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**Sub: India's National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023) – reg.**

Flyways are areas used by groups of birds during their annual cycle which includes breeding areas, stop-over areas and wintering areas. Many of these areas used by the birds are highly productive and also enable benefits to local people. Globally, nine migratory flyways have been identified under the Convention on Migratory Species. The Central Asian Flyway (CAF) is one among the identified flyways.

After due deliberations and stakeholder consultations, the Ministry has developed a National Action Plan for Conservation of Migratory Birds and their habitats along the central Asian Flyway, for the period 2018-2023. The action plan is structured in six interrelated components, viz., species conservation; habitat conservation and sustainable management; capacity development; communication and outreach; research and knowledge base development; international cooperation.

The undersigned is directed to enclose a copy of the said National Flyway Action Plan for perusal and further necessary action as appropriate.

  
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**India's National Action Plan for Conservation of  
Migratory Birds and their Habitats along Central  
Asian Flyway (2018-2023)**

**Drafting Committee:**

The Draft India National Action Plan for Conservation of Migratory Birds in Central Asian Flyway was prepared by the following committee constituted by the Ministry of Environment, Forest and Climate Change:

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The Committee met at Keoladeo National Park, Bharatpur on December 12-13, 2017 and at the office of IG F (WL) on March 15, 2018 and April 12, 2018 to review drafts. The final draft National Action Plan was submitted by the Committee on April 14, 2018. Final review of the draft was done in the office of IG (WL) on May 8, 2018.

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## ABBREVIATIONS

ADB	Asian Development Bank
AEAF	Asian East African Flyway
AWC	Asian Waterbird Census
BNHS	Bombay Natural History Society
CAF	Central Asian Flyway
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CITES	Convention on International Trade of Endangered Species
CRZ	Coastal Regulation Zone
CSO	Civil Society Organizations
CSR	Corporate Social Responsibility
EAAF	East Asian Australasian Flyway
ENVIS	Environmental Information System
FAO	Food and Agriculture Organization
IBA	Important Bird Areas
ICF	International Crane Foundation
IGF	Inspector General Forests
IPZ	Island Protection Zone
IUCN	International Union for Conservation of Nature
MEA	Multilateral Environment Agreements
MoEFCC	Ministry of Environment, Forest and Climate Change
MoUD	Ministry of Urban Development
NAP	National Action Plan
NGO	Non Governmental Organization
NPCA	National Plan for Conservation of Aquatic Ecosystems
OIE	World Organisation for Animal Health
PA	Protected Area
PRI	Panchayati Raj Institutions
SACON	Salim Ali Center for Ornithology and Natural History
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WII	Wildlife Institute of India
WWF	Worldwide Fund for Nature

## **India's National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023)**

### **PREAMBLE**

The Central Asian Flyway (CAF), one among the nine flyways in the world, encompasses overlapping migration routes over 30 countries for different waterbirds linking their northern most breeding grounds in Russia (Siberia) to the southernmost non-breeding (wintering) grounds in West and South Asia, the Maldives and the British Indian Ocean Territory. India has a strategic role in the flyway, as it provides *critical stopover sites* to over 90% of the bird species known to use this migratory route. The National Action Plan (hereinafter NAP) for conservation of migratory birds and their habitats states the national priority and specific actions required to ensure healthy populations of these migratory species in India, within their range across the flyway.

The NAP draws from the Central Asian Flyway Action Plan which provides a common strategic framework for regional collaboration and affirmative action for protecting, conserving, restoring, and sustainably managing populations of migratory bird species and their habitats in the Indian subcontinent falling under the Central Asian Flyway region. This action plan has been drawn to enable national and state level policy and decision makers, those responsible for species conservation and management of habitats, stakeholders and society at large to take coordinated actions for securing and enhancing populations of migratory birds.

The NAP has also been drawn to support meeting national commitments related to protection and conservation of migratory birds and their habitats under the Convention on Conservation of Migratory Species of Wild Animals (CMS), the Convention on Wetlands of International Importance Especially as Waterfowl Habitats (Ramsar), the Convention on Biological Diversity (CBD), and the Convention on International Trade of Endangered Species (CITES). NAP also draws upon the CMS Strategic Plan for Migratory Species 2015-2023 and its five goals, namely: 1) address the underlying causes of decline of migratory species by mainstreaming relevant conservation and sustainable use priorities across government and society; 2) reduce the direct pressures on migratory species and their habitats; 3) improve the conservation status of migratory species and the ecological connectivity and resilience of their habitats; 4) enhance the benefits to all from the favorable conservation status of migratory species; and, 5) enhance implementation through participatory planning, knowledge management and capacity building.

The action plan also seeks to mainstream conservation of migratory birds and their habitats within the post 2015 development agenda at national level set by the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction and the Paris Climate Agreement. The action plans takes into cognizance the outcomes of the International Waterbird Census (including the Asian Waterbird Census), the Important Bird Area Programme and others in developing and implementing international species action plans and other protection, monitoring and conservation measures for bird populations listed in Appendix-I.

The NAP lays down a range of actions at national, state and local levels, involving a range of stakeholders, including *inter alia* central government ministries, state government departments, managers of protected areas, communities living in and around migratory bird habitats, civil society and private sector. The plan takes cognizance of ongoing programmes and schemes of the Ministry of Environment, Forest and Climate Change (MoEFCC) for conservation of migratory birds and their habitats (such as wetlands and forests), as well as those of other central government ministries (such as water resources, rural development, agriculture and others), state governments, international agencies and others.

## GOAL AND OBJECTIVES

The overall longer-term goal of the National Action Plan is to arrest population decline and secure habitats of migratory bird species. In shorter-term the action plan seeks that by 2027, to halt the downward trends in declining meta-populations and maintain stable or increasing trends for healthy populations.

The following are the action plan's specific objectives:

- Halt and reverse decline of migratory birds;
- Reduce pressure on critical habitats by management based on landscape approaches;
- Develop capacity at multiple levels to anticipate and avoid threats to habitats and species undergoing long term decline;
- Improve database and decision-support systems to underpin science-based conservation of species and management of habitats;
- Sensitize stakeholders to take collaborative actions on securing habitats and species; and,
- Support trans-boundary co-operation to secure migratory bird species and habitats in range countries.

To achieve the aforementioned objectives, the action plan is structured in six interrelated components: a) species conservation, b) habitat conservation and sustainable management, c) capacity development, d) communication and outreach, e) research and knowledgebase development and f) international cooperation. It is envisaged that the national action plan will be implemented over a five year period (2018-2023), and reviewed every three years.

### COMPONENT 1: SPECIES CONSERVATION

At least 370 species of migratory birds from three flyways (CAF, EAAF<sup>1</sup>, and AEF<sup>2</sup>) are reported to visit the Indian subcontinent, of which 310 predominantly use wetlands as habitats, the rest being landbirds, inhabiting dispersed terrestrial areas. List of 171 known waterbird species using the CAF region in India is provided at Appendix I.

The CAF includes several important migration routes over the high Himalayan passes wherein unique, high altitude migration such as those of Bar-headed Goose *Anser indicus* takes place. Species such as the Sociable Lapwing *Vanellus gregarius*, Black-necked Crane *Grus nigricollis*, Indian Skimmer *Rynchops albicollis*, Ibisbill *Ibidorhyncha struthersii*, and Brownheaded Gull *Larus brunnicephalus* are completely (or largely) restricted to the CAF region (Mundkur 2005). In addition, the breeding ranges of some species, including the critically threatened Siberian Crane *Grus leucogeranus*, and Slender-billed Curlew *Numenius tenuirostris* are largely restricted to the CAF region although their non-breeding ranges overlap with adjoining flyways.

Migratory landbirds include common and familiar species that breed in Asia and undertake long migrations to wintering areas in India. Birds of Prey, commonly called raptors<sup>3</sup>, form an important constituent of the landbirds as being on the top of the food chain, they act as “sentinel species” to indicate the levels of prey populations and indeed the overall health of the ecosystem.

Long-term datasets show that CAF migratory landbirds are declining rapidly. The species that breed on pastures, agricultural and farmland areas which have to cross the mighty Himalayan ranges which form the massive globally unique barrier to avian migration, the deserts of Thar and the Rann of Kutch to winter in the Indian sub-continent are most affected. Changing land-use is the most

<sup>1</sup> East Asian Australasian Flyway covering parts of eastern India

<sup>2</sup> Asian East African Flyway covering parts of western India

<sup>3</sup> Including groups as vultures, harriers, eagles, hawks and falcons



important factor affecting landbirds across the breeding and non-breeding grounds. Unsustainable taking and climate change are additional threats.

Major stresses on population of migratory birds include habitat loss and degradation, pollution, illegal shooting and poisoning, collisions with aerial structures such as wind turbines, electrocution by power lines and increasing night light. Many migratory raptors are particularly at risk during migration because they gather to form major concentrations and move in large groups along their flyways, for example, at narrow land bridges or sea crossings, which can increase the potential impact of certain threats. Following actions are proposed for conservation of migratory birds:

**1.1:** Undertake and publish national inventories of the stop-over and wintering sites of migratory birds and population status (including wetlands and terrestrial habitats such as pastures and farmlands).

**1.2:** Formulate and implement Single Species Action Plan (SSAP) for coordinated conservation measures for select important migratory species to a favourable conservation status within India. Twenty such species<sup>4</sup> identified as high priority for developing SSAP is listed in Appendix 4.

**1.3:** Compile lists of migratory birds being hunted, hunting seasons and trade patterns to ensure prohibition enforcement, and project impacts of such hunting on flyway scale populations.

**1.4:** Assessing the threats posed to migratory birds due to feral dogs, sand & boulder mining and land use changes alongwith recommend site specific measures.

**1.5:** Carry out periodic disease surveillance of migratory birds and ensure strategic response to disease outbreaks.

**1.6:** Evaluate the impact of increasing night light during migration, collision and electrocution risks to migratory birds and recommend mitigation measures.

**1.7:** Promote migratory bird conservation initiatives through local community participation, including citizen science groups.

Implementation of aforementioned actions is proposed to be led by wildlife divisions of the state governments, with support from expert agencies. A mix of regulatory approaches (enforcing extant regulations) and participatory approaches (in consultation with communities and other stakeholders, including *inter alia* providing incentives for species stewardship) are to be adopted for implementing SSAP.

## COMPONENT 2: HABITAT CONSERVATION AND SUSTAINABLE MANAGEMENT

Migrating waterbirds depend on a network of healthy wetlands for completing their migratory cycle. The diverse wetlands in the country, spanning 15.26 million ha (SAC, 2011) and ranging from high altitude lakes in the Himalayas, marshes and swamps in the Terai floodplains, marshes and ox-bows in the Gangetic–Brahmaputra alluvial plains and other riverine systems, saline mudflats in the Rann of Kutch, Thar Desert, tanks and reservoirs in the Deccan region and extensive mangrove marshes and coral reef areas, provide habitats to over 200 species of waterbirds, over half of which are migratory. As per data collected under Asian Waterbird Census (AWC)<sup>5</sup>, 480 wetlands are of ornithological

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<sup>4</sup> The species have been selected with consideration of International Single Species Action Plans, and migratory bird species of greater concern (protection of flyway level population and bird species wintering in large numbers in India)

<sup>5</sup> A volunteer-based citizen science waterbird monitoring being implemented in wetlands of Asian countries, under the framework of International Waterbird Census. In India, the census is conducted by a volunteer network, coordinated by Wetlands International South Asia and Bombay Natural History Society.



importance in terms of populations as well as species of migratory waterbirds supported. Similar, 190 wetlands have been enlisted as Important Bird Areas (IBA)<sup>6</sup>.

Wetlands conservation in India is structured around a network of sites, considered to be significant for their biodiversity and ecosystem services values, under criteria of Ramsar Convention (to which India is signatory since 1982) or that of MoEFCC (under its National Plan for Conservation of Aquatic Ecosystems). Till date, the network includes 170 wetlands, including 26 wetlands of International Importance under Ramsar Convention. The Wetlands (Conservation and Management) Rules, 2017 provide the regulatory architecture for wetlands at national level. Provisions of the Indian Forest Act, 1927 and the Indian Wildlife (Protection) Act, 1972 defined the regulatory framework for wetlands located within forests and designated protected areas. Similarly, coastal wetlands are protected under the Coastal Regulation Zone (CRZ) Notification (2011) and the Island Protection Zone (IPZ) Notification 2011. Despite these measures, wetlands continue under various anthropogenic and non-anthropogenic stress due to fragmentation of hydrological regimes, catchment degradation, pollution, species invasion, overharvesting of resources, unsustainable tourism, and climate change.

Conservation and sustainable management of wetlands, in order to secure the habitats of migratory birds, requires landscape approach, implemented in participation with stakeholders, and mainstreaming their full range of biodiversity and ecosystem services values in development plans and programmes. Under the ambit of NAP, following actions are proposed:

### **2.1: Integrated management of priority wetlands**

Of the wetlands of ornithological importance identified based on existing monitoring information, 29 sites including 20 major wetlands and nine wetland clusters have been identified as significant bottleneck sites for migratory waterbirds (Fig 1 & Appendix 2)<sup>7</sup>. Integrated management plans for these wetlands are to be developed based on a diagnostic evaluation of ecological, hydrological and socioeconomic and institutional features of wetlands, and their drivers of change within the relevant landscape and coastal zone. Participation of all stakeholders, particularly local communities, and integration of all forms of knowledge such as traditional knowledge is a critical element of management planning. Financial planning for implementation of management plans may be done on the principle of convergence with ongoing developmental schemes, to ensure that wetlands conservation and wise use is mainstreamed within broader developmental planning at various levels.

### **2.2: Boundary demarcation, notification and inclusion within land use records**

To regulate development pressures on wetlands, the boundary of wetlands are to be demarcated and notified under the provisions of Wetlands (Conservation and Management) Rules, 2017, wherever relevant. Necessary changes are also to be effected within land use records to prevent encroachment and conversion for alternate usages, ultimately impacting habitats of migratory birds.

### **2.3: Allocation of water for ecological functioning**

Water plays a dominant role in controlling the environment and the associated plant and animal life within wetlands. Water and sediments provide the physical templates within which these ecosystems evolve and function. In order to maintain a desired level of ecological health and functioning, wetlands require sufficient water of adequate quality, at the right time and in the right pattern. This requires that the water needs of wetlands are considered in any plan for water use and management within the river basins and coastal zones they are located in.

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<sup>6</sup> IBA are places of international significance for conservation of birds and other biodiversity, assessed as per criteria laid down by Birdlife International. IBAs large enough to safeguard a viable population of a species, group of species, or entire avian community during at least part of its life-cycle, but are small enough to be conserved in their entirety.

<sup>7</sup> Refer Appendix 3 for criteria used for prioritization of wetlands.

## 2.4: Cross-sectoral institutional arrangements

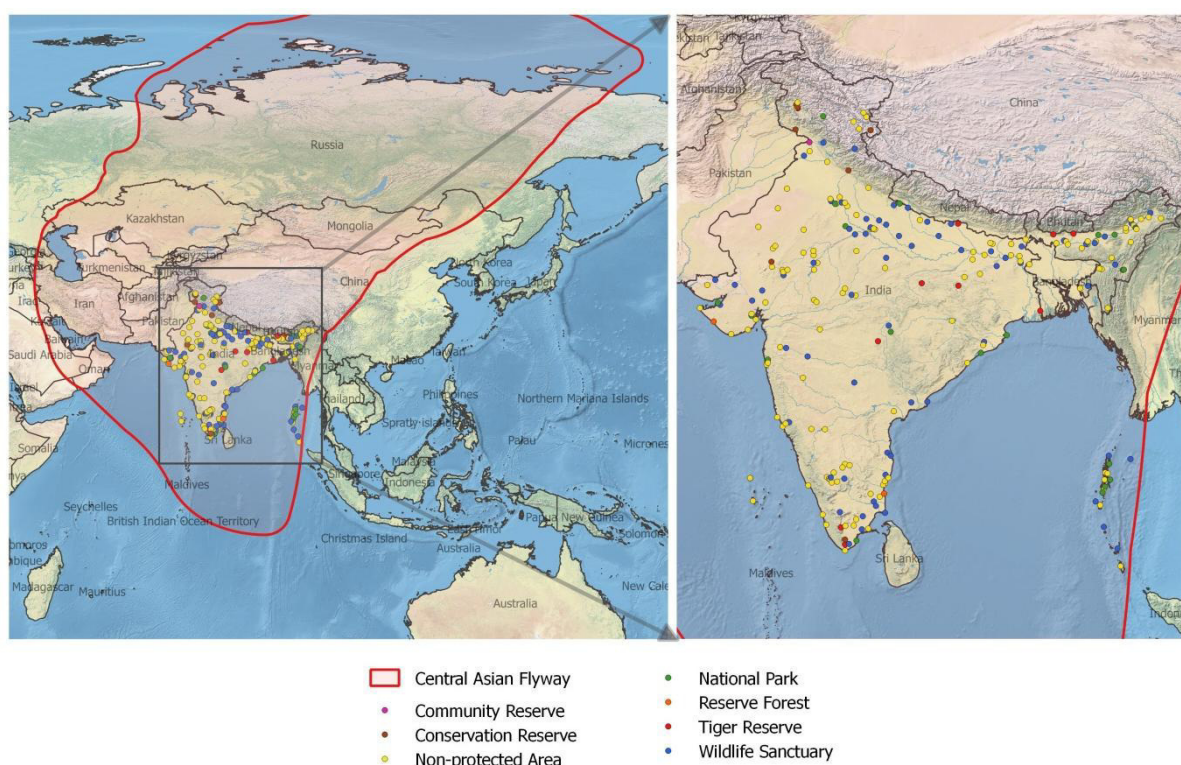
Integrated management of wetlands requires cross-sectoral approaches which have a bearing on various developmental activities taking place within the landscape in which wetland is situated. Clear institutional arrangement is required to be developed to ensure that decision-makers of all relevant sectors such as water resources, irrigation and flood control, tourism, revenue, urban and rural development, forests and wildlife, are engaged in site management. In particular, consequences of sectoral development projects and wetlands need to be factored in within the management plans.

## 2.5: Integrating CAF species and habitat conservation objectives in PA Plans

It is proposed to integrate objectives related to conservation of migratory bird species and their habitats in PA plans, wherever relevant.

Implementation of aforementioned actions are to be led by wetlands managers in collaboration with various line departments of concerned state governments, research agencies, civil society and local communities. The State Wetlands Authorities of the respective states shall provide the platform for cross-sectoral policy making and regulation. Financing for implementation of management plans may be secured from various schemes of the MoEFCC (NPCA, Conservation of mangroves and coral reefs, conservation of protected areas), Ministry of Water Resources and Ganga Rejuvenation (scheme on Repair, Restoration and Rejuvenation of Waterbodies) and MoUD (Atal Mission for Rejuvenation and Urban transformation).

Fig 1: Wetland IBAs in India (Source: BNHS)



## COMPONENT 3: CAPACITY DEVELOPMENT

Managing wetlands requires diverse capacities beyond protected area management to be able to communicate the wide-ranging ecosystem services and biodiversity values to diverse stakeholders, and integrate their views, rights and capacities in management processes. The national plan envisages conducting formal as well as ad-hoc capacity development programmes for site managers, to equip

them with necessary skills for integrated wetland management. Capacity development needs assessment which shall form the basis of the design of capacity development programmes.

Further, a vast majority of migratory waterbirds that arrive in India also use urban and other human dominated landscapes as well as the marine and coastal areas, and their effective protection requires the involvement of personnel from other departments, conservation agencies and local communities. While all wild species are protected by law in India poaching of migratory waterbirds in certain parts of the country and particularly outside of Protected Areas (PA) continues to occur. The extent and quantum of migratory waterbird poaching is however poorly known. Effective enforcement along with collation of intelligence through Police departments and through Institutions like Wildlife Crime Control Bureau will be required to stop poaching of migratory waterbirds. Therefore, to meet the national commitment related to protection and conservation of migratory waterbirds and their habitats, capacity development of the personnel from different government departments and other stakeholders will be extremely critical. Following actions are therefore proposed:

- 3.1:** Carry out region-wise capacity development needs assessment across different departments, conservation agencies and representatives from local communities.
- 3.2:** Develop training material on population assessment and monitoring of migratory birds and management of their habitats, and conduct series of workshops towards capacity development of frontline staff, bird watching groups, local communities and other target groups.
- 3.3:** Conduct targeted training of enforcement officials based on collated data on quantum and extent of poaching migratory birds.
- 3.4:** Build a cadre of trained ringers (within State Forest Departments, civil society and interested government agencies) under the Ringing Program.
- 3.5:** Build capacity and protocols for disease surveillance in wild birds especially in habitats located closer to vulnerable locations namely garbage dump sites, poultry farms & prawn/fish culture ponds.
- 3.6:** Develop education and awareness material, preferably in local languages, to improve the level of awareness of the stakeholders and general public with regards to the value of wetlands and other habitats and the needs of waterbirds.
- 3.7:** Strengthening stakeholder capacity for conservation and ownership of local sites as contingent with national commitments under CMS, CBD and Ramsar.

The activities relating to capacity development will be implemented by MoEFCC through its institutions the Wildlife Institute of India (WII), SACON and ZSI along with conservation NGOs as BNHS, Wetlands International South Asia and WWF-India. The capacity development of the personnel will be mainly through short two-day workshops and will be conducted region wise across the country. This will be repeated across years to ensure coverage of participants from all States.

#### **COMPONENT 4: COMMUNICATION AND OUTREACH**

The Action Plan for conservation of migratory birds and their habitats in India, being a sub-set of the larger National Wildlife Action Plan, needs to synergise with the latter for achieving its results in a holistic manner. Communication, outreach and awareness activities are important tools in conservation. This fact has been aptly stressed in the National Wildlife Action Plan 2017-2031 as well, which also lays emphasis on developing and promoting infrastructure and capacity for Conservation Education, Nature Interpretation and Outreach in the country. The Central and State Governments, Scientific Institutions, CSOs, PRI's and other stakeholders, have a key role in generating awareness amongst the public on various aspects of migratory birds, their habitats, threats, and need for conservation.

A well-planned and institutionalized system of outreach and awareness programme Forms a critical part of the NAP. Following actions are proposed:

- 4.1:** Develop outreach materials (in print and digital forms) targeted at diverse audiences.
- 4.2:** Build a network of ‘Student ambassadors’ for enlisting support of communities for conservation of migratory birds and their habitats.
- 4.3:** Encourage PRIs, CSOs and CBOs to act as ‘knowledge hubs’, custodians and stewards of migratory birds and their habitats. Maintaining People’s Biodiversity Register and strategies for conservation of migratory birds both should feature as key segment in the District Administrative Plans .
- 4.4:** Encourage National Green Corps within educational institutions to visit /monitor bird migration sites.
- 4.5:** Create awareness amongst media on the importance of conservation of migratory birds and their habitats. Promote India’s migratory bird conservation efforts and success stories at national& international platforms, showcased in Bird Festivals and in Zoo Facilities .

**Action Point 4.6:** Publish newsletter periodically covering various activities under CAF.

Implementation of aforementioned activities would be through the species conservation plans, wetland management plans and related actions implemented by the State Forest Departments, Wetlands Authorities, ENVIS Centers, state media units and civil society organizations.

## COMPONENT 5: RESEARCH AND MONITORING

Conservation of migratory birds and management of their habitats needs to be based on robust datasets and knowledgebase generated from integrated and comprehensive monitoring systems. There is a pressing need to evolve Decision Support Systems (DSS) that can assist in consideration of risks to migratory birds and their habitats from development projects. Following actions are proposed:

### **5.1: Understanding Population Status, Migration Patterns and Connectivity along Flyways**

Collaborative projects are envisaged to be developed and implemented on:

- a) analysis of existing long term datasets on ringing;
- b) refining field protocols and data sets;
- c) use of conventional ringing/banding and advanced technologies (colour flagging, neck collaring, deploying satellite transmitters and geo-locators) for assessing ecology, migration strategies and population dynamics;
- d) targeted ecological and socio-economic studies of selected ‘indicator species’ and associated habitats;
- e) impact of usage of pesticides on migratory birds and developing suitable response options such as modification of farming practices; and,
- f) modelling impacts of changing climate on migration patterns.

### **5.2: Monitoring Population trends**

Developing and implementing standardised national schemes for monitoring populations (such as AWC) as well as disease incidences of migratory bird species is envisaged to be strengthened under this NAP.

### **5.3: Inventory, Assessment & Monitoring of Wetland Habitats**

The NAP envisages supporting hierarchical and integrated inventory, assessment and monitoring systems to make available required data and information on status and trends of wetland habitats especially those of high significance to migratory birds. This will include monitoring state of wetland catchments, hydrological regimes, water quality, biodiversity, species invasion and local livelihoods.

An Ecosystem Health Report Card of select wetlands (following the model adopted in Chilika) will also be published.

#### **5.4: National Database on CAF**

Collation and synthesis of available information on migratory birds will be created and maintained in the form of an online database. Modalities for creating linkages between existing databases will also be developed.

#### **5.5: Management Effectiveness Tracking**

It is proposed to conduct periodic management effectiveness assessments of key sites of significance to migratory birds as a management review and adaptation mechanism. Assessments will also include effectiveness of capacity development measures envisaged under Component 3 of NAP.

#### **5.6: Decision-Support System**

A decision support system enabling mapping of migratory bird habitats including croplands, poultry farms and developmental projects would be created. Strategic approaches for development and location of alternative renewable energy developments will be promoted. This will include mapping renewable energy sites and overlaying this information with maps of key sites and habitats for migratory birds and their corridors.

#### **5.7: Improving Knowledgebase on 'Data-Deficient' sites**

Based on gap analysis, efforts for improved data would be applied in sites with paucity of information.

### **COMPONENT 6: INTERNATIONAL COOPERATION**

Many species have geographic distributions that span the countries of South Asia, making it necessary for bird conservation efforts to traverse political boundaries. It is, therefore, widely recognised that the completion of the annual cycle of migratory birds strongly depends on national action that can be supported and strengthened by international cooperation. The Global Action Plan sets the agenda for enhanced regional environmental cooperation among the Central Asian Flyway states to promote the conservation of migratory waterbirds and their habitats. The Action Plan builds on and complements actions that are being undertaken by National Governments to promote conservation. In addition, it complements programmes and actions that are being undertaken by various international conventions (including CMS, AEWA, Ramsar and CBD), development agencies (including UNEP, UNDP, FAO, OIE, World Bank and ADB) and international NGOs (including BirdLife International, International Crane Foundation (ICF), World Conservation Union (IUCN), International Center for Integrated for Mountain Development (ICIMOD) World Wide Fund for Nature (WWF) and Wetlands International to promote regional and national cooperation and conservation action.

Site based long-term monitoring and migratory studies are crucial for the effective management of critical sites and coordinated planning and management along migration flyways. Moreover, this initiative will be helpful to abide by the CAF action plan targets 3 to 5 and India's commitment to International agreements / conventions like Ramsar Convention, Convention on Biological Diversity (CBD), Bonn Convention or CMS and sister agreements under the CMS, particularly CAF, and Sustainable Development Goals (SDGs).

#### **6.1: Establishing CAF Secretariat in India**

Given India's strategic role in the CAF, the flyway secretariat is envisaged to be established in India, with a view of increasing interaction and cooperation between governments, conventions, technical experts and conservationists from countries in the flyway as a basis for promoting concrete actions to



ensure the conservation of migratory birds and their habitats. Functions of the secretariat are listed in Appendix – 5.

### **6.2: Periodic meetings with Range Countries**

Meeting with all the range states will be planned at appropriate times to discuss implementation, share best practices and promote collaborative action for conservation of migratory birds and their habitats.

### **6.3: Joint Initiatives**

Joint initiatives with range countries' governments, research agencies and lead NGOs may be taken up to strengthen conservation of migratory birds, enhanced habitat conservation (particularly transboundary habitats), disease surveillance, building capacity of site managers, stakeholders, improving data and knowledgebase and communication and outreach. Work under this component shall also seek joint implementation of migrant species and their habitat related commitments under various MEAs.

## **MONITORING AND REPORTING ON IMPLEMENTATION OF NATIONAL ACTION PLAN**

Each action point shall be linked with a principal body/organisation responsible for leading implementation. Similarly, wherever feasible, the actions would be assessed in terms of sub-regional priorities for implementation. Whilst different sub-regions may facilitate the organisation and management of some proposed actions, such as workshops and training courses, this does not depict a regionalization of NAP implementation.

Implementation of the NAP shall be monitored by the Wildlife Division of the MoEFCC, in collaboration with concerned divisions of the Ministry, State Forest Departments, Wetlands Authorities, and expert organizations. Every two years, a status report on implementation of the NAP shall be compiled and published for information of all concerned. Refer to list of implementing agencies (Appendix 6). and flowchart on the implementation process (Appendix 9)

## **FINANCING IMPLEMENTATION OF NATIONAL ACTION PLAN**

Financing of various action points listed in the NAP would be through existing budgets available with the Wildlife Division, and relevant schemes of the MoEFCC (such as NPCA, Green India Mission, National Natural Resources Management Systems etc.). Private sector participation (such as in the form of CSR) will also be encouraged to finance components of the NAP.

## REFERENCES

Birdlife International, 2017. <http://datazone.birdlife.org/species/factsheet/> (Accessed on March 12, 2018)

<http://www.cms.int/en/legalinstrument/central-asian-flyway> (Accessed on March 12, 2018)

BNHS, 2017. Important migratory waterbird sites of India for the conservation of Central Asian Flyway waterbird population. Bombay Natural History Society, Hornbill House, Mumbai.

CMS., 2006. Central Asian Flyway Action Plan for the Conservation of Migratory Waterbirds and Their Habitats. CMS Secretariat, Bonn. Available online at [http://www.cms.int/sites/default/files/document/CAF\\_action\\_plan\\_e\\_0.pdf](http://www.cms.int/sites/default/files/document/CAF_action_plan_e_0.pdf)

Mundkur, Taej 2005., Building bridges for migratory waterbird conservation in the Central Asian Flyway. *Indian birds* , 1(2): 46-47

Mundkur, Taej 2017. Conserving birds and their habitats along the Central Asian Flyway. *Hornbill*. April-June 2017.

Murthy, T. V. R., Patel, J. G., Panigrahy, S., & Parihar, J. S., 2013. National Wetland Atlas: Wetlands of International Importance under Ramsar Convention. Space Applications Centre (ISRO), Ahmedabad, 230.

Rahmani, A.R., Islam, M.Z. and Kasambe, R.M., 2016. Important Bird and Biodiversity Areas in India: Priority Sites for Conservation (Revised and updated). Bombay Natural History Society, Indian Bird Conservation Network, Royal Society for the Protection of Birds and BirdLife International (U.K.). Pp. 1992 + xii.

Wetlands International, 2018. "Waterbird Population Estimates". Retrieved from [wpe.wetlands.org](http://wpe.wetlands.org).

Yong, D.L. and Gurung, H. 2017. Linking the BirdLife Asia partnership through migratory birds: the CAF. *Hornbill*. April-June 2017.



## APPENDICES

## APPENDIX 1. LIST OF INDIAN CAF MIGRATORY BIRD SPECIES AND THEIR 1% BIOGEOGRAPHIC POPULATION ESTIMATES

SI.NO	Scientific Name	English name	Scientific Name as in old CAF documents	English nameas in old CAF documents	IUCN Status 2016	1 % Biogeographic Population	Migratory Status <sup>8</sup>
1	<i>Gavia stellata</i>	Red-throated Loon	<i>Gavia stellata</i>	Red-throated Diver	LC	1000	
2	<i>Gavia arctica</i>	Black-throated Diver	<i>Gavia arctica</i>	Black-throated Diver	LC	-1	
3	<i>Tachybaptus ruficollis</i>	Little Grebe	<i>Tachibaptus ruficollis</i> *	Little Grebe	LC	10000	
4	<i>Podiceps grisegena</i>	Red-necked Grebe	<i>Podiceps grisegena</i>	Red-necked Grebe	LC	100	
5	<i>Podiceps cristatus</i> *	Great Crested Grebe	<i>Podiceps cristatus</i> *	Great Crested Grebe	LC	250	RM
6	<i>Podiceps auritus</i>	Horned Grebe	<i>Podiceps auritus</i>	Slavonian Grebe	VU	250	
7	<i>Podiceps nigricollis</i>	Black-necked Grebe	<i>Podiceps nigricollis</i>	Black-necked Grebe	LC	250	RM
8	<i>Pelecanus onocrotalus</i>	Great White Pelican	<i>Pelecanus onocrotalus</i>	Great White Pelican	LC	210	RM
9	<i>Pelecanus philippensis</i> *	Spot-billed Pelican	<i>Pelecanus philippensis</i> *	Spot-billed Pelican	NT	300	
10	<i>Pelecanus crispus</i>	Dalmatian Pelican	<i>Pelecanus crispus</i>	Dalmatian Pelican	VU	75	RM
11	<i>Phalacrocorax carbo</i> *	Great Cormorant	<i>Phalacracorax carbo</i> *	Great Cormorant	LC	1000	RM
12	<i>Phalacracorax pygmaeus</i>	Pygmy Cormorant	<i>Phalacracorax pygmaeus</i>	Pygmy Cormorant	LC		
13	<i>Ardea cinerea</i> *	Grey Heron	<i>Ardea cinerea</i> *	Grey Heron	LC	1000	
14	<i>Ardea alba</i> *	Great Egret	<i>Ardea alba</i> *	Great (White) Egret	LC	1000	
15	<i>Ardea insignis</i> *	White-bellied Heron	<i>Ardea insignis</i> *	White-bellied Heron	CR	5	
16	<i>Ardea goliath</i> *	Goliath Heron	<i>Ardea goliath</i> *	Goliath Heron	LC	1	RM
17	<i>Ardea purpurea</i> *	Purple Heron	<i>Ardea purpurea</i> *	Purple Heron	LC	250	
18	<i>Bubulcus ibis</i> *	Cattle Egret	<i>Bubulcus ibis</i> *	Cattle Egret	LC	5000	
19	<i>Egretta garzetta</i> *	Little Egret	<i>Egretta garzetta</i> *	Little Egret	LC	3000	
20	<i>Egretta gularis</i>	Western Reef Egret	<i>Egretta garzetta schistacea</i> *	Western Reef Egret	LC	170	
21	<i>Nycticorax nycticorax</i> *	Black-crowned Night-heron	<i>Nycticorax nycticorax</i> *	Black-crowned Night-heron	LC	1500	

<sup>8</sup> RM = Regular migrant to India

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22	<i>Gorsachius melanolophus</i> *	Malayan Night-heron	<i>Gorsachius melanolophus</i> *	Malayan Night-heron	LC	-1	
23	<i>Botaurus stellaris</i>	Eurasian Bittern	<i>Botaurus stellaris</i>	Eurasian Bittern	LC	1000	RM
24	<i>Ixobrychus minutus</i> *	Little Bittern	<i>Ixobrychus minutus</i> *	Little Bittern	LC	250	
25	<i>Ixobrychus cinnamomeus</i> *	Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i> *	Cinnamon Bittern	LC	500	
26	<i>Ixobrychus flavicollis</i> *	Black Bittern	<i>Ixobrychus (Dupetor) flavicollis</i> *	Black Bittern	LC	1000	
27	<i>Anastomus oscitans</i>	Asian Openbill Stork	<i>Anastomus oscitans</i>	Asian Openbill Stork	LC	3000	
28	<i>Ciconia nigra</i>	Black Stork	<i>Ciconia nigra</i>	Black Stork	LC	100	RM
29	<i>Ciconia ciconia</i>	European White Stork	<i>Ciconia ciconia</i>	European White Stork	LC	25	RM
30	<i>Leptoptilos javanicus</i>	Lesser Adjutant	<i>Leptoptilos javanicus</i>	Lesser Adjutant	VU	50	
31	<i>Leptoptilos dubius</i>	Greater Adjutant	<i>Leptoptilos dubius</i>	Greater Adjutant	EN	7	
32	<i>Threskiornis melanocephalus</i> *	Black-headed (White) Ibis	<i>Threskiornis melanocephalus</i> *	Black-headed (White) Ibis	NT	500	
33	<i>Plegadis falcinellus</i> *	Glossy Ibis	<i>Plegadis falcinellus</i> *	Glossy Ibis	LC	3000	RM
34	<i>Platalea leucorodia</i> *	Eurasian Spoonbill	<i>Platalea leucorodia</i> *	Eurasian Spoonbill	LC	230	
35	<i>Phoenicopterus roseus</i>	Greater Flamingo	<i>Phoenicopterus ruber roseus</i> *	Greater Flamingo	LC	2400	RM
36	<i>Phoeniconaias minor</i> *	Lesser Flamingo	<i>Phoenicopterus minor</i> *	Lesser Flamingo	NT	3900	RM
37	<i>Dendrocygna bicolor</i> *	Fulvous Whistling Duck	<i>Dendrocygna bicolor</i> *	Greater Whistling Duck	LC	500	
38	<i>Dendrocygna javanica</i> *	Lesser Whistling Duck	<i>Dendrocygna javanica</i> *	Lesser Whistling Duck	LC	10000	
39	<i>Cygnus olor</i>	Mute Swan	<i>Cygnus olor</i>	Mute Swan	LC	250	
40	<i>Cygnus cygnus</i>	Whooper Swan	<i>Cygnus cygnus</i>	Whooper Swan	LC	200	
41	<i>Cygnus (columbianus) bewickii</i>	Bewick's Swan/ Tundra Swan	<i>Cygnus (columbianus) bewickii</i>	Bewick's Swan	LC	10	
42	<i>Anser fabalis</i>	Bean Goose	<i>Anser fabalis</i>	Bean Goose	LC	20	
43	<i>Anser albifrons</i>	Greater White-fronted Goose	<i>Anser albifrons</i>	White-fronted Goose	LC	150	RM
44	<i>Anser erythropus</i>	Lesser White-fronted Goose	<i>Anser erythropus</i>	Lesser White-fronted Goose	VU	140	RM
45	<i>Anser anser</i>	Greylag Goose	<i>Anser anser</i>	Greylag Goose	LC	250	RM
46	<i>Anser indicus</i> *	Bar-headed Goose	<i>Anser indicus</i> *	Bar-headed Goose	LC	560	RM

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47	<i>Branta ruficollis</i>	Red-breasted Goose	<i>Branta ruficollis</i>	Red-breasted Goose	VU	440	
48	<i>Tadorna ferruginea</i> *	Ruddy Shelduck	<i>Tadorna ferruginea</i> *	Ruddy Shelduck	LC	500	RM
49	<i>Tadorna tadorna</i>	Common Shelduck	<i>Tadorna tadorna</i>	Common Shelduck	LC	1000	RM
50	<i>Sarkidiornis melanotos</i>	Comb Duck	<i>Sarkidiornis melanotos</i>	Comb Duck	LC	250	
51	<i>Nettapus coromandelianus</i> *	Cotton Pygmy-goose	<i>Nettapus coromandelianus</i> *	Cotton Pygmy-goose	LC	1000	
52	<i>Mareca penelope</i>	Eurasian Wigeon	<i>Anas penelope</i>	Eurasian Wigeon	LC	2500	RM
53	<i>Mareca falcata</i>	Falcated Duck	<i>Anas falcata</i>	Falcated Teal	NT	100	RM
54	<i>Mareca strepera</i>	Gadwall	<i>Anas strepera</i>	Gadwall	LC	3000	RM
55	<i>Anas crecca</i>	Common Teal	<i>Anas crecca</i>	Green-winged Teal	LC	4000	RM
56	<i>Anas platyrhynchos</i> *	Mallard	<i>Anas platyrhynchos</i> *	Mallard	LC	750	RM
57	<i>Anas poecilorhyncha</i> *	Spot-billed Duck	<i>Anas poecilorhyncha</i> *	Spot-billed Duck	LC	1000	
58	<i>Anas acuta</i>	Northern Pintail	<i>Anas acuta</i>	Northern Pintail	LC	20000	RM
59	<i>Spatula querquedula</i>	Garganey	<i>Anas querquedula</i>	Garganey	LC	3500	RM
60	<i>Spatula clypeata</i>	Northern Shoveler	<i>Anas clypeata</i>	Northern Shoveler	LC	7100	RM
61	<i>Marmaronetta angustirostris</i>	Marbled Teal	<i>Marmaronetta angustirostris</i>	Marbled Teal	VU	50	RM
62	<i>Netta rufina</i>	Red-crested Pochard	<i>Netta rufina</i>	Red-crested Pochard	LC	1000	RM
63	<i>Aythya ferina</i>	Common Pochard	<i>Aythya ferina</i>	Common Pochard	VU	800	RM
64	<i>Aythya baeri</i>	Baer's Pochard	<i>Aythya baeri</i>	Baer's Pochard	CR	5	RM
65	<i>Aythya nyroca</i>	Ferruginous Duck	<i>Aythya nyroca</i>	Ferruginous Duck	NT	300	RM
66	<i>Aythya fuligula</i>	Tufted Duck	<i>Aythya fuligula</i>	Tufted Duck	LC	1000	RM
67	<i>Aythya marila</i>	Greater Scaup	<i>Aythya marila</i>	Greater Scaup	LC	100	RM
68	<i>Clangula hyemalis</i>	Long-tailed Duck	<i>Clangula hyemalis</i>	Long-tailed Duck	VU	50	
69	<i>Melanitta fusca</i>	Velvet Scoter	<i>Melanitta fusca</i>	Velvet Scoter	VU	15	
70	<i>Bucephala clangula</i>	Common Goldeneye	<i>Bucephala clangula</i>	Common Goldeneye	LC	100	RM
71	<i>Mergellus albellus</i>	Smew	<i>Mergellus albellus</i>	Smew	LC	300	RM
72	<i>Mergus serrator</i>	Red-breasted Merganser	<i>Mergus serrator</i>	Red-breasted Merganser	LC	100	
73	<i>Mergus merganser</i> *	Goosander	<i>Mergus merganser</i> *	Goosander	LC	50	RM

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74	<i>Oxyura leucocephala</i>	White-headed Duck	<i>Oxyura leucocephala</i>	White-headed Duck	EN	1	RM
75	<i>Grus virgo</i>	Demoiselle Crane	<i>Grus virgo</i>	Demoiselle Crane	LC	5000	RM
76	<i>Grus leucogeranus</i>	Siberian Crane	<i>Grus leucogeranus</i>	Siberian Crane	CR	1	RM
77	<i>Grus grus</i>	Common Crane	<i>Grus grus</i>	Common Crane	LC	700	RM
78	<i>Grus nigricollis</i> *	Black-necked Crane	<i>Grus nigricollis</i> *	Black-necked Crane	VU	100	
79	<i>Rallina eurizonoides</i> *	Banded Crake	<i>Rallina eurizonoides</i> *	Banded Crake	LC	50	
80	<i>Lewinia striata</i>	Slaty-breasted Rail	<i>Gallirallus striatus</i>	Slaty-breasted Rail	LC	200	
81	<i>Rallus aquaticus</i> *	Western Water Rail	<i>Rallus aquaticus</i> *	Water Rail	LC	250	
82	<i>Crex crex</i>	Corncrake	<i>Crex crex</i>	Corncrake	LC	20000	
83	<i>Amaurornis phoenicurus</i> *	White-breasted Waterhen	<i>Amaurornis phoenicurus</i> *	White-breasted Waterhen	LC	20000	
84	<i>Porzana parva</i>	Little Crake	<i>Porzana parva</i>	Little Crake	LC	100	RM
85	<i>Zapornia pusilla</i> *	Baillon's Crake	<i>Porzana pusilla</i> *	Baillon's Crake	LC	50	
86	<i>Porzana porzana</i>	Spotted Crake	<i>Porzana porzana</i>	Spotted Crake	LC	100	RM
87	<i>Porzana fusca</i> *	Ruddy-breasted Crake	<i>Porzana fusca</i> *	Ruddy-breasted Crake	LC	300	
88	<i>Gallinula chloropus</i> *	Common Moorhen	<i>Gallinula chloropus</i> *	Moorhen	LC	10000	
89	<i>Fulica atra</i> *	Common Coot	<i>Fulica atra</i> *	Common Coot	LC	20000	RM
90	<i>Heliopais personatus</i> *	Masked Finfoot	<i>Heliopais personata</i> *	Masked Finfoot	EN	50	
91	<i>Hydrophasianus chirurgus</i> *	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i> *	Pheasant-tailed Jacana	LC	1200	
92	<i>Dromas ardeola</i>	Crab Plover	<i>Dromas ardeola</i>	Crab Plover	LC	300	RM
93	<i>Haematopus ostralegus</i> *	Eurasian Oystercatcher	<i>Haematopus ostralegus</i> *	Eurasian Oystercatcher	NT	500	RM
94	<i>Ibidorhyncha struthersii</i>	Ibisbill	<i>Ibidorhyncha struthersii</i>	Ibisbill	LC	-1	
95	<i>Himantopus himantopus</i> *	Black-winged Stilt	<i>Himantopus himantopus</i> *	Black-winged Stilt	LC	1700	RM
96	<i>Recurvirostra avosetta</i> *	Pied Avocet	<i>Recurvirostra avosetta</i> *	Pied Avocet	LC	600	RM
97	<i>Glareola pratincola</i>	Collared Pratincole	<i>Glareola pratincola</i>	Collared Pratincole	LC	1000	
98	<i>Glareola maldivarum</i>	Oriental Pratincole	<i>Glareola maldivarum</i>	Oriental Pratincole	LC	1000	
99	<i>Vanellus vanellus</i>	Northern Lapwing	<i>Vanellus vanellus</i>	Northern Lapwing	NT	250	RM
100	<i>Vanellus cinereus</i>	Grey-headed Lapwing	<i>Vanellus cinereus</i>	Grey-headed Lapwing	LC	1000	RM
101	<i>Vanellus gregarius</i>	Sociable Plover	<i>Vanellus gregarius</i>	Sociable Plover	CR	2	RM

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102	<i>Vanellus leucurus*</i>	White-tailed Plover	<i>Vanellus leucurus*</i>	White-tailed Plover	LC	1000	RM
103	<i>Pluvialis apricaria</i>	Eurasian Golden Plover	<i>Pluvialis apricaria</i>	Eurasian Golden Plover	LC	50	RM
104	<i>Pluvialis fulva</i>	Pacific Golden Plover	<i>Pluvialis fulva</i>	Pacific Golden Plover	LC	710	RM
105	<i>Pluvialis squatarola</i>	Grey Plover	<i>Pluvialis squatarola</i>	Grey Plover	LC	300	RM
106	<i>Charadrius hiaticula</i>	Common Ringed Plover	<i>Charadrius hiaticula</i>	Common Ringed Plover	LC	100	RM
107	<i>Charadrius placidus</i>	Long-billed Plover	<i>Charadrius placidus</i>	Long-billed Plover	LC	50	RM
108	<i>Charadrius dubius*</i>	Little Ringed Plover	<i>Charadrius dubius*</i>	Little Ringed Plover	LC	1000	RM
109	<i>Charadrius alexandrinus*</i>	Kentish Plover	<i>Charadrius alexandrinus*</i>	Kentish Plover	LC	710	RM
110	<i>Charadrius mongolus</i>	Lesser Sand plover	<i>Charadrius mongolus</i>	Lesser (Mongolian) Plover	LC	1200	RM
111	<i>Charadrius leschenaultii</i>	Greater Sand plover	<i>Charadrius leschenaultii</i>	Greater Sandplover	LC	500	RM
112	<i>Charadrius asiaticus</i>	Caspian Plover	<i>Charadrius asiaticus</i>	Caspian Plover	LC	100	RM
113	<i>Scolopax rusticola</i>	Eurasian Woodcock	<i>Scolopax rusticola</i>	Eurasian Woodcock	LC	350	RM
114	<i>Gallinago solitaria</i>	Solitary Snipe	<i>Gallinago solitaria</i>	Solitary Snipe	LC	200	RM
115	<i>Gallinago nemoricola</i>	Wood Snipe	<i>Gallinago nemoricola</i>	Wood Snipe	VU	50	RM
116	<i>Gallinago stenura</i>	Pintail Snipe	<i>Gallinago stenura</i>	Pintail Snipe	LC	1000	RM
117	<i>Gallinago megala</i>	Swinhoe's Snipe	<i>Gallinago megala</i>	Swinhoe's Snipe	LC	100	RM
118	<i>Gallinago gallinago</i>	Common Snipe	<i>Gallinago gallinago</i>	Common Snipe	LC	500	RM
119	<i>Lymnocyptes minimus</i>	Jack Snipe	<i>Lymnocyptes minimus</i>	Jack Snipe	LC	250	RM
120	<i>Limnodromus semipalmatus</i>	Asian Dowitcher	<i>Limnodromus semipalmatus</i>	Asian Dowitcher	NT	150	RM
121	<i>Limosa limosa</i>	Black-tailed Godwit	<i>Limosa limosa</i>	Black-tailed Godwit	NT	1500	RM
122	<i>Limosa lapponica</i>	Bar-tailed Godwit	<i>Limosa lapponica</i>	Bar-tailed Godwit	NT	500	RM
123	<i>Numenius phaeopus</i>	Whimbrel	<i>Numenius phaeopus</i>	Whimbrel	LC	500	RM
124	<i>Numenius arquata</i>	Eurasian Curlew	<i>Numenius arquata</i>	Eurasian Curlew	NT	300	RM
125	<i>Tringa erythropus</i>	Spotted Redshank	<i>Tringa erythropus</i>	Spotted Redshank	LC	250	RM
126	<i>Tringa totanus*</i>	Common Redshank	<i>Tringa totanus*</i>	Common Redshank	LC	1000	RM
127	<i>Tringa stagnatilis</i>	Marsh Sandpiper	<i>Tringa stagnatilis</i>	Marsh Sandpiper	LC	1000	RM

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128	<i>Tringa nebularia</i>	Common Greenshank	<i>Tringa nebularia</i>	Common Greenshank	LC	710	RM
129	<i>Tringa guttifer</i>	Nordmann's Greenshank	<i>Tringa guttifer</i>	Nordmann's Greenshank	EN	1	RM
130	<i>Tringa ochropus</i>	Green Sandpiper	<i>Tringa ochropus</i>	Green Sandpiper	LC	100	RM
131	<i>Tringa glareola</i>	Wood Sandpiper	<i>Tringa glareola</i>	Wood Sandpiper	LC	1400	RM
132	<i>Xenus cinereus</i>	Terek Sandpiper	<i>Tringa (Xenus) cinerea</i>	Terek Sandpiper	LC	1000	RM
133	<i>Actitis hypoleucos*</i>	Common Sandpiper	<i>Tringa (Actitis) hypoleucos*</i>	Common Sandpiper	LC	200	RM
134	<i>Arenaria interpres</i>	Ruddy Turnstone	<i>Arenaria interpres</i>	Ruddy Turnstone	LC	350	RM
135	<i>Calidris tenuirostris</i>	Great Knot	<i>Calidris tenuirostris</i>	Great Knot	EN	50	RM
136	<i>Calidris canutus</i>	Red Knot	<i>Calidris canutus</i>	Red Knot	NT	150	RM
137	<i>Calidris alba</i>	Sanderling	<i>Calidris alba</i>	Sanderling	LC	200	RM
138	<i>Calidris ruficollis</i>	Red-necked Stint	<i>Calidris ruficollis</i>	Red-necked Stint	NT	50	RM
139	<i>Calidris minuta</i>	Little Stint	<i>Calidris minuta</i>	Little Stint	LC	2400	RM
140	<i>Calidris temminckii</i>	Temminck's Stint	<i>Calidris temminckii</i>	Temminck's Stint	LC	400	RM
141	<i>Calidris subminuta</i>	Long-toed Stint	<i>Calidris subminuta</i>	Long-toed Stint	LC	100	RM
142	<i>Calidris ferruginea</i>	Curlew Sandpiper	<i>Calidris ferruginea</i>	Curlew Sandpiper	NT	2400	RM
143	<i>Calidris alpina</i>	Dunlin	<i>Calidris alpina</i>	Dunlin	LC	1000	RM
144	<i>Calidris pygmaea</i>	Spoon-billed Sandpiper	<i>Eurynorhynchus pygmaeus</i>	Spoon-billed Sandpiper	CR	1	RM
145	<i>Calidris falcinellus</i>	Broad-billed Sandpiper	<i>Limicola falcinellus</i>	Broad-billed Sandpiper	LC	620	RM
146	<i>Calidris pugnax</i>	Ruff	<i>Philomachus pugnax</i>	Ruff	LC	1000	RM
147	<i>Phalaropus lobatus</i>	Red-necked Phalarope	<i>Phalaropus lobatus</i>	Red-necked Phalarope	LC	1000	RM
148	<i>Larus hemprichii</i>	Sooty Gull	<i>Larus hemprichii</i>	White-eyed Gull	LC	2100	
149	<i>Larus canus</i>	Mew Gull	<i>Larus canus</i>	Common Gull	LC	20000	
150	<i>Larus heuglini*</i>	Heuglin's Gull	<i>Larus heuglini*</i>	Heuglin's Gull	LC	5000	RM
151	<i>Larus cachinnans</i>	Caspian Gull	<i>Larus cachinnans</i>	Yellow-legged Gull	LC	20000	
152	<i>Larus fuscus</i>	Lesser Black-backed Gull	<i>Larus fuscus</i>	Lesser Black-backed Gull	LC	560	
153	<i>Larus ichthyaetus</i>	Great Black-headed Gull	<i>Larus ichthyaetus</i>	Great Black-headed Gull	LC	1000	RM
154	<i>Larus brunnicephalus</i>	Brown-headed Gull	<i>Larus brunnicephalus</i>	Brown-headed Gull	LC	1400	RM

155	<i>Larus ridibundus</i>	Black-headed Gull	<i>Larus ridibundus</i>	Black-headed Gull	LC	7000	RM
156	<i>Larus genei</i>	Slender-billed Gull	<i>Larus genei</i>	Slender-billed Gull	LC	1500	RM
157	<i>Larus relictus</i>	Relict Gull	<i>Larus relictus</i>	Relict Gull	VU	120	
158	<i>Hydrocoloeus minutus</i>	Little Gull	<i>Larus minutus</i>	Little Gull	LC	1000	
159	<i>Gelochelidon ilotica*</i>	Gull-billed Tern	<i>Sterna (Gelochelidon) nilotica*</i>	Gull-billed Tern	LC	770	RM
160	<i>Hydroprogne caspia *</i>	Caspian Tern	<i>Sterna caspia*</i>	Caspian Tern	LC	1500	RM
161	<i>Thalasseus bengalensis *</i>	Lesser Crested Tern	<i>Sterna bengalensis*</i>	Lesser Crested Tern	LC	1600	RM
162	<i>Sterna bergii</i>	Greater Crested Tern	<i>Sterna bergii</i>	Crested Tern	LC	1000	RM
163	<i>Sterna dougallii</i>	Roseate Tern	<i>Sterna dougallii</i>	Roseate Tern	LC	100	RM
164	<i>Sterna hirundo*</i>	Common Tern	<i>Sterna hirundo*</i>	Common Tern	LC	1000	RM
165	<i>Sternula albifrons *</i>	Little Tern	<i>Sterna albifrons*</i>	Little Tern	LC	710	RM
166	<i>Sternula saundersi</i>	Saunders's Tern	<i>Sterna saundersii</i>	Saunders' Tern	LC	400	
167	<i>Thalasseus sandvicensis</i>	Sandwich Tern	<i>Sterna sandvicensis</i>	Sandwich Tern	LC	800	RM
168	<i>Sterna repressa</i>	White-cheeked Tern	<i>Sterna repressa</i>	White-cheeked Tern	LC	4000	RM
169	<i>Chlidonias hybridus*</i>	Whiskered Tern	<i>Chlidonias hybridus*</i>	Whiskered Tern	LC	2000	RM
170	<i>Chlidonias leucopterus</i>	White-winged Tern	<i>Chlidonias leucopterus</i>	White-winged Tern	LC	1000	RM
171	<i>Rynchops albigollis</i>	Indian Skimmer	<i>Rynchops albigollis</i>	Indian Skimmer	VU	75	

**Note :** The rest of the 59 species are either vagrant or rare to India. Hence, it was decided not to consider for setting up of criteria.

Points considered for revising 1% biogeographic population given in the 'Waterbird Estimate V' (Wetland International, 2017) to Indian context includes

- i. Estimates for certain common species which occurs in relatively limited area of particular sites are brought down from 'Waterbird estimates V'.
- ii. For globally common species, the estimates for South Asia; were revised based on recent population trend in Indian subcontinent.
- iii. The species with estimated population of 1000 and above which generally occurs in solitary or small parties in India, the estimates were brought down.
- iv. For The species listed in 'waterbird estimates V' without South Asian population estimate, the estimates were given based on based on recent population trend in Indian subcontinent.
- v. 1% South Asian population estimated between 1000 and 10000 for species described as rare /vagrant migrant to India has been brought down.



## APPENDIX 2. WETLANDS AND WETLAND CLUSTERS PRIORITIZED FOR CONSERVATION OF MIGRATORY WATERBIRDS

Sr.	State	Significant Wetlands	Significant Wetland Cluster
1	TamilNadu	Point Calimere & Great Vedaranyam Swamp Gulf of Mannar Marine National Park & Adam's Bridge Karaivetti Bird Sanctuary Pallikaranai	Suchindram Theroor Vembanoor Manakudi Estuary Saltpans of Puthalam & Kovalam
2	Puducherry	—	Ousteri Lake Bahour Lake Kaliveeli Tank
3	AndhraPradesh	Kolleru Pulicat Coringa	—
4	Odisha	Chilka Bhitarakanika	—
5	Maharashtra	Jaikwadi Gangapur Dam and Grassland Nandur Madhmeshwar	Mahul Sewri Mudflats Alibaugh Thane Creek Uran
6	Gujarat	Nal Sarover	Khijadia Marine National Park and Wildlife Sanctuary
7	Madhya Pradesh	Karera (Dihaila Jheel and Other Wetlands)	Halali Reservoir Bhoj (UpperLake)
8	West Bengal	Sundarbans Farakka Barrage and Adjoining Areas	-----
9	Rajasthan	Keoladeo Sambhar	Alniya Dam Bardha Dam RamSagar (Hindoli)
10	Punjab	Harike	----
11	Himachal Pradesh	Pong Dam	-----
12	Assam	-----	Majuli Island Pani-Dihing Sibsagar Tanks

13	Uttar Pradesh	-----	Kurra Jheel Saman
14	Jammu & Kashmir	-----	Haigam Rakh Hokarsar Mirgund Jheel
15	Andaman and Nicobar Islands	To be included	
16	Arunachal Pradesh	To be included	
17	Bihar	To be included	
18	Chandigarh	To be included	
19	Chhattisgarh	To be included	
20	Dadra and Nagar Haveli	To be included	
21	Daman and Diu	To be included	
22	Goa	To be included	
23	Haryana	To be included	
24	Jharkhand	To be included	
25	Karnataka	To be included	
26	Kerala	To be included	
27	Lakshadweep	To be included	
28	Manipur	To be included	
29	Meghalaya	To be included	
30	Mizoram	To be included	
31	Nagaland	To be included	
32	Delhi	To be included	
33	Sikkim	To be included	
34	Telangana	To be included	
35	Tripura	To be included	
36	Uttarakhand	To be included	

## APPENDIX 3. CRITERIA FOR SELECTION OF WETLANDS FOR CONSERVATION OF MIGRATORY BIRDS

Criteria	Requirements	Remarks
I) Population Status	<p>a) 1% biogeographical population of any long distant migratory waterbird species</p> <p>b) one or more individuals of any Critically Endangered migratory bird species</p> <p>c) &gt;50 individuals of any Vulnerable / Endangered migratory waterbird species</p> <p>d) &gt;100 individuals of any Near -Threatened migratory waterbird species</p>	To know the 1% biogeographical population please visit <a href="http://wpe.wetlands.org/">http://wpe.wetlands.org/</a>
II) Congregation	<p>a) Congregation of &gt;10,000 long distant migratory birds at any period of the season</p> <p>b) Congregation of &gt;15,000 local/short distant migratory waterbirds</p>	
III) No. of Species / Species Diversity	<p>a) 20 species of migratory birds together on a single day or within a weeks' time</p> <p>b) 40 or &gt;40 migratory waterbird species over the migratory season</p>	
IV) Habitat Utilization and Period of occurrence	<p>a) Southward passage (August to October) Congregation &gt;2000 Long distant migratory waterbirds</p> <p>b) Wintering (November to February) regular occurrence of &gt;5000 migratory birds</p> <p>c) Northward Passage (March to May) A small congregation &gt;1000 Long distant waterbirds</p> <p>d) South Ward passage &amp; Wintering Additional population and species during southward passage besides the wintering population</p> <p>e) Wintering – Northward Passage Additional moving population and species during northward passage besides the wintering population</p>	<p>Only autumn passage</p> <p>Only occur during winter</p> <p>Only occur during return migration</p> <p>Both during autumn and winter</p> <p>Both during winter &amp; return northward migration</p>
V) Historical Wetlands which require Restoration	Wetland currently with low migratory bird population which supported more than 50,000 birds in the past	
VI) Roosting Sites	Migratory birds feed elsewhere (eg: Sea, croplands and adjoining satellite wetlands) and congregate (>2000) in the wetland for night roosting	
VII) Wetlands with adjoining terrestrial vegetation and migrant land birds	Wetlands with reed-bed / bordered with grasslands/ peripheral shrubs which provide roosting and feeding grounds for thousands of migratory land birds such as warblers, starlings, buntings, wagtails, larks	

## APPENDIX 4. LIST OF SPECIES SHORTLISTED FOR FORMULATION OF SINGLE SPECIES ACTION PLAN

S.No	Species	Justification for SSAP
1	Eurasian Curlew <i>Numenius arquata</i>	A Near Threatened long distant migratory species, its global population is on the decline due to habitat disturbances. Long-term marking and monitoring data has established wintering population decline of this species in India.
2	Crab Plover <i>Dromas ardeola</i>	This species is restricted to intertidal mudflats and has a limited distribution range. Information on this species in India is limited.
3	Black-tailed Godwit <i>Limosa limosa</i>	A Near Threatened long distant migratory species, its global population is on the decline. This species is listed as priority species in African Eurasian Flyway.
4	Bar-tailed Godwit <i>Limosa lapponica</i>	It is a Near Threatened long distant migratory species. Overall population is on the decline. This species is listed as priority species in East Asian-Australasian Flyway action plan 2015–2019. It is also a priority species in African Eurasian Flyway.
5	Red Knot <i>Calidris canutus</i>	It is a Near Threatened long distant migratory species. The species has been rendered vulnerable owing to extensive land reclamation projects that have encroached upon important habitats across its range. It has been susceptible to avian influenza in the past, so could be threatened by future outbreaks of the virus. This species is listed as priority species in East Asian-Australasian Flyway action plan 2015–2019.
6	Long-toed Stint <i>Calidris subminuta</i>	Long distant migratory species. The population trend of this species is not known, but the population is not believed to be decreasing. Knowledge on this species is limited as recent records for this species are not available
7	Indian Skimmer <i>Rynchops albicollis</i>	A globally threatened (Vulnerable) species and its population is undergoing a rapid decline as a result of widespread degradation and disturbance of lowland rivers and lakes. Its Indian population is estimated to be less than 2500 individuals.
8	Greater Flamingo <i>Phoenicopterus roseus</i>	A short distant migratory bird, it is a priority species of BNHS. The species suffers from low reproductive success if exposed to disturbance at breeding colonies. The species also suffers mortality from collisions with fences and power lines.
9	Lesser Flamingo <i>Phoenicoparrus minor</i>	A Near Threatened species with very limited breeding range. The overall population trend is decreasing owing to habitat degradation and disturbance. It is a BNHS priority species.
10	Curlew Sandpiper <i>Calidris ferruginea</i>	Near Threatened long distant migratory species. Population trends are very difficult to determine for this species; however, overall it is suspected to be declining. India supports its largest wintering

		population.
11	Little Stint <i>Calidris minuta</i>	A long distant migratory species, India supports its largest wintering population. Long-term marking and monitoring in India has revealed population decline due to illegal hunting (bird trapping), reservoir and marshland habitat alteration by salt industries, and habitat degradation owing to diminishing rainfall (changing the salt regime).
12	Lesser Sand plover <i>Charadrius mongolus</i>	India supports its major wintering population. The global population trend is difficult to determine because of uncertainty over the impacts of habitat modification on population sizes; however BNHS Bird Banding data shows population decline in India.
13	Black-bellied Tern <i>Sterna acuticauda</i>	Globally threatened (Endangered) species. This species is almost extinct in a large part of its range and is thought to be on a very rapid decline overall owing to a multitude of threatening processes that affect riverine species in southern Asia.
14	Great Knot <i>Calidris tenuirostris</i>	Globally threatened (Endangered) species. Undergoing a very rapid population decline caused by reclamation of non-breeding stopover grounds. Increased report from east coasts of India in the recent years. This species is listed as priority species in East Asian-Australasian Flyway action plan 2015–2019.
15	Common Pochard <i>Aythya ferina</i>	Globally threatened (Vulnerable) long distance migratory species. Its population has declined rapidly across the majority of the range.
16	Yellow-breasted Bunting <i>Emberiza aureola</i>	Globally threatened (Endangered) migratory land bird species. It is undergoing a very rapid population decline owing mainly to trapping in its non-breeding range. It is listed as priority species of African Eurasian Migratory Land birds Action Plan
17	White-headed Duck <i>Oxyura leucocephala</i>	Globally threatened (Vulnerable) long distance migratory species. The population of this species has undergone a very rapid decline.
18	Ferruginous Duck <i>Aythya nyroca</i>	NearThreatened long distant migratory species. The overall population is estimated to be declining at a moderate rate. The species is threatened by the degradation and destruction of well-vegetated shallow pools and other wetland habitats
19	European roller <i>Coracias garrulus</i>	Migratory land bird species which is a passage migrant to India. It is listed as a priority species of African Eurasian Migratory Landbirds Action Plan.
20	Sociable Lapwing <i>Vanellus gregarius</i>	A Critically Endangered short distant migratory species with considerable records from north-west India. Its population has undergone a very rapid reduction for reasons that are poorly understood but are likely due to hunting along the migration flyway.

## APPENDIX 5. ACTIVITIES OF CAF SECRETARIAT

1. Working closely with the CMS secretariat regarding the important decisions, conservation issues, action to be taken by the governments (both in India and other parties) in the CAF region
2. Working closely with the other flyway secretariats like African-Eurasian Migratory Waterbird Agreement (AEWA) and East Asian Australasian Flyway (EAAP) to replicate/discuss/take decisions on the successful implementation of various conservation research and conservation measures, and to suggest the policy interventions (if required) in India and other parties in the CAF region.
3. Integration of CAF Action Plan in other flyway action plans for better implementation and financial support (contributory basis)
4. Liaison with the parties for the implementation of the major activities in the CAF Action Plan
5. Exchange of information between India and other range countries (exchange of information on natural resource management, research, trade and experience gained from various conservation activities. It can further help to replicate the positive and successful actions).
6. Liaison with international and non-governmental organizations (both in global and CAF region) which are working towards research and conservation
7. Promotion and supervision of CAF perspective research and conservation projects in India in coordination with various organizations like, BNHS, WII, ZSI, WWF, SACON. BNHS will be the technical co-ordinator for MOEFCC in achieving CAF actions
8. Work out possible institutional framework in India and CAF region to take collaborative actions in research, conservation and policy.
9. Organizing workshops and meetings with the parties and non-parties (if any).

**Annexure 6: List of Important Land Bird species.**

LAND BIRDS	SCIENTIFIC NAME
Amur Falcon	<i>Falco amurensis</i>
Arctic Warbler	<i>Phylloscopus borealis</i>
Ashy Minivet	<i>Pericrocotus divaricatus</i>
Asian Brown Flycatcher	<i>Muscicapa dauurica</i>
Barbary Falcon	<i>Falco pelegrinoides</i>
Barn Swallow	<i>Hirundo rustica</i>
Barred Warbler	<i>Sylvia nisoria</i>
Bimaculated Lark	<i>Melanocorypha bimaculata</i>
Black Redstart	<i>Phoenicurus ochruros</i>
Black-bellied Sandgrouse	<i>Pterocles orientalis</i>
Black-breasted Thrush	<i>Turdus dissimilis</i>
Black-browed Reed-Warbler	<i>Acrocephalus bistrigiceps</i>
Black-eared Kite	<i>Milvus lineatus</i>
Black-faced Bunting	<i>Emberiza spodocephala</i>
Black-headed Bunting	<i>Emberiza melanocephala</i>
Black-throated Accentor	<i>Prunella atrogularis</i>
Blue Rock-Thrush	<i>Monticola solitarius</i>
Blyth's Pipit	<i>Anthus godlewskii</i>
Blyth's Reed-Warbler	<i>Acrocephalus dumetorum</i>
Bohemian Waxwing	<i>Bombycilla garrulus</i>
Booted Eagle	<i>Hieraaetus pennatus</i>
Booted Warbler	<i>Hippolais caligata</i>
Boreal Owl	<i>Aegolius funereus</i>
Brambling	<i>Fringilla montifringilla</i>
Brooks's Leaf-Warbler	<i>Phylloscopus subviridis</i>
Brown Shrike	<i>Lanius cristatus</i>
Brown-chested Jungle-Flycatcher (Nicobar Jungle-Flycatcher)	<i>Rhinomyias brunneata</i> ( <i>R.nicobaricus</i> )
Buff-bellied Pipit (American Pipit)	<i>Anthus rubescens</i>
Burmese Shrike	<i>Lanius collurioides</i>
Cetti's Warbler	<i>Cettia cetti</i>
Chaffinch	<i>Fringilla coelebs</i>
Chestnut Bunting	<i>Emberiza rutila</i>
Chestnut-breasted Bunting	<i>Emberiza fucata</i>
Chestnut-eared Bunting	<i>Emberiza fucata</i>



<b>LAND BIRDS</b>	<b>SCIENTIFIC NAME</b>
Chinese Goshawk	<i>Accipiter soloensis</i>
Cinereous Vulture	<i>Aegypius monachus</i>
Citrine Wagtail	<i>Motacilla citreola</i>
Collared Pratincole	<i>Glareola pratincola</i>
Common Buzzard	<i>Buteo buteo</i>
Common Goldeneye	<i>Bucephala clangula</i>
Common Kestrel	<i>Falco tinnunculus</i>
Common Nightingale	<i>Luscinia megarhynchos</i>
Common Quail	<i>Coturnix coturnix</i>
Common Rosefinch	<i>Carpodacus erythrinus</i>
Common Starling	<i>Sturnus vulgaris</i>
Common Wood-Pigeon	<i>Columba palumbus</i>
Crab Plover	<i>Dromas ardeola</i>
Cream-colored Courser	<i>Cursorius cursor</i>
Crimson-winged Finch	<i>Rhodopechys sanguinea</i>
Crowned Sandgrouse	<i>Pterocles coronatus</i>
Dark-throated Thrush	<i>Turdus ruficollis</i>
Daurian Redstart	<i>Phoenicurus auroreus</i>
Desert Warbler	<i>Sylvia nana</i>
Desert Wheatear	<i>Oenanthe deserti</i>
Dusky Thrush	<i>Turdus naumanni</i>
Dusky Warbler	<i>Phylloscopus fuscatus</i>
Eastern Crowned-Warbler	<i>Phylloscopus coronatus</i>
Eastern Marsh Harrier	<i>Circus spilonotus</i>
Eurasian Hobby	<i>Falco subbuteo</i>
Eurasian Hoopoe	<i>Upupa epops</i>
Eurasian Nightjar	<i>Caprimulgus europaeus</i>
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>
Eurasian Scops-Owl	<i>Otus scops</i>
Eurasian Siskin	<i>Carduelis spinus</i>
Eurasian Skylark	<i>Alauda arvensis</i>
Eurasian Sparrowhawk	<i>Accipiter nisus</i>
Eurasian Woodcock	<i>Scolopax rusticola</i>
Eurasian Wryneck	<i>Jynx torquilla</i>
European Roller	<i>Coracias garrulus</i>
Eversmann's Redstart	<i>Phoenicurus erythronota</i>
Eyebrowed Thrush	<i>Turdus obscurus</i>
Fieldfare	<i>Turdus pilaris</i>
Firethroat	<i>Luscinia pectardens</i>
Forest Wagtail	<i>Dendronanthus indicus</i>

LAND BIRDS	SCIENTIFIC NAME
Garden Warbler	<i>Sylvia borin</i>
Godlewski's Bunting	<i>Emberiza godlewskii</i>
Grasshopper Warbler	<i>Locustella naevia</i>
Great Bustard	<i>Otis tarda</i>
Great Reed-Warbler	<i>Acrocephalus arundinaceus</i>
Great-billed Heron	<i>Ardea sumatrana</i>
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Greater Whitethroat	<i>Sylvia communis</i>
Greenish Warbler	<i>Phylloscopus trochiloides</i>
Grey Hypocolius	<i>Hypocolius ampelinus</i>
Grey Wagtail	<i>Motacilla cinerea</i>
Grey-backed Shrike	<i>Lanius tephronotus</i>
Grey-necked Bunting	<i>Emberiza buchanani</i>
Grey-sided Thrush	<i>Turdus feae</i>
Hawfinch	<i>Coccothraustes coccothraustes</i>
Hodgson's Redstart	<i>Phoenicurus hodgsoni</i>
Horned Grebe	<i>Podiceps auritus</i>
Houbara Bustard	<i>Chlamydotis undulata</i>
Hume's Lark	<i>Calandrella acutirostris</i>
Hume's Whitethroat	<i>Sylvia althaea</i>
Imperial Eagle	<i>Aquila heliaca</i>
Inornate Warbler	<i>Phylloscopus inornatus</i>
Isabelline Wheatear	<i>Oenanthe isabellina</i>
Japanese Quail	<i>Coturnix japonica</i>
Japanese Sparrowhawk	<i>Bulweria fallax</i>
Lanceolated Warbler	<i>Locustella lanceolata</i>
Large-billed Leaf-Warbler	<i>Locustella lanceolata</i>
Large-billed Reed-warbler	<i>Acrocephalus orinus</i>
Lesser Grey Shrike	<i>Lanius minor</i>
Lesser Kestrel	<i>Falco naumanni</i>
Lesser Whitethroat	<i>Sylvia curruca</i>
Little Bunting	<i>Emberiza pusilla</i>
Little Bustard	<i>Tetrax tetrax</i>
Long-eared Owl	<i>Asio otus</i>

LAND BIRDS	SCIENTIFIC NAME
Long-legged Buzzard	<i>Buteo rufinus</i>
Manchurian Bush-Warbler	<i>Cettia canturians</i>
Meadow Pipit	<i>Anthus pratensis</i>
Merlin	<i>Falco columbarius</i>
Mongolian Finch	<i>Rhodopechys mongolica</i>
Montagu's Harrier	<i>Circus pygargus</i>
Mountain Chiffchaff	<i>Phylloscopus sindianus</i>
Moustached Warbler	<i>Acrocephalus melanopogon</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern House-Martin	<i>Delichon urbicum</i>
Northern Shrike	<i>Lanius excubitor</i>
Northern Wheatear	<i>Oenanthe oenanthe</i>
Olivaceous Warbler	<i>Hippolais pallida</i>
Olive-backed Pipit	<i>Anthus hodgsoni</i>
Oriental Hobby	<i>Falco severus</i>
Oriental Honey-buzzard	<i>Pernis ptilorhyncus</i>
Oriental Turtle-Dove	<i>Streptopelia orientalis</i>
Ortolan Bunting	<i>Emberiza hortulana</i>
Osprey	<i>Pandion haliaetus</i>
Paddyfield Warbler	<i>Acrocephalus agricola</i>
Pale Crag-Martin	<i>Ptyonoprogne obsoleta</i>
Pale-backed Pigeon	<i>Columba eversmanni</i>
Pale-legged Leaf-Warbler	<i>Phylloscopus tenellipes</i>
Pallas's Sandgrouse	<i>Syrrhaptes paradoxus</i>
Pallas's Warbler	<i>Locustella certhiola</i>
Pallid Harrier	<i>Circus macrourus</i>
Pallid Scops-Owl	<i>Otus brucei</i>
Parasitic Jaeger	<i>Stercorarius parasiticus</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Pied Harrier	<i>Circus melanoleucos</i>
Pine Bunting	<i>Emberiza leucocephalos</i>
Pin-tailed Sandgrouse	<i>Pterocles alchata</i>
Plain Leaf-Warbler	<i>Phylloscopus neglectus</i>
Plain-backed Snowfinch	<i>Montifringilla blanfordi</i>
Pomarine Jaeger	<i>Stercorarius pomarinus</i>
Purple-backed Starling	<i>Sturnus sturninus</i>
Radde's Warbler	<i>Phylloscopus schwarzi</i>

LAND BIRDS	SCIENTIFIC NAME
Red Kite	<i>Milvus milvus</i>
Red-backed Shrike	<i>Lanius collurio</i>
Red-breasted Flycatcher	<i>Ficedula parva</i>
Red-footed Booby	<i>Sula sula</i>
Red-headed Bunting	<i>Emberiza bruniceps</i>
Red-rumped Swallow	<i>Hirundo daurica</i>
Red-throated Pipit	<i>Anthus cervinus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Richard's Pipit	<i>Anthus richardi</i>
Rosy Minivet	<i>Pericrocotus roseus</i>
Rosy Starling	<i>Sturnus roseus</i>
Rufous-backed Kingfisher	<i>Ceyx rufidorsa</i>
Rufous-necked Snowfinch	<i>Montifringilla ruficollis</i>
Rufous-streaked Accentor	<i>Prunella himalayana</i>
Rufous-tailed Rock-Thrush	<i>Monticola saxatilis</i>
Rufous-tailed Scrub-Robin	<i>Lanius isabellinus</i>
Rufous-tailed Shrike	<i>Oenanthe xanthopyrmyna</i>
Rufous-tailed Wheatear	<i>Oenanthe xanthopyrmyna</i>
Saker Falcon	<i>Falco cherrug</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Short-eared Owl	<i>Asio flammeus</i>
Siberian Accentor	<i>Prunella montanella</i>
Siberian Blue Robin	<i>Luscinia cyane</i>
Siberian Rubythroat	<i>Luscinia calliope</i>
Siberian Stonechat	<i>Saxicola torquatus</i>
Siberian Thrush	<i>Zoothera sibirica</i>
Small Snowfinch	<i>Montifringilla davidiana</i>
Small Whitethroat	<i>Sylvia minula</i>
Smoky Warbler	<i>Phylloscopus fulgiventis</i>
Song Thrush	<i>Turdus philomelos</i>
Sooty Falcon	<i>Falco concolor</i>
Spanish Sparrow	<i>Passer hispaniolensis</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Spotted Sandgrouse	<i>Pterocles senegallus</i>
Steppe Eagle	<i>Aquila nipalensis</i>

LAND BIRDS	SCIENTIFIC NAME
Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>
Sykes's Nightjar	<i>Caprimulgus mahrattensis</i>
Sykes's Warbler	<i>Hippolais rama</i>
Thick-billed Warbler	<i>Acrocephalus aedon</i>
Tickell's Leaf-Warbler	<i>Phylloscopus affinis</i>
Tree Pipit	<i>Anthus trivialis</i>
Trumpeter Finch	<i>Rhodopechys githaginea</i>
Upland Buzzard	<i>Buteo hemilasius</i>
Variable Wheatear	<i>Oenanthe picata</i>
Wallcreeper	<i>Tichodroma muraria</i>
Water Pipit	<i>Anthus spinoletta</i>
Western Marsh Harrier	<i>Circus aeruginosus</i>
White Wagtail	<i>Motacilla alba</i>
White-backed Thrush	<i>Turdus kessleri</i>
White-crowned Penduline-tit	<i>Remiz coronatus</i>
White-eyed Buzzard	<i>Butastur teesa</i>
White-rumped Snowfinch	<i>Montifringilla taczanowskii</i>
White-shouldered Starling	<i>Sturnus sinensis</i>
White-tailed Eagle	<i>Haliaeetus albicilla</i>
White-throated Bushchat	<i>Saxicola insignis</i>
Willow Warbler - vagrant	<i>Phylloscopus trochilus</i>
Yellow Wagtail	<i>Motacilla flava</i>
Yellow-breasted Bunting	<i>Emberiza aureola</i>
Yellowhammer - vagrant	<i>Emberiza citrinella</i>
Yellow-rumped Flycatcher	<i>Ficedula zanthopygia</i>

<b>ANNEXURE 7: LAND BIRD IMPORTANT SITES</b>			
<b>Sl. no</b>	<b>Site name</b>	<b>State</b>	<b>Significant role</b>
	Point Calimere	Tamil Nadu	Passage site for the migrant
	Upper Palni Hills	Tamil Nadu	Wintering sites High altitude
	Shivaliks Hill	Himachal Pradesh	Stopover and wintering site
	Great Himalayan National Park	Himachal Pradesh	Wintering sites High altitude migrants
	Dachigam	Kashmir	Stopover and wintering site
	Madhav National park, Shivpuri	Madhya Pradesh	Wintering site
	Hingoldh	Gujarat	Stopover site for birds Migrating to Africa
	Parambikulam wildlife sanctuary	Kerala	Wintering site
	Idukki wild life sanctuary	Kerala	Wintering site
	Thattakad Birds Sanctuary	Kerala	Wintering site
	Waynad Wildlife sanctuary	Kerala	Wintering site
	Kalakad Mundandurai Wildlife sanctuary	Tamil Nadu	Wintering site
	Mukurthi National park	Tamil Nadu	Wintering sites High altitude migrants
	Sriharikota Island	Andhra Pradesh	Passage and Wintering site
	D'Ering Wildlife Sanctuary	Arunachal Pradesh	Wintering and passage sites for High altitude migrants
	<i>Pakke Tiger Reserve</i>	Arunachal Pradesh	Wintering and passage sites for High altitude migrants
	Eaglenest Wildlife Sanctuary	Arunachal Pradesh	Wintering and passage sites for High altitude migrants
	Dihang-Dihang Biosphere Reserve	Arunachal Pradesh	Wintering and passage sites for High altitude migrants
	Namdapha Tiger Reserve	Arunachal Pradesh	Wintering and passage sites for High altitude migrants
	Rajpipla Hills	Gujarat	Stopover site for birds Migrating to Africa and wintering site
	Great Rann of Kutch	Gujarat	Stopover site for birds Migrating to Africa and wintering site
	Jaisalmer	Rajasthan	Wintering and passage sites

	Limbar Valley Wildlife Sanctuary	Jammu Kashmir	Wintering and passage sites for High altitude migrants
	Kistwar Natonal Park	Jammu Kashmir	Wintering and passage sites for High altitude migrants
	Overa-Aru Wildlife Sanctuary	Jammu Kashmir	Wintering and passage sites for High altitude migrants
	Jaldapara National Park	West Bengal	Stopover and wintering site
	Buxa Tiger Reserve	West Bengal	Stopover and wintering site
	Neora Valley National Park	West Bengal	Stopover and wintering site
	Satkosia Gorge Wildlife Sanctuary	Orissa	Stopover and wintering site
	Fambong lho Himalayan Zoological Park	Sikkim	Wintering and passage sites for High altitude migrants
	Kyongnosla alpine sanctuary	Sikkim	Wintering and passage sites for High altitude migrants
	To be included	Assam	
	To be included	Bihar	
	To be included	Chandigarh	
	To be included	Chhattisgarh	
	To be included	Dadra and Nagar Haveli	
	To be included	Daman and Diu	
	To be included	Goa	
	To be included	Haryana	
	To be included	Himachal Pradesh	
	To be included	Jammu and Kashmir	
	To be included	Jharkhand	
	To be included	Karnataka	
	To be included	Lakshadweep	
	To be included	Maharashtra	
	To be included	Manipur	
	To be included	Meghalaya	
	To be included	Mizoram	
	To be included	Nagaland	
	To be included	National Capital Territory of Delhi	
	To be included	Odisha	
	To be included	Puducherry	
	To be included	Punjab	
	To be included	Telangana	
	To be included	Tripura	
	To be included	Uttar Pradesh	
	To be included	Uttarakhand	



## ANNEXURE 8: TIMELINE FOR CENTRAL ASIAN NATIONAL ACTION PLAN (2018-23)

	COMPONENT	Agency	2018	2019	2020	2021	2022	2023
<b>1</b>	<b>SPECIES CONSERVATION</b>							
1.1	National Inventories							
	<i>Listing Migratory Land Birds</i>							
	<i>Stop over sites</i>							
	<i>Wintering sites</i>							
	<i>Population Status</i>							
1.2	Single species Action Plan							
1.3	Migratory birds Hunted							
1.4	Feral Dog Threats							
1.5	Collision/Electrocution							
1.6	Disease Surveillance							
1.7	Local community participation							
	Citizen Science Groups							
<b>2</b>	<b>HABITAT CONSERVATION &amp; SUSTAINABLE MANAGEMENT</b>							
2.1	Integrated management of priority wetlands							
2.2	Boundary demarcation, notification & inclusion in land use records							
2.3	Allocation of water for ecological functioning							
2.4	Cross-sectoral institutional arrangements							
2.5	Integrating CAF species & habitat conservation objectives in PA Plans							
<b>3</b>	<b>CAPACITY BUILDING</b>							
3.1	Region-wise capacity development							
3.2	Training material on population/habitat							
3.3	Targeted training of enforcement officials							
3.4	Ringling Program							
3.5	capacity and protocols for disease surveillance							
3.6	Develop education and awareness material							
3.7	stakeholder capacity for conservation and ownership of local sites							
<b>4</b>	<b>COMMUNICATION AND OUTREACH</b>							
4.1	outreach materials targeted at diverse audiences							
4.2	Build a network of 'Student ambassadors'							
4.3	PRIs, CSOs and CBOs to act as 'knowledge hubs', custodians and stewards							
4.4	Encourage National Green Corps							
4.5	Awareness amongst media							
4.6	Publish newsletter periodically							
<b>5</b>	<b>RESEARCH &amp; MONITORING</b>							
5.1	Population Status, Migration Patterns and Connectivity along Flyways							
	<i>analysis of existing long term datasets on ringing</i>							
	<i>refining field protocols</i>							
	<i>use of conventional ringing/banding &amp; advanced technologies</i>							
	<i>targeted ecological &amp; socio-economic studies</i>							
	<i>impact of usage of pesticides developing suitable response options i.e modification of farming practice</i>							
	<i>modelling impacts of changing climate on migration patterns</i>							
5.2	Monitoring Population Trends							
5.3	Inventory, Assessment & Monitoring of Wetland Habitats							
5.4	National Database on CAF							
5.5	Management Effectiveness Tracking							
5.6	Decision-Support System							
5.7	Improving Knowledgebase on 'Data-Deficient' sites							
<b>6</b>	<b>INTERNATIONAL COOPERATION</b>							
6.1	Establishing CAF Secretariat in India							
6.2	Periodic meetings with Range Countries							
6.3	Joint Initiatives							
<b>7</b>	<b>MONITORING AND REPORTING ON IMPLEMENTATION OF NATIONAL ACTION PLAN.</b>							
<b>8</b>	<b>FINANCING IMPLEMENTATION OF NATIONAL ACTION PLAN</b>							

ANNEXURE 9: DIAGRAM ON IMPLEMENTATION OF CENTRAL ASIAN FLYWAY NATIONAL ACTION PLAN (2018-23)

