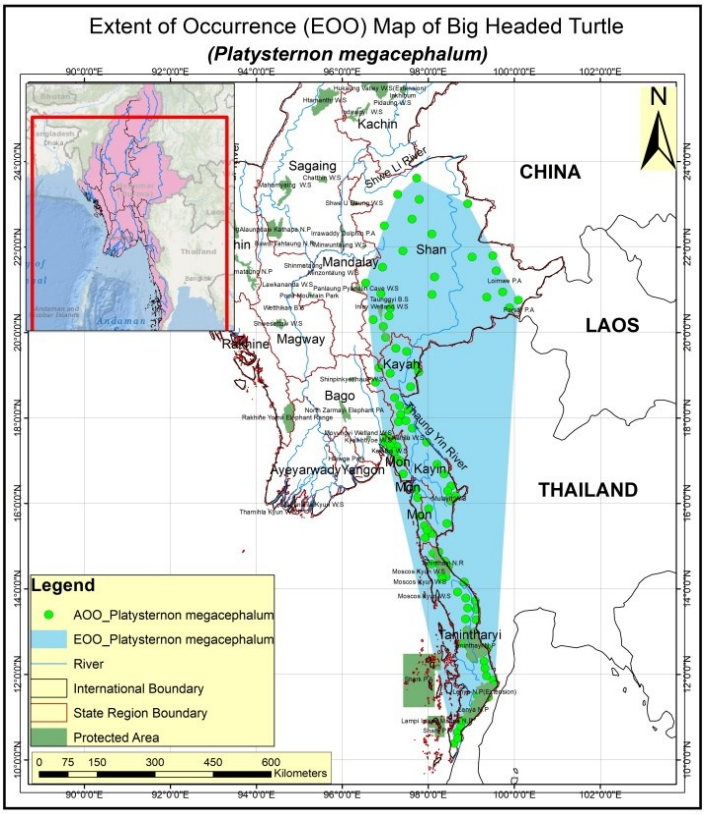
Justification: *Platysternon megacephalum* is a widespread yet extremely localized species that is difficult to survey. It is known to be under intensive ongoing exploitation for commercial trade for medicinal and pet purposes, as well as some habitat loss impacts. The population is suspected to have decreased by over 90% in the last three generations from these threats. It is therefore listed as Critically Endangered.

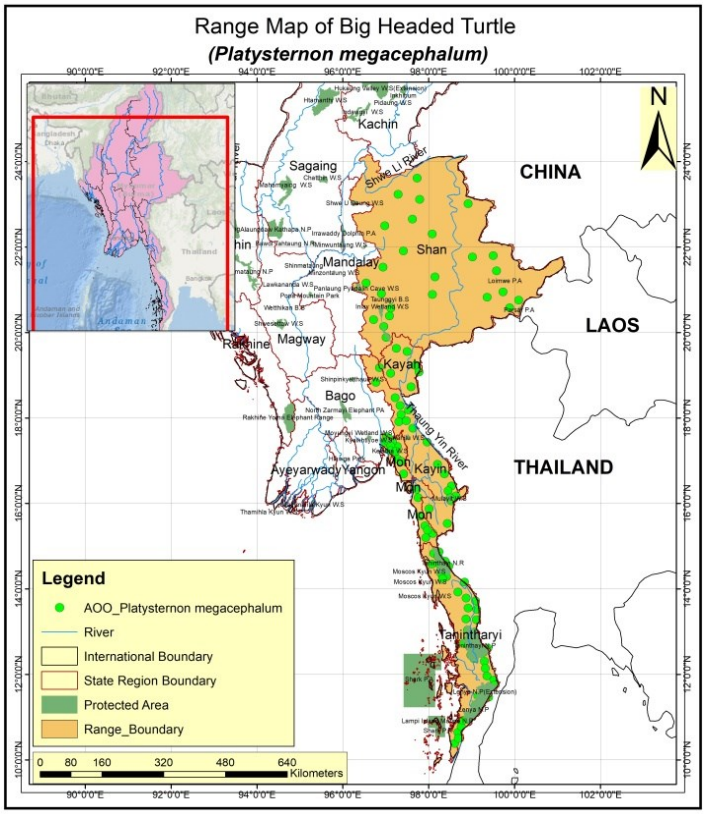
Big-headed Turtle
© Peter Paul van Dijk

Distribution: Found from the hills of western Myanmar through northern Thailand, southern China including Hong Kong and Hainan. Likely extinct from Lao PDR, Vietnam, and Cambodia. It inhabits in Thailand, Myanmar, and China. In Myanmar, it can be found in Bago Region, Kayah State, Kayin State, Mon State, Shan State, and Tanintharyi Region.

Habitat and Ecology: *Platysternon megacephalum* is a habitat specialist inhabiting steep clear water cascading streams in forested hill areas at altitudes between 100 and 800 m. A diet study in Hong Kong found fruits from *Machilus spp*. was most common, followed by insects, plant matter, crabs, and molluscs, with niche breadth wider in adults than juveniles (Sung et al. 2016). A radio telemetry-based study found that the mean home range of *P. megacephalum* was 97 m, with no difference between sexes, and longer distance movement in wet season (Sung et al. 2015b). Single clutches of 2-8 eggs per year have been reported (Sung et al. 2014), 1-3 eggs in China (Zhou and Li 2013). Females mature at 8 years and males at 13 years (Sung et al. 2015a). Lifespan is assumed to be around 50 years on average. The mid-point between the age at maturity (10 years) and average age of mortality (50 years) is 30 years, and used as generation length for this species.

Wild population: Used to be common in certain parts of its distribution, but is now rare throughout its range. In the last three decades, there has been significant collection of





individuals of this species from most of its sites. Population size is suspected to have decreased by at least 90% across its global range over the past 90 years (3 generations). The rate of reduction within Myanmar is considered likely to be similar. AOO of the species is 484 km^2 and its EOO covers 353868.770 km^2 in its habitats.

Threats to survival: *Platysternon megacephalum* is primarily threatened by intensive collection for trade; the species is a popular purchase as pet or display animal (even though it generally adapts poorly to captivity), there is apparently some medicinal usage, and some stock accumulation for farming purposes may be taking place. Habitat degradation of stream habitat is an additional threat.

Conservation actions and research undertaken: Captive breeding efforts are underway. Plans are in place to release individuals into a protected area with radio transmitters. It is listed in completely protected species by Conservation of Biodiversity and Protected Area Law (2018) and CITES Appendix I.

Conservation actions and research needed: Effective law enforcement is needed. Following release of captive-bred individuals, research into the success of this is needed.

Use and Trade: Heavily targeted for international food and pet trade particularly with China (despite being difficult to keep in captivity), and medicinal use. Popularity in the pet trade appears to be partly due to resemblance to mythical creature in Chinese culture. One individual can fetch a price of $2,000.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

CRITICALLY ENDANGERED A2cde

Black Marsh Turtle — **Order: Testudines**

Siebenrockiella crassicollis — **Family: Geoemydidae**

Leik Me Gyi

Justification: This species is listed as Critically Endangered as it's population size is suspected to have decreased by more than 80% in the past three generations due to exploitation for national and international consumption, trade and habitat loss.

Black Marsh Turtle
© Douglas Hendrie

Distribution: *Siebenrockiella crassicollis* occurs in southern Myanmar, lowland areas of Thailand, including the Khorat Plateau, Cambodia, southern Vietnam, peninsular Malaysia, Sumatra, central and western Java, and east Kalimantan. In Myanmar, it can be found in Tanintharyi Region.

Habitat and Ecology: Inhabits wetland areas, swamps, peat swamps, and secondary forests. It is omnivorous.

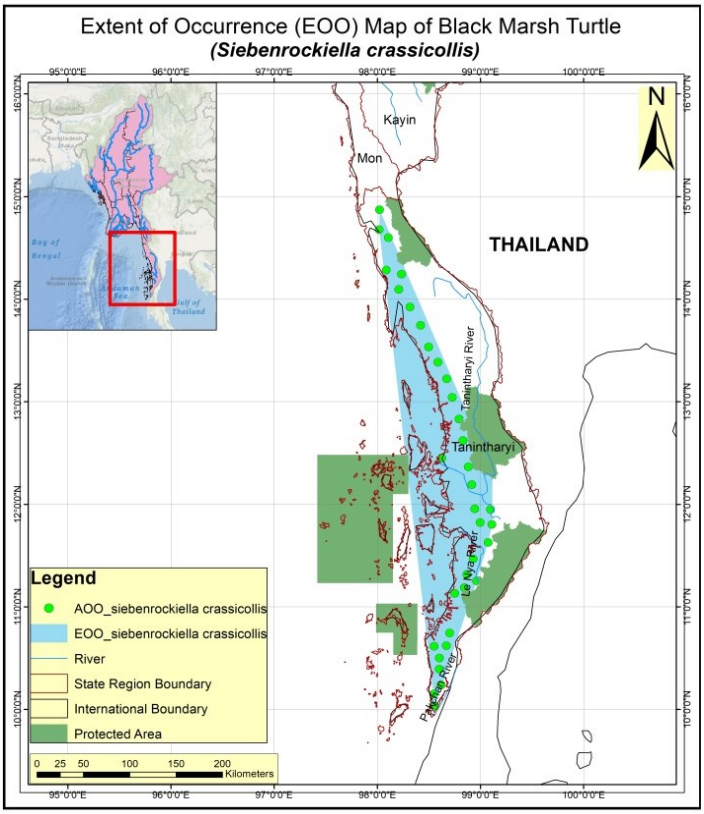
Generation length is estimated at approximately 18 years (age of first reproduction = 7 years, lifespan = 35 years, reproductive period = 0.4). Three generations correspond to 54 years.

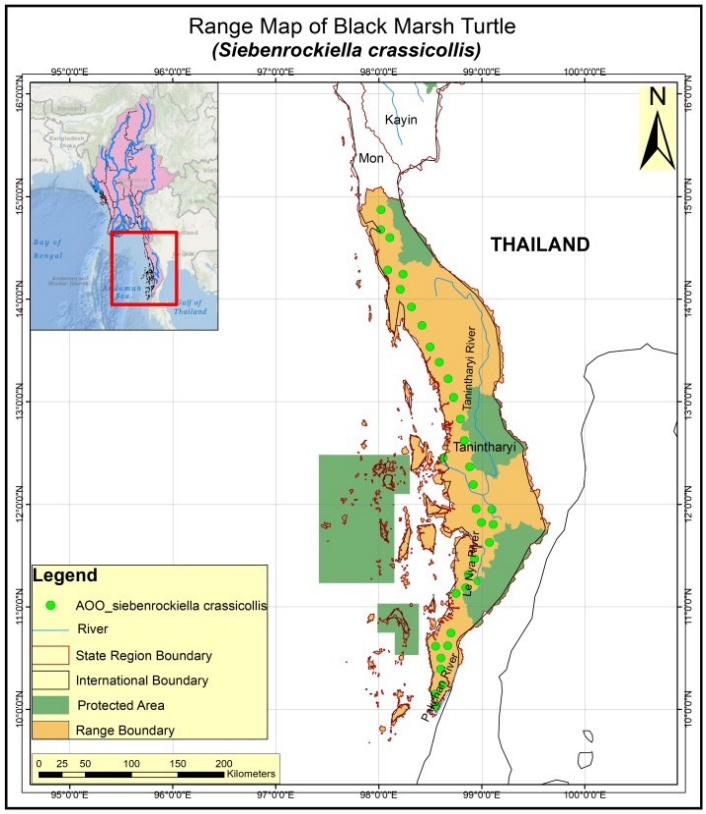
Wild population: Uncommon in Myanmar, and suspected to be undergoing significant reductions in population size across continental South East Asia (80% in the last 50 years), as a result of habitat loss (due to logging and agricultural development). Reductions in Myanmar during this period are likely to be similar, or more serious. AOO of the species is 484 km^2 and its EOO covers 353868.770 km^2 in its habitats.

Threats to survival: Exploitation for national and international consumption. Habitat destruction (conversion of wetland habitats to agricultural land).

Conservation actions and research undertaken: No specific conservation actions in place. It is listed as completely protected species by Conservation of Biodiversity and Protected Area Law (2018) and CITES Appendix II**.**

Conservation actions and research needed: Plans to establish a captive breeding programme. Plans to conduct research on conservation status, population size, and distribution.





Use and Trade: Collected for food consumption and merit release. Not common in international trade.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

Endangered B2 ab

Salt-water Crocodile | **Order: Crocodylia**

Crocodylus porosus | **Family: Crocodylidae**

Mi Gyaung

Justification: This species is considered Near Threatened in Myanmar as it has an Area of Occupancy (AOO) of 400km^2 (being found at only two sites), and is experiencing continuing declines in habitat quality. However it is not severely fragmented, occurs at an unknown number of locations, and is not exhibiting extreme fluctuations.

Salt-water Crocodile
©Internet

Distribution: This species is found across the Australasian and Indomalayan biogeographic realms; Australia, Bangladesh, Brunei, India, Indonesia, Malaysia, Myanmar, Palau, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka, Vanuatu. Two sub-populations are found in Myanmar. One at Meinmahla Kyun Wildlife Sanctuary in Ayeyarwardy Region, and one at Bok Pyin area in Tanintharyi Region.

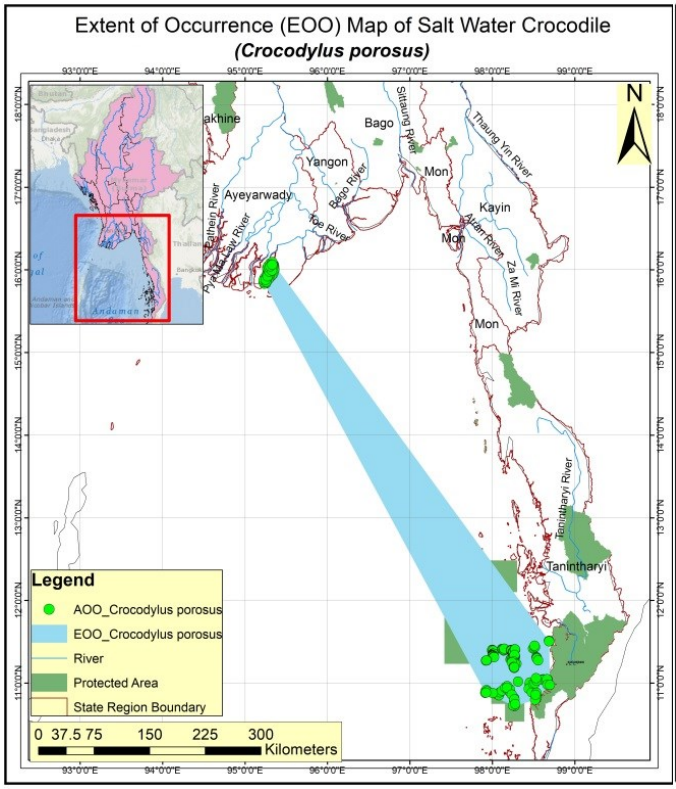
Habitat and Ecology: This species inhabits inland lakes, swamps, and marshes as well as coastal brackish waters and tidal sections of rivers and can also be found in terrestrial nest sites and basking areas.

Wild population: The subpopulation within Meinmahla Kyun Wildlife Sanctuary is stable/ slightly increasing. The subpopulation in Tanintharyi Region is declining, but at an unknown rate. population size is unknown and population trend is declining. AOO of the species is 496 km^2 and its EOO covers 45179.545 km^2 in its habitats.

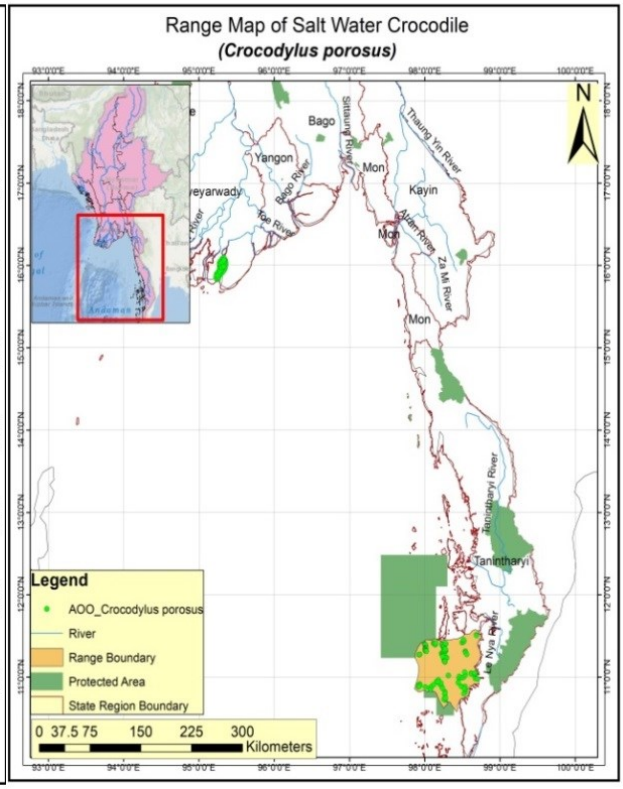
Threats to survival: Killing by humans as a result of human-wildlife conflict. Habitat loss (live only in mangrove areas, which are threatened by land use conversion to shrimp farming, charcoal production, and agricultural land expansion – growing plants for thatching). Pollution from agricultural chemicals. Also loss of food sources (mangrove fruit). Hybridization due to individuals escaping from a crocodile farm.

Conservation actions and research undertaken: One sub-population is found in the Meinmahla

EOO of *Crocodylus porosus*



Range Map of *Crocodylus porosus*



Kyun wildlife sanctuary. Management of the WS includes nest protection and monitoring.

This species was listed in CITES Appendix I and normally protected species by Conservation of Biodiversity and Protected Area Law (2018).

Conservation actions and research needed: Better protection of the southern sub-population.

Use and Trade: Adults are not usually caught for trade. Instead it is killed in retaliation to human mortality. Juveniles are caught for trade between Myanmar and Thailand particularly for leather industry in the past.

Assessors: Kalyar Platt, Me Me Soe, Htun Thu, Kyaw Thu Zaw Wint, Swann Htet Naing Aung, Ko Myint, Kyi Soe Lwin

Reviewers: James Tallant, Monica Böhm

IV. CONCLUSION

Threats and Conservation Measures

Serus Crane at Ayeyawardy Delta Region
© WCS

1. Threats

The main threats to Myanmar fauna species identified during the assessment process were hunting and habitat degradation or lost. Other adverse factors included disease, reduction in prey base (for larger species), disturbance, and recreational activities. Poaching for illegal trade in high-value wildlife products including skins, bones, meat and tonics is a primary threat to large mammals, which has led to their recent disappearance from broad areas of otherwise suitable habitat, and continues at unsustainable rates. Most of the Myanmar mammals (over 60%) are hunted and traded for their meat, skin and bone.

Myanmar is a developing region, bringing huge pressures to bear on the large wild areas required for viable wildlife populations. Conversion of forest land to agriculture and silviculture, commercial logging, and human settlement are the main drivers of habitat loss.

2. Conservation Actions: Legislation

The Conservation of Biodiversity and Protected Area Law (Law No. 12/2018) (CBPAL) came into effect on 21st May 2018, repealing and replacing the Protection of Wildlife, Wild Plants and Conservation of Natural Areas Law (1994). This law is the most applicable with regards to wildlife conservation in Myanmar, as it is intended to -

⇒ Implement government policies on wildlife protection, biodiversity conservation and protected areas conservation;

⇒ Set out protection measures for wildlife and protected areas;

⇒ Implement international convention obligations regarding protection and conservation of wildlife, biodiversity, ecosystems and migratory birds;

⇒ Contribute to the development of research on natural science; and

⇒ Establish protected areas, zoological gardens and botanical gardens.

Section 19(a) of the CBPAL(2018) outlines three levels of legal protection for native species as follows:

⇒ Completely Protected (CP): Completely Protected species may not be hunted except for scientific purposes under a special license.

⇒ Normally Protected (NP): Protected species may be hunted but only with special permission such as for public awareness or scientific research.

⇒ Seasonally Protected (SP): Seasonally Protected species are subject to traditional subsistence hunting by rural communities only during the non-breeding season. Mammalian species are protected between 15 June and 30 September and avian species between 15 March and 30 September (Notification No.690/2020).

The methodology identifying these categories must be linked with the national Red List of threatened species that is committed to be listed as of the national biodiversity strategy and action plan (NBSAP) developed to ensure achieving the Aichi targets. The NBSAP (2015-2020) used new data and information to set targets relating to biodiversity conservation, and to inform decision making for better implementation. Under the national strategy, the Aichi Target 12 states that by 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

The CBPAL (2018) is significantly different to its precursor because it has been radically revised in an attempt to implement CITES. As such, a new category called "wildlife regulated for trade" has been introduced. This term is defined as, "CITES listed animals and plants. This definition includes any part, blood derivative or product thereof of such animals and plants as determined by the Convention." The Director General is also obliged to release a list of such species which are listed under CITES (No. 691/2020).

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APPENDICES

Appendix-1: List of Contributors

Contributors who participated in the process of developing National Red List Species of Myanmar are listed in alphabetical order. Please see in detail in the following list.

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APPENDICES

Appendix-2: Assessed Species (Mammals)

(* Completed justification and described in this book)

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
1*	Primate	*Hoolock hoolock*	Western Hoolock Gibbon	EN A2acd+3cd+4acd	VU A2acd+3cd+4acd
2*	Primate	*Hoolock leuconedys*	Eastern Hoolock Gibbon	EN A1cd	VU A3 cd
3*	Primate	*Hoolock tianxing*	Skywalker Gibbon	EN	EN B1,a,b(ii, iii, iv)
4*	Primate	*Hylobates lar entelloides*	Lar Gibbon	Vulnerable A2 cd	EN A2acd; B2ab (i, ii, iii,iv)
5*	Primate	*T. phayrei*	Phayrei's Langur	EN A2cd	EN A2acd; B2ab(i,ii,iii)
6*	Primate	*T. shortridgei*	Shortridge's Langur	EN A2 cd	EN A2cd
7*	Primate	*Rhinopithecus strykeri*	Myanmar Snub-nosed Monkey	CR A4cd	CR A2 abcd;C1
8*	Primate	*Macaca fascicularis aurea*	Burmese long-tailed macaque, Crab-eating macaque	DD	VU A2abcde;B2ab (i,ii,ii,iv,v)
9*	Primate	*Trachypithecus barbei*	Tenasserium Langur	DD	VU A2acd;B2ab (i,ii,iii,iv,v);C2a(i,ii)
10*	Primate	*Macaca mulatta*	Rhesus Macaque	LC	LC
11*	Primate	*Trachypithecus obscurus flavicauda*	Dusky Langur	LC	EN B2
12*	Chiroptera	*Coelops frithii*	Tail-less Leaf-nosed Bat	DD	EN
13	Chiroptera	*Rousettus lechenaultii*	Lechenault's Rousette	LC	NT
14*	Chiroptera	*Cynopterus sphinx*	Greater short- nosed Fruit Bat	LC	NT
15*	Chiroptera	*Cynopterus brachyotis*	Lesser Dog faced Fruit Bat	LC	VUC1
16	Chiroptera	*Eonycteric spelaea*	Dawn Bat	LC	LC
17	Chiroptera	*Macrogloss sobinus*	Hill Long–tongued Fruit Bat	LC	EN - VU B2 (iii, V)
18*	Chiroptera	*Craseonycteris thonglongyai*	Kitti's Hog-nosed Bat	VU	VU C1
19	Chiroptera	*Hipposideros armiger*	Great Himalayan Leaf-nosed Bat	LC	LC
20*	Chiroptera	*Hipposideros lylei*	Shield-faced Roundleaf Bat	LC	VU?
21	Chiroptera	*Hipposideros larvatus*	Horsfields's Leaf-nosed Bat	LC	LC

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
22	Chiroptera	*Tadarida (Chaerephon) plicata*	Wrinkle-lipped Free-tailed Bat	LC	LC
23*	Carnivora	*Panthera tigris*	Tiger	EN A2abcd;C1	CR C1;D
24*	Carnivora	*Panthera pardus*	Leopard	VU A2cd	VU A4acd;D1
25*	Carnivora	*Neofelis nebulosa*	Clouded Leopard	VU A2cd+3cd	NT
26*	Carnivora	*Catopuma temminckii*	Asiatic Golden Cat	NT	NT
27*	Carnivora	*Pardofelis marmorata*	Marbled Cat	NT	NT
28*	Carnivora	*Prionailurus viverrinus*	Fishing Cat	VU A2cd+3cd+4cd	EN B2ab(ii,iii,iv)
29*	Carnivora	*Prionailurus bengalensis*	Leopard Cat	LC	LC
30*	Carnivora	*Felis chaus*	Jungle Cat	LC	LC
31	Antiodactyla	*Tragulus kanchil*	Lesser Oriental Chevrotain	LC	NT
32	Antiodactyla	*Bos gaurus*	Guar	VU A2cd+3cd+4cd	VU A2abcde+4abcde;C1
33*	Antiodactyla	Rucervus eldii	Eld's Deer	EN A2cd+3cd+4cd	EN A2acd+4acd; B2ab
34*	Carnivora	*Ursus thibetanus*	Asiatic Black Bear	VU A2cd	VU A2cd+4cd
35*	Antiodactyla	*Bos javanicus*	Banteng	EN A2cd+3cd+4cd	EN A2cd+3cd+4cd; B2ab(i, ii, iii); D
36*	Proboscidea	*Elephas maximus*	Asian Elephant, Indian Elephant	EN A2c	EN A2acd+4cd; C2a(i)
37*	Carnivora	*Helarctos malayanus*	Malayan Sun Bear	VU A2cd+3cd+4cd	VU A2cd+4cd
38*	Perissodactyla	*Tapirus indicus*	Malayan Tapir	EN A2bcd+3bcd; C1	EN A2cd+3cd; B2ab(i, ii, iii, iv), D
39	Rodentia	*Bandicota indica*	Greater Bandicoot Rat	LC	LC A2abcd;C1;C2a;D2
40	Rodentia	*Bandicota savilei*	Lesser bandicoot Rat	LC	LC A2abcd;C1;C2a;D2
41	Rodentia	*Mus cervicolor*	Shorted Tailed Rice-tailed mouse (or) Fawn-coloured Mouse	LC	LC A2abcd;C1;C2a;D2
42	Rodentia	*Mus caroli*	Long-tail Rice Field Mouse	LC	LC A2abcd;C1;C2a;D2
43.	Eulipotyphla	*Chimarrogale styani*	Chinese Water Shrew	LC	LC
44	Scandentia	*Tupaia belangeri*	Northern Treeshrew	LC	LC

APPENDICES

Appendix-3: Assessed Species (Birds)

(* Completed justification and described in this book)

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
1*	Anseriformes	*Aythya baeri*	Baer's Pochard	CR	CR
2	Anseriformes	*Aythya ferina*	Common Pochard	CR	CR
3*	Bucerotiformes	*Aceros nipalensis*	Rufous-necked Hornbill	EN	EN
4*	Bucerotiformes	*Berenicornis comatus*	White-crowned Horn Bill	CR	CR
5*	Bucerotiformes	*Rhinoplax vigil*	Helmeted Hornbill	VU	EN
6*	Charadriiformes	*Esacus magnirostris*	Beach Thick-knee	VU	EN
7	Charadriiformes	*Esacus recurvirostris*	Great Thick-knee	EN	CR
8	Charadriiformes	*Vanellus duvaucelii*	River Lapwing	CR	CR
9	Charadriiformes	*Rynchops albicollis*	Indian Skimmer	NT	VU
10*	Charadriiformes	*Sterna acuticauda*	Black-bellied Tern	NT	EN
11*	Charadriiformes	*Calidris pygmaea*	Spoon-billed Sandpiper	NT	EN
12	Charadriiformes	*Numenius arquata*	Eurasian Curlew	VU	CR
13	Charadriiformes	*Tringa guttifer*	Spotted Greenshank	EN	EN
14*	Charadriiformes	*Sterna aurantia*	River Tern	CR	CR
15*	Ciconiiformes	*Ciconia stormi*	Storm's Stork	NT	NT
16*	Ciconiiformes	*Ephippiorhynchus asiaticus*	Black-necked Stork	EN	EN

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
17*	Ciconiiformes	*Leptoptilos dubius*	Greater Adjuant	NT	VU
18	Ciconiiformes	*Leptoptilos javanicus*	Lesser Adjuant	EN	CR
19*	Galliformes	*Pavo muticus*	Green Peafowl	NT	EN
20*	Gruiformes	*Grus antigone*	Sarus Crane	EN	CR
21	Gruiformes	*Heliopais personatus*	Masked Finfoot	VU	CR
22*	Passeriformes	*Emberiza aureola*	Yellow-breasted Bunting	EN	EN
23*	Passeriformes	*Hydrornis gurneyi*	Gurneys's Pitta	VU	EN
24	Passeriformes	*Pycnonotus zeylanicus*	Straw-headed Bulbul	EN	EN
25*	Passeriformes	*Sitta victoriae*	White-browed Nuthatch	CR	EN
26*	Pelecaniformes	*Ardea insignis*	White-bellied Heron	EN	CR
27*	Pelecaniformes	*Pelecanus philippensis*	Spot-billed Pelican	CR	CR
28	Pelecaniformes	*Threskiornis melanocephalus*	Black-headed Ibis	EN	CR
29	Suliformes	*Anhinga melanogaster*	Oriental Darter	CR	CR
30*	Anseriformes	*Asarcornis scutulata*	White-winged Duck	CR	CR
31*	Passeriformes	*Chrysomma altirostre*	Jerdon's Babbler	EN	CR

Appendices

Appendix-4: Assessed Species (Reptiles)

(* Completed justification and described in this book)

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
1*	Testudnies	*Amyda ornate phayrei*	Burmese Softshell Turtle	NA	CR A2cde
2	Testundnies	*Batagur affinis*	Southern River Terrapin, Southern Mangrove Terrapin	NA	CR A2cde; C1; D (possibly extinct)
3*	Testundines	*Batagur baska*	Northern River Terrapin Northern Mangrove Terrapin Four-toed Terrapin River Terrapin	CR A2acd+4cd; C1+2a(i)	CR A2cde; B1ab(iii) + 2ab(iii); D
4*	Testundines	*Batagur trivittata*	Burmese Roofed Turtle	CR A2bcd; B1ab(i,ii,iii) +2ab(i,ii,iii); D	CR A2bcd; B1ab (i,ii,iii) + 2ab(i,ii,iii); D
5*	Testundines	*Caretta caretta*	Loggerhead Turtle	VU A2b	CR A2bcde;C1
6*	Testundines	*Chelonia mydas*	Green Turtle	EN A2bd	CR A2bcde;C1
7*	Testundines	*Chitra vandijki*	Burmese Narrow-headed Softshell Turtle	NA	CR A2cd +4cd
8*	Crocodilia	*Crocodylus porous*	Salt-water Crocodile	LC	EN B2 ab
9*	Testundines	*Cuora amboiensis lineata*	Myanmar Box Turtle	VU A1d+2d	CR A2d
10*	Testundines	*Cuora mouhotii*	Keeled Box Turtle	EN A1d+2d	CR A2cd
11*	Testundines	*Cyclemys fusca*	Myanmar Brown Leaf Turtle	NA	LC
12*	Testundines	*Cyclemys oldhamii*	Oldham's Leaf Turtle	NA	LC
13*	Testundines	*Dermocheloys coriacea*	Leatherback Turtle	VU A2bd	CR A2bcde
14*	Testundines	*Dogania subplana*	Malayan Softshell Turtle	LC	VU A2cde
15*	Testundines	*Eretmochelys imbricata*	Hawksbill Turtle	CR A2bd	CR A2bcde;C1
16*	Testundines	*Geochelone platynota*	Burmese Star Tortoise, Flatback Tortoise	CR A1cd+2cd, C2a	CR A1cd
17*	Testundines	*Heosemys depressa*	Arakan Forest Turtle	CR A2cd; B1+2c	CR A2cd + 4cd
18*	Testundines	*Heosemys grandis*	Giant Asian Pond Turtle	VU A1d+2cd	CR A2cde
19*	Testundines	*Heosemys spinosa*	Spiny Turtle	EN A1bcd	CR A2cd
20*	Testundines	*Indotestudo elongata*	Elongated Tortoise or Yellow tortoise	CR A2cd	CR A2cd
21*	Testundines	*Lepidochelys olivacea*	Olive Ridley Turtle	VU A2bd	CR A2bcde;C1
22*	Testundines	*Lissemys punctata*	Indian Flapshell Turtle	LC	LC
23*	Testundines	*Lissemys scutata*	Burmese Flapshell Turtle	DD	LC

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
24*	Testundines	*Malayemys subtrijuga*	Mekong Snail-eating Turtle	NA	EN A2cde
25*	Testundines	*Manouria emys*	Asian Brown Tortoise Asian Giant Tortoise	NA	CR A2cd +4cd
26*	Testundines	*Manouria impressa*	Impressed Tortoise	NA	CR A2cd + 4cd
27*	Testundines	*Malanochelys trijuga edeniana*	Myanmar Black Turtle	NA	VU A2c
28*	Testundines	*Morenia ocellata*	Burmese Eyed Turtle	NA	EN A2cd + 4cd
29*	Testundines	*Nilssonia formosa*	Burmese Peacock Softshell Turtle	NA	CR A2cd + 4cd
30*	Testundines	*Platystenon megacephalum*	Big-headed Turtle	NA	CR A2d
31*	Testundines	*Siebenrockiella crassicollis*	Black Marsh Turtle	NA	CR A2cde
32	Squamata	*Acanthosaura crucigera*	Boulenger's Pricklenape	LC	NT
33	Squamata	*Acanthosaura lepidogaster*	Brown Pricklenape	LC	LC
34	Squamata	*Bronchocela cristatella*	N/A	NE	VU
35	Squamata	*Calotes chincollium*	N/A	LC	NT
36	Squamata	*Calotes emma*	N/A	NE	LC
37	Squamata	*Calotes htunwini*	N/A	LC	LC
38	Squamata	*Calotes irawadi*	N/A	LC	LC
39	Squamata	*Calotes jerdoni*	N/A	NE	DD
40	Squamata	*Calotes mystaceus*	N/A	NE	LC
41	Squamata	*Calotes versicolor*	N/A	NE	LC
42	Squamata	*Draco blanfordii*	Blanford's Flying Lizard	LC	LC
43	Squamata	*Draco maculatus*	Spotted Flying Dragon	LC	LC
44	Squamata	*Draco melanopogon*	N/A	NE	NA
45	Squamata	*Draco taeniopterus*	N/A	LC	LC
46	Squamata	*Japalura hamptoni*	Hampton's Japalure	DD	DD

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
69	Squamata	*Elaphe taeniura*	N/A	NE	LC
70	Squamata	*Gonyosoma prasina (Rhadinophis prasina)*	N/A	LC	LC
71	Squamata	*Ptyas korros*	N/A	NE	LC
72	Squamata	*Xenochrophis piscator*	N/A	NE	LC
73	Squamata	*Naja kaouthia*	N/A	LC	LC
74	Squamata	*Naja mandalayensis*	Burmese Spitting Cobra	VU	VU
75	Squamata	*Ophiophagus hannah*	King Cobra	VU	VU
76	Squamata	*Malayopython reticulatus (Python reticulatus)*	Reticulated Python	LC	VU
77	Squamata	*Python kyaiktiyo*		VU	CR
78	Squamata	*Python molurus*	Burmese Python	VU	LC
79	Squamata	*Daboia russelli*		NE	LC
80	Squamata	*Cyrtodactylus aunglini*	Kyauk Ngar Bent-toed Gecko	NE	EN
81	Squamata	*Cyrtodactylus bayinnyiensis*	Bayin Nyi Cave Bent-toed Gecko	NE	CR
82	Squamata	*Cyrtodactylus chaunghanakwaensis*	Chaung Hana Kwa Hill Bent-toed Gecko	NE	VU D2
83	Squamata	*Cyrtodactylus dammathetensis*	Dammathet Cave Bent-toed Gecko	NE	CR
84	Squamata	*Cyrtodactylus linnoensis*	Linno Cave Bent-toed Gecko	NE	VU D2
85	Squamata	*Cyrtodactylus linnwayensis*	Linn Way Bent-toed Gecko	NE	VU D1
86	Squamata	*Cyrtodactylus meersi*	Bent-toed Gecko	NE	CR
87	Squamata	*Cyrtodactylus mombergi*	Indawgyi Lake Bent-toed Gecko	NE	EN
88	Squamata	*Cyrtodactylus myaleiktaung*	Mya Leike Taung Bent-toed Gecko	NE	CR
89	Squamata	*Cyrtodactylus myintkyawthurai*	Mt. Popa Bent-toed Gecko	NE	EN
90	Squamata	*Cyrtodactylus naungkayaingensis*	Naung Ka Yaing Bent-toed Gecko	NE	CR
91	Squamata	*Cyrtodactylus nyinyikyawi*	Shwe Settaw Bent-toed Gecko	NE	CR
92	Squamata	*Cyrtodactylus pharbaungensis*	Pharbaung Cave Bent-toed Gecko	NE	VU D2

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
47	Squamata	*Japalura planidorsata*	N/A	NE	CR
48	Squamata	*Japalura sagittifera*	N/A	NE	DD
48	Squamata	*Japalura yunnanensis*	Yunnan Japalure	LC	DD
49	Squamata	*Leiolepis belliana*	Common Butterfly Lizard	LC	NT
50	Squamata	*Leiolepis peguensis*	Burmese Butterfly Lizard	LC	NT
51	Squamata	*Physignathus cocincinus*	Chinese Water Dragon	VU	NA
52	Squamata	*Pseudocalotes kakhienensis*	N/A	NE	VU
53	Squamata	*Pseudocalotes kingdonwardi*	Kingwonward's Bloodsucker	LC	NT
54	Squamata	*Pseudocalotes microlepis*	N/A	NE	LC
55	Squamata	*Ptyctolaemus collicristatus*	N/A	LC	VU
56	Squamata	*Ptyctolaemus gularis*	N/A	NE	NT
57	Squamata	*Dopasia gracilis*	N/A	NE	NT
58	Squamata	*Cnemaspis siamensis*	Siamese Rock Gecko	LC	DD/NA
59	Squamata	*Cyrtodactylus aequalis*	N/A	DD	Started
60	Squamata	*Cyrtodactylus brevidactylus*	N/A	DD	EN
61	Squamata	*Cyrtodactylus rubidus*	N/A	NE	Potentially NA
62	Squamata	*Gehyra mutilata*	N/A	NE	Started
63	Squamata	*Gekko gecko*	Tokay Gecko	LC	EN
64	Squamata	*Ptychozoon lionotum*	Smooth-backed Flying Gecko	LC	EN
65	Squamata	*Varanus bengalensis*	N/A	LC	VU
66	Squamata	*Varanus nebulosus*	N/A	NE	NT/LC/DD
67	Squamata	*Varanus salvator*	Common Water Monitor	LC	VU
68	Squamata	*Coleognathus radiatus*	N/A	NE	LC

No.	Order	Scientific Name	Common Name	Global IUCN Category	National IUCN Category
93	Squamata	*Cyrtodactylus pinlaungeneis*	Pinlaung Bent-toed Gecko	NE	CR
94	Squamata	*Cyrtodactylus pyadalinensis*	Pyadalin Cave Bent-toed Gecko	NE	EN
95	Squamata	*Cyrtodactylus pyinyaungensis*	Pyinyaung Bent-toed Gecko	NE	EN
96	Squamata	*Cyrtodactylus sadanensis*	Sadan Cave Bent-toed Gecko	NE	VU D1
97	Squamata	*Cyrtodactylus sadansinensis*	Sadan Sine Cave Bent-toed Gecko	NE	VU D2
98	Squamata	*Cyrtodactylus shwetaungorum*	Shwe Taung Bent-toed Gecko	NE	EN
99	Squamata	*Cyrtodactylus sinyineensis*	Sin Yine Cave Bent-toed Gecko	NE	EN
100	Squamata	*Cyrtodactylus welpyanensis*	Wel Pyan Cave Bent-toed Gecko	NE	CR
101	Squamata	*Cyrtodactylus yathepyanensis*	Yathe Pyan Cave Bent-toed Gecko	NE	EN
102	Squamata	*Cyrtodactylus ywanganensis*	Ywangan Bent-toed Gecko	NE	LC
103	Squamata	*Hemiphyllodactylus linnwayensis*	Linn-Way Slender Gecko	NE	CR
104	Squamata	*Hemiphyllodactylus montawaensis*	Montawa Cave Slender Gecko	NE	EN
105	Squamata	*Hemiphyllodactylus tonywhitteni*	Phapant Cave Slender Gecko	NE	CR
106	Squamata	*Hemiphyllodactylus uga*	Uga's Slender Gecko	NE	CR
107	Squamata	*Hemiphyllodactylus ywanganensis*	Ywangan Slender Gecko	NE	CR
108	Squamata	*Ptychozoon popaense*	*Mt. Popa Parachute Gecko*	NE	CR
109	Urodela	*Tylototriton shanorum*	N/A	VU	VU
110	Urodela	*Tylototriton kachinorum*	N/A	NE	VU

Appendices

Appendix-5: Globally Threatened Mammals of Myanmar

No.	Common Name	Scientific name	Global Status
	ORDER: Pholidota - Pangolins		
	FAMILY: Manidae - Pangolins		
1	Sunda Pangolin	*Manis javanica*	CR
2	Chinese Pangolin (EN)	*Manis pentadactyla*	CR
	ORDER: Chiroptera - Bats		
	FAMILY: Pteropodidae - Fruit Bats		
3	Large Flying Fox	*Pteropus vampyrus*	NT
	FAMILY: Craesonycteridae - Hog-nosed Bats		
4	Kitti's Hog-Nosed Bat	*Craseonycteris thonglongyai*	VU
	FAMILY: Nycteridae - Slit-faced Bat		
5	Malayan Slit-Faced Bat	*Nycteris tragata*	NT
	FAMILY: Rhinolophidae - Horseshoe Bats		
6	King Horseshoe Bat	*Rhinolophus rex*	LC
	FAMILY: Hipposideridae - Roundleaf Bats		
7	Asian Tailless Roundleaf Bat	*Coelops frithii*	LC
	FAMILY: Vespertilionidae - Common Bats		
	ORDER: Primates - Lorises, monkeys and gibbons		
	FAMILY: Lorisidae - Lorises		
8	Asian Slow Loris	*Nycticebus bengalensis*	VU
	FAMILY: Cercopithecidae - Monkeys		
9	Banded Langur	*Presbytis femoralis robinsoni*	NT
10	Dusky Langur	*Trachypithecus obscurus*	NT
11	Tenasserim Langur	*Trachypithecus barbei*	DD
12	Indochinese Grey Langur	*Trachypithecus crepusculus*	EN
13	Phayre's Langur	*Trachypithecus phayrei phayrei*	EN
14	Phayre's Langur	*Trachypithecus phayrei*	EN
15	Capped Langur	*Trachypithecus pileatus*	VU
16	Shortridge's Langur	*Trachypithecus shortridgei*	EN
17	Myanmar Snub-nosed Monkey	*Rhinopithecus strykeri*	CR
18	Northern Pig-tailed Macaque	*Macaca leonina*	VU
19	Stump-tailed Macaque	*Macaca arctoides*	VU
20	Assamese Macaque	*Macaca assamensis*	NT
21	Long-tailed Macaque	*Macaca fascicularis*	LC
22	Rhesus Macaque	*Macaca mulatta*	LC

No.	Common Name	Scientific name	Global Status
	FAMILY: Hylobatidae - Gibbons		
23	Lar Gibon	*Hylobates lar*	EN
24	Western Hoolock Gibbon	*Hoolock hoolock*	EN
25	Eastern Hoolock Gibbon	*Hoolock leuconedys*	VU
26	Skywalker Hoolock Gibbon	*Hoolock tianxing*	NE
	ORDER: Carnivora - Dogs, bears, martens, weasels, otters, civets, mongooses and cats		
	FAMILY: Canidae - Dogs		
27	Golden Jackal	*Canis aureus*	LC
28	Red Fox	*Vulpes vulpes*	LC
29	Dhole	*Cuon alpinus*	EN
30	Domestic Dog	*Canis familiaris*	LC
	FAMILY: Ursidae - Bears		
31	Sun Bear	*Helarctos malayanus*	VU
32	Himalayan Black Bear	*Ursus thibetanus*	VU
	FAMILY: Ailuridae - Red Pandas		
33	Red Panda	*Ailurus fulgens*	EN
	FAMILY: Mustelidae		
34	Greater Hog Badger	*Arctonyx collaris*	VU
35	Eurasian Otter	*Lutra lutra*	NT
36	Hairy-nosed Otter	*Lutra sumatrana*	EN
37	Smooth Otter	*Lutrogale perspicillata*	VU
38	Oriental Small-clawed Otter	*Amblonyx cinereus*	VU
	FAMILY: Viverridae - Civets		
39	Large-spotted Civet	*Viverra megaspila*	EN
40	Binturong	*Arctictis binturong*	VU
41	Banded Civet	*Hemigalus derbyanus*	NT
	FAMILY: Felidae - Cats		
42	Tiger	*Panthera tigris*	EN
43	Leopard	*Panthera pardus*	VU
44	Mainland Clouded Leopard	*Neofelis nebulosa*	VU
45	Marbled Cat	*Pardofelis marmorata*	NT
46	Asiatic Golden Cat	*Catopuma temminckii*	NT
47	Leopard Cat	*Prionailurus bengalensis*	LC
48	Fishing Cat	*Prionailurus viverrinus*	VU
49	Jungle Cat	*Felis chaus*	LC
50	Domestic Cat	*Felis catus*	LC

No.	Common Name		Global Status
	ORDER: Cetacea - Whales, dolphins and porpoises		
	FAMILY: Delphinidae - Oceanic Dolphins		
51	Indo-Pacific Humpbacked Dolphin	*Sousa chinensis*	VU
52	Irrawaddy Dolphin	*Orcaella brevirostris*	EN
	FAMILY: Phocoenidae - Porpoises		
53	Indo-Pacific Finless Porpoise	*Neophocaena phocaenoides*	VU
	FAMILY: Physeteridae - Sperm Whales		
54	Great Sperm Whale	*Physeter macrocephalus*	VU
	FAMILY: Balaenopteridae - Baleen Whales		
55	Blue Whale	*Balaenoptera musculus*	EN
56	Fin Whale	*Balaenoptera physalus*	VU
67	Sei Whale	*Balaenoptera borealis*	EN
	ORDER: Sirenia		
	FAMILY: Dugongidae - Dugong		
58	Dugong	*Dugong dugon*	VU
	ORDER: Proboscidea		
	FAMILY: Elephantidae		
59	Asian Elephant	*Elephas maximus*	EN
	ORDER: Perissodactyla - Odd-toed ungulates: tapirs and rhinoceroses		
	FAMILY: Tapiridae - Tapirs		
60	Malayan Tapir	*Tapirus indicus*	EN
	FAMILY: Rhonocerotidae - Rhinoceroses		
61	Sumatran Rhino	*Dicerorhinus sumatrensis*	CR
62	Javan Rhino	*Rhinoceros sondaicus*	CR
	ORDER: Artiodactyla - Even-toed ungulates: pigs, mousedeer, deer, cattle and sheep		
	FAMILY: Moschidae - Musk-Deer		
63	Black Musk Deer	*Moschus fuscus*	EN
	FAMILY: Cervidae - Deer		
64	Sambar	*Cervus unicolor*	VU
65	Eld's Deer	*Cervus eldii thamin*	EN
66	Hog Deer	*Axis porcinus*	EN
67	Tufted Deer	*Elaphodus cephalophus*	NT
68	Leaf Muntjac	*Muntiacus putaoensis*	DD
69	Gongshan Muntjac	*Muntiacus gongshanensis*	DD
70	Fea's Muntjac	*Muntiacus feae*	DD

No.	Common Name		Global Status
	FAMILY: Bovidae - Cattle, Buffalo, Antelopes, Goats and Sheep		
71	Banteng	*Bos javanicus*	EN
72	Gaur	*Bos gaurus*	VU
73	Water Buffalo	*Bubalus arnee*	EN
74	Takin	*Budorcas taxicolor*	VU
75	Blue Sheep	*Pseudois nayaur*	LC
76	Indochinese Serow	*Capricornis milneedwardsii*	NT
77	Red Serow	*Capricornis rubidus*	NT
78	Chinese Goral	*Naemorhedus griseus*	VU
79	Red Goral	*Naemorhedus baileyi*	VU
	ORDER: Rodentia - Squirrels, rats, mice, voles and porcupines		
	FAMILY: Sciuridae - Squirrels		
	Subfamily: Ratufinae - Giant Squirrels		
80	Black Giant Squirrel	*Ratufa bicolor*	NT
	Subfamily: Callosciurinae - Tree and Ground Squirrels		
81	Stripe-bellied Squirrel	*Callosciurus quinquestriatus*	NT
	Subfamily: Sciurinae - Flying Squirrels		
82	Temminck's Flying Squirrel	*Petinomys setosus*	VU
83	Vordermann's Flying Squirrel	*Petinomys vordermanni*	VU
	Superfamily: Muroidea - Rats and Mice		
	FAMILY: Muridae - Rats and Mice		
84	Greater Marmoset-Rat	*Hapalomys longicaudatus*	EN

Francis, C. M., Field Guide to the Mammals of South-east Asia. Second Edition. UK 2019.

Appendices

Appendix-6: Globally Threatened Birds of Myanmar

No.	Common Name	*Scientific Name*	Seasonal Status	Global Status
	FAMILY: Megapodes - Megapodiidae			
1	Nicobar Scrubfowl	*Megapodius nicobariensis*	H	VU
	FAMILY: Pheasants, Partridges, Turkeys, Grouse - Phasianidae			
2	Crested Partridge	*Rollulus rouloul*	R	NT
3	White-cheeked Partridge	*Arborophila atrogularis*	R	NT
4	Chestnut-breasted Partridge	*Arborophila mandellii*	R	VU
5	Chestnut-necklaced Partridge	*Arborophila charltonii*	R	VU
6	Long-billed Partridge	*Rhizothera longirostris*	R	NT
7	Ferruginous Partridge	*Caloperdix oculeus*	R	NT
8	Green Peafowl	*Pavo muticus*	R	EN
9	Great Argus	*Argusianus argus*	R	NT
10	Malayan Peacock Pheasant	*Polyplectron malacense*	R	VU
11	Japanese Quail	*Coturnix japonica*	WV	NT
12	Sclater's Monal	*Lophophorus sclateri*	R	VU
13	Blyth's Tragopan	*Tragopan blythii*	R	VU
14	Mrs Hume's Pheasant	*Syrmaticus humiae*	R	NT
15	Malay Crested Fireback	*Lophura rufa*	R	NT
	FAMILY: Ducks, Geese, Swans Anatidae			
16	Lesser White-fronted Goose	*Anser erythropus*	V	VU
17	Scaly-sided Merganser	*Mergus squamatus*	V	EN
18	White-winged Duck	*Asarcornis scutulata*	R	EN
19	Common Pochard	*Aythya ferina*	WV	VU
20	Baer's Pochard	*Aythya baeri*	WV	CR
21	Ferruginous Duck	*Aythya nyroca*	WV	NT
22	Pink-headed Duck	*Rhodonessa caryophyllacea*	H	CR
23	Falcated Duck	*Mareca falcata*	WV	NT
24	Andaman Teal	*Anas albogularis*	R	VU
	FAMILY: Grebes - Podicipedidae			
25	Horned Grebe	*Podiceps auritus*	V	VU
	FAMILY: Pigeons, Doves - Columbidae			
26	Pale-capped Pigeon	*Columba punicea*	R	VU
27	Nicobar Pigeon	*Caloenas nicobarica*	R	NT
28	Cinnamon-headed Green-pigeon	*Treron fulvicollis*	R	NT
29	Ashy-headed Green-pigeon	*Treron phayrei*	R	NT
30	Andaman Green-pigeon	*Treron chloropterus*	R	NT
31	Large Green-pigeon	*Treron capellei*	R	VU
32	Jambu Fruit-dove	*Ramphiculus jambu*	V	NT

No.	Common Name	*Scientific Name*	Seasonal Status	Global Status
	FAMILY: Swifts - Apodidae			
33	Dark-rumped Swift	*Apus acuticauda*	R	VU
	FAMILY: Cuckoos - Cuculidae			
34	Black-bellied Malkoha	*Phaenicophaeus diardi*	R	NT
35	Chestnut-bellied Malkoha	*Phaenicophaeus sumatranus*	R	NT
36	Moustached Hawk-cuckoo	*Hierococcyx vagans*	R	NT
	FAMILY: Finfoots - Heliornithidae			
37	Masked Finfoot	*Heliopais personatus*	R	EN
	FAMILY: Cranes -			
38	Sarus Crane	*Antigone antigone*	R	VU
	FAMILY: Bustards - Otididae			
39	Great Bustard	*Otis tarda*	H	VU
	FAMILY: Loons/Divers - Gaviidae			
40	Yellow-billed Loon	*Gavia adamsii*	V	NT
	FAMILY: Petrels, Shearwaters - Procellariidae			
41	Jouanin’s Petrel	*Bulweria fallax*	V	NT
	FAMILY: Storks - Ciconiidae			
42	Greater Adjutant	*Leptoptilos dubius*	R	EN
43	Lesser Adjutant	*Leptoptilos javanicus*	R	VU
44	Painted Stork	*Mycteria leucocephala*	R	NT
45	Asian Woollyneck	*Ciconia episcopus*	R	VU
46	Storm's Stork	*Ciconia stormi*	R	EN
47	Black-necked Stork	*Ephippiorhynchus asiaticus*	R	NT
	FAMILY: Ibises, Spoonbills - Threskiornithidae			
48	Black-headed Ibis	*Threskiornis melanocephalus*	R	NT
49	White-shouldered Ibis	*Pseudibis davisoni*	H	CR
	FAMILY: Herons - Ardeidae			
50	White-bellied Heron	*Ardea insignis*	R	CR
51	Chinese Egret	*Egretta eulophotes*	WV	VU
	FAMILY: Pelicans - Pelecanidae			
52	Spot-billed Pelican	*Pelecanus philippensis*	R	NT
	FAMILY: Darters - Anhingidae			
53	Oriental Darter	*Anhinga melanogaster*	R	NT
	FAMILY: Thick-knees - Burhinidae			
54	Great Thick-knee	*Esacus recurvirostris*	R	NT
55	Beach Thick-knee	*Esacus magnirostris*	R	NT

No.	Common Name	*Scientific Name*	Seasonal Status	Global Status
	FAMILY: Oystercatchers - Haematopodidae			
56	Eurasian Oystercatcher	*Haematopus ostralegus*	WV	NT
	FAMILY: Plovers - Charadriidae			
57	Malay Plover	*Charadrius peronii*	R	NT
58	Northern Lapwing	*Vanellus vanellus*	WV	NT
59	River Lapwing	*Vanellus duvaucelii*	R	NT
	FAMILY: Sandpipers, Snipes, Phalaropes - Scolopacidae			
60	Eurasian Curlew	*Numenius arquata*	WV	NT
61	Far Eastern Curlew	*Numenius madagascariensis*	WV	EN
62	Bar-tailed Godwit	*Limosa lapponica*	WV	NT
63	Black-tailed Godwit	*Limosa limosa*	WV	NT
64	Great Knot	*Calidris tenuirostris*	WV	EN
65	Red Knot	*Calidris canutus*	WV	NT
66	Curlew Sandpiper	*Calidris ferruginea*	WV	NT
67	Spoon-billed Sandpiper	*Calidris pygmaea*	WV	CR
68	Red-necked Stint	*Calidris ruficollis*	WV	NT
69	Asian Dowitcher	*Limnodromus semipalmatus*	WV	NT
70	Wood Snipe	*Gallinago nemoricola*	R	VU
71	Great Snipe	*Gallinago media*	V	NT
72	Gray-tailed Tattler	*Tringa brevipes*	WV	NT
73	Spotted Greenshank	*Tringa guttifer*	WV	EN
	FAMILY: Gulls, Terns, Skimmers - Laridae			
74	Indian Skimmer	*Rynchops albicollis*	R	VU
75	Black-legged Kittiwake	*Rissa tridactyla*	WV	VU
76	River Tern	*Sterna aurantia*	R	NT
77	Black-bellied Tern	*Sterna acuticauda*	R	EN
	FAMILY: Typical Owls - Strigidae			
78	White-fronted Scops-owl	*Otus sagittatus*	R	VU
	FAMILY: Hawks, Eagles - Accipitridae			
79	Egyptian Vulture	*Neophron percnopterus*	V	EN
80	Red-headed Vulture	*Sarcogyps calvus*	R	CR
81	Himalayan Griffon	*Gyps himalayensis*	WV	NT
82	White-rumped Vulture	*Gyps bengalensis*	R	CR
83	Slender-billed Vulture	*Gyps tenuirostris*	R	CR
84	Cinereous Vulture	*Aegypius monachus*	WV	NT
85	Wallace's Hawk-eagle	*Nisaetus nanus*	R	VU
86	Rufous-bellied Eagle	*Lophotriorchis kienerii*	R	NT
87	Indian Spotted Eagle	*Clanga hastata*	R	VU
88	Greater Spotted Eagle	*Clanga clanga*	WV	VU
89	Tawny Eagle	*Aquila rapax*	V	VU

No.	Common Name	*Scientific Name*	Seasonal Status	Global Status
90	Steppe Eagle	*Aquila nipalensis*	WV	EN
91	Eastern Imperial Eagle	*Aquila heliaca*	WV	VU
92	Pallid Harrier	*Circus macrourus*	WV	NT
93	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	R	EN
94	Lesser Fish-eagle	*Icthyophaga humilis*	R	NT
95	Grey-headed Fish-eagle	*Icthyophaga ichthyaetus*	R	NT
	FAMILY: Trogons - Trogonidae			
96	Scarlet-rumped Trogon	*Harpactes duvaucelii*	R	NT
97	Ward’s Trogon	*Harpactes wardi*	R	NT
	FAMILY: Hornbills - Bucerotidae			
98	White-crowned Hornbill	*Berenicornis comatus*	R	EN
99	Helmeted Hornbill	*Rhinoplax vigil*	R	CR
100	Great Hornbill	*Buceros bicornis*	R	VU
101	Bushy-crested Hornbill	*Anorrhinus galeritus*	R	NT
102	Austen's Brown Hornbill	*Anorrhinus austeni*	R	NT
103	Tickell's Brown Hornbill	*Anorrhinus tickelli*	R	NT
104	Black Hornbill	*Anthracoceros malayanus*	R	VU
105	Rufous-necked Hornbill	*Aceros nipalensis*	R	VU
106	Wreathed Hornbill	*Rhyticeros undulatus*	R	VU
107	Plain-pouched Hornbill	*Rhyticeros subruficollis*	R	VU
	FAMILY: Kingfishers - Alcedinidae			
108	Malay Blue-banded Kingfisher	*Alcedo peninsulae*	R	NT
109	Blyth's Kingfisher	*Alcedo hercules*	R	NT
110	Brown-winged Kingfisher	*Pelargopsis amauroptera*	R	NT
111	Rufous-collared Kingfisher	*Actenoides concretus*	R	NT
	FAMILY: Asian Barbets - Megalaimidae			
112	Malay Brown Barbet	*Caloramphus hayii*	R	NT
113	Red-throated Barbet	*Psilopogon mystacophanos*	R	NT
114	Red-crowned Barbet	*Psilopogon rafflesii*	R	NT
	FAMILY: Honeyguides - Indicatoridae			
115	Yellow-rumped Honeyguide	*Indicator xanthonotus*	R	NT
116	Malay Honeyguide	*Indicator archipelagicus*	R	NT
	FAMILY: Woodpeckers -			
117	Olive-backed Woodpecker	*Dinopium rafflesii*	R	NT
118	Buff-necked Woodpecker	*Meiglyptes tukki*	R	NT
119	Chequer-throated Yellownape	*Chrysophlegma humii*	R	NT
120	Great Slaty Woodpecker	*Mulleripicus pulverulentus*	R	VU
	FAMILY: Falcons, Caracaras - Falconidae			
121	White-rumped Pygmy-falcon	*Polihierax insignis*	R	NT
123	Laggar Falcon	*Falco jugger*	R	NT
	FAMILY: Parrots - Psittacidae			
124	Blue-rumped Parrot	*Psittinus cyanurus*	R	NT
125	Grey-headed Parakeet	*Psittacula finschii*	R	NT
126	Blossom-headed Parakeet	*Psittacula roseata*	R	NT
127	Red-breasted Parakeet	*Psittacula alexandri*	R	NT
128	Long-tailed Parakeet	*Psittacula longicauda*	R	VU
129	Alexandrine Parakeet	*Psittacula eupatria*	R	NT

No.	Common Name	Scientific Name	Seasonal Status	Global Status
	FAMILY: Pittas - Pittidae			
130	Garnet Pitta	*Erythropitta granatina*	R	NT
131	Giant Pitta	*Hydrornis caeruleus*	R	NT
132	Gurney's Pitta	*Hydrornis gurneyi*	R*	EN
133	Mangrove Pitta	*Pitta megarhyncha*	R	NT
	FAMILY: Typical Broadbills - Eurylaimidae			
134	Black-and-yellow Broadbill	*Eurylaimus ochromalus*	R	NT
	FAMILY: African and Green Broadbills - Calyptomenidae			
135	Green Broadbill	*Calyptomena viridis*	R	NT
	FAMILY: Old World Orioles - Oriolidae			
136	Dark-throated Oriole	*Oriolus xanthonotus*	R	NT
	FAMILY: Cuckooshrikes - Campephagidae			
137	Jerdon's Minivet	*Pericrocotus albifrons*	R*	NT
138	Fiery Minivet	*Pericrocotus igneus*	R	NT
	FAMILY: Vangas and allies - Vangidae			
139	Maroon-breasted Philentoma	*Philentoma velata*	R	NT
	FAMILY: Ioras - Aegithinidae			
140	Green Iora	*Aegithina viridissima*	R	NT
	FAMILY: Crested Jay - Platylophidae			
141	Crested Jay	*Platylophus galericulatus*	R	NT
	FAMILY: Crows and Jays - Corvidae			
142	Hooded Treepie	*Crypsirina cucullata*	R*	NT
	FAMILY: Reed-warblers - Acrocephalidae			
143	White-browed Reed-warbler	*Acrocephalus tangorum*	WV	VU
	FAMILY: Bulbuls - Pycnonotidae			
144	Buff-vented Bulbul	*Iole charlottae*	R	NT
145	Streaked Bulbul	*Ixos malaccensis*	R	NT
146	Straw-headed Bulbul	*Pycnonotus zeylanicus*	R	CR
147	Scaly-breasted Bulbul	*Pycnonotus squamatus*	R	NT
148	Grey-bellied Bulbul	*Pycnonotus cyaniventris*	R	NT
149	Puff-backed Bulbul	*Euptilotus eutilotus*	R	NT
	FAMILY: Old World Warblers and Parrotbills - Sylviidae			
150	Jerdon's Babbler	*Chrysomma altirostre*	R	VU

No.	Common Name	*Scientific Name*	Seasonal Status	Global Status
	FAMILY: Scimitar-babblers and allies - Timaliidae			
151	Chevron-breasted Babbler	*Stachyris roberti*	R	NT
152	Snowy-throated Babbler	*Stachyris oglei*	R	VU
	FAMILY: Ground Babblers - Pellorneidae			
153	Rufous-crowned Babbler	*Malacopteron magnum*	R	NT
154	Short-tailed Babbler	*Trichastoma malaccense*	R	NT
155	White-chested Babbler	*Trichastoma rostratum*	R	NT
156	Naung Mung Wren-babbler	*Rimator naungmungensis*	R	VU
157	Chinese Grass-babbler	*Graminicola striatus*	R	VU
	FAMILY: Laughingthrushes and allies - Leiotrichidae			
158	Slender-billed Babbler	*Chatarrhaea longirostris*	H	VU
159	Chestnut-backed Laughingthrush	*Garrulax nuchalis*	R	NT
	FAMILY: Nuthatches - Sittidae			
160	White-browed Nuthatch	*Sitta victoriae*	R*	EN
161	Giant Nuthatch	*Sitta magna*	R	EN
162	Beautiful Nuthatch	*Sitta formosa*	R	VU
	FAMILY: Thrushes - Turdidae			
163	Grey-sided Thrush	*Turdus feae*	WV	VU
	FAMILY: Old World Flycatchers and Chats - Muscicapidae			
164	Rusty-bellied Shortwing	*Brachypteryx hyperythra*	R	NT
165	Firethroat	*Calliope pectardens*	WV	NT
166	Chestnut-naped Forktail	*Enicurus ruficapillus*	R	NT
	FAMILY: Leafbirds - Chloropseidae			
167	Greater Green Leafbird	*Chloropsis sonnerati*	R	VU
168	Lesser Green Leafbird	*Chloropsis cyanopogon*	R	NT
	FAMILY: Sunbirds - Nectariniidae			
169	Red-throated Sunbird	*Anthreptes rhodolaemus*	R	NT
	FAMILY: Weavers - Ploceidae			
170	Asian Golden Weaver	*Ploceus hypoxanthus*	R	NT
	FAMILY: Waxbills - Estrildidae			
172	Java Sparrow	*Padda oryzivora*	I	EN
	FAMILY: Old World Buntings - Emberizidae			
173	Yellow-breasted Bunting	*Emberiza aureola*	WV	CR

Seasonal status of birds species,

R = Resident
R* = Endemic Resident
BV = Breeding Visitor
WV = Winter Visitor
P = Passage Migrant Spring and Autumn
N = Not recorded in past 50 years
D = Doubtful Identification Record
V = Vagrant
I = Introduction