



**STATE
OF INDIA'S
BIRDS**
2020



Range, trends and conservation status

PARTNER ORGANISATIONS:



Recommended Citation:


SolB 2020. *State of India's Birds, 2020: Range, trends and conservation status*. The SolB Partnership. Pp 50.

Cover photograph: Shikra, by Team WildArt



www.stateofindiasbirds.in

The State of India's Birds report is the first comprehensive assessment of the distribution range, trends in abundance, and conservation status for most of the bird species that regularly occur in India. With their ubiquity and ecological importance, birds are excellent indicators of the state of our natural world and are potent cultural symbols of nature. This national-level assessment of birds is a significant step forward in the monitoring and conservation of India's rich and varied biodiversity.

A Cinnamon Bittern bird is shown in profile, facing left, amidst a dense thicket of tall green reeds. The bird has a long, straight, yellowish-brown beak and a small yellow eye. Its plumage is a mix of brown and tan, with a distinct white patch on its throat. The reeds are tall and slender, with some showing brown, dried seed heads. The background is a soft-focus green, suggesting a natural wetland habitat.

Widespread in the country during the monsoon, the Cinnamon Bittern is declining strongly and is therefore a species of High Conservation Concern.

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HIGHLIGHTS

Abundance trends and distribution of **867 species of Indian birds** assessed | **Pages 4–5**

Citizen Science forms the basis of this report | **Pages 30–35**

Analysis based on more than **10 million observations** contributed by over **15,500 birdwatchers** | **Page 33**

48% of species **stable or increasing** in the long term; **79% decreasing** in the last five years | **Page 4**

House Sparrow has decreased in large cities, but **is roughly stable overall** | **Page 6**

Indian Peafowl **has increased considerably** in the past decades | **Page 7**



Barn Swallow

ABHISHEK DAS



Yellow-wattled Lapwing

RAHUL SINGH



Himalayan Black-lored Tit



Common Tailorbird

101 species classified as **high conservation concern**, including 34 species not considered globally threatened by the IUCN Red List | **Pages 5, 8–11**

Key species of conservation concern listed separately for each **State/Union Territory** | **Pages 12–15**

Groups showing greatest declines: raptors, migratory shorebirds and habitat specialists | **Pages 18–27**

Policy and action needed to draw attention to species of high conservation concern, promote research and foster citizen science | **Page 38**

Research necessary to **develop robust monitoring techniques** and **investigate causes of decline** | **Page 39**

A great **opportunity exists for increased public involvement and action** in bird monitoring and conservation | **Page 39**

HIGHLIGHTS

UNDERSTANDING INDIA'S BIRDS

Birds have always been part of Indian culture. Over 3,000 years ago, the Yajurveda referred to the parasitic habit of the Asian Koel, the first such mention in global literature. Indigenous communities such as the Warlis in Maharashtra worship the Indian Peafowl. Mughal art is filled with depictions of vultures, cranes and other birds. Guru Gobind Singh, the Sikh guru, was famous as the keeper of the Chitta Baz, the white falcon. Even today, the people of India revere the Sarus Crane for its fidelity, delight in the antics of the familiar House Sparrow, and consider the Pied Cuckoo (or Chaatak) to be the harbinger of the monsoon.

The cultural significance of birds is complemented by their ecological importance. Birds play vital roles in the health of ecosystems through their actions as pollinators, seed dispersers, predators, scavengers, and as prey for other species. Hornbills and other fruit-eating birds are critically important in dispersing the seeds of many plants, and through this, in sustaining forest health. Vultures are vital as scavengers, and their decline has had many negative consequences. The increasing popularity of birdwatching has driven the growth of ecotourism, contributing significantly to local economies in remote and biodiverse areas of the country. These are only a few examples of the diverse ecological functions and services that birds provide in advancing ecosystem health and human well-being.

The connection between birds and people is clear, but there are causes for concern. Since the 1990s, the populations of several species of vultures have crashed. During this time, bustards and other specialist grassland birds have also experienced clear declines. Some species that are popular in the bird trade, such as the Green Munia, are at dangerously low abundance. The Jerdon's Courser was rediscovered in 1986 after a gap of 138 years, but has not been seen since 2008. However, there is good news as well: the Forest Owlet, rediscovered in 1997, is being reported from many more locations. These are chronicles of individual species; but what is the overall health of India's birds, including those considered common and hence of little conservation concern?

This question is surprisingly difficult to answer. Despite India's long history of ornithological discovery and research, abundance trends are known for only a handful of bird species. These tend to be species that are larger, more obviously threatened and relatively charismatic. For the vast majority of Indian birds, lack of data has hindered a clear understanding of how they are faring. Such an understanding is vital for conservation science, management and policy.

Over the past few years, this key problem—of data deficit—is being tackled with the growth of citizen science (pages 30–35). Today, increasing numbers of birdwatchers are helping generate the information needed, making it possible to assess the status of the majority of bird species that regularly occur in India.

THE RESULTS

This report assesses the status of 867 bird species using data uploaded by birdwatchers to the online platform eBird (page 33). This assessment is based on three indices. Two are indices of change in abundance: Long-term Trend (i.e. over 25+ years) and Current Annual Trend (i.e. over the past 5 years); and the third is a measure of Distribution Range Size (refer to summary tables on page 5). Of the 261 species for which long-term trends could be determined (i.e. not Uncertain or Data Deficient), 52% have declined since the year 2000, with 22% declining strongly. In all, 43% of species showed a long-term trend that was stable and 5% showed an increasing trend.

Current annual trends could be estimated for 146 species (excluding those Uncertain or Data Deficient). Of these, nearly 80% are declining, with almost 50% declining strongly. Just over 6% are stable and 14% increasing. The range size of all but 6 species were estimated. Most species (46%) have Moderate range sizes. A further 33% have Large or Very Large range sizes, and 21% have Restricted or Very Restricted range sizes (further details on pages 40–41).

Using these three indices together with the IUCN Red List, each species was classified into categories of conservation concern for India: 442 into Low Concern, 319 into Moderate Concern and 101 into High Concern. Species of High Concern include those whose abundance indices have declined considerably in the long term and continue to decline today. Species were also categorised as High Concern if their current range is Very Restricted, or if their abundance trend could not be assessed but they are classified as globally threatened in the IUCN Red List. Of the species in the High category of conservation concern, 26% (26 species) are classified as globally 'Least Concern' by the IUCN Red List 2019 (table on page 8). On the other hand, 7 species considered globally 'Near Threatened' or 'Vulnerable'

are classified as being of Low Concern in India through this assessment. These are Ferruginous Duck, Black-tailed Godwit, Woolly-necked Stork, Oriental Darter, Black-headed Ibis, Alexandrine Parakeet and Long-tailed Parakeet.

This report contains highlights of the analyses for species of national interest, and for functional, taxonomic, ecological and behavioural groups of birds. Species nomenclature generally follows the India Checklist v3.1 (www.indianbirds.in/india). Additional details, including a full listing of species with scientific names, are available at www.stateofindiabirds.in

ABUNDANCE TREND INDEX		
Category	Species: Long-term	Species: Current
Data Deficient	375	185
Uncertain	226	531
Strong Decline	58	72
Moderate Decline	77	44
Stable	114	9
Moderate Increase	5	6
Strong Increase	7	15

DISTRIBUTION RANGE SIZE	
Category	Species
Data Deficient	6
Very Restricted	27
Restricted	153
Moderate	396
Large	176
Very Large	104

See definitions on page 41

		Categories of Conservation Concern			
		High	Moderate	Low	Total
IUCN Red List 2019	Critically Endangered	12	0	0	12
	Endangered	15	0	0	15
	Vulnerable	40	10	2	52
	Near Threatened	8	39	5	52
	Least Concern	26	270	435	731
	Total	101	319	442	862*

COMMON BIRDS SHOWING STRONG LONG-TERM DECLINES	
Small Minivet	Yellow-fronted Pied Woodpecker
Common Woodshrike	Indian Thick-knee
Short-toed Snake Eagle	Little Pratincole
Cotton Teal	Little Stint
Large Cuckooshrike	Sirkeer Malkoha
Common Greenshank	Blue Rock Thrush
Rufous-tailed Lark	Crested Treeswift
Oriental Skylark	Red-necked Falcon

**5 of the 867 species have been combined*

GOOD NEWS

HOUSE SPARROW

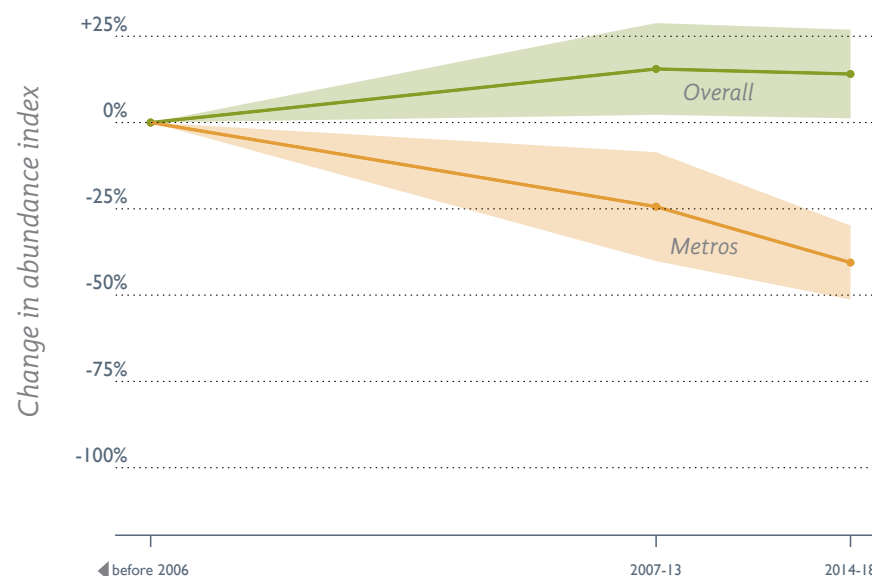
RAJAT BHARGAVA



A familiar bird across the country, in villages and small towns, and sometimes in city markets, the House Sparrow has been in the news due to concerns about declining populations. People across the country report seeing fewer sparrows than before (see report on www.citizensparrow.in).

Reasons for the suspected decline of this species are a matter of much speculation and are believed to include decreasing insect populations (a key part of the diet of sparrow chicks) and paucity of suitable nesting sites. The popular theory that radiation from mobile phone towers is a factor is not supported by current evidence.

Despite the widespread notion that the House Sparrow is declining in India, the analysis presented in this report suggests that the species has been fairly stable overall during the past 25+ years. Data from the six largest metro cities (Bengaluru, Chennai, Delhi, Hyderabad, Kolkata and Mumbai) do indicate a gradual decline in their abundance in urban centres. However, the extremely large range of the species across the country, and the lack of evidence for either long-term or current countrywide decline results in it being classified as of Low Conservation Concern.



GOOD NEWS

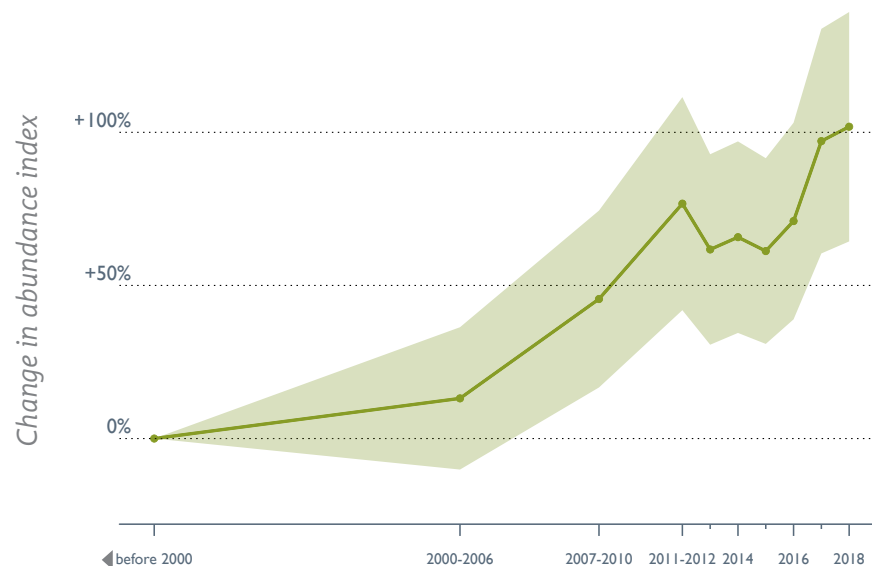
INDIAN PEAFOWL

The Indian Peafowl appears so frequently in religion, folklore, art and craft, that it is possibly the most recognised bird across India. Internationally as well, the peafowl (perhaps alongside the tiger) is immediately associated with India. Having been declared the national bird in 1963, the species also finds itself under the highest level of legal protection in the country, being placed in Schedule I of the Wildlife (Protection) Act, 1972 and further amendments.



ROFIKUL ISLAM

Peafowl are spread across the plains and hills of India, except in extremely dry or wet regions. The abundance trend is that of a general increase, both in the long term and currently. This trend appears to result from a combination of range expansion (e.g. into Kerala, from where it was formerly absent), and a population increase virtually throughout its distribution. The reasons for this pattern have not been investigated in detail, but expansion into Kerala may be associated with an overall drying trend, and expansion into the Thar desert appears to have accompanied the spread of canals and irrigation. The protection (and associated penalties for poaching and poisoning) afforded by being in Schedule I may also have contributed to increase. Some parts of the country report greater levels of crop damage by peafowl, a trend that calls for careful conflict assessment and management.



SPECIES OF HIGH CONCERN

In all, 101 species are categorised as of High Conservation Concern: 59 based on their range size and abundance trends, and an additional 42 based on their IUCN Red List status, marked with an asterisk (*) below.

	Distribution Range Size	Long-term Trend	Current Trend	IUCN Red List 2019	WLPA Schedule
Cotton Teal	Very Large	Very Restricted	Very Restricted	LC	IV
Glossy Swiftlet	Very Restricted	Data Deficient	Uncertain	LC	IV
Crested Treeswift	Large	Very Restricted	Very Restricted	LC	IV
Pacific Golden Plover	Moderate	Very Restricted	Very Restricted	LC	IV
Common Greenshank	Large	Very Restricted	Restricted	LC	IV
Gull-billed Tern	Restricted	Very Restricted	Uncertain	LC	IV
Cinnamon Bittern	Moderate	Very Restricted	Very Restricted	LC	IV
Short-toed Snake Eagle	Very Large	Very Restricted	Very Restricted	LC	I
Heart-spotted Woodpecker	Moderate	Very Restricted	Very Restricted	LC	IV
Yellow-fronted Pied Woodpecker	Large	Very Restricted	Restricted	LC	IV
Common Woodshrike	Very Large	Very Restricted	Very Restricted	LC	IV
Small Minivet	Very Large	Very Restricted	Very Restricted	LC	IV
Large Cuckooshrike	Large	Very Restricted	Restricted	LC	IV
Great Grey Shrike	Moderate	Very Restricted	Restricted	LC	IV
Indian Nuthatch	Moderate	Very Restricted	Restricted	LC	IV
Indian Olive Bulbul	Very Restricted	Data Deficient	Data Deficient	LC	IV
West Himalayan Bush Warbler	Very Restricted	Data Deficient	Data Deficient	LC	IV
Rufous-fronted Prinia	Large	Very Restricted	Very Restricted	LC	IV
Bar-winged Wren Babbler	Very Restricted	Data Deficient	Data Deficient	LC	IV

DISTRIBUTION RANGE SIZE

Very Large
Large
Moderate
Restricted
Very Restricted
Data Deficient

ABUNDANCE TREND INDEX

Moderate Decline
Strong Decline
Data Deficient
Uncertain

IUCN RED LIST 2019

LC - Least Concern
NT - Near Threatened
VU - Vulnerable
EN - Endangered
CR - Critically Endangered

Species marked in bold are endemics to the Indian subcontinent.

WLPA: Wildlife (Protection) Act. Schedule I indicates highest legal protection.

	Distribution Range Size	Long-term Trend	Current Trend	IUCN Red List 2019	WLPA Schedule
Moustached Laughingthrush				LC	IV
Grey-sided Laughingthrush				LC	IV
Brown-capped Laughingthrush				LC	IV
Large Blue Flycatcher				LC	IV
Chinese Rubythroat				LC	IV
Nilgiri Thrush				LC	IV
Forest Wagtail				LC	IV
Andaman Green Pigeon*				NT	IV
Ward's Trogon				NT	IV
Austen's Brown Hornbill				NT	I
Red-necked Falcon				NT	I
Tytler's Leaf Warbler				NT	IV
Naga Wren Babbler				NT	IV
Sikkim Wedge-billed Babbler				NT	IV
Chestnut-backed Laughingthrush				NT	IV
Andaman Teal*				VU	I
Nicobar Megapode*				VU	I
Chestnut-breasted Hill Partridge*				VU	IV
Swamp Francolin*				VU	IV
Sclater's Monal				VU	I
Western Tragopan				VU	I
Blyth's Tragopan*				VU	I
Cheer Pheasant*				VU	I
Yellow-eyed Pigeon*				VU	IV
Pale-capped Pigeon*				VU	IV
Dark-rumped Swift*				VU	IV
Black-necked Crane*				VU	I
Indian Skimmer*				VU	IV

DISTRIBUTION RANGE SIZE

	Very Large
	Large
	Moderate
	Restricted
	Very Restricted
	Data Deficient

ABUNDANCE TREND INDEX

	Moderate Decline
	Strong Decline
	Data Deficient
	Uncertain

IUCN RED LIST 2019

LC	- Least Concern
NT	- Near Threatened
VU	- Vulnerable
EN	- Endangered
CR	- Critically Endangered

	Distribution Range Size	Long-term Trend	Current Trend	IUCN Red List 2019	WLPA Schedule
Andaman Serpent Eagle*				VU	I
Tawny Eagle				VU	I
Nicobar Sparrowhawk*				VU	I
Rufous-necked Hornbill*				VU	I
Wreathed Hornbill*				VU	I
Great Slaty Woodpecker*				VU	IV
Andaman Woodpecker*				VU	IV
Andaman Treepie*				VU	IV
White-naped Tit*				VU	IV
Beautiful Nuthatch*				VU	IV
Broad-tailed Grassbird*				VU	IV
Bristled Grassbird*				VU	IV
Grey-crowned Prinia				VU	IV
Jerdon's Babbler*				VU	IV
Black-breasted Parrotbill*				VU	IV
Mishmi Wren Babbler*				VU	IV
Tawny-breasted Wren Babbler				VU	IV
Snowy-throated Babbler				VU	IV
White-bellied Sholakili*				VU	IV
Kashmir Flycatcher*				VU	IV
Hodgson's Bushchat				VU	IV
Nilgiri Pipit				VU	IV
Marsh Babbler*				VU	IV
Slender-billed Babbler*				VU	IV
Ashambu Laughingthrush (Chilappan)				VU	IV
Finn's Weaver*				VU	IV
Green Munia				VU	IV
White-winged Wood Duck*				EN	I

DISTRIBUTION RANGE SIZE

	Very Large
	Large
	Moderate
	Restricted
	Very Restricted
	Data Deficient

ABUNDANCE TREND INDEX

	Moderate Decline
	Strong Decline
	Data Deficient
	Uncertain

IUCN RED LIST 2019

LC - Least Concern
NT - Near Threatened
VU - Vulnerable
EN - Endangered
CR - Critically Endangered

	Distribution Range Size	Long-term Trend	Current Trend	IUCN Red List 2019	WLPA Schedule	
Manipur Bush Quail				EN	IV	
Lesser Florican*				EN	I	
Great Knot*				EN	IV	
Black-bellied Tern*				EN	IV	
Greater Adjutant*				EN	IV	
Egyptian Vulture				EN	IV	
Steppe Eagle				EN	I	
Pallas's Fish Eagle				EN	I	
Forest Owlet*				EN	I	
Narcondam Hornbill*				EN	I	
Swamp Grass Babbler				EN	IV	
Banasura Laughingthrush (Chilappan)				EN	IV	
Nilgiri Laughingthrush (Chilappan)				EN	IV	
Nilgiri Sholakili*				EN	IV	
Himalayan Quail				CR	I	
Great Indian Bustard*				CR	I	
Bengal Florican*				CR	I	
Sociable Lapwing				CR	IV	
Jerdon's Courser				CR	I	
White-bellied Heron				CR	I	
Red-headed Vulture				CR	IV	
White-rumped Vulture				CR	I	
Indian Vulture				CR	I	
Slender-billed Vulture*				CR	I	
Bugun Liocichla				CR	IV	
Yellow-breasted Bunting				CR	IV	

DISTRIBUTION RANGE SIZE

- Very Large
- Large
- Moderate
- Restricted
- Very Restricted
- Data Deficient

ABUNDANCE TREND INDEX

- Moderate Decline
- Strong Decline
- Data Deficient
- Uncertain

IUCN RED LIST 2019

- LC - Least Concern
- NT - Near Threatened
- VU - Vulnerable
- EN - Endangered
- CR - Critically Endangered

The full listing of all 867 species assessed, with scientific names and categories of concern, is available at www.stateofindiabirds.in

KEY SPECIES FOR STATES

To list the species of most conservation concern at the sub-national level, key species (out of the 867 assessed) have been identified for each State and Union Territory (UT) based on the proportion of the Indian range of each species that lies within that State/UT. Species are listed under a State/UT in descending order of this proportion.

Andaman & Nicobar Islands

Andaman Green Pigeon
Andaman Serpent Eagle
Andaman Teal
Andaman Treepie
Andaman Woodpecker
Long-tailed Parakeet
Narcondam Hornbill
Nicobar Megapode
Nicobar Sparrowhawk
Glossy Swiftlet

Andhra Pradesh

Great Indian Bustard (S)
Lesser Florican (S)
Green Munia
Pale-capped Pigeon
White-naped Tit (S)
Jerdon's Courser
Indian Skimmer
Great Knot

Arunachal Pradesh

Bar-winged Wren Babbler
Bugun Liocichla
Mishmi Wren Babbler
Sclater's Monal
Snowy-throated Babbler
White-bellied Heron
Beautiful Nuthatch
Ward's Trogon
Sikkim Wedge-billed Babbler
Marsh Babbler
Swamp Grass Babbler
Blyth's Tragopan
Rufous-necked Hornbill
Austen's Brown Hornbill
Grey-sided Laughingthrush
Chinese Rubythroat
Wreathed Hornbill
Chestnut-breasted Hill Partridge
Jerdon's Babbler (E)
Black-breasted Parrotbill
Bengal Florican (E)
Slender-billed Vulture
Large Blue Flycatcher

Assam

Chestnut-backed Laughingthrush
White-winged Wood Duck
Finn's Weaver (E)
Bengal Florican (E)
Greater Adjutant
Slender-billed Babbler
Swamp Francolin
Austen's Brown Hornbill
Jerdon's Babbler (E)
Wreathed Hornbill
Black-breasted Parrotbill
Slender-billed Vulture
Pallas's Fish Eagle
Chinese Rubythroat
Lesser Adjutant
Marsh Babbler
Swamp Grass Babbler
Pale-capped Pigeon
Indian Olive Bulbul
Hodgson's Bushchat
Yellow-breasted Bunting
Manipur Bush Quail

Bihar*

Greater Adjutant
Lesser Adjutant

Chandigarh

Rufous-fronted Prinia

Chhattisgarh

Indian Nuthatch
Crested Treeswift
Large Cuckooshrike
Yellow-fronted Pied Woodpecker
Cinnamon Bittern

Dadra & Nagar Haveli/Daman & Diu

Gull-billed Tern

Goa

Great Knot
Nilgiri Wood Pigeon

(N) : Northern population
(S) : Southern population
(E) : Eastern population
(W) : Western population

*Data deficient region

Gujarat

Sociable Lapwing
 White-naped Tit (N)
 Lesser Florican (N)
 Eastern Imperial Eagle
 Gull-billed Tern
 Great Knot
 Stoliczka's Bushchat
 Rufous-fronted Prinia
 Greater Spotted Eagle
 Great Grey Shrike
 Forest Owlet
 Common Pochard
 Indian Skimmer
 Sarus Crane
 Great Indian Bustard (N)

Haryana

Eastern Imperial Eagle
 Stoliczka's Bushchat
 Rufous-fronted Prinia

Himachal Pradesh

Western Tragopan
 Cheer Pheasant
 West Himalayan Bush Warbler
 Steppe Eagle
 Slender-billed Vulture

Jammu & Kashmir

Kashmir Flycatcher
 Tytler's Leaf Warbler
 Steppe Eagle

Jharkhand*

Indian Nuthatch

Karnataka

Indian Vulture (S)
 White-naped Tit (S)
 Red-headed Vulture (S)
 Yellow-throated Bulbul
 Great Indian Bustard (S)
 Lesser Florican (S)
 White-rumped Vulture (S)
 Heart-spotted Woodpecker
 Nilgiri Sholakili
 Forest Wagtail
 Broad-tailed Grassbird (S)
 Nilgiri Wood Pigeon
 Tawny Eagle
 Greater Spotted Eagle
 Indian Spotted Eagle
 Woolly-necked Stork
 Crested Treeswift

Kerala

Banasura Laughingthrush (Chilappan)
 Ashambu Laughingthrush (Chilappan)
 White-bellied Sholakili
 Broad-tailed Grassbird (S)
 Nilgiri Thrush
 Nilgiri Pipit
 Heart-spotted Woodpecker
 White-rumped Vulture (S)
 Red-headed Vulture (S)
 Nilgiri Wood Pigeon
 Forest Wagtail

Pacific Golden Plover
 Tytler's Leaf Warbler
 Great Hornbill
 Cinnamon Bittern

Ladakh

Black-necked Crane
 Chinese Rubythroat

Madhya Pradesh

Indian Vulture (N)
 Red-headed Vulture (N)
 White-rumped Vulture (N)
 Forest Owlet
 Green Munia
 Egyptian Vulture
 Sarus Crane
 Lesser Florican (N)
 Indian Nuthatch
 Black-bellied Tern
 Indian Skimmer

Maharashtra

Broad-tailed Grassbird (N)
 Forest Owlet
 Tytler's Leaf Warbler
 Great Knot
 Nilgiri Wood Pigeon
 Green Munia
 Yellow-fronted Pied Woodpecker
 Common Pochard
 Woolly-necked Stork
 Short-toed Snake Eagle
 Crested Treeswift

Small Minivet
 Rufous-fronted Prinia
 Common Woodshrike

Manipur

Brown-capped Laughingthrush
 Black-breasted Parrotbill
 Slender-billed Babbler
 Blyth's Tragopan
 Moustached Laughingthrush
 Jerdon's Babbler (E)
 Manipur Bush Quail

Meghalaya

Tawny-breasted Wren Babbler
 Indian Olive Bulbul
 Dark-rumped Swift

Mizoram

Indian Olive Bulbul
 Brown-capped Laughingthrush
 Dark-rumped Swift
 Great Slaty Woodpecker

Nagaland

Naga Wren Babbler
 Moustached Laughingthrush
 Dark-rumped Swift
 Brown-capped Laughingthrush
 Blyth's Tragopan

(N) : Northern population
 (S) : Southern population
 (E) : Eastern population
 (W) : Western population

*Data deficient region

NCT of Delhi

Bristled Grassbird

Odisha

Pale-capped Pigeon

Green Munia

Black-bellied Tern

Pacific Golden Plover

Indian Skimmer

Puducherry

Pacific Golden Plover

Punjab

Jerdon's Babbler (W)

Rajasthan

Yellow-eyed Pigeon

Great Indian Bustard (N)

Stoliczka's Bushchat

White-naped Tit (N)

Great Grey Shrike

Eastern Imperial Eagle

Indian Vulture (N)

Indian Skimmer

Rufous-fronted Prinia

Green Munia

Lesser Florican (N)

Egyptian Vulture

Red-headed Vulture (N)

Tawny Eagle

Steppe Eagle

Black-bellied Tern

Sikkim

Chestnut-breasted Hill Partridge

Sikkim Wedge-billed Babbler

Grey-sided Laughingthrush

Tamil Nadu

Nilgiri Laughingthrush (Chilappan)

Nilgiri Pipit

Nilgiri Sholakili

Ashambu Laughingthrush (Chilappan)

Kashmir Flycatcher

White-bellied Sholakili

Nilgiri Thrush

Indian Vulture (S)

White-naped Tit (S)

Yellow-throated Bulbul

White-rumped Vulture (S)

Broad-tailed Grassbird (S)

Forest Wagtail

Red-headed Vulture (S)

Nilgiri Wood Pigeon

Red-necked Falcon

Gull-billed Tern

Pacific Golden Plover

Cinnamon Bittern

Telangana

Lesser Florican (S)

Tripura*

Large Cuckooshrike

Indian Olive Bulbul

Uttar Pradesh

Bengal Florican (W)

Finn's Weaver (W)

Sarus Crane

Black-bellied Tern

Bristled Grassbird

Indian Skimmer

Swamp Francolin

Egyptian Vulture

Great Slaty Woodpecker

Uttarakhand

Grey-crowned Prinia

West Himalayan Bush Warbler

Great Slaty Woodpecker

Cheer Pheasant

Finn's Weaver (W)

Pallas's Fish Eagle

Red-headed Vulture (N)

Bristled Grassbird

Steppe Eagle

Himalayan Quail

West Bengal

Bristled Grassbird

Rufous-necked Hornbill

Grey-sided Laughingthrush

Ward's Trogon

Chestnut-breasted Hill Partridge

Pale-capped Pigeon

Lesser Adjutant

(N) : Northern population
(S) : Southern population
(E) : Eastern population
(W) : Western population

*Data deficient region

The Tawny Eagle is becoming increasingly difficult to see today and is of High Conservation Concern like many other large raptors.



SPECIES GROUPS

Species are aggregated into 6 taxonomic and ecological groups to explore their composite indices of trends in abundance and to uncover possible common features underlying change in abundance.



RAPTORS

Results on page 18

Raptors usually hunt prey, typically vertebrates, but scavengers, like vultures, are also included in this group. Like large mammalian carnivores, such as tigers, raptors are positioned high on the food chain and are often sensitive to environmental changes. Raptors that are habitat specialists can decline if their habitat is degraded or lost, while other species may respond to toxin bioaccumulation. For example, in North America, widespread use and biomagnification of the insecticide DDT led to eggshell thinning of Bald Eagles and Peregrine Falcons, and their consequent population declines.

In India, little is known about raptor population trends or their underlying causes. An exception is the *Gyps* vultures, which have seen catastrophic declines since the 1990s. But what is the status of raptors as a group and is this related to their ecological attributes?



WATERBIRDS

Results on page 20

With many large and prominent species, and a high proportion of migrants, waterbirds are a well-known part of India's avifauna. Waterbirds cluster around available surface water, as do humans, and hence they affect each other considerably. Resident waterbirds like Indian Spot-billed Duck, Purple Swamphen, Grey Heron and Painted Stork are a familiar sight. In winter they are joined by a host of species that arrive from temperate regions, including other ducks, geese, gulls, terns, and migrant shorebirds like plovers, stints and sandpipers.

As birds that depend on water and water-related resources, these species are sensitive to changes in the water, vegetation and substrate quality of their habitats. India is a signatory to the Ramsar Convention on Wetlands, and has an obligation to identify and conserve wetlands for both biodiversity and human well-being.



DIET GUILD

Results on page 21

Along with habitat, diet is one of the main determinants of the ecological niche of a species. It is useful to compare the abundance trends of species with different average diets. Carnivores are often sensitive indicators of ecosystem health. Invertebrate-eaters are of particular importance, both because of their potential role in regulating the populations of their prey, and also in the light of recent evidence of major insect declines. Fruit-and-nectar feeders often play a strong mutualistic role with plants, and are crucial to ecosystem regeneration through their pollination and dispersal effects. Species that feed on other plant material, including seeds, are among the most familiar in open country. Finally, omnivores are opportunists, who eat different food according to availability—these would be expected to be the most adaptable, and therefore the least susceptible to environmental changes.

SPECIES GROUPS

Species are aggregated into 6 taxonomic and ecological groups to explore their composite indices of trends in abundance and to uncover possible common features underlying change in abundance.



HABITAT

Results on page 22

Species with specialised habitat requirements are indicators of the condition of the specific habitats they depend on. They are more vulnerable than generalists to habitat degradation and are often the first to decline. It is therefore of great interest to assess the state of different groups of habitat specialists, and to compare their trends with those of habitat generalists.

Although habitat specialisation can be broken down into fine categories, it is worth comparing species across broad habitat types: forest, grassland/scrubland and wetland. Each of these habitats hosts unique bird species, and each is under threat from different pressures. The extent of natural forests, of dry and moist grasslands, and of wetlands of high water quality and aquatic vegetation, is a major determinant of the diversity of habitat specialists that persist.



MIGRATORY STATUS

Results on page 24

Of the roughly 1,220 regularly occurring species of birds in India, 280 are long-distance migrants, 116 are within-subcontinent migrants and the remaining species are resident—either sedentary or showing local movements. Depending on the nature of their movements, different migratory species have different conservation requirements. Long-distance migrants (like Rosy Starling or Curlew Sandpiper) cover vast expanses, crossing many international boundaries, and may breed and winter in very different habitats. Sites for stopover and refuelling can be crucial for their survival. Hence, the persistence of these species depends on large tracts of suitable habitat, often distributed across many countries. Within-subcontinent migrants (like Indian Pitta) pose a similar problem for conservation, albeit on a smaller scale. Conservation action might be more straightforward for species with restricted distribution.



ENDEMICITY

Results on page 26

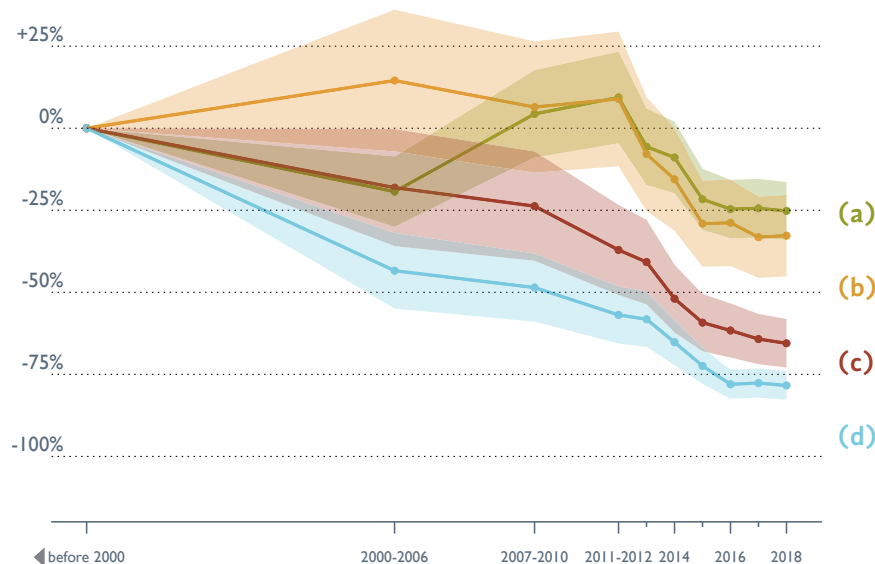
The status of endemic species is of particular interest and importance because their native range is limited to the Indian subcontinent. This region is home to a high diversity of endemic species. Over 200 species are considered endemic to the subcontinent, of which about 80 species are found only within the borders of India. The main centres of bird endemism in India are the Western Ghats and the Andaman & Nicobar Islands. There are also a number of species that are widespread across the peninsula, but still restricted to India.

The analysis presented here compares Western Ghats endemics (some of whose range covers Sri Lanka), other subcontinental endemics, and non-endemic residents. There are not enough data on most endemics of the Andaman & Nicobar Islands to assess their trend with any confidence, mostly for lack of historical information.

RAPTORS

Overall, raptors have clearly declined, but more detail is apparent when the species are separated into broad categories. Generalist species (which occupy a range of habitats, including human habitats) and woodland species appear to have suffered the least declines in the long term. However, all woodland species, and White-eyed Buzzard and Common Kestrel among generalists, continue to decline, but possibly at a lower rate than earlier. In contrast, open country specialists show a particularly strong decline both in the long term and currently, although Black-winged Kite and Western Marsh Harrier show trends that are roughly stable in the long term. Finally, as is known from other evidence, scavengers (mostly vultures) have been in severe decline over the past 25+ years.

CHANGE IN ABUNDANCE INDEX



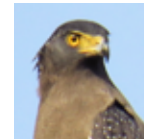
SPECIES GROUPS

Woodland

Generalist

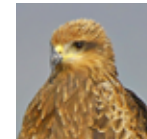
Open

Scavenger



(a)

4



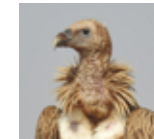
(b)

6



(c)

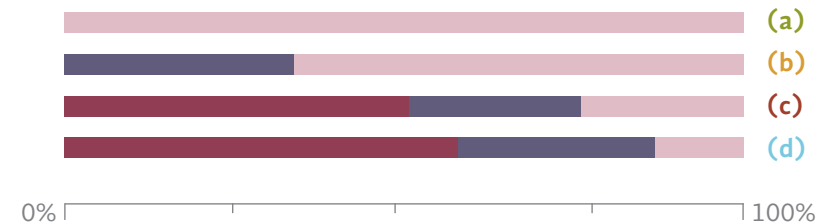
8



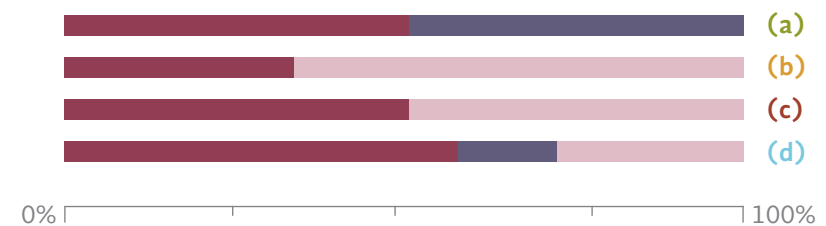
(d)

7

LONG-TERM TREND



CURRENT TREND



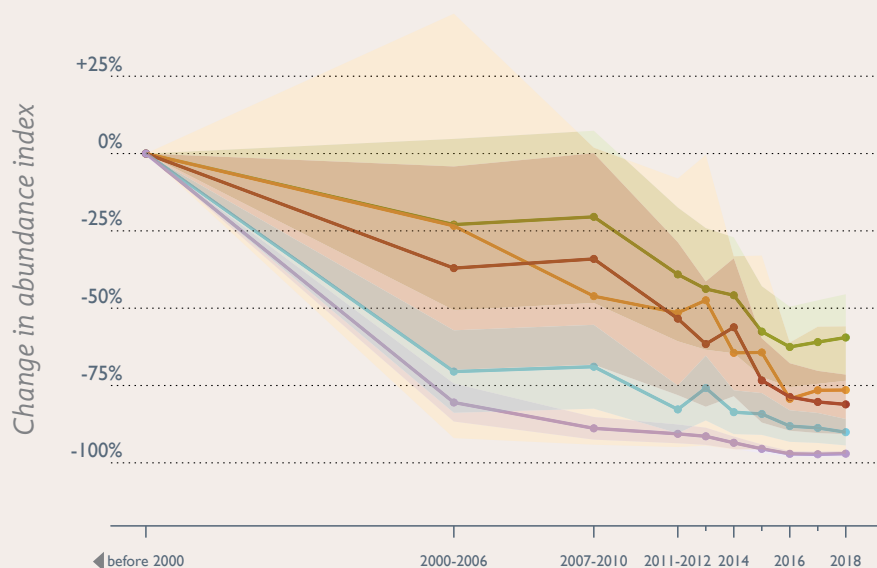
Strong Decline Moderate Decline Stable Moderate Increase Strong Increase



Egyptian Vulture

RAPTOR DECLINES VULTURES

It is well known that many species of Indian vultures experienced catastrophic population declines starting in the early 1990s. Careful investigation has revealed that these declines are almost entirely attributable to inadvertent poisoning by the livestock anti-inflammatory drug diclofenac. Regular monitoring of vulture populations has been key to understanding which species are affected most severely, and whether there has been any improvement after veterinary formulations of diclofenac were banned. Monitoring along road transects in central and northern India by a team from the Bombay Natural History Society (BNHS) and Royal Society for the Protection of Birds (RSPB) has shown that White-rumped Vulture has suffered the most severe declines, followed by Indian Vulture and Egyptian Vulture. These trends are mirrored by trends derived from the analyses in this report. Less is known about trends in other vulture species.



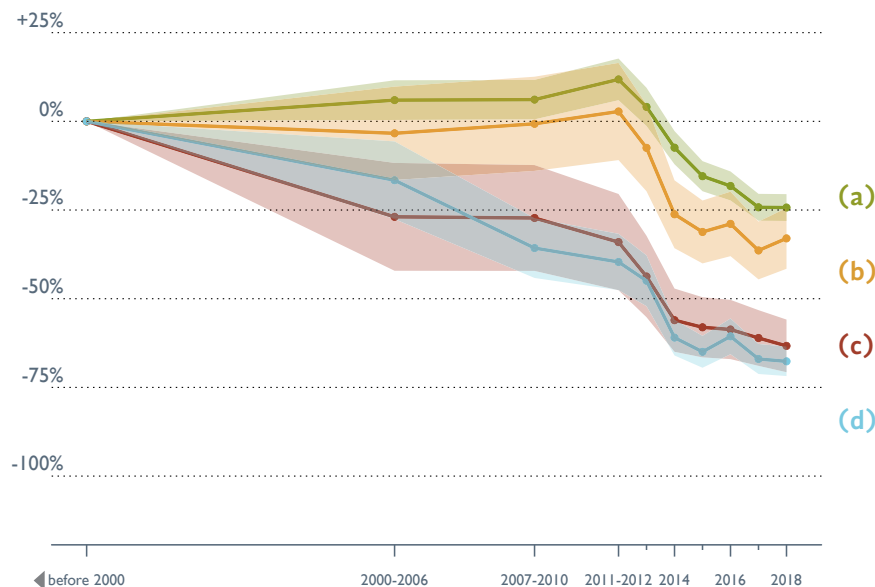
The countrywide trends shown here indicate the same ordering in severity of long-term decline in the three species listed above. In addition, all other species assessed demonstrate severe long-term decline. Conservation concern for these species is as high as ever.

Egyptian Vulture
Griffon Vulture
Red-headed Vulture
Indian Vulture
White-rumped Vulture

WATERBIRDS

Like most other groups, waterbirds show overall long-term declines, a trend that appears to be continuing today. Migratory shorebirds and gulls & terns appear to have declined the most, although waterfowl (ducks & geese) and other resident waterbirds (like swamphens, coots and storks) also show clearly discernible declines. The steep decline in migratory shorebirds mirrors population trends reported from monitoring of arctic-breeding shorebirds. Whether these declines are due to changing conditions at breeding, staging or wintering sites (or all three) remains unknown. Resident waterbirds appear to be showing particularly severe declines in the past 5 years, a worrying trend that calls for detailed investigation.

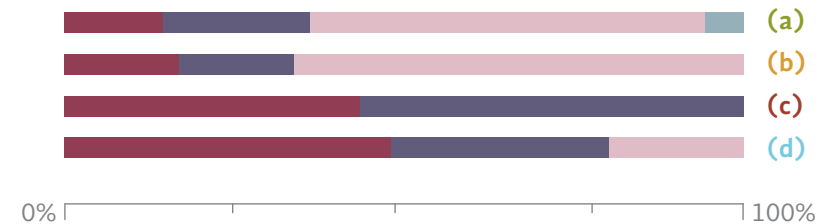
CHANGE IN ABUNDANCE INDEX



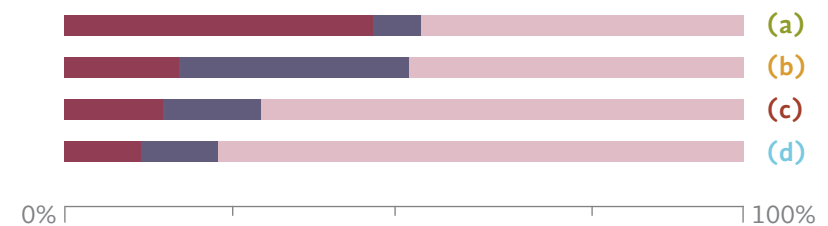
SPECIES GROUPS



LONG-TERM TREND

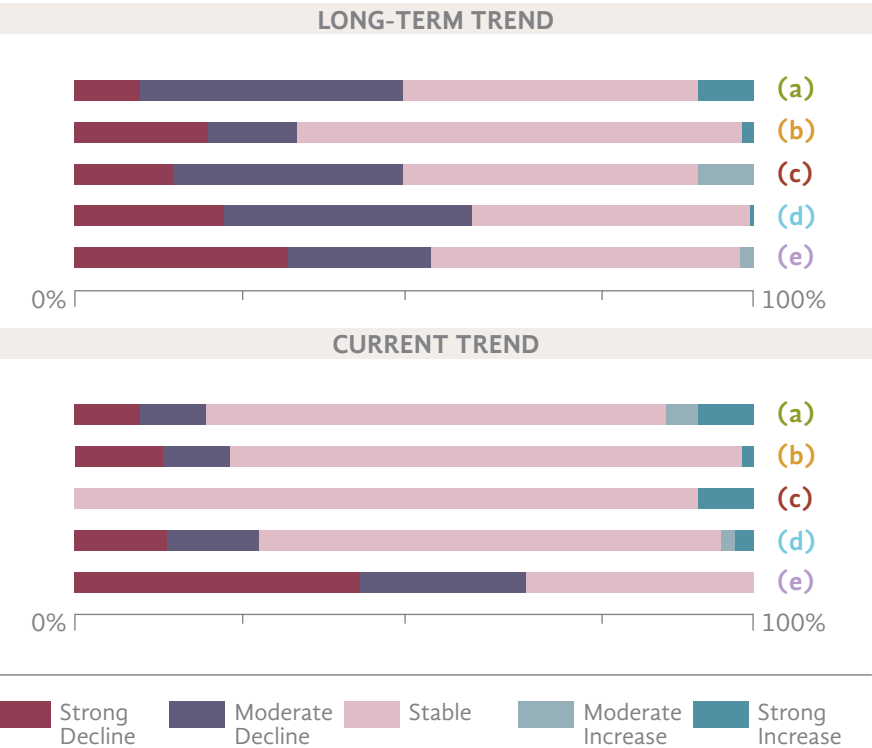
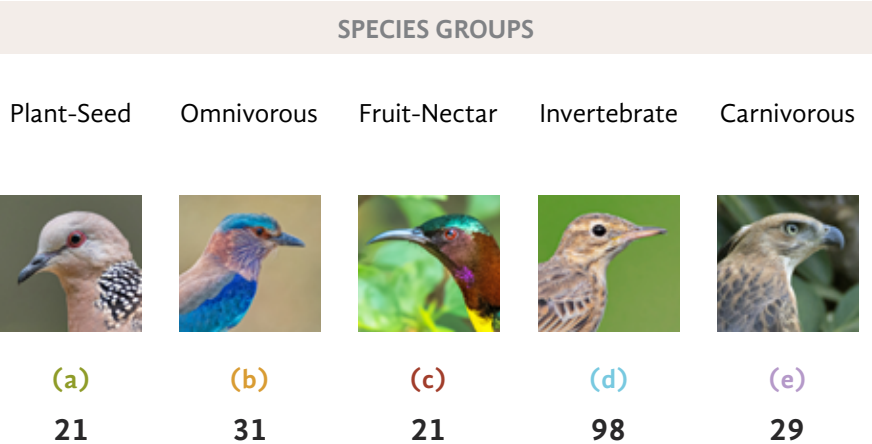
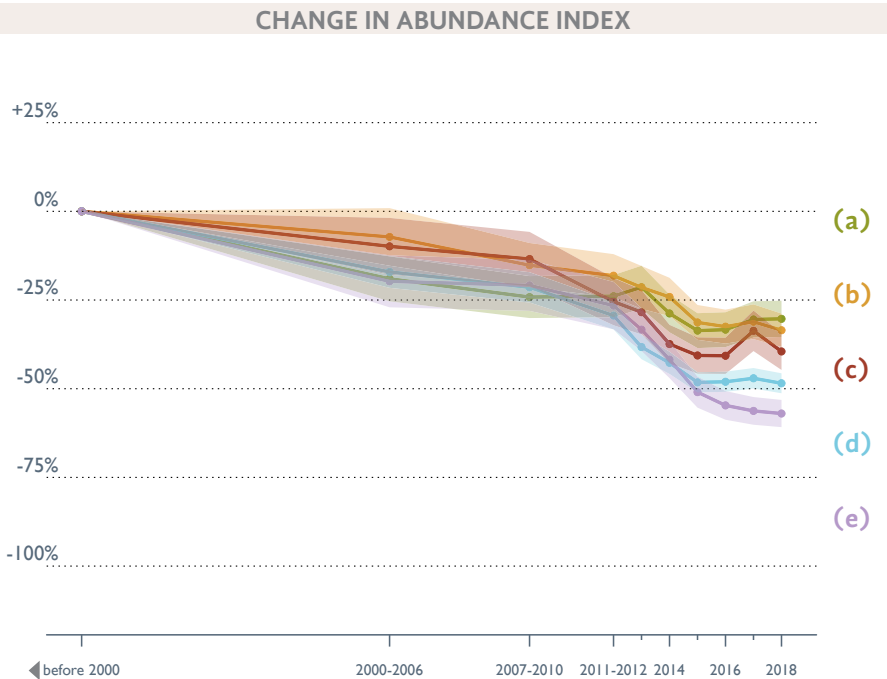


CURRENT TREND



DIET GUILD

Groups of birds belonging to different diet guilds show varying rates of decline in the long term. As expected, omnivores are among those with the slowest decline, but plant-seed eaters and fruit-nectar eaters also show slow declines. Each of these three groups shows an overall negative trend, with a hint of stabilisation over the past 5 years. Also, as might be expected, carnivores show the most negative long-term trend, with the index of their abundance being over 50% less today than before 2000; a trend that appears to be continuing. Apart from the vultures, these include a number of eagles, hawks and falcons. Finally, invertebrate-eaters show an overall pattern similar to carnivores, but now seem to be stabilising. The average decline in this large set, which includes common and widespread species, is a cause for concern.

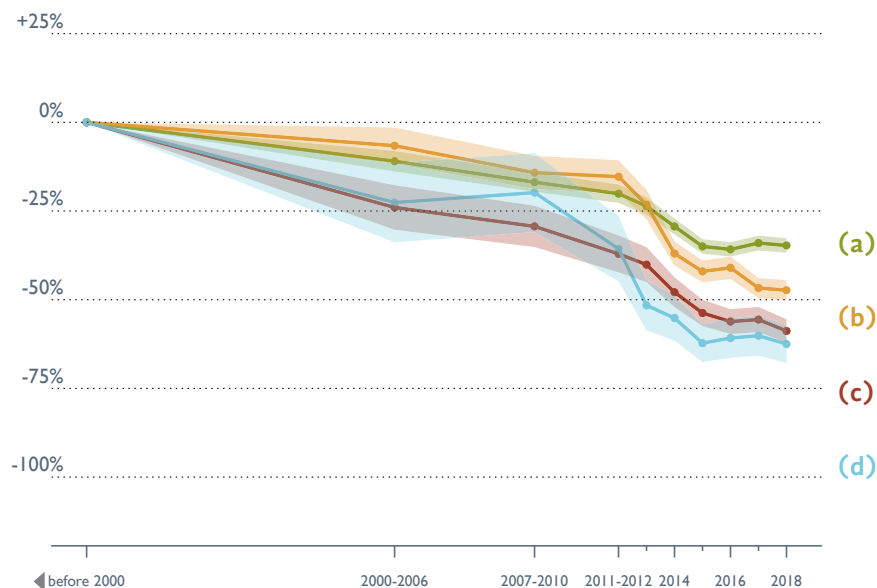


HABITAT

The overall pattern is that of substantial long-term decline in habitat specialists of all kinds. Of these, forest species have declined the most, followed by grassland/scrubland species, and then wetland species. Despite having greater habitat flexibility, generalist species, including Tawny-bellied Babbler and Nilgiri Flowerpecker, also show a clearly discernible decline. This indicates that there may be features other than habitat that are affecting their populations.

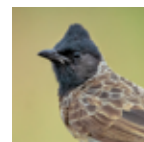
Some forest species like Asian Emerald Dove and Crested Serpent Eagle, and grassland/scrub species like Indian Silverbill and Indian Bushlark show roughly stable trends. The causes for continuing declines in many habitat specialists require urgent investigation.

CHANGE IN ABUNDANCE INDEX



SPECIES GROUPS

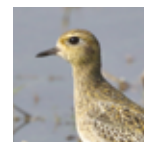
Generalist



(a)

130

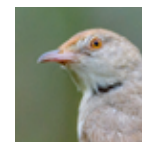
Wetlands



(b)

64

Grassland/
Scrub



(c)

35

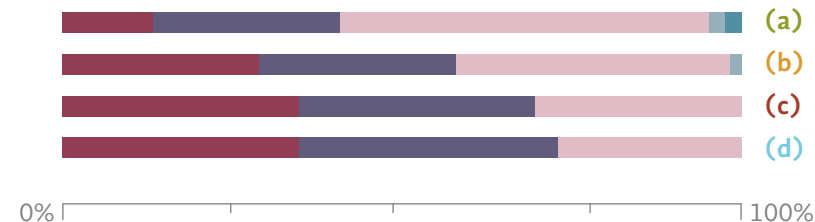
Forest



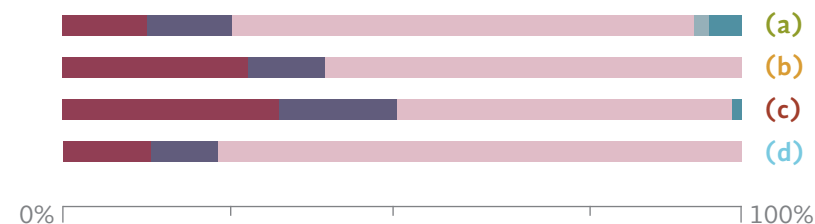
(d)

32

LONG-TERM TREND



CURRENT TREND



Strong Decline Moderate Decline Stable Moderate Increase Strong Increase

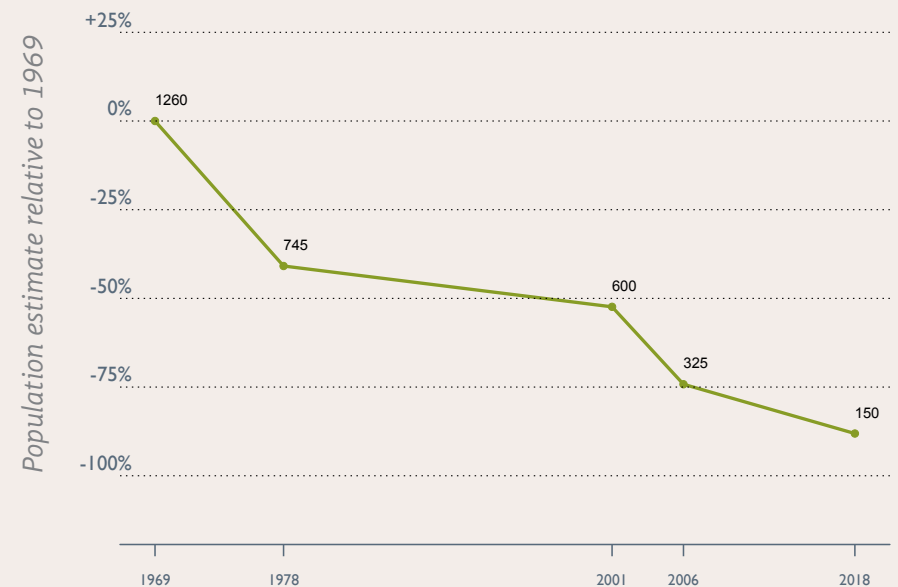
GRASSLAND SPECIALISTS

BUSTARDS



Great Indian Bustard

Four species of bustards (Family Otididae) occur in India: Great Indian Bustard, Macqueen's Bustard, Lesser Florican and Bengal Florican. All four have suffered continuous population declines because of historical hunting and widespread habitat loss, compounded with their slow growth and reproduction. The largest of them, the Great Indian Bustard, is classified as Critically Endangered in the IUCN Red List 2019 and is in need of urgent conservation action. Surveys carried out by different ornithologists, although not strictly comparable in methods, suggest a c.90% decline in population size and distribution range over the past five decades (see figure below). More recently, the single viable Great Indian Bustard population in Jaisalmer, Rajasthan, has been systematically monitored using occupancy and line transect surveys carried out by the Wildlife Institute of India (WII) and the Rajasthan Forest Department with the help of trained volunteers. Studies identify mortality by collision with power lines to be the prime current threat. Bombay Natural History Society, BirdLife International, WII and other organisations are undertaking in-situ conservation efforts such as working towards conservation-friendly energy infrastructure in the region. An effort is underway to breed the species in captivity in order to insure against extinction, and to enable reintroduction into the wild once threats are managed.

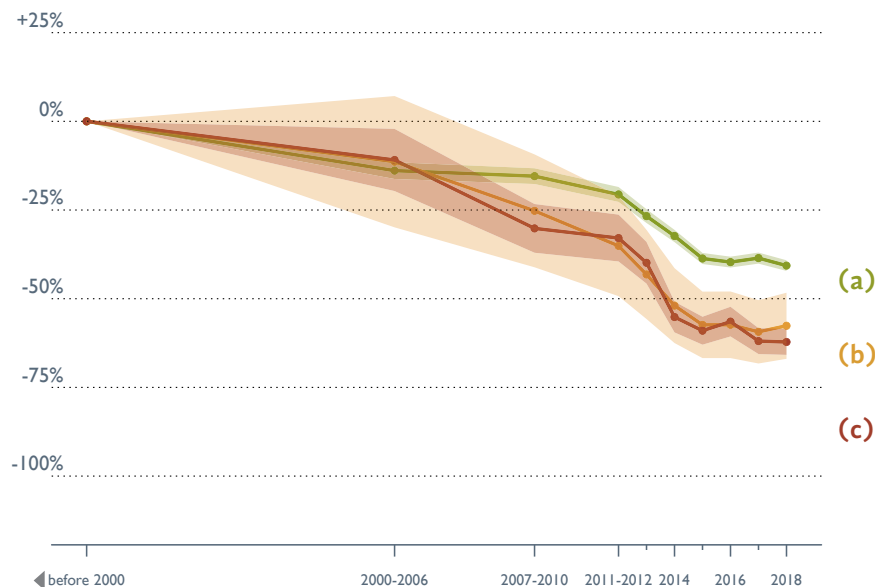


Source: Sutirtha Dutta

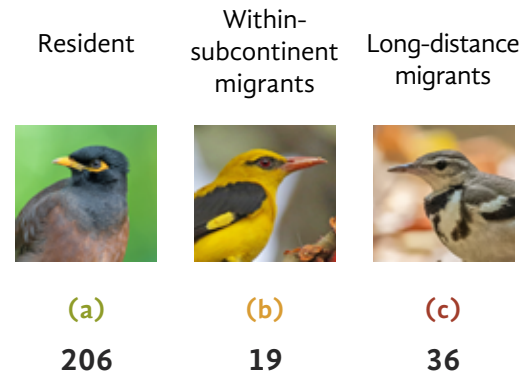
MIGRATORY STATUS

Overall, migratory species (both long-distance and within-subcontinent) show steeper declines than residents. Current declines appear to broadly mirror long-term trends, but a greater fraction of species appear roughly stable. The average steep decline of long-distance migrants is driven by species like Forest Wagtail, Pacific Golden Plover and Common Greenshank. However, other species in this group show milder declines like Common Pochard or even increases like Rosy Starling. Among within-subcontinent migrants, long-term strong declines in species like Large-billed Leaf Warbler result in an overall negative trend. Across the very large number of resident species with sufficient data to be evaluated, patterns span all the way from severe decline (Cotton Teal) to marked increase (Indian Peafowl).

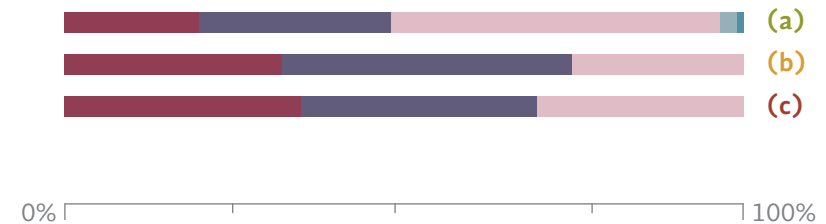
CHANGE IN ABUNDANCE INDEX



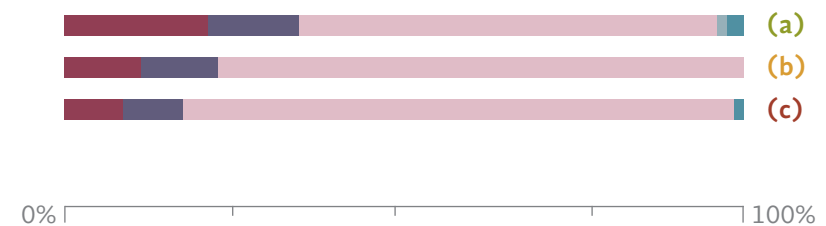
SPECIES GROUPS



LONG-TERM TREND



CURRENT TREND



SPECIAL MIGRANTS

INDIAN SUBCONTINENT AS MAIN WINTERING AREA

With its rich habitats and geographical location just south of the Palearctic region, the Indian Subcontinent serves as the primary wintering ground for many species migrating south to escape harsh winters. Species like Blyth's Reed Warbler, Common Rosefinch and Red-breasted Flycatcher have vast breeding ranges spread across the temperate and taiga latitudes of Eurasia, but the vast majority of their populations funnel south into the Indian peninsula for the winter. Other species with more restricted breeding ranges, like Rosy Starling, Green Leaf Warbler and Bar-headed Goose, also winter primarily in the subcontinent.

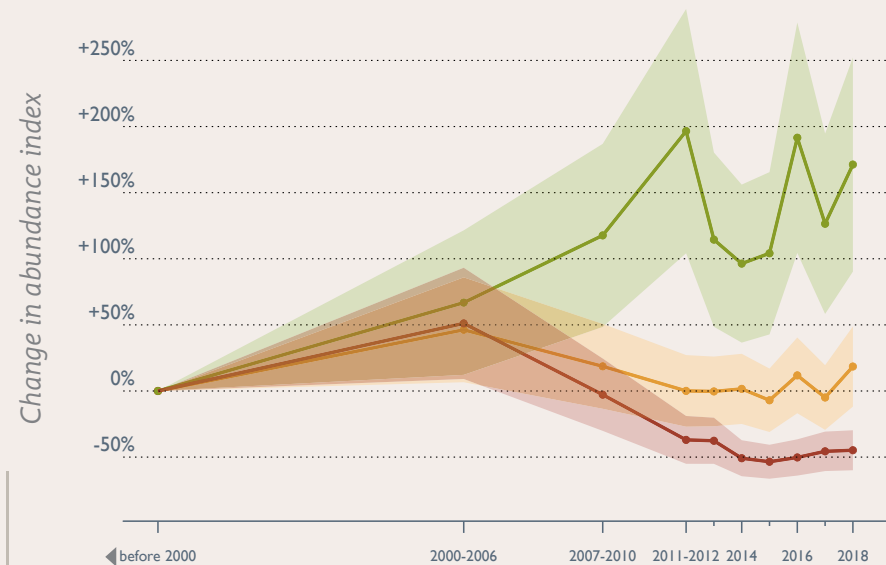
The wintering pattern of these species is significant for two reasons. First, India is the primary custodian of these species during a large part of their life cycle. Hence, the long-term future of these birds may depend as much on the persistence of suitable habitats in India as on conditions in their breeding grounds. Some threatened habitats like the grasslands of the Terai, which harbour the entire global population of the Mongolia-breeding Hodgson's Bushchat, require immediate attention. Second, the populations of many of these species cannot be monitored across their vast, remote, and largely uninhabited breeding ranges. Therefore it falls upon India to monitor global populations, assess trends and detect early warning signs of decline.

Rosy Starling
Blyth's Reed Warbler
Greenish Leaf Warbler

RAMESH DESAI



Blyth's Reed Warbler

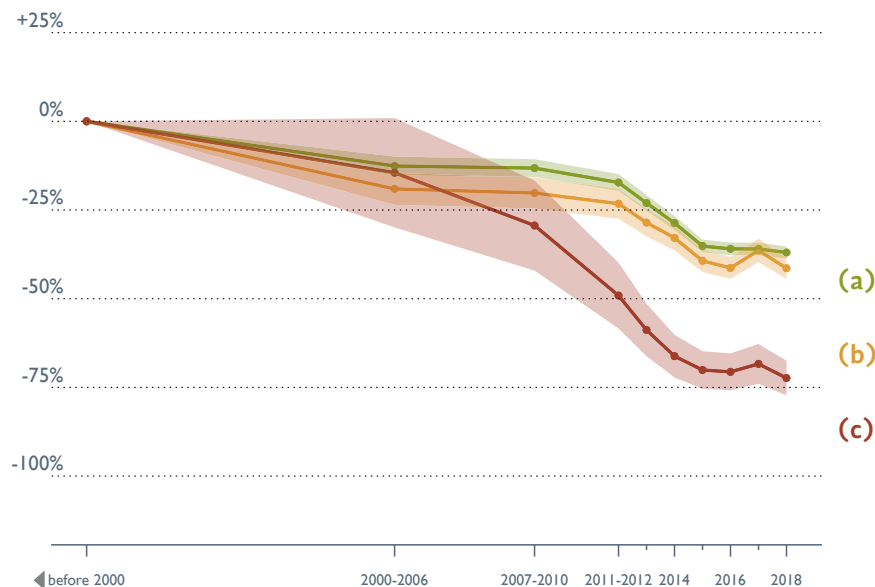


ENDEMICITY

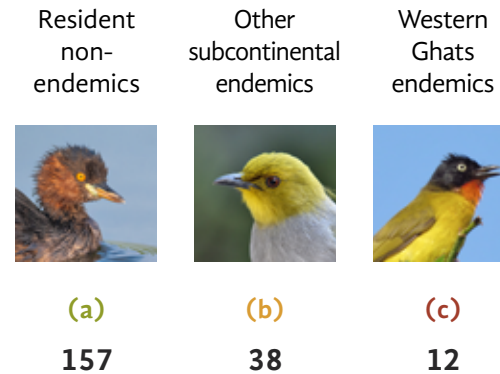
The 12 Western Ghats endemics included in this analysis are almost 75% lower in their abundance index today than before 2000, indicating a steep long-term decline. This is worrying, because these long-term declines are shown even by many common species like Crimson-backed Sunbird and Yellow-browed Bulbul. The current trend is roughly stable but warrants careful monitoring.

Other subcontinental endemics (38 species with enough information to include here) and non-endemic resident species also show declining long-term trends, albeit not as steep as that experienced by Western Ghats endemics. Indeed some subcontinental endemics (e.g. Indian Peafowl) are increasing considerably (see page 7). Again, the current trend appears approximately stable.

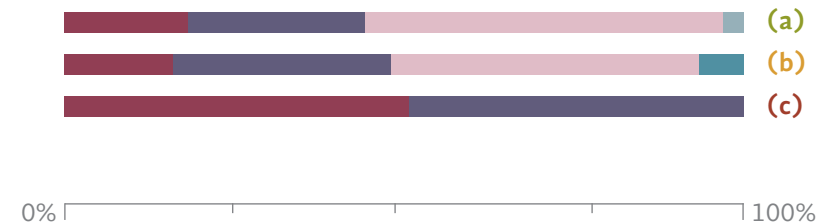
CHANGE IN ABUNDANCE INDEX



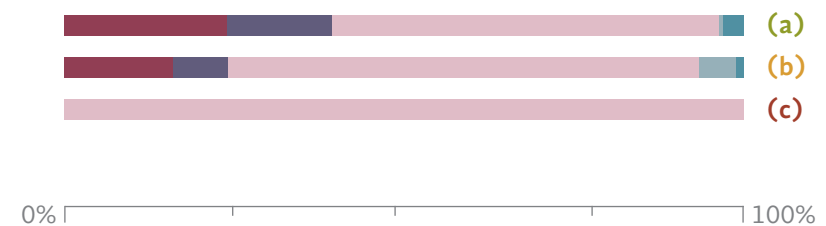
SPECIES GROUPS



LONG-TERM TREND



CURRENT TREND



WESTERN GHATS SKY ISLAND ENDEMIC

SRIRAM REDDY



Palani Laughingthrush (Chilappan)

SRIRAM REDDY



Nilgiri Pipit

The 'sky Islands' of the tropical forest-grassland mosaic (sholas) characterise intact habitats of the high altitudes of the Western Ghats.

Several endemic birds depend on shola forests, including Nilgiri Sholakili, White-bellied Sholakili, four laughingthrushes (chilappans), two flycatchers (including the spectacular Black-and-orange Flycatcher) and the shy and little-known Nilgiri Thrush. Others like Nilgiri Pipit, Broad-tailed Grassbird and an endemic subspecies of Golden-headed Cisticola are almost entirely restricted to shola grasslands.

Sky island ecosystems face a number of threats, placing many of these charismatic endemic species at risk. Over the past century, shola grasslands in the central

and southern Western Ghats have been extensively replaced by tea plantations and stands of exotic species like Eucalyptus and wattle (now naturally expanding further into grasslands), leaving very little habitat for grassland specialist species.

Shola specialists have also shown behavioural changes in response to recent fragmentation, but demographic impacts are still not known. Aside from Palani Laughingthrush (Chilappan) which has adapted well to fragmented habitats and tea plantations, other endemics like Nilgiri Pipit and Nilgiri Thrush show recent declining trends.

NEGLECTED SPECIES IN FOCUS

In discussions of bird conservation in India, a number of species spring readily to mind, including the Great Indian Bustard, the Amur Falcon and the Gyps vultures. There are, however, a number of lesser-known species—typically small, and with restricted distribution—that call for greater research and conservation attention.

Green Munia



Severely threatened because of trapping for the pet trade in the past, this central Indian endemic is now regularly seen only in parts of the Aravallis and the northern Eastern Ghats. Other populations need to be urgently identified through surveys, and protected.

Swamp Grass Babbler



Restricted to grasslands in the Brahmaputra river floodplains, little is known about this nondescript babbler that looks rather like a prinia. Stretches of river and associated grasslands preferred by this species are fast disappearing across its range.

Chestnut-backed Laughingthrush



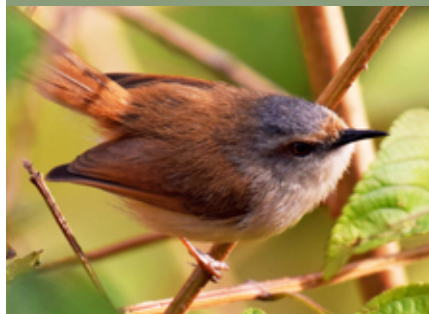
This laughingthrush endemic to the Indo-Myanmar lowland forests is only known within India from the Dehing Patkai forests in eastern Assam. Conservation of these last remaining lowland rainforests in North-east India is key to the survival of this species.

Indian Olive Bulbul



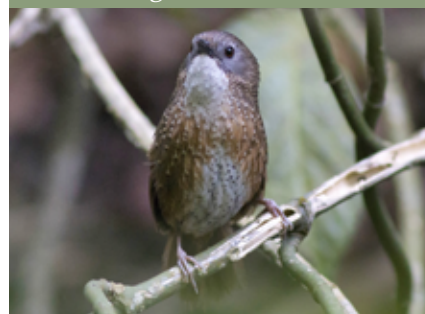
This endemic is found only in the heavily disturbed forests adjoining Bangladesh in Tripura, southern Assam, western Mizoram and Manipur, and southern Meghalaya. Possibly distributed throughout Tripura in the past, its status within the State is now unclear.

Grey-crowned Prinia



Almost the entire population of this subcontinental endemic now subsists in stands of non-native Lantana in the foothills of the Uttarakhand Himalaya. Considering its recent adaptation to a new habitat type, understanding more about its ecology is vital.

Naga Wren Babbler



One of many range-restricted Wren Babblers found in North-east India, this cryptic species is endemic to the Naga hills and adjoining Manipur. Only known from a few locations, the species may be threatened in most of its small range due to habitat loss.

NEGLECTED SPECIES

FINN'S WEAVER



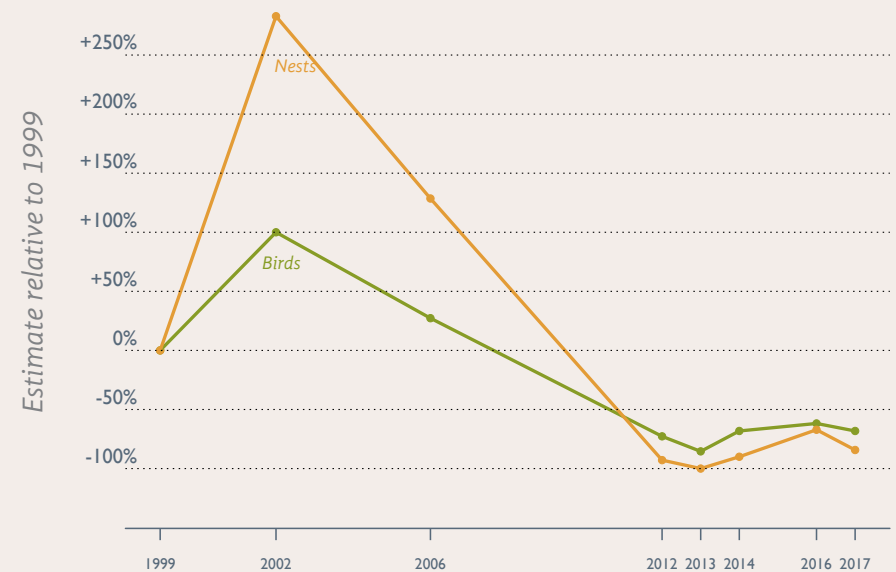
RAJAT BHARGAVA

The Finn's Weaver is a prime example of a species that is poorly known and hence relatively neglected. Rediscovered in 1959, and restricted to India and Nepal, it inhabits pure Terai (grassy floodplain) country with marshes and tall, wet grasslands sparsely dotted with isolated trees. The largest of the four weavers found in India, it is also unique in building large globular (rather than suspended) nests.

Since 2012, the species has been found in only 9 of the 45 locations from which it was previously known. The population at one of the main sites, Udham Singh Nagar District of Uttarakhand, has declined by 84–96% over the last 20 years. The global population is estimated to be less than 1,000 birds, with roughly 500

occurring in India. Causes for decline appear to be primarily related to land use change in its Terai habitat.

Its low population size, restricted range and evidence for continued decline raise this species to the highest level of conservation concern in India.



Source: Bhargava 2017

CITIZEN SCIENCE

Citizen science is a form of research where scientists and members of the public work together towards addressing scientific questions. These kinds of efforts are being used increasingly to answer pressing questions about the world, including in the fields of astronomy, biochemistry, history and meteorology. But perhaps nowhere is the power of citizen science more apparent than in studies of ecology and biodiversity. Almost all large-scale assessments of the status and trends of biodiversity rely on hundreds of thousands of hours of effort contributed by citizen scientists.

Looking through State of Birds reports from other countries and regions of the world makes it evident that these assessments would not be possible without the generous contribution (in terms of effort and information) of birdwatchers in the field. By surveying wetlands, walking transects, conducting point counts, or simply making bird lists, birdwatchers make it possible to document and monitor the world we live in. New technological advances, including the internet and mobile devices, have further accelerated the information contributed by volunteers in this way. The future of biodiversity monitoring in India (as in other countries) will depend on the degree to which researchers and enthusiasts work in collaboration.

The pages that follow highlight some bird-related citizen science efforts in India that have contributed substantially to the data used for this report.



ROUNAK PATRA

CITIZEN SCIENCE

ASIAN WATERBIRD CENSUS

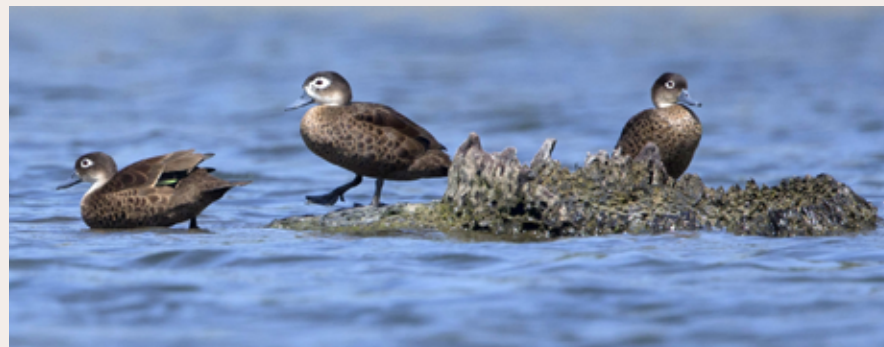
The Asian Waterbird Census (AWC), under the aegis of the International Waterbird Census, is the longest running citizen science programme that systematically monitors waterbird numbers and wetland condition in India. AWC began in the Indian subcontinent in 1987 and now covers a large proportion of the East Asian–Australasian Flyway and the Central Asian Flyway. In India, this effort is coordinated by Wetlands International South Asia and the Bombay Natural History Society. The annual AWC effort takes place in January, and includes bird count estimation and wetland assessment. While paper forms were earlier used to record and submit data, digital technology is now being used to enhance the reach and effectiveness of the AWC.

The AWC database currently has counts from over 1,400 coastal and inland

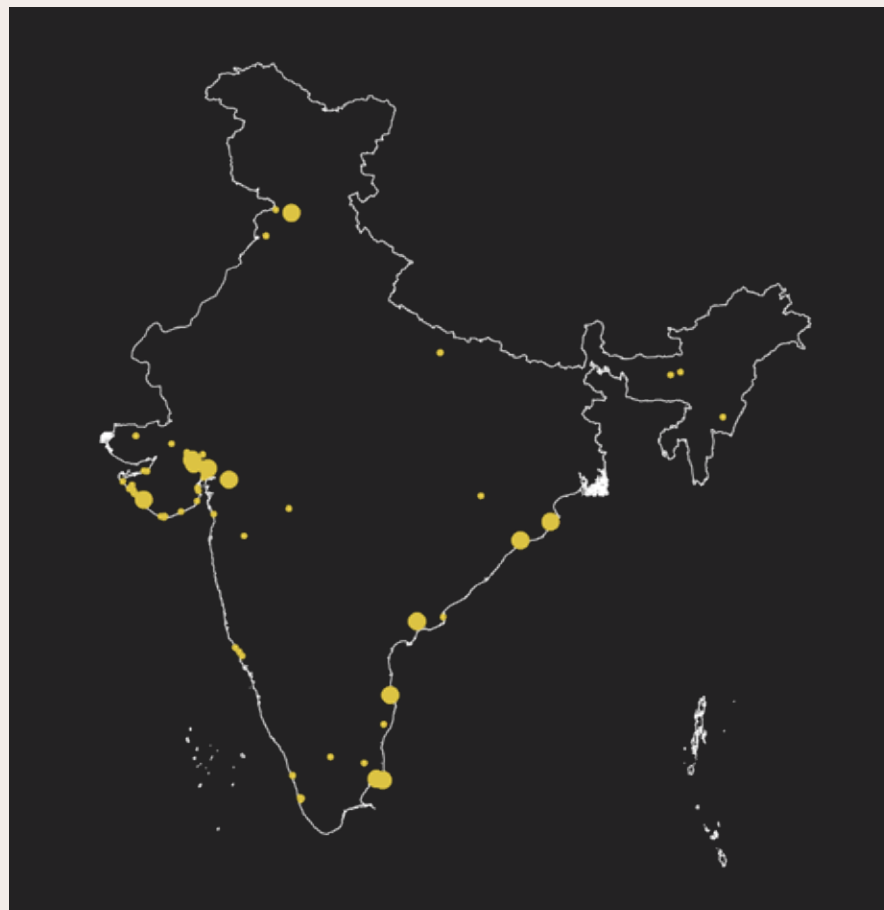
wetlands in India, including Protected Areas, Important Bird Areas, Ramsar Wetlands and other wetland types. AWC has become an important repository of information on waterbirds and wetlands, which supports policy-making and conservation programmes at national and international scales.

The information has been used to inform and influence various national programmes such as National Action Plan on Conservation of Aquatic Ecosystem, National Biodiversity Action Plan and National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023). It is also used to fulfil international commitments like the Convention on Migratory Species and the Ramsar Convention on Wetlands.

AWC locations from 2006–15 where 20,000–100,000 (small circles) or >100,000 (large circles) waterbirds have been reported.



Andaman Teal





CITIZEN SCIENCE

BIRD COUNT INDIA

India is fortunate to have a large and growing number of people who are passionate about birds. These include individual birdwatchers, photographers and naturalists, as well as birdwatching clubs, bird conservation societies and naturalist groups. There are also a number of professional bodies and institutions that work in education, research and conservation of birds.

Bird Count India was formed in 2014 in an attempt to bring these various individuals and organisations to collaborate for a common cause. It is an informal umbrella of over 70 institutions and groups (including online email and social media groups). The goal of Bird Count India is to work collectively to better document and understand trends in the distribution, abundance and seasonality of Indian birds, from the finest to the largest scale in the country.

To this end, Bird Count India conducts workshops on documenting and monitoring birds for interested groups across the country. It organises national birdwatching events including the Great Backyard Bird Count, Campus Bird Count, Endemic Bird Day and Wild Bird Day. It also facilitates, through publicity and technical input, regional and State-level events and projects, including the Mysore City Bird Atlas, the Kerala Bird Atlas, the Pongal Bird Count, the Bihu Bird Count and the Onam Bird Count. Bird Count India encourages birdwatchers to document their sightings on the eBird-India platform so that the information is publicly available for use in research and conservation.

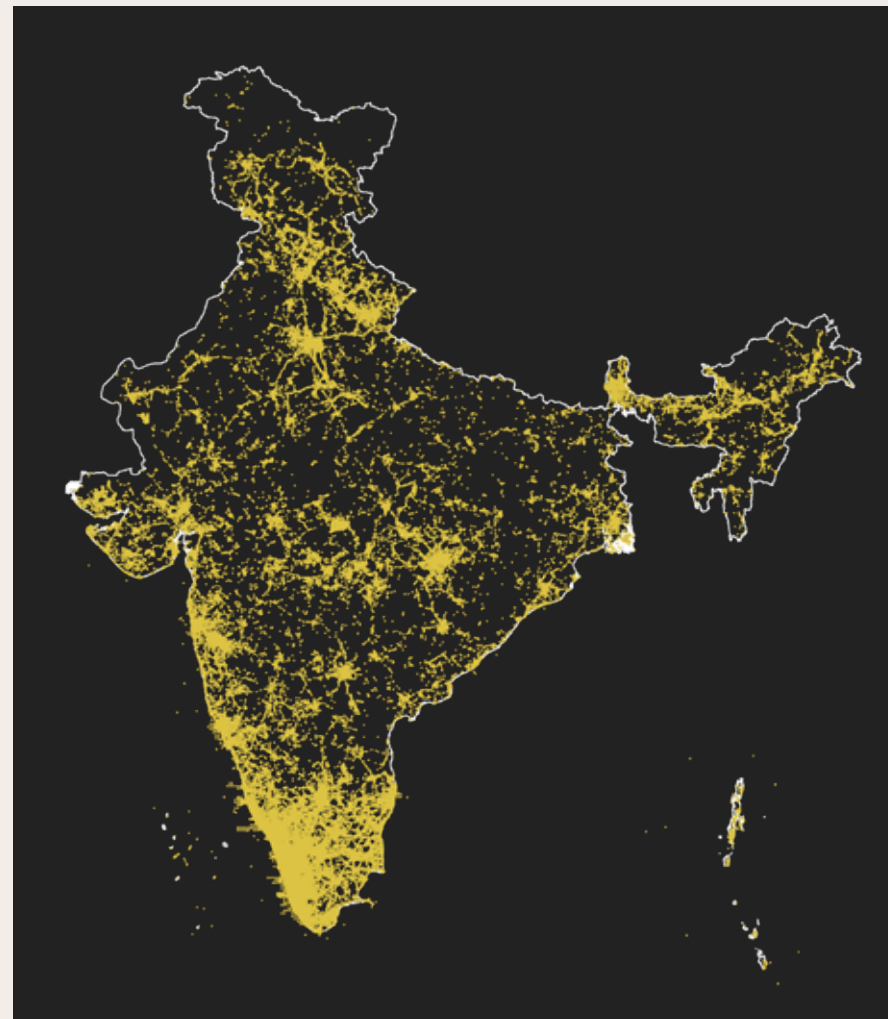
CITIZEN SCIENCE

THE eBIRD PLATFORM

Birdwatchers have a long-standing practice of noting down lists of species that they see while out birding. Earlier this was done in notebooks, but with the advent of the internet bird lists can now be maintained online. eBird is a global online notebook for birdwatchers to maintain and share their bird lists as well as their bird photos and audio recordings. While eBird is based at the Cornell Laboratory of Ornithology, USA, an India-specific portal is curated and customized by Bird Count India. Globally, eBird is the largest repository of biodiversity information, with over 700 million records of birds as of January 2020. At the country level, eBird-India holds over 10 million records, constituting a large database of information.

Data quality in eBird-India is maintained through a series of customised seasonal and geographical filters, supplemented with manual review carried out by over 140 volunteer editors spread across the country. eBird data are freely available to download for education, research and conservation, and are also annually ported to the Global Biodiversity Information Facility (GBIF). All data from India are attributed as part of India's contribution to the GBIF database.

Birdwatchers in India have been increasingly using eBird since 2014. Furthermore, a large number of birders have uploaded past bird lists from their notebooks to eBird, thus providing vital historical data that are key to enabling the trend analyses in this report. Over 15,500 birders have uploaded lists containing more than 10 million records, from roughly 200,000 distinct locations covering all States/UTs and over 95% of Districts in India.



Locations from which at least one bird list has been uploaded to eBird-India. Note several under-birded areas across the country.

CITIZEN SCIENCE

COMMON BIRD MONITORING PROGRAMME

Repeated, systematic surveys of birds with sampling carefully designed in space and time are the hallmark of gold-standard large-scale bird monitoring schemes. Such surveys are carried out in relatively few countries, largely because of limitations in the number and distribution of skilled volunteers. Although much can be done with unstructured bird data (as presented in this report), as a country, India needs to move towards more structured and systematic surveys. With this in mind, the Common Bird Monitoring Programme (CBMP) was initiated by the Bombay Natural History Society in 2015. The objective of this citizen science programme is to encourage more people to observe birds found in their backyard or in locations they visit frequently. Volunteers are assigned one or more 2 km transects near their homes, and they survey birds once every four months. The protocol, as well as spatial and temporal sampling, is designed to generate trends that can be compared over space and time. At the moment, the CBMP is being carried out mostly in Maharashtra, but there are plans for future expansion.

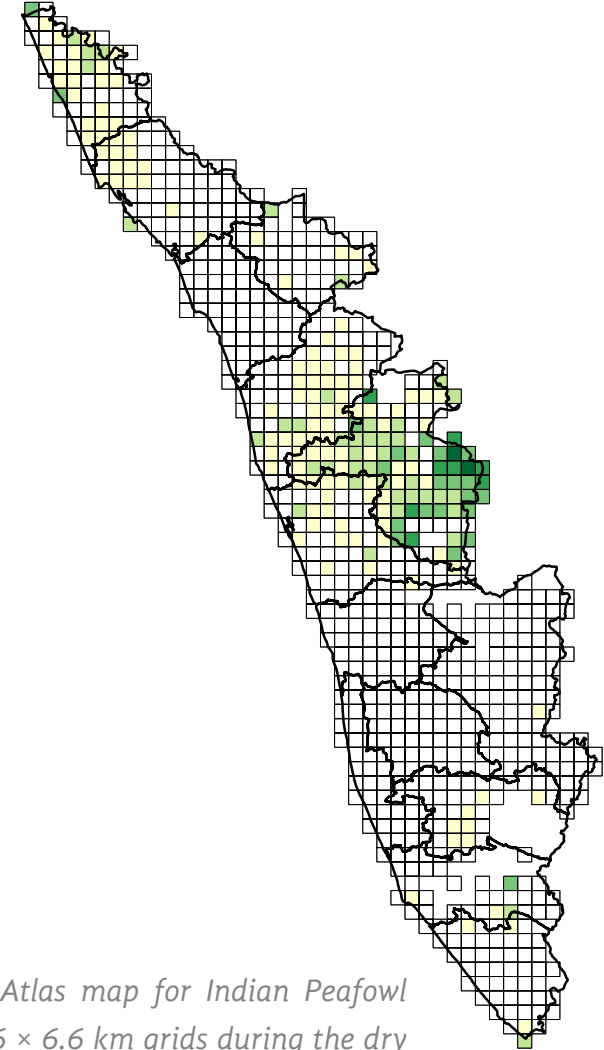
 cbmp@bnhs.org

CITIZEN SCIENCE

KERALA BIRD ATLAS

The State of Kerala has a long history of birdwatching, stimulated in part by writings on birds from the 1960s by the legendary Malayalam writer K.K. Neelakantan (popularly known by his pen name Induchoodan). Individual birdwatchers and birding and natural history groups are distributed across the State. Since 1990, these individuals and groups have come together to carry out surveys and monitoring of key habitats. As a result, birds are perhaps better known in Kerala than in any other Indian State.

Building on these efforts, the Kerala Bird Atlas was launched after a meeting of birdwatchers of the State in 2015. This project maps the distribution and abundance of the birds of Kerala at a very fine scale using a standard protocol. The State has been divided into grid cells of 6.6×6.6 km, and four 1.1×1.1 km sub-cells within each cell are surveyed, once in the dry season and once in the wet season. In this way, more than 3,000 sub-cells, covering over 10% of the entire State, are being surveyed in two seasons. Over 1,000 volunteer birdwatchers are taking part in the Kerala Bird Atlas. The project is nearing completion, and when done, will result in the first-ever systematic bird atlas for any State in India. The data will be used to create detailed distribution and habitat relationship maps of different species, which will aid spatial conservation planning and serve as a baseline to assess change over time.



Kerala Bird Atlas map for Indian Peafowl depicting 6.6×6.6 km grids during the dry season. Surveyed cells are drawn on the map; darker green indicates higher frequency of reporting of the species from that cell.

THREATS & CONSERVATION MEASURES

Globally, birds continue to decline. This assessment is supported by evaluations of extinction risk through the IUCN Red List as well as detailed analysis of formal monitoring schemes where they exist. Rare species are increasingly threatened with extinction, while many common species are experiencing steady population declines. Worldwide, the primary threats to birds are habitat change (mainly from agricultural expansion and intensification, logging and increased urbanisation), invasive species and hunting/trapping. Lesser, but still significant, threats include dams and mining, linear infrastructure (roads, railways and power lines) and pollution. Climate change acts on top of these various factors and is very likely to exacerbate their effects.

The IUCN Red List 2019 classifies 101 Indian species as globally threatened (i.e. in the categories 'Critically Endangered', 'Endangered' or 'Vulnerable'), which is 7.6% of the c.1330 species known to have ever occurred in India. This State of India's Birds report takes a data-driven approach to calculate indices of abundance trends and range sizes of India's birds for the first time. Although this report does not include data that examines threats and conservation responses, earlier work points to a number of key threats.


Conversion of natural habitats for primarily human use happens in nearly all habitats: forests into plantations and mining sites, grasslands into plantations or agriculture, and wetlands reclaimed for agriculture or buildings. A further threat to many species, both common and rare, is hunting and trapping for consumption and the pet trade. Environmental toxins (like the veterinary drug diclofenac) are the cause of the most precipitous decline of any group of birds—the *Gyps* vultures. Hunting/trapping and environmental toxins may have a greater effect than is currently understood. When specific species are targeted (e.g., for the pet trade), hunting has the potential to drive those species to such low population sizes that they become vulnerable to extinction from other causes. Although the acute effect

of diclofenac on vultures is now well known, it is possible that chronic exposure to other toxins, for example neonicotinoids and pesticides, could pose major threats to the populations of a number of species.

India's commitment to conservation is emphasized by its participation in key international conventions and initiatives, including the Convention on Migratory Species, the Ramsar Convention on Wetlands, the Convention on Biological Diversity, and the Convention on International Trade in Endangered Species. Within India, the main approach to conservation is legal protection. This is extended to species through the Wildlife (Protection) Act (1972 and further amendments), and to habitats through the Protected Area network. A number of national initiatives support and expand on existing conservation law; these include the National Wildlife Action Plan and the Central Asian Flyway Action Plan, the latter being specifically focussed on migratory birds and their habitats.

Additional conservation needs include the careful regulation and monitoring of environmental toxins, the management and conservation of key habitats that are under-represented in the Protected Area network (like grasslands), and maximisation of the conservation potential of multi-use landscapes. The notion of Important Bird Areas, now integrated into the concept of Key Biodiversity Areas, is a significant component of India's conservation planning, and is also manifest in the idea of Other Effective area-based Conservation Measures (OECM).

To support these efforts, India needs to expand monitoring efforts to track the abundance and ranges of species, to promote more research to understand the cascade of causes of population and range change, and to create an enabling framework to respond rapidly to early warnings of decline.

A large flock of Pied Avocets is captured in flight against a clear, pale blue sky. The birds are densely packed, filling most of the frame. They have white plumage with distinctive black wings and long, thin, reddish-pink legs. Their wings are spread in various stages of the flight cycle, creating a dynamic pattern of white, black, and pink. The birds are flying in all directions, some towards the viewer and others away, giving a sense of movement and scale.

Coastal mudflats, essential for declining migratory shorebirds like the Pied Avocet, are in need of protection.

CONCLUSIONS & PRIORITIES

This assessment of nearly 867 Indian species makes it very clear that our birds are in overall decline, in some cases catastrophically so. Many more species show a downward trend than an upward trend. Species declining in the long term outnumber those increasing by 135 to 12 (a ratio of 11 to 1); species declining currently (over the past 5 years) outnumber those increasing by 116 to 21 (a ratio of over 5 to 1). When combined with information on range size and supplemented by the IUCN Red List categories, a total of 101 species are classified to be of High Conservation Concern for India. Conservation action must be taken immediately to identify causes of decline and implement measures to halt and reverse the trend for these species. A further 319 species are of Moderate Conservation Concern. These species must be carefully monitored to rapidly detect and act upon signs of continuing decline. Species groups that are faring particularly poorly (>50% decline in the long term) include scavenging & open-country raptors, migratory shorebirds, gulls & terns, forest and grassland specialists, both long and short distance migrants, Western Ghats endemics, and carnivores. These results point to particular ecological traits that increase species vulnerability.

Alongside these worrisome figures, there is also some heartening news. A total of 126 species (out of the 867 assessed) appear to be stable or increasing in the long term. These include the popular House Sparrow (see page 6), as well as other familiar species like Indian Peafowl (see page 7), Asian Koel, Rose-ringed Parakeet and Common Tailorbird. Many of these are species that have adapted well to human-dominated habitats even though they are not obligate human commensals.

From the results presented in this report, several priorities for policy and action emerge. These are presented here, separated into three broad heads: policy and management, research, and public involvement and action.

• Policy and Management •

The results presented here have implications for conservation policy and management at both specific and broad levels.

- Use the conservation status assessments presented here as inputs in updating global assessments (e.g., IUCN Red List), Annexes of the Convention of Migratory Species and Convention on International Trade in Endangered Species, and Indian conservation law [e.g., Schedules of the Wildlife (Protection) Act].
- Place urgent emphasis on species of High Conservation Concern (pages 8–11), as well as habitats and regions that are home to species in decline, including grasslands and scrublands, wetlands and the Western Ghats.
- Support researchers and citizen scientists (through policy, permits and funding) to conduct long-term monitoring of bird populations and their habitats, and to study the movements of birds through ringing and satellite tracking.
- Facilitate innovative and collaborative research in order to understand the causes for decline of threatened species and enable science-based decision-making.
- At a broad level, align conservation policy, management and funding for bird species according to the categories of conservation concern presented in this report.
- Adopt an evidence-based approach in informing conservation prioritisation and action.

• Research •

Clear gaps in research emerge from these results. In particular, there is (a) paucity of information for several species, which means their trends are Data Deficient or Uncertain and (b) lack of understanding of the causes of change in abundance. Some actions to address these gaps are as follows:

- Collaborate with birdwatchers and other volunteers to deepen and strengthen monitoring through citizen science.
- Supplement these efforts by initiating or continuing long-term monitoring efforts at existing and new field locations that are representative of the country's habitats and ecological regions.
- Undertake dedicated species-specific monitoring and research for lesser-known species with restricted ranges.
- Focus efforts on uncovering reasons for population declines of different species and groups, so that effective conservation interventions can be proposed.
- Develop analytical tools to extract meaningful information from large and complex datasets generated from unstructured citizen science efforts, and integrate them with data from more formal monitoring programmes.
- Develop better coordination and communication among researchers and institutions, and stronger channels for information exchange and collaboration between researchers and the larger public.

• Public Involvement and Action •

When it comes to biodiversity, particularly birds, members of the larger public play key roles in conservation. This report would not have been possible without the involvement of thousands of birdwatchers and naturalists. Here are some ways to strengthen these efforts:

- Document casual birding and share on a public platform that collates such information so that your records can strengthen bird assessments.
- Consider visiting under-birded areas (map on page 33) to help fill information gaps and reduce data deficiencies.
- Take part in structured surveys that help document and monitor bird populations.
- Initiate monitoring activities at the local or regional level, either individually or in groups: systematic local monitoring is both valuable in itself and also strengthens national monitoring.
- Spread the message of birdwatching and bird documentation among others.
- Help disseminate best available information on bird conservation: the importance of birds, species and habitats under greatest threat, and what interested people can do to assist.

METHODS

The status of India's birds was assessed primarily using data uploaded to eBird, with an end date of 31 May 2019. Birdwatchers upload their observations to eBird in the form of checklists, which may be marked 'complete' or 'incomplete'. A complete checklist is a list of all species observed during the period of birding, and therefore implicitly includes information about which species were absent (or, more accurately, undetected). Using this, it is possible to calculate an index of abundance, termed 'frequency of reporting' for any species. This frequency of reporting is the proportion of all complete checklists in which a species was reported. By following changes in frequency of reporting over several years, an index of trend in abundance can be estimated.

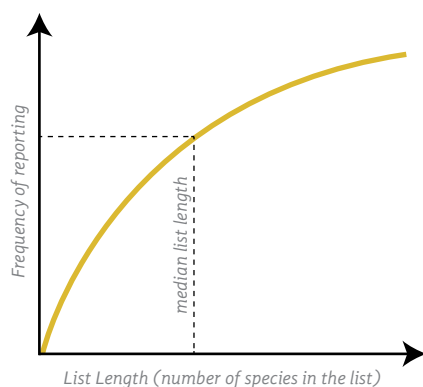
This report presents three indices of status for each species for which there is sufficient data:

1. Long-term Trend: the proportional change in frequency of reporting in 2018 when compared with the frequency before the year 2000;
2. Current Annual Trend: the average annual change in frequency of reporting during the last 5 years (2014 to 2018);
3. Range Size: the area covered by all those 25×25 km cells that are occupied by a species within the country during the last 5 years.

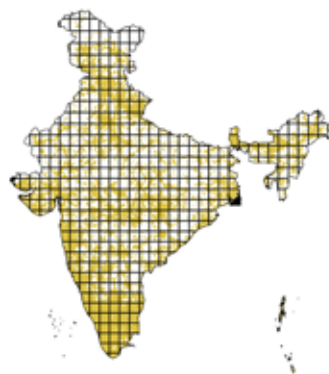
A year is considered to be a 'migratory year' from 1 June to 31 May the next year because this spans a single migratory season for many bird species in India.

The statistical model for index of trend in abundance

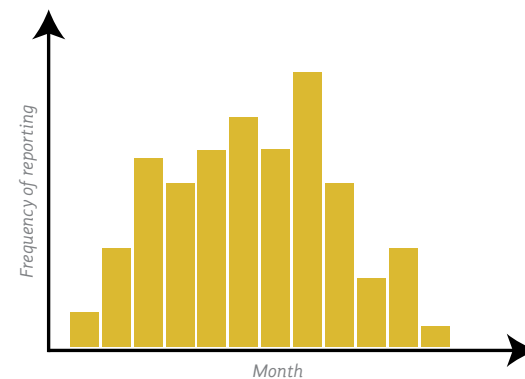
For each time period, the **frequency of reporting** of (a) a checklist of median effort was (b) averaged across all grid cells and (c) averaged across all months



(a) a checklist of median effort



(b) averaged across all grid cells



(c) averaged across all months

Because eBird data contain checklists of varying effort that are unevenly distributed across space and season, statistical modelling was used to standardise frequency of reporting to the median effort, averaged across space (grid cells) and months. Frequency of reporting was calculated by modelling the presence or absence of a species in a checklist as a function of effort (i.e. number of species reported in the list), month and time-period, using Generalized Linear Mixed-effects Models. This frequency was calculated for 10 time periods spanning the last several decades (before 2000, 2000-2006, 2007-2010, 2011-2012, 2013, 2014, 2015, 2016, 2017, 2018). Note that frequency of reporting is related to, but does not directly measure, population size, and so it is referred to as an 'index' of abundance. Range size was estimated using occupancy models which calculate the probability of a species occurring in a cell where it is unreported, while accounting for varying sampling effort.

Each species was assigned a category for each index. For example, the long-term trend of a species was categorised as 'Strong Decline' if the species was less than half as likely to be reported in 2018 as it was before the year 2000 (see tables below for the entire set of categories and criteria).

We further used a combination of the three indices to place each species in one of three categories of Conservation Concern: Low Concern, Moderate Concern and High Concern. For 42 species whose trends could not be derived from analyses of eBird data, we classified them as High Concern if the IUCN Red List 2019 considered them globally threatened.

Several criteria were used to clean and filter the data used, and multiple criteria to select the 867 species assessed for this report from a total of 1,333 species reported from India on eBird (as of 31 May 2019). Species that are primarily nocturnal (including most owls and all nightjars) were not assessed and 5 species complexes that were recently split were treated as single taxa. Various published sources were used to gather information to classify species into groups based on their taxonomy, ecology, behaviour and range. These classifications were used to calculate composite trends by geometrically averaging across species to produce a single trend within each group.

Detailed methods, as well as links to data and code, can be found in the Supplementary Material available on the website: www.stateofindiabirds.in

ABUNDANCE TREND INDEX

Category	Criteria: Long-term	Criteria: Current
Data Deficient	insufficient data	insufficient data
Uncertain	overall CI > 25%	annual CI > 2%
Strong Decline	overall decline > 50%	annual decline > 2.7%
Moderate Decline	overall decline > 25%	annual decline > 1.1%
Stable	others	others
Moderate Increase	overall increase > 25%	annual increase > 0.9%
Strong Increase	overall increase > 50%	annual increase > 1.6%

CI (= 95% confidence interval)

DISTRIBUTION RANGE SIZE

Category	Criteria
Data Deficient	absent in data
Very Restricted*	range < 7,500 sq. km.
Restricted	range < 42,500 sq. km.
Moderate	between 42,500 & 250,000
Large	range > 250,000 sq. km.
Very Large	range > 1,000,000 sq. km.

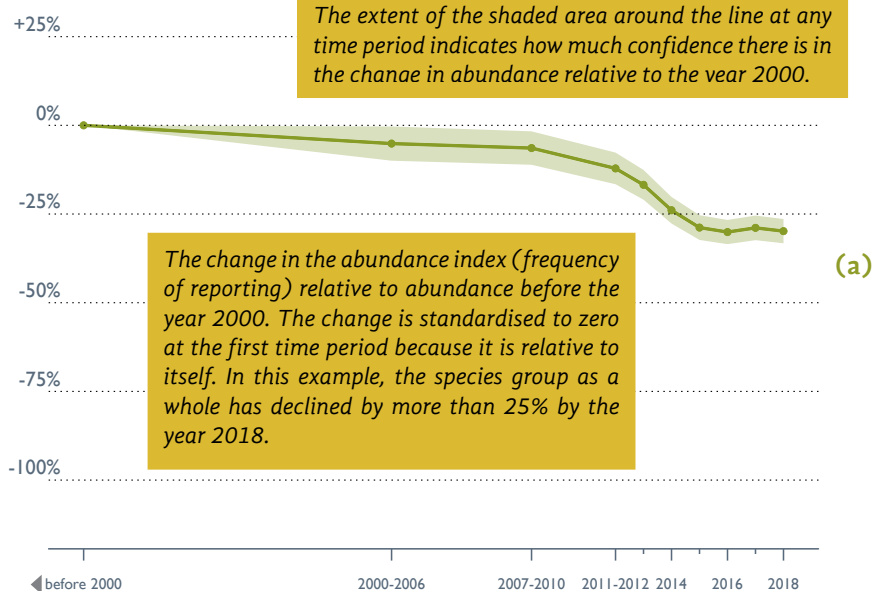
All Very Restricted island endemics are categorised as Restricted

HOW TO INTERPRET GRAPHS & RESULTS

Number of complete eBird checklists used for analyses of abundance in each time period:

before 2000 : 4,606	2014 : 34,926
2000-06 : 5,131	2015 : 64,662
2007-10 : 5,787	2016 : 96,012
2011-12 : 5,459	2017 : 131,280
2013 : 11,002	2018 : 144,533

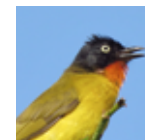
CHANGE IN ABUNDANCE INDEX



SPECIES GROUPS

Name of the group.

Western
Ghats
endemics



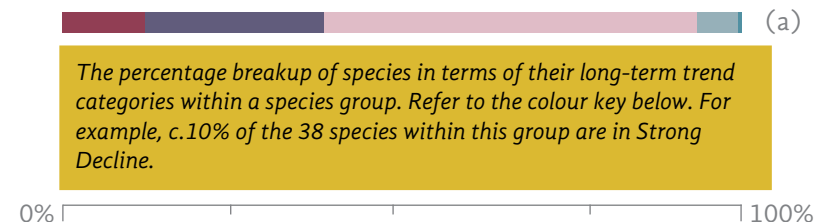
(a)

45

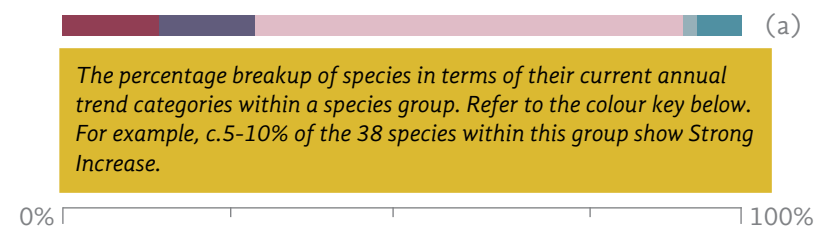
Species groups are labelled (a), (b), etc., in descending order of abundance in 2018.

45 is the number of species within the group.

LONG-TERM TREND



CURRENT TREND



Strong Decline Moderate Decline Stable Moderate Increase Strong Increase

LIST OF SPECIES IN COMPOSITE GROUPS

Species whose trends were averaged to form the composite results shown on pages 18–27. Species with insufficient data, and therefore not included in the composite groups, are not listed here.

Raptors (Page 18)

- **Woodland:** Oriental Honey Buzzard, Crested Serpent Eagle, Changeable Hawk Eagle, Black Eagle
- **Generalist:** White-eyed Buzzard, Shikra, Eurasian Sparrowhawk, Common Kestrel, Peregrine Falcon, Black Kite
- **Open:** Black-winged Kite, Short-toed Snake Eagle, Griffon Vulture, Tawny Eagle, Western Marsh Harrier, Pallid Harrier, Montagu's Harrier, White-bellied Sea Eagle, Red-necked Falcon
- **Scavenger:** Bearded Vulture, Egyptian Vulture, Red-headed Vulture, White-rumped Vulture, Indian Vulture, Griffon Vulture, Black Kite

Waterbirds (Page 20)

- **Ducks & Geese:** Lesser Whistling Duck, Cotton Teal, Indian Spot-billed Duck, Garganey, Northern Shoveler, Common Pochard
- **Gulls & Terns:** Little Tern, Caspian Tern, Whiskered Tern, River Tern, Black-headed Gull, Brown-headed Gull, Gull-billed Tern
- **Migratory shorebirds:** Grey Plover, Pacific Golden Plover, Lesser Sand Plover, Whimbrel, Eurasian Curlew, Black-tailed Godwit, Ruff, Curlew Sandpiper, Temminck's Stint, Dunlin, Little Stint, Common Snipe, Pintail Snipe, Common Sandpiper, Green Sandpiper, Common Greenshank, Marsh Sandpiper, Wood Sandpiper, Common Redshank
- **Other resident*:** Lesser Whistling Duck, Cotton Teal, Little Grebe, Common Coot, Brown Crake, Sarus Crane, Great Thick-knee, Black-winged Stilt, Kentish Plover, Greater Painted-snipe, Pheasant-tailed Jacana, Bronze-winged Jacana, Little Pratincole, Asian Openbill, Little Cormorant, Great Cormorant, Indian Cormorant, Cinnamon Bittern, Grey Heron, Purple Heron, Great Egret, Intermediate Egret, Little Egret, Cattle Egret, Striated Heron, Black-crowned Night Heron, Glossy Ibis, Black-headed Ibis, Common Kingfisher, Black-capped Kingfisher, Pied Kingfisher

**Some species considered resident have migratory populations as well*

Diet Guild* (Page 21)

- **Carnivorous:** Woolly-necked Stork, Black-winged Kite, Oriental Honey Buzzard, Bearded Vulture, Egyptian Vulture, Crested Serpent Eagle, Short-toed Snake Eagle, Red-headed Vulture, White-rumped Vulture, Indian Vulture, Griffon Vulture, Changeable Hawk Eagle, Black Eagle, Tawny Eagle, Western Marsh Harrier, Pallid Harrier, Montagu's Harrier, Shikra, Eurasian Sparrowhawk, White-bellied Sea Eagle, Black Kite, White-eyed Buzzard, Brown Fish Owl, White-throated Kingfisher, Common Kestrel, Red-necked Falcon, Peregrine Falcon, Great Grey Shrike, House Crow
- **Fruit-Nectar:** Yellow-legged Green Pigeon, Mountain Imperial Pigeon, Asian Koel, Malabar Grey Hornbill, Malabar Barbet, Coppersmith Barbet, Plum-headed Parakeet, Rose-ringed Parakeet, Black-hooded Oriole, Thick-billed Flowerpecker, Pale-billed Flowerpecker, Nilgiri Flowerpecker, Purple-rumped Sunbird, Crimson-backed Sunbird, Purple Sunbird, Loten's Sunbird, Asian Fairy-bluebird, Golden-fronted Leafbird, Jerdon's Leafbird, Square-tailed Bulbul, Flame-throated Bulbul
- **Plant-Seed:** Indian Peafowl, Rain Quail, Jungle Bush Quail, Grey Francolin, Rock Pigeon, Oriental Turtle Dove, Eurasian Collared Dove, Red Collared Dove, Spotted Dove, Laughing Dove, Chestnut-bellied Sandgrouse, Common Crane, Malabar Parakeet, Baya Weaver, Indian Silverbill, White-rumped Munia, House Sparrow, Yellow-breasted Greenfinch, Crested Bunting, Ashy-crowned Sparrow Lark, Crested Lark
- **Invertebrate:** Crested Treeswift, White-rumped Spinetail, Brown-backed Needletail, Himalayan Swiftlet, Asian Palm Swift, Alpine Swift, Indian House Swift, Sirkeer Malkoha, Pied Cuckoo, Banded Bay Cuckoo, Common Hawk Cuckoo, Indian Cuckoo, Common Cuckoo, Indian Thick-knee, Little Ringed Plover, Yellow-wattled Lapwing, Red-wattled Lapwing, Indian Courser, Malabar Trogon, Common Hoopoe, Heart-spotted Woodpecker, Himalayan Golden-backed Woodpecker, Lesser Golden-backed Woodpecker, Rufous Woodpecker, White-bellied Woodpecker, Greater Golden-backed Woodpecker, White-naped Woodpecker, Brown-capped Pygmy Woodpecker, Yellow-fronted Pied Woodpecker, Green Bee-eater, Small Minivet, Large Cuckooshrike, Black-headed Cuckooshrike, Ashy Woodswallow, Bar-winged Flycatcher-shrike, Malabar Woodshrike, Common Woodshrike, Common Iora, Ashy Drongo, White-bellied Drongo, Bronzed Drongo, Greater Racket-tailed Drongo, White-browed Fantail, Brown Shrike, Bay-backed Shrike, Long-tailed Shrike, Black-naped Monarch, Indian Paradise-flycatcher, Forest Wagtail, Olive-backed Pipit, Richard's Pipit, Paddyfield Pipit, Tawny Pipit, Western Yellow Wagtail, Grey Wagtail, White-browed Wagtail, White Wagtail, Grey-headed Canary-flycatcher, Yellow-browed Tit, Indian Yellow Tit, Sand Lark, Zitting Cisticola, Rufous-fronted Prinia, Grey-breasted Prinia, Jungle Prinia, Ashy Prinia, Plain Prinia, Common Tailorbird, Streak-throated Swallow, Red-rumped Swallow, Wire-tailed Swallow, Barn Swallow, Eurasian Crag Martin, Dusky Crag Martin, Grey-throated Martin, Lemon-rumped Warbler, Common Chiffchaff, Greenish Leaf Warbler, Large-billed Leaf Warbler, Western Crowned Leaf Warbler, Yellow-eyed Babbler, Indian Scimitar Babbler, Tawny-bellied Babbler, Dark-fronted Babbler, Puff-throated Babbler, Quaker Tit Babbler, Large Grey Babbler, Indian Nuthatch, Velvet-fronted Nuthatch, Rosy Starling, Indian Robin, Oriental Magpie Robin, Asian Brown Flycatcher, White-bellied Blue Flycatcher, Tickell's Blue Flycatcher, Red-breasted Flycatcher, Black Redstart, Pied Bushchat
- **Omnivorous:** Red Spurfowl, Asian Emerald Dove, Greater Coucal, White-breasted Waterhen, Indian Pond Heron, Indian Black Ibis, Indian Roller, Indian Golden Oriole, Black Drongo, Rufous Treepie, White-bellied Treepie, Large-billed Crow, Little Spiderhunter, Yellow-throated Sparrow, Cinereous Tit, Rufous-tailed Lark, Indian Bushlark, Oriental Skylark, Malabar Lark, Red-vented Bulbul, Yellow-browed Bulbul, Oriental White-eye, Common Babbler, Jungle Babbler, Grey-sided Laughingthrush, Common Starling, Brahminy Starling, Common Myna, Bank Myna, Blue Rock Thrush, Orange-headed Thrush

*No waterbirds are included in this analysis

Habitat (Page 22)

- **Forest:** Red Spurfowl, Asian Emerald Dove, Mountain Imperial Pigeon, Crested Treeswift, White-rumped Spinetail, Brown-backed Needletail, Himalayan Swiftlet, Alpine Swift, Crested Serpent Eagle, Changeable Hawk Eagle, Black Eagle, Malabar Trogon, Heart-spotted Woodpecker, Himalayan Golden-backed Woodpecker, White-bellied Woodpecker, Greater Golden-backed Woodpecker, Malabar Barbet, Plum-headed Parakeet, Malabar Parakeet, Bar-winged Flycatcher-shrike, Malabar Woodshrike, Bronzed Drongo, Greater Racket-tailed Drongo, White-bellied Treepie, Asian Fairy-bluebird, Flame-throated Bulbul, Large-billed Leaf Warbler, Indian Scimitar Babbler, Dark-fronted Babbler, Quaker Tit Babbler, Grey-sided Laughingthrush, White-bellied Blue Flycatcher
- **Grassland/Scrubland:** Rain Quail, Jungle Bush Quail, Grey Francolin, Chestnut-bellied Sandgrouse, Sirkeer Malkoha, Yellow-wattled Lapwing, Indian Courser, Black-winged Kite, Egyptian Vulture, Short-toed Snake Eagle, Red-headed Vulture, Indian Vulture, Griffon Vulture, Tawny Eagle, Pallid Harrier, Montagu's Harrier, Common Hoopoe, White-naped Woodpecker, Indian Roller, Red-necked Falcon, Black Drongo, Bay-backed Shrike, Great Grey Shrike, Indian Silverbill, Richard's Pipit, Paddyfield Pipit, Tawny Pipit, Rufous-tailed Lark, Ashy-crowned Sparrow Lark, Indian Bushlark, Malabar Lark, Zitting Cisticola, Rufous-fronted Prinia, Jungle Prinia, Yellow-eyed Babbler
- **Wetland:** Lesser Whistling Duck, Common Pochard, Garganey, Northern Shoveler, Indian Spot-billed Duck, Cotton Teal, Little Grebe, Brown Crake, Common Coot, Sarus Crane, Asian Openbill, Cinnamon Bittern, Black-crowned Night Heron, Striated Heron, Cattle Egret, Grey Heron, Purple Heron, Great Egret, Intermediate Egret, Little Egret, Black-headed Ibis, Glossy Ibis, Little Cormorant, Great Cormorant, Indian Cormorant, Great Thick-knee, Black-winged Stilt, Grey Plover, Pacific Golden Plover, Kentish Plover, Lesser Sand Plover, Greater Painted-snipe, Pheasant-tailed Jacana, Bronze-winged Jacana, Whimbrel, Eurasian Curlew, Black-tailed Godwit, Ruff, Curlew Sandpiper, Temminck's Stint, Dunlin, Little Stint, Pintail Snipe, Common Snipe, Common Sandpiper, Green Sandpiper, Common Greenshank, Common Redshank, Wood Sandpiper, Marsh Sandpiper, Little Pratincole, Brown-headed Gull, Black-headed Gull, Little Tern, Gull-billed Tern, Caspian Tern, Whiskered Tern, River Tern, White-bellied Sea Eagle, Common Kingfisher, Pied Kingfisher, Black-capped Kingfisher, White Wagtail, Grey-throated Martin
- **Generalist:** Indian Peafowl, Rock Pigeon, Oriental Turtle Dove, Eurasian Collared Dove, Red Collared Dove, Spotted Dove, Laughing Dove, Yellow-legged Green Pigeon, Greater Coucal, Pied Cuckoo, Asian Koel, Banded Bay Cuckoo, Common Hawk Cuckoo, Indian Cuckoo, Common Cuckoo, Indian House Swift, Asian Palm Swift, White-breasted Waterhen, Common Crane, Indian Thick-knee, Red-wattled Lapwing, Little Ringed Plover, Woolly-necked Stork, Indian Pond Heron, Indian Black Ibis, Bearded Vulture, Oriental Honey Buzzard, White-rumped Vulture, White-eyed Buzzard, Western Marsh Harrier, Shikra, Eurasian Sparrowhawk, Black Kite, Brown Fish Owl, Malabar Grey Hornbill, White-throated Kingfisher, Green Bee-eater, Coppersmith Barbet, Brown-capped Pygmy Woodpecker, Yellow-fronted Pied Woodpecker, Rufous Woodpecker, Lesser Golden-backed Woodpecker, Common Kestrel, Peregrine Falcon, Rose-ringed Parakeet, Common Woodshrike, Ashy Woodswallow, Common Iora, Small Minivet, Large Cuckooshrike, Black-headed Cuckooshrike, Brown Shrike, Long-tailed Shrike, Indian Golden Oriole, Black-hooded Oriole, Ashy Drongo, White-bellied Drongo, White-browed Fantail, Black-naped Monarch, Indian Paradise-flycatcher, Rufous Treepie, House Crow, Large-billed Crow, Sand Lark, Oriental Skylark, Crested Lark, Eurasian Crag Martin, Dusky Crag Martin, Barn Swallow, Wire-tailed Swallow, Red-rumped Swallow, Streak-throated Swallow, Grey-headed Canary-flycatcher, Yellow-browed Tit, Cinereous Tit, Indian Yellow Tit, Indian Nuthatch, Velvet-fronted Nuthatch, Red-vented Bulbul, Yellow-browed Bulbul, Square-tailed Bulbul, Lemon-rumped Warbler, Common Chiffchaff, Greenish Leaf Warbler, Western Crowned Leaf Warbler, Common Tailorbird, Grey-breasted Prinia, Ashy Prinia, Plain Prinia, Oriental White-eye, Tawny-bellied Babbler, Puff-throated Babbler, Common Babbler, Large Grey Babbler, Jungle Babbler, Asian Brown Flycatcher, Indian Robin, Oriental Magpie Robin, Tickell's Blue Flycatcher, Red-breasted Flycatcher, Black Redstart, Blue Rock Thrush, Pied Bushchat, Orange-headed Thrush, Common Starling, Rosy Starling, Brahminy Starling, Common Myna, Bank Myna, Jerdon's Leafbird, Golden-fronted Leafbird, Thick-billed Flowerpecker, Pale-billed Flowerpecker, Nilgiri Flowerpecker, Purple-rumped Sunbird, Crimson-backed Sunbird, Purple Sunbird, Loten's Sunbird, Little Spiderhunter, Forest Wagtail, Grey Wagtail, Western Yellow Wagtail, White-browed Wagtail, Olive-backed Pipit, Yellow-breasted Greenfinch, Crested Bunting, House Sparrow, Yellow-throated Sparrow, Baya Weaver, White-rumped Munia

Migratory Status (Page 24)

- **Resident*:** Lesser Whistling Duck, Cotton Teal, Indian Spot-billed Duck, Indian Peafowl, Red Spurfowl, Rain Quail, Jungle Bush Quail, Grey Francolin, Little Grebe, Rock Pigeon, Oriental Turtle Dove, Eurasian Collared Dove, Red Collared Dove, Spotted Dove, Laughing Dove, Asian Emerald Dove, Yellow-legged Green Pigeon, Mountain Imperial Pigeon, Chestnut-bellied Sandgrouse, Greater Coucal, Sirkeer Malkoha, Pied Cuckoo, Asian Koel, Banded Bay Cuckoo, Common Hawk Cuckoo, Indian Cuckoo, White-rumped Spinetail, Brown-backed Needletail, Himalayan Swiftlet, Alpine Swift, Indian House Swift, Asian Palm Swift, Crested Treeswift, Common Coot, White-breasted Waterhen, Brown Crake, Sarus Crane, Indian Thick-knee, Great Thick-knee, Black-winged Stilt, Yellow-wattled Lapwing, Red-wattled Lapwing, Kentish Plover, Little Ringed Plover, Greater Painted-snipe, Pheasant-tailed Jacana, Bronze-winged Jacana, Indian Courser, Little Pratincole, Little Tern, Caspian Tern, Whiskered Tern, River Tern, Asian Openbill, Woolly-necked Stork, Little Cormorant, Great Cormorant, Indian Cormorant, Cinnamon Bittern, Grey Heron, Purple Heron, Great Egret, Intermediate Egret, Little Egret, Cattle Egret, Indian Pond Heron, Striated Heron, Black-crowned Night Heron, Glossy Ibis, Black-headed Ibis, Indian Black Ibis, Black-winged Kite, Bearded Vulture, Egyptian Vulture, Oriental Honey Buzzard, Red-headed Vulture, White-rumped Vulture, Indian Vulture, Crested Serpent Eagle, Short-toed Snake Eagle, Changeable Hawk Eagle, Black Eagle, Tawny Eagle, White-eyed Buzzard, Shikra, Eurasian Sparrowhawk, Black Kite, White-bellied Sea Eagle, Brown Fish Owl, Malabar Trogon, Common Hoopoe, Malabar Grey Hornbill, Common Kingfisher, White-throated Kingfisher, Black-capped Kingfisher, Pied Kingfisher, Green Bee-eater, Indian Roller, Malabar Barbet, Coppersmith Barbet, Heart-spotted Woodpecker, Brown-capped Pygmy Woodpecker, Yellow-fronted Pied Woodpecker, Greater Golden-backed Woodpecker, White-naped Woodpecker, Rufous Woodpecker, Himalayan Golden-backed Woodpecker, Lesser Golden-backed Woodpecker, White-bellied Woodpecker, Common Kestrel, Red-necked Falcon, Peregrine Falcon, Rose-ringed Parakeet, Plum-headed Parakeet, Malabar Parakeet, Malabar Woodshrike, Common Woodshrike, Bar-winged Flycatcher-shrike, Ashy Woodswallow, Common Iora, Small Minivet, Large Cuckooshrike, Bay-backed Shrike, Long-tailed Shrike, Great Grey Shrike, Black-hooded Oriole, Black Drongo, White-bellied Drongo, Bronzed Drongo, Greater Racket-tailed Drongo, White-browed Fantail, Black-naped Monarch, Rufous Treepie, White-bellied Treepie, House Crow, Large-billed Crow, Rufous-tailed Lark, Ashy-crowned Sparrow Lark, Indian Bushlark, Sand Lark, Oriental Skylark, Crested Lark, Malabar Lark, Grey-throated Martin, Eurasian Crag Martin, Dusky Crag Martin, Wire-tailed Swallow, Red-rumped Swallow, Streak-throated Swallow, Yellow-browed Tit, Cinereous Tit, Indian Yellow Tit, Indian Nuthatch, Velvet-fronted Nuthatch, Flame-throated Bulbul, Red-vented Bulbul, Yellow-browed Bulbul, Square-tailed Bulbul, Lemon-rumped Warbler, Common Tailorbird, Rufous-fronted Prinia, Grey-breasted Prinia, Jungle Prinia, Ashy Prinia, Plain Prinia, Zitting Cisticola, Yellow-eyed Babbler, Oriental White-eye, Tawny-bellied Babbler, Dark-fronted Babbler, Indian Scimitar Babbler, Puff-throated Babbler, Quaker Tit Babbler, Common Babbler, Large Grey Babbler, Jungle Babbler, Grey-sided Laughingthrush, Asian Fairy-bluebird, Asian Brown Flycatcher, Indian Robin, Oriental Magpie Robin, White-bellied Blue Flycatcher, Tickell's Blue Flycatcher, Pied Bush-chat, Orange-headed Thrush, Brahminy Starling, Common Myna, Bank Myna, Jerdon's Leafbird, Golden-fronted Leafbird, Thick-billed Flowerpecker, Pale-billed Flowerpecker, Nilgiri Flowerpecker, Purple-rumped Sunbird, Crimson-backed Sunbird, Purple Sunbird, Loten's Sunbird, Little Spiderhunter, White-browed Wagtail, Paddyfield Pipit, Yellow-breasted Greenfinch, House Sparrow, Yellow-throated Sparrow, Baya Weaver, Indian Silverbill, White-rumped Munia
- **Local Migrants:** Common Cuckoo, Lesser Sand Plover, Brown-headed Gull, Gull-billed Tern, Black-headed Cuckooshrike, Indian Golden Oriole, Ashy Drongo, Indian Paradise-flycatcher, Barn Swallow, Grey-headed Canary-flycatcher, Greenish Leaf Warbler, Large-billed Leaf Warbler, Western Crowned Leaf Warbler, Black Redstart, Blue Rock Thrush, Common Starling, Grey Wagtail, Olive-backed Pipit, Crested Bunting
- **Long-distance Migrants:** Garganey, Northern Shoveler, Common Pochard, Common Crane, Grey Plover, Pacific Golden Plover, Whimbrel, Eurasian Curlew, Black-tailed Godwit, Ruff, Curlew Sandpiper, Temminck's Stint, Dunlin, Little Stint, Common Snipe, Pintail Snipe, Common Sandpiper, Green Sandpiper, Common Greenshank, Marsh Sandpiper, Wood Sandpiper, Common Redshank, Black-headed Gull, Griffon Vulture, Western Marsh Harrier, Pallid Harrier, Montagu's Harrier, Brown Shrike, Common Chiffchaff, Red-breasted Flycatcher, Rosy Starling, Forest Wagtail, Western Yellow Wagtail, White Wagtail, Richard's Pipit, Tawny Pipit

**Some species considered resident have migratory populations as well*

Endemicity (Page 26)

- **Western Ghats endemics**:** Malabar Grey Hornbill, Malabar Barbet, Malabar Parakeet, Malabar Woodshrike, White-bellied Treepie, Nilgiri Flowerpecker, Crimson-backed Sunbird, Flame-throated Bulbul, White-bellied Blue Flycatcher, Dark-fronted Babbler, Yellow-browed Bulbul, Square-tailed Bulbul
- **Other subcontinental endemics:** Indian Peafowl, Jungle Bush Quail, Red Spurfowl, White-rumped Spinetail, Sirkeer Malkoha, Common Hawk Cuckoo, Indian Black Ibis, Yellow-wattled Lapwing, Indian Courser, Indian Vulture, Malabar Trogon, Lesser Golden-backed Woodpecker, White-naped Woodpecker, Brown-capped Pygmy Woodpecker, Plum-headed Parakeet, Black-headed Cuckooshrike, White-bellied Drongo, Pale-billed Flowerpecker, Purple-rumped Sunbird, Loten's Sunbird, Jerdon's Leafbird, Indian Yellow Tit, Rufous-tailed Lark, Ashy-crowned Sparrow Lark, Indian Bushlark, Malabar Lark, Rufous-fronted Prinia, Jungle Prinia, Ashy Prinia, Indian Scimitar Babbler, Tawny-bellied Babbler, Large Grey Babbler, Common Babbler, Jungle Babbler, Indian Nuthatch, Bank Myna, Indian Robin, Tickell's Blue Flycatcher
- **Resident non-endemics*:** Lesser Whistling Duck, Cotton Teal, Indian Spot-billed Duck, Rain Quail, Grey Francolin, Little Grebe, Rock Pigeon, Oriental Turtle Dove, Eurasian Collared Dove, Red Collared Dove, Spotted Dove, Laughing Dove, Asian Emerald Dove, Yellow-legged Green Pigeon, Mountain Imperial Pigeon, Chestnut-bellied Sandgrouse, Greater Coucal, Pied Cuckoo, Asian Koel, Banded Bay Cuckoo, Indian Cuckoo, Brown-backed Needletail, Himalayan Swiftlet, Alpine Swift, Indian House Swift, Asian Palm Swift, Crested Treeswift, Common Coot, White-breasted Waterhen, Brown Cuckoo, Sarus Crane, Indian Thick-knee, Great Thick-knee, Black-winged Stilt, Red-wattled Lapwing, Kentish Plover, Little Ringed Plover, Greater Painted-snipe, Pheasant-tailed Jacana, Bronze-winged Jacana, Little Pratincole, Little Tern, Caspian Tern, Whiskered Tern, River Tern, Asian Openbill, Woolly-necked Stork, Little Cormorant, Great Cormorant, Indian Cormorant, Cinnamon Bittern, Grey Heron, Purple Heron, Great Egret, Intermediate Egret, Little Egret, Cattle Egret, Indian Pond Heron, Striated Heron, Black-crowned Night Heron, Glossy Ibis, Black-headed Ibis, Black-winged Kite, Bearded Vulture, Egyptian Vulture, Oriental Honey Buzzard, Red-headed Vulture, White-rumped Vulture, Crested Serpent Eagle, Short-toed Snake Eagle, Changeable Hawk Eagle, Black Eagle, Tawny Eagle, White-eyed Buzzard, Shikra, Eurasian Sparrowhawk, Black Kite, White-bellied Sea Eagle, Brown Fish Owl, Common Hoopoe, Common Kingfisher, White-throated Kingfisher, Black-capped Kingfisher, Pied Kingfisher, Green Bee-eater, Indian Roller, Coppersmith Barbet, Heart-spotted Woodpecker, Yellow-fronted Pied Woodpecker, Greater Golden-backed Woodpecker, Rufous Woodpecker, Himalayan Golden-backed Woodpecker, White-bellied Woodpecker, Common Kestrel, Red-necked Falcon, Peregrine Falcon, Rose-ringed Parakeet, Common Woodshrike, Bar-winged Flycatcher-shrike, Ashy Woodswallow, Common Iora, Small Minivet, Large Cuckooshrike, Bay-backed Shrike, Long-tailed Shrike, Great Grey Shrike, Black-hooded Oriole, Black Drongo, Bronzed Drongo, Greater Racket-tailed Drongo, White-browed Fantail, Black-naped Monarch, Rufous Treepie, House Crow, Large-billed Crow, Sand Lark, Oriental Skylark, Crested Lark, Grey-throated Martin, Eurasian Crag Martin, Dusky Crag Martin, Wire-tailed Swallow, Red-rumped Swallow, Streak-throated Swallow, Yellow-browed Tit, Cinereous Tit, Velvet-fronted Nuthatch, Red-vented Bulbul, Lemon-rumped Warbler, Common Tailorbird, Grey-breasted Prinia, Plain Prinia, Zitting Cisticola, Yellow-eyed Babbler, Oriental White-eye, Puff-throated Babbler, Quaker Tit Babbler, Grey-sided Laughingthrush, Asian Fairy-bluebird, Asian Brown Flycatcher, Oriental Magpie Robin, Pied Bushchat, Orange-headed Thrush, Brahminy Starling, Common Myna, Golden-fronted Leafbird, Thick-billed Flowerpecker, Purple Sunbird, Little Spiderhunter, White-browed Wagtail, Paddyfield Pipit, Yellow-breasted Greenfinch, House Sparrow, Yellow-throated Sparrow, Baya Weaver, Indian Silverbill, White-rumped Munia

*Some species considered resident have migratory populations as well

**Western Ghats endemics include species also present in Sri Lanka; Yellow-browed Bulbul is considered in this group because its primary range is in the Western Ghats and Sri Lanka

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ACKNOWLEDGEMENTS



Discussions and Consultation

Abinand Reddy, Abishek Harihar, Anil Sarsavan, Arpit Deomurari, Ashwin Viswanathan, Devcharan Jathanna, Dhananjai Mohan, Dhruv Verma, Dinesh Reddy, Dipankar Ghose, Gautam Talukdar, Girish Jathar, Gopi GV, Himani Sharma, Jagdeesh Rao, K Sankar, KS Gopi Sundar, Kaustubh Srikanth, Kulbhushansingh Suryawanshi, MD Madhusudan, Malvika Onial, Manoj Nair, Merwyn Fernandes, Mittal Gala, Monica Kaushik, Mousumi Ghosh, Nandkishor Dudhe, P Pramod, Prashanth MB, Praveen J, Qamar Qureshi, Rahul Khot, Rajah Jayapal, Rajat Bhargava, Rajkamal Goswami, Raju Kasambe, Ramit Singal, Ravi Singh, Ritesh Kumar, Saneesh CS, Sugandha Menda, Suhel Quader, Suresh Kumar, Sutirtha Dutta, T Ganesh, Taej Mundkur, Uma Ramakrishnan, Umesh Srinivasan, Vivek Ramachandran, VB Mathur, Vishnupriya Kolipakam.

Methodology

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Digitisation of Historical Data

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Curation of Auxiliary Species Information

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Textual Content

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Design and layout: Janhavi Rajan, Madhurya Balan

Logo: Adira Andlay

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Communications Strategy and Execution

Adira Andlay, Ashwin Viswanathan, Arpit Deomurari, Chaithanya Krishnan, Debkanya Dhar, Divyashree Rai, Dhruv Verma, Girish Jathar, Janhavi Rajan, Kaustubh Srikanth, Pavithra Ashok Kumar, R Jayapal, Raghul MR, Subhadra Devi, Suhel Quader.

Financial Support

The State of India's Birds 2020 project was made possible with support from Foundation for Ecological Security, National Centre for Biological Sciences, Nature Conservation Foundation, Wildlife Institute of India.

The data collection and other efforts described in this report were supported by Cholamandalam Finance and Investment Co. Ltd, Duleep Matthai Nature Conservation Trust, National Centre for Biological Sciences, Rohini Nilekani Philanthropies, Wipro Foundation.

Data Source

Data from over 15,500 birdwatchers uploaded to eBird (ebird.org/india) and curated by over 140 volunteer editors (listed at ebird.org/india/about).

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Rajat Bhargava—Green Munia: Page 28.

Rofikul Islam—Bar-headed Goose: Page 20; Swamp Grass Babbler, Indian Olive Bulbul, Naga Wren Babbler: Page 28.

Manjula Desai—Red-necked Falcon: Page 16.

Mallika Rajasekaran—Cotton Teal: Page 16; Yellow-throated Bulbul: 26.

Bhanu Sridharan—Lesser Golden-backed Woodpecker: Page 16; Himalayan Vulture: Page 18.

Rama Neelamegam—Rosy Starling: Page 17; Purple Swamphen: Page 20.

Sudeshna Dey—Crested Serpent Eagle: Page 18; Flame-throated Bulbul: Pages 26, 42.

Subhadra Devi—Black Kite: Page 18; Indian Golden Oriole: Page 24.

Sriram Reddy—Indian Roller: Page 21; Rufous-fronted Prinia, Crested Treeswift: Page 22; Forest Wagtail: Page 24.

Team WildArt—Changeable Hawk Eagle: Page 21.

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