



THE NATIONAL RED LIST

Conservation Status of the Birds

of Sri Lanka - 2021



Biodiversity Secretariat
Ministry of Environment



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MESSAGE OF THE SECRETARY, MINISTRY OF ENVIRONMENT

Sri Lanka has a varied climate and topography, which has resulted in rich biodiversity, distributed within a wide range of ecosystems and have the richest biodiversity per unit area in the Asian region. Sri Lanka, along with the Western Ghats of India is now identified as a global biodiversity hotspot, because of significant threats to a rich biodiversity characterized by exceptional endemism. However, the country's biological wealth has faced many challenges in the face of anthropogenic land use changes, high human population pressure, and increased demand for biological resources, coupled with the effects of climate change and the introduction of Invasive Alien Species.



According to the 1978 Constitution of the Democratic Socialist Republic of Sri Lanka, it is the duty of the state and every person in Sri Lanka to protect, preserve and improve the environment for the benefit of the community. The Ministry of Environment has taken the responsibility of implementing the constitution by making development more sustainable. Biodiversity conservation is not a new phenomenon to Sri Lanka. From ancient times Sri Lankans have had close relations with flora and fauna and were very much concerned about their conservation and protection for the benefit of future generations. Sri Lanka has adopted a positive approach in formulating new policies and strategies towards conserving its biological wealth. We have signed and ratified the Convention on Biological Diversity (CBD) and are already in the process of implementing relevant provisions. Further, Sri Lanka is one of the very first countries that prepared a Biodiversity Conservation Strategy and Action plan. I am encouraged to see the work done in this country to identify and assess the status of the country's rich biodiversity since ratifying the UNCBD in 1994. Ministry of Environment is the National Focal Point for the Convention on Biological Diversity (CBD), and the Biodiversity Secretariat of this ministry initiated updating the National Redlist - conservation status of flora and fauna in collaboration with the relevant technical institutions. With the contribution of the members of the expert groups established by the National Species Conservation Advisory Committee, the Biodiversity Secretariat of the Ministry has completed the evaluation of flora and fauna of the country.

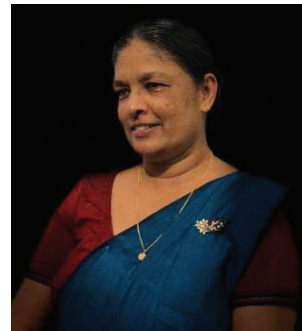
The previous updated National Red List was published in 2012 and this is the new edition of National Red List- Conservation Status of the Birds of Sri Lanka 2021 with the most recent information on birds. Further, the Biodiversity Secretariat has established a national database to facilitate Red List assessments, identify conservation priorities, identify future research studies and provide guidance to make policy and legislation in relation to biodiversity using government funds. Therefore, I wish to thank all the taxonomists, naturalists, researchers and other resource persons who contributed to fulfill this target and the technical support extended for the preparation of this publication. I also thank the Red Listing team of the Biodiversity Secretariat for completing this publication successfully.

Sri Lanka's National Biodiversity Strategic Action Plan (NBSAP) 2016-2022 prepared by the Ministry of Mahaweli Development and Environment and several programs initiated by this Ministry seek to address these needs. As identified in the NBSAP, actions are taken to protect the endangered plants and animal species along with their natural habitats by increasing *in-situ* and *ex-situ* conservation efforts. I sincerely hope these assessments will continue to thrive and serve as a catalyst to conserve Sri Lanka's biodiversity, and also contribute to our collective endeavors to achieve a society that is environmentally, economically and socially sustainable. I am sure the National Red List - Conservation Status of the Birds of Sri Lanka - 2021 will be utilized in various future activities of the government of Sri Lanka for implementing effective conservation plans and development actions.

Dr. Anil Jasinghe,
Secretary, Ministry of Environment

MESSAGE OF THE DIRECTOR, BIODIVERSITY SECRETARIAT, MINISTRY OF ENVIRONMENT

As a Party to the CBD, Sri Lanka honours and strives to meet the international obligations and commitments under the Convention. Convention, identify and monitor components of biological diversity that are important for conservation and sustainable use, including threatened species. The National Red list provides conservation status of assessed species in a given country at that particular time. Purposes of the Red List Indices is to illustrate trends over time in the threat status of species in different biogeographic jurisdictions or political regions. It is also possible to calculate indices at the national level and it provides necessary information for the conservation planning in a country. The Convention on Biological Diversity, in accordance with the Article 7 and Annex 1, Red List information support to achieve the target 4 (the loss of species is significantly reduced) of “National Biodiversity Strategic Action Plan (NBSAP) 2016-2022. Therefore, in order to fulfill the above commitments, the process of updating the red list has been identified as a priority. The National Red List 2021- Conservation Status of the Birds of Sri Lanka is the most updated and comprehensive source of information available on birds, of Sri Lanka and their current status. It was last updated and published in 2012. The database established by this activity will facilitate future research and provide guidance to the policy and legislations related to biodiversity.



The Biodiversity Secretariat (BDS), as the responsible government organisation for species conservation, is looking forward to implementing recommended actions of this National Red List 2021- Conservation Status of the Birds of Sri Lanka, developing conservation action plans for endemic threatened Birds species, and setting in motion the recovery of Threatened birds. It is hoped that this National Red Listing effort will serve as a springboard for urgently needed conservation actions for Sri Lanka’s threatened and endemic birds. The material presented on birds, will no doubt be of much use to scholars, students and administrators alike, and will help make informed decisions to meet the Sustainable Development Goals. Moving forward, these results provide key insights into what is needed for the design and implementation of the post-2020 Global Biodiversity Framework currently being negotiated between governments.

The Post-2020 Global Biodiversity Framework: A ‘now or never opportunity for nature’ As the world’s largest nature conservation partnership, with local roots and global reach informed by internationally recognised science, BDS of the MOE is participating to develop the post-2020 framework and mobilise support for its implementation. This post 2020 deal for nature and people is a steppingstone towards achieving the CBD 2050 Vision of ‘Living in harmony with nature’. As per the post 2020 framework, many areas have been identified, there are successes and positive trends for some aspects, species or locations: Birds help people to develop an awareness of nature and the biodiversity crisis. Data on birds are being used to mainstream biodiversity across sectors. Mitigation measures are reducing bycatch of seabirds in fisheries, while action to reduce pollution is benefiting many species. Conservation of Important Bird and Biodiversity Areas typically benefits people as well as biodiversity. Citizen scientists are increasingly mobilising and sharing data on the occurrence and abundance of birds, enabling innovative approaches to their conservation. Birds are excellent environmental indicators. Nevertheless, birds provide hope.

On behalf of the Ministry of Environment i would like to extend my special thanks to the distinguished experts, taxonomists, naturalist, researchers and other resource persons who took time out of their busy schedules to participate in assessment meetings and provide very valuable data and information for this assessment and who contributed to chapter writing in preparation of this publication. Also, I must thank the fauna Red Listing team and staff of the BDS for completing this important work.

R. H. M. P. Abeykoon
Director, Biodiversity Secretariat,
Ministry of Environment

ACKNOWLEDGEMENT

The Biodiversity Secretariat (BDS) is responsible for assessment, monitoring, and revision of the National Red List, with continuing assistance of panels of species experts. Determination of the conservation status of species is referred to as Red Listing and identified as one of the key requirements for the efficient management of biodiversity. Updating National Red List is a continuous process and National Red List 2021- Conservation Status of Birds of Sri Lanka has been prepared and compiled with the immense support of the number of experts.

We are grateful to Dr. Anil Jasingha the Secretary, Ministry of Environment who provided guidance throughout the process and ensured that scientists and policy makers at the highest level participated in the consultative process. We take this opportunity to thank, Dr. R. D. S. Jayatunga the Additional secretary (Environment Development), Mr. Ajith Silva, former Additional Secretary (Environment Development) and Mr. W.T.B. Disanayake, Additional Secretary (Environmental Policy and Planning) for their guidance, understanding and support for the success of this nationally important task.

This assessment was entirely dependent on more than 30 national experts serving the national birds expert committee who generously gave of their time and expertise. Their enthusiasm and commitment to species conservation has enabled us to generate a detailed assessment and comprehensive status report of breeding birds in Sri Lanka. We greatly acknowledge the valuable contribution given by the ornithologists, scientists, biologists, ecologists, researchers, birders and naturalists of the National Birds Expert Committee who participated in the assessment and shared their data generously for the species assessments. We are also thankful to all the authors who contributed to the National Red List 2021- Conservation Status of Birds of Sri Lanka. We wish to acknowledge Prof. Devaka Weerakon the fauna consultant and chair of the National Red List Assessment for his invaluable contribution as an advisor, an assessor, a reviewer and an expert for the assessment. Our sincere appreciation is extended to Mr. Salindra K. Dayananda, expert of the Red Listing team for the technical and editorial contribution and tireless effort provided throughout the assessment process to make this task realistic. It is much appreciated the support given by Mr. Amila Sumanapala, expert of the Red Listing team for manuscript reading and editorial assistance, and Mr. Pradeep Jayathunga for language editing of this book.

A very special word of thanks goes to Sri Lanka Environment Exploration Society (SLEES) which contributed generously by providing funding for the birds' assessment with collaboration of Project on Capacity Building and Knowledge Management for Climate Change Adaptation and Identification of Community Based Adaptation Strategies of Sri Lanka funded by the GEF Small Grants Programme of the UNDP. Our special thanks are extended to Director, Biodiversity Secretariat for her guidance, valuable advice and support provided for the assessment process and preparation of the book.

The support provided by intern students Mr. Ashan Karunanda, Ms. Gayani Bandaranayake and Ms. Irosha in coordinating the meetings, data compiling and preparation of maps is greatly appreciated. Special thank goes to Dr. Gehan Rajeev for sharing images of birds used in this book. We are also thankful to all the officers and interns of the BDS. Lastly, we would like to thank the Government Printing Department for the printing of this publication. Finally, we hope this will be a guiding document for the country's conservation planning and inform conservation interventions to protect the species diversity in Sri Lanka and the country's high degree of endemism.

National Red List Fauna Team

EXECUTIVE SUMMARY

Birds have been an integral part of Sri Lanka's culture as they have been featured in our art, folklore, music and literature. The influence of western birding and ornithology started to seep into Sri Lanka from the 16th century. The first scientific avifaunal surveys of Sri Lanka were conducted by the British Museum along with the Colombo Museum from 1920's to 1930's. The knowledge on birds slowly grew initially with the contributions made by colonial officers who took a special interest on birds and eventually Sri Lankans have taken up the subject adding onto a growing body of knowledge. At present birds are one of the most studied taxa in Sri Lanka.

Sri Lanka, though a small island, supports an unusually high biodiversity compared to any other moderate sized tropical island. Among the many taxa that are found in Sri Lanka, birds are perhaps the most attractive faunal group. The avifauna of Sri Lanka comprises, 522 species belonging to 23 orders, 89 families, and 266 genera. Of these 522 species, 244 have breeding populations of which 34 are restricted to Sri Lanka (endemic). This rich avifauna of Sri Lanka is globally recognized with six Wetlands of International Importance, 70 Important Bird Areas and 82 Key Biodiversity Areas.

The high diversity seen among avifauna of Sri Lanka can be attributed to a wide range of topographic and climatic conditions that prevail in Sri Lanka that has given rise to some unique bioclimatic zones. Further, abundance of water due to large number of natural and manmade wetlands, association with multiple land masses during its evolutionary history, the current location at the southern end of the central Asian flyway and Sri Lanka being a continental island have also contributed to the evolution of a wide range of terrestrial, aquatic, coastal and marine habitats that can provide an array of different ecological niches that have been invaded by birds.

Based on the distribution of birds seven avifaunal zones and two subzones have been identified and these include; (1) Palk Bay coastal zone, (2) Dry and intermediate zone, (3) Uva zone, (4) Highlands zone, (5) Rakwana hill zone, (6) Wet forest zone including two sub-zones namely the wet lowlands sub-zone and wet mid-hills sub-zone, and (7) Marine zone.

For the current Red List assessment, 244 species that have confirmed breeding populations in Sri Lanka were considered. The Crab plover (*Dromas ardeola*) that was considered in the previous assessment under the category breeding resident with a migratory population was excluded in the current assessment as there is no confirmed reports of them breeding in Sri Lanka. Altogether 81 species out of the 244 species assessed were found to be threatened [Critically Endangered (19), Endangered (48), Vulnerable (14)]. A further 31 species were found to be Near Threatened. Two species, Blue-eared Kingfisher (*Alcedo meninting*) and Glossy Ibis (*Plegadis falcinellus*) were placed in the Data Deficient category due to lack of validated occurrence records and lack of verified breeding records respectively. Remaining 130 species were listed as Least Concern.

Out of the 19 species listed as Critically Endangered, 5 species are breeding residents while the remaining 14 species are breeding residents with a migrant population and the Red List category applies only to the breeding population. None of the endemic species were listed as Critically

Endangered species. Out of the 14 species of Breeding residents with migrant populations, the breeding population of 11 species is restricted to the Palk Bay coastal zone. Further eight out of this 11 species are known to breed only in the Adams Bridge Marine National Park. Out of the remaining three species, breeding population of Blue-tailed bee-eater is restricted to the southeastern part of Sri Lanka. It should also be noted that out of the 32 breeding residents with migrant populations assessed, 23 (75%) were found to be threatened, which indicates that the breeding populations are small and restricted to few locations, which is the reason for placing them in one of the three threat categories. However, the migrant population of all these species are listed as least concern on a global scale.

One of the critical findings of the current Red List assessment is that 20 out of the 34 endemic species (59%) are threatened. Compared to the last assessment, Red List status of 23 out of the 34 species remain unchanged while the status of the remaining 10 species were up-listed (1 from LC to NT, 2 from NT to VU and 7 from VU to EN). Therefore, the overall trend with respect to endemic species is not satisfactory as this indicate that there has been no improvement in the status for majority of the species while the status of nearly 30% of the endemic species have further deteriorated during the last decade.

Sri Lanka, although a small island supports a rich bird assemblage. However, the endemism is comparatively low (14% with respect to breeding residents and 7% with respect to overall species richness). Therefore, majority of the bird species observed in Sri Lanka have global populations and the global populations of nearly 87% of the species recorded in Sri Lanka (including the endemic species) are listed as Least Concern. Therefore, Sri Lanka still supports reasonable populations of both breeding residents as well as migrants. However, the challenge faced by Sri Lanka is to keep the common species common and prevent their habitats from degrading. Some of the globally common species such as Painted Francolin, Jungle Bush Quail, Black-necked Stork and Indian Courser shows highly restricted distributions in Sri Lanka and therefore, they are listed as Critically Endangered species. These species are restricted to unique habitats in the Palk Bay coastal zone and Uva zone, which receive little or no protection and therefore a greater emphasis should be given to manage these critical habitats in a sustainable manner.

The long-term trends reflected by the current and previous Red List assessments is unsatisfactory as over a period of approximately 15 years the status of most bird species have deteriorated. The overall aim of Red Listing is to identify species at risk and carry out planned conservation programmes to address the identified threats and thereby improve the long-term survival ability of species. The Red List can, therefore, be used as a diagnostic tool to identify species at risk and a monitoring tool to determine whether the conservation action has contributed to meaningful outcomes. If conservation measures have contributed to meaningful outcomes the status of threatened species should be down listed to lower threat categories over the years. However, comparison of Red List status with the previous assessment undertaken in 2012 indicates that 37 species have been up listed (one species from least concern to vulnerable, five species from near threatened to vulnerable; nine species from near threatened to endangered and 22 species from vulnerable to endangered) as opposed to four species being down listed [Common Hawk Cuckoo (*Hierococcyx varius*) from endangered to vulnerable; Woolly-necked

Stork (*Ciconia episcopus*), Black-crowned Night-heron (*Nycticorax nycticorax*) and Fork-tailed Drongo Cuckoo (*Surniculus dicruroides*) from near threatened to least concern] due to possible population increment. To conclude there is a 6% increase in the threatened bird species compared with the previous assessment carried out in 2012.

The current Red List assessment indicates that Sri Lanka still supports rich avifaunal assemblage and reasonably good populations of both breeding and migrant bird species. However, the current assessments also indicate that the threats on birds continue to operate driving species more towards extinction as evidenced by the up listing of many species. Therefore, this assessment as the previous assessments reiterates the need to elevate the Red Listing process to its next level, that is to move from simply diagnosing the problem to implementing effective conservation action to address the critical problems identified during the Red Listing process.

Completing the Red List assessment is only the end of the beginning. There are number of follow up activities that should be done to accrue the full benefit of Red List assessments. These include

- Improving the overall Red Listing process
- Improving the National Species Database
- Updating the Global Red List for the endemic species
- Implementing programmes to recover populations of threatened species
- Develop and promote a research agenda for threatened species
- Mainstreaming the national Red List into ongoing cross-sectoral initiatives

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LIST OF ABBREVIATIONS

AOO	Area of Occupancy
BDS	Biodiversity Secretariat
CR	Critically Endangered
CR (PE)	Critically Endangered (Possibly Extinct)
DD	Data Deficient
DWC	Department of Wildlife Conservation
E	Endemic
EN	Endangered
EOO	Extent of Occurrence
EW	Extinct in the Wild
EX	Extinct
FD	Forest Department
FFPO	Fauna and Flora Protection Ordinance
FOGSL	Field Ornithology Group of Sri Lanka
GCS	Global Conservation Status
GIS	Geographic Information System
GTS	Global Threat Status
IBA	Important Bird Areas
IUCN	International Union for Conservation of Nature
LC	Least Concern
N	Native
NBSAP	National Biodiversity Strategic Action Plan
NCS	National Conservation Status
NE	Not Evaluated
NT	Near Threatened
NTS	National Threat Status
MOE	Ministry of Environment
SIS	Species Information Service
VU	Vulnerable



CHAPTER 1: INTRODUCTION



Sri Lanka Orange-billed Babbler
(*Argya rufescens*)
© Gehan Rajeev

1.1. History, Taxonomy and Evolutionary Status of Sri Lankan Avifauna

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History of Bird Studies in Sri Lanka

Evidence of consumption or appreciation of birds dates back to 45000-year-old prehistoric sites in the wet zone to modern-day temples and literature of Sri Lanka. The Sri Lanka Jungle Fowl, Sri Lanka Spurfowl, and Indian Peafowl are found in the diet remains of the Balangoda Culture (Roberts et al, 2015, Wedage et al, 2019). Kurullangala rock paintings (Thantilage, 2016), and temple paintings and rock carvings in Buddhist temples depict numerous species of birds including Swans (stone carvings – Anuradhapura Period 300BC – 1000AD), Stints or shorebirds (1500-1800AD in Mannar), Cattle Egret, Jungle Fowl, Peafowl, Rose-ringed Parakeet, Alexandrine Parakeet, Indian Koel, Spotted Dove, Orange-breasted Green Pigeon, Red-faced Malkoha, Black-hooded Oriole, and Brown-headed Barbet. According to the chronicles, King Upatissa (368-410AD) had established Bird Feeders at the Royal Park of Anuradhapura, in the late 4th century (Kotagama and Ratnavira, 2017). *Ruvan Mala*, a book by King Parakrama Bahu, VI (1412-1467AD) contains a reference to 24 species of birds. Likewise, the *Vessantara Jataka Kawi*, *Saddarmalankaraya*, and *Pujavaliya* have 23, 17 and 42 such references of birds respectively. The highest number of names appeared in the 12th century, *Vesaturu Da Sanniya* – where about 60 birds have been named (Kotagama and Ratnavira, 2017). The *Sandesha Kawya* or the tradition of fictional accounts or letters sent via a messenger was a popular form of literature among Singhalese scholars, the messenger depicted in these scholarly pieces was mostly a bird such as Hill-mynah, Parakeet, Swan, Peafowl, and Pigeon.

The influence of western birding and ornithology started to seep into Sri Lankan bird studies in the 17th century. The writers like Baldaeus (1632-1671), gave a more general account on the aspects of then Ceylon including some reference to birds. Robert Knox (1641-1720) for example, observed the Paradise Flycatcher, the Malabar Pied Hornbill, and also referred to the 'Devil Bird' (Knox, 1681a,b) in his narratives of the Kandyan kingdom. George Edwards in his book titled, '*Natural History of Uncommon Birds*' (1743) described Sri Lanka Lorikeet, which marks the beginning of more formal and focused documentation of avifauna with a colonial touch.

The Governor of then Ceylon, Jan Gideon Loten (1752-57), who later the Loten's Sunbird (*Cinnyris lotenius*) was named after, made substantial collections and observations on birds of then Ceylon (Raaf 2010). Together with Loten, Peter de Beverea (1722-1781) made

illustrations of birds, which were later used extensively by European scientists such as Pennant (1777,1781) where some of them became iconotypes for the respective species. Examples include Red-faced Malkoha, Malabar Trogon, Indian Scops-owl, and Common Tailorbird (Pethiyagoda, 2007, Ferguson 1907).

In the early 19th century, the curator of the Calcutta Museum in India had established collaborations with naturalists in Sri Lanka such as Robert Templeton (a surgeon in the Royal Artillery), Edgar Layard (a magistrate in Ceylon) and the Sri Lankan-born Frederick Kelaart (a medical doctor) to document Sri Lankan avifauna (Brandon-Jones 2006, Blyth 1849). R. A. Templeton (1802-1892) collected and studied Sri Lankan birds in collaboration with scientists from Indian and European institutes. Templeton sought assistance from numerous other local collectors to obtain specimens (Gunaratne, 2015). Among them, E.L. Layard made substantial contributions to Sri Lankan Avifauna. Layard added 136 species with the aid of Blyth to the national list including the Layard's Parakeet, which carries the maiden name of his wife (Calthrop); *Psittacula calthropae* (Pethiyagoda 2007). Fredrick Kelaart was interested in the whole spectrum of natural history of Sri Lanka, and he was the first to attempt to document it in a formal manner. His book *Prodromus* refers to birds, mammals, reptiles and amphibians among many other creatures that he had studied in Sri Lanka (Kelaart 1855, 1852). By the end of Templeton-Layard-Kelaart period, the list of birds of Sri Lanka had increased to 315 species. The early works of these pioneering naturalists determined the species composition, the distribution and the status of the island's birds.

E. L. Holdsworth, a marine biologist who resided in Sri Lanka during mid 19th century had contributed towards depositing specimens of shorebirds and waterbirds in the European museums. His work titled '*Catalogue of the Birds found in Ceylon*' (Holdsworth, 1872) was instrumental in later studies of bird taxonomy in Sri Lanka (e.g. Hartert and Jackson, 1915).

One of the most complete Ornithologists of Sri Lanka, Capt. W. Vincent Legge, an officer in the Royal artillery, spent eight years in Sri Lanka and written a detailed monograph of Sri Lankan birds. His three-volume monumental *History of the Birds of Ceylon* (Legge, 1880) had incorporated almost all the bird breeds in the Island. Altogether Legge reported 371 species of birds from Sri Lanka (Legge, 1880). He had also catalogued 388 specimens belonging to 155 species of birds in the Asiatic Society's museum in Colombo (Legge 1874), which later became the National Museum of Colombo. It was not surprising therefore that after him, till 1925, there were very few additional publications made on avifauna (see Murray 1890 and Nevil 1887). Subsequently in 1920-1930, Stuart Baker Published the eight-volume '*Birds of British India including Ceylon and Burma*', followed by four volumes on Nidifications of the Birds of the Indian Empire' (Gunaratne, 2015).

The British Museum, along with the Colombo Museum, had conducted the first scientific avifaunal surveys of Sri Lanka from 1920's to 1930's. This work was done by Hugh Whistler and his work was published in *Spolia Zeylanica*, the bulletin of the National Museum, Colombo (Wait, 1925). With this work, the total number of species increased to 384, with 22 endemic species and 77 endemic subspecies. This work was followed by

Dillon Ripley of the Smithsonian Institute, United States (Ripley, 1949 & 1980). Between 1952 – 1980, a colonial planter and an avid birder W.W.A. Phillips published several bird checklists (Phillips, 1952, 1975, 1978 & 1980). During this same period, Phillips started a series of papers on 'Nests and Eggs of Ceylon Birds' in the Ceylon Journal of Science. In 1955, G. M. Henry with his 'Guide to the Birds of Ceylon' made a dramatic change in the bird interest in Sri Lanka (Henry, 1955). Henry's work led many foreign colonists in Sri Lanka and their local followers to become interested in birding, and it became a popular hobby. Scientific studies however were poorly pursued.

By 1975 general distribution patterns and abundance related information of birds were incorporated into checklists (Phillips, 1978). Even until the 1970's the interest in birding and bird studies was confined mainly to the English-speaking elite. In 1976, Douglas Ranasinghe published a Sinhala-language book on birds - '*Asirimath Kurulu Lokaya*' which helped to infuse interest among locals. This was followed by the systematization of the Sinhala names on a scientific basis by the publication of the 'Systematic Sinhala Nomenclature for the birds of Sri Lanka' by Perera and Kotagama (1983). In 1984, 1996, and 2012 a prominent wildlife photographer, Dr. T.S.U. de Zylva put out his collection of bird photographs as large coffee-table format books on 'Birds of Sri Lanka'. Those books would later transform birding into bird photography in the Sri Lankan wildlife sector. The lack of scientific information was however becoming evident by the latter half of the 1970s. Except Legge (1880), Henry (1955) and a handful of accounts on behavior and breeding, most of the work had been limited to providing accounts on the distribution or description of 'rare' or 'vagrant' birds. Therefore, the status of birds and their ecology remained unexplored until the end of the 20th century.

The scarcity of information slowly started to fade at the beginning of the 21st century with the advent of new field guides with both local and regional coverage, research papers, and novel tools of experimentation. Integrative taxonomic approach, the advent of vocalization related fields, archival, and use of modern technology such as next-generation genomics, satellite tagging, and the use of advanced field identification techniques supported by superior optics saw a great leap in ornithological studies in Sri Lanka over the past two decades. This same period had also seen the transformation of avifaunal studies from the western colonial segment, into observant local birders and scientists (e.g. Krishan and Seneviratne 2022, Alexander et al 2021, Kodikara-arachchi and Seneviratne, 2020, Gunaratne 2015, Jha et al 2021, Kotagama and Ratnavira 2017, Warakagoda and Rasmussen 2004).

Recent Changes to the Taxonomy of Birds Seen in Sri Lanka

With the adoption of integrated taxonomic methods influenced by Tobias et al, (2010), Jarvis et al, (2014), Jetz et al, (2012) and Hackett et al, (2008), marked changes have been seen in the global bird taxonomy, which are reflected here in the species reported in Sri Lanka (Table 1.1). The island of Sri Lanka, including its oceanic exclusive economic zone, has 522 bird species recorded to date. These species belong to 23 orders, 89 families, and 266 genera. Of these, the status of 43 species is doubtful and questionable. For example,

Malaysian Pied Fantail, a non-migratory South-East Asian species is on the Sri Lankan bird list. A melanized White Browed Fantail, a resident South Asian Species, can be easily confused with this Southeast species (Rasmussen and Anderton, 2005).

Since the publication of the National Red List (MOE, 2012) and its account on taxonomic revision by Weerakoon and Gunawardana (2012), 11 new families under three orders were newly added to the list of bird families of Sri Lanka (Table 1.1). 9 out of those 11 families belong to the order Passeriformes and the remaining two families are divided into Procellariiformes and Accipitriformes.

Table 1.1: Recent family level (A.) and genus level (B.) changes taken place in birds of Sri Lanka.

a) Family level changes

Common English Name	Genera	Previous Family	New Family	Source
Grassbirds	<i>Schoenicola</i>	Sylviidae	Locustellidae	Fregin et al, 2009
Warblers	<i>Acrocephalus</i>	Sylviidae	Acrocephalidae	Fregin et al, 2009
Tree warblers	<i>Iduna</i>	Sylviidae	Acrocephalidae	Fregin et al, 2009
Tree warblers	<i>Phylloscopus</i>	Sylviidae	Phylloscopidae	Fregin et al, 2009
Old-world flycatchers	<i>Culicicapa</i>	Muscicapidae	Stenostiridae	Pasquet et al, 2002
Woodshrikes	<i>Tephrodornis</i>	Campephagidae	Vangidae	Rasmussen and Anderton, 2005
Babblers	<i>Turdoides</i>	Tamillidae	Leiothrichidae	Alström et al., 2013; Moyle et al., 2012
Babblers	<i>Pellorneum</i>	Tamillidae	Pellorneidae	Alström et al., 2013; Moyle et al., 2012
Old-world Barbets	<i>Psilopogon</i> <i>Caloramphus</i>	Ramphastides	Megalaimidae	Moyle, 2004
Southern Storm-petrels	<i>Fregetta</i> , <i>Oceanites</i> and <i>Pelagodroma</i>	Hydrobatidae	Oceanitidae	Kennedy and Page, 2002
Osprey	<i>Pandion</i>	Accipitridae	Pandionidae	Hackett et al. 2008

b) Genus Level Changes

Common English Name	Previous genus	New genus	Source
Blue-breasted Quail	<i>Coturnix</i>	<i>Synoicus</i>	BOW 2021
Gadwal and Eurasian Wigeon	<i>Mareca</i>	<i>Anas</i>	
Northern Shoveler and Garganey	<i>Anas</i>	<i>Spatula</i>	
Wedge-tailed Shearwater, Flesh-footed Shearwater, Sooty Shearwater, and Short-tailed Shearwater	<i>Puffinus</i>	<i>Ardenna</i>	
Swinhoe's Storm-petrel	<i>Oceanodroma</i>	<i>Hydrobates</i>	
Great Egret	<i>Ardea</i>	<i>Casmerodius</i>	
Intermediate Egret	<i>Ardea</i>	<i>Mesophoyx</i>	
Little Cormorant	<i>Phalacrocorax</i>	<i>Microcarbo</i>	
Bonelli's Eagle	<i>Hieraaetus</i>	<i>Aquila</i>	
Rufous-bellied Eagle	<i>Hieraaetus</i>	<i>Lophotriorchis</i>	
Changeable Hawk-eagle and Legge's Hawk-Eagle	<i>Nisaetus</i>	<i>Spizaetus</i>	
Slaty-breasted Rail	<i>Gallirallus</i>	<i>Lewinia</i>	
Baillon's Crake and Ruddy-breasted Crake	<i>Porzana</i>	<i>Zapornia</i>	
Spoon-billed Sandpiper, Broad-billed Sandpiper, Buff-breasted Sandpiper, and Ruff	<i>Eurhynchynchus</i> , <i>Limicola</i> , <i>Tryngites</i> , <i>Phalaropus</i>	<i>Calidris</i>	
Gull-billed Tern	<i>Sterna</i>	<i>Gelochelidon</i>	
Caspian Tern	<i>Sterna</i>	<i>Hydroprogne</i>	
Lesser Crested Tern, Great Crested Tern, and Sandwich Tern	<i>Sterna</i>	<i>Thalasseus</i>	
Bridled and Sooty Terns	<i>Sterna</i>	<i>Onychoprion</i>	
Brown Skua	<i>Catheractus</i>	<i>Stercorarius</i>	
Spotted Dove	<i>Stigmatopelia</i>	<i>Spilopelia</i>	
Common Hawk-cuckoo	<i>Cuculus</i>	<i>Hierococcyx</i>	
Sirkeer Malkoha	<i>Phaenicophaeus</i>	<i>Taccocua</i>	
Great-eared nightjar	<i>Eurostopodus</i>	<i>Lyncornis</i>	
Indian Swiftlet	<i>Collocalia</i>	<i>Aerodramus</i>	
Alpine Swift	<i>Tachymaptis</i>	<i>Apus</i>	
Barbets	<i>Megalaima</i>	<i>Psilopogon</i>	
Brown-capped Woodpecker	<i>picoides</i>	<i>Yungipicus</i>	

Yellow-crowned Woodpeckers	<i>picoides</i>	<i>Leiopicus</i>
Rufous Woodpecker	<i>Celeus</i>	<i>Micropternus</i>
Black-headed Cuckooshrike	<i>Coracina</i>	<i>Lalage</i>
Dusky Crag-martin and Pale Crag-martin	<i>Hirundo</i>	<i>Ptyonoprogne</i>
Sri Lanka Swallow	<i>Hirundo</i>	<i>Cecropis</i>
Sri Lanka Bush-warbler	<i>Bradypterus</i>	<i>Elaphrornis</i>
Booted Warbler and Sykes's Warbler	<i>Hipolais</i>	<i>Iduna</i>
Dark-fronted Babbler	<i>Rophociccla</i>	<i>Dumetia</i>
Yellow-billed Babbler and Orange-billed Babblers	<i>Turdoidus</i>	<i>Argya</i>
Ashy-headed Laughingthrush	<i>Garrulax</i>	<i>Argya</i>
Purple-backed Starling	<i>Sturnus</i>	<i>Agropsar</i>
Rosy Starling	<i>Sturnus</i>	<i>Pastor</i>
Asian Pied Starlings	<i>Sturnus</i>	<i>Gracupica</i>
Pied Thrush, Orange-headed Thrush, and Spot-winged Thrush	<i>Zoothera</i>	<i>Geokichla</i>
Bluethroat	<i>Luscinia</i>	<i>Cyanecula</i>
Indian Blue Robin	<i>Luscinia</i>	<i>Larvivora</i>
Rufous-tailed Scrub-robin	<i>Cercotrichas</i>	<i>Cercotrichas</i>
Indian Robin	<i>Saxicoloides</i>	<i>Copsychus</i>
Purple-rumped Sunbird and Crimson-backed Sunbird	<i>Nectarinia</i>	<i>Leptocoma</i>
Purple Sunbird and Lotain Sunbird	<i>Nectarinia</i>	<i>Cinnyris</i>
Chestnut-shouldered Petronia	<i>Petronia</i>	<i>Gymnoris</i>
White-throated Munia	<i>Lonchura</i>	<i>Euodice</i>

c) Species Level Changes

The subspecies of Mountain Hawk-eagle previously known as *Spizaetus (Nisaetus) nipalensis kelaarti* is now elevated to full species as Legge's Hawk-eagle *Nisaetus kelaarti* (Gjershaug et al. 2008). Water Rail *Rallus aquaticus* was re-evaluated as Brown-cheeked Rail *Rallus indicus*, however, a detailed assessment is needed to ascertain its status in Sri Lanka. The Purple Swamphen *Porphyrio porphyrio* population in South Asia is now considered as Gray-headed Swamphen *Porphyrio poliocephalus*. The sub species of Eurasian Thick-knee *Burhinus oedicephalus* found in the Indian peninsula is now elevated to full species level as Indian Thick-knee *B. indicus*. Ceylon Bay Owl is now treated as *Phodilus assimilis* which is endemic to the Western Ghats and Sri Lanka. One of the two subspecies previously considered under Black-rumped Flameback *Dinopium benghalense psarodes* is now elevated to a full endemic species as Red-backed Flameback *D. psarodes*

(Fernando et al. 2016). The endemic subspecies of the Common Woodshrike *Tephrodornis pondicerianus* is now considered a full endemic species, the Sri Lanka Woodshrike *Tephrodornis affinis*. Previous subspecies of Greater Racket-tail Drongo occurring in the wet zone of Sri Lanka now has full endemic species status as Sri Lanka Drongo *Dicrurus lophorinus*. Previously listed Jungle Crow *Corvus levaillantii* is no longer a species but Large-billed Crow *Corvus macrorhynchos* is being now considered as one of the two crow species found here. The Great Tit known as *Parus major* is considered not a taxon that occurs in South Asia. Instead, the subspecies has been now elevated to species level as Cinereous Tit *Parus cinereus*. An endemic sub-species previously named *Hirundo daurica hyperythra* is now elevated to endemic species status as Sri Lanka Swallow *Cecropis hyperythra*. The Black-crested Bulbul *Pycnonotus melanicterus* now has full endemic status as Black-capped Bulbul *Rubigula melanicterus*. The South Indian subspecies of Asian Black Bulbul *Hypsipetes leucocephalus ganeesa* is now elevated to Square-tailed Bulbul *Hypsipetes ganeesa*. Due to mtDNA analysis of *Phylloscopus* species complex (Irwin et al. 2001), several former subspecies of *Phylloscopus trochiloides* are elevated to species level, resulting in two species visiting Sri Lanka as migrants; Greenish Warbler *P. trochiloides* and Green Warbler *P. nitidus*. In the *Sylvia* genus, *S. minula* and *S. althaea* are now lumped in to Lesser White-throat *S. curruca*. The subspecies of previously listed Common Hill Myna *Gracula religiosa*, which was restricted to western Ghats and Sri Lanka is now treated as a separate species - Southern Hill Myna *Gracula indica*. Subspecies of previous Eurasian Blackbird restricted to Indian sub-continent is now a full species - Indian Blackbird *Turdus simillimus* (BOW, 2021).

Given those changes, there are 13 sub-species to species level elevations since the last edition of the National Red List (MOE 2012). More changes can be expected due to the advancement of molecular phylogenetics and vocalization-related studies being conducted in the region (e.g. Jha et al 2021). Sri Lanka has 66 subspecies endemics to Sri Lanka (Abeyrama and Seneviratne 2017a). An integrated taxonomic study approach is needed to resolve the taxonomic status of these phenotypically different groups in this isolated island nation for greater protection and conservation prioritization (Abeyrama and Seneviratne 2017a, b).

Evolutionary Distinct Species and Species at the EDGE

The evolutionary history of birds can be traced by using phylogenetic trees (Vellend *et al.*, 2007). Such phylogenetic trees can also be used to measure the amount of evolutionary history captured by each member species (node) in the tree as well (Nee and May 1997). Evolutionary Distinctness (ED) and Evolutionary Distinct and Globally Endangered Score (EDGE) are two such parameters that could elucidate the phylogenetic history captured in birds (Jetz *et al.*, 2014). A species that has a high EDGE score in particular, is an isolated node in the phylogenetic tree and a globally threatened species (Butchart *et al.*, 2010). Abeyrama and Seneviratne (2017a) calculated the evolutionary distinctness of Sri Lankan avifauna using a phylogenetic super tree constructed for 342 species, that include all the endemic and near-endemic species, and most of the resident and migrant species.

Ceylon Frogmouth is the most evolutionary distinct (ED) bird in Sri Lanka, while the Serendib Scops-owl is the most EDGE species of bird in the island (Table 1.2 – 1.3). Malabar Trogon, Indian Pitta, Greater Flamingo, and Little Grebe are the rest of the most evolutionary distinct birds in Sri Lanka (Table 1.2). Green-billed Coucal, Sri Lanka Whistling-thrush, Lesser Adjutant, and Spot-billed Pelican are the next highest EDGE species in Sri Lanka (Table 1.3). The species that have evolved recently and have a sister or closely related species in Sri Lanka have relatively low ED. As a result, the members of order Charadriiformes (shorebirds, terns, and gulls) in general have the lowest ED values. Evolutionary parameters such as ED and EDGE provide a novel perspective for birders and wildlife managers to perceive, evaluate and protect Sri Lanka's avifauna (Abeyrama and Seneviratne 2017b).

Table 1.2: Description of 10 bird species that have the highest evolutionary distinctiveness (ED) values in Sri Lanka (after Abeyrama and Seneviratne 2017a).

Evolutionary distinctiveness		Scientific Name	Common English Name	Breeding Status
Local Rank	Global Rank			
01	281	<i>Batrachostomus moniliger</i>	Ceylon Frogmouth	Breeding resident
02	847	<i>Harpactes fasciatus</i>	Malabar Trogon	Breeding resident
03	1426	<i>Pitta brachyura</i>	Indian Pitta	Winter migrant
04	435	<i>Phoenicopus roseus</i>	Greater Flamingo	Winter migrant
05	320	<i>Tachybaptus ruficollis</i>	Little Grebe	Breeding resident
06	292	<i>Pelecanus philippensis</i>	Spot-billed Pelican	Breeding resident
07	49	<i>Upupa epops</i>	Eurasian Hoopoe	Breeding resident
08	08	<i>Pandion haliaetus</i>	Osprey	Winter migrant
09	726	<i>Elanus caeruleus</i>	Black-winged Kite	Breeding resident
10	109	<i>Phodilus badius</i>	Oriental Bay-owl	Breeding resident

Table 1.3: Description of 10 most evolutionary distinct endangered lineages (EDGE) of birds in Sri Lanka (after Abeyrama and Seneviratne 2017a).

Local Rank	Global Rank	Scientific Name	Common English Name	Breeding status
01	406	<i>Otus thilohoffmanni</i>	Serendib Scops-owl	Endemic
02	248	<i>Centropus chlororhynchus</i>	Green-billed Coucal	Endemic
03	504	<i>Myophonus blighi</i>	Sri Lanka Whistling-thrush	Endemic
04	223	<i>Leptoptilos javanicus</i>	Lesser Adjutant	Breeding resident
05	557	<i>Pelecanus philippensis</i>	Spot-billed Pelican	Breeding resident
06	1079	<i>Urocissa ornata</i>	Sri Lanka Blue Magpie	Endemic
07	460	<i>Phaenicophaeus pyrrhocephalus</i>	Red-faced Malkoha	Endemic
08	1222	<i>Anthraceroceros coronatus</i>	Malabar Pied Hornbill	Breeding resident
09	1233	<i>Columba torringtoniae</i>	Sri Lanka Woodpigeon	Endemic
10	1022	<i>Threskiornis melanocephalus</i>	Black-headed Ibis	Breeding resident

Endemic Species

By the time prolific collections and critical documentation of the island's birds were being made in the latter half of the 19th century, the pioneer naturalists and scientists such as Blyth, Templeton, Layard, Holdsworth (1872) and Legge (1880) had started to understand the relationships of Sri Lankan avifauna with its continental congeners. By then, the national list of species had increased to about 375 species (Legge 1880), which set the stage for a description of endemism in the island's avifauna. In his comprehensive account, Legge (1880) reported 47 species endemic to Sri Lanka. However, the inclusion of the idea of subspecies had resulted in a decrease of the number of endemics in later years. As a result, the number hovered mostly around 20 – 22 for almost a century in the post-Legge era (Waite 1925, Whistler 1936, Philips 1952, Henry 1955, Philips 1975). Based on the biological species concept of Myer (1942), Wijesinghe (1996) proposed five more species to the mostly accepted list of 20 to 22 endemics, making the list jump to 26. At the turn of the 21st century, Warakagoda and Rasmussen (2004) had described the Serendib Scops-owl. During this same period, Rasmussen and Anderton (2005) proposed several subspecies to be elevated to full species status, hence the number of endemics rose to 33. Using extensive field and laboratory studies based on genotype, phenotype, hybrid fitness, and mate choice, Fernando et al, (2016) elevated the subspecies of Black-rumped Flameback *Dinopium benghalense psarodes* to a full species: Red-backed Flameback *D. psarodes*. With these recent additions, the current number of definite species of endemic birds settled at 34 (Table 1.3). There were some controversies on the species status of Sri Lanka Scaly Thrush (*Zoothera imbricata*) and Sri Lanka Drongo (*Dicrurus lophorhinus*), however, most global checklists recognized these taxa as valid endemic species for Sri Lanka (BOW 2021, Clements 2021).

Table 1.4: List of Endemic Species in Sri Lanka with the Evolutionary Distinctiveness (ED) and EDGE scores listed with them. The most evolutionary distinct species is paced first.

	Scientific name	Common name	ED	EDGE		Scientific name	Common name	ED	EDGE
1	<i>Ocyeros ginalensis</i>	Sri Lank Grey Hornbill	49.01	3.91	18	<i>Megalaima rubricapillus</i>	Sri Lanka Barbet	19.26	3.01
2	<i>Centropus chlororhynchus</i>	Sri Lanka Green-billed Coucal	42.13	5.15	19	<i>Bradypterus palliseri</i>	Sri Lanka Bush-warbler	18.92	3.68
3	<i>Loriculus beryllinus</i>	Sri Lanka Hanging Parrot	41.42	3.75	20	<i>Pycnonotus melanicterus</i>	Sri Lanka Black-capped Bulbul	18.55	2.98
4	<i>Glaucidium castanonotum</i>	Sri Lanka Chestnut-backed Owllet	34.25	4.26	21	<i>Pycnonotus penicillatus</i>	Sri Lanka Yellow-eared Bulbul	18.41	3.66
5	<i>Galloperdix bicalcarata</i>	Sri Lanka Spurfowl	28.26	3.38	22	<i>Myophonus blighi</i>	Sri Lanka Whistling-thrush	18.38	5.04
6	<i>Gallus lafayetii</i>	Sri Lanka Junglefowl	25.16	3.26	23	<i>Pellorneum fuscicapillus</i>	Sri Lanka Brown-capped Babbler	18.19	2.95
7	<i>Urocissa ornate</i>	Sri Lanka Blue Magpie	24.38	4.62	24	<i>Eumyias sordidus</i>	Sri Lanka Mountain Blue Flycatcher	17.82	3.63
8	<i>Phaenicophaeus pyrrhocephalus</i>	Sri Lanka Red-faced Malkoha	24.15	4.61	25	<i>Dinopium psarodes</i>	Sri Lanka Red-backed Flameback	16.72	2.87
9	<i>Psittacula calthropae</i>	Sri Lanka Layard's Parakeet	24.04	3.22	26	<i>Pomatorhinus melanurus</i>	Sri Lanka Scimitar-babbler	16.18	2.84
10	<i>Tephrodornis pondicerianu</i>	Sri Lanka Woodshrike	23.74	3.21	27	<i>Zoothera spiloptera</i>	Sri Lanka Spot-winged Thrush	15.87	3.52
11	<i>Dicaeum vincens</i>	Sri Lanka Legge's Flowerpecker	23.33	3.89	28	<i>Argya cinereifrons</i>	Sri Lanka Ashy-headed Laughingthrush	14.93	4.15
12	<i>Otus thilohoffmanni</i>	Sri Lanka Serendib Scops-owl	22.99	5.26	29	<i>Chrysocolaptes stricklandi</i>	Sri Lanka Layard's Flameback	14.21	2.72
13	<i>Columba torringtoniae</i>	Sri Lanka Wood-pigeon	22.64	4.55	30	<i>Gracula ptilogenys</i>	Sri Lanka Hill-Myna	14.02	3.40
14	<i>Treron pompadora</i>	Sri Lanka Green-pigeon	22.50	3.16	31	<i>Argya rufescens</i>	Sri Lanka Rufus Babbler	13.11	3.34
15	<i>Megalaima flavifrons</i>	Sri Lanka Yellow-fronted Barbet	21.38	3.11	32	<i>Zosterops ceylonensis</i>	Sri Lanka Highland White-eye	11.90	2.56
16	<i>Hirundo daurica</i>	Sri Lanka Swallow	20.75	3.088	33	<i>Sturnonis albofrontatus</i>	Sri Lanka White-faced Starling	11.70	3.93
17	<i>Zoothera imbricate</i>	Sri Lanka Sealy Thrush	20.55	3.76	34	<i>Dicrurus lophorhinus</i>	Sri Lanka Drongo	19.11	3.00

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1.2. Biogeography and Endemism of the Birds of Sri Lanka

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The avifauna of Sri Lanka, although comprising a fewer endemic species as well as a lower percentage of endemism compared to the island's herpetofauna or ichthyofauna, is still recognized as a unique assemblage of species that paved the way for delimitation of the Ceylonese subregion (peninsular India south of the Godavari basin and Sri Lanka) of the Oriental region in Wallace's (1876) global map of zoogeography, as it followed the global avifaunal regions proposed by Sclater (1858). Contemporaneous avifaunal delimitations such as the Singhalese subregion of Blyth (1871; the hill range along the western coast of India south of Tapi basin and southern Sri Lanka) as well as the Malabar province of Blanford (1876, 1901; Western Ghats and southern Sri Lanka) have later facilitated the recognition of Western Ghats and Sri Lanka biodiversity hotspot (Mittermeier et al. 2004; Myers et al. 2000) as a true biogeographical entity delimited mainly based on plant endemism. Although both Blyth and Blanford identified northern Sri Lanka to harbor an Indian avifaunal element, recent molecular phylogenetic evidence suggests Sri Lanka as a local avian endemism center within the hotspot (Wickramasinghe et al. 2017; Jha et al. 2021), especially with some 70 or so subspecific taxa being near-endemic to the island. It is also notable that at least 22 among the 34 bird species endemic to Sri Lanka are found in further restricted ranges, mostly in the perhumid south-western wet zone and the south-central highlands characterized by a uniquely high habitat heterogeneity. Furthermore, members of the families Timaliidae, Pellorneidae and Leiothrichidae representing seven species of the 'Asian babblers' in Sri Lanka show remarkably high endemism with four species being endemic to the island, while the other three are also endemic at subspecies level. Such high degrees of endemism have inevitably made Sri Lanka to be recognized as an Endemic Bird Area by the BirdLife International (Stattersfield et al. 1998), also being strongly supported by similar studies for other taxa, especially herpetofauna with insular endemic radiations (Schulte et al. 2002; Bossuyt et al. 2004). Further, identifying the Global 200 priority ecoregions for the conservation of a representative sample of the global biodiversity Olson and Dinerstein (1998, 2002) recognized Sri Lankan moist forests as a spatial conservation priority representing the Tropical and Subtropical Moist Broadleaf Forests Biome of the Indomalayan Realm (Olson et al. 2001). These conservation biogeographical analyses repeatedly highlight Sri Lanka as a landmass with a high bird conservation value that has preserved a considerably important evolutionary history.

Avifaunal Zones of Sri Lanka

Recognition of avifaunal zones within the island goes a long way back to the period of initial global biogeographical regionalisations. The first of such avifaunal zones were proposed by Legge (1880) in his *History of the Birds of Ceylon*, which would mark the first ever bioregionalisation attempt within the island for any taxa in the literature. Those initial avifaunal zones although been described by Legge, were mapped only 70 years later by Phillips (1952), with four major divisions of the

island, namely the low country wet, low country dry, and the central hill zones together with the northwestern coastal zone. Although Legge mentioned the south-eastern coast of Sri Lanka to fall in the same zone with the north-western coastline due to the similarities of the rainfall pattern, Phillips's map only delineates northwest coast and the Jaffna peninsula as an avifaunal zone. Henry (1955), in his *Guide to the Birds of Ceylon* used an over-simplified zonal classification viz., wet zone, dry zone and the central hill zone. This fact has also been emphasized by Erdelen (1989) stating that, zonal restrictions are poor among birds compared to smaller vertebrates and invertebrates, due to the higher dispersal ability and comparatively larger body size in birds. However, studies on avifaunal zones in Sri Lanka had been scarce for about 40 years since 1950s, except for Senanayake et al. (1977), in which he combined the monsoon-driven climatic zones with the three penneplains of the island, also supported by data on amphibian and lizard endemism. Later, starting from the last decade of the 20th century, Legge's avifaunal zones were further developed during two attempts, initially by Kotagama (1989, 1993) and recently through the consensus of several ornithologists of the island (MoMD&E, 2019). However, all above avifaunal zones in Sri Lanka were established by intuitive discernment based on field experience, mainly of a single ornithologist at both initial attempts by Legge and Kotagama, and later based on the opinion from a group of expert birders.

During his zonation attempt Kotagama preferred Legge's avifaunal zones over those mapped by Phillips as the former was based on species distribution patterns while the latter is based on climate. Although climate plays a major role in delimiting faunal zones, it is not essentially the only factor determining the actual distribution of the faunal assemblages. Hence, while accepting the four avifaunal zones mapped by Phillips, Kotagama paid his attention to the peculiarities of the avifauna in the southeast of the island. However, instead of the rain shadow along the south-eastern coast Legge equated to the northwest, Kotagama describes the Uva basin with its peculiar savanna vegetation as a distinct avifaunal zone. Avifaunal zones of Kotagama (1989, 1993) were used as the basis during the preparation of the Biodiversity Profile of Sri Lanka for the 6th National Report to the Convention on Biological Diversity (MoMD&E, 2019), where the zonation was further updated through a consultative process involving 14 experts in the field, specifically considering some restricted distributions of species. The seven avifaunal zones and two subzones identified through this consultative process remain the accepted avifaunal zones for the island as of now: (1) Palk Bay coastal zone, (2) dry and intermediate zone, (3) Uva zone, (4) highlands zone, (5) Rakwana hill zone, (6) wet forest zone including two sub-zones namely the wet lowlands sub-zone and wet mid-hills sub-zone, and (7) marine zone (MoMD&E, 2019).

Although the availability of data on bird distribution in Sri Lanka is now reaching a considerable level of completeness, allowing a complete numerical avifaunal regionalization of the island, such an analysis still remains un-attempted except for a preliminary effort by Perera et al. (2015) based on a coarse quarter degree grid scale introduced by Ramdhani et al. (2010). Perera et al. (2015) suggest the said grid scale is too coarse for the habitat heterogeneity and patterns of species endemism in Sri Lanka suggesting an analysis at a finer scale at least as the 5×5 km grid squares, while the numerical methods that could be used in such analyses are elaborated in Perera et al. (2021).

Table 1.6. Characteristic and zone restricted species in the latest delineation of the avifaunal zones of Sri Lanka (MoMD&E, 2019)

Avifaunal zone	Characteristic species	Zone restricted species
Palk Bay Coastal	<i>Anous stolidus</i> (Brown Noddy), <i>Phoenicopiterus roseus</i> (Greater Flamingo), <i>Thalasseus bergii</i> (Great Crested Tern)	# <i>Anas poecilorhyncha</i> (Spot-billed Duck), # <i>Coturnix coromandelica</i> (Rain Quail), # <i>Cursorius coromandelicus</i> (Indian Courser), # <i>Dicrurus macrocercus</i> (Black Drongo), # <i>Francolinus pondicerianus</i> (Grey Francolin), # <i>Lanius schach</i> (Long-tailed Shrike), <i>Streptopelia decaocto</i> (Collard Dove)
Dry and Intermediate	<i>Anthraceroceros coronatus</i> (Malabar Pied Hornbill), <i>Coracina macei</i> (Large Cuckooshrike), <i>Ploceus manyar</i> (Streaked Weaver)	None
Uva	<i>Phaenicophaeus leschenaultia</i> (Sirkeer Malkoha)	# <i>Francolinus pictus</i> (Painted Francolin), # <i>Perdica asiatica</i> (Jungle Bush-quail), # <i>Treron phoenicoptera</i> (Yellow-footed Green Pigeon),
Wet Forest	* <i>Phaenicophaeus pyrrhocephalus</i> (Sri Lanka Red-faced Malkoha)	* <i>Centropus chlororhynchos</i> (Sri Lanka Green-billed Coucal), * <i>Dicaeum vincens</i> (Sri Lanka White-throated Flowerpecker), * <i>Dicrurus lophorinus</i> (Sri Lanka Drongo), * <i>Garrulax cinereifrons</i> (Sri Lanka Ashy-headed Laughingthrush), * <i>Urocissa ornata</i> (Sri Lanka Blue-Magpie),
Rakwana Hills	* <i>Eumyias sordidus</i> (Sri Lanka Dull-blue Flycatcher), * <i>Pycnonotus penicillatus</i> (Sri Lanka Yellow-eared Bulbul)	None
Highlands	* <i>Eumyias sordidus</i> (Sri Lanka Dull-blue Flycatcher), * <i>Pycnonotus penicillatus</i> (Sri Lanka Yellow-eared Bulbul), <i>Saxicola caprata</i> (Pied Bushchat), <i>Turdus simillimus</i> (Indian Blackbird), * <i>Zosterops ceylonensis</i> (Sri Lanka White-eye),	* <i>Elaphrornis palliseri</i> (Sri Lanka Warbler), * <i>Myophonus blighi</i> (Sri Lanka Whistling-thrush)
Marine	Pelagic bird species such as Shearwaters, Petrels, Storm-petrels, Frigatebirds, Tropicbirds, Jaegers and pelagic Terns	None

* *species endemic to Sri Lanka.*

these species, although being listed here as restricted to the respective zones in Sri Lanka, are not endemic to Sri Lanka.

Ecological Biogeography of the Sri Lankan Avifauna

Similar to other groups of biotas, the avifauna of the island has been shaped by its intrinsic attributes such as the location of Sri Lanka in Asia, the country being a continental (land-bridge) island, its internal geography detailed by the climate, topography/relief, soils and the vegetation. Furthermore, the eventful geological history the island has been through have made some more interesting imprints on the avifauna discussed separately in the next section.

Sri Lanka being located between Northern latitudes 5° and 10°, within the tropical belt and the northern section of the intertropical convergence zone receives a high incipient solar radiation throughout the year and monsoonal rainfall supporting a high biomass and a greater bird species richness as high as 520. Further, Sri Lanka being a continental land-bridge island, the bird species richness has inevitably been enriched by colonization from the mainland India over the long evolutionary history of the island's avifauna. The situation of the island in the Indian Ocean also makes it the southernmost landmass at its longitude until Antarctica, providing a final destination for some 179 northern hemispheric migratory birds using the Central Asian Flyway (Weerakoon & Gunawardena 2012; Kotagama & Ratnavira 2017; MoMD&E 2019). Furthermore, being an island surrounded by the vast Indian Ocean with a coastline of approximately 1620km, Sri Lanka endows a remarkable richness of pelagic sea birds (Kotagama & De Silva 2006; De Silva 2011; Seneviratne et al. 2015; Panagoda et al. 2020).

The tropical aseasonal climate of the island allows the resident birds to breed several times a year corresponding with the periods of monsoons and supported by the year-round supply of food (Legge 1983; Henry 1955; Kotagama & Ratnavira 2017). Location of highlands in the south-central section of the island and the differential amounts of moisture brought in through the two monsoons result in heavy rainfall on the south-western quarter during the southwest monsoon, while the northeast monsoon sweeps through the dry zone with comparatively low rainfall. The influence of two monsoons, delineate Sri Lanka with three climatic and six bioclimatic zones (Wijesinghe et al. 1993), which were initially mapped as Climatic cum Avifaunal Zones of the island by Phillips (1952) incorporating Legge's (1880) descriptions.

Combined with the climatic filtering, the three marked peneplains in the island's topography have isolated species and populations promoting insular speciation, even among highly mobile groups like birds, although to a lesser degree in comparison to groups such as herpetofauna. The variety of the climate and topography, together with the various types of soils found in certain areas, has resulted in a surprisingly diverse gradient of different vegetation types within the island providing an array of niches for a diverse avifauna (see Ashton & Gunatilleke, 1987 for floristic regions and MoMD&E, 2019 for a description of the ecosystem diversity in Sri Lanka), ranking Sri Lanka marginally second to Malaysia in term of the bird species richness per 10,000 km² of land (Baldwin 1991). This peculiar physiography has made Sri Lanka one of those few countries in which the avifauna can be so evidently detailed by its topography and climate (Whistler 1944; Kotagama & Ratnavira 2017).

Historical Biogeography of the Sri Lankan Avifauna

Sri Lanka's close affinity to the Indian mainland made it possible for many avian lineages evolved in larger continental Asian land mass during the recent evolutionary history to easily disperse into the island. However, before colliding with the Asian landmass, the Deccan plate consisting of India and Sri Lanka, had a prolonged geological history dating back to the time it was sandwiched between the African-Malagasy plate and the Antarctic plate in the southern supercontinent, Gondwanaland, from which it started breaking up more than 167 million years ago (Ma) (Yoshida et al. 1992; Meert & Van Der Voo 1997; Chatterjee et al. 2013). Nevertheless, Sri Lanka had been connected to the mainland India during the period of its relatively rapid northward drifting over the Tethys Sea, until about 50 Ma (Chatterjee et al. 2013; Kularathna et al. 2015; Premarathne and Ranaweera 2021). It was during the early Miocene epoch, approximately 20Ma, the island was first separated from mainland India due to marine transgression (Cooray 1967; Jacob 1949; Lajmi et al. 2019). The Miocene aridification and Plio-Pleistocene glacial and inter-glacial periods resulted in alternative cycles of connecting Sri Lanka and India over the Palk isthmus during glaciation events and isolation from the mainland during inter-glacials, resulting in respective biotic colonisations and isolation driven speciation especially among taxa with low dispersal ability (Meegaskumbura et al. 2002; Bossuyt et al. 2004; Biswas and Pawar 2006; Agarwal et al. 2017; Lajmi et al. 2019; Meegaskumbura et al. 2019; Pethiyagoda et al. 2021; Reuter et al. 2021; Sudasinghe et al. 2021). It is interesting to note such patterns of lineage accumulation and insular speciation have also been common for birds, as suggested earlier by Ripley (1949) and confirmed recently by molecular evidence (Wickramasinghe et al. 2017; Jha et al. 2021). Furthermore, recently emerging evidence on other taxa for out-of-Sri Lanka gene exchanges (Jayawardena et al. 2017; Meegaskumbura et al. 2019) has not yet been substantiated for birds, opening new avenues of research.

Different evolutionary signatures have accumulated in Sri Lanka during the continental drift as shown by its avifauna (Legge 1983). Further, such diversity of lineages, including those of birds, are presumed to have taken refuge in the southern Western Ghats and Sri Lanka during the end Cretaceous eruptions of Deccan Traps some 66 Ma (Joshi and Karanth 2013). According to Ripley (1961), the Indian avifauna consist of Indo-Chinese, African, and Palearctic affinities, among which the Indo-Chinese, or more correctly the Indo-Malayan elements, predominate. The African/Gondwanan elements are scarce mainly due to the plate tectonics and late divergence of most of the major bird lineages, while the Indo-Malayan elements had more recent dispersal opportunities (Daniels 2001; Ripley and Beehler 1990; Srinivasan and Prashanth 2006). One such option was explained by the Satpura hypothesis (Hora, 1949,1953), where dispersal via mountain ranges from the eastern Himalayas through Central hills of Assam, Vindhya range, Kaimur ridge, and the Satpura range of hills to western Ghats was hypothesized, initially for freshwater fish fauna. In connection to this, the migration of montane forms of biota from the Himalayas to peninsular India and then to Sri Lanka is presumed to be supported by colder and wetter climates along the mountain bridges compared to those of the plains (Joshi and Karanth 2013). Interestingly similar comments made by Legge (1880) on such affinities in Sri Lankan avifauna during a time the historical biogeographic

knowledge was scarce are remarkable. More recent geological events have isolated the mountains of south India and Sri Lanka resulting in the highlands of the western Ghats and Sri Lanka harbouring evolutionary relicts, further supported by the expansion of rain forests on their western and southern aspects due to heavy southwest monsoon rainfall also promoting speciation (Jha et al. 2021). Hence, as shown by many groups of the Sri Lankan flora and fauna, the high degree of specialization and endemism in the south-western wet zone, especially within highlands is well demonstrated also by the avifauna (De Silva 1980; Legge 1880; Fernando et al. 2016; Abeyrama and Seneviratne 2017; Wichramsinghe et al. 2017).

Ripley (1949, 1980) explains historical affinities of Sri Lankan avifauna, confirming Legge's (1880) claims on south Indian elements (closest relatives of the birds of south-western wet highland of Sri Lanka have been found in the Western Ghats of South India including Nilgiri Hills, while those of the north-western dry zone of Sri Lanka have been found in the "Carnatic" dry plains of eastern South India), together with evidence for relict avifauna with major disjunctions in their distribution. Sri Lankan species with their closest relatives not found in India, but in the eastern Himalayas, Malaysian region, and/or even in Sumatra and Java in the east are recorded as discontinuous distributions of avian lineages, while such presences in Madagascar or Africa in the west are rarely been recorded (see De Silva 1980). In an attempt in delimiting affinities of our endemic avifauna, the author of this chapter carried out a preliminary chorological analysis on the distribution of the ecologically, geographically and taxonomically closest relative in each lineage of all 34 Sri Lankan endemic bird species, based on the Phylogenetic Super Tree of Sri Lankan Avifauna presented in Abeyrama and Seneviratne (2017a, b, supported by Wickramasinghe et al., 2017, and Krishan et al., 2020) (see Dayananda et al., in press; data available at https://www.researchgate.net/publication/359237493_2022_03_15_Zoogeographical_affinities_of_SL_avifauna). The analysis documented;

- a. Two monotypic Sri Lankan endemic bird genera, one with a Malabar/Western Ghats affinity (*Sturnornis*, *Elaphrornis*) and the other with an African affinity (*Elaphrornis*)
- b. Three Sri Lankan endemic species with a considerable disjunction in their lineage, two of them showing Himalayan affinities (*Pycnonotus penicillatus*, *Urocissa ornata*) and one with Malayan affinity (*Dicaeum vincens*)
- c. Twenty Sri Lankan endemic species with their closest relative found extralimital to Sri Lanka but not with considerable disjunctions. They include seven species with Malabar/Western Ghats affinity (*Zoothera imbricata*, *Geokichla spiloptera*, *Eumyias sordidus*, *Rubigula melanicterus*, *Psilopogon rubricapillus*, *Tephrodornis affinis*, *Columba torringtoni*), five species with Western and Eastern Ghats affinity (*Pomatorhinus melanurus*, *Myophonus blighi*, *Treron pompadora*, *Psilopogon flavifrons*, *Psittacula calthrapae*), five species with peninsular/south Indian affinity (*Gallus lafayettii*, *Galloperdix bicalcarata*, *Argya cinereifrons*, *Argya rufescens*, *Ocyeros gingalensis*) and three species with Malayan affinity (*Loriculus beryllinus*, *Pellorneum fuscocapillus*, *Phaenicophaeus pyrrhocephalus*).
- d. Nine Sri Lankan endemic species with their closest relative found in Sri Lanka with a wider geographic range extending out of Sri Lanka, showing one species with Malabar/Western Ghats affinity (*Gracula ptilogenys*), two species with peninsular/south

Indian affinity (*Glaucidium castanotum*, *Dinopium psarodes*), five species with Malayan affinity (*Otus thilohoffmanni*, *Zosterops ceylonensis*, *Chrysocolaptes stricklandi*, *Centropus chlororhynchos*, *Dicrurus lophorinus*) and one species with Palaeotropical affinity, except Australia (*Cecropis hyperythra*).

Inferring Sri Lanka's place in the Palaeotropical bird biogeography, the overall the result indicated a prominent peninsular/ south Indian (35%), Malabar/Western Ghats (26%) and Indo-Malayan (26%) affinities together with uncommon Himalayan (6%), African (3%) and the Palaeotropical (3%) affinities among Sri Lankan endemic avifauna.

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1.3. Bird Habitats in Sri Lanka and Their Status

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Habitat is an area used by a species permanently or transiently to fulfill one or more of life's essential needs such as food, water, shelter, mates and suitable conditions for reproduction. Although birds are extremely mobile, they occupy certain specific areas or habitats to meet their requirements. Aim of this chapter is to provide an overview of the bird habitats in Sri Lanka.

Different bird species occupy different types of habitats, and they exhibit anatomical (e.g., beak, feet and plumage) and physiological (e.g., diving and salt excretion) and behavioral (e.g. migration) adaptations to make maximum use of the habitats. For instance, a bird's beak and feet are mainly adapted in order to be able to efficiently exploit different food sources while their plumages help most birds to blend well with their habitats and avoid being detected by predators. Also, their physiological adaptations allow them to exploit extreme habitats such as deserts or extremely cold regions. Birds also show a range of nesting behaviors varying from underground burrows to tree canopies.

Bird Habitat Types

Bird habitats in Sri Lanka can mainly be categorized into terrestrial and aquatic habitats. The terrestrial habitats can be further sub-divided into forests and non-forest habitats. However, there is some overlap between these different habitat types. Forest habitats comprise trees that make up a canopy and are arranged into several strata while non-forest habitats may vary from open scrub to grasslands. Residential areas as well as other human modified areas can also be considered as non-forest habitats. Aquatic habitats consist of water bodies, which are covered permanently or seasonally with water, hence can be categorized as perennial or seasonal aquatic habitats. The area covered with water may or may not contain vegetation. When vegetation is present it may vary from floating or rooted vegetation, reedbeds, submerged trees, grasses or a combination of those. Areas that undergo seasonal Flooding such as villus are also listed as seasonal aquatic habitats.

1. Forest Habitats

Sri Lanka has a great variety of forest types across the country. They range from coastal mangroves to wet lowland, montane, dry mixed evergreen forests and thorn scrub forests. Mangrove forests are often associated with lagoons or any other brackish/ saltwater environment, therefore discussed under aquatic habitats.

Wet Lowland Forests

Tropical rainforests found below 900m elevation in the southwestern area of the country are considered wet lowland forests. Sinharaja and Kanneliya are two vital rainforests in the country. These wet lowland forest habitats experience annual rainfalls varying generally between 2000–5000mm throughout the year. The mean annual temperature is approximately 28 °C with high humidity. Habitat shows stratification with a tall canopy, sub canopy, a shrub layer and an emergent layer. Additionally, there are many other types of epiphytic flora such as mosses, liverworts ferns and orchids, as well as lichens. Woody lianas are also abundant spanning across different layers of other vegetation. Fungi are commonly found on decaying matter.

Tropical rainforests provide habitat for most of the endemic species, where certain species are restricted to them. Out of the 34 endemic species, 30 are found in wet lowland evergreen forest associated habitats and species such as Green-billed Coucal, Serendib Scops Owl, Sri Lanka Drongo and White-throated Flowerpecker are found only in this habitat. In addition, Ashy-headed Laughingthrush and White-faced Starling are endemic species as well, that are mostly found in this habitat. Another commonly observable phenomenon in this habitat is the occurrence of mixed feeding flocks where number of species come together to form temporary feeding associations due to the advantages conferred in feeding, such as flushing out insects.

Tropical Montane Forests

Tropical montane forests in Sri Lanka span across the central hills including the Knuckles range, Pidurutalagala and Hakgala areas which are at elevations above 1500m. These montane forests receive approximately 2000 mm of annual rainfall. The mean temperature is about 16°C. The humidity is also high. Strong winds are often encountered in these habitats. The canopy is therefore generally short (about 13 m) and the shrub layer is thick. Trees have rounded crowns which are umbrella shaped and the leaves are small and leathery. These are characteristic adaptations in montane forests. As in rainforests, there is a dense cover of epiphytes on trees.

Several endemic species such as Sri Lanka Warbler, Sri Lanka Whistling-thrush, Yellow-eared Bulbul and Dull-blue Flycatcher are restricted to montane forests and associated habitats.

Tropical Dry Mixed Evergreen Forests/Dry Monsoon Forests

These forests are particularly distributed in areas below 300 m altitude in the dry and intermediate zones. The rainfall ranges from 1000mm-1500mm and is limited to the northeast monsoon and inter-monsoon periods. May to September is usually a dry phase. The average annual temperature is approximately 29°C. The canopy is not well developed in these habitats. Canopy flora is usually deciduous.

Malabar Pied Hornbill, Sri Lanka Woodshrike, Greater Racket-tailed Drongo, Jungle Owlet, other owls and several species of raptors are noteworthy species, which are found in such dry zone forests.

A large extent of the dry mixed evergreen forests is designated as protected areas such as Strict Natural reserves (e.g., Ritigala) National Parks (e.g., Yala, Wilpattu, Wasgamuwa, Maduru-Oya, Kaudulla and Minneriya), Conservation Forests, Forest reserves and sanctuaries.

Tropical Thorn Scrubs

Thorn scrub habitats are found in arid lowlands of Sri Lanka, mainly in association with coastal environment, i.e: in the northwestern and southeastern coastal habitats in Hambantota, Mannar and Puttalam districts. Bundala National Park in the southeastern arid zone and Vankalai sanctuary and Vidathalativu Nature Reserve in the northwestern arid zone are good examples of thorn scrub habitats. They consist mostly of short thorny shrubs with a few scattered large trees. Average annual rainfall is below 1000mm with a prolonged dry season. The mean annual temperature is approximately 31°C.

Northwestern arid zone is a unique avifaunal zone in Sri Lanka where large extents of thorn scrub as well as large number of wetlands exist. Thorn scrub extending from northwestern coastal habitats to northern coastal habitats through Mannar region provide home for several breeding resident species shared with the Indian mainland such as Grey Francolin, Indian Courser and Spot-billed Duck, which are restricted to this habitat while Eurasian Collared-dove, Black Drongo and Long-tailed Shrike are some of the other northern restricted range species that can be commonly observed in these habitats.

The above mentioned northwestern and northern coastal habitats serve as vital habitats for migratory birds that arrive in Sri Lanka annually between August to December and depart Sri Lanka around April/May. Gulf of Mannar region acts as a funnel for millions of migratory birds, including a vast number of shorebirds that enter the island along Central Asian Flyway. The ideal combination of thorn scrub and large expanse of wetlands provide habitats for a large number of migrants each year including vagrant species.

2. Non-Forest Habitats

Grasslands

Grassland habitats of Sri Lanka are of two main types; 'Wet Patana grassland' and 'Dry Patana grassland'. This division is based on the rainfall pattern and soil types present.

'Wet Patana' grasslands are found in areas above 1500m in the wet zone while 'Dry Patana' are found in areas between 500m to 1600 m altitude in the dry and intermediate zones. The mean annual rainfall is over 2000 mm and 1400mm to 2,000mm in 'Wet Patana' and 'Dry Patana' habitats respectively. 'Wet Patana' receives rain as well as mist, fog and frost throughout the year while 'Dry Patana' grasslands receive rain during a short period, hence undergoing a prolonged dry period. Annual temperature ranges from 5 °C to 18 °C in 'Wet Patana' grasslands and 18 °C to 24 °C in 'Dry Patana' grasslands. The grasses of 'Wet Patana' grow up to about 1m in height, which are usually shorter than those of 'Dry Patana' which grow up to about 1-2 m in height.

'Wet Patana' habitats are prominent in Horton Plains. Grassland habitats on hill tops in Welimada and Haputale areas consist of 'Dry Patana'.

Savanna

Savanna habitats can be commonly found on slopes of the mountainous areas in the dry and intermediate zones. Savannas are characteristically covered with a dense grass cover where a few trees that are dispersed among the grass. Such dense grass cover prevents soil erosion in the slopes. Another characteristic feature of these habitats is that they are prone to catch fire during the dry season. Deliberate setting of fire by villagers is a major intimidation to these habitats. Savannas can be found in Bibile, Monaragala, Mahiyanganaya, and Wellawaya areas.

There is a significant and unique area of savanna, which is also called 'Medicinal forests' as a result of the presence of well-established populations of a number of local medicinal herbs, in the eastern slopes of the drier Uva hills. Trees with thick bark are scattered within the grassland making a unique habitat for certain birdlife. This habitat is predominantly present in Nilgala area and adjoining dry lands including Galoya National Park.

Painted Francolin and Jungle Bush Quail are restricted to this habitat in Sri Lanka while Yellow-footed Green Pigeon is restricted to several habitats of Uva region. Marshall's Iora and Jungle Nightjar are also of interest as those species also show a restricted distribution in Sri Lanka with some good populations in Nilgala savannah and adjoining Uva Hills.

Residential/ Urban Areas and Other Human Modified Areas

Residential areas and human modified landscapes such as plantations, paddy fields (will be discussed under wetlands), parks and home gardens also play a role as bird habitats. Rubber plantations mainly in the wet zone provide habitats for a large number of insectivorous species, including Flycatchers, Bee-eaters, Woodpeckers, Shrikes, Cuckoo-shrikes, Warblers etc. Proper public/ botanical gardens to home gardens create habitats for common garden birds such as Yellow-billed Babblers, Red-vented Bulbuls, Sunbirds, Common Tailorbirds, and Black hooded Orioles, Minivets, Common Iora and various Flycatchers. Common birds such as Munias, Kingfishers, Egrets and Herons are common in modified habitats associated with water such as paddy fields. Although the species found in these habitats are used to regular human activities, they are susceptible to sudden drastic modifications, which are inevitable in such habitats.

3. Aquatic Habitats

Wetlands

Sri Lanka harbors several natural as well as man-made wetlands. Rivers and streams, their floodplains, freshwater marshes and freshwater springs are considered natural inland wetlands while the coastal wetlands include lagoons, estuaries, mangroves, mudflats, and salt marshes found around the country. Lakes (reservoirs), canals, Paddy fields and aquaculture ponds are some of the man-made wetland habitats found in Sri Lanka.

Lagoons and estuaries are formed when the rivers fall into the sea. For example, the longest river in Sri Lanka, Mahaweli, and its tributaries alone, have created about 10,000 ha of freshwater riverine marshes. These are enormously rich in biodiversity and are highly productive. The “villus” in the riverine floodplains become inundated during the rainy seasons and contract during drought conditions. This unique incident creates cyclic variation in salinity and the depth of water, which models the diversity and productivity of Villus. Further, Sri Lanka’s inland wetlands also provide habitats to many bird species including migrants. Food, and water are abundantly available for birds in these areas.

Coastal wetlands are very important as they host a large number of migrant bird species during the migratory season from August to April annually. Bundala, Vankalei and Kalametiya are such popular coastal wetlands. Talanagama environment protected area and Sri Jayawardenepura Kotte sanctuary are examples for important urban wetlands that harbour over 150 species of birds including a number of migrant species. Likewise, Anavilundawa wetlands cluster, which is a Ramsar wetland site, is also a vital habitat for native and migrant aquatic birds. Further, latest studies on the wetlands associated with Kerawalapitiya waste disposal site, north of Colombo, indicate that a significant number of aquatic birds inhabit these wetlands including a number of migrats and vagrants.

In particular, western coastal area serve as vital habitats for a variety of waterfowl, while serving as very important habitats for winter migratory bird species that enter the country annually from the western coast. Paddy fields are coming down have been in existence from historical times in Sri Lanka and have been well associated with waterfowl over the history. In the beginning of the ‘Maha’ season the availability of shallow water creates an ideal environment for certain waterfowl species. Interestingly this is the time of the year when migratory birds arrive in the island that largely comprising of shorebird populations. These small to medium sized water birds need shallow water habitats to feed and co-existence with paddy fields is highly beneficial for them.

Sea – Coastal and Pelagic Waters

Coastal and pelagic waters of Sri Lanka provide habitat for a number of oceanic birds, where most of the pelagic species are summer visitors to Sri Lankan waters. Such pelagic species are mainly recorded in the western and Southern Ocean while only a few species have been recorded from the eastern ocean of the island. Interestingly, recent studies conducted in the sand islands that make up the Adam’s Bridge in the Gulf of Mannar region proved that they serve as breeding habitats for a number of species such as Sooty Tern, Bridled Tern and even Brown Noddy as well as several other Tern species. Hence, Adam’s Bridge islands is a very important habitat in the sense of seabird breeding.

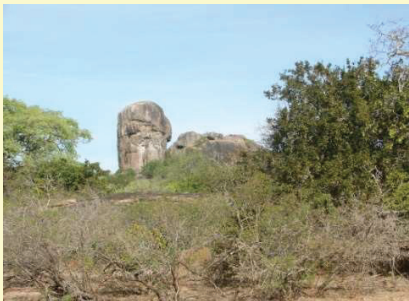
Forest Habitats	Non-forest habitats	Aquatic habitats
Wet lowland forests  Sinharaja World Heritage Rain Forest (picture-web)	Grasslands  Wet Patana - Horton plains (©Tharanga Herath)	Wetlands  Vankalei sanctuary (©Tharanga Herath)
 Knuckles Conservation Forest (©Tharanga Herath)	 Dry Patana - Welimada (picture-web)	 Muthurajawela wetland (©Tharanga Herath)
Tropical montane forests  Horton Plains National Park (picture-web)	Savanna  Savannah forest Nilgala (©Tharanga Herath)	 Baddagana Wetland Park (picture-web)
Tropical dry mixed evergreen forests/Dry monsoon forests  Yala National Park (©Tharanga Herath)	Tropical thorn scrubs  Mannar Thorny Scrubs (picture-web)	

Figure 1.2: Bird Habitat Types in Sri Lanka

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1.4. Global and National Threat Status of Sri Lankan Breeding Resident Birds

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The number of bird species recorded in Sri Lanka stands at 522 species at present, of which, 244 are listed as breeding residents while the rest are listed as migrants or vagrants. The breeding residents include 34 species that are endemic to the country, while another 32 species have regular migrant populations. The National Red List assessment has been carried out only for the 244 breeding residents. However, almost all the 522 bird species recorded in Sri Lanka have been assessed at global level. This chapter presents an overview of the global and national assessments of the breeding residents in Sri Lanka.

Endemics

The global IUCN Red List provides the threat status for all 34 species of endemic birds recorded from Sri Lanka. Of these endemics, eight species are listed as threatened (two as Endangered and six as Vulnerable). Of the remaining 26 species, 6 are listed as Near Threatened and 17 as Least Concern. Sri Lanka Serendib Scops-owl (*Otus thilohoffmanni*) and the Sri Lanka Whistling-thrush (*Myophonus blighi*) are the two endemics listed as globally Endangered.

Even though, theoretically, the national and global threat status of endemic species should be the same, as indicated in Fig. 1.3 and Table 1.7, the present National and Global threat status differs for 19 species, with the global status always indicating a lesser threat status than the national threat status. A good example being the Sri Lanka Drongo (*Dicrurus lophorinus*) receiving LC status although in 2021 national assessment this species is listed as EN.

Further, when compared to 2012 assessment, the national conservation status of 10 bird species had elevated in the present assessment indicating the increasing anthropogenic pressures for their survival (Refer Table 1.7). This include:

- Seven species elevated from Vulnerable to Endangered
- Two species elevated from Near Threatened to Vulnerable and
- One species elevated from Least Concern to Near Threatened

Therefore, as per present assessment, 20 species or 59% of the endemics of the country are listed as threatened with extinction. The positive aspect is that none of these species has reached the Critically Endangered status indicating that there is still a very good chance to improve their conservation status. Further populations of 12 LC species remained stable.

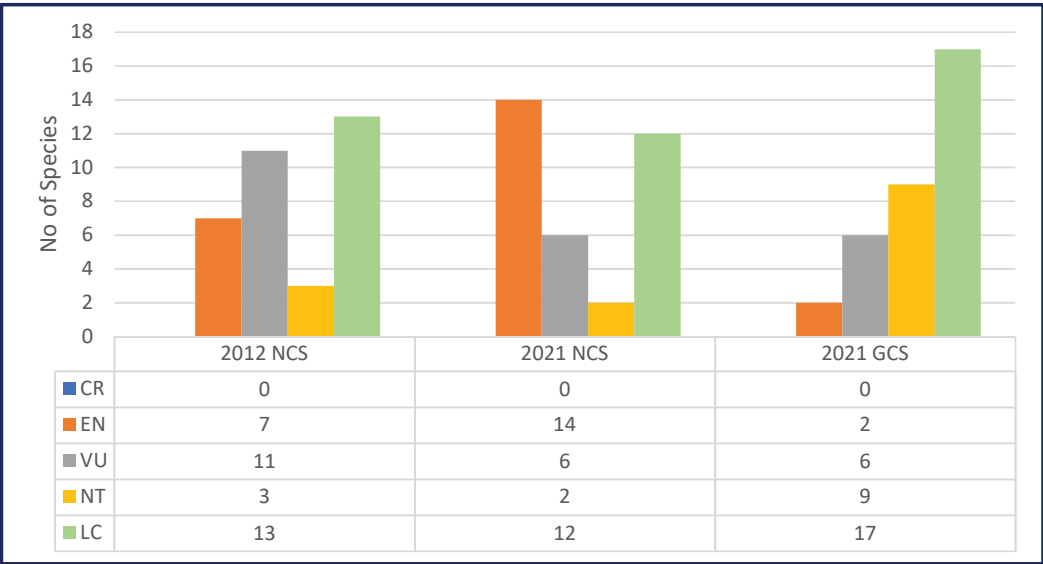


Figure. 1.3: Comparison of endemic bird species in 2012 and 2021 National Red Lists with the present global status

Table 1.7: Comparison of Conservation Status of Endemic species

	Species name	Common English name	National Conservation status		Global Red List
			2012	2021	2021
1	<i>Galloperdix bicalcarata</i> (Forster, 1781)	Sri Lanka Spurfowl	NT	VU	LC
2	<i>Gallus lafayetii</i> Lesson, 1831	Sri Lanka Junglefowl	LC	LC	LC
3	<i>Columba torringtoniae</i> (Blyth & Kelaart, 1853)	Sri Lanka Woodpigeon	VU	VU	VU
4	<i>Treron pompadora</i> (Gmelin, 17	Sri Lanka Green-pigeon	LC	LC	LC
5	<i>Loriculus beryllinus</i> (Forster, 1781)	Sri Lanka Hanging-parrot	LC	LC	LC
6	<i>Psittacula calthropae</i> (Blyth, 1849)	Sri Lanka Emerald-collared Parakeet	NT	NT	LC
7	<i>Phaenicophaeus pyrrhocephalus</i> (Pennant, 1769)	Sri Lanka Red-faced Malkoha	VU	EN	VU
8	<i>Centropus chlororhynchos</i> Blyth, 1849	Sri Lanka Green-billed Coucal	EN	EN	VU

9	<i>Otus thilohoffmanni</i> Warakagoda & Rasmussen, 2004	Sri Lanka Serendib Scops-owl	EN	EN	EN
10	<i>Glaucidium castanotum</i> (Blyth, 1846)	Sri Lanka Chestnut-backed Owlet	VU	EN	NT
11	<i>Ocyrceros gingalensis</i> (Shaw, 1811)	Sri Lanka Grey Hornbill	LC	LC	LC
12	<i>Psilopogon flavifrons</i> (Cuvier, 1816)	Sri Lanka Yellow-fronted Barbet	LC	LC	LC
13	<i>Psilopogon rubricapillus</i> (Gmelin, 1788)	Sri Lanka Barbet	LC	LC	LC
14	<i>Dinopium psarodes</i> (Lichtenstein, 1793)	Sri Lanka Lesser Flameback	LC	LC	LC
15	<i>Chrysocolaptes stricklandi</i> (Layard, 1854)	Sri Lanka Greater Flameback	LC	LC	LC
16	<i>Tephrodornis affinis</i> Blyth, 1847	Sri Lanka Woodshrike	LC	LC	LC
17	<i>Dicrurus lophorinus</i> Vieillot, 1817	Sri Lanka Crested Drongo	VU	EN	LC
18	<i>Urocissa ornata</i> (Wagler, 1829)	Sri Lanka Magpie	VU	EN	VU
19	<i>Cecropis hyperythra</i> (Blyth, 1849)	Sri Lanka Swallow	LC	LC	LC
20	<i>Pycnonotus melanicterus</i> (Gmelin, 1789)	Sri Lanka Black-capped Bulbul	LC	LC	LC
21	<i>Pycnonotus penicillatus</i> Blyth, 1851	Sri Lanka Yellow-eared Bulbul	VU	EN	NT
22	<i>Elaphrornis palliseri</i> (Blyth, 1851)	Sri Lanka Bush-warbler	EN	EN	NT
23	<i>Pellorneum fuscicapillus</i> (Blyth, 1849)	Sri Lanka Brown-capped Babbler	LC	LC	LC
24	<i>Pomatorhinus melanurus</i> Blyth, 1847	Sri Lanka Scimitar-babbler	LC	NT	LC
25	<i>Argya rufescens</i> (Blyth, 1847)	Sri Lanka Orange-billed Babbler	VU	EN	NT
26	<i>Argya cinereifrons</i> Blyth, 1851	Sri Lanka Ashy-headed Laughingthrush	EN	EN	VU
27	<i>Zosterops ceylonensis</i> Holdsworth, 1872	Sri Lanka White-eye	NT	VU	LC
28	<i>Gracula ptilogenys</i> Blyth, 1846	Sri Lanka Myna	VU	VU	NT

29	<i>Sturnornis albofrontatus</i> (Layard, 1854)	Sri Lanka White-faced Starling	EN	EN	VU
30	<i>Myophonus blighi</i> (Holdsworth, 1872)	Sri Lanka Whistling-thrush	EN	EN	EN
31	<i>Geokichla spiloptera</i> (Blyth, 1847)	Sri Lanka Spot-winged Thrush	VU	VU	NT
32	<i>Zoothera imbricata</i> Layard, 1854	Sri Lanka Scaly Thrush	EN	EN	NT
33	<i>Eumyias sordidus</i> (Walden, 1870)	Sri Lanka Dull-blue Flycatcher	VU	VU	NT
34	<i>Dicaeum vincens</i> (Sclater, 1872)	Sri Lanka White-throated Flowerpecker	VU	EN	NT

Colour codes denoted : **Red** - species with elevated national conservation status, **Yellow** - species with mismatches between the national and global status, **Blue** - species with similar status in 2012 and 2021 national assessments and the 2021 global assessment.

Non-Endemic Breeding Residents

This category includes 210 species of birds, and of these, 32 also has a migratory population. All these species, except one, have been assessed in the IUCN global Red Listing assessment. Legge's Hawk-Eagle (*Nisaetus kelaarti*), which is a recently validated species (Clark et al. 2020), has not been evaluated under the global Red Listing assessment yet.

As per the global assessment, only one non-endemic breeding resident species, i.e. Lesser Adjutant (*Leptoptilos javanicus*), is recognized as a species threatened with extinction at the global level. 11 non-endemic breeding resident species are categorized as Near Threatened and two of these, Black-necked Stork (*Ephippiorhynchus asiaticus*) and Rufous-bellied Eagle (*Lophotriorchis kienerii*), are listed as nationally threatened while the rest are listed as either Near Threatened or Least Concern (Table 1.8). The remainder of the non-endemic breeding residents in Sri Lanka are currently listed under the Least Concerned category according to the latest IUCN global Red List even though some of those species are listed as nationally threatened.

The differences between the threat status of the non-endemic breeding resident birds at national and global level can be primarily attributed to the differences in the geographical scope and the populations considered for the assessment. When assessing the conservation status of the non-endemic breeding residents in the present assessment, only the known breeding populations within the geographical range of Sri Lanka was considered. Thus, species with restricted distributions in the country, such as the Jungle Bush Quail (*Perdica asiatica*) or Painted Francolin (*Francolinus pictus*), which are generally restricted to the Uva Avifaunal Zone are categorized as Critically Endangered species in Sri Lanka even though in the global scenario they are listed as Least Concerned species. Similarly, Blue-tailed Bee-eater (*Merops philippinus*) which is a species listed as globally Least Concern with a large population migrating to Sri Lanka, is considered a Nationally Critically Endangered species, because the

national conservation status is based on the limited and restricted breeding population in the Southeastern Sri Lanka instead of the widespread migrant population.

Table 1.8: Non-endemic breeding resident birds categorized as threatened or Near Threatened species in the Global Red List

	Species name	Common English name	National Red List status		Global Red List status
			2012	2021	2021
1	<i>Mycteria leucocephala</i> (Pennant, 1769)	Painted Stork	LC	LC	NT
2	<i>Ciconia episcopus</i> (Boddaert, 1783)	Woolly-necked Stork/ Asian Woollyneck	NT	LC	NT
3	<i>Ephippiorhynchus asiaticus</i> (Latham, 1790)	Black-necked Stork	CR	CR	NT
4	<i>Leptoptilos javanicus</i> (Horsfield, 1821)	Lesser Adjutant	VU	EN	VU
5	<i>Threskiornis melanocephalus</i> (Latham, 1790)	Black-headed Ibis	LC	LC	NT
6	<i>Pelecanus philippensis</i> Gmelin, 1789	Spot-billed Pelican	LC	LC	NT
7	<i>Anhinga melanogaster</i> Pennant, 1769	Oriental Darter	LC	LC	NT
8	<i>Haliaeetus ichthyaetus</i> (Horsfield, 1821)	Grey-headed Fish-eagle	NT	NT	NT
9	<i>Lophotriorchis kienerii</i> (Geoffroy Saint-Hilaire, 1835)	Rufous-bellied Eagle	NT	EN	NT
10	<i>Esacus recurvirostris</i> (Cuvier, 1829)	Great Thick-knee	LC	LC	NT
11	<i>Psittacula eupatria</i> (Linnaeus, 1766)	Alexandrine Parakeet	LC	LC	NT
12	<i>Anthracoceros coronatus</i> (Boddaert, 1783)	Malabar Pied Hornbill	LC	LC	NT

A comparison between the national conservation status of the non-endemic breeding residents in Sri Lanka between the 2012 and 2021 assessments (Fig. 1.3, Table 1.8) indicates a considerable increase (26.5%) in the total number of threatened species. However, it should be noted that three of the non-endemic resident birds categorized as Critically Endangered in the present assessment, *i.e.*, Fulvous Whistling-duck (*Dendrocygna bicolor*), Lesser Noddy (*Anous tenuirostris*), and Brown Noddy (*Anous stolidus*), were not evaluated in 2012 assessment as the presence of their breeding populations was only established after 2012. Figure 1.3 also indicates that there is a significant increase in the number of species recognized as Endangered between 2012 and 2021 assessments. Further, the 2021 assessment also identified 2 Data Deficient species, *i.e.*, Blue-eared Kingfisher (*Alcedo meninting*) and Glossy Ibis (*Plegadis falcinellus*), due to the lack of sufficient and reliable data on the status of their breeding populations, and removed one species, *i.e.*, Crab Plover (*Dromas ardeola*), from the list due to the uncertainty on the presence of a breeding population.

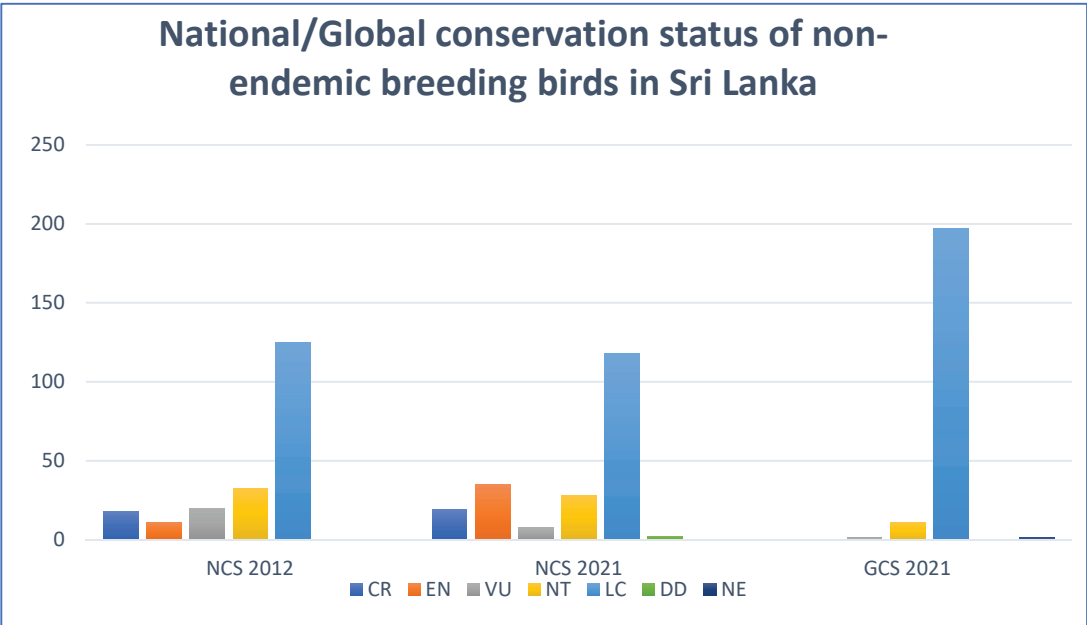


Figure 1.4: A comparison between the national conservation status of non-endemic breeding residents in 2012 and 2021 assessments and the updated global conservation status.

Table 1.9: Number of non-endemic breeding bird species in each red list category according to the national conservation assessments 2012, 2021 and the global red list.

Red List Category	NCS 2012	NCS 2021	GCS 2021
CR	18	19	0
EN	11	35	0
VU	20	8	1
NT	32	28	11
LC	125	118	197
DD	0	2	0
NE	0	0	1

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A detailed photograph of a Sri Lanka Grey Hornbill perched on a tree trunk. The bird has a long, yellowish-brown bill, a dark eye, and greyish-brown plumage with a lighter, scaly texture on its wings. Its tail feathers are dark with prominent light-colored tips. The tree bark is rough and textured, with some moss or lichen visible. A semi-transparent text box is overlaid on the right side of the image.

CHAPTER 2: METHODS

Sri Lanka Grey Hornbill
(*Ocyrceros gingalensis*)
©Gehan Rajeev

2.1. Preparation of The National Birds Red List 2021

The National Red List-Conservation Status of the Birds of Sri Lanka-2021 is the most comprehensive account on national status of threatened birds in Sri Lanka. During this task, the conservation status of birds was re-evaluated for risk of extinction after 2012. This book is prepared through coordination of the Biodiversity Secretariat of the ministry of Environment and the commitment of bird experts and ornithologists from various organizations and universities.

An important outcome of the previous Red Listing assessment in 2012 was the establishment of a digital national level data base for the bird species occurrence data and a digital library of all the published research papers and technical reports about birds and related habitats. This digital data base was updated up to 2021 from the published literature during the period of 2012 to 2021 and personal observations from the bird expert panel members and also used and evaluated for the current assessment. This digital bird data base is subjected to updating on an annual basis with the continuous support from the bird expert panel members.

Compilation of data for updating Red Data Book commenced in 2017 and updating the digital bird data base initiated in August 2018. Before assessing the conservation status of the birds three expert committee meeting were held at the Biodiversity Secretariat, first meeting was held on 25th August 2017, the second meeting was held on 24th of August 2020 and the third meeting was held on 29th September 2020. All the 244 resident bird species were re-evaluated with updated occurrence data and the comments from the bird expert panel members were considered to map the accurate distributions and conclude the final conservation status.

Threatened status of birds were evaluated following the standard guidelines published by the International Union for Conservation of Nature (IUCN) including guidelines for using the IUCN Red List Categories and Criteria (Version 14, 2019) as well as Guidelines for application of IUCN Red List Criteria at Regional and National Levels (Version 4.0, 2012) prepared by the IUCN Species Survival Commission.



Figure 2.1: National Red List Birds assessment expert committee meetings held at MOE

2.2. The IUCN Red List Categories

Technical definitions of the IUCN of the IUCN Red List Categories and Criteria are given in the IUCN Red List Categories and Criteria: Version 3.1 booklet and the Guidelines for using the IUCN Red List Categories and Criteria.

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.

Extinct in The Wild (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild 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.

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.

Endangered (EN)

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

Vulnerable (VU)

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

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.

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.

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.

Not Evaluated (NE)

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

Critically Endangered ‘Possibly Extinct’ CR (PE)

Although an evidentiary approach to classifying extinctions is appropriate, this approach biases analyses of recent extinctions when based only on those species classified as Extinct or Extinct in the Wild (when individuals survive only in captivity). For example, the number of recent extinctions documented on the IUCN Red List is likely to be a significant underestimate, even for well-known taxa such as birds. The tag of ‘possibly extinct’ has therefore been developed to identify those Critically Endangered species that are likely already Extinct, but for which confirmation is required. Taxa tagged as possibly extinct would then be included within bounded estimates of the number of recent extinctions to indicate plausible uncertainty in contemporary rates of extinction. Note that ‘possibly extinct’ is a tag, and not a new Red List Category.

The IUCN Red List of Threatened Species, founded in 1964, is the world’s most comprehensive inventory of the global conservation status of biological species. When discussing the IUCN Red List, the official term “**threatened**” is a grouping of three categories: **Critically Endangered, Endangered, and Vulnerable**. (Source: www.redlist.org)



- Extinct (EX):** no reasonable doubt that the last individual has died.
- Extinct in the Wild (EW):** known only to survive in captivity, cultivation or well outside its natural range.
- Critically Endangered (CR):** facing extremely high risk of extinction in the wild.
- Endangered (EN):** facing a very high risk of extinction in the wild.
- Vulnerable (VU):** facing a high risk of extinction in the wild.
- Near threatened (NT):** close to qualifying, or likely to qualify for a threatened category in the near future.
- Least Concern (LC):** population is stable enough that it is unlikely to face extinction in the near future

2.3. Summary of The IUCN Five Criteria

SUMMARY OF THE FIVE CRITERIA (A-E) USED TO EVALUATE IF A TAXON BELONGS IN AN IUCN RED LIST THREATENED CATEGORY (CRITICALLY ENDANGERED, ENDANGERED OR VULNERABLE).¹

A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%
A1 Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased.	based on any of the following:	(a) direct observation (except A3)	
A2 Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.		(b) an index of abundance appropriate to the taxon	
A3 Population reduction projected, inferred or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3].		(c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality	
A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.		(d) actual or potential levels of exploitation	
		(e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.	
B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)			
	Critically Endangered	Endangered	Vulnerable
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			
C. Small population size and decline			
	Critically Endangered	Endangered	Vulnerable
Number of mature individuals	< 250	< 2,500	< 10,000
AND at least one of C1 or C2			
C1. An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2. An observed, estimated, projected or inferred continuing decline AND at least 1 of the following 3 conditions:			
(a) (i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
(ii) % of mature individuals in one subpopulation =	90–100%	95–100%	100%
(b) Extreme fluctuations in the number of mature individuals			
D. Very small or restricted population			
	Critically Endangered	Endangered	Vulnerable
D. Number of mature individuals	< 50	< 250	D1. < 1,000
D2. Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.			D2. typically: AOO < 20 km ² or number of locations ≤ 5
E. Quantitative Analysis			
	Critically Endangered	Endangered	Vulnerable
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)	≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)	≥ 10% in 100 years

¹ Use of this summary sheet requires full understanding of the IUCN Red List Categories and Criteria and Guidelines for Using the IUCN Red List Categories and Criteria. Please refer to both documents for explanations of terms and concepts used here.

(A–E) used to evaluate if a taxon belongs in a threatened category
(Critically Endangered, Endangered or Vulnerable).

Use any of the criteria A–E	Critically Endangered	Endangered	Vulnerable
A. Population reduction Declines measured over the longer of 10 years or 3 generations			
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%
AI. Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased, based on and specifying any of the following:			
(a) direct observation			
(b) an index of abundance appropriate to the taxon			
(c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality			
(d) actual or potential levels of exploitation			
(e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.			
A2. Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under AI.			
A3. Population reduction projected or suspected to be met in the future (up to a maximum of 100 years) based on (b) to (e) under AI.			
A4. An observed, estimated, inferred, projected or suspected population reduction (up to a maximum of 100 years) where the time period must include both the past and the future, and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under AI.			
B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)			
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following:			
(a) Severely fragmented, OR			
Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals.			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals.			
C. Small population size and decline			
Number of mature individuals	< 250	< 2,500	< 10,000
AND either C1 or C2:			
C1. An estimated continuing decline of at least:	25% in 3 years or 1 generation (up to a max. of 100 years in future)	20% in 5 years or 2 generations	10% in 10 years or 3 generations
C2. A continuing decline AND (a) and/or (b):			
(a i) Number of mature individuals in each subpopulation:	< 50	< 250	< 1,000
or			
(a ii) % individuals in one subpopulation =	90–100%	95–100%	100%
(b) Extreme fluctuations in the number of mature individuals.			
D. Very small or restricted population			
Either:			
Number of mature individuals	< 50	< 250	D1. < 1,000 AND/OR
Restricted area of occupancy			D2. typically: AOO < 20 km ² or number of locations ≤ 5
E. Quantitative Analysis			
Indicating the probability of or 3 extinction in the wild to be:	≥ 50% in 10 years generations (100 years max.)	≥ 20% in 20 years or 5 generations (100 years max.)	≥ 10% in 100 years

2.4. Objectives of the report

The main objective of the national red list 2021 on birds is to assess the current national-level threat status of all the 244 breeding resident birds of Sri Lanka. The task was accomplished by extracting information of locations according to the published literature, technical reports of biodiversity surveys, and occurrence data provided by the members of the National Bird Expert Committee (NBEC). All the data were screened by the expert committee for accuracy and used in mapping and calculating the Area Of Occupancy (AOO) and the Extent Of Occurrences (EOO). Further, the current distribution and trends of population fluctuations were discussed at two expert committee meetings held to come up with the final conservation status for each species.

2.5. Methodological Approach

First, a comprehensive taxonomic update was done on birds recorded within Sri Lanka including the exclusive economic zone in the Indian Ocean to compile the list of birds recorded in Sri Lanka including their distribution status. The nomenclature followed in compiling the list of birds in Sri Lanka was done according to the classification and nomenclature given in Birds of the World (BOW: www.birdsoftheworld.org) where it which has used a single taxonomy, the Clements Checklist (eBird/Clements Checklist, 2021). The compiled list of birds was presented to the NBEC to obtain their concurrence as well as to agree upon the species to be considered during the current Red List assessment. It was agreed to assess only the 244 bird species listed as having breeding resident populations in Sri Lanka, as this population would be restricted to Sri Lanka and therefore are subjected to drivers of change that are operative in the country. The migrant populations that are not restricted to Sri Lanka and therefore, exposed to a suite of threats across their range were not evaluated as drivers of change operating on them transcends beyond national boundaries of Sri Lanka. Hence, for migrant species the global status should be considered when determining their Red List status. However, for those migrant species that have breeding populations in Sri Lanka, the status of the breeding population alone was considered for the assessment, as this population is restricted to Sri Lanka.

Once the list of species to be evaluated was agreed upon by the NBEC, all available data for the period 2012-2021 on the species listed were entered into the National Red List database compiled by the Biodiversity Secretariat during the 2012 assessment to update the occurrence data up to 2021 for each species. For this purpose, all published literature on birds of Sri Lanka, technical reports of biodiversity surveys and unpublished occurrence data provided by the members of the NBEC were used. This data were used to generate distribution maps for each assessed species including AOO and EOO. All the species-related data were tabulated to an excel database including scientific name, common name, bird family, location data (name of the location, latitude, longitude and elevation), observation date and name of the reference/observer. There were 43,609 observations of 240 bird species tabulated during the 2012

assessment and 17,128 new records were added during the current assessment including 244 bird species. All the location data were loaded on to Google Earth application to get verified by the expert panel. After verification location data for each species were converted to separate CSV files and uploaded to the online application developed by the Kew Gardens, the GeoCAT (<http://geocat.kew.org/>) to calculate the Area Of Occupancy (AOO) and the Extent Of Occurrence (EOO). When calculating the AOO, a 2x2 km grid was considered for the calculation, as in the case of other taxa.

Each distribution map was assessed by the members of the NBEC to determine their accuracy and where necessary, members provided additional inputs to fine-tune the distribution maps. The NBEC further deliberated on biogeographic distribution, habitat status and current trends in the population for each of the assessed species and assigned the Red List category that is most appropriate for each assessed species using the IUCN Red List Categories and Criteria. A total of three expert committee meetings were held at Biodiversity Secretariat for this purpose. During the deliberations of the NBEC, corrections were made for distribution maps of few bird species, specifically, birds that have both migrant and breeding resident populations. In determining the Red List category of each bird species, the Criterion B (based on AOO or EOO values and changes in AOO or EOO) was used primarily. Other IUCN red listing criteria (A, C and D) was used for bird species for which data were available to apply these criteria. The criterion E was not considered due to lack of quantitative data. In instances where direct interpreting of the criteria became difficult due to data gaps, expert opinions expressed by the members of the NBEC were considered to reach a final decision on which category was to be assigned. When using Criteria B, AOO was used mainly to assess the conservation category for many species as the members of the NBEC felt that AOO best represent the current distribution status of the species. However, for several commonly occurring species EOO was used. The criteria that were used to assign the Red List category for each species are given in Section 2.3. A total of 244 breeding resident birds were evaluated during this assessment.

Further, during these deliberations NBEC has documented shortfalls and knowledge gaps related to distribution, natural history, required conservation-oriented research gaps, and recommendations to be implemented. Finally, the key threats to the birds and their habitats were summarized along with recommendations on what steps are needed to mitigate these threats.

References

IUCN (2012). IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.

CHAPTER 3: RESULTS



Lesser Adjutant
(*Leptoptilos javanicus*)
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3.1. Outcomes of the Current National Assessment

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The birds listed for Sri Lanka continue to grow as with a number of new records being reported. At present the total number of birds listed for Sri Lanka stands at 522 species. These species belong to 23 orders, 89 families, and 267 genera. This includes 478 confirmed bird species and 44 presence uncertain species (refer table 3.1). The 478 confirmed species can be further categorized into breeding residents, breeding residents confined to Sri Lanka (endemic), breeding residents with migrant populations, regular migrants, irregular migrants and vagrants. The 44 species listed whose status is uncertain have historical published records, but the accuracy of those records is somewhat uncertain (because some birds have definite restricted ranges only in Western Ghats without a migratory population e.g. *Cyornis pallidipes* White-bellied Blue-flycatcher and Black-and-orange Flycatcher *Ficedula nigrorufa*). Validating of these records is yet to be done and it is not within the scope of this assessment. For the 2020 assessment, only species that have a confirmed breeding population were considered. One species that were considered in the previous assessment under the category of breeding resident with migratory population the Crab plover *Dromas ardeola*) was excluded in the current assessment as there are no confirmed reports of their breeding populations.

Table 3.1. Distribution status of the bird species recorded in Sri Lanka up to 2021 September.

Category	Number of species
Breeding residents (32 spp. with migratory population)	210
Endemics birds	34
Total assessed species	244*
Regular migrants (without resident population)	105*
Irregular migrants	42*
Total migrants (without resident population)	147
Total migrants	179
Vagrants	87*
Status uncertain	44*
Total	522*

* Denote the categories used to get the total number of species

During the current assessment 244 species, listed as breeding residents in Sri Lanka were assessed using IUCN criteria (Version 3.1). Altogether 81 species out of the 244 species assessed were found to be threatened [Critically Endangered (19), Endangered (48) and Vulnerable (14)]. A further 31 species were found to be Near Threatened. Two species, Blue-eared Kingfisher (*Alcedo meninting*) and Glossy Ibis (*Plegadis falcinellus*), were listed as Data Deficient due to lack of validated occurrence records and lack of verified breeding records respectively. Remaining 130 species were listed as Least Concern (Table 3.2).

Out of the 19 species listed as Critically Endangered, 5 species are breeding residents while the remaining 14 species are the breeding residents with a migrant population and the Red List category applies only to the breeding population. None of the endemic species were listed as Critically Endangered species. Out of the 14 species of Breeding residents with migrant populations, the breeding populations of 11 species are restricted to the northern avifaunal zone. Further, eight out of these 11 species are known to breed only in the Adams Bridge Marine National Park. Out of the remaining three species, breeding population of Blue-tailed Bee eater is restricted to the southwestern part of Sri Lanka. It should also be noted that out of the 31 breeding residents with migrant populations assessed, 23 (75%) were found to be threatened, which shows that the breeding populations are small and restricted to a few locations, which was the reason for placing them in one of the three threat categories. However, the migrant populations of all these species are listed as least concern on a global scale.

One of the critical findings of the current Red List assessment is that 20 out of the 34 endemic species (59%) are threatened. Compared to the last assessment, Red List status of 23 out of the 34 species remain unchanged while the status of the remaining 10 species were up-listed (1 from LC to NT, 2 from NT to VU and 7 from VU to EN). Therefore, the overall trend with respect to endemic species is not satisfactory as this indicates that there has been no improvement in the status for the majority of the species while the status of nearly 30% of the endemic species have further deteriorated during the last decade.

Table 3.2. Categories assigned for the species during the current National Red List assessment.

Category	Total	CR	EN	VU	NT	DD	LC
Breeding Resident	178	5	28	5	28	1	112
Endemic	34	0	14	6	2	0	12
Breeding resident with migrant population	32	14	6	3	1	1	6
Total	244	19	48	14	31	2	130

Sri Lanka, although a small island, supports a rich bird assemblage. However, the endemism is comparatively low (14% with respect to breeding residents and 7% with respect to overall species richness). Therefore, majority of the bird species observed in Sri Lanka have global populations and the global populations of nearly 87% of the species recorded in Sri Lanka (including the endemic species) are listed as Least Concern (Table 3.3). Therefore, Sri Lanka still supports reasonable populations of both breeding residents as well as migrants. However, the challenge faced by Sri Lanka is to keep the common species common and prevent these

habitats from degrading. Some of the globally common species such as Painted Francolin, Jungle Bush Quail, Black-necked Stork and Indian Courser show highly restricted distribution in Sri Lanka and therefore they are listed as Critically Endangered species. These species are restricted to unique habitats in the Northern and Uva avifaunal zones, which receive little or no protection and therefore a greater emphasis should be given to the sustainable management of these critical habitats.

Table 3.3. Categories assigned for the species in the Global Red List.

Category	Total	CR	EN	VU	NT	NE	LC
Breeding Resident	178	0	0	2	10	2	164
Endemic	34	0	2	6	9	0	17
Breeding resident with migrant population	32	0	0	0	0	0	32
Migrants (including vagrants)	234	3	3	4	18	0	206
Total	478	3	5	12	37	2	419

A comparison of the global status assigned for Sri Lankan Endemic species shows a significant deviation from the national status (Table 3.2 and 3.3), where the endemic species are under assessed in the global list where only 8 species are listed as threatened as opposed 20 species listed as threatened in the national list. Since endemic species are restricted to Sri Lanka, the global status should be the same as the national status. Further, national assessments are carried out by Sri Lankan experts using more detailed data sets and therefore, at least for endemic species, national status should be considered as a more accurate reflection. Further, this shows the need to update the global list with more robust data sets at least for endemic species so, that this disparity can be avoided.

3.2. Comparison with past National Assessments.

When comparing the results of the current assessment with the past assessments carried out in 2007 and 2012 using the same criteria (the previous assessments are not comparable as the criteria and categories used are not the same), it indicates an increased number of birds being listed under one of the three threatened categories (Table 3.4). Further, many species are up-listed (moved from a lower threat category to a higher threat category), which indicates that the follow up activities such as formulating and implementing recovery plans for threatened species and conducting further research to collect data on ecology, biology and drivers that make these species threatened have not been done which is hampering the specific conservation action. Thus, as in the case of past Red List assessments, the need to transcend beyond simply assessing the status of the species to specific conservation is strongly emphasized.

Table 3.4. Comparison of the categories assigned for the species during the current National Red List assessment with past assessments carried out in 2007 and 2012.

IUCN Red List Categories	NRLS 2007*	NRLS 2012	NRLS 2021
Critically Endangered (CR)	10	18	19
Endangered (EN)	15	18	48
Vulnerable (VU)	21	31	14
Total threatened	46	67	81
Near Threatened (NT)	0	35	31
Least Concern (LC)	181	138	130
Data Deficient (DD)	0	0	2
The total number of species assessed	227	240	244

Note: NRLS = National Red List status assessed by the Biodiversity secretariat, Ministry of Environment

* NRLS 2007 assessed by IUCN Sri Lanka and Biodiversity secretariat, Ministry of Environment,

References

IUCN Sri Lanka and the Ministry of Environment and Natural Resources (2007). The 2007 Red List of Threatened Fauna and Flora of Sri Lanka. Colombo, Sri Lanka.

IUCN (2022). The list of threatened species. WWW.IUCN.redlist.org

MOE (2012). The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp.

Red List Status of the Assessed Breeding Resident Birds

Table 3.5. List of Breeding Resident Birds Assessed

Abbreviations used: NCS - National Conservation Status; GCS - Global Conservation Status; **CR** - Critically Endangered; **DD** - Data Deficient; **EN** - Endangered; **LC** - Least Concern; **NA** - Not Available; **NT** - Near Threatened; **VU** - Vulnerable.

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Phasianidae				
1	<i>Francolinus pictus</i> (Jardine & Selby, 1828)	E: Painted Francolin S: Thith Ussa-watuwa; T: Varna cowthari	CR	LC	B1 ab (iii)
2	<i>Francolinus pondicerianus</i> (Gmelin, 1789)	E: Grey Francolin S: Alu Ussa-watuwa; T: Cowthari	EN	LC	B2 ab (iii)
3	<i>Synoicus chinensis</i> (Linnaeus, 1766)	E: Asian Blue Quail/ Blue-breasted Quail/ Blue Quail S: Nil piriwatuwa, Wil-watuwa; T: Neelamaarbuk kaadai	EN	LC	B2 ab (iii)
4	<i>Perdica asiatica</i> (Latham, 1790)	E: Jungle Bush-quail S: Wana panduru watuwa, Wil watuwa; T: Kaatuputhar kaadai	CR	LC	B1 ab (iii)
5	<i>Galloperdix bicalcarata</i> (Forster, 1781)	E: Sri Lanka Spurfowl S: Sri Lanka haban kukula; T: Sinnak kaatuk koli.	VU	LC	B2 ab (iii)
6	<i>Gallus lafayetii</i> Lesson, 1831	E: Sri Lanka Junglefowl S: Sri Lanka Wali kukula; T: Kattu-koli	LC	LC	
7	<i>Pavo cristatus</i> Linnaeus, 1758	E: Indian Peafowl S: Monara; T: Neela mayil.	LC	LC	
	FAMILY: Anatidae				
8	<i>Dendrocygna bicolor</i> (Vieillot, 1816)	E: Fulvous Whistling-duck [#]	CR	NA	B2 b (iii), c (iv)
9	<i>Dendrocygna javanica</i> (Horsfield, 1821)	E: Lesser Whistling-duck S: Heen thamba seruwa; T: Siriya seelkani siravi	LC	LC	
10	<i>Nettapus coromandelianus</i> (Gmelin, 1789)	E: Cotton Pygmy-goose S: Mal seruwa; T: Kullathara	VU	LC	B2 ab (iii)
11	<i>Anas poecilorhyncha</i> Forster, 1781	E: Indian Spot-billed Duck [#] S: Thithhota tharava	CR	NA	C2a (i)

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Rallidae				
12	<i>Rallina eurizonoides</i> (Lafresnaye, 1845)	E: Slaty-legged Crake [#] S: Alupa keraliya	CR	NA	C2a (i)
13	<i>Lewinia striata</i> (Linnaeus, 1766)	E: Slaty-breasted Rail/ Blue breasted Banded Rail S: Layalu Geli-reluwa; T: Saambal maarbu sambang koli.	EN	LC	B2 ab (iii)
14	<i>Amaurornis phoenicurus</i> (Pennant, 1769)	E: White-breasted Waterhen S: Layasudu korawakka; T: Ven maarbu kaanaang koli	LC	LC	
15	<i>Zapornia fusca</i> (Linnaeus, 1766)	E: Ruddy-breasted Crake [#] S: Layarathu vil-keralaiya; T: Sem maarbu kaanaang koli.	EN	NA	B2 ab (iii)
16	<i>Gallicrex cinerea</i> (Gmelin, 1789)	E: Watercock S: Korawa; T: Thaneer kolli.	EN	LC	B2 ab (iii)
17	<i>Porphyrio poliocephalus</i> (Latham, 1801)	E: Gray-headed Swamphehen/ Purple Swamphehen S: Dam madi-kithala; T: Neela thodai koli	LC	LC	
18	<i>Gallinula chloropus</i> (Linnaeus, 1758)	E: Common Moorhen S: Podu galinuwa, Wil kukkula; T: Thaalai koli	LC	LC	
19	<i>Fulica atra</i> Linnaeus, 1758	E: Eurasian/ Common Coot [#] S: Podu kithala; T: Nama koli.	LC	NA	
	FAMILY: Turnicidae				
20	<i>Turnix suscitator</i> (Gmelin, 1789)	E: Barred Buttonquail S: Punchi bola watuyuruwa T: Kadai	LC	LC	
	FAMILY: Podicipedidae				
21	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	E: Little Grebe S: Punchi gembithuruva; T: Sinna mookulippan.	LC	LC	
	FAMILY: Ciconiidae				
22	<i>Mycteria leucocephala</i> (Pennant, 1769)	E: Painted Stork S: Lathuvakiya; T: Manjalmooku naarai.	LC	NT	
23	<i>Anastomus oscitans</i> (Boddaert, 1783)	E: Asian Openbill S: Vivarathuduwa; T: Naththai-kuththi-narai	LC	LC	
24	<i>Ciconia episcopus</i> (Boddaert, 1783)	E: Asian Woollyneck/ Woolly-necked Stork S: Padili manava; T: Venkaluthu naarai.	LC	VU	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
25	<i>Ephippiorhynchus asiaticus</i> (Latham, 1790)	E: Black-necked Stork S: Ali manava; T: Karungkaluthu naarai	CR	NT	C2a (i)
26	<i>Leptoptilos javanicus</i> (Horsfield, 1821)	E: Lesser Adjutant S: Heen bahuru-manava; T: Siriyapotha	EN	VU	B2 ab (iii)
FAMILY: Threskiornithidae					
27	<i>Threskiornis melanocephalus</i> (Latham, 1790)	E: Black-headed Ibis S: Hisakalu dekettha; T: Vellai arivaal mookan	LC	NT	
28	<i>Plegadis falcinellus</i> (Linnaeus, 1766)	E: Glossy Ibis [#]	DD	NA	**
29	<i>Platalea leucorodia</i> Linnaeus, 1758	E: Eurasian Spoonbill S: Hendialava; T: Karandi vaayan	LC	LC	
FAMILY: Ardeidae					
30	<i>Ixobrychus sinensis</i> (Gmelin, 1789)	E: Yellow Bittern [#] S: Kaha meti-kokka; T: Manjal kuruhu.	EN	NA	B2 ab (iii)
31	<i>Ixobrychus cinnamomeus</i> (Gmelin, 1789)	E: Cinnamon Bittern S: Kurundu meti-kokka; T: Seng kuruhu.	EN	LC	B2 ab (iii)
32	<i>Ixobrychus flavicollis</i> (Latham, 1790)	E: Black Bittern [#] S: Kalu meti-kokka; T: Karung kuruhu.	LC	NA	
33	<i>Nycticorax nycticorax</i> (Linnaeus, 1758)	E: Black-crowned Night-heron S: Rekana- kokka; T: Irak kokku.	LC	LC	
34	<i>Butorides striata</i> (Linnaeus, 1758)	E: Striated Heron/ Green-backed Heron S: Palakokka; T: Siriya pachchai kokku	LC	LC	
35	<i>Ardeola grayii</i> (Sykes, 1832)	E: Indian Pond-heron S: Kana kokka; T: Mudaiyan.	LC	LC	
36	<i>Bubulcus ibis</i> (Linnaeus, 1758)	E: Cattle Egret [#] S: Gerikokka, Harak kokka; T: Unnik kokku	LC	NA	***
37	<i>Ardea cinerea</i> Linnaeus, 1758	E: Grey Heron S: Alu kokka; T: Sambal kokku	LC	LC	
38	<i>Ardea purpurea</i> Linnaeus, 1766	E: Purple Heron S: Karaval kokka; T: Senneela kokku	LC	LC	
39	<i>Ardea alba</i> (Linnaeus, 1758)	E: Great Egret/ Great White Egret S: Sudu- maha kokka; T: Periya kokku	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
40	<i>Ardea intermedia</i> Wagler, 1829	E: Intermediate Egret S: Sudu medi-kokka; T: Naduthara kokku.	LC	LC	
41	<i>Egretta garzetta</i> (Linnaeus, 1766)	E: Little Egret S: Punchi anu-koka, sudu-kokka; T: Sinna kokku	LC	LC	
FAMILY: Pelecanidae					
42	<i>Pelecanus philippensis</i> Gmelin, 1789	E: Spot-billed Pelican S: Thithhota pasthoduwa; T: Pullialahu koolikkada.	LC	NT	
FAMILY: Phalacrocoracidae					
43	<i>Microcarbo niger</i> (Vieillot, 1817)	E: Little Cormorant S: Punchi diyakava; T: Siriya neerkaham	LC	LC	
44	<i>Phalacrocorax fuscicollis</i> Stephens, 1826	E: Indian Cormorant S: Indu diyakava; T: Naduthoura neerkaaham	LC	LC	
45	<i>Phalacrocorax carbo</i> (Linnaeus, 1758)	E: Great Cormorant S: Maha diyakava; T: Periya neerkaaham	NT	LC	B1 ab (iii)
FAMILY: Anhingidae					
46	<i>Anhinga melanogaster</i> Pennant, 1769	E: Oriental Darter S: Ahikava; T: Paambu thara.	LC	NT	
FAMILY: Falconidae					
47	<i>Falco tinnunculus</i> Linnaeus, 1758	E: Eurasian/ Common Kestrel [#] S: Podu ukusugoya; T: Sivappu valooru	EN	NA	B2 ab (iii, iv)
48	<i>Falco peregrinus</i> Tunstall, 1771	E: Shaheen Falcon [#] S: Para ukusugoya; T: Periya rasali.	EN	NA	B2 ab (iii)
FAMILY: Accipitridae					
49	<i>Aviceda jerdoni</i> (Blyth, 1842)	E; Jerdon's Baza S: Bora saratakussa, Kurulugoya; T: Jerdon parunthu.	EN	LC	B2 ab (iii, iv)
50	<i>Pernis ptilorhyncus</i> (Temminck, 1821)	E: Oriental Honey-buzzard [#] S: Silu bambarakussa, Rajaliya; T: Then parunthu	VU	NA	B2 ab (iii)
51	<i>Elanus caeruleus</i> (Desfontaines, 1789)	E: Black-winged Kite* S: Kaluuris pathanakussa, kurulugoya; T: Karunthol parunthu.	NT	LC	A2a

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
52	<i>Milvus migrans</i> (Boddaert, 1783)	E: Black Kite S: Bora parakussa, Ukussa; T: Karum parunthu	LC	LC	
53	<i>Haliastur indus</i> (Boddaert, 1783)	E: Brahminy Kite S: Bamunu piyakussa, Ukussa; T: Sem parunthu	LC	LC	
54	<i>Haliaeetus leucogaster</i> (Gmelin, 1788)	E: White-bellied Sea-eagle S: Kusa alli muhudukussa; T: Ven vayitru kadat kaluhu.	LC	LC	
55	<i>Haliaeetus ichthyaetus</i> (Horsfield, 1821)	E: Grey-headed Fish-eagle S: Aluhis masukussa, Wewa rajaliya; T: Siriya sambalthalai meen kaluhu	NT	NT	B1 ab (iii)
56	<i>Spilornis cheela</i> (Latham, 1790)	E: Crested Serpent-eagle S: Silu sarapakussa; T: Kondai paambu kaluhu	LC	LC	
57	<i>Accipiter trivirgatus</i> (Temminck, 1824)	E; Crested Goshawk S: Silu kurulugoya, kurulugoya; T: Kondai valooru.	EN	LC	B2 ab (iii)
58	<i>Accipiter badius</i> (Gmelin, 1788)	E: Shikra S: Kurulugoya; T: Valooru	LC	LC	
59	<i>Accipiter virgatus</i> (Temminck, 1822)	E: Besra S: Besra kurulugoya; T: Kaatuk kaluhu	EN	LC	B2 ab (iii)
60	<i>Ictinaetus malayensis</i> (Temminck, 1822)	E: Black Eagle S: Kalukussa, kalu rajaliya; T: Karung kaluhu	NT	LC	B1 ab (iii)
61	<i>Lophotriorchis kienerii</i> (Geoffroy Saint-Hilaire, 1835)	E: Rufous-bellied Eagle S: Kusarath rajaliya; T: Sevvayitru kaluhu.	EN	NT	B2 ab (iii, iv)
62	<i>Nisaetus cirrhatus</i> (Gmelin, 1788)	E; Changeable Hawk-eagle/ Crested Hawk-eagle S: Perali kondakussa, Konde Rajaliya; T: Niram marum kaluhu.	LC	LC	
63	<i>Nisaetus kelaarti</i> Legge, 1878	E: Legge's hawk-eagle (AKA: Mountain Hawk-eagle) S: Hel kondakussa, Maha konde Rajaliya; T: Malai kaluhu	EN	NE	B2 ab (iii)
FAMILY: Burhinidae					
64	<i>Burhinus indicus</i> (Salvadori, 1865)	E: Indian Thick-knee S: Golu-kirala; T: Perungkanni	LC	LC	
65	<i>Esacus recurvirostris</i> (Cuvier, 1829)	E: Great Thick-knee S: Gal kirala; T: Valaimukku perungkanni	LC	NT	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Recurvirostridae				
66	<i>Himantopus himantopus</i> (Linnaeus, 1758)	E: Black-winged Stilt [#] S: Kalupiya ipalpava, Kalapu-kirala; T: Nedungkaal ullaan.	LC	NA	
	FAMILY: Charadriidae				
67	<i>Vanellus malarbaricus</i> (Boddaert, 1783)	E: Yellow-wattled Lapwing S: Kaha yatimal kirala; T: Manjal mooku aart kaati	LC	LC	
68	<i>Vanellus indicus</i> Boddaert, 1783	E: Red-wattled Lapwing S: Rath yatimal kirala; T: Sihappu mooku aart kaati.	LC	LC	
69	<i>Charadrius dubius</i> Scopoli, 1786	E: Little Ringed Plover [#] S: Punchi mala oleviya; T: Sinna pattani uppuk kothi	EN	NA	B2ab(iii); C2a(i)
70	<i>Charadrius alexandrinus</i> Linnaeus, 1758	E: Kentish Plover [#] / Hanuman Plover S: Kent oleviya; T: Kentish pattani uppuk kothi.	EN	NA	B2ab(iii); C2a(i)
	FAMILY: Rostratulidae				
71	<i>Rostratula benghalensis</i> (Linnaeus, 1758)	E: Greater Painted-snipe S: Raja ulu-kaswatuwa; T: Mayil ullaan	NT	LC	B1 ab (iii)
	FAMILY: Jacanidae				
72	<i>Hydrophasianus chirurgus</i> (Scopoli, 1786)	E: Pheasant-tailed Jacana S: Savul-diyasana, Pan kukula; T: Neela vaal illaik koli	LC	LC	
	FAMILY: Glareolidae				
73	<i>Cursorius coromandelicus</i> (Gmelin, 1789)	E: Indian Courser [#] S: Javalihiniya	CR	NA	B1ab(iii) + B2 ab (iii); C2a(i)
74	<i>Glareola maldivarum</i> Forster, 1795	E: Oriental Pratincole S: Mala javasariya; T: Thotkuruvi	EN	LC	B2 ab (iii, iv)
75	<i>Glareola lactea</i> Temminck, 1820	E: Small Pratincole/ Little Pratincole S: Punchi javasariya; T: Sinna Thotkuruvi.	EN	LC	B2 ab (iii, iv)
	FAMILY: Laridae				
76	<i>Gelochelidon nilotica</i> (Gmelin, 1789)	E: Gull-billed Tern [#] S: Galuthudu muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)
77	<i>Hydroprogne caspia</i> Pallas, 1770	E; Caspian Tern [#] S: Kaspiya muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
78	<i>Thalasseus bergii</i> (Lichtenstein, 1823)	E: Great Crested Tern [#] S: Maha konda muhudulihiniya; T: Periya kondai aalaa.	EN	NA	B2 ab (iii, iv)
79	<i>Onychoprion anaethetus</i> Scopoli, 1786	E: Bridled Tern [#] S: Katakali muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)
80	<i>Sterna dougallii</i> Montagu, 1813	E: Roseate Tern [#] S: Arunu muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)
81	<i>Sterna hirundo</i> Linnaeus, 1758	E: Common Tern [#] S: Podu muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)
82	<i>Sternula albifrons</i> Pallas, 1764	E: Little Tern [#] S: Punchi muhudulihiniya	VU	NA	B2 ab (iii)
83	<i>Sternula saundersi</i> Hume, 1877	E: Saunders's Tern [#] S: Sondara muhudulihiniya	CR	NA	B2 ab (iii)
84	<i>Onychoprion fuscatus</i> Linnaeus, 1766	E: Sooty Tern [#] S: Dumbutu muhudulihiniya	CR	NA	B1 ab (iii), B2 ab (iii)
85	<i>Anous stolidus</i> (Linnaeus, 1758)	E: Brown Noddy [#]	CR	NA	B1 ab (iii), B2 ab (iii)
86	<i>Anous tenuirostris</i> (Temminck, 1823)	E: Lesser Noddy [#]	CR	NA	B1 ab (iii), B2 ab (iii)
FAMILY: Columbidae					
87	<i>Columba livia</i> Gmelin, 1789	E: Rock Pigeon/ Rock Dove S: Pareviya; T: Maada Puraa.	CR	LC	B2 ab (iii)
88	<i>Columba torringtoniae</i> (Blyth & Kelaart, 1853)	E: Sri Lanka Woodpigeon S: Sri Lanka Maila Paraviya (Mailagoya); T: Ilankai karuppup Puraa.	VU	VU	B2 ab (iii)
89	<i>Streptopelia decaocto</i> Fridvaldszky, 1838	E: Eurasian Collared-dove S: Mala kobeiya; T: Panjavaran Puraa	NT	LC	B1 b (iii)
90	<i>Spilopelia suratensis</i> (Gmelin, 1789)	E: Western Spotted Dove/ Spotted Dove S: Alu-kobeiya; T: Pulli Puraa	LC	LC	
91	<i>Chalcophaps indica</i> (Linnaeus, 1758)	E: Grey-capped Emerald Dove/ Emerald Dove S: Neela kobeiya; T: Pathekai Puraa	LC	LC	
92	<i>Treron bicinctus</i> (Jerdon, 1840)	E: Orange-breasted Green- S: Layaran batagoya; T: Orange maarbu Pachai Puraa pigeon	LC	LC	
93	<i>Treron pompadora</i> (Gmelin, 1789)	E: Sri Lanka Green- pigeon S: Sri Lanka Pitadam Batagoya; T: Sambal nettri Pachai Puraa	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
94	<i>Treron phoenicopterus</i> (Latham, 1790)	E: Yellow-footed Green-pigeon S: Ranpa Batagoya; T: Manjal kaal pachai puraa	CR	LC	B2 ab (iii)
95	<i>Ducula aenea</i> (Linnaeus, 1766)	E: Green Imperial-pigeon S: Nil Mahagoya; T: Pachai arasa Puraa	LC	LC	
FAMILY: Psittacidae					
96	<i>Loriculus beryllinus</i> (Forster, 1781)	E: Sri Lanka Hanging-parrot S: Sri Lanka giramaliththa; T: Ilankai sinna kili	LC	LC	
97	<i>Psittacula eupatria</i> (Linnaeus, 1766)	E: Alexandrine Parakeet* S: Labu girawa; T: Periya pachai Kili	LC	NT	
98	<i>Psittacula krameri</i> (Scopoli, 1769)	E; Rose-ringed Parakeet S: Rena girawa; T: Pachai Kili	LC	LC	
99	<i>Psittacula cyanocephala</i> (Linnaeus, 1766)	E; Plum-headed Parakeet S: Pandu girawa; T: Senthalai Kili.	NT	LC	B1 b (iii)
100	<i>Psittacula calthropae</i> (Blyth, 1849)	E: Sri Lanka Emerald-collared Parakeet S: Sri Lanka Alu girawa; T: Ilankai naadu Kili.	NT	LC	B1 b (iii)
FAMILY: Cuculidae					
101	<i>Clamator jacobinus</i> (Boddaert, 1783)	E: Pied Cuckoo/ Jacobin Cuckoo S: Gomara kondakoha; T: Kadalai kuyil	LC	LC	
102	<i>Hierococcyx varius</i> (Vahl, 1797)	E: Common Hawk-cuckoo ^{#*} S: Ukusu kokilaya; T: Kuyil	VU	NA	B2 ab (iii, v)
103	<i>Cuculus micropterus</i> Gould, 1837	E: Indian Cuckoo [#] S: Indu kokilaya	NT	NA	B1 b (iii)
104	<i>Cacomantis sonneratii</i> (Latham, 1790)	E: Banded Bay Cuckoo S: Vaira anukoha; T: Sempaluppu vari kuyil	VU	LC	B2 ab (iii)
105	<i>Surniculus dicruroides</i> (Hodgson, 1839)	E: Fork-tailed Drongo Cuckoo/ Drongo Cuckoo S: Kavudukoha; T: Karichan kuyil	LC	LC	
106	<i>Eudynamys scolopaceus</i> (Linnaeus, 1758)	E: Western Koel/ Asian Koel S: Kovula; T: Asia Kuyil	LC	LC	
107	<i>Phaenicophaeus viridirostris</i> (Jerdon, 1840)	E: Blue-faced Malkoha S: Wathanil malkoha; T: Neela muha malkoha	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
108	<i>Taccocua leschenaultii</i> (Lesson, 1830)	E: Sirkeer Malkoha S: Pathan Malkoha; T: Sevvalahu malkoha	VU	LC	B2 ab (iii)
109	<i>Phaenicophaeus pyrrhocephalus</i> (Pennant, 1769)	E: Sri Lanka Red-faced Malkoha S: Sri Lanka Watharathu Malkoha; T: Ilankai semmuka malkoha	EN	VU	B2 ab (iii)
110	<i>Centropus sinensis</i> (Stephens, 1815)	E: Greater Coucal S: Atikukula; T: Periya sembaham	LC	LC	
111	<i>Centropus chlororhynchus</i> Blyth, 1849	E: Sri Lanka Green-billed Coucal S: Sri Lanka Bata Atikukula; T: Ilankai pachai alahu sembaham.	EN	VU	B2 ab (iii)
FAMILY: Tytonidae					
112	<i>Tyto alba</i> (Scopoli, 1769)	E: Barn Owl S: Atu wesbassa, Bakamuna; T: Koohai aanthai	NT	LC	B1 b (iii)
113	<i>Phodilus assimilis</i> Hume, 1877	E: Indian Bay-owl/ Oriental Bay-owl S: Peradigu gurubassa; T: Kaatu sempaluppu aanthai	EN	LC	B2 ab (iii)
FAMILY: Strigidae					
114	<i>Otus thilohoffmanni</i> Warakagoda & Rasmussen, 2004	E: Sri Lanka Serendib Scops-owl S: Sri Lanka pandu kanbassa; T: Ilankai serendib sevi aanthai	EN	EN	B2 ab (iii)
115	<i>Otus sunia</i> (Hodgson, 1836)	E: Oriental Scops-owl S: Peradigu kanbassa; T: Keelai theya sevi aanthai	NT	LC	B1 ab (iii)
116	<i>Otus bakkamoena</i> Pennant, 1769	E: Indian Scops Owl/ Collared Scops-owl S: Karapati Kanbassa; T: Pattaikaluthu sevi aanthai.	LC	LC	
117	<i>Bubo nipalensis</i> Hodgson, 1836	E: Spot-bellied Eagle-owl* S: Ukusubakamuna, Ulama; T: Pullivayittru kaluhu aanthai.	NT	LC	B1 ab (iii, v)
118	<i>Ketupa zeylonensis</i> (Gmelin, 1788)	E: Brown Fish-owl S: Bora kevu bakamuna; T: Meen pidi aanthai.	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
119	<i>Strix leptogrammica</i> Temminck, 1831	E: Brown Wood-owl* S: Bora Wanabakamuna; T: Paluppu kaatu aanthai	NT	LC	B1 ab (iii, v)
120	<i>Glaucidium radiatum</i> (Tickell, 1833)	E: Jungle Owlet S: Wana Upabassa; T: Kaatu siru aanthai	NT	LC	B1 ab (iii)
121	<i>Glaucidium castanotum</i> (Blyth, 1846)	E: Sri Lanka Chestnut-backed Owlet S: Sri Lanka Pitathambala Upabassa; T: Ilankai semmanjal muthuhu siruaanthai.	EN	NT	B2 ab (iii)
122	<i>Ninox scutulata</i> (Raffles, 1822)	E: Brown Hawk-owl/ Brown Boobook S: Dumburu Ukusubassa; T: Vettaikara aanthai	NT	LC	A2a
FAMILY: Podargidae					
123	<i>Batrachostomus moniliger</i> Blyth, 1846	E: Frogmouth/ Ceylon Frogmouth* S: Madimuhuna; T: Thavalai vaayan.	NT	LC	B1 ab (iii, v)
FAMILY: Caprimulgidae					
124	<i>Caprimulgus indicus</i> Latham, 1790	E: Grey Nightjar/Jungle Nightjar/ Highland Nightjar S: Alu bimbassa; T: Kaatu pakki.	VU	LC	B2 ab (iii)
125	<i>Caprimulgus atripennis</i> Jerdon, 1845	E: Jerdon's Nightjar S: Digupenda bimbassa; T: Jerdon pakki.	LC	LC	
126	<i>Caprimulgus asiaticus</i> Latham, 1790	E: Indian Nightjar S: Indu Bimbassa; T: Siru pakki.	LC	LC	
FAMILY: Apodidae					
127	<i>Aerodramus unicolor</i> (Jerdon, 1840)	E: Indian Swiftlet S: Indu upa-thurithaya, Wehilihiniya; T: Sinna ulavaaran	VU	LC	B2 ab (iii)
128	<i>Hirundapus giganteus</i> (Temminck, 1825)	E: Brown-backed Needletail S: Pitabora katu-thurithaya; T: Paluppu muthuhu mulvl ulavaaran	EN	LC	B2 ab (iii)
129	<i>Cypsiurus balasiensis</i> (Gray, 1829)	E: Asian Palm-swift S: Asia thal-thurithaya; T: Panai ulavaaran.	LC	LC	
130	<i>Apus melba</i> (Linnaeus, 1758)	E: Alpine Swift S: Alpine piri-thurithaya; T: Alphine ulavaaran	EN	LC	B2 ab (iii)
131	<i>Apus affinis</i> (Gray, 1830)	E: Little Swift/ House Swift S: Punchi thurithaya; T: Naadu ulavaaran.	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Hemiprocnidae				
132	<i>Hemiproctne coronata</i> (Tickell, 1833)	E: Crested Treeswift S: Silu ruk-thurithaya; T: Kondai ulavaaran.	LC	LC	
	FAMILY: Trogonidae				
133	<i>Harpactes fasciatus</i> (Pennant, 1769)	E: Malabar Trogon S: Lohavannichcha, Ginikurulla; T: Malabar theekakai.	NT	LC	B1 ab (iii)
	FAMILY: Coraciidae				
134	<i>Coracias benghalensis</i> (Linnaeus, 1758)	E: Indian Roller S: Dumbonna; T: Panan-kadai, Kottai-kili	LC	LC	
135	<i>Eurystomus orientalis</i> (Linnaeus, 1766)	E: Dollarbird/ Oriental Dollarbird S: Dumkava; T: Pulupporukki	EN	LC	B2 ab (iii)
	FAMILY: Alcedinidae				
136	<i>Pelargopsis capensis</i> (Linnaeus, 1766)	E: Stork-billed Kingfisher S: Manathudu maha pilihuduwa; T: Parutha alahu meen kothi.	LC	LC	
137	<i>Halcyon smyrnensis</i> (Linnaeus, 1758)	E: White-throated Kingfisher S: Gelasudu medi- pilihuduwa; T: Ven marabu meen kothi	LC	LC	
138	<i>Ceyx erithaca</i> (Linnaeus, 1758)	E: Oriental Dwarf- kingfisher/ Black-backed Kingfisher S: Pitakalu Heen pilihuduwa / Rang Pilihuduwa T: Siru meen kothi.	NT	LC	B1 ab (iii)
139	<i>Alcedo atthis</i> (Linnaeus, 1758)	E: Common Kingfisher S: Mal Pilihuduwa; T: Siriya neela meen kothi	LC	LC	
140	<i>Alcedo meninting</i> Horsfield, 1821	E: Blue-eared Kingfisher S: Nilkan Pilihuduwa; T: Neela kaathu meen kothi.	DD	LC	***
141	<i>Ceryle rudis</i> (Linnaeus, 1758)	E: Pied Kingfisher S: Gomara pilihuduwa; T: Siriya karuppu vellai meen kothi	LC	LC	
	FAMILY: Meropidae				
142	<i>Merops orientalis</i> Latham, 1802	E: Little/ Asian Green Bee- eater S: Punchi binguharaya; T: Siriya pachai panchuruttaan.	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
143	<i>Merops philippinus</i> Linnaeus, 1766	E: Blue-tailed Bee-eater [#] S: Nilpenda binguhariya	CR	NA	B2 ab (iii)
144	<i>Merops leschenaulti</i> Vieillot, 1817	E: Chestnut-headed Bee-eater* S: Thambalahis binguharaya; T: Senthalai panchuruttan	NT	LC	B1 b (iii,v)
FAMILY: Upupidae					
145	<i>Upupa epops</i> Linnaeus, 1758	E: Eurasian Hoopoe/ Common Hoopoe S: Poroluwa; T: Kondalathi	LC	LC	
FAMILY: Bucerotidae					
146	<i>Ocyceros gingalensis</i> (Shaw, 1811)	E: Sri Lanka Grey Hornbill S: Sri Lanka Alu Kandetta; T: Ilankai naarai irattai chondu kuruvi	LC	LC	
147	<i>Anthraceroceros coronatus</i> (Boddaert, 1783)	E: Malabar Pied Hornbill S: Poru Kandetta; T: Malabar karuppuvellai iruvaayan	LC	NT	
FAMILY: Megalaimidae					
148	<i>Psilopogon zeylanicus</i> (Gmelin, 1788)	E: Brown-headed Barbet S: Polos Kottoruwa; T: Paluppu thalai kukkuruvan	LC	LC	
149	<i>Psilopogon flavifrons</i> (Cuvier, 1816)	E: Sri Lanka Yellow- fronted Barbet S: Sri Lanka kahamunath Kottoruwa, Mukalang Kottoruwa; T: Ilankai manjal kuruttu kukkuravan.	LC	LC	
150	<i>Psilopogon rubricapillus</i> (Gmelin, 1788)	E: Sri Lanka Barbet S: Mal Kottoruwa, Rathmunath Kottoruwa; T: Sennettri kukkuravan	LC	LC	
151	<i>Psilopogon haemacephalus</i> (Müller, 1776)	E: Coppersmith Barbet S: Rathlaya Kottoruwa, Mal Kottoruwa; T: Senmaarbu Kukkuruvan	LC	LC	
FAMILY: Picidae					
152	<i>Yungipicus nanus</i> (Vigors, 1832)	E: Brown-capped Woodpecker/ Indian Pygmy Woodpecker* S: Bora isasi piri-kerala, Mal Kerella; T: Sinna marang kothi	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
153	<i>Leiopicus mahrattensis</i> (Latham, 1801)	E: Yellow-crowned Woodpecker S: Kahasilu Piri -kerala; T: Manjal nettri marang kothi	NT	LC	B1 ab (iii)
154	<i>Micropternus brachyurus</i> (Vieillot, 1818)	E: Rufous Woodpecker* S: Borath anu-kerela, Dumburu Kerela; T: Karunchirappu marang kothi.	NT	LC	B1 ab (iii)
155	<i>Picus chlorolophus</i> Vieillot, 1818	E: Lesser Yellownape S: Heen kahagelasi Kerela, Konde -kaha Kerela; T: Manjal pidari siru marang kothi	NT	LC	B1 ab (iii)
156	<i>Picus xanthopygaeus</i> (Gray & Gray, 1846)	E: Streak-throated Woodpecker S: Irigela Kerela; T: Sethil vayittru marang kothi	EN	LC	B2 ab (iii)
157	<i>Dinopium benghalense</i> (Linnaeus, 1758)	E: Black-rumped Flameback/Lesser Goldenback S: Ginipita pili-kerela, Pita- rang Kerela; T: Siriya pon muthuhu marang kothi.	LC	LC	
158	<i>Dinopium psarodes</i> (Lichtenstein, 1793)	E: Sri Lanka Lesser Flameback S: Sri Lanka Ginipita pili kerala	LC	LC	
159	<i>Chrysocolaptes stricklandi</i> (Layard, 1854)	E: Sri Lanka Greater Flameback S: Lepita maha-kerela, Mukalang Kerela; T: Periya ponmuthuhu marang kothi	LC	LC	
160	<i>Chrysocolaptes festivus</i> (Boddaert, 1783)	E: White-naped Woodpecker S: Sudugelesi mahakerela, Maha-rang Kerela; T: Karumuthuhu marang kothi.	EN	LC	B2 ab (iii)
FAMILY: Artamidae					
161	<i>Artamus fuscus</i> Vieillot, 1817	E: Ashy Woodswallow* S: Alu vanalihiniya; T: Sambal kaatu thakai vilaan.	NT	LC	A2a
FAMILY: Aegithinidae					
162	<i>Aegithina tiphia</i> (Linnaeus, 1758)	E: Common Iora S: Podu iorava; T: Manjal chittu	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
163	<i>Aegithina nigrolutea</i> (Marshall, 1876)	E: White-tailed Iora/ Marshall's Iora S: Pendasudu iorava; T: Venvaal chittu	EN	LC	B2 ab (iii)
FAMILY: Vangidae					
164	<i>Tephrodornis affinis</i> Blyth, 1847	E: Sri Lanka Woodshrike S: Sri Lanka Podu vanasarathitha; T: Kaatu keechaan	LC	LC	
165	<i>Hemipus picatus</i> (Sykes, 1832)	E: Bar-winged Flycatcher- shrike S: Wairapiya masisarathitha, Panu kurulla; T: Karuppu vellai eepidi keechaan	LC	LC	
FAMILY: Campephagidae					
166	<i>Coracina macei</i> (Lesson, 1831)	E: Indian / Large Cuckooshrike* S: Maha kovulsarathitha; T: Periya kuyil keechaan	NT	LC	B2 ab (iii, v)
167	<i>Coracina melanoptera</i> (Rüppell, 1839)	E: Black-headed Cuckooshrike S: Kaluhis kovulsarathitha; T: Karunthalai kuyil keechaan	LC	LC	
168	<i>Pericrocotus cinnamomeus</i> (Linnaeus, 1766)	E: Small Minivet S: Punchi miniviththa; T: Sinna min sittu	LC	LC	
169	<i>Pericrocotus flammeus</i> (Forster, 1781)	E: Orange/ Scarlet Minivet S: Dilirath miniviththa; T: Sihappu min sittu	LC	LC	
FAMILY: Laniidae					
170	<i>Lanius schach</i> Linnaeus, 1758	E: Long-tailed Shrike S: Dikpenda sabaraiththa; T: Neela vaal keechaan	EN	LC	B2 ab (iii)
FAMILY: Oriolidae					
171	<i>Oriolus xanthornus</i> (Linnaeus, 1758)	E: Black-hooded Oriole S: Kahakurulla; T: Karunthalai maangkuyil	LC	LC	
FAMILY: Dicruridae					
172	<i>Dicrurus macrocercus</i> Vieillot, 1817	E: Black Drongo [#] S: Kalu kavuda; T: Karung karichaan	LC	NA	
173	<i>Dicrurus caerulescens</i> (Linnaeus, 1758)	E: White-bellied Drongo S: Kavuda; T: Venvayittru karichaan	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
174	<i>Dicrurus lophorinus</i> Vieillot, 1817	E: Sri Lanka Crested Drongo/ Sri Lanka Drongo S: Sri Lanka Silu Kauvda	EN	LC	B2 ab (iii)
175	<i>Dicrurus paradiseus</i> (Linnaeus, 1766)	E: Greater Racket-tailed Drongo S: Maha kavuda; T: Thuduppuval karichaan	NT	LC	B1 ab (iii)
FAMILY: Rhipiduridae					
176	<i>Rhipidura aureola</i> Lesson, 1830	E: White-browed Fantail S: Bamasudu pavanpenda; T: Venpuruva visirivaal eepidippaan	LC	LC	
FAMILY: Monarchidae					
177	<i>Hypothymis azurea</i> (Boddaert, 1783)	E: Black-naped Monarch S: Kalu gelasi radamara; T: Karumpidari arasae pidipaan	LC	LC	
178	<i>Terpsiphone paradisi</i> (Linnaeus, 1758)	E: Asian Paradise- flycatcher [#] S: Asia rahanmara, Redi hora; T: Arasavaal eepidipaan	LC	NA	
FAMILY: Corvidae					
179	<i>Urocissa ornata</i> (Wagler, 1829)	E: Sri Lanka blue magpie / Sri Lanka magpie S: Sri Lanka Kahibella; T: Ilankai neela kuruvi	EN	VU	B2 ab (iii)
180	<i>Corvus splendens</i> Vieillot, 1817	E: House Crow S: Colomba kaputa; T: Kaakai.	LC	LC	
181	<i>Corvus macrorhynchos</i> Wagler, 1827	E: Indian Jungle Crow/ Large-billed Crow S: Kalu kaputa; T: Andang kaakai	LC	LC	
FAMILY: Paridae					
182	<i>Parus cinereus</i> Vieillot, 1818	E: Cinereous Tit/ AKA: Great Tit S: Maha tikiriththa; T: Periya pattaari kuruvi.	LC	NA	
FAMILY: Hirundinidae					
183	<i>Hirundo domicola</i> Jerdon, 1841	E: Hill Swallow/ House Swallow S: Kandu wehilihiniya; T: Pacific thakaivilaan	EN	LC	B2 ab (iii)
184	<i>Cecropis hyperythra</i> (Blyth, 1849)	E: Sri Lanka Swallow S: Sri Lanka Lak Lihiniya	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Alaudidae				
185	<i>Mirafra affinis</i> Blyth, 1845	E: Rufous-winged Bushlark/ Jerdon's Bushlark S: Panduru gomaritta; T: Jerdan puthar vaanam paadi	LC	LC	
186	<i>Alauda gulgula</i> Franklin, 1831	E: Oriental Skylark S: Peradigu ahsritta; T: Vaanam paadi	LC	LC	
187	<i>Eremopterix griseus</i> (Scopoli, 1786)	E: Ashy-crowned Sparrow- lark S: Kirulalu Bimritta; T: Sambal thalai vaanam paadi.	LC	LC	
	FAMILY: Cisticolidae				
188	<i>Cisticola juncidis</i> (Rafinesque, 1810)	E: Zitting Cisticola S: Iri Pavansariya; T: Naatu visirivaal kathir kuruvi	LC	LC	
189	<i>Prinia hodgsonii</i> Blyth, 1844	E: Grey-breasted Prinia S: Layalu prinia; T: Frankkin kathir kuruvi	LC	LC	
190	<i>Prinia sylvatica</i> Jerdon, 1840	E: Jungle Prinia S: Vana prinia, Hambu kurulla; T: Kaatu kathir kuruvi	LC	LC	
191	<i>Prinia socialis</i> Sykes, 1832	E: Ashy Prinia S: Alu prinia; T: Sambal kathir kuruvi	LC	LC	
192	<i>Prinia inornata</i> Sykes, 1832	E: Plain Prinia S: Sarala prinia; T: Kathir kuruvi	LC	LC	
193	<i>Orthotomus sutorius</i> (Pennant, 1769)	E: Common Tailorbird S: Battichcha T: Thaiyat kaara kathir kuruvi	LC	LC	
	FAMILY: Pycnonotidae				
194	<i>Pycnonotus melanicterus</i> (Gmelin, 1789)	E: Sri Lanka Black- capped Bulbul S: Kalu isasi kondaya T: Karungkondai sinnaan.	LC	LC	
195	<i>Pycnonotus cafer</i> (Linnaeus, 1766)	E: Red-vented Bulbul S: Kondaya; T: Sinnaan	LC	LC	
196	<i>Pycnonotus penicillatus</i> Blyth, 1851	E: Sri Lanka Yellow-eared Bulbul S: Sri Lanka kahakan kondaya; T: Ilankai manjal sevikkondai kuruvi	EN	NT	B2 ab (iii)

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
197	<i>Pycnonotus luteolus</i> (Lesson, 1841)	E: White-browed Bulbul S: Bamasudu Kondaya; T: Ven puruva sinnaan	LC	LC	
198	<i>Iole indica</i> (Jerdon, 1839)	E: Yellow-browed Bulbul S: Bamakaha Kondaya T: Manjal puruva sinnaan	LC	LC	
199	<i>Hypsipetes ganeesa</i> Sykes, 1832	E: Square-tailed Bulbul/ Asian Black Bulbul S: Kalu piri-kondaya; T: Karung sinnaan	LC	LC	
FAMILY: Locustellidae					
200	<i>Elaphrornis palliseri</i> (Blyth, 1851)	E: Sri Lanka Bush-warbler S: Sri Lanka vanaraviya; T: Ilankai pattrai thinnung kuruvi	EN	NT	B2 ab (iii)
FAMILY: Acrocephalidae					
201	<i>Acrocephalus stentoreus</i> (Ehrenberg, 1833)	E: Clamorous Reed-warbler S: Gos panraviya; T: Periya nanal kathir kuruvi	EN	LC	B2 ab (iii)
FAMILY: Pellorneidae					
202	<i>Pellorneum fuscicapillus</i> (Blyth, 1849)	E: Sri Lanka Brown-capped Babbler S: Sri Lanka Boraga piridemalichcha; T: Ilankai kabilakulla velaikkara kuruvi.	LC	LC	
FAMILY: Timaliidae					
203	<i>Pomatorhinus melanurus</i> Blyth, 1847	E: Sri Lanka Scimitar-babbler S: Sri Lanka de-demalichcha; T: Ilankai koduvaal velaikkara kuruvi	NT	LC	B1 ab (iii) + B2 ab (iii)
204	<i>Dumetia hyperythra</i> (Franklin, 1831)	E: Tawny-bellied Babbler S: Kusakaha landudemalichcha; T: Karunj chirappu vayittru silamban	LC	LC	
205	<i>Rhopocichla atriceps</i> (Jerdon, 1839)	E; Dark-fronted Babbler S: Vathaduru pandurudemalichcha, Parandelkurulla; T: Karunthalai chilamban	LC	LC	
FAMILY: Sylviidae					
206	<i>Chrysomma sinense</i> (Gmelin, 1789)	E: Yellow-eyed Babbler S: Nethkaha thanademalichcha; T: Manjal kan silamban	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Leiotrichidae				
207	<i>Argya rufescens</i> (Blyth, 1847)	E: Sri Lanka Orange-billed Babbler S: Sri Lanka rathu-demalichcha; T: Ilankai sev valuhu velaikkara kuruvi	EN	NT	B2 ab (iii)
208	<i>Argya affinis</i> (Jerdon, 1845)	E: Yellow-billed Babbler S: Demalichcha; T: Manjal alahu silamban	LC	LC	
209	<i>Argya cinereifrons</i> Blyth, 1851	E: Sri Lanka Ashy-headed Laughingthrush S: Sri Lanka hisalu upademalichcha; T: Ilankai saambal thalai punnahaikum paadum kuruvi.	EN	VU	B2 ab (iii)
	FAMILY: Zosteropidae				
210	<i>Zosterops ceylonensis</i> Holdsworth, 1872	E: Sri Lanka White-eye S: Sri Lanka sithasiya, Mal kurulla; T: Ilankai ven vilik kuruvi	VU	LC	B1 ab(iii) + B2 ab (iii)
211	<i>Zosterops palpebrosus</i> (Temminck, 1824)	E: Indian White-eye/ Oriental White-eye S: Peradigu sithasiya; T: Vellai kanni	LC	LC	
	FAMILY: Sittidae				
212	<i>Sitta frontalis</i> Swainson, 1820	E: Velvet-fronted Nuthatch S: Villuda yatikuriththa; T: Velvet nettri maram irangi	LC	LC	
	FAMILY: Sturnidae				
213	<i>Gracula ptilogenys</i> Blyth, 1846	E: Sri Lanka Myna S: Sri Lanka Salalihiniya; T: Ilankai myna	VU	NT	B1 ab(iii) + B2 ab (iii)
214	<i>Gracula indica</i> Cuvier, 1829	E: Southern Hill Myna S: Salalihiniya; T: Malai naakanavai	LC	LC	
215	<i>Acridotheres tristis</i> (Linnaeus, 1766)	E: Common Myna S: Myna; T: Naakanavai	LC	LC	
216	<i>Sturnornis albofrontatus</i> (Layard, 1854)	E: Sri Lanka White-faced Starling S: Sri Lanka vathasudu sarikava; T: Ilankai soorai kuruvi	EN	VU	B2 ab (iii)

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Muscicapidae				
217	<i>Myophonus blighi</i> (Holdsworth, 1872)	E: Sri Lanka Whistling-thrush S: Sri Lanka arangaya; T: Ilankai seezhkai oli paadum kuruvi	EN	EN	B2 ab (iii)
	FAMILY: Turdidae				
218	<i>Geokichla spiloptera</i> (Blyth, 1847)	E: Sri Lanka Spot-winged Thrush S: Sri Lanka thithpiya thirasikaya, Wal avichchiya; T: Ilankai pullichiraku paadum kuruvi.	VU	NT	B2 ab (iii)
219	<i>Zoothera imbricata</i> Layard, 1854	E: Sri Lanka Scaly Thrush S: Sri Lanka kayuru thirasikaya; T: Ilankai ponnira poong kuruvi	EN	NT	B2 ab (iii)
220	<i>Turdus simillimus</i> Jerdon, 1839	E: Indian Blackbird S: Kalu bimsariya; T: Malaichittaan	EN	LC	B2 ab (iii)
	FAMILY: Muscicapidae				
221	<i>Copsychus saularis</i> (Linnaeus, 1758)	E: Oriental Magpie-robin S: Polkichcha; T: Karuppu vellai solaippadi	LC	LC	
222	<i>Copsychus malabaricus</i> (Scopoli, 1788)	E: White-rumped Shama S: Vana Polkichcha; T: Solanippaadi.	LC	LC	
223	<i>Saxicoloides fulicatus</i> (Linnaeus, 1766)	E: Indian Robin S: Kalukichcha, Kalu polkichcha; T: Karunj chittu	LC	LC	
224	<i>Saxicola caprata</i> (Linnaeus, 1766)	E: Pied Bushchat S: Gomara sitibichcha; T: Karuppu vellai puthar chittu	EN	LC	B2 ab (iii)
225	<i>Eumyias sordidus</i> (Walden, 1870)	E: Sri Lanka Dull-blue Flycatcher S: Sri Lanka anumasimara; T: Ilankai neela vettivaat kuruvi.	VU	NT	B1ab(iii) + B2 ab (iii)
226	<i>Cyornis tickelliae</i> Blyth, 1843	E: Tickell's Blue-flycatcher S: Layaran nil-masimara, Kopi kurulla; T: Tickell neelaee pidippaan	LC	LC	

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
	FAMILY: Stenostiridae				
227	<i>Culicicapa ceylonensis</i> (Swainson, 1820)	E: Grey-headed Canary-flycatcher* S: Aluhis kaha masimara	NT	LC	B1 ab(iii,v) + B2 ab(iii,v)
	FAMILY: Chloropseidae				
228	<i>Chloropsis jerdoni</i> (Blyth, 1844)	E: Jerdon's Leafbird/ Blue-winged Leafbird S: Jaradan kolarisiya, Girakurulla; T: Jerdon pachaichittu	LC	LC	
229	<i>Chloropsis aurifrons</i> (Temminck, 1829)	E: Golden-fronted Leafbird S: Ran nalal kolarisiya; T: Pachaichittu	LC	LC	
	FAMILY: Dicaeidae				
230	<i>Dicaeum agile</i> (Tickell, 1833)	E: Thick-billed Flowerpecker S: Mathudu pililichcha; T: Parutha alahu malar kothi	NT	LC	B2 ab (iii)
231	<i>Dicaeum vincens</i> (Sclater, 1872)	E: Sri Lanka White-throated Flowerpecker S: Sri Lanka Pililichcha; T: Ilankai venthondai malar kothi	EN	NT	B2 ab (iii)
232	<i>Dicaeum erythrorhynchus</i> (Latham, 1790)	E: Pale-billed Flowerpecker S: Lathudu Pililichcha; T: Dickel malar kothi	LC	LC	
	FAMILY: Nectariniidae				
233	<i>Leptocoma zeylonica</i> (Linnaeus, 1766)	E: Purple-rumped Sunbird S: Nithamba dam sutikka; T: Oothapitta thenchittu	LC	LC	
234	<i>Cinnyris asiatica</i> (Latham, 1790)	E: Purple Sunbird S: Dam sutikka; T: Ootha thenchittu	LC	LC	
235	<i>Cinnyris lotenius</i> (Linnaeus, 1766)	E: Long-billed Sunbird S: Dikthudu Sutikka; T: Loten thenchittu	LC	LC	
	FAMILY: Passeridae				
236	<i>Passer domesticus</i> (Linnaeus, 1758)	E: House Sparrow* S: Gekurulla; T: Chittukkuruvi	NT	LC	B2 b (iii)
	FAMILY: Ploceidae				
237	<i>Ploceus manyar</i> (Horsfield, 1821)	E: Streaked Weaver S: Pan Wadukurulla; T: Karung keetru thookanaang kuruvi	EN	LC	B2 ab (iii)

	SCIENTIFIC NAME	COMMON NAME	NCS 2021	GCS 2021	CRITERIA USED
238	<i>Ploceus philippinus</i> (Linnaeus, 1766)	E: Baya Weaver S: Ruk Wadukurulla; T: Thookkanaang kuruvi	LC	LC	
FAMILY: Estrildidae					
239	<i>Euodice malabarica</i> (Linnaeus, 1758)	E: Indian Silverbil/ White-throated Munia S: Sarala Weekurulla; T: Ven thondai sillai	NT	LC	B1 b (iii)
240	<i>Lonchura striata</i> (Linnaeus, 1766)	E: White-rumped Munia S: Nithamba sudu Weekurulla; T: Ven muthuhu sillai.	LC	LC	
241	<i>Lonchura kelaarti</i> (Jerdon, 1863)	E: Black-throated Munia S: Gelakalu Weekurulla; T: Karunthondai sillai	EN	LC	B2 ab (iii)
242	<i>Lonchura punctulata</i> (Linnaeus, 1758)	E: Scaly-breasted Munia S: Laya kayuru Weekurulla; T: Pulli sillai.	LC	LC	
243	<i>Lonchura malacca</i> (Linnaeus, 1766)	E: Tricoloured Munia* S: Thepaha Weekurulla; T: Karunthalai sillai	NT	LC	B1 b (iii, v)
FAMILY: Motacillidae					
244	<i>Anthus rufulus</i> Vieillot, 1818	E: Paddyfield Pipit S: Keth waratichcha; T: Vayal nettaikkaadi	LC	LC	

Notes:

Endemic Species are in bold letters

Both resident and migratory populations are present in the country.

* Recent population decline has been observed.

** Successful breeding was observed in Bundala National Park in 2020. However, subsequent breeding or chicks were not recorded, thus considered under data deficient category.

*** Breeding is not confirmed yet and only one confirmed record of a single bird observed in 2019 at Pulmude area exists.

CHAPTER 4: THREATS



Fulvous Whistling-duck
(*Dendrocygna bicolor*)
©Gehan Rajeev

4. Threats to Avifauna in Sri Lanka

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Green planet, 13, G.H. Perera Mawatha, Rattanaipitiya, Borelasgamuwa.

Sri Lanka, being an island nation with limited land resources and increasing population, the natural habitats of the country had undergone considerable change over the years. These changes have affected the distribution and abundance of birds, for which effects of climate change also had contributed. The National Red Listing of 2012 indicated that out of the endemic birds, more than 60% are restricted to the forests in the wet zone while many of the threatened endemics are habitat specialists, indicating a further reduction of the forests will drastically affect the survival of these species (Weerakoon and Gunawardena, 2012). Further, despite an increased interest in seabirds in recent years, Sri Lanka's marine avifauna continues to be under-observed. A majority of observations are from the southern and south-western coastal waters, hence, there is wide scope for more intensive studies of pelagic species and the oceanographic factors that influence them (De Silva, 2011).

According to the sixth National Report to the Convention on Biological Diversity, the main types of threats for the decline of the avifaunal populations in Sri Lanka are: habitat alteration and fragmentation, agricultural expansion, poaching, invasive species, unplanned solid waste disposal, visitation pressure, fishing pressure, manmade fires, chemical pollution, climate change and oil leakage taking place in the ocean. As indicated in Fig. 4.1, the degree of these threats varies among the seven avifaunal zones of the country (MoMD&E, 2019). Anthropogenic activities such as deforestation, waste dumping, land filling and alteration of wetlands can affect the habitat variabilities and thereby change the ecological balance, that can be further affected by climate change. This, in turn can threaten the long-term survival ability of many species of avifauna in Sri Lanka, especially endemic species, which show high habitat specificity. Additionally, pressures such as off-road driving, removal of trees within the tank ecosystems and haphazard use of fishing gear (for example, gill nets by-catch of Cormorants and Darters) are resulting in a threat to certain bird species. Conflicting and constant changes in government policy, lack of baseline data, as well as institutional collaboration is also accelerating the threat status of avifauna.

This chapter explores in detail how some of these drivers have affected Sri Lankan Avifaunal species' abundance and distribution.

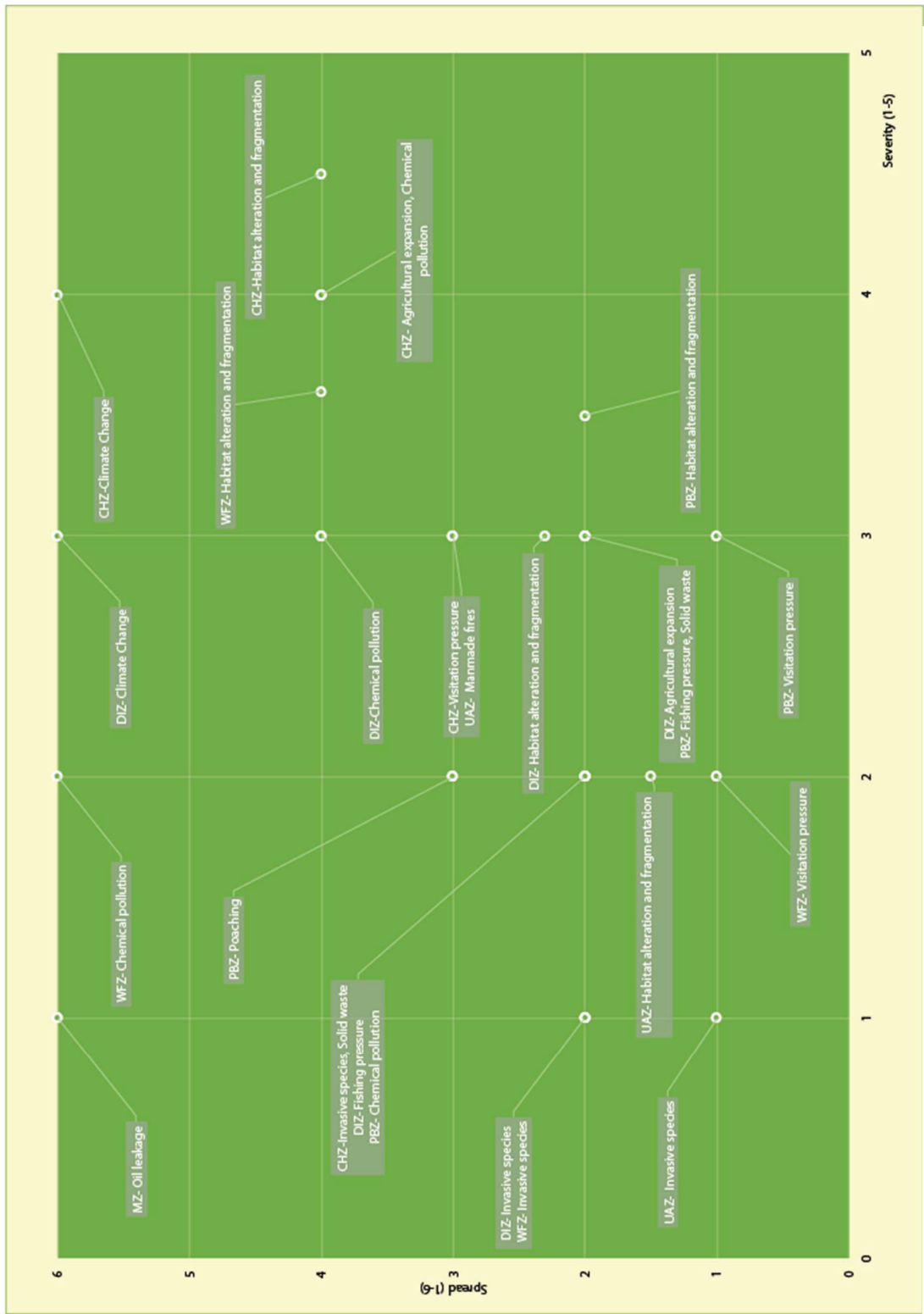


Figure 4.1 Spread and severity of threats in different avifaunal zones. (Source: 2019 Biodiversity Profile - Sri Lanka, Sixth National Report to the Convention on Biological Diversity, Biodiversity Secretariat, Ministry of Mahaweli Development and Environment, Sri Lanka. pp.84 MoMD&E, 2019)

Habitat Loss - Depletion/ Degradation and Fragmentation

Being common to most of the faunal groups, the main threat for the birds also is the habitat loss, which is always an increasing threat due to population expansion and ad-hoc ‘development’ projects that clear forest cover and fill wetlands for human settlements, agriculture and for commercial purposes. Small-scale illegal logging operations still take place despite a moratorium passed in 1990 to protect all wet zone forests from logging. Encroachment into forests for agriculture, collection of fuel wood and other forest products, and intrusion of road networks in to existing protected areas are main drivers of habitat loss and degradation.

Several researches had pointed out that the conversion of natural ecosystems into human-modified land uses creates noticeable impacts on bird community parameters and composition, because many species tend to be attracted to or avoid the modifications. A recent study by Sreekar et al, (2020) showed that endemic species with smaller range sizes had lower abundances in agricultural lands compared to rainforests, suggesting that they fail to adapt to novel environments, and non-endemic species with similar range sizes compensated for the lower abundances of endemic species in agriculture. Therefore, conversion of native rainforests to agriculture increases local extinction risk, specifically for species such as the Sri Lanka Whistling Thrush. The development of numerous vegetable farms in upland areas such as Nuwara Eliya is removing the habitat, and producing insecticide run-off which almost certainly affect the survival of this stream-dependent bird species. Further endemics like Red-faced Malkoha, Sri Lanka Thrush and White-faced Starling, too are threatened by the conversion of natural rainforests into agriculture as it reduces the density advantage that they enjoy in natural habitats.

Another research indicated that vulnerability of most selected nesting trees due to deforestation seems directly linked to the success of the nesting cavities utilized by species such as the Sri Lanka Grey Hornbills. The majority (71%) of Grey Hornbill nests were found in *Manilkara hexandra* (Sapotaceae) making it the most preferred nest-tree species in dry zone. Therefore, protecting *M. hexandra* is essential for the improvement of the breeding success of these cavity breeders (Wijerathna and Wickramasinghe, 2019).



Figure 4.2: Nilgala savanna ecosystem © Tharanga Herath

Further, Nilgala savannah ecosystem (fig 4.2) with unique bird species that show a restricted distribution in eastern Uva foothills (e.g. Painted Francolin and Jungle Bush Quail) has not received adequate protection and therefore is highly vulnerable as several development projects that are being proposed in this area in an adhoc manner by the Government. Further, in November 2020, the national Government issued the circular MWFC/1/2021 repealing two previous circulars 05/2001 (a circular issued to transfer the management of all remaining forests under the category of “other state forests” from Divisional

Secretaries to Forest Department) and 02/2006 (an addendum to 05/2001, which provided a pathway for the Divisional Secretaries to identify non-forest lands for development and get them exempted from the jurisdiction of Forest Department). This move would lead to the loss of an estimated 338,229 ha of natural habitat designated as “other state forests” that are not under formal protection, for example, important forests such as Athwelthota and Yatagampitiya forests.



Figure 4.3: Man-made forest fire in Uva Province

Forest destruction due to fires has become a serious problem in some regions in Sri Lanka, especially in areas like Beragala and Haputale in the Badulla District (fig 4.3). According to the Disaster Management Center, Sri Lanka experiences nearly 50 to 200 cases of forest fires every year. During the period 2016 to 2019, 673 forest fires were reported. According to the Department of Forest Conservation, 5619 hectares of land have been destroyed due to forest fires as of now. A survey conducted by Bandara et al., (2019) reported that 87% of the respondents stated that forest fires were set on purpose for hunting. Animals such as hares, deer, and fowls are targeted by hunters, by setting up animal-traps to capture animals when the forest is set on fire. Jungle Bush Quail is one of the 3 species of birds restricted to the Uva province grassland habitats (MoMD&E, 2019) which could fall victim to man-made forest fires prominent in Uva province. Habitat destruction by frequent fire on the western flank of Gannoruwa forest, poaching, expanding human settlements toward the forest, and deforestation are among the major threats to the forest. Unrestricted access to the forest allowed to the villagers, hiking groups, and many types of visitors causes huge disturbance to the bird species that inhabit ecotones. As many cavity breeders are nesting in the trees at the edges of the forest, expansion of hamlets towards the forest causes destruction of breeding grounds of edge species such as the endemic and nationally vulnerable Sri Lanka Hill Myna (*Gracula ptilogenys*) (Rathnayake, 2016).

The number of deaths of several bird species are recorded due to road kills and collision with electrical wires. This is evidence for the huge disturbance created by the development activities.



Figure 4.4: Blue Faced Malkoha and Lesser Flame Back Wood Pecker deaths due to Road kills in Aruwakkalu and Electricuted Brahminy Kite in Mannar island (Photographs by Dulan Vidanapathirana)

Filling, alteration and development of wetlands especially for flood prevention and for recreational purposes (jogging tracks, bird parks etc.) are becoming an increased threat to the waterfowl in urban areas. For example, although the city of Colombo and its suburbs has been declared as a Ramsar Wetland city, this threat is rampant and has resulted in huge decrease in wader habitats in recent decades (Rajapaksha, 2021, Wickramasinghe, 2021 and personnel observation). Especially, the mudflats are lost due to deepening of the marshes to create lakes and constructing gabion walls to store storm water. Removal of marginal vegetation and reed beds is a main reason in for causing habitat loss to skulking species such as Bitterns, Painted Snipes, Rails and Crakes, Warblers etc. Removal of vegetation threatens roosting sites of nocturnal and crepuscular species, while cutting down large trees destroys waterfowl nesting habitats. Historically, much of the Kelani floodplain was speckled with a variety of wetlands. These have since been drained, filled, or dredged for urban development or for agriculture (rice fields), greatly diminishing the extent of floodplain wetlands and freshwater marshes, consequently <1% of the basin is now occupied by wetland. Yet, the remaining wetlands around Colombo are still attracting native as well as some special migrant water birds such as the Glossy Ibis and African Comb Duck, particularly in the wetlands around Thalawathugoda (Rodrigo, 2016).



Figure 4.5: Migratory Green Sandpipers losing their habitat due to filling and alteration of wetlands in Colombo

Wetlands in the rest of island are also victims of constructions causing changes in salinity level and general hydrology through habitat alteration. Shrimp farming industry and salt pan expansion in northwestern coastal areas alter the natural habitats including salt marshes and

mudflats, with latest evidence of destruction found inside Anavilundawa Ramsar site. Gulf of Mannar region and adjoining bird areas such as Vanakalai and Vidattaltivu are vital wetlands with regard to the conservation of bird life. Gulf of Mannar region acts as a 'funnel' for the millions of migratory birds that use both the western and eastern migratory routes to enter the island annually. At the same time, the vast areas of tidal flats serve as excellent wintering grounds for a massive number of migratory birds. Yet, after the end of the civil conflict such northern areas are heavily exploited and development processes are carried out at present. Projects like establishment of wind farms in the coastal zone adversely affect the landfall and the important habitat of the migratory birds. In the Northern Province, the ongoing saltwater exclusion scheme in the Thondaimanaru lagoon will result in the slow desalination of the lagoon. It will have far-reaching ecological consequences including threats to the mangrove ecosystems of the area and the associated bird life (Wijesundara et al 2017). Establishing windmills are one of the biggest threats for the migratory birds in Mannar region (CEB, 2017). A major setback to some species of breeding terns (which are ground nesters), is the loss of breeding habitat due to the littoral regions of lagoons, in which they nest, being converted into ponds for shrimp farming or into evaporation pans for salt production (Kotagama and De Silva, 2006).

Bundala Ramsar Site can be considered as a good example for conflict over water use between irrigation and environment. The surplus inflow of drainage water has converted the brackish water lagoons into freshwater lakes, while the raising of water levels making feeding sites unavailable for many waders who prefer to feed in the mud. A study had highlighted that the bird community of Embilikala lagoon of BRS is now very similar to artificial irrigation tanks of the area, with a considerable reduction in shore bird community when compared to the more natural Bundala lagoon (Bellio et al, 2009).

A study conducted in the Negombo estuary by Jayathilake and Chandrasekera (2015) demonstrated a direct relationship between the intensity of anthropogenic disturbances and the loss of avifaunal diversity, suggesting that presence and absence of birds serve as indicators of land cover alterations. For example, the house crows made up 60.41% of the entire avian community composition of Negombo estuary, and they were found to be more abundant at highly disturbed sites such as Munnakkara and Duwa, and a low abundance at least disturbed site such as Kindigoda.

Trees are essential for nesting and roosting of certain water birds, while the dead tree stumps in the reservoirs are used as feeding and roosting perches. Yet, for safe operation of dams as well for disaster risk reduction, it is required to keep the spillway channels free of debris and the bund free of trees and brushes. Presently, when a new reservoir is constructed, trees are uprooted completely before flooding the area and no stumps are left. These actions had led to loss of suitable perching options as well as food availability within and the surrounding areas of the reservoir, leading to loss of bird diversity in the water bodies. Lack of dead tree stumps will also affect the fish diversity as it reduces the suitable surfaces for algal growth. Therefore, it is essential to undertake a thorough scientific study in this regard and provide suitable recommendations to improve the present situation, especially when constructing new reservoirs (Perera et al, 2018).

Impacts of Climate Change

Sri Lanka is highly vulnerable to the adverse impacts of climate change as the country has consistently been placed among the top ten countries at risk of extreme weather events by the Global Climate Risk Index (MoE, 2021). Shifts in timing of important life cycle events, and shifts in ranges, are two major ways that birds and their ecological communities are already displaying a strong response to climate change. It is predicted that the overall average temperature of Sri Lanka's habitats will increase by 1.5°C and this in turn will affect average annual rainfall. This will in turn affect most endemic species which have adapted to narrow ecological niches as it will cause the said species' habitats to completely disappear, decline or shift and change (MoMD&E 2019).

A recent study had predicted that a 2°C rise in temperature would shift the bird communities upwards by 400 m. For the whole of Sri Lanka, the forested areas (more than 75% tree cover) at elevations higher than 1500 m and 1900 m are 583 km² and 152 km², respectively. Therefore, a 400 m shift upwards would reduce the potential habitat for high elevation threatened endemic species by 74%. Similar shifts might extirpate entire populations of these species in the isolated Knuckles mountain range where the highest peak is 1863 m (Sreekar et al, 2020).

In another study that attempted to model the climatic suitability for five endemic species which are exclusively found in highlands of Sri Lanka concluded that the species might be severely affected by the reduction of areas with suitable climate for their survival. It was predicted that the most significant reduction was observed for the Yellow-eared Bulbul, while the area that is climatically suitable for the Sri Lanka Whistling Thrush is predicted to undergo a 60 % reduction by 2050, however this reduction stabilizes over the next 30 years. Sri Lanka Dull-blue Flycatcher and Sri Lanka Bush Warbler will experience an 80% and 90% reduction in their climatically suitable area by 2080, respectively. The study stressed the importance of undertaking in-depth analysis to understand the resilience of the highland forests and their faunal assemblages for the scientific management of the biological wealth (Perera et al, 2016).

On the other hand, a few species, of which the populations have been, noted expanding and increasing in numbers in the recent past. Indian Peafowl, usually a bird that inhabit dry zone lowlands mainly in open habitats in Sri Lanka, is now expanding to the wet zone as well as highest hills (figure 4.6). It has been recorded in highlands as high as Ambewela (Herath, 2013) and Horton Plains. In the wet zone it has been found in forested villages (ex- Kitulgala) as well as in Colombo and its suburbs. This expansion can be invasive.

Green Imperial Pigeon used to be a species that inhabit forested and well-wooded parts of the country, but now it is seen in highly populated urban and suburban areas including Colombo. This could be due to the exotic palms that are rapidly invading most parts of the island, in which the fruit is devoured fondly eagerly by this species. Also, Oriental Honey Buzzard, a large raptor which also has increased its numbers in recent times, even in the suburbs, is noteworthy (Herath, 2013).



Figure 4.6: Indian Peafowl expanding its range to Horton plains National Park

Recreational Pressure

Human recreational disturbances can impact the distribution of birds, and this was evident in a study conducted in a popular nature trail (Kudawa) in Sinharaja World Heritage Forest. The sensitivity of individual bird species to visitor recreational disturbances varies with the stratum/layer of the rain forest usually occupied by these bird species. Effects of recreational disturbances were more profoundly felt by birds occupying understory and sub-canopy layers of the forest near the nature trail. Under high levels of disturbance, bird communities avoided edge habitats and displaced to less disturbed parts of the forest. Yet, certain avian species seem to tolerate greater degrees of recreational disturbances, a good example being the Sri Lanka Blue Magpie. This suggests a possible habituation of this endemic bird population and it had been often observed that a group perching near the trail in anticipation of food. Similar behavioral observations were made on the ground occupying Sri Lanka Jungle Fowl. Visitors feeding Blue Magpies and Jungle Fowls are a common observation and this can alter the normal behavior of birds and induce habituation to human presence (Alwis et al, 2016).

Rules must be implemented and monitored at national parks, where safari drivers should be given training in order to create awareness on ethical standards to be maintained while observing animals and driving inside protected areas. It has been noted that some safari drivers tend to engage in off-road driving in national parks such as Bundala and Yala. Such off-road driving, in particular along the coastline and catchment areas of waterholes and tanks, may disrupt breeding of certain ground nesting water birds. Another threat that has an adverse effect on the avifauna is the “commercialization of bird watching”, especially the use of tape lures to attract rare and elusive birds, which in turn will affect their normal behavioural patterns.

Poaching and Illegal Wildlife Trade

According to the survey conducted by Gabadage et al (2015), multiple environmentally adverse anthropogenic activities take place in the Maduruoya National Park and the surrounding habitats. Further, the study highlighted that the most detrimental forms of habitat loss and overexploitation were illicit logging, extraction of non-timber products including nests of Indian Swiftlet (*Aerodramus unicolor*), poaching for bush meat and encroachment of the Maduruoya National Park boundary and adjoining public lands by clear-cutting as well as

slashing-and-burning for cash crop farming and human settlements. Further Saranga et al (2021) showed that animal poaching is another threat to the wildlife of the Kirala Kele in Sri Lanka. They have observed poaching of Porcupine *Hystrix indica*, Wild Hare *Lepus nigricollis*, Wild Boar *Sus scrofa*, Gray-headed Swamphen, and ducks, for human consumption. Parakeets, Munias, the Black-headed Oriole, Southern Hill Myna and even House Sparrows are among the birds being traded in Sri Lanka. Further, birds such as Munias and Rose-Ringed Parakeets sold by road-side vendors as well as pet shops, to be released during “religious, auspicious or meritorious” activities, results in the death and disruption of these bird populations. The Hill Myna is especially vulnerable as they are in big demand because it comes under the category of “birds that can talk.” Also, they trade other bird species, including Layard’s Parakeet, a bird endemic to Sri Lanka. In addition to that people collect chicks and eggs from the roosting sites of the water birds. In Kotuattawala Nature Reserve 46% of water birds were affected due to the hunting of chicks during the breeding period (Wickramasinghe and Diwakara, 2017).

The Department of Customs reported that illicit bird trade is being conducted within the country (Custom Report, 2017). The operatives catch birds in remote areas, sometimes deep in the jungles, and supply these to pet shops. The law allows only exotic birds to be kept as pets, but these pet shop owners deal in many indigenous birds. Sri Lanka Customs have detected a consignment of 121 live birds brought down by a regular importer who have had produced documents to support the import of only ten birds as per the permits issued by the Department of Wildlife Conservation (DWC). The consignment comprised of parrots, and several small exotic varieties of ducks and a pair of swans all of which are listed as potential carries of avian flu (Rodrigo, 2012).

The illegal edible bird nests trade in Sri Lanka is commonly reported and the material come from the nests of the Indian Swiftlet (*Collocalia unicolor*) that makes a nest mainly from its saliva. Most of confiscated material by Customs indicate that these are smuggled out to China by Chinese passengers through the airport (Sri Lanka Customs, 2017)



Figure 4.7: Illegal trade of Lesser Hill Myna/Common Grackle (Salalihiniya)



Figure 4.8: One of the 121 consignment of birds that were detected at the airport (Photo Mangala Weerasekera)

Spread of Invasive Species

Spread of invasive alien species such *Panicum maximum* especially in abandoned lands is which can be seen all around Sri Lanka results in considerable reduction of the ground vegetation diversity, which in turn affects the birds associated with grasslands. In wetlands, invasive alien species such as *Eichhornia crassipes* and *Annona glabra* are spreading rapidly causing adverse effects such as blocking the flow of water and reducing the available feeding and nesting grounds for waders, a good example being the Bundala National Park.

Spread of invasive *Prosopis juliflora* can be considered as the most significant factor changing the landscape characteristics of the Bundala Ramsar wetland. *P juliflora*, a tree species native to Central and South America, was introduced as a fuel wood species to home gardens by the Forest Department and now has expanded its distribution, invading the Bundala National park (Rathnayake, 2005). *Prosopis* is also continuing to invade water bodies, leading to loss of shorelines, thus affecting the wader feeding grounds. According to a recently published report, *Prosopis* has established in 620 ha of or 10.9 percent of the total extent of Bundala the park (Ratnasekare, 2016).

Kariyawasam et al., (2020) defined the species that can potentially pose a high risk to the Protected Area system under current and future climate scenarios. The increased pressure from plant invasions may result in negative consequences, e.g., threats to vertebrate–fauna, which are susceptible to changes in their habitat. The majority of threatened vertebrates are concentrated in the central and south-west wet zone of the country, which is relatively more vulnerable to multiple plant invaders. Thus, this can have serious potential consequences for the survival of threatened vertebrates including birds. Sometimes feral dogs which are not listed as Invasive species are also ;known to hunt aquatic birds in wetlands (fig. 4.9). It had been shown that invasion by the Jungle Crow (*Corvus macrorhynchos*) is a potential threat to biodiversity in the Horton Plains National Park. Endemic birds such as *Gallus lafayettii*, *Eumyias sordidus* and *Pycnonotus penicillatus* were reported to be attacked by flocks of Jungle Crows. Further, raptors such as *Halia turindus*, *Circus macrourus*, *Pernis ptilorhynchus* and *Falco tinnunculus*, were also reported to have been attacked by Jungle Crows (Chandrasiri et al, 2017).

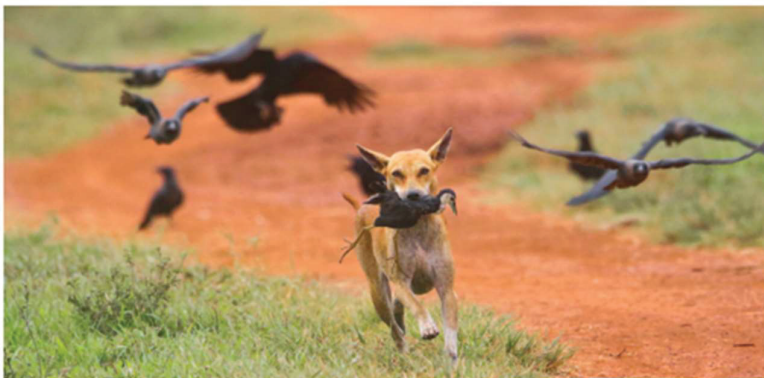


Figure 4.9 : Feral dog hunt a White-breasted Waterhen in Kirala Kele (Photograph by Thusitha Weerasinghe)

Pollution

Inland and marine waters of the island are being polluted by the release of untreated or partially treated industrial and household wastes, runoff from agricultural lands as well as oil spills from ships and fishing boats, the latest threat being the ship wreckage of X- Press Pearl, a Singapore registered container carrier ship that caught of fire on 20th May 2021 off the coast of Colombo creating a disastrous condition in Sri Lankan coastal waters that extended towards both northern and southern provinces. The ship burnt for 12 days and started to sink on 2nd June 2021, releasing toxic chemicals and other hazardous material as well as fossil fuel that it was transporting. Immediately after the shipwreck, pelagic birds affected by the oil leaking from the ship was recorded by monitoring teams (Partow et al, 2021). Further, a large quantity of chemical compounds and non-degradable material such as plastic nurdles has been released, which in turn may affect birds directly as they may consume it mistakenly as food. In addition, such toxic compounds will bioaccumulate in marine food chains and enter the sea birds indirectly as they are apex predators in the marine environment. There is also the possibility that water quality as well as the hydrology in coastal habitats will be affected, which may result in degradation of coastal habitats due to accumulation of toxins through wave action. Further studies are needed to assess the threat caused by persistence of such toxic material in Sri Lankan coastal habitats in future.

Saranga, et al (2021) highlighted that the Gray-headed Swamphen and Eurasian Moorhen in Kirala kele consume fertilizers in the form of pellets, resulting in their deaths.

Fishing Pressure

Sri Lanka's birds are subject to many threats including fishing pressure. Many birds are accidentally entangled and drowned in fishing nets. Among the sea bird species so affected for which information is available are *Stema bergii* and *Sula leucogaste*. Seabirds are sometimes foul-hooked on trolling lines, here again *Sula* species appear to be among the victims (Kotagama and De Silva, 2006). When considering the inland fishery, a study conducted by Wickramasinghe et al, (2021) in Kandarawewa tank in Anurhadhapura has reported that diving water birds, such as Oriental Darter in particular, are trapped in nets set underwater by fishermen (fig. 4.10).



Figure 4.10: Oriental Darter trapped in a fish net



Figure 4.11: Dead Heuglin gulls trapped by fish nets (Photographs by Jude Janith)

Conflicting Institutional Policies and Laws and Lack of Coordination

More than 30 state institutions are involved with some aspects of management and protection of biodiversity and forest resources in Sri Lanka. The coordination among these institutes is inadequate. Therefore, the issue at hand is not lack of policies and strategies but rather the lack of implementation. For example, if not adequately coordinated, the loss of forest cover will increase rapidly as a result of expansion of agriculture, which is currently being promoted by the Government to increase food security and secure livelihoods of the communities to face the ongoing economic crisis.

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CHAPTER 5: CURRENT CONSERVATION MEASURES



Sri Lanka Frogmouth
(*Batrachostomus moniliger*)
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5. Current Conservation Measures to Protect Avifauna

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To mitigate and overcome the multitude of ever-increasing threats faced by biodiversity including bird species and their habitats, various actions have been initiated by different actors including state agencies, research institutions as well as non-governmental organizations. From listing species for protection, declaring protected areas to conserve habitats to preventing illegal wildlife trade, the laws and policies are crucial instruments in protecting Sri Lanka's avifauna as well as ensuring that threatened and endemic species and their habitats are not forgotten and lost in waves of development. Further, Sri Lanka is bound by international conventions such as the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the Convention of migratory species, which propose and undertake various conservation actions on global, regional and national levels. This chapter provides a brief overview of these conservation measures.

5.1 National Policy and Legislation Relating to Bird Conservation

In Sri Lanka, there are more than 30 state institutions and 15 laws directly involved in conservation and sustainable use of biological diversity. The strategy for conservation and sustainable utilization of biodiversity evolved from various initiatives framed and formulated largely by the Ministry of Environment, the focal point for biodiversity conservation, and complemented by other related Ministries/ Departments and affiliated agencies dealing with Forestry, Wildlife, Environment, Agriculture, Fisheries and Aquatic Resources, Botanical and Zoological Gardens etc. (MERE, 2014). Yet, when considering the protection of the wildlife including the avifaunal wealth of the country, the Fauna and Flora Protection Ordinance (FFPO) with its latest amendment by the Act No. 22 OF 2009 is the primary legislation as it directly involves the protection of habitats and species. It provides for establishing Protected Areas (PAs) where all fauna and flora within the specified areas are free from detrimental human interference, and for listing of species within schedules that enjoy protection throughout the country. As per FFPO's schedules III and IV, except for five species of birds (Table 5.1), the rest including all the migrants or any new species that comes to Sri Lanka are considered as protected throughout the country, while out of the protected 61 species, 21 endemics are listed as strictly protected (Table 5.2). The strictly protected species are given a higher degree of protection by increasing the punishments provided for offences against these species. The Department of Wildlife Conservation (DWC) is the responsible agency for implementing the FFPO and is guided by the Wildlife Policy, which provides strategies and guidelines for the conservation, sustainable utilization and benefit sharing of the wildlife in the country.

Table 5.1: Schedule III – Birds that are not protected

No.	Scientific Name	Common English Name
1	<i>Corvus macrorhynchos</i>	Black crow
2	<i>Corvus splendens</i>	House crow
3	<i>Lonchura punctulata</i>	Spotted munia, Scaly breasted Munia
4	<i>Lonchura striata</i>	White-backed munia
5	<i>Psittacula krameri</i>	Rose-ringed parakeet

Table 5.2: Schedule IV – Birds that are strictly protected

No.	Scientific Name	Common English Name
1	<i>Pelecanus philippensis</i>	Spot-billed pelican
2	<i>Phalacrocorax carbo</i>	Great cormorant
3	<i>Ephippiorhynchus asiaticus</i>	Black-necked stork
4	<i>Leptoptilos javanicus</i>	Lesser adjutant
5	<i>Aviceda jerdoni</i>	Jerdon's Baza
6	<i>Hieraaetus kienerii</i>	Rufous-bellied Eagle
7	<i>Spizaetus nipalensis</i>	Mountain hawk eagle
8	<i>Falco peregrinus</i>	Shaheen falcon
9	<i>Falco tinnunculus</i>	Common kestrel
10	<i>Francolinus pictus</i>	Painted francolin
11	<i>Francolinus pondicerianus</i>	Grey francolin
12	<i>Perdica asiatica</i>	Jungle bush-quail
13	<i>Fulica atra</i>	Common coot/Black coot
14	<i>Gallirallus striatus</i>	Slaty-breasted banded rail
15	<i>Porzana fusca</i>	Ruddy-breasted crake
16	<i>Vanellus malabaricus</i>	Yellow-wattled Lapwing
17	<i>Rostratula benghalensis</i>	Great painted snipe
18	<i>Burhinus recurvirostris</i>	Great thick knee
19	<i>Phodilus badius</i>	Oriental bay owl
20	<i>Tachymarptis melba</i>	Alpine swift
21	<i>Hirundapus giganteus</i>	Brown-backed needle-tail
23	<i>Alcedo meninting</i>	Blue eared kingfisher
24	<i>Eurystomus orientalis</i>	Dollar-bird
25	<i>Celeus brachyurus</i>	Roufous woodpecker
26	<i>Chrysocolaptes festivus</i>	White-naped woodpecker

No.	Scientific Name	Common English Name
27	<i>Picus xanthopygaeus</i>	Streak-throated woodpecker
28	<i>Hirundo tahitica</i>	Hill swallow
29	<i>Lanius schach</i>	Long-tailed shrike
30	<i>Columba livia</i>	Blue rock pigeon
31	<i>Streptopelia decaocto</i>	Eurasian collared dove
32	<i>Treron phoenicoptera</i>	Yellow-footed green pigeon
33	<i>Columba torringtoni</i>	Sri Lanka wood pigeon
34	<i>Saxicola caprata</i>	Pied bushchat
35	<i>Turdus merula</i>	Eurasian blackbird
36	<i>Zoothera dauma</i>	Scaly thrush
37	<i>Lonchura kelaarti</i>	Black-throated munia
38	<i>Lonchura malabarica</i>	White-throated silver-bill
39	<i>Hierococcyx varius</i>	Common hawk-couckoo
40	<i>Phaenicophaeus leschenaulti</i>	Sirkeer malkoha
41	<i>Phaenicophaeus pyrrhocephalus</i>	Sri Lanka Red faced malkoha
42	<i>Galloperdix bicalcarata</i>	Sri Lanka spur- fowl
43	<i>Glaucidium castanonotum</i>	Sri Lanka chestnut-backed owlet
44	<i>Ocyeros gingalensis</i>	Sri Lanka grey hornbill
45	<i>Megalaima flavifrons</i>	Sri Lanka yellow-fronted barbet
46	<i>Loriculus beryllinus</i>	Sri Lanka hanging parrot/Lorikeet
47	<i>Psittacula calthropae</i>	Sri Lanka Layard's parakeet
48	<i>Gracula ptilogenys</i>	Sri Lanka green-billed coucal
49	<i>Gracula ptilogenys</i>	Sri Lanka myna
50	<i>Sturnornis albofrontatus</i>	Sri Lanka white-faced starling
51	<i>Urocissa ornate</i>	Sri Lanka blue magpie
52	<i>Pycnonotus penicillatus</i>	Sri Lanka Yellow eared bulbul
53	<i>Bradypterus palliseri</i>	Sri Lanka bush warbler
54	<i>Argya cinereifrons</i>	Sri Lanka Ashyheaded laughing thrush
55	<i>Pellorneum fuscicapillum</i>	Sri Lanka Brown-capped babbler
56	<i>Argya rufescens</i>	Sri Lanka orange-billed babbler
57	<i>Eumyias sordida</i>	Sri Lanka dull-blue flycatcher
58	<i>Myophonus blighi</i>	Sri Lanka whistling thrust
59	<i>Zoothera spiloptera</i>	Sri Lanka spotted-winged thrust
60	<i>Dicaeum vincens</i>	Sri Lanka legg's flowerpecker
61	<i>Zosterops ceylonensis</i>	Sri Lanka White-eye

Habitats of fauna and flora including birds are protected under the provisions of FFPO as well as the Forest Ordinance (FO). Approximately, 31% of the land extent in Sri Lanka is designated as PAs under these two Ordinances. The highest level of protection is received by Strict Natural Reserves, followed by Conservation Forests, National Parks, Nature Reserves and Forest Reserves. The lowest level of protection is received by Sanctuaries and Other State Forests. These PAs support appreciable populations of all the bird species recorded in Sri Lanka, while several PAs have been declared by DWC with the main aim of protecting birds and their habitats. A few examples being National parks such as Bundala, Adma's Bridge and Chundikulam and Sanctuaries such as Anaiwilundawa, Vankalai, Bellanwila-Aththidiya, and Muthujajawela. The entire coastal and pelagic strip north from Iluppaikadavai to south of Toddaveli was declared as the Vidaththaltivu Nature Reserve and this area is used by large numbers of migrant birds annually. Further, the moratorium on logging in all-natural forests which came into force in 1990 is continuing. Hence, commercial timber extraction is prohibited from all-natural forests in Sri Lanka. The extent of Conservation Forests has increased over the years with more valuable wet zone forests being added to the Protected Area Network based on the biodiversity assessments made through the National Conservation Review. Several mangrove sites have also been protected by the Forest Department (FD) along the south-west and north-west coast. However, management of all PAs do not always meet the required standards, due to limitations of staff and other resources in the agencies responsible for conservation of these areas. This is compounded in recent years by poor coordination between agencies concerned directly with development and conservation.

Further, many other areas that come outside the existing PA network also provide habitats for many bird species, especially water birds that utilize habitats such as tanks and paddy fields as well as near shore areas. Agricultural lands and home gardens that make up nearly 40% of the land extent of Sri Lanka also serve as good bird habitats, especially for common birds. There are several other policy instruments that address the protection of bird habitats. For example, the National Wetland Policy and Strategy developed by the Ministry of Environment with one of its objectives being the restoration and maintenance of the biodiversity. Additionally, enactments such as the National Environment Act (NEA) and the Coast Conservation Act have provisions for protecting environmental sensitive areas including bird-rich habitats. For example, Thalangama Lake, Bolgoda, Muthurajawela (buffer zone), private lands within the Knuckles Conservation Forest boundary, Hantane and Maragala are some bird-rich areas declared as Environmental Protection Areas (EPAs) under the NEA. Integration of biodiversity concerns including protecting important bird habitats and species in to development projects is being undertaken through the mandatory Environmental Impact Assessment (EIA) process. A good example in this regard is the Mannar wind power generation project, where the EIA report identified the importance of protecting birds and their habitats and as a result, the developer had to take measures including automatic shutdown for all wind turbines when a flock of birds passes by the wind farm located near Adam's Bridge. The NEA also curbs habitat degradation by controlling pollution of natural environments, by means of issuing licenses. The National Zoological Garden Act governs the management and administration of the zoological gardens in the country and has a direct bearing on bird conservation, as they act as ex-situ conservation sites (MMD&E, 2016). Biodiversity Unit of the Sri Lanka Customs plays a key role in

preventing the illegal smuggling of bird species as well as controlling the importation of birds to the country. Policies such as National Environmental Policy, National Climate Change Policy, National Land Use Policy and National Forest Policy too play an important role in contributing towards conservation of the avifaunal wealth of the country.

5. 2 International Commitments

Sri Lanka is a party to a number of International Conventions that are applicable to conservation of birds and their habitats, including Convention on Biological Diversity (CBD), Convention on Migratory Species of Wild Animals (CMS), Convention on International Trade in Endangered Species (CITES) and Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitats

As a signatory to CBD Sri Lanka must ensure that it takes steps to conserve biological diversity, promote sustainable use of its components and develop mechanisms for equitable sharing of the benefits arising from the use of genetic resources. The main instrument used in implementing CBD is the National Biodiversity Strategy and Action Plan (NBSAP) that serves as the roadmap for implementing the commitments of CBD. Currently, Sri Lanka is implementing the third NBSAP and since ratification of the convention, had updated the wildlife policy as well as FFPO to be in par with its objectives.

CMS is also known as Bonn Convention and aims to conserve terrestrial, marine, and avian migratory species. Migratory species threatened with extinction are listed in Appendix I while migratory species that need to or would significantly benefit from international cooperation are listed in Appendix II (Refer table 5.3 for birds for which Sri Lanka is a range state and listed in Appendix I and II of CMS). Parties strive to strictly protect species that are listed in Appendix I including conservation and restoration of their habitats and breeding sites, mitigating obstacles for migration and controlling other factors that might endanger them. Further, convention promotes cooperation among range states through Memorandums of Understandings (MOUs) and Action Plans. Sri Lanka belongs to the Central Asian Flyway and recently a dialogue was initiated among the range states to identify actions that are needed across the flyway to ensure protection of the migratory species and their habitats.

Table 5.3: Bird Species for which Sri Lanka is a range state that are coming under CMS appendixes 1 and II

No.	Scientific Name	Common English Name	Appendix
1	<i>Platalea leucorodia</i>	Eurasian Spoonbill	II
2	<i>Dromas ardeola</i>	Crab Plover	II
3	<i>Fulica atra atra</i>	Common Coot	II
4	<i>Tringa glareola</i>	Wood Sandpiper	II
5	<i>Falco peregrinus</i>	Peregrine Falcon	II
6	<i>Thalasseus bergii</i>	Great Crested Tern	II
7	<i>Sternula albifrons</i>	Little Tern	II

No.	Scientific Name	Common English Name	Appendix
8	<i>Hieraaetus pennatus</i>	Booted Eagle	II
9	<i>Pluvialis squatarola</i>	Grey Plover	II
10	<i>Arenaria interpres</i>	Ruddy Turnstone	II
11	<i>Gallinago gallinago</i>	Common Snipe	II
12	<i>Charadrius alexandrinus</i>	Kentish Plover	II
13	<i>Charadrius asiaticus</i>	Caspian Plover	II
14	<i>Tringa guttifer</i>	Nordmann's Greenshank	I
15	<i>Numenius phaeopus</i>	Whimbrel	II
16	<i>Calidris alba</i>	Sanderling	II
17	<i>Phoenicopterus ruber</i>	Greater Flamingo	II
18	<i>Circus melanoleucos</i>	Pied Harrier	II
19	<i>Falco naumanni</i>	Lesser Kestrel	II
20	<i>Tringa hypoleucos</i>	Common Sandpiper	II
21	<i>Circus macrourus</i>	Pallid Harrier	II
22	<i>Circus aeruginosus</i>	Western Marsh-Harrier	II
23	<i>Accipiter virgatus</i>	Besra	II
24	<i>Pernis ptilorhynchus</i>	Oriental Honey-buzzard	II
25	<i>Philomachus pugnax</i>	Ruff	II
26	<i>Calidris pygmaea</i>	Spoon-Billed Sandpiper	I
27	<i>Calidris tenuirostris</i>	Great Knot	II
28	<i>Vanellus gregarius</i>	Sociable Plover	II
29	<i>Numenius arquata</i>	Eurasian Curlew	II
30	<i>Himantopus himantopus</i>	Black-Winged Stilt	II
31	<i>Circus pygargus</i>	Montagu's Harrier	II
32	<i>Tringa cinerea</i>	Terek Sandpiper	II
33	<i>Accipiter badius</i>	Shikra	II
34	<i>Nisaetus nipalensis</i>	Mountain Hawk-eagle	II
35	<i>Nisaetus nipalensis</i>	Mountain Hawk-eagle	II
36	<i>Glareola pratincola</i>	Collared Pratincole	II
37	<i>Calidris minuta</i>	Little Stint	II
38	<i>Calidris ferruginea</i>	Curlew Sandpiper	II
39	<i>Tringa totanus</i>	Common Redshank	II
40	<i>Sternula saundersi</i>	Saunders's Tern	II
41	<i>Milvus migrans</i>	Black Kite	II
42	<i>Charadrius leschenaultii</i>	Greater Sandplover	II
43	<i>Ninox scutulata</i>	Brown Boobook	II

No.	Scientific Name	Common English Name	Appendix
44	<i>Buteo buteo</i>	Eurasian Buzzard	II
45	<i>Burhinus oedicephalus</i>	Stone Curlew	II
46	<i>Aviceda leucophotes</i>	Black Baza	II
47	<i>Tringa nebularia</i>	Common Greenshank	II
48	<i>Thalasseus bengalensis</i>	Lesser Crested Tern	II
49	<i>Limicola falcinellus</i>	Broad-Billed Sandpiper	II
50	<i>Buteo rufinus</i>	Long-Legged Buzzard	II
51	<i>Tringa ochropus</i>	Green Sandpiper	II
52	<i>Charadrius dubius</i>	Little Ringed Plover	II
53	<i>Charadrius mongolus</i>	Mongolian Plover	II
54	<i>Tringa stagnatilis</i>	Marsh Sandpiper	II
55	<i>Falco tinnunculus</i>	Common Kestrel	II

Source: <https://www.cms.int/en/country/sri-lanka>

CITES aims to ensure that international trade of wild animals and plants does not threaten their survival. Under this convention, more than 35,000 different species including birds are accorded varying degrees of protection. CITES divides the covered species into three groups with descending levels of protection. Appendix I species are the most endangered and consequently, any international commercial trade in them is prohibited. Appendix II species are endangered or otherwise threatened, so CITES requires permits for their export to monitor their trade and limit it to sustainable levels. Appendix III covers species trade in which is already regulated by a party to the convention, but this party requires international cooperation to prevent unsustainable or illegal exploitation. UNEP-WCMC, 2005 provides the checklist of birds listed in the CITES Appendices.

Ramsar Convention promotes the ‘conservation and wise use’ of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world. Contracting Parties accept obligations to promote ‘wise use’ of all wetlands in their territory and to take special conservation measures for sites they designate for inclusion in the Ramsar List of Wetlands of International Importance (Ramsar sites). The Department of Wildlife Conservation, the focal point for the convention, has declared six Ramsar sites (Bundala, Maduganga, Anawilundawa, Vankalai, Kumana and Wilpattu wetland complexes), which serve as critical habitats for water birds, especially migratory birds.

In addition to these four conventions Sri Lanka has also designated areas under the Convention Concerning the Protection of the World Cultural and Natural Heritage and the Man and Biosphere Programme administered by the United Nations Educational, Scientific and Cultural Organization. Under these two instruments, several bird-rich habitats such as Sinharaja Rain forest, Knuckles conservation forest, Bundala National park and Central highlands have been enlisted.

Sri Lanka is also a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol. The primary objective of this multilateral agreement is to achieve the stabilization of Greenhouse Gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic activities from interfering with the climate system. Over the last two decades Sri Lanka has made a significant contribution towards the improvement of national policy and strengthening of legal and institutional capabilities for implementation of the obligations under UNFCCC and Kyoto Protocol (ME, 2012).

5.3. Other Actions Related to Bird Conservation

Initialization of the National Bird Expert Committee and the Bird Red Listing Process

The National Bird Expert Committee (NBEC) appointed by the Biodiversity Secretariat of the Ministry of Environment provides the technical backstopping for the National Bird Red Listing Process. However, this committee is convened only during the threat assessments, and therefore it should be made permanent with a clear mandate and convene regularly. This will enable regular updating of the Red List (at least annually) as opposed to the present procedure followed, which takes place once in a few years that will make the list redundant. Further, this would allow identification of research gaps that will inform future research. This will support more meaningful assessments in the future. In addition, it had been noted that during the Red List assessments, almost all the species were listed under category B. The other categories could not be applied as there was no information about the population sizes or population trends for most of the rare and threatened species. Most of the information available is restricted to site records only. Therefore, it is essential to conduct population surveys for at least Critically Endangered species so that more accurate assessments can be made.

During the process of the current Red List assessment the database has been updated using new information that became available since the last Red List assessment that was carried out in 2012. However, there are a number of other potential data sources such as the data available with the Ceylon Bird Club as well as the e-Bird data base which can help enhance the accuracy of the data set used for assessments.

If the assessments are not followed with recovery plans for threatened species to address the drivers of change, they become a mere academic exercise. Further, if recovery actions are not undertaken, the most likely scenario would be that threatened species will move to a higher threat category over time as was observed during this Red List assessment. Endangered Species Recovery Plans (ESRPs) catering for both single and multi-species should be prepared. Thus far, no ESRPs have been developed and implemented focusing any bird species or a species assemblage. Therefore, it is essential to initiate recovery planning for at least species that are listed as Critically Endangered.

Even though, detailed population data are not available for most of the bird species, members of the NBEC pointed out that a number of species are in decline based on frequency of observations. Although, the reasons for these declines are varied and complex, priority should be given to protect critical habitats for birds. Therefore, it is essential to introduce habitat conservation plans, highlighting the following aspects:

- Identification and ranking of bird species and habitats most in need of protection.
- Description of current habitat conditions and determination of management priorities, including specific population and habitat conservation objectives.
- Development of best management practices that will enable conservation objectives to be met for each priority habitat.
- Establishment of conservation partnerships, development of traditional and innovative funding mechanisms, scientific research and monitoring, education and outreach, and policy development.

Conduct Molecular Phylogenetic Studies

Identifying populations with distinct genealogical histories is a fundamental goal in evolutionary biology. The avian genome is an excellent model for integrated phylogenetics as it contains a more balanced representation of single-copy and repetitive DNA regions compared to mammals. Therefore, it is essential to initiate a serious survey to undertake some molecular biological analysis using modern methodologies for taxonomic and phylogenetic studies (Kotagama et al, 2006). The taxonomy keeps changing as the status of the species in each country, and new threats emerge as the country goes along. Thus, monitoring and evaluation of molecular phylogenetic studies are constantly, necessary.

Annual Census on Waterfowl

In 1943 the Ceylon Bird Club (CBC) was formed and since then, the Club's monthly newsletter, Ceylon Bird Club Notes, has been issued regularly and features lists of birds observed at various localities, notes on breeding habits, dates of arrival of migrants etc., Further, since 1983, CBC conducts the annual census on waterfowl (including migrants) in the island during January – February, in collaboration with the Wetland International. The country is divided into ten regions for the census, demarcated for ecological and logistic reasons. The information gathered from the waterfowl counts can be used to estimate population trends as well as trends in the use of wetlands by waterfowl. Therefore, these data can be used for identification of wetlands for designation of Ramsar sites in Sri Lanka, a good example being the Vankali Sanctuary (Oriental Bird Club Bulletin, 1991; Kotagama et al, 2006; Warakagoda and Sirivardana, 2006).

Important Bird Area Programme (IBA) and the National Birds Ringing Programme (NBRP).

Identifying the need to ensure habitat protection as the principle pathways for conservation of the wild populations, the Field Ornithology Group of Sri Lanka (FOGSL), in collaboration with the Ministry of Environment, launched the IBA programme in 2001. This exercise resulted in the identification from literature and limited field verifications, 70 potential IBA sites for Sri Lanka. Of these, 47 IBAs support globally threatened species, 56 have restricted-range species, 46 have biome-restricted species and 26 qualify as IBAs because they hold large congregations of water birds. According to the extent, 25 sites are less than 1000 ha in size while 27 IBAs are between 1000 and 5000ha. This shows the severity of fragmentation of the important areas. 71% of the IBAs are located in the south western part of the island showing the importance of

protecting wet zone forests, which are highly threatened by human disturbances (FOGSL, 2003; Kotagama et al, 2006 and Kaluthota and Kotagama, 2005). This list needs to be updated with the latest available information and field verifications.

The National Bird Ringing programme was initiated in 2005 as a collaborative activity between FOGSL and the Department of Wildlife conservation. It aims to capture and tag migratory birds visiting Sri Lanka, with several objectives, including studying the site tenacity of migrants to arrive at same location annually and to study the characteristics of resident population of the species that also have a migratory population. Annual bird ringing activities have been carried out in Bundala National Park (BNP) since 2005, where long term changes in species assemblages are being monitored. The methodology of the programme is to conduct bird ringing using mist netting to capture birds during the early migratory season (September-November), mid-migratory season (December-February), end-migratory season (March-April) and off migratory season (May-August) at the BNP (Sumanapala, 2017; Dayananda and Kotagama, 2017). Recently bird ringing activities had been extended to Mannar region and a new satellite-tagging project was initiated in mid-2020. It has yielded some interesting information about migratory bird movements

Rehabilitation and Re-introduction of Injured Birds

Other than the actions taken by the veterinary unit of DWC in several locations in Sri Lanka, the Wildlife Conservation Society, Hiyare, Galle initiated a programme in 2008 to rescue and rehabilitate wild animals including birds that have been injured due to various reasons. It is done in collaboration with DWC and aims to treat and release the wounded animals back to their natural habitats that are closest to their original dwellings. The majority of birds admitted to this center are birds of prey including Crested Serpent Eagle, Collard Scops Owl and Brahminy Kite. With the opening of the southern expressway, there is a rapid increase in the number of injured Peafowl received. While majority of the injured birds treated could be re-introduced to the wild, sometimes circumstances, such as heavy muscle injuries due to electrocution, result in long-term residents (WCS, 2013).

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CHAPTER 6: CONCLUSION AND RECOMMENDATIONS



Greater Flamingo
(*Phoenicopterus roseus*)
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6. Conclusion and Recommendations

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Sri Lanka, though a small island, supports an unusually high biodiversity compared to other moderate-sized tropical islands. Another important feature of Sri Lanka's biodiversity is that a high proportion of the species present are endemic to the island. Therefore, Sri Lanka, along with the Western Ghats of India, is listed as one of the 36 biodiversity hotspots of the world (Conservation International, 2021). Among the many taxa that are found in Sri Lanka, birds are perhaps the most attractive faunal group. The avifauna of Sri Lanka comprises, 521 species belonging to 23 orders, 89 families, and 266 genera. Of these 521 species, 244 have breeding populations of which 34 are restricted to Sri Lanka (endemic). This rich avifauna of Sri Lanka is globally recognized with six Wetlands of International Importance (Ramsar, 2021), 70 Important Bird Areas (Birdlife International, 2021) and 82 Key Biodiversity Areas (Birdlife International, 2021).

The historical influence from Buddhism and the cultural moral values have shaped the communities to be compassionate towards animals, making Sri Lanka an island with less hunting pressure on birds, compared to the other Asian countries. Sri Lanka has also invested in developing capacity for biodiversity conservation by establishing the policy, legal and institutional framework and establishing several government line agencies such as the Department of Wildlife Conservation and the Forest Conservation Department. Sri Lanka has also set aside nearly 30% of its land area for biodiversity conservation. In addition, Sri Lanka has a strong set of state and non-state agencies such as Universities, National and International Non-Governmental Organizations (Field Ornithology Group of Sri Lanka, Ceylon Bird Club, Wildlife and Nature Protection Society, IUCN etc.) who are conducting research as well as advocacy for conservation including avifauna.

However, the current assessment indicates that the long-term trends reflected by the Red List assessments are unsatisfactory as over a period of approximately 15 years the status of most bird species have deteriorated (see chapter three for detailed statistics). The overall aim of Red Listing is to identify species at risk and carry out planned conservation programmes to address the identified threats and thereby improve the long-term survival of species. The Red List can therefore, be used as a diagnostic tool to identify species at risk and a monitoring tool to determine whether the conservation action has contributed to meaningful outcomes. If conservation measures have contributed to meaningful outcomes the status of threatened species should be down-listed to lower threat categories over the years. However, comparison of Red List status with the previous assessment undertaken in 2012 indicates that 37 species have been up listed (one species from Least Concern to Vulnerable, five species from Near Threatened to Vulnerable; nine species from Near Threatened to Endangered and 22 species

from Vulnerable to Endangered) as opposed to four species down listed [Common Hawk Cuckoo (*Hierococcyx varius*) from Endangered to Vulnerable; Woolly-necked Stork (*Ciconia episcopus*), Black-crowned Night-heron (*Nycticorax nycticorax*) and Fork-tailed Drongo Cuckoo (*Surniculus dicruroides*) from Near Threatened to Least Concern] due to possible population increment. Further, Blue-eared Kingfisher (*Alcedo meninting*) was moved to data deficient category due to lack of authentic records even though it was listed as a critically endangered species in the 2012 assessment. To conclude, there was a 6% increase in the threatened bird species compared with the previous assessment (Figure 6.1).

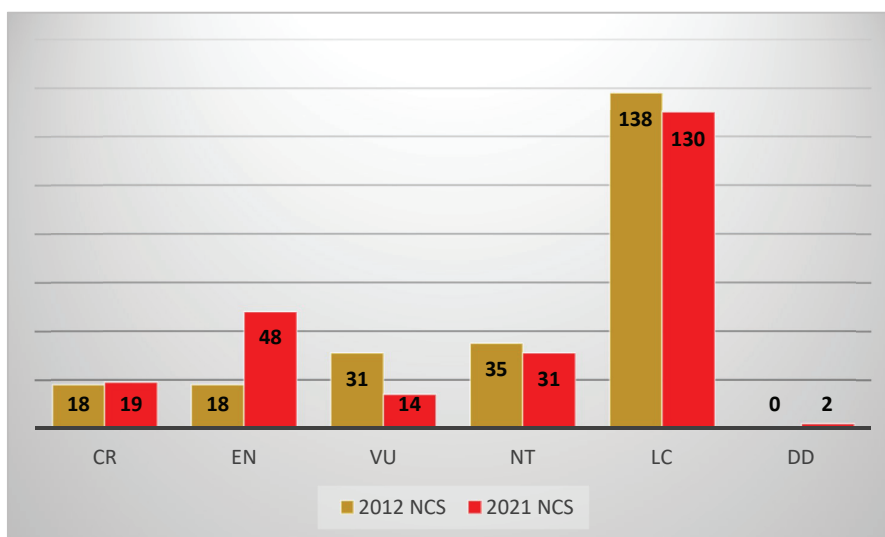


Figure 6.1: Comparison of the categories assigned for the species during the current National Red List assessment with past assessments carried out in 2012.

The above increase in the threat categories indicate the continuation of threats operating on birds and lack of planned conservation action, which has been previously discussed in the 2012 Red List assessment. The drivers of change such as increase in the trade of endemic/ threatened bird species (e.g. Sri Lanka Myna and Sri Lanka Layard's Parakeet), continuous loss of habitat, especially in dry zone forests and buffer zones of smaller wet zone, reduction in the habitat quality of the buffer zones of larger rain forest patches such as Sinharaja, Kanneliya, Nakiyadeniya, Dediyaigala and Peak Wilderness continue to take place. Even though deforestation rate has reduced over the past few decades the habitat degradation and climate change driven changes in habitats are expected to have a negative impact on threatened/ endemic bird populations in the wet and montane zone. The exact nature of these population trends cannot be ascertained as there are no long-term monitoring programmes in place to track the population changes in Sri Lanka.

The current Red List assessment indicates that Sri Lanka still supports a rich avifaunal assemblage and reasonably good populations of both breeding and migrant bird species. However, the current assessments also indicate that the threats on birds continue to operate driving species more towards extinction as evidenced by the up-listing of many species. Therefore, this assessment, as the previous assessments, reiterates the need to elevate the Red Listing process to its next level, that is to move from simply diagnosing the problem to

implementing effective conservation action to address the critical problems identified during the Red Listing process.

Based on the findings of the current Red List assessment the following recommendations are made for the consideration of the Ministry of Environment for further action that should be taken to accrue the full benefits of the Red Listing process.

1. Improvements Needed for the Overall Redlisting Process:

All species are subjected to dynamic changes driven by both extrinsic and intrinsic factors. Therefore, the Red Listing status of a species changes with time. Thus, it is essential that Red List assessments are done at regular intervals. The gap between the current assessment and the previous assessment is approximately 8 years, which is too long a period given the threats operating on species. Therefore, it is advisable to update the Red List at least annually to ensure that the most up-to-date assessments are available for conservation planning. The change in the approach of assessments introduced in 2020, where assessments focus on a single taxon as opposed all the faunal species as was the practice in the past, makes it strategically possible to update the list annually. Further, it is advisable to publish the Red List as an e-book as opposed to a hard copy, which will be cost-effective as well as user-friendly. Further, this would allow a much wider access and usage of the Red List. Therefore, it is recommended that BDS prepare plans to update the bird Red List on an annual basis.

2. Improvement of the National Species Database:

Red List assessments are a data driven process and the ability to apply the criteria effectively depends on the availability of reliable information at species level. In order to facilitate collection and analysis of such data, a National Species Database (NSD) has been established in the Biodiversity Secretariat (BDS). The database needs to be updated regularly as new information becomes available. Thus, the NSD should be maintained and updated on a regular basis by the Red Listing unit of the BDS with inputs from individual researchers and other institutions. In order to ensure wider use of NSD, it should be made available to researchers and students through the Internet. However, this should be made possible only after ensuring data safety and integrity as well as a detailed set of guidelines for users. Researchers should be encouraged to use the database for non-commercial purposes, analyse it to identify trends and also update the NSD with their own research findings. Such a process could be facilitated through a formal agreement between the Ministry of Environment and the individual researcher and/or research institute. A MOU should be developed to facilitate such information exchange. Further, the NSD should be integrated with other relevant databases (i.e. the national wetland database) after formulation of necessary guidelines for data sharing. Also, an incentive/ a rewarding mechanism should be established to encourage individual researchers to deposit publications (research papers, articles, books, monographs, thesis etc.) in the BDS. As a part of this exercise, a virtual library containing all published information on Sri Lankan biodiversity should be established in the BDS. As a part of their terms of reference, the BDS should prepare quarterly catalogues on new research outputs related to biodiversity, and forward it them to researchers. Further, this action will support the previous

recommendation, that is to update the national Redlist at least annually based on new data that becomes available. Therefore, it is recommended that BDS develops a mechanism to update the national database on birds on a regular basis with the support of the National Expert Committee.

3. Updating the Global Red List:

The global and the national Red List status will vary for breeding residents shared with other countries as the global status is determined based on the overall population of the species of which Sri Lanka will only have a sub population. However, for endemic species the global status should be the same as the national status since endemic species are restricted to Sri Lanka. Further, for endemic species, national status is more accurate as national assessments are carried out by Sri Lankan experts using more detailed data sets and using their long ground level experience. A comparison of the global status assigned for Sri Lankan Endemic species shows a significant deviation from the national status, where the endemic species are under-assessed in the global list where only 8 species are listed as threatened as opposed 20 species listed as threatened in the national list. This indicates the need to update the global list with more robust data sets generated at the national assessment so that this disparity can be avoided. Thus, it is recommended that BDS initiates a dialogue with the BirdLife International, the INGO responsible for updating the global Red List for birds.

4. Implement Programmes to Recover Populations of Threatened Species:

The primary aim of Red List assessments is to identify conservation actions needed to protect species that are threatened with extinction, so that natural populations can recover to a point where they can be down-listed (moved from a high to a lower threat category) or delisted (moved to the Least Concern category) after a period of time. However, as pointed out in the beginning of this chapter, the status of most threatened species has remained unchanged or has worsened with time and this is therefore a very serious issue. This may be because necessary conservation measures have not been taken. Therefore, it is recommended that species conservation plans are drawn up for at least the species listed as Critically Endangered and Endangered, as an essential and immediate follow-up action and devising a mechanism to mobilize resources necessary for implementing these plans.

5. Develop and Promote a Research Agenda for Threatened Species:

Accuracy of Red List assessments depends heavily on availability of reliable data sets. Further, when developing recovery plans for threatened species identified as a result of Red List assessments, more detailed information on their, biology, ecology and the threats they face is required. One of the major constraints identified during the current and previous Red List assessments is the lack of detailed data to facilitate meaningful assessments or recovery plan preparation. Therefore, it is recommended that a research agenda is developed to fill these data gaps and a sustainable funding mechanism is established to support identified research needs in collaboration with national funding agencies such as National Science Foundation and National Research Council. Further, there are 15 state universities in Sri Lanka that undertake a significant number of

undergraduate and postgraduate research projects on an annual basis. However, there is a huge mismatch between the research that is carried out and research needs of the nation. Therefore, it is also recommended that BDS draws up a follow up programme to create awareness among both state and non-state universities on identified research needs to encourage these institutes to undertake research that will help bridge the data gap.

6. Mainstreaming the National Red List with Ongoing Cross-sectoral Initiatives:

National Red List is a tool that can facilitate effective conservation planning and informed decision making. Therefore, a series of follow-up workshops should be held to potential stakeholders (Department of Wildlife Conservation, Forest Department, National Physical Planning Department, Land Use Policy Planning Department, National Science Foundation etc.,) so that findings can be integrated to their annual work plans, which will ensure that much needed follow-up actions arising from the Red Listing assessment are transformed into meaningful action. Some of the key conservation-related activities that should be considered and the corresponding line agencies are listed below.

Major stakeholders	Area of Action
Department of Wildlife Conservation and Forest Department	Identifying additional areas that needs to be protected, Preparation/ updating of protected area management plans, support site designation under international conventions, revising conservation targets for the protected areas
Department of Wildlife Conservation and Sri Lanka Customs	Updating lists of protected species under national laws and international agreements, regulation of species subjected to export and import trade
Biodiversity Secretariat	Updating the National Species Conservation Strategy
Department of Zoological Gardens	Ex situ conservation of species with special emphasis of establishing a captive breeding programme for threatened species
Department of National Physical Planning, Land Use Policy Planning Department	Updating national physical plan as well as land use policy and planning according to findings of the assessment
National Funding Agencies, Donor Agencies, Universities, Research Institutes Non-Governmental Organizations	Funding and conducting research to address identified data gaps during the Red List assessment

Central Environmental Authority	Incorporating the findings of the assessments for environmental regulation including environmental clearances issued for development projects
Irrigation Department, Coast Conservation Department, Agriculture Department, Sri Lanka Electricity Board and any other relevant development related line agencies	Sensitize themselves to the need for taking into consideration the critical species and critical habitats when designing and implementing development projects
Sri Lanka Tourism Development Authority	Identify how best to sustainably use the resources compiled during the Red List Assessments such as distribution maps and data base for development of new tourism destinations and experiences

These proposed actions are necessary to ensure long term conservation of Sri Lanka's rich avifauna. The biodiversity secretariat will act as the coordinating body to initiate these actions. However, as can be seen, successful completion of these tasks will require a great deal of inter-agency cooperation without which conservation of the bird diversity of Sri Lanka will indubitably fail.

The future of the bird diversity of Sri Lanka lies in gathering solid scientific baseline data, analysing these data using the best possible methods, publish the finding in an internationally acceptable way, identifying gaps and priorities based on these scientific foundations and developing conservation action plans from the information gathered. It is essential that these efforts are buttressed by conservation education that creates awareness not only about the threats facing species and their current status, but also about the role of each stakeholder can play in the conservation of Sri Lanka's rich avifauna and the benefits that can be accrued to the nation by doing so. It is only when such a holistic and scientifically-based effort is made to engage and involve all stakeholders, that conservation will move from simple rhetoric to effective action. In such an effort, Red Listing is a useful scientific tool that facilitates sustainable development.

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ANNEXES



Indian Pitta
(*Pitta brachyura*)
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I. LIST OF MIGRATORY SPECIES WITH GLOBAL CONSERVATION STATUS

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
	FAMILY: Phasianidae			
1	<i>Coturnix coromandelica</i> (Gmelin, 1789)	Rain Quail	IM	LC
	FAMILY: Anatidae			
2	<i>Dendrocygna bicolor</i> (Vieillot, 1816)	Fulvous Whistling-duck [#]	M	LC
3	<i>Sarkidiornis melanotos</i> (Pennant, 1769)	African Comb Duck/ Knob-billed Duck	M	LC
4	<i>Tadorna ferruginea</i> (Pallas, 1764)	Ruddy Shelduck	IM	LC
5	<i>Mareca penelope</i> Linnaeus, 1758	Eurasian Wigeon	M	LC
6	<i>Anas poecilorhyncha</i> Forster, 1781	Indian Spot-billed Duck [#]	M	LC
7	<i>Spatula clypeata</i> Linnaeus, 1758	Northern Shoveler	M	LC
8	<i>Anas acuta</i> Linnaeus, 1758	Northern Pintail	M	LC
9	<i>Spatula querquedula</i> Linnaeus, 1758	Garganey	M	LC
10	<i>Anas crecca</i> Linnaeus, 1758	Green-winged Teal/ Common Teal	M	LC
	FAMILY: Rallidae			
11	<i>Rallina eurizonoides</i> (Lafresnaye, 1845)	Slaty-legged Crake [#]	M	LC
12	<i>Zapornia pusilla</i> (Pallas, 1776)	Baillon's Crake	IM	LC
13	<i>Zapornia fusca</i> (Linnaeus, 1766)	Ruddy-breasted Crake [#]	M	LC
14	<i>Fulica atra</i> Linnaeus, 1758	Common Coot [#]	M	LC
	FAMILY: Procellariidae			
15	<i>Ardenna pacifica</i> (Gmelin, 1789)	Wedge-tailed Shearwater	M	LC
16	<i>Ardenna carneipes</i> Gould, 1844	Flesh-footed Shearwater	PM	NT
17	<i>Ardenna tenuirostris</i> (Temminck, 1835)	Short-tailed Shearwater	IM	LC
18	<i>Puffinus persicus</i> Hume, 1873	Persian Shearwater	M	LC
19	<i>Pterodroma barau</i> (Jouanin, 1964)	Barau's Petrel	M	EN
20	<i>Bulweria bulwerii</i> (Jardine & Selby, 1828)	Bulwer's Petrel	IM	LC
21	<i>Bulweria fallax</i> Jouanin, 1955	Jouanin's Petrel	IM	NT
	FAMILY: Oceanitidae			
22	<i>Oceanites oceanicus</i> (Kuhl, 1820)	Wilson's Storm-petrel	M	LC
	FAMILY: Hydrobatidae			
23	<i>Hydrobates monorhis</i> (Swinhoe, 1867)	Swinhoe's Storm-petrel	M	NT
	FAMILY: Phoenicopteridae			
24	<i>Phoenicopeterus roseus</i> Pallas, 1811	Greater Flamingo	M	LC
	FAMILY: Threskiornithidae			
25	<i>Plegadis falcinellus</i> (Linnaeus, 1766)	Glossy Ibis [#]	M	LC
	FAMILY: Ardeidae			
26	<i>Ixobrychus sinensis</i> (Gmelin, 1789)	Yellow Bittern [#]	M	LC
27	<i>Ixobrychus flavicollis</i> (Latham, 1790)	Black Bittern [#]	M	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
28	<i>Gorsachius melanolophus</i> (Raffles, 1822)	Malaysian Night-heron/ Malay Night-heron	M	LC
29	<i>Bubulcus ibis</i> (Linnaeus, 1758)	Cattle Egret [#]	M	LC
30	<i>Egretta gularis</i> (Bosc, 1792)	Western Reef-egret	M	LC
	FAMILY: Phaethontidae			
31	<i>Phaethon aethereus</i> (Linnaeus, 1758)	Red-billed Tropicbird	M	LC
32	<i>Phaethon lepturus</i> Daudin, 1802	White-tailed Tropicbird	IM	LC
	FAMILY: Fregatidae			
33	<i>Fregata minor</i> (Gmelin, 1789)	Great Frigatebird	IM	LC
34	<i>Fregata ariel</i> (Gray, 1845)	Lesser Frigatebird	IM	LC
35	<i>Fregata andrewsi</i> Mathews, 1914	Christmas Frigatebird	M	CR
	FAMILY: Sulidae			
36	<i>Sula dactylatra</i> Lesson, 1831	Masked Booby	M	LC
37	<i>Sula sula</i> (Linnaeus, 1766)	Red-footed Booby	IM	LC
38	<i>Sula leucogaster</i> (Boddaert, 1783)	Brown Booby	M	LC
	FAMILY: Falconidae			
39	<i>Falco tinnunculus</i> Linnaeus, 1758	Common Kestrel [#]	M	LC
40	<i>Falco amurensis</i> Radde, 1863	Amur Falcon	M	LC
41	<i>Falco severus</i> Horsfield, 1821	Oriental Hobby	IM	LC
42	<i>Falco subbuteo</i> Linnaeus, 1758	Eurasian hobby	IM	LC
43	<i>Falco peregrinus</i> Tunstall, 1771	Peregrine Falcon [#]	M	LC
	FAMILY: Pandionidae			
44	<i>Pandion haliaetus</i> (Linnaeus, 1758)	Osprey	M	LC
	FAMILY: Accipitridae			
45	<i>Aviceda leuphotes</i> (Dumont, 1820)	Black Baza	IM	LC
46	<i>Pernis ptilorhyncus</i> (Temminck, 1821)	Oriental Honey-buzzard [#]	M	LC
47	<i>Circus aeruginosus</i> (Linnaeus, 1758)	Eurasian Marsh-Harrier/ Western Marsh-harrier	M	LC
48	<i>Circus macrourus</i> (Gmelin, 1770)	Pallid Harrier	M	NT
49	<i>Circus melanoleucos</i> (Pennant, 1769)	Pied Harrier	IM	LC
50	<i>Circus pygargus</i> (Linnaeus, 1758)	Montagu's Harrier	M	LC
51	<i>Buteo buteo</i> (Linnaeus, 1758)	Common/ Eurasian Buzzard	M	LC
52	<i>Buteo rufinus</i> (Cretzschmar, 1827)	Long-legged Buzzard	IM	LC
53	<i>Clanga clanga</i> (Pallas, 1811)	Greater spotted eagle	IM	VU
54	<i>Aquila fasciata</i> (Vieillot, 1822)	Bonelli's Eagle	IM	LC
55	<i>Hieraetus pennatus</i> (Gmelin, 1788)	Booted Eagle	M	LC
	FAMILY: Haematopodidae			
56	<i>Haematopus ostralegus</i> Linnaeus, 1758	Eurasian Oystercatcher	M	NT
	FAMILY: Dromadidae			
57	<i>Dromas ardeola</i> Paykull, 1805	Crab Plover	M	LC
	FAMILY: Recurvirostridae			
58	<i>Himantopus himantopus</i> (Linnaeus, 1758)	Black-winged Stilt [#]	M	LC
59	<i>Recurvirostra avosetta</i> (Linnaeus, 1758)	Pied Avocet	M	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
	FAMILY: Charadriidae			
60	<i>Vanellus cinereus</i> (Blyth, 1842)	Grey-headed Lapwing	IM	LC
61	<i>Pluvialis fulva</i> (Gmelin, 1789)	Pacific Golden Plover	M	LC
62	<i>Pluvialis squatarola</i> (Linnaeus, 1758)	Grey Plover	M	LC
63	<i>Charadrius hiaticula</i> Linnaeus, 1758	Common Ringed Plover	M	LC
64	<i>Charadrius dubius</i> Scopoli, 1786	Little Ringed Plover [#]	M	LC
65	<i>Charadrius alexandrinus</i> Linnaeus, 1758	Kentish Plover [#]	M	LC
66	<i>Charadrius mongolus</i> Pallas, 1776	Lesser Sand Plover	M	LC
67	<i>Charadrius leschenaultii</i> Lesson, 1826	Greater Sand Plover	M	LC
68	<i>Charadrius asiaticus</i> Pallas, 1773	Caspian Plover	IM	LC
	FAMILY: Scolopacidae			
69	<i>Scolopax rusticola</i> Linnaeus, 1758	Eurasian Woodcock	IM	LC
70	<i>Lymnocryptes minimus</i> (Brünnich, 1764)	Jack Snipe	IM	LC
71	<i>Gallinago stenura</i> (Bonaparte, 1830)	Pintail Snipe	M	LC
72	<i>Gallinago media</i> (Latham, 1787)	Great Snipe	IM	NT
73	<i>Gallinago gallinago</i> (Linnaeus, 1758)	Common Snipe	M	LC
74	<i>Limosa limosa</i> (Linnaeus, 1758)	Black-tailed Godwit	M	NT
75	<i>Limosa lapponica</i> (Linnaeus, 1758)	Bar-tailed Godwit	M	NT
76	<i>Numenius phaeopus</i> (Linnaeus, 1758)	Whimbrel	M	LC
77	<i>Numenius arquata</i> (Linnaeus, 1758)	Eurasian Curlew	M	NT
78	<i>Tringa erythropus</i> (Pallas, 1764)	Spotted Redshank	IM	LC
79	<i>Tringa totanus</i> (Linnaeus, 1758)	Common Redshank	M	LC
80	<i>Tringa stagnatilis</i> (Bechstein, 1803)	Marsh Sandpiper	M	LC
81	<i>Tringa nebularia</i> (Gunnerus, 1767)	Common Greenshank	M	LC
82	<i>Tringa ochropus</i> Linnaeus, 1758	Green Sandpiper	M	LC
83	<i>Tringa glareola</i> Linnaeus, 1758	Wood Sandpiper	M	LC
84	<i>Xenus cinereus</i> (Güldenstädt, 1775)	Terek Sandpiper	M	LC
85	<i>Actitis hypoleucos</i> Linnaeus, 1758	Common Sandpiper	M	LC
86	<i>Arenaria interpres</i> (Linnaeus, 1758)	Ruddy Turnstone	M	LC
87	<i>Calidris tenuirostris</i> (Horsfield, 1821)	Great Knot	M	EN
88	<i>Calidris canutus</i> (Linnaeus, 1758)	Red Knot	M	NT
89	<i>Calidris alba</i> (Pallas, 1764)	Sanderling	M	LC
90	<i>Calidris minuta</i> (Leisler, 1812)	Little Stint	M	LC
91	<i>Calidris ruficollis</i> (Pallas, 1776)	Red-necked Stint	M	NT
92	<i>Calidris temminckii</i> (Leisler, 1812)	Temminck's Stint	M	LC
93	<i>Calidris subminuta</i> (Middendorff, 1853)	Long-toed Stint	M	LC
94	<i>Calidris acuminata</i> (Horsfield, 1821)	Sharp-tailed Sandpiper	M	LC
95	<i>Calidris alpina</i> (Linnaeus, 1758)	Dunlin	IM	LC
96	<i>Calidris ferruginea</i> (Pontoppidan, 1763)	Curlew Sandpiper	M	NT
97	<i>Calidris falcinellus</i> (Pontoppidan, 1763)	Broad-billed Sandpiper	M	LC
98	<i>Calidris pugnax</i> (Linnaeus, 1758)	Ruff	M	LC
99	<i>Phalaropus lobatus</i> (Linnaeus, 1758)	Red-necked Phalarope	M	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
	FAMILY: Glareolidae			
100	<i>Cursorius coromandelicus</i> (Gmelin, 1789)	Indian Courser [#]	M	LC
101	<i>Glareola pratincola</i> (Linnaeus, 1766)	Collared Pratincole	M	LC
	FAMILY: Laridae			
102	<i>Ichthyaeetus ichthyaeetus</i> Pallas, 1773	Pallas's Gull	M	LC
103	<i>Larus brunnicephalus</i> Jerdon, 1840	Brown-headed Gull	M	LC
104	<i>Larus ridibundus</i> Linnaeus, 1766	Black-headed Gull	M	LC
105	<i>Larus genei</i> Brème, 1839	Slender-billed Gull	M	LC
106	<i>Gelochelidon nilotica</i> (Gmelin, 1789)	Gull-billed Tern [#]	M	LC
107	<i>Hydroprogne caspia</i> Pallas, 1770	Caspian Tern [#]	M	LC
108	<i>Thalasseus bengalensis</i> Lesson, 1831	Lesser Crested Tern	M	LC
109	<i>Thalasseus bergii</i> (Lichtenstein, 1823)	Great Crested Tern [#]	M	LC
110	<i>Thalasseus sandvicensis</i> (Latham, 1787)	Sandwich Tern	M	LC
111	<i>Onychoprion anaethetus</i> Scopoli, 1786	Bridled Tern [#]	M	LC
112	<i>Sterna dougallii</i> Montagu, 1813	Roseate Tern [#]	M	LC
113	<i>Sterna hirundo</i> Linnaeus, 1758	Common Tern [#]	M	LC
114	<i>Sternula albifrons</i> Pallas, 1764	Little Tern [#]	M	LC
115	<i>Sternula saundersi</i> Hume, 1877	Saunders's Tern [#]	M	LC
116	<i>Onychoprion fuscatus</i> Linnaeus, 1766	Sooty Tern [#]	M	LC
117	<i>Chlidonias hybrida</i> (Pallas, 1811)	Whiskered Tern	M	LC
118	<i>Chlidonias leucopterus</i> (Temminck, 1815)	White-winged Tern	M	LC
119	<i>Anous stolidus</i> (Linnaeus, 1758)	Brown Noddy [#]	M	LC
120	<i>Anous tenuirostris</i> (Temminck, 1823)	Lesser Noddy [#]	M	LC
	FAMILY: Stercorariidae			
121	<i>Catharacta antarctica</i> (Lesson, 1831)	Brown Skua	M	LC
122	<i>Catharacta maccormicki</i> (Saunders, 1893)	South Polar Skua	IM	LC
123	<i>Stercorarius longicaudus</i> Vieillot, 1819	Long-tailed Jaeger	M	LC
124	<i>Stercorarius pomarinus</i> (Temminck, 1815)	Pomarine Jaeger	M	LC
	FAMILY: Columbidae			
125	<i>Streptopelia orientalis</i> (Latham, 1790)	Oriental Turtle-dove	M	LC
126	<i>Streptopelia tranquebarica</i> (Hermann, 1804)	Red Turtle-dove	IM	LC
	FAMILY: Cuculidae			
127	<i>Clamator coromandus</i> (Linnaeus, 1766)	Chestnut-winged Cuckoo	M	LC
128	<i>Hierococcyx varius</i> (Vahl, 1797)	Common Hawk-cuckoo [#]	M	LC
129	<i>Cuculus micropterus</i> Gould, 1837	Indian Cuckoo [#]	M	LC
130	<i>Cuculus canorus</i> Linnaeus, 1758	Common Cuckoo	M	LC
131	<i>Cuculus poliocephalus</i> Latham, 1790	Lesser Cuckoo	M	LC
132	<i>Cacomantis passerinus</i> (Vahl, 1797)	Grey-bellied Cuckoo	M	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
	FAMILY: Strigidae			
133	<i>Asio flammeus</i> (Pontoppidan, 1763)	Short-eared Owl	M	LC
	FAMILY: Coraciidae			
134	<i>Coracias garrulus</i> Linnaeus, 1758	European Roller	IM	LC
	FAMILY: Alcedinidae			
135	<i>Halcyon pileata</i> (Boddaert, 1783)	Black-capped Kingfisher	M	LC
	FAMILY: Meropidae			
136	<i>Merops philippinus</i> Linnaeus, 1766	Blue-tailed Bee-eater [#]	M	LC
137	<i>Merops apiaster</i> Linnaeus, 1758	European Bee-eater	M	LC
	FAMILY: Picidae			
138	<i>Jynx torquilla</i> Linnaeus, 1758	Eurasian Wryneck	IM	LC
	FAMILY: Pittidae			
139	<i>Pitta brachyura</i> (Linnaeus, 1766)	Indian Pitta	M	LC
	FAMILY: Laniidae			
140	<i>Lanius cristatus</i> Linnaeus, 1758	Brown Shrike	M	LC
141	<i>Lanius vittatus</i> Valenciennes, 1826	Bay-backed Shrike	IM	LC
	FAMILY: Oriolidae			
142	<i>Oriolus chinensis</i> Linnaeus, 1766	Black-naped Oriole	IM	LC
	FAMILY: Dicruridae			
143	<i>Dicrurus macrocercus</i> Vieillot, 1817	Black Drongo [#]	M	LC
144	<i>Dicrurus leucophaeus</i> Vieillot, 1817	Ashy Drongo	M	LC
	FAMILY: Monarchidae			
145	<i>Terpsiphone paradisi</i> (Linnaeus, 1758)	Asian Paradise-flycatcher [#]	M	LC
	FAMILY: Hirundinidae			
146	<i>Hirundo rustica</i> Linnaeus, 1758	Barn Swallow	M	LC
147	<i>Cecropis daurica</i> Linnaeus, 1771	Red-rumped Swallow	M	LC
148	<i>Hirundo fluvicola</i> Blyth, 1855	Streak-throated Swallow	IM	LC
	FAMILY: Acrocephalidae			
149	<i>Acrocephalus dumetorum</i> Blyth, 1849	Blyth's Reed-warbler	M	LC
150	<i>Iduna caligata</i> (Lichtenstein, 1823)	Booted Warbler	IM	LC
151	<i>Iduna rama</i> (Sykes, 1832)	Sykes's Warbler	IM	LC
	FAMILY: Phylloscopidae			
152	<i>Phylloscopus trochiloides</i> (Sundevall, 1837)	Greenish Warbler	IM	LC
153	<i>Phylloscopus magnirostris</i> Blyth, 1843	Large-billed Leaf-warbler	M	LC
154	<i>Phylloscopus nitidus</i> (Blyth, 1843)	Green warbler	M	LC
	FAMILY: Sylviidae			
155	<i>Sylvia curruca</i> (Linnaeus, 1758)	Lesser Whitethroat	M	LC
	FAMILY: Sturnidae			
156	<i>Sturnus malabaricus</i> (Gmelin, 1789)	Chestnut-tailed Starling	IM	LC
157	<i>Sturnus pagodarum</i> (Gmelin, 1789)	Brahminy Starling	M	LC
158	<i>Agropsar sturninus</i> (Pallas, 1776)	Daurian Starling/ Purple backed Starling	IM	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	MIGRANT STATUS	GCS
159	<i>Pastor roseus</i> (Linnaeus, 1758)	Rosy Starling	M	LC
	FAMILY: Turdidae			
160	<i>Geokichla wardii</i> (Blyth, 1842)	Pied Thrush	M	LC
161	<i>Geokichla citrina</i> (Latham, 1790)	Orange-headed Thrush	M	LC
162	<i>Turdus obscurus</i> Gmelin, 1789	Eye-browed Thrush	M	LC
	FAMILY: Muscicapidae			
163	<i>Larvivora brunnea</i> (Hodgson, 1837)	Indian Blue Robin	M	LC
164	<i>Saxicola torquatus</i> (Linnaeus, 1766)	Common Stonechat	IM	LC
165	<i>Oenanthe deserti</i> (Temminck, 1825)	Desert Wheatear	IM	LC
166	<i>Oenanthe isabellina</i> (Temminck, 1829)	Isabelline Wheatear	IM	LC
167	<i>Monticola solitarius</i> (Linnaeus, 1758)	Blue Rock-thrush	M	LC
168	<i>Muscicapa dauurica</i> Pallas, 1811	Asian Brown Flycatcher	M	LC
169	<i>Muscicapa muttui</i> (Layard, 1854)	Brown-breasted Flycatcher	M	LC
170	<i>Ficedula zanthopygia</i> (Hay, 1845)	Yellow-rumped Flycatcher	IM	LC
171	<i>Ficedula subrubra</i> (Hartert & Steinbacher, 1934)	Kashmir Flycatcher	M	VU
172	<i>Cyornis rubeculoides</i> (Vigors, 1831)	Blue-throated Flycatcher	IM	LC
	FAMILY: Motacillidae			
173	<i>Dendronanthus indicus</i> (Gmelin, 1789)	Forest Wagtail	M	LC
174	<i>Motacilla alba</i> Linnaeus, 1758	White Wagtail	M	LC
175	<i>Motacilla citreola</i> Pallas, 1776	Citrine Wagtail	M	LC
176	<i>Motacilla flava</i> Linnaeus, 1758	Western Yellow Wagtail	M	LC
177	<i>Motacilla cinerea</i> Tunstall, 1771	Grey Wagtail	M	LC
178	<i>Anthus richardi</i> Vieillot, 1818	Richard's Pipit	M	LC
179	<i>Anthus godlewskii</i> (Taczanowski, 1876)	Blyth's Pipit	M	LC

II. LIST OF VAGRANT SPECIES

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
	FAMILY: Anatidae		
1	<i>Anser anser</i> (Linnaeus, 1758)	Greylag Goose	LC
2	<i>Anser indicus</i> (Latham, 1790)	Bar-headed goose	LC
3	<i>Mareca strepera</i> Linnaeus, 1758	Gadwall	LC
4	<i>Aythya nyroca</i> (Güldenstädt, 1770)	Ferruginous duck/ Ferruginous Pochard	NT
5	<i>Aythya fuligula</i> (Linnaeus, 1758)	Tufted Duck	LC
	FAMILY: Rallidae		
6	<i>Rallus indicus</i> Blyth, 1849	Brown-cheeked Rail/ Eastern Water Rail	LC
7	<i>Crex crex</i> (Linnaeus, 1758)	Corn crane	LC
	FAMILY: Turnicidae		
8	<i>Turnix sylvaticus</i> (Desfontaines, 1787)	Small Buttonquail/ Common Buttonquail	LC
	FAMILY: Procellariidae		
9	<i>Calonectris leucomelas</i> (Temminck, 1835)	Streaked Shearwater	NT
10	<i>Ardena grisea</i> (Gmelin, 1789)	Sooty Shearwater	NT
11	<i>Puffinus bailloni</i> (Bonaparte, 1857)	Tropical Shearwater	LC
12	<i>Daption capense</i> (Linnaeus, 1758)	Cape Petrel	LC
	FAMILY: Oceanitidae		
13	<i>Fregetta tropica</i> (Gould, 1844)	Black-bellied Storm-petrel	LC
14	<i>Pelagodroma marina</i> (Latham, 1790)	White-faced Storm-petrel	LC
	FAMILY: Phoenicopteridae		
15	<i>Phoeniconaias minor</i> Geoffroy Saint-Hilaire, 1798	Lesser Flamingo	NT
	FAMILY: Ciconiidae		
16	<i>Ciconia nigra</i> (Linnaeus, 1758)	Black Stork	LC
17	<i>Ciconia ciconia</i> (Linnaeus, 1758)	White Stork	LC
	FAMILY: Threskiornithidae		
18	<i>Pseudibis papillosa</i> (Temminck, 1824)	Red-naped ibis	LC
	FAMILY: Ardeidae		
19	<i>Botaurus stellaris</i> (Linnaeus, 1758)	Great Bittern/ Eurasian Bittern	LC
20	<i>Ixobrychus eurhythmus</i> (Swinhoe, 1873)	Schrenck's Bittern	LC
21	<i>Ardeola bacchus</i> (Bonaparte, 1855)	Chinese Pond-heron	LC
22	<i>Ardea goliath</i> Cretzschmar, 1827	Goliath Heron	LC
	FAMILY: Falconidae		
23	<i>Microhierax fringillarius</i> (Drapiez, 1824)	Black-thighed Falconet	LC
24	<i>Falco naumanni</i> Fleischer, 1818	Lesser Kestrel	LC
25	<i>Falco chicquera</i> Daudin, 1800	Red-headed Falcon	NT
	FAMILY: Accipitridae		
26	<i>Pernis apivorus</i> (Linnaeus, 1758)	European Honey-buzzard	LC
27	<i>Neophron percnopterus</i> (Linnaeus, 1758)	Egyptian Vulture	EN
28	<i>Accipiter nisus</i> (Linnaeus, 1758)	Eurasian Sparrowhawk	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
29	<i>Butastur indicus</i> (Gmelin, 1788)	Grey-faced Buzzard	LC
30	<i>Aquila rapax</i> (Temminck, 1828)	Tawny Eagle	VU
FAMILY: Charadriidae			
31	<i>Vanellus gregarius</i> (Pallas, 1771)	Sociable Lapwing	CR
32	<i>Charadrius veredus</i> Gould, 1848	Oriental Plover	LC
FAMILY: Scolopacidae			
33	<i>Gallinago nemoricola</i> Hodgson, 1836	Wood Snipe	VU
34	<i>Gallinago megala</i> Swinhoe, 1861	Swinhoe's Snipe	LC
35	<i>Limnodromus semipalmatus</i> (Blyth, 1848)	Asian Dowitcher	NT
36	<i>Calidris melanotos</i> Vieillot, 1819	Pectoral Sandpiper	LC
37	<i>Calidris pygmaea</i> (Linnaeus, 1758)	Spoon-billed Sandpiper	CR
38	<i>Calidris subruficollis</i> (Vieillot, 1819)	Buff-breasted Sandpiper	NT
FAMILY: Laridae			
39	<i>Ichthyaeetus hemprichii</i> Bruch, 1853	Sooty Gull	LC
40	<i>Larus fuscus heuglini</i> Linnaeus, 1758; L. f. barabensis	Lesser Black-backed Gull Sub sp Heuglin Gull; Lesser Black-backed Gull Sub sp Steppe Gull	LC
41	<i>Sterna sumatrana</i> Raffles, 1822	Black-naped Tern	LC
42	<i>Sterna repressa</i> Hartert, 1916	White-cheeked Tern	LC
43	<i>Chlidonias niger</i> (Linnaeus, 1758)	Black Tern	LC
44	<i>Gygis alba</i> (Sparrman, 1786)	White Tern	LC
FAMILY: Stercorariidae			
45	<i>Stercorarius parasiticus</i> (Linnaeus, 1758)	Parasitic Jaeger/ Arctic Jaeger	LC
FAMILY: Columbidae			
46	<i>Columba punicea</i> Blyth, 1842	Pale-capped Pigeon	VU
FAMILY: Cuculidae			
47	<i>Chrysococcyx maculatus</i> (Gmelin, 1788)	Asian Emerald Cuckoo	LC
FAMILY: Caprimulgidae			
48	<i>Lyncornis macrotis</i> (Vigors, 1831)	Great Eared-nightjar	LC
FAMILY: Apodidae			
49	<i>Aerodramus brevirostris</i> (Horsfield, 1840)	Himalayan swiftlet	LC
50	<i>Apus apus</i> (Linnaeus, 1758)	Common swift	LC
51	<i>Apus pacificus</i> (Latham, 1802)	Pacific Swift/ Fork-tailed Swift	LC
FAMILY: Laniidae			
52	<i>Lanius collurio</i> Linnaeus, 1758	Red-backed shrike	LC
53	<i>Lanius excubitor</i> Linnaeus, 1758	Great Grey Shrike	LC
FAMILY: Oriolidae			
54	<i>Oriolus oriolus</i> (Linnaeus, 1758)	Eurasian Golden Oriole	LC
55	<i>Oriolus kundoo</i> (Sykes, 1832)	Indian Golden Oriole	LC
FAMILY: Hirundinidae			
56	<i>Riparia riparia</i> (Linnaeus, 1758)	Bank Swallow/ Collared Sand Martin/ Sand Martin	LC
57	<i>Ptyonoprogne concolor</i> Sykes, 1832	Dusky Crag-martin	LC
58	<i>Delichon urbicum</i> (Linnaeus, 1758)	Common/Northern House Martin	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
59	<i>Hirundo smithii</i> Leach, 1818	Wire-tailed Swallow	LC
	FAMILY: Alaudidae		
60	<i>Calandrella brachydactyla</i> (Leisler, 1814)	Greater Short-toed Lark	LC
61	<i>Calandrella dukhunensis</i> (Sykes, 1832)	Sykes's Short-toed Lark	LC
	FAMILY: Locustellidae		
62	<i>Locustella lanceolata</i> (Temminck, 1840)	Lanceolated Warbler	LC
63	<i>Locustella naevia</i> (Boddaert, 1783)	Common Grasshopper-warbler	LC
64	<i>Locustella certhiola</i> (Pallas, 1811)	Pallas's Grasshopper-warbler	LC
	FAMILY: Acrocephalidae		
65	<i>Acrocephalus bistrigiceps</i> Swinhoe, 1860	Black-browed Reed Warbler	LC
	FAMILY: Phylloscopidae		
66	<i>Phylloscopus fuscatus</i> (Blyth, 1842)	Dusky Warbler	LC
67	<i>Phylloscopus occipitalis burkii</i> (Blyth, 1845)	Western Crowned Warbler	LC
	FAMILY: Irenidae		
68	<i>Irena puella</i> (Latham, 1790)	Asian Fairy-bluebird	LC
	FAMILY: Sturnidae		
69	<i>Sturnus vulgaris</i> Linnaeus, 1758	European/ Common Starling	LC
	FAMILY: Muscicapidae		
70	<i>Luscinia svecica</i> (Linnaeus, 1758)	Bluethroat	LC
71	<i>Cercotrichas galactotes</i> (Temminck, 1820)	Rufous-tailed Scrub-robin	LC
72	<i>Saxicola maurus</i> (Pallas, 1773)	Siberian stonechat	?
73	<i>Saxicola rubetra</i> (Linnaeus, 1758)	Whinchat	LC
74	<i>Oenanthe oenanthe</i> (Linnaeus, 1758)	Northern Wheatear	?
75	<i>Oenanthe pleschanka</i> (Lepechin, 1770)	Pied Wheatear	LC
76	<i>Monticola saxatilis</i> (Linnaeus, 1766)	Rufous-tailed Rock-thrush	LC
77	<i>Muscicapa striata</i> (Pallas, 1764)	Spotted Flycatcher	LC
78	<i>Cyanoptila cyanomelana</i> (Temminck, 1829)	Blue-and-white Flycatcher	LC
	FAMILY: Passeridae		
79	<i>Gymnoris xanthocollis</i> (Burton, 1838)	Yellow-throated Sparrow/ Chestnut-shouldered Petronia	LC
	FAMILY: Motacillidae		
80	<i>Motacilla maderaspatensis</i> Gmelin, 1789	White-browed Wagtail/ Large Pied Wagtail	LC
81	<i>Anthus campestris</i> (Linnaeus, 1758)	Tawny Pipit	LC
82	<i>Anthus hodgsoni</i> Richmond, 1907	Olive-backed Pipit	LC
83	<i>Anthus cervinus</i> (Pallas, 1811)	Red-throated Pipit	LC
	FAMILY: Fringillidae		
84	<i>Carpodacus erythrinus</i> (Pallas, 1770)	Common Rosefinch	LC
	FAMILY: Emberizidae		
85	<i>Emberiza melanocephala</i> Scopoli, 1769	Black-headed Bunting	LC
86	<i>Emberiza bruniceps</i> Brandt, 1841	Red-headed Bunting	LC
87	<i>Emberiza buchanani</i> Blyth, 1844	Grey-necked Bunting	LC

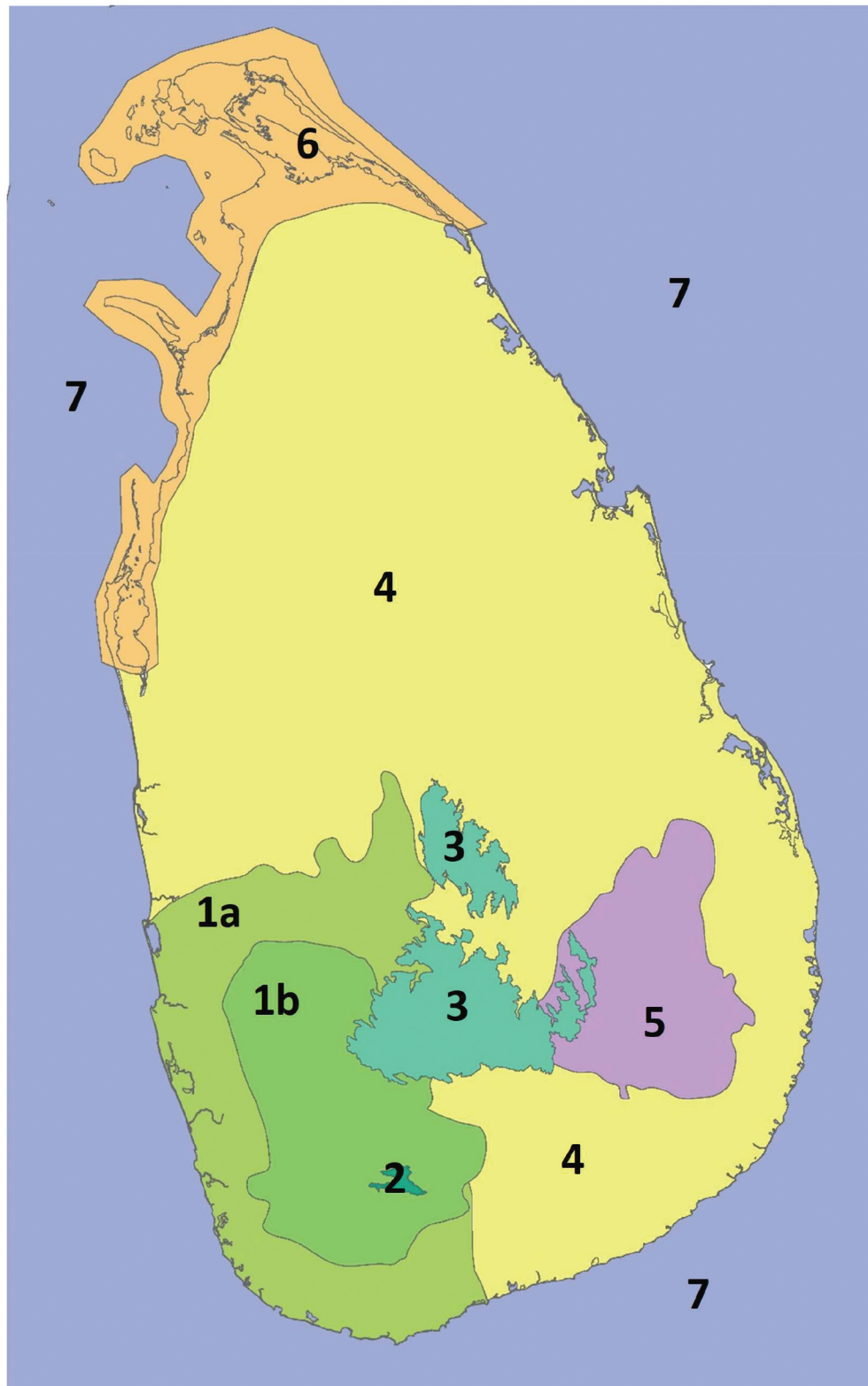
III. LIST OF STATUS UNCERTAIN OR DOUBTFUL SPECIES TO OCCUR

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
	FAMILY: Phasianidae		
1	<i>Coturnix coturnix</i> (Linnaeus, 1758)	Common Quail	LC
	FAMILY: Anatidae		
2	<i>Anas platyrhynchos</i> Linnaeus, 1758	Mallard	LC
3	<i>Marmaronetta angustirostris</i> (Ménétriés, 1832)	Marbled Teal	VU
4	<i>Netta rufina</i> (Pallas, 1773)	Red-crested Pochard	LC
5	<i>Aythya ferina</i> (Linnaeus, 1758)	Common Pochard	VU
	FAMILY: Procellariidae		
6	<i>Puffinus lherminieri</i> Lesson, 1839	Audubon's shearwater	LC
7	<i>Pterodroma mollis</i> (Gould, 1844)	Soft-plumaged Petrel	LC
8	<i>Pterodroma lessonii</i> (Garnot, 1826)	White-headed Petrel	LC
	FAMILY: Pelecanidae		
9	<i>Pelecanus onocrotalus</i> Linnaeus, 1758	Great White Pelican	LC
10	<i>Pelecanus crispus</i> Bruch, 1832	Dalmatian Pelican	NT
	FAMILY: Charadriidae		
11	<i>Charadrius placidus</i> Gray & Gray, 1863	Long-billed Plover	LC
	FAMILY: Scolopacidae		
12	<i>Numenius minutus</i> Gould, 1841	Little Curlew	LC
13	<i>Numenius tenuirostris</i> Vieillot, 1817	Slender-billed Curlew	CR
14	<i>Tringa guttifer</i> (Nordmann, 1835)	Spotted Greenshank	EN
15	<i>Tringa solitaria</i> Wilson, 1813	Solitary Sandpiper	LC
16	<i>Actitis macularius</i> Linnaeus, 1766	Spotted Sandpiper	LC
17	<i>Calidris fuscicollis</i> (Vieillot, 1819)	White-rumped Sandpiper	LC
18	<i>Steganopus tricolor</i> (Vieillot, 1819)	Wilson's Phalarope	LC
19	<i>Phalaropus fulicarius</i> (Linnaeus, 1758)	Red Phalarope	LC
	FAMILY: Laridae		
20	<i>Larus cachinnans</i> Pallas, 1811	Caspian Gull	LC
21	<i>Anous minutus</i> Boie, 1844	Black Noddy	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
	FAMILY: Cuculidae		
22	<i>Centropus bengalensis</i> (Gmelin, 1788)	Lesser Coucal	LC
	FAMILY: Apodidae		
23	<i>Hirundapus caudacutus</i> (Latham, 1802)	White-throated Needletail	LC
24	<i>Apus pallidus</i> (Shelley, 1870)	Pallid Swift	LC
25	<i>Apus acuticauda</i> (Jerdon, 1864)	Dark-rumped Swift	VU
	FAMILY: Campephagidae		
26	<i>Lalage polioptera</i> (Sharpe, 1879)	Indochinese Cuckooshrike	LC
	FAMILY: Laniidae		
27	<i>Lanius meridionalis</i> (Temminck, 1820)	Southern grey shrike	VU
	FAMILY: Oriolidae		
28	<i>Oriolus tenuirostris</i> Blyth, 1846	Slender-billed Oriole	LC
	FAMILY: Rhipiduridae		
29	<i>Rhipidura javanica</i> (Sparman, 1788)	Pied Fantail	LC
	FAMILY: Hirundinidae		
30	<i>Ptyonoprogne fuligula obsoleta</i> (Cabanis, 1850)	Pale Rock Martin/ Pale Crag-martin	LC
	FAMILY: Cisticolidae		
31	<i>Prinia rufescens</i> Blyth, 1847	Rufescent Prinia	LC
	FAMILY: Locustellidae		
32	<i>Schoenicola platyurus</i> (Jerdon, 1844)	Broad-tailed Grassbird	VU
	FAMILY: Scotocercidae		
33	<i>Urosphena pallidipes</i> (Blanford, 1872)	Pale-footed Bush-warbler	LC
	FAMILY: Sturnidae		
34	<i>Gracupica contra</i> Linnaeus, 1758	Asian Pied Starling	LC
	FAMILY: Phylloscopidae		
35	<i>Phylloscopus burkii</i> (E. Burton, 1836)	Green-crowned Warbler	LC
	FAMILY: Muscicapidae		
36	<i>Ficedula parva</i> (Bechstein, 1792)	Red-breasted Flycatcher	LC
37	<i>Ficedula tricolor</i> (Hodgson, 1845)	Slaty-blue Flycatcher	LC
38	<i>Ficedula nigrorufa</i> (Jerdon, 1839)	Black-and-orange Flycatcher/ Black-and-rufous Flycatcher	LC
39	<i>Cyornis pallidipes</i> (Jerdon, 1840)	White-bellied Blue-flycatcher	LC
40	<i>Cyornis banyumas</i> (Horsfield, 1821)	Hill Blue-flycatcher	LC

	SCIENTIFIC NAME	COMMON ENGLISH NAME	GCS
	FAMILY: Nectariniidae		
41	<i>Leptocoma minima</i> (Sykes, 1832)	Crimson-backed Sunbird	LC
	FAMILY: Estrildidae		
42	<i>Amandava amandava</i> (Linnaeus, 1758)	Red Avadavat	LC
43	<i>Lonchura atricapilla</i> (Vieillot, 1807)	Chestnut Munia/ Black-headed Munia	LC
44	<i>Lonchura oryzivora</i> (Linnaeus, 1758)	Java Sparrow	EN

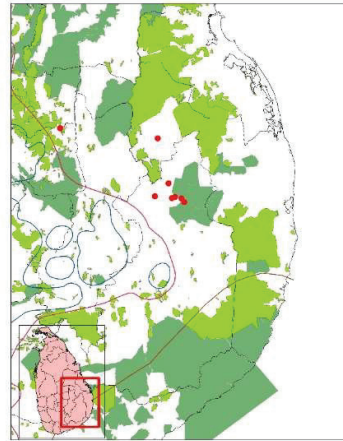
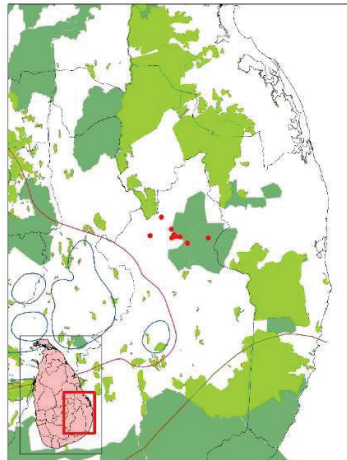
IV. AVIFAUNAL ZONE MAP OF SRI LANKA



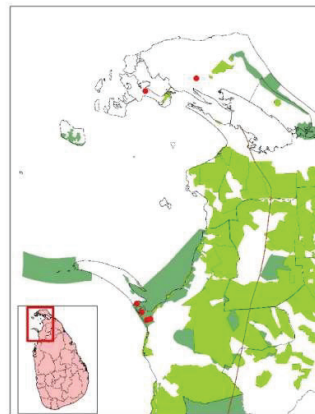
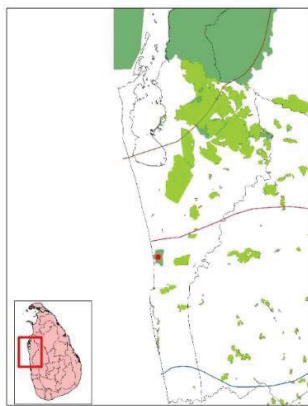
1a - Wet Lowlands, 1b - Wet Mid-hills, 2 - Rakwana Hills, 3 – Highlands,
4 - Dry and Intermediate, 5 – Uva, 6 - Palk Bay Coastal, 7 - Marine

v. OCCURRENCE MAP OF THREATENED BIRD SPECIES

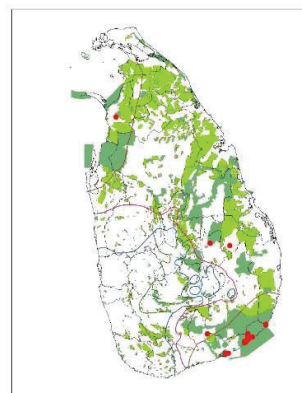
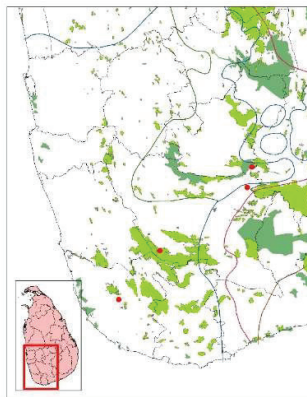
Distribution points of Critically Endangered (CR) bird species



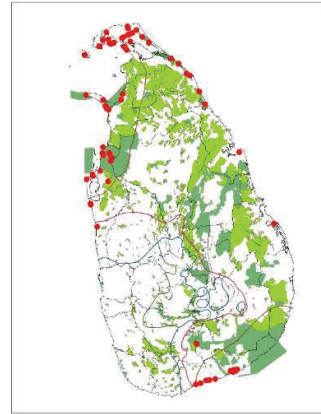
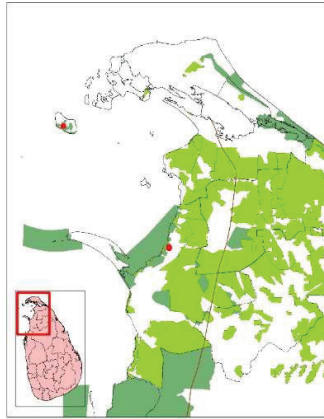
Known locations of (left): Painted Francolin (*Francolinus pictus*) and (right): Jungle Bush Quail (*Perdicula asiatica*)



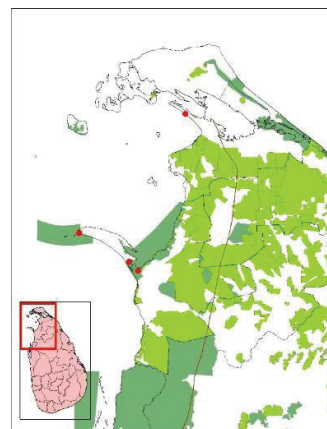
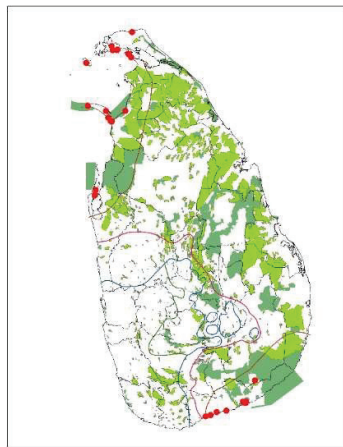
Known locations of (left): Fulvous Whistling-duck (*Dendrocygna bicolor*) and (right): Indian Spot-billed Duck (*Anas poecilorhyncha*)



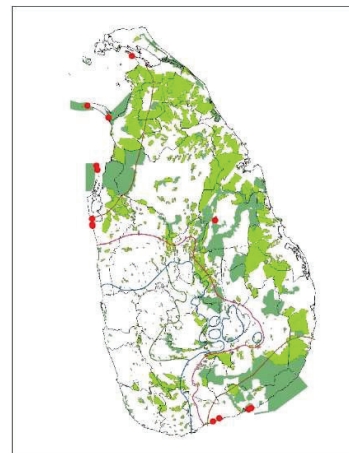
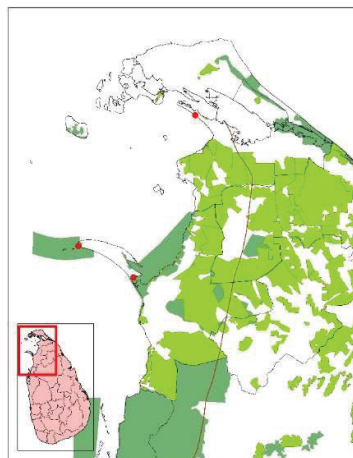
Known locations of (left): Slaty-legged Crane (*Rallina eurizonoides*) and (right): Black-necked Stork (*Ephippiorhynchus asiaticus*)



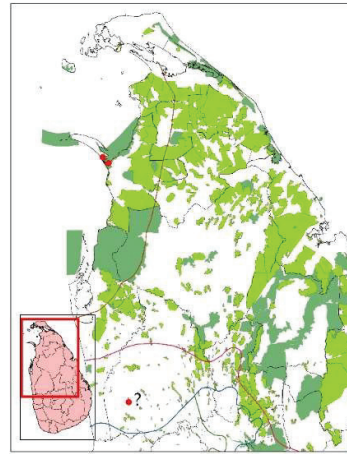
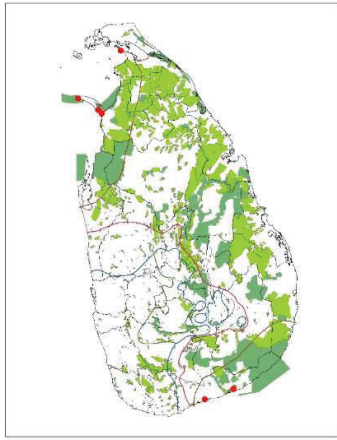
Known locations of (left): Indian Courser (*Cursorius coromandelicus*) and (right): Gull-billed Tern (*Gelocheledon nilotica*)



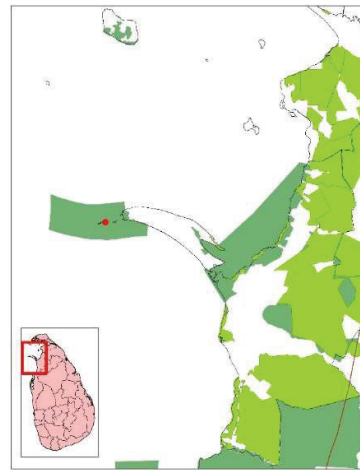
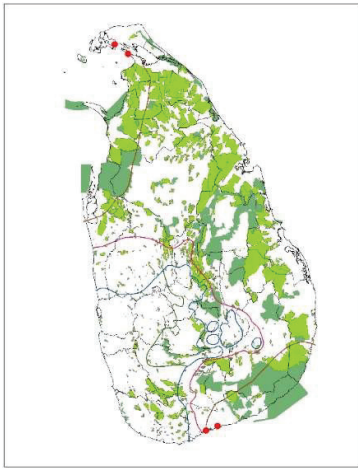
Known locations of (left): Caspian Tern (*Hydroprogne caspia*) and (right): Bridled Tern (*Onychoprion anaethetus*)



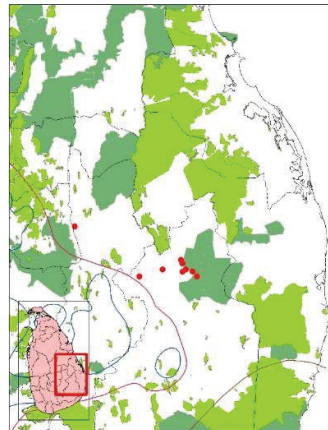
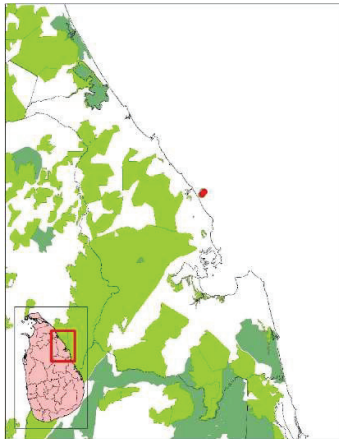
Known locations of (left): Roseate Tern (*Sterna dougallii*) and (right): Common Tern (*Sterna hirundo*).



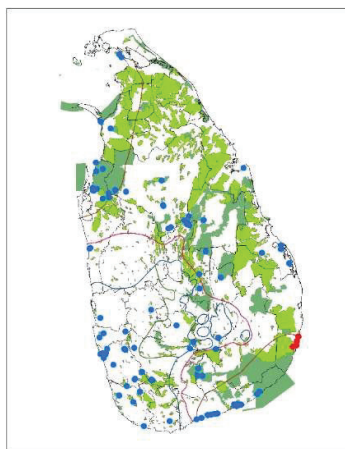
Known locations of (left): Saunders's Tern (*Sternula saundersi*) and (right): Sooty Tern (*Onychoprion fuscatus*).



Known locations of (left): Brown Noddy (*Anous stolidus*) and (right): Lesser Noddy (*Anous tenuirostris*)

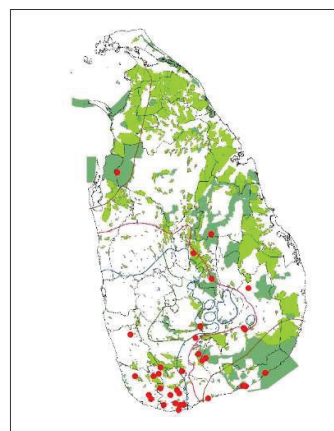
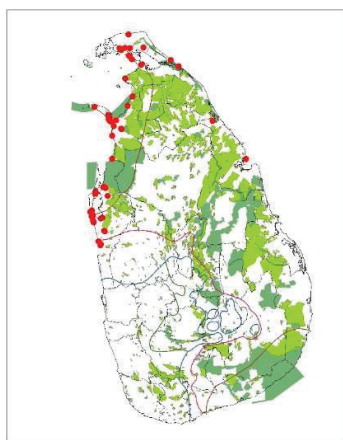


Known locations of (left): Rock Pigeon/ Rock Dove (*Columba livia*) and (right): Yellow-footed Green-pigeon (*Treron phoenicopterus*)

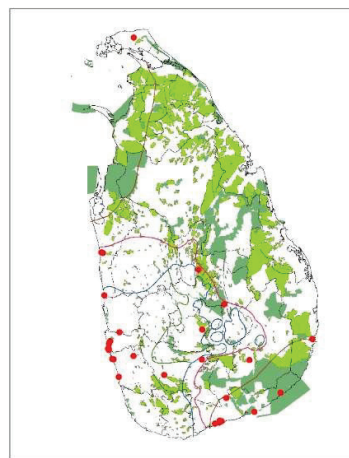
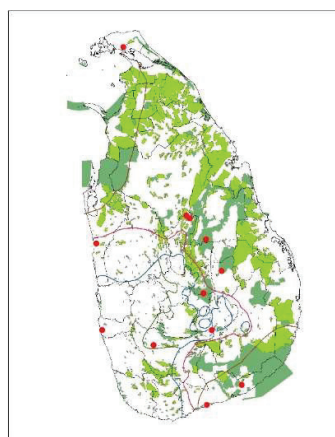


Known locations of (left): Blue-tailed Bee-eater (*Merops philippinus*)

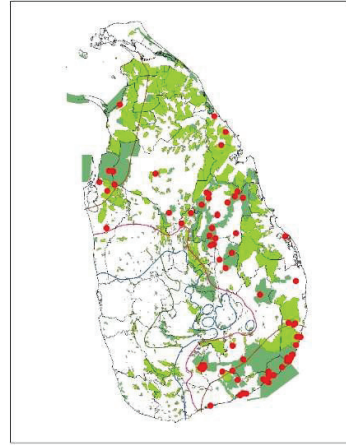
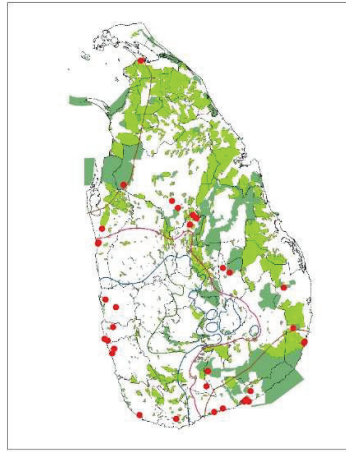
Distribution points of Endangered (EN) bird species



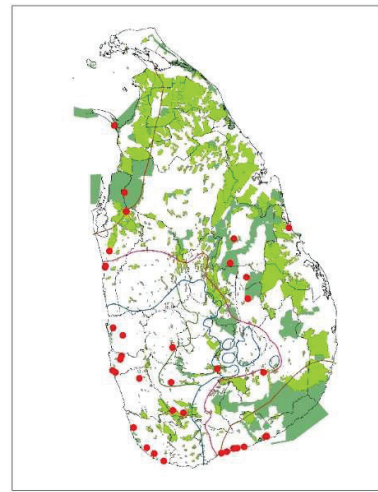
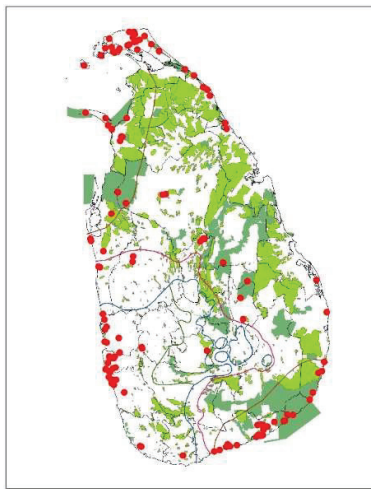
Known locations of (left): Grey Francolin (*Francolinus pondicerianus*) and (right): Asian Blue Quail (*Synoicus chinensis*)



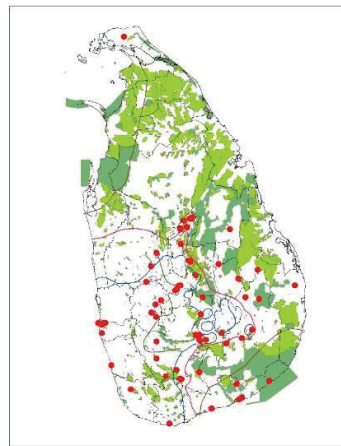
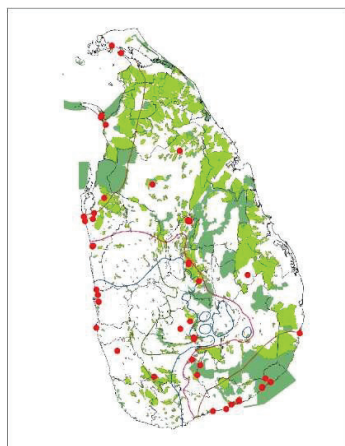
Known locations of (left): Slaty-breasted Rail (*Lewinia striata*) and (right): Ruddy-breasted Crane (*Zapornia fusca*)



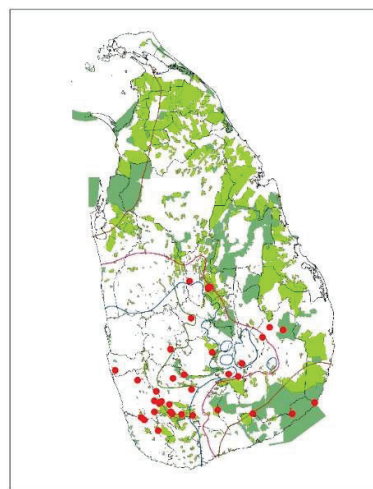
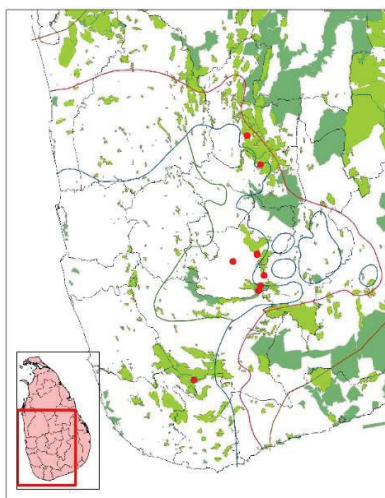
Known locations of (left): Watercock (*Gallicrex cinerea*) and (right): Lesser Adjutant (*Leptoptilos javanicus*)



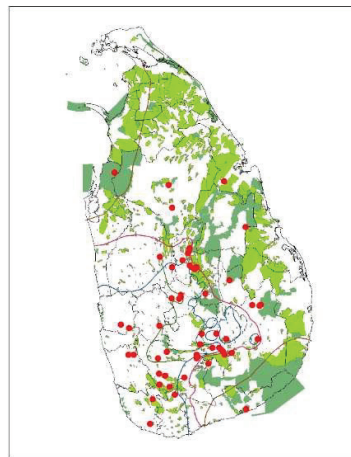
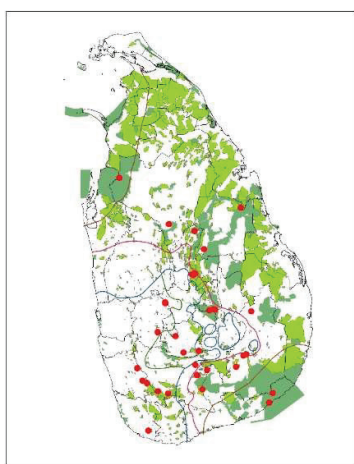
Known locations of (left): Yellow Bittern (*Ixobrychus sinensis*) and (right): Cinnamon Bittern (*Ixobrychus cinnamomeus*)



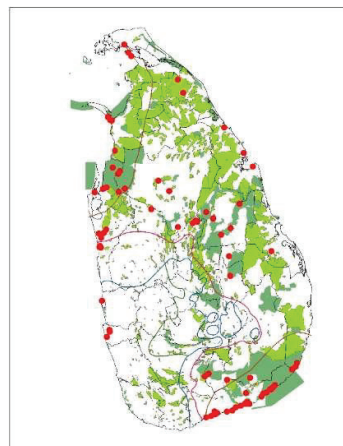
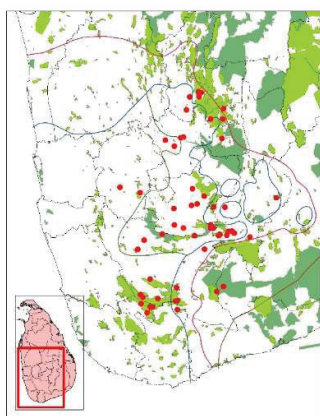
Known locations of (left): Common Kestrel (*Falco tinnunculus*) and (right): Shaheen Falcon (*Falco peregrinus* spp).



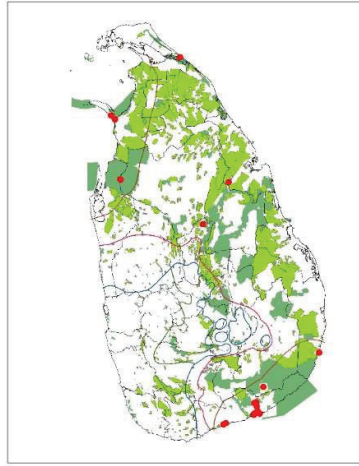
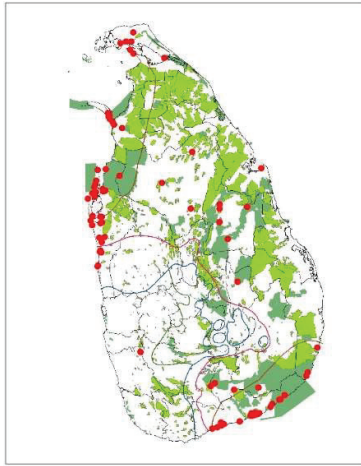
Known locations of (left): Jerdon's Baza (*Aviceda jerdoni*) and (right): Crested Goshawk (*Accipiter trivirgatus*)



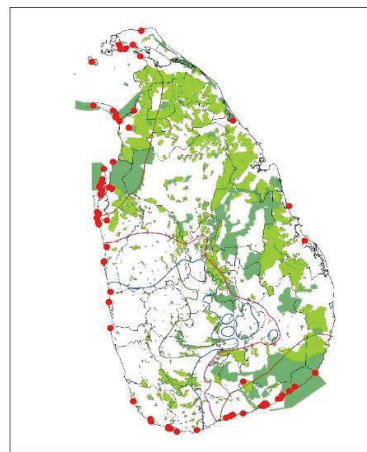
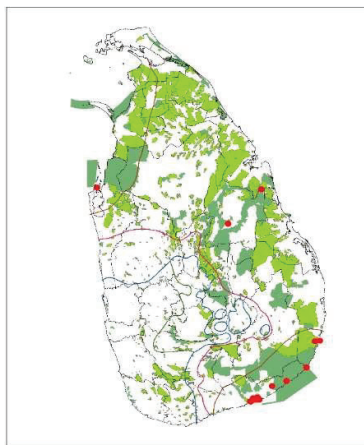
Known locations of (left): Besra (*Accipiter virgatus*) and (right): Rufous-bellied Eagle (*Lophotriorchis kienerii*)



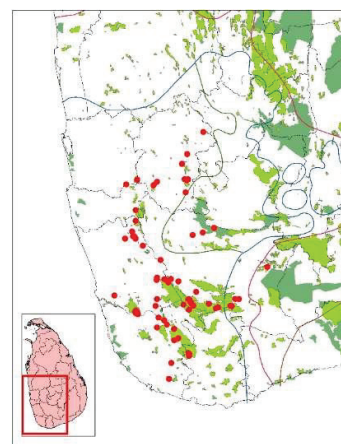
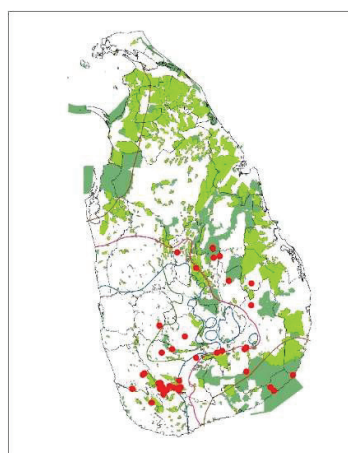
Known locations of (left): Legge's hawk-eagle (*Nisaetus kelaarti*) and (right): Little Ringed Plover (*Charadrius dubius*)



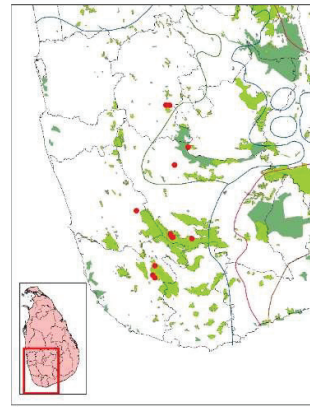
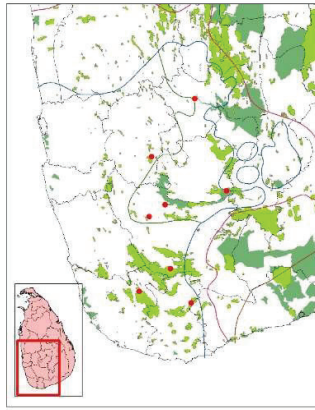
Known locations of (left): Kentish Plover/ Hanuman Plover (*Charadrius alexandrinus*) and (right): Oriental Pratincole (*Glareola maldivarum*)



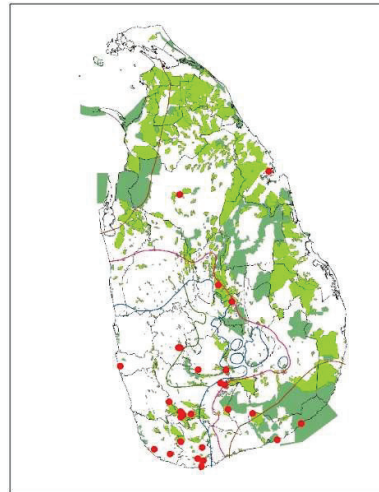
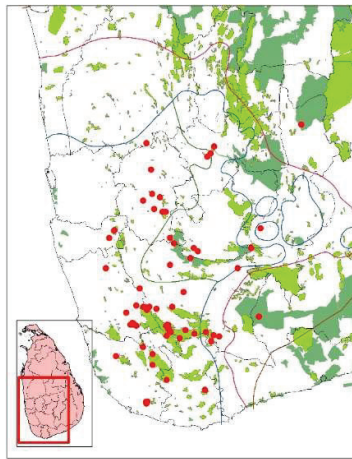
Known locations of (left): Small Pratincole (*Glareola lacteal*) and (right): Great Crested Tern (*Thalasseus bergii*)



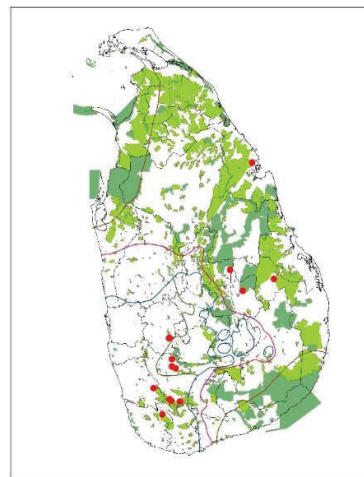
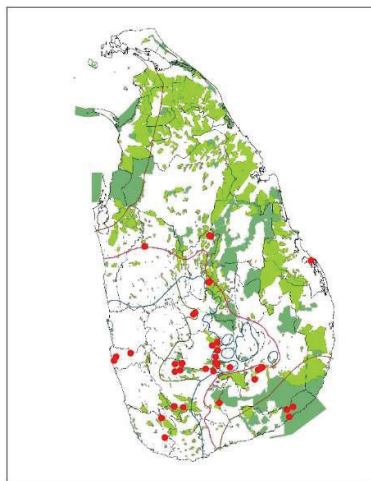
Known locations of (left): Sri Lanka Red-faced Malkoha (*Phaenicophaeus pyrrhocephalus*) and (right): Sri Lanka Green-billed Coucal (*Centropus chlororhynchos*)



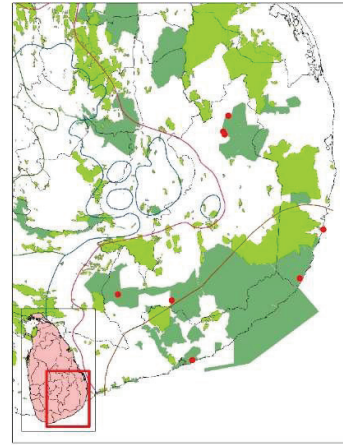
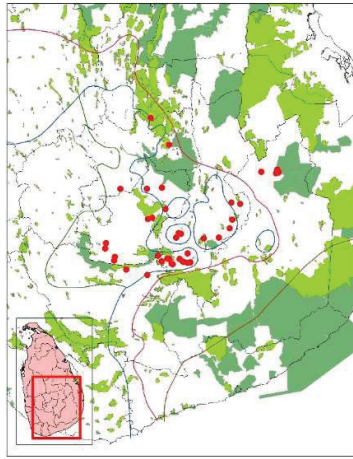
Known locations of (left): Indian Bay-owl (*Phodilus assimilis*) and (right): Sri Lanka Serendib Scops-owl (*Otus thilohoffmanni*)



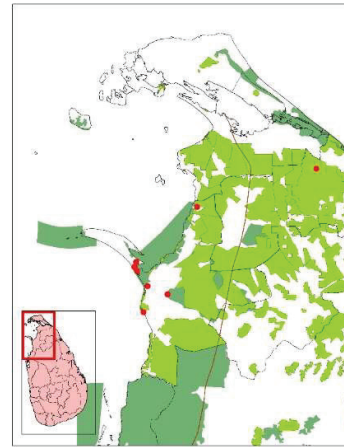
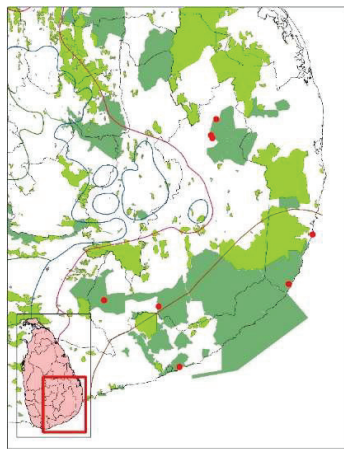
Known locations of (left): Sri Lanka Chestnut-backed Owlet (*Glaucidium castanotum*) and (right): Brown-backed Needletail (*Hirundapus giganteus*)



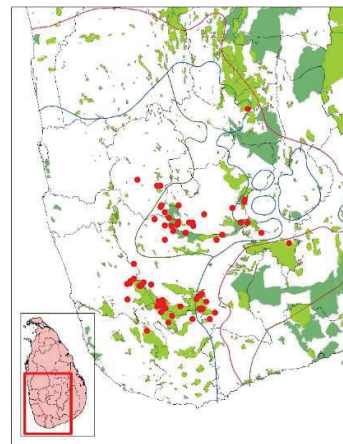
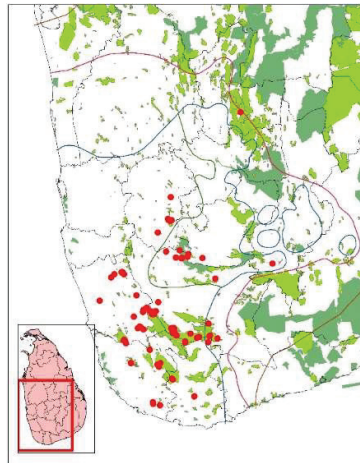
Known locations of (left): Alpine Swift (*Apus melba*) and (right): Oriental Dollarbird (*Eurystomus orientalis*)



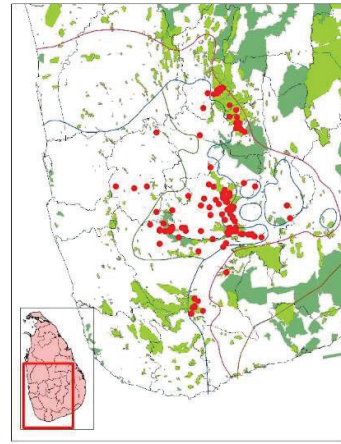
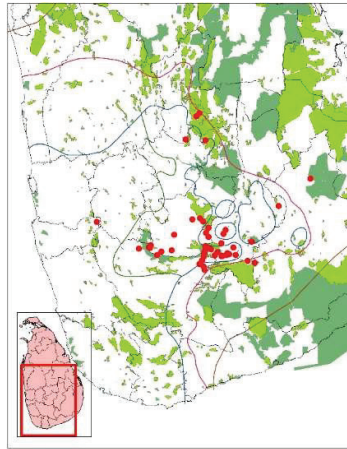
Known locations of (left): Streak-throated Woodpecker (*Picus xanthopygaeus*) and (right): White-naped Woodpecker (*Chrysocolaptes festivus*)



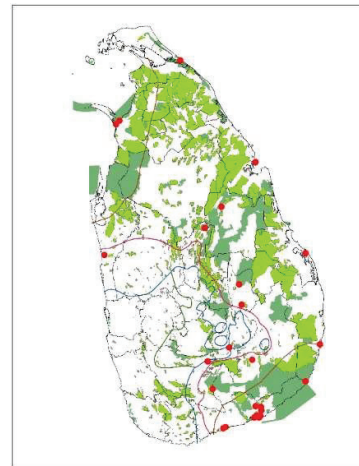
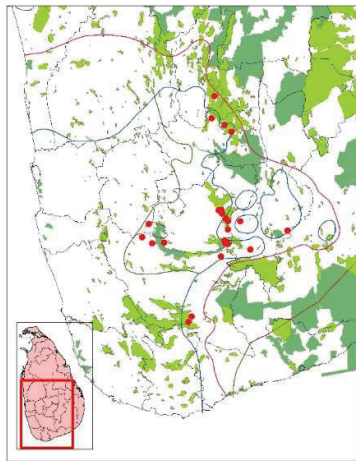
Known locations of (left): White-tailed Iora (*Aegithina nigrolutea*) and (right): Long-tailed Shrike (*Lanius schach*)



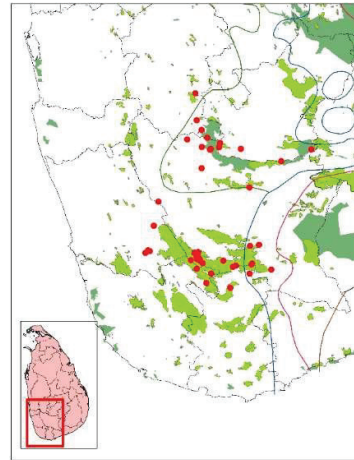
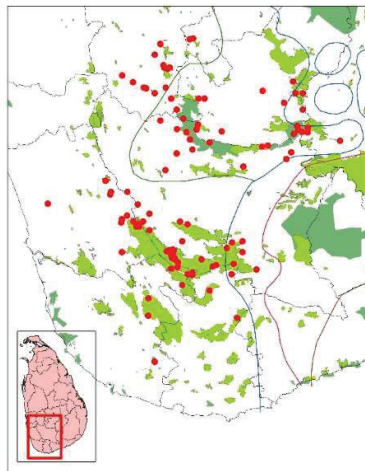
Known locations of (left): Sri Lanka Crested Drongo (*Dicrurus lophorinus*) and (right): Sri Lanka Magpie (*Urocissa ornate*)



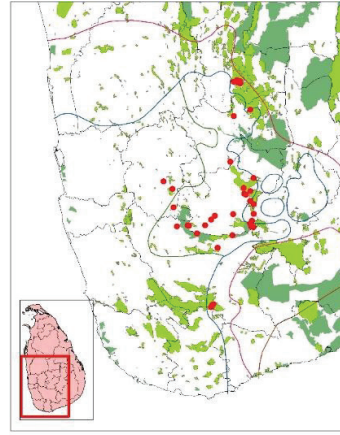
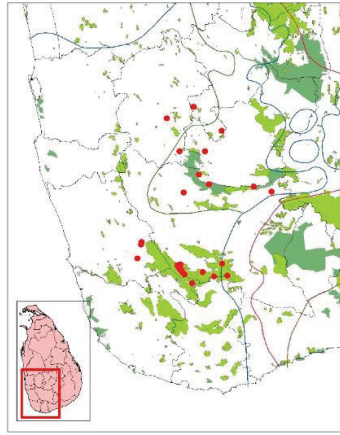
Known locations of (left): Hill Swallow/ House Swallow (*Hirundo domicola*) and (right): Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*)



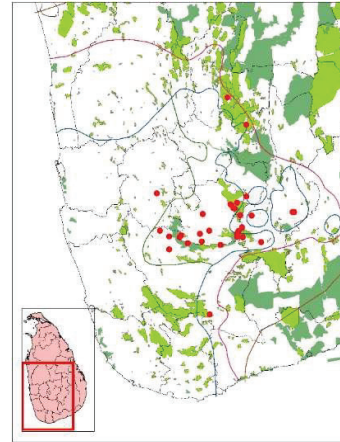
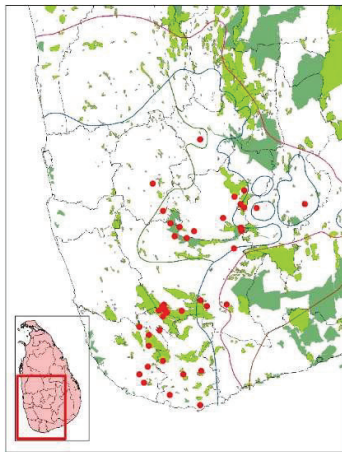
Known locations of (left): Sri Lanka Bush-warbler (*Elaphrornis palliseri*) and (right): Clamorous Reed-warbler (*Acrocephalus stentoreus*)



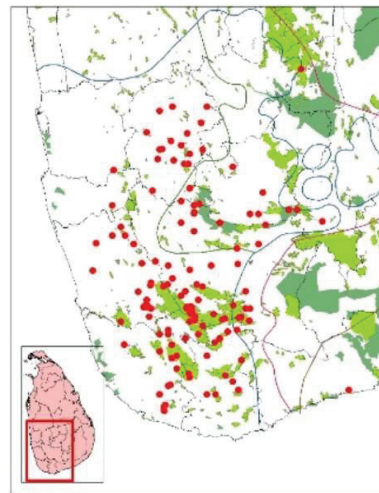
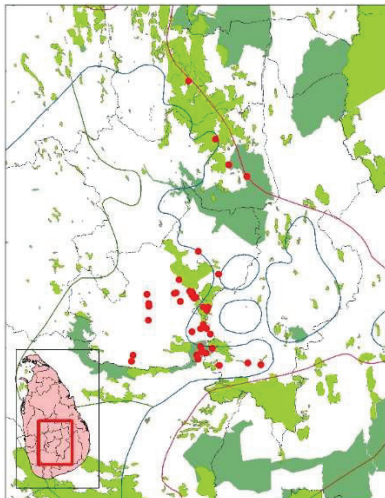
Known locations of (left): Sri Lanka Orange-billed Babbler (*Argya rufescens*) and (right): Sri Lanka Ashy-headed Laughingthrush (*Argya cinereifrons*)



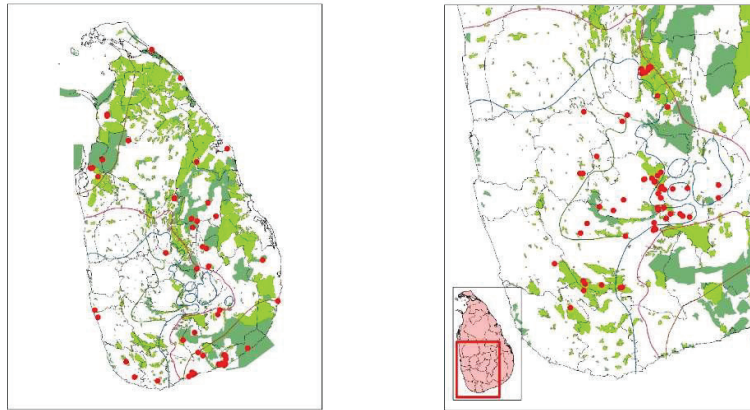
Known locations of (left): Sri Lanka White-faced Starling (*Sturnornis albofrontatus*) and (right): Sri Lanka Whistling-thrush (*Myophonus blighi*)



Known locations of (left): Sri Lanka Scaly Thrush (*Zoothera imbricate*) and (right): Indian Blackbird (*Turdus simillimus*)

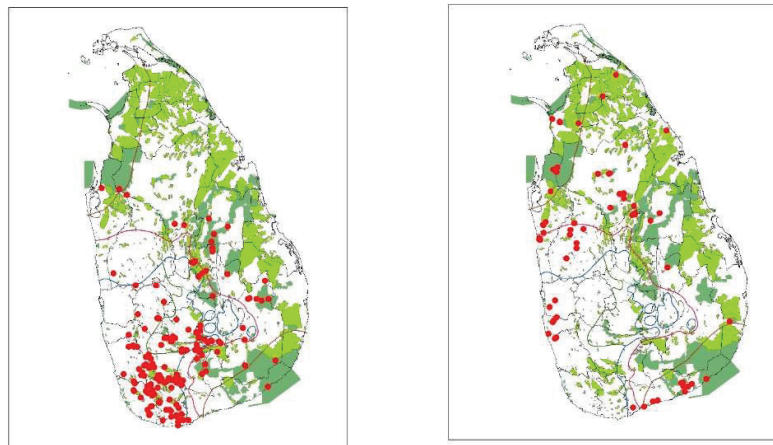


Known locations of (left): Pied Bushchat (*Saxicola caprata*) and (right): Sri Lanka White-throated Flowerpecker (*Dicaeum vincens*)

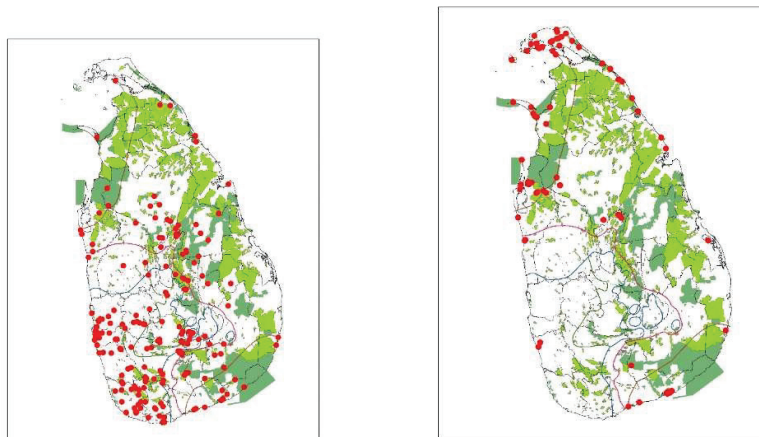


Known locations of (left): Streaked Weaver (*Ploceus manyar*) and (right): Black-throated Munia (*Lonchura kelaarti*)

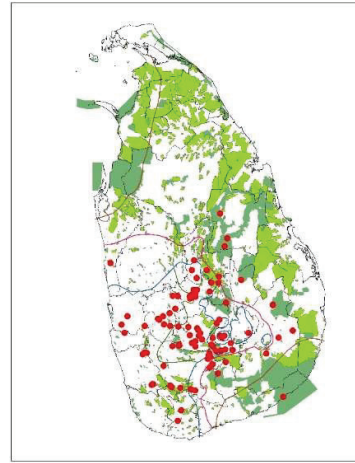
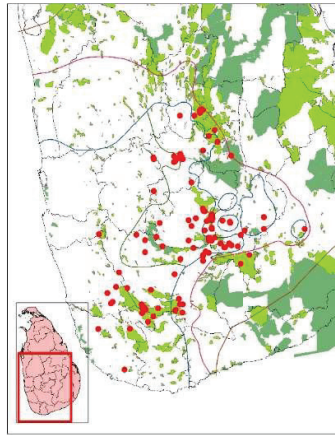
Distribution points of Vulnerable (VU) bird species



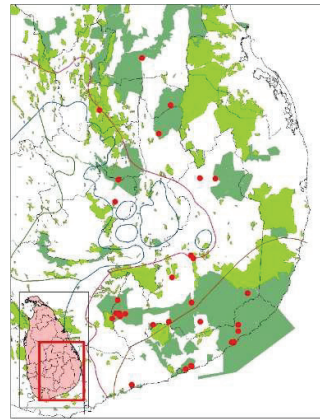
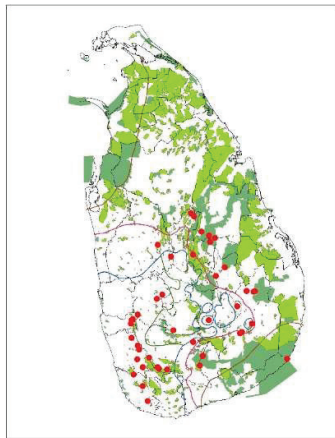
Known locations of (left): Sri Lanka Spurfowl (*Galloperdix bicalcarata*) and (right): Cotton Pygmy-goose (*Nettapus coromandelianus*)



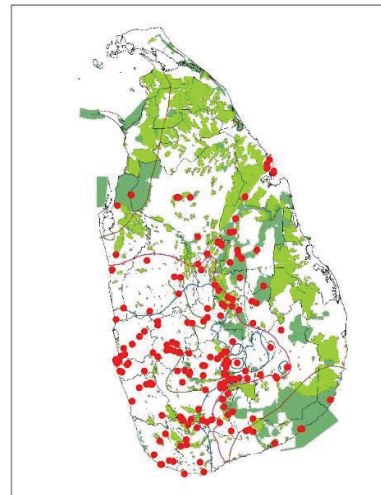
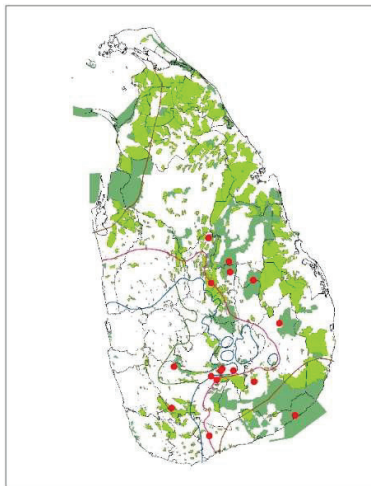
Known locations of (left): Oriental Honey-buzzard (*Pernis ptilorhyncus*) and (right): Little Tern (*Sternula albifrons*)



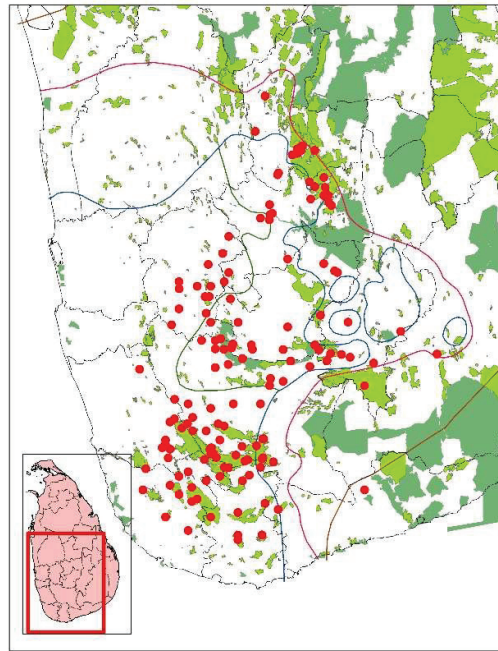
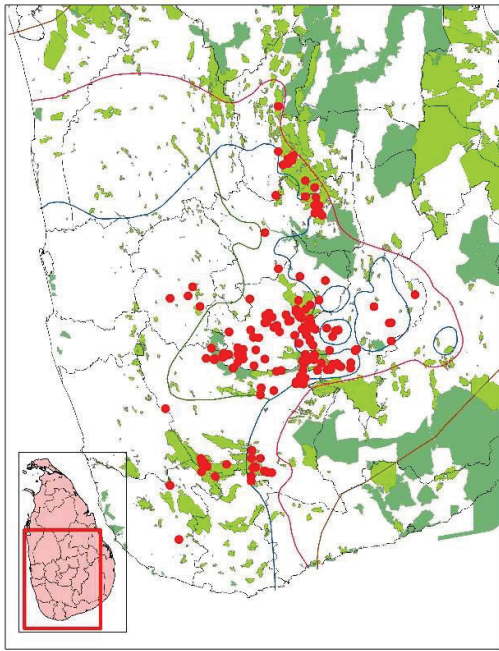
Known locations of (left): Sri Lanka Woodpigeon (*Columba torringtoniae*) and (right): Common Hawk-cuckoo (*Hierococcyx varius*)



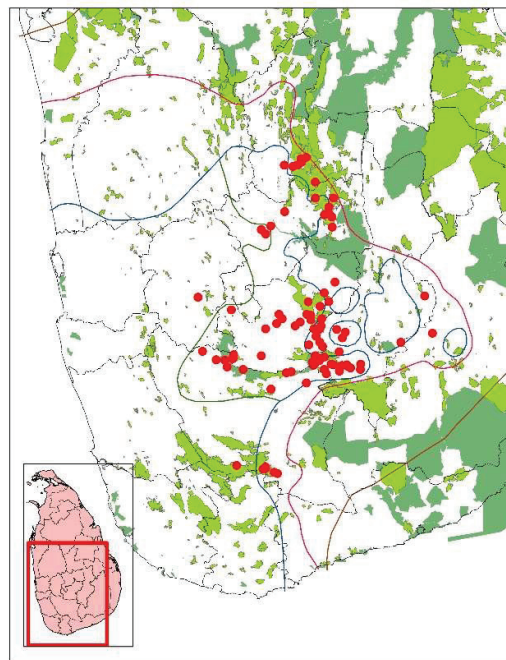
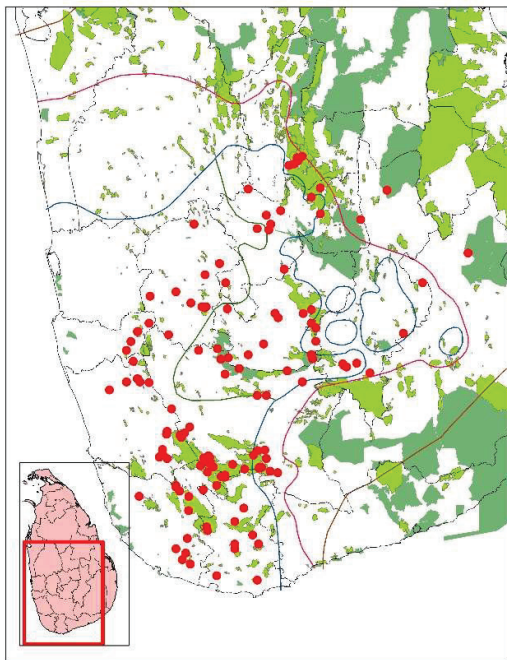
Known locations of (left): Banded Bay Cuckoo (*Cacomantis sonneratii*) and (right): Sirkeer Malkoha (*Taccocua leschenaultia*)



Known locations of (left): Grey Nightjar/ Jungle Nightjar (*Caprimulgus indicus*) and (right): Indian Swiftlet (*Aerodramus unicolor*)



Known locations of (left): Sri Lanka White-eye *Zosterops ceylonensis* and (right): Sri Lanka Myna *Gracula ptilogenys*



Known locations of (left): Sri Lanka Spot-winged Thrush *Geokichla spiloptera* and (right): Sri Lanka Dull-blue Flycatcher *Eumyias sordidus*

VI. SOME CRITICALLY ENDANGERED BIRD SPECIES OF SRI LANKA



Jungle Bush-quail (*Perdicula asiatica*) - CR



Fulvous Whistling-duck (*Dendrocygna bicolor*)- CR



Slaty-legged Crake (*Rallina eurizonoides*) CR



**Black-necked Stork
(*Ephippiorhynchus asiaticus*)- CR**



**Indian Courser (*Cursorius coromandelicus*)
CR**



Caspian Tern (*Hydroprogne caspia*) - CR



Lesser Noddy (*Anous tenuirostris*) CR

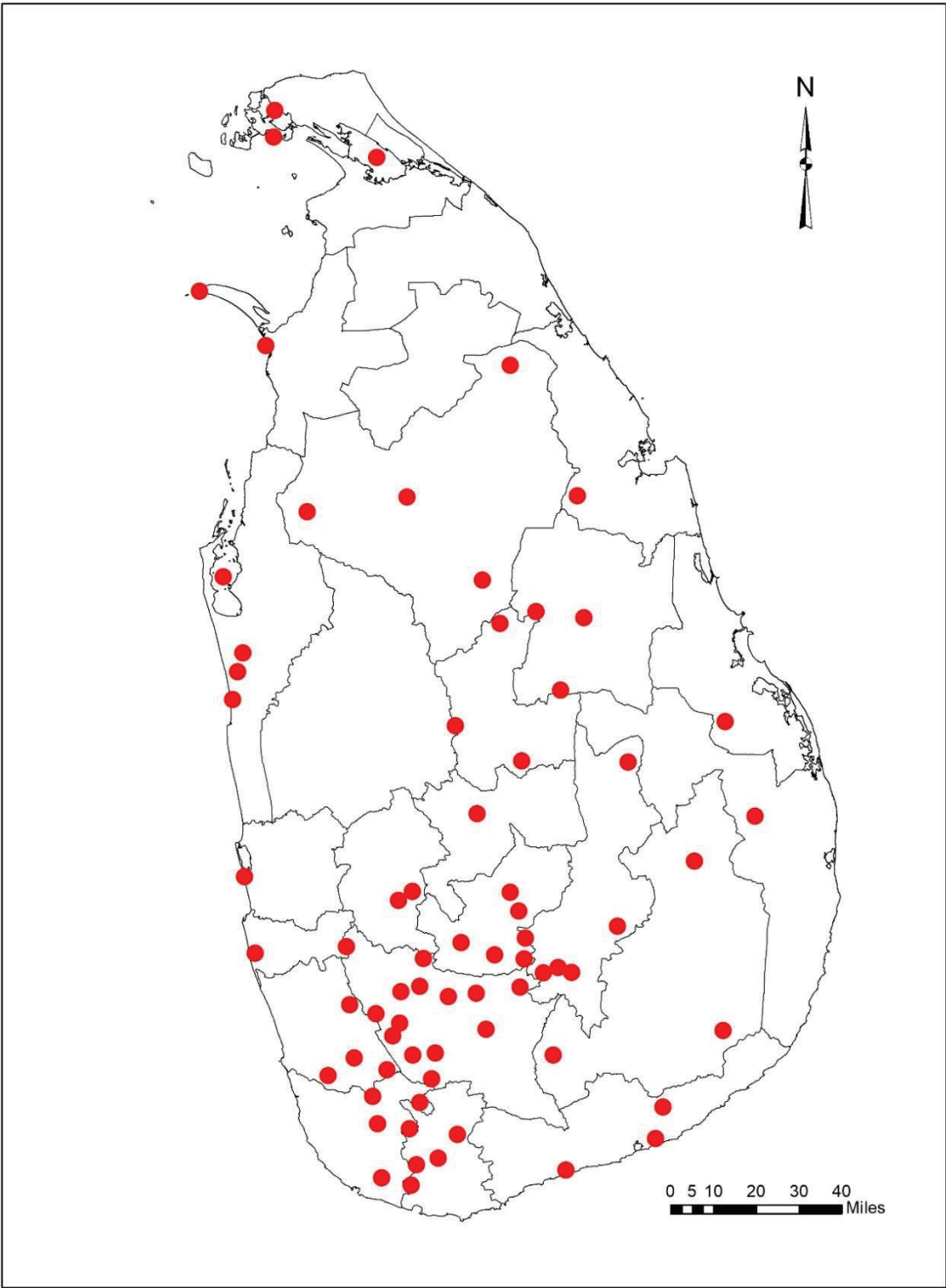


Blue-tailed Bee-eater (*Merops philippinus*) CR

VII. LIST OF IMPORTANT BIRD AREAS OF SRI LANKA

IBA No.	IBA name		
LK 001	Jaffna lagoon	LK 043	Delwala-Panilkanda-Walankanda
LK 002	Arali South - Punalai	LK 044	Sinharaja
LK 003	Kayts Island - Mandathive	LK 045	Rammalakanda
LK 004	Amaipadukkai (Erukkalmpididi)	LK 046	Namunukula
LK 005	Periyakalapuwa mouth	LK 047	Thangamale
LK 006	Giant's Tank	LK 048	Haputhale
LK 007	Puttlum Lagoon	LK 049	Muthurajawela
	Navadankulama (Periyakadawala)	LK 050	Bellawila-Attidiya
LK 008	Tank	LK 051	Labugama
LK 009	Mundel Lake	LK 052	Bodhinagala-Dombagaskanda
LK 010	Annaivilundawa	LK 053	Morapitiya-Runakanda
LK 011	Newgalkanda (Warakapola forest)	LK 054	Kalugala
LK 012	Padaviya Tank	LK 055	Yagirala
LK 013	Anuradhapura Sanctuary	LK 056	Beraliya-Kudagala
LK 014	Minneriya-Girithale-Kaudulla	LK 057	Haycock-Habarakada
LK 015	Polonnaruwa	LK 058	Malambure
LK 016	Wasgomuwa	LK 059	Kombala-Kottawa
LK 017	Kantale Tank	LK 060	Beraliya-Akuressa
LK 018	Rugam Tank	LK 061	Kanneliya-Nakiyadeniya-Dediyagala
LK 019	Maduru Oya	LK 062	Dellawa-Diyadawa
LK 020	Ampara	LK 063	Welihena
LK 021	Gal Oya	LK 064	Mulatiyana
LK 022	Sigirya	LK 065	Bundala
LK 023	Knuckles	LK 066	Wiravila
LK 024	Udawattakele	LK 067	Yala complex
LK 025	Kandapola-Seethaeliya and Pedro	LK 068	Ritigala
LK 026	Galway's Land	LK 069	Wilpattu
LK 027	Hakgala-Meepilimana	LK 070	Kalamatiya
LK 028	Dik Oya	LK 071	Adam's bridge
LK 029	Agarapathana-Bopaththalawa	LK 072	Wedithalathive
LK 030	Horton Plains-Ohiya-Pattipola	LK 073	Vankalai-Mannar
LK 031	Peak Wilderness	LK 074	Kayankeni Lagoon
LK 032	Amanawala	LK 075	Jayawardenapura wetland complex
LK 033	Kithulgala	LK 076	Kokillai sanctuary
LK 034	Gilimale-Erathna	LK 077	Chundikulam
LK 035	Bambarabotuwa	LK 078	Maduganga
LK 036	Rassagala-Balangoda	LK 079	Kikiliyamanna
LK 037	Delmella	LK 080	Lahugala
LK 038	Ayagama	LK 081	Halduummulla Herbal Garden
LK 039	Karavita	LK 082	Pompakele
LK 040	Warathalgoda	LK 083	Mahaweli ganaga-Kandy
LK 041	Udawalawe	LK 084	Meepilimana
LK 042	Delgoda-Kudumiriya	LK 085	Neugalakanda

VIII. MAP OF IMPORTANT BIRD AREAS



IX. NOTES ON TWO DATA DEFICIENT BIRD SPECIES

01. Blue-eared Kingfisher (*Alcedo meninting*)

The sub species *Alcedo meninting phillipsi* is endemic to South West India and Sri Lanka. Most of the Sri Lankan historical records were from dry zone and scattered. Recent research on finding this sub species in country failed to record a single individual from previously observed locations thus the occurrence of this species in Sri Lanka needs to be thoroughly examine with repeated visit to those historical locations. Recent photographic evidence came from Pulmudai area but it's not clear whether it was a migratory individual. Because of the uncertainty of breeding population with continuous occurrences this species evaluated as Data Deficient bird species to Sri Lanka.

02. Glossy Ibis (*Plegadis falcinellus*)

Even though there are migrant individuals continuously observe in the country as regular migrant birds, in 2019 breeding colony was discovered in Bundala National Park by the national park officers but failed to observed the breeding site during the following years. In 2021 at Thalawathugoda several observers have seen birds caring nesting materials but no confirmed successful breeding evidence is available so far. Until it confirms the breeding in Sri Lanka for at least three continues years Glossy Ibis is considered as a Data Deficient bird to evaluate the conservation status.

X. Guide lines to prepare data on bird observations to submit to National Data base of Birds under Biodiversity Secretariat

When preparing bird observation data which shared with Biodiversity secretariat national bird data base, it's highly recommended to follow the steps and specifications given bellow.

01. Use Microsoft excel to tabulate the data
02. Prepare the column names as in the figure bellow

	A	B	C	D	E	F	G	H	I	J	K	L
1	SpeciesID	Common Name	Species	Latitude	Longitude	Location	Ref_ID	Year	Authority	Full reference		
2	ABI001	Painted Francolin	Francolinus pictus (Jardine & Selby, 1828)	7.25000	81.33330	Bulupitiya	ABI0104	1997	Your name	Your name, Year (pers.com.)		

03. No need to fill SpeciesID, and Ref_ID, keep those columns blank.
04. Use common name and scientific name as mentioned in www.birdsoftheworld.org
05. Latitude and longitude values should be entered in decimal degrees format, not in degrees, minutes and seconds.
06. If possible, insert date of observation in Month/Date/Year format.
07. Do not use “coma” [,] in a location name.
e.g.: Sinharaja, Kudawa instead use a ‘underscore’ Sinharaja_Kudawa
08. If possible keep records on population, ecology and special observations etc.

Use the same excel sheet to enter all the observations for all the species and keep a personal copy before you submit your data to BDS office.

XI. PICTORIAL GUIDE TO THE ENDEMIC BIRDS SPECIES OF SRI LANKA



Sri Lanka Red faced Malkoha
(Phaenicophaeus pyrrhocephalus)



Sri Lanka Green-billed Coucal
(Centropus chlororhynchos)



Sri Lanka Junglefowl *(Gallus lafayettii)*



Sri Lanka Woodpigeon
(Columba torringtoniae)



Sri Lanka Green-pigeon
(Treron pompadora)



Sri Lanka Hanging-parrot
(Loriculus beryllinus)



Sri Lanka Emerald-collared Parakeet
(Psittacula calthropae)



Sri Lanka Chestnut-backed Owlet
(Glaucidium castanotum)



Sri Lanka Grey Hornbill
(Ocyrceros gingalensis)



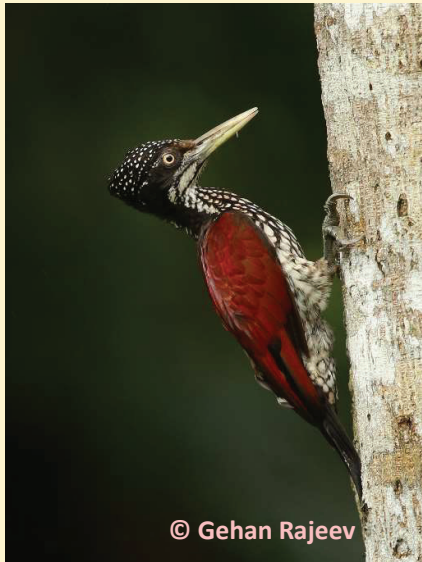
Sri Lanka Yellow-fronted Barbet
(Psilopogon flavifrons)



Sri Lanka Barbet
(Psilopogon rubricapillus)



Sri Lanka Lesser Flameback
(Dinopium psarodes)



Sri Lanka Greater Flameback
(Chrysocolaptes stricklandi)



Sri Lanka Woodshrike
(Tephrodornis affinis)



Sri Lanka Black-capped Bulbul
(Pycnonotus melanicterus)



Sri Lanka Magpie (*Urocissa ornate*)



Sri Lanka Crested Drongo
(Dicrurus lophorinus)



Sri Lanka Swallow
(Cecropis hyperythra)



Sri Lanka Yellow-eared Bulbul
(*Pycnonotus penicillatus*)



Sri Lanka Bush-warbler
(*Elaphrornis palliseri*)



Sri Lanka Brown-capped Babbler
(*Pellorneum fuscicapillus*)



Sri Lanka Scimitar-babbler
(*Pomatorhinus melanurus*)



Sri Lanka Orange-billed Babbler
(*Argya rufescens*)



Sri Lanka Ashy-headed Laughingthrush
(*Argya cinereifrons*)



Sri Lanka White-eye
(*Zosterops ceylonensis*)



Sri Lanka Myna
(*Gracula ptilogenys*)



Sri Lanka White-faced Starling
(*Sturnonis albofrontatus*)



Sri Lanka Spot-winged Thrush
(*Geokichla spiloptera*)



Sri Lanka Scaly Thrush
(*Zoothera imbricate*)



Sri Lanka Dull-blue Flycatcher
(*Eumyias sordidus*)



© Gehan Rajeev

Sri Lanka White-throated Flowerpecker
(*Dicaeum vincens*)



© Prasad Tharanga

Sri Lanka Whistling Thrush
(*Myophonus blighi*)



© Kusum Fernando

Sri Lanka Spurfowl
(*Galliperdix bicalcarata*)



© Dulan Ranga

Sri Lanka Serendib Scops-owl
(*Otus thilohoffmanni*)



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