Wildlife Odisha-2020

WILDLIFE ORGANISATION

FOREST AND ENVIRONMENT DEPARTMENT

GOVERNMENT OF ODISHA

OCTOBER, 2020

Wildlife Odisha - 2020

WILDLIFE ORGANISATION
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CONTENTS

ନବୀନ ପଟ୍ଟନାୟକ
ମୁଖ୍ୟମନ୍ତ୍ରୀ, ଓଡ଼ିଶା

सत्यमेव जयते

ଲୋକ ସେବା ଭବନ

ଭୁବନେଶ୍ୱର

୬୬ତମ ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ, ୨୦୨୦ ପାଳନ ଅବସରରେ ମାନ୍ୟବର ମୁଖ୍ୟମନ୍ତ୍ରୀ ଶ୍ରୀ ନବୀନ ପଟ୍ଟନାୟକଙ୍କ ବାର୍ତ୍ତା

ବନ୍ୟପ୍ରାଣୀ ଏବଂ ସେମାନଙ୍କ ଆବାସସ୍ଥଳୀର ସୁରକ୍ଷା ଓ ସଂରକ୍ଷଣ ଦିଗରେ ସଚେତନତା ସୃଷ୍ଟି କରିବା ଉଦ୍ଦେଶ୍ୟରେ ୧୯୫୨ ମସିହାରୁ ଓଡ଼ିଶା ସମେତ ସାରା ଦେଶ ଅକ୍ଟୋବର ୨ ତାରିଖରୁ ୮ ତାରିଖ ପର୍ଯ୍ୟନ୍ତ ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ ପାଳନ କରିଆସୁଅଛି।

ଜୀବଜନ୍ତୁ ଏବଂ ପରିବେଶ ଆମ ଜୈବବିବିଧତାର ଅଂଶବିଶେଷ। ସନ୍ତୁଳିତ ପରିବେଶ ନିମନ୍ତେ ଜୀବଜଗତରେ ବନ୍ୟପ୍ରାଣୀମାନଙ୍କର ବିଶେଷ ଗୁରୁତ୍ୱ ରହିଛି। ବନ୍ୟଜନ୍ତୁମାନଙ୍କର ସୁରକ୍ଷା ଓ ଅଭିବୃଦ୍ଧି ସହିତ ବିଲୁପ୍ତପ୍ରାୟ ଜୀବଜନ୍ତୁଙ୍କ ସଂରକ୍ଷଣ ନିମନ୍ତେ ଆମ ରାଜ୍ୟରେ ଜାତୀୟ ଉଦ୍ୟାନ, ପ୍ରାଣୀ ଉଦ୍ୟାନ ଓ ଅଭୟାରଣ୍ୟମାନ ପ୍ରତିଷ୍ଠା କରାଯାଇଅଛି।

ବନ୍ୟପ୍ରାଣୀ ଓ ମନୁଷ୍ୟ ପରସ୍ପରର ପରିପୂରକ। ମାନବ ସମାଜର ବିକାଶ ତଥା ପରିବେଶ ସନ୍ତୁଳନ ପାଇଁ ବନ୍ୟପ୍ରାଣୀମାନଙ୍କର ସୁରକ୍ଷା ଏବଂ ଅଭିବୃଦ୍ଧି ନିତାନ୍ତ ଆବଶ୍ୟକ। ବନ୍ୟପ୍ରାଣୀ ଓ ସେମାନଙ୍କର ଆବାସସ୍ଥଳୀର ସଂରକ୍ଷଣ ନିମନ୍ତେ ଜନସାଧାରଣଙ୍କର ଭୂମିକା ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ଓ ସେମାନଙ୍କ ପ୍ରତି ଅହିଂସା ଆଚରଣ ପ୍ରଦର୍ଶନ କରିବା ଆମର ପରମ କର୍ତ୍ତବ୍ୟ। ଜୀବେ ଦୟା ଆମର ଆଦର୍ଶ ହେବା ଉଚିତ।

୬୬ ତମ ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ ପାଳନ ଅବସରରେ ବନ୍ୟପ୍ରାଣୀ ଏବଂ ସେମାନଙ୍କର ସୁରକ୍ଷା ଦିଗରେ ଗ୍ରହଣ କରାଯାଇଥିବା ବିଭିନ୍ନ କାର୍ଯ୍ୟକ୍ରମକୁ ଅଧିକ ଫଳପ୍ରସୂ କରିବା ପାଇଁ ମୁଁ ଜନସାଧାରଣଙ୍କ ସକ୍ରିୟ ସହଯୋଗ କାମନା କରୁଛି।

ନବୀନ ପଟ୍ଟନାୟକ
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ମନ୍ତ୍ରୀ
ଜଙ୍ଗଲ ଓ ପରିବେଶ, ସଂସଦୀୟ ବ୍ୟାପାର
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୨୩୨୨୧୮୫
ବାସଗୃହ : ୨୫୩୬୭୯୫
ବିଧାନସଭା : ୨୫୩୯୦୨୪

୬୬ତମ ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ, ୨୦୨୦ ପାଳନ ଉପଲକ୍ଷେ
ମାନ୍ୟବର ଜଙ୍ଗଲ ଓ ପରିବେଶ, ସଂସଦୀୟ ବ୍ୟାପାର ମନ୍ତ୍ରୀଙ୍କ ବାର୍ତ୍ତା

ସତ୍ୟ, ଅହିଂସା ଓ ସହନଶୀଳତାର ମୂର୍ତ୍ତିମନ୍ତ ପ୍ରତୀକ ମହାତ୍ମା ଗାନ୍ଧୀଙ୍କ ପୂଣ୍ୟତିଥି ଅକ୍ଟୋବର ୨ ତାରିଖରୁ ପ୍ରତ୍ୟେକ ବର୍ଷ 'ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ' ସପ୍ତାହବ୍ୟାପି ସମଗ୍ର ଦେଶରେ ପାଳିତ ହୋଇଥାଏ। ବନ୍ୟପ୍ରାଣୀ ସଂରକ୍ଷଣ ଓ ଅଭିବୃଦ୍ଧି ନିମନ୍ତେ ଜନମାନସରେ ବ୍ୟାପକ ସଚେତନତା ସୃଷ୍ଟି କରିବା ଏହି ସପ୍ତାହ ପାଳନର ମୁଖ୍ୟ ଉଦ୍ଦେଶ୍ୟ।

ବନ୍ୟପ୍ରାଣୀ ଓ ଜୈବବିବିଧତାରେ ସମୃଦ୍ଧ ଓଡ଼ିଶା ଏକମାତ୍ର ରାଜ୍ୟ ଯେଉଁଠାରେ ପ୍ରାକୃତିକ ପରିବେଶରେ ତିନିଗୋଟି ପ୍ରଜାତିର କୁମ୍ଭୀର, ଲକ୍ଷ ଲକ୍ଷ ପରିବ୍ରାଜକ ପକ୍ଷୀ, କଳା ମହାବଳ ବାଘ, ଘଞ୍ଚ ହେନ୍ତାଳ ବନ ଓ ଅଣ୍ଡା ଦେବା ପାଇଁ ସୁଦୂର ପ୍ରଶାନ୍ତ ମହାସାଗରରୁ ଆସୁଥିବା ଲକ୍ଷ ଲକ୍ଷ ଅଲିଭ୍ ରିଡ୍‌ଲେ କଇଁଛଙ୍କର ସମାଗମ ଦେଖିବାକୁ ମିଳିଥାଏ।

ଆମ ରାଜ୍ୟର ବନ୍ୟପ୍ରାଣୀମାନଙ୍କୁ ସେମାନଙ୍କ ପ୍ରାକୃତିକ ଆବାସସ୍ଥଳୀ ବାହାରେ ସଂରକ୍ଷଣ ଏବଂ ଅଭିବୃଦ୍ଧି ପାଇଁ ରାଜ୍ୟ ଜଙ୍ଗଲ ଓ ପରିବେଶ ବିଭାଗ ବିହିତ ପଦକ୍ଷେପ ଗ୍ରହଣ କରିଛନ୍ତି। ଏଥିପାଇଁ ବ୍ୟାଘ୍ର, ହସ୍ତୀ, ବିଦେଶାଗତ ପକ୍ଷୀ, ସାମୁଦ୍ରିକ କଇଁଛ, କୃଷ୍ଣସାର ମୃଗ ଏବଂ କୁମ୍ଭୀର ଇତ୍ୟାଦି ବନ୍ୟପ୍ରାଣୀମାନଙ୍କର ସୁରକ୍ଷା ପାଇଁ ବିବିଧ ଯୋଜନା କାର୍ଯ୍ୟକାରୀ କରାଯାଇଛି। ହସ୍ତୀର ଗମନାଗମନ ସମ୍ବନ୍ଧୀୟ ତଥ୍ୟ ହାସଲ କରିବା ପାଇଁ ଏକ ମୋବାଇଲ୍ ଆପ୍ ବିକଶିତ କରାଯାଇଛି ଯାହାଦ୍ୱାରା ହସ୍ତୀ ଜନବସତି ଅଞ୍ଚଳରେ ପ୍ରବେଶଜନିତ କ୍ଷୟକ୍ଷତିକୁ ରୋକାଯାଇ ପାରିବ। ବନ୍ୟଜନ୍ତୁମାନଙ୍କ ଦ୍ୱାରା କ୍ଷତିଗ୍ରସ୍ତ ପରିବାରକୁ ଅନୁକମ୍ପାମୂଳକ କ୍ଷତିପୂରଣ ପ୍ରଦାନ କରିବା ସହ ଏଥିରେ ହେଉଥିବା ଅହେତୁକ ବିଳମ୍ବକୁ ରୋକାଯାଇ ତ୍ୱରିତ ଆର୍ଥିକ ସାହାଯ୍ୟ ପ୍ରଦାନ କରାଯାଉଛି। ପରିବେଶ ପର୍ଯ୍ୟଟନ ମାଧ୍ୟମରେ ସ୍ଥାନୀୟ ଜନସାଧାରଣଙ୍କ ମଧ୍ୟରେ ସଚେତନତା ସୃଷ୍ଟି ଏବଂ ଆର୍ଥିକ ଅଭିବୃଦ୍ଧି ପାଇଁ ବହୁ ପଦକ୍ଷେପ ଗ୍ରହଣ କରାଯାଇଛି।

୬୬ତମ ବନ୍ୟପ୍ରାଣୀ ସପ୍ତାହ ପାଳନ ଅବସରରେ ବନ୍ୟପ୍ରାଣୀ ସଂରକ୍ଷଣ, ଅଭିବୃଦ୍ଧି ଓ ସେମାନଙ୍କ ଆବାସସ୍ଥଳୀର ସୁରକ୍ଷା ଉଦ୍ଦେଶ୍ୟରେ ଗ୍ରହଣ କରାଯାଇଥିବା ବିଭିନ୍ନ ସରକାରୀ ଉଦ୍ୟମକୁ ଅଧିକ ବଳିଷ୍ଠ ଓ ଫଳପ୍ରଦ କରିବା ପାଇଁ ମୁଁ ଜନସାଧାରଣଙ୍କର ଆନ୍ତରିକ ସହଯୋଗ କାମନା କରୁଛି।

(ବିକ୍ରମ କେଶରୀ ଆରୁଖ)

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FOREWORD

Odisha has very varied topography with vast stretches of forests, hills, natural wetlands and valleys interspersed with human habitations. Presence of three bio-geographical regions enriches it with exceptionally diverse and unique assemblage of wildlife inhabiting these zones.

Checking elephant depredation is a major challenge. Use of Android-based mobile app to record daily location and movement of elephants with constitution of Elephant Monitoring Cell at division, Circle & State headquarter to monitor their presence 24x7 and to ensure proper coordination among divisions is expected to effectively reduce depredation.

Conservation entails lot of restriction on local communities. In order for the forest communities to profitably gain from these efforts, concept of "Community-Managed Nature Tourism" has been adopted. Proper accommodation with ancillary facilities has been created at different locations and these are operated by Eco-Development Committees comprising of local dwellers. Ecotourism is becoming an important alternative means of survival for them. The management of these Ecotourism destinations in Odisha has won many accolades from tourists.

"Wildlife Odisha-2020" is a summary of the majority of wildlife management activities conducted in previous years and related statistics. The outstanding efforts of some people in the field of wildlife conservation in the state over the last few years have also been highlighted. The efforts put in to deliver this high quality work by Mr Shashi Paul, our very talented Adl PCCF & his team are very commendable.

I hope that "Wildlife Odisha-2020" will be very useful for the staff, administrators, wildlife researchers, nature lovers and provide valuable information for the conservation of wildlife.

Hari Shankar Upadhyay

(Hari Shankar Upadhyay)

CHAPTER I

INTRODUCTION TO THE STATE OF ODISHA

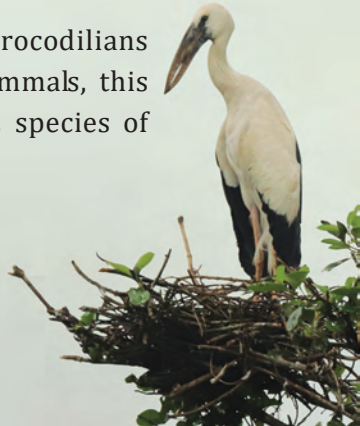
Odisha is situated in East Central region of India bounded by Bay of Bengal in the east, by the states of Jharkhand and West Bengal to the north and northeast, by the states of Andhra Pradesh & Telangana to the south and Chhattisgarh to the west. The State has a geographical area of 1,55,707 Sq.KM. The State has reported Recorded Forest Area (RFA) 61,204 sq km which is 39.31% of its geographical area. The Reserved, Protected and Unclassed forests are 58.90%, 40.75% and 0.35% of the recorded forest area in the state respectively. The Forest Cover in the State is 51,618.51 sq km which is 33.15 % of the State's geographical area. (ISFR-2019 of Forest survey of India). Forest Cover in the State has increased by 273.51 sq km as compared to the previous assessment reported in ISFR 2017.

The state is divided into 30 Civil Districts and Forest administration is divided into 37 Territorial Forest Divisions, 14 Wildlife Divisions. There are 19 Wildlife Sanctuaries comprising of 10.37% of Forest area in the state which is 5.36% of the state's Geographical area. One National Park has been notified under provisions of Wildlife (Protection) Act,1972 for in situ conservation at Bhitarkaniaka and other National Park is proposed at Similipal. Odisha is also blessed with natural wet lands including Chilika, the largest wet land of Asia. Bhitarakanika and Chilika having international importance are also declared as "Ramsar Sites". The state is having 3 distinct stretches of mass nesting beaches of endangered Olive Ridley Sea Turtles (*Lepidochelys olivacea)* at Gahirmatha, Rushikulya mouth and Devi mouth.

DIVERSITY OF WILDLIFE IN ODISHA

Wildlife is a precious gift of God to this planet. Each organism on this earth has a unique place in food chain that contribute to the ecosystem in its own special way. The state of Odisha is favoured with an extremely rich & unique assemblage of wildlife. The state is home to wildlife species such as Elephants, Tigers, Leopards, Melanistic Tiger, Black Panther, Hyena, Wolf, Fishing Cat, Leopard Cat, Jungle Cat, Gaur, Sambar, Spotted Deer, Wild boar, Giant squirrels, Pea Fowl, Hill myna, Marsh Crocodile, Gharial, Salt water Crocodile, King Cobra, Sea turtles and Monitor lizard etc. The state has distinction of home to Melanistic Tigers.

Odisha's rich faunal diversity exhibits 131 species of reptiles including 3 Crocodilians species, 29 species of Amphibians, 537species of birds and 114 species of mammals, this include 54 endangered species (17 species of reptiles, 15 species of birds & 22 species of mammals) as per IUCN Red Data Book.



NUMBER OF SPECIES				
TAXA	WORLD	INDIA	ODISHA	PERCENTAGE OF ODISHA TO INDIA
Mammals	5416	427	114	27%
Birds	9026	1340	537	40%
Reptiles	9232	584	131	22%
Amphibians	6776	414	29	07%
Fishes	32156	3361	>800	24%

MoEF report, ZSI-2018, National Biodiversity Action plan 2019 & Odisha Biodiversity Board report, 2019

FOREST COVER OF ODISHA

Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of the period November 2017 to February 2018, the Forest Cover in the State is 51,618.51 sq km which is 33.15 % of the State's geographical area. In terms of forest canopy density classes, the State has 6,969.71 sq km under Very Dense Forest (VDF), 21,551.93 sq km under Moderately Dense Forest (MDF) and 23,096.87 sq km under Open Forest (OF). Forest Cover in the State has increased by 273.51 sq km as compared to the previous assessment reported in ISFR 2017.

FOREST COVER IN ODISHA (2019 ASSESSMENT REPORT OF FSI)

(area in sq.Km)

Geographical Area (GA)	Very Dense Forest	Mod.Dense Forest	Open Forest	Total	%of GA	Change wrt 2017 assessment	Scrub
1,55,707	6,969.71	21,551.93	23,096.87	51,618.51	33.15	273.51	4,326.91

MANGROVE FOREST COVER IN ODISHA (2019 ASSESSMENT REPORT OF FSI)

(area in sq.Km)

Very Dense Mangrove	Moderately Dense Mangrove	Open Mangrove	Total	Change with respect to ISFR, 2017
81	94	76	251	8

CHAPTER II

WILDLIFE ORGANISATION OF THE STATE

State Wildlife Organisation is headed by Principal Chief Conservator of Forest (Wildlife) & Chief Wildlife Warden, Odisha. The state wildlife organization was formed on 14th August 1974, a sequel to adoption of the Wildlife (Protection) Act, 1972 and promulgation of the Wildlife (Protection) (Odisha) Rules, 1974. Presently, PCCF (WL) & CWLW is supported by Addl.Principal Chief Conservator Forest (wildlife) and Four Deputy Conservator of Forests in Headquarters. Field Director, Similipal Tiger reserve, Director Nandankanan Biological Park and Divisional Forest Officers/ Dy. Directors of 14 wildlife Divisions are working under State Wildlife Wing administration. Divisional Forest Officers of 37 territorial Divisions are designated as wildlife wardens for their respective divisions and look after the wildlife part under the control of Chief Wildlife Warden.

The State Wildlife Headquarters is functioning at Prakruti Bhawan located on plot no-1459, Saheed Nagar, Bhubaneswar. The building facing the NH-16 has the 50 seater conference hall,a 10 seater mini conference hall with video conferencing facility, a library with more than 3000 books on flora, fauna, law, management plans and a lot of wildlife publications & journals. A GIS cell is set-up with Web –GIS technology for monitoring the elephant movement through the Mobile APP and other works. A 24x7 control room is also functioning in this building to address the wildlife issues. Ground floor of the building is the Eco-tourism cell with city booking centre for different Ecotourism destinations of our state.

ORGANIZATIONAL CHART

Hon'ble Chief Minister
Odisha

⇩

Hon'ble Minister
Forest and Environment
Odisha

⇩

Addl Chief Secretary
Forest and Environment
Department
Government of Odisha

⇩

PCCF (Wildlife) &
Chief Wildlife Warden, Odisha

⇨ **Field Setup**

⇩

Addl. PCCF(WL), WLCO DCF (Admin.), DCF (CAMPA), DCF (Eco-tourism), ACF, FRO, A.O, E.O, SO, ASO and Support staffs

R.C.C.F.-cum-FD, STR Baripada	Dy. Dir. Similipal North Dy. Dir. Similipal South DFO, Balasore (WL) DFO, Baripada DFO, Karanjia DFO, Rairangpur DFO, Keonjhar (WL)
Director, Nandankanan	Dy. Director, Nandankanan Zoological Park (Nandankanan Sanctuary)
R.C.C.F., Bhubaneswar	DFO, Bhadrak (WL) DFO, Mangrove Forest Division (WL) DFO, Puri (WL) DFO, Chandaka (WL) DFO, Chilika (WL) DFO, Khurda DFO, Nayagarh DFO, City Forest
R.C.C.F., Berhampur	DFO, Parlakhemundi DFO, Balliguda DFO, Boudh DFO, Ghumsur North DFO, Ghumsur South DFO, Phulbani DFO, Berhampur
R.C.C.F., Sambalpur	DFO, Hirakud (WL) DFO, Bamra (WL) DFO Bargarh DFO Jharsuguda DFO Sambalpur DFO Rairakhol
R.C.C .F, Bhawanipatna	DFO, Sunabeda (WL) DFO, Kalahandi South DFO, Kalahandi North DFO, Khariar DFO, Subarnapur DFO, Bolangir
R.C.C.F, Koraput	DFO, Jeypore DFO, Koraput DFO, Rayagada DFO, Malkangiri DFO, Nabarangpur
R.C.C.F, Rourkela	DFO, Bonai DFO, Keonjhar DFO, Deogarh DFO, Rourkela DFO, Sundargarh
R.C.C.F-cum-FD, STR, Angul	DFO, Satkosia (WL) DFO, Angul DFO, Athgarh DFO, Athmalik DFO, Cuttack DFO, Dhenkanal DFO, Mahanadi (WL)

CHAPTER III

WILDLIFE MANAGEMENT IN ODISHA

Wildlife Management takes into consideration the ecological principles such as carrying capacity of the habitat, preservation and control of habitat, reforestation, predator control, re-introduction of extinct species, capture and reallocation of abundant species and management of "desirable" or "undesirable" species.

But, sadly today, many of the animals and birds are getting endangered. The natural habitats of animals and plants are being destroyed. Perceived reasons of threats to wildlife include habitat destruction/ degradation/ fragmentation, overexploitation, poaching, pollution and climate change. Forest land diversion for mining, dams, Irrigation, Power, Roads, Railways resulted in significant damage to wildlife habitats and contributed to increasing figure of Man-Animal conflict. Poaching and hunting of animals for fur, jewellery, meat and leather are other great factors contributing to wildlife extinction. Wildlife conservation entails protection to wildlife and their habitat. Management of wildlife with disturbed surroundings have put big challenge for wildlife managers. The wildlife organization has been protecting and conserving wild animals and their habitats, apprehending offenders in wildlife offences, rescue of wild animals, mitigation of man-animal conflict, monitoring the status of wildlife and creating awareness among the people. Promoting community based eco-tourism as alternate livelihood source for locals and education and awareness of visitors is also one of the major activities of Wildlife wing.

The strategies of Wildlife conservation and management include both *in-situ* and *ex-situ* (captive) conservation aimed at

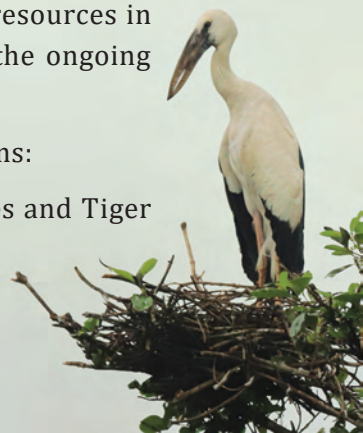
1. Maintenance of essential ecological processes and life support systems.
2. Preservation of genetic diversity i.e. flora and fauna.
3. Maintaining sustainable levels of species and ecosystems.

IN-SITU CONSERVATION

In-Situ conservation is on-site conservation or the conservation of genetic resources in natural population of plants or animal species in a habitat as well as to ensure the ongoing process of evolution and adaptation within their environment.

In the State of Odisha, the *in-situ* conservation is achieved in the following forms:

a) Through the legal entities of protected areas like National Parks, Sanctuaries and Tiger Reserves.



b) Through other Protected landscapes like Elephant Reserves and Biosphere Reserves.

The biodiversity rich areas of the state have been declared as Protected Areas as per prevalent laws. At present Odisha has one National Park, 19 sanctuaries, Two Tiger Reserves, one Biosphere Reserve and three Elephant Reserves. Proposals for declaring one National Park, three Sanctuaries (Northern RF, Berbera RF, Gandhamardan PRF), two Tiger Reserves (Debrigarh and Sunabeda Tiger Reserve) and one Biosphere Reserve (Mahendragiri) is under the process of notification.

The Protected Areas are situated in 2 Bio-geographic zones and 3 provinces in the state, the details of which is given below:

Bio-geographic Zones / Province / Sub-Division and Location of Sanctuaries in Odisha are listed as below:

Zone	Province	Sub-Division	Sanctuary located in this region
Deccan Peninsula	Eastern Plateau	Eastern-ghat	Baisipalli, Chandaka, Karlapat, Kotagarh, Lakhari, Nandankanan
		Chhatisgarh Dandakaranya	Debrigarh, Sunabeda
	Chhota-Nagpur	Garhjat Hills	Badrama, Hadgarh, Khalasuni, Kuldiha, Satkoshia, Similipal, Kapilash
Coasts	Eastern Coast		Balukhand, Bhitarkanika, Gahirmatha, Nalabana

PROTECTED AREAS OF ODISHA

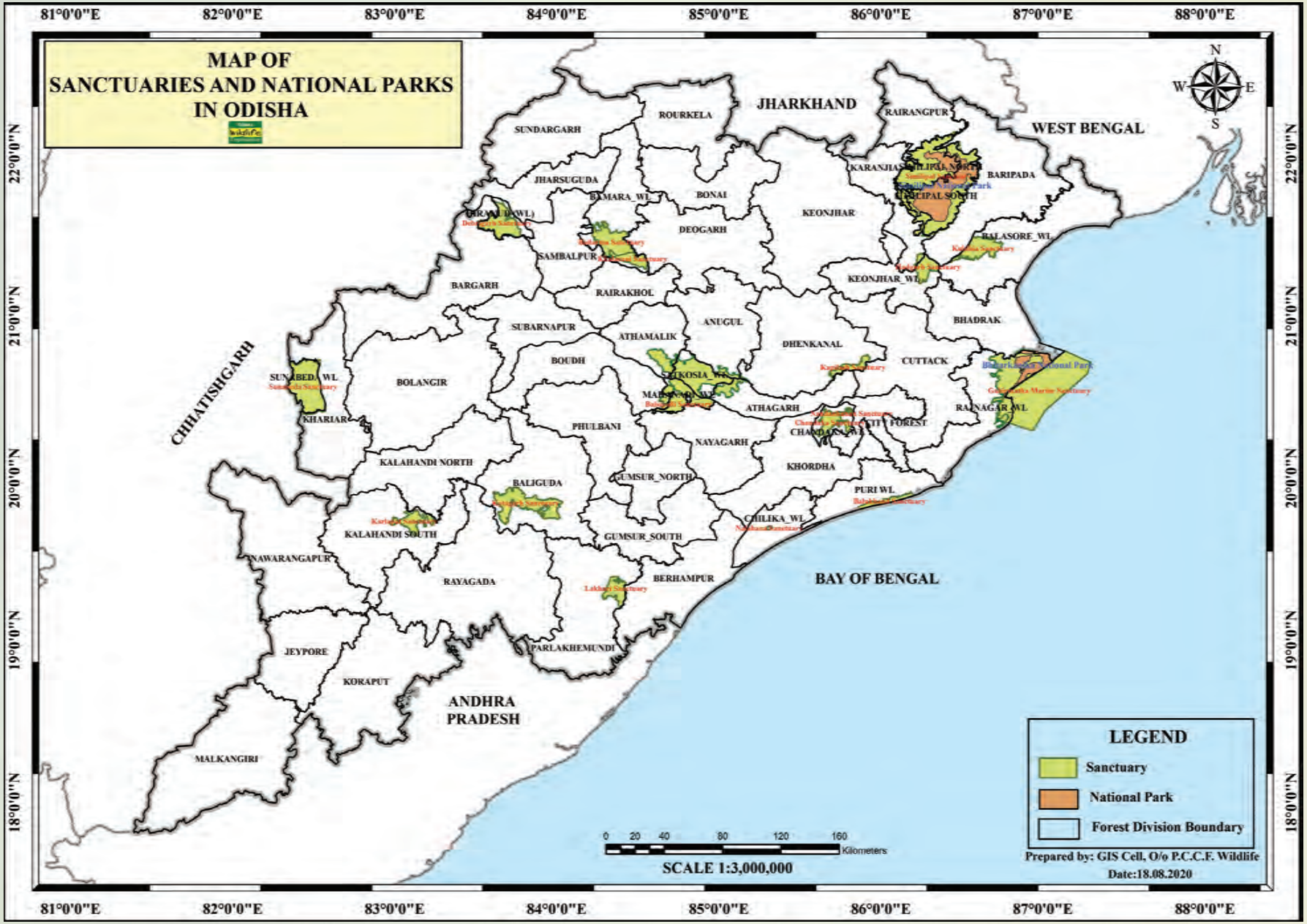
A. NATIONAL PARKS

Sl. No.	Name of National Park	Administrative control	Situated in the district	Notification No. & date	Area in Sq.kms.
1	Bhitarkanika National Park	DFO, Mangrove Forest Division (WL), Rajnagar /RCCF, BBSR.	Kendrapara, Bhadrak	19686 dt.16.09.98 (Final)	145.00
2	Similipal (Proposed National Park)	Field Director, STR-Cum - RCCF, Baripada	Mayurbhanj	18703 dt.06.08.80	845.70

B. WILDLIFE SANCTUARIES

Sl. No.	Name of Sanctuary	Administrative control	Situated in the district	Notification No. & date	Area in Sq.kms.
1	Bhitarkanika	DFO, Mangrove Forest Division (WL), Rajnagar /RCCF, BBSR	Kendrapara	6958 dt.22.04.75	673
2	Balukhand-Konark	DFO, Puri(WL), Division /RCCF, BBSR	Puri	15216 dt.01.09.87	71.72

3	Baisipalli	DFO, Mahanadi (WL) Division/RCCF, Angul	Nayagarh	25335 dt.06.05.81	168.35
4	Badrama	DFO, Bamra (WL) Division /RCCF, Sambalpur	Sambalpur	23393 dt.17.12.87	304.03
5	Chilika (Nalban)	DFO, Chilika (WL) Division Balugaon/ RCCF, BBSR	Puri	23403 dt.17.12.87	15.53
6	Chandaka-Damapara	DFO, Chandaka (WL) Division/RCCF, Bhubaneswar	Khurda, Cuttack	13482 dt.10.06.88	193.39
7	Debrigarh	DFO, Hirakud (WL) Division/RCCF, Sambalpur	Sambalpur	2409 dt.08.02.85	346.90
8	Gahirmatha (Marine)	DFO, Mangrove Forest Division(WL), Rajnagar /RCCF, BBSR	Kendrapara, Bhadrak	18805 dt.27.09.97	1435.00
9	Hadgarh	DFO, Keonjhar (WL) /RCCF, Baripada	Keonjhar	34113 dt.06.12.78	191.06
10	Khalasuni	DFO, Bamara (WL)/ RCCF, Sambalpur	Sambalpur	584 dt.07.01.82	116.00
11	Kuldiha	DFO, Balasore (WL) /RCCF, Baripada	Balasore	243 dt.04.01.84	272.75
12	Nandankanan	Director, Nandankanan Biological Park, Bhubaneswar	Khurda	20682 dt.03.08.79	4.37
13	Similipal	Dy Director, Similipal North & South /RCCF, Baripada	Mayurbhanj	30467 dt.03.12.79	2306.61
14	Sakotia Gorge	DFO, Satkosia (WL) Division & Mahanadi WL Division /RCCF, Angul	Angul and Boudh	26865 dt.14.12.2018	968.35
15	Sunabeda	DFO, Sunabeda (WL) Division, Nuapada/RCCF, Bhawanipatna	Nuapada	10772 dt.10.05.88	600.00
16	Karlapat	DFO, Kalahandi (South) Division/RCCF, Bhawanipatna	Kalahandi	24498 dt.15.10.92	147.66
17	Lakheri-valley	DFO, Parlakhemundi Division/RCCF, Berhampur	Ganjam, Gajapati	2333 dt.08.02.85	185.87
18	Kotgarh	DFO, Baliguda Division/ RCCF, Berhampur	Kandhamal	30253 dt.03.12.81	399.05
19	Kapilash	DFO, Dhenkanal Division /RCCF, Angul	Dhenkanal	5937 dt.02.04.2011	125.50


MAP OF
SANCTUARIES AND NATIONAL PARKS
IN ODISHA
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WEST BENGAL
CHHATISHGARH
ANDHRA
PRADESH
BAY OF BENGAL
SUNDARGARH
ROURKELA
JHARSUGUDA
BONAI
KEONJHAR
RAIRANGPUR
BARIPADA
DEOGARH
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BARGARH
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BALIGUDA
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BERHAMPUR
PARLAKHEMUNDI
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KORAPUT
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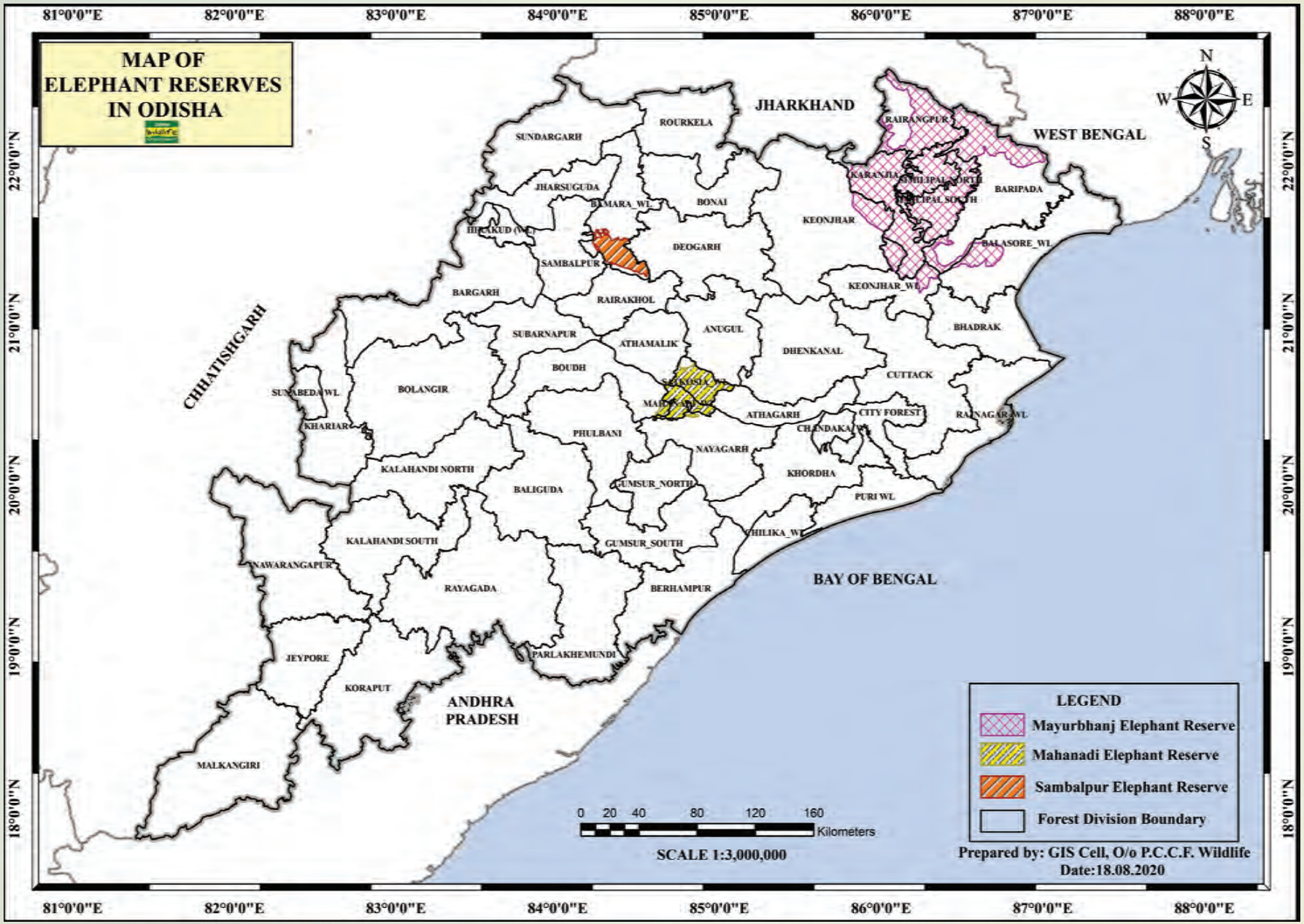
LEGEND
Sanctuary
National Park
Forest Division Boundary
0 20 40 80 120 160
Kilometers
SCALE 1:3,000,000
Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:18.08.2020

C. ELEPHANT RESERVES

The State Government has notified three Elephant Reserves (ERs) in the state for better management of wild elephants. These are Mayurbhanj ER, Mahanadi ER and Sambalpur ER. Details of date of notification, notification number, area have been given below. Within the three notified Elephant reserves, an estimated 969 elephants reside, ie about 50%of Odisha elephants have secure habitat in the ERs, with total area of 8509 sq km. There are seven Wildlife sanctuaries located within these three ERs(including Similipal National Park). Out of total geographical area of 8509 sq. km of ERs, 4597.71 sq km (i.e 54%) area is under Protected Area network as sanctuary and NP.

LIST OF ELEPHANT RESERVES

Sl. No.	Name of the Elephant Reserve	Area Sq. Km.	Notification No. and Date	District	Division	Protected Area Network
1	Mayurbhanj Elephant Reserve	7043.74 sq.km	Notification No. 8F(W) 42/2001 /15806 Dated 29.09.2001	Portion of Mayurbhanj, Balasore & Keonjhar	Similipal North Division, Simlipal South Division, Karanjia, Baripada, Rairangpur, Balasore WL, Keonjhar WL Division	Hadgarh, Kuldiha and Similipal WL Sanctuary, Similipal NP and Similipal TR
2	Mahanadi Elephant Reserve	1038.30 sq.km	Notification No. 8F(W) 17/2002 /10162 Dated 19.06.2002	Portion of Angul, Boudh, Cuttack, Nayagarh	Satkosia WL, Mahanadi WL, Boudh, Athagarh, Nayagarh	Satkosia and Baisipalli WL sanctuary
3	Sambalpur Elephant Reserve	426.91 sq.km	Notification No. 8F(WL) 10/ 2002/5840 Dated 27.03.2002	Sambalpur	Bamra WL	Badrama and Khalasuni WL sanctuary


MAP OF
ELEPHANT RESERVES
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CHHATISHGARH
ANDHRA
PRADESH
BAY OF BENGAL
ROURKELA
SUNDARGARH
JHARSUGUDA
BONAI
KEONJHAR
BARIPADA
RAIRANGPUR
KARANJIA
SIMILIPAL_NORTH
SIMILIPAL_SOUTH
BALASORE_WL
KEONJHAR_WL
DEOGARH
SAMBALPUR
BARGARH
RAIRAKHOL
ANUGUL
BHADRAK
SUBARNAPUR
ATHAMALIK
DHENKANAL
BOUDH
CUTTACK
SUNABEDA WL
BOLANGIR
ATHAGARH
CITY FOREST
RAJNAGAR_WL
KHIARIAR
PHULBANI
NAYAGARH
KALAHANDI NORTH
KHORDHA
BALIGUDA
GUMSUR_NORTH
PURI WL
KALAHANDI SOUTH
GUMSUR_SOUTH
CHILIKA_WL
NAWARANGAPUR
RAYAGADA
BERHAMPUR
JEYPORE
PARLAKHEMUNDI
KORAPUT
MALKANGIRI
0 20 40 80 120 160
Kilometers
SCALE 1:3,000,000
LEGEND
Mayurbhanj Elephant Reserve
Mahanadi Elephant Reserve
Sambalpur Elephant Reserve
Forest Division Boundary
Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:18.08.2020

D. TIGER RESERVES

Tiger Reserves are visualized as breeding nuclei from which surplus tiger population would migrate to adjacent forests. Conceived under the Project Tiger launched in 1973, these area aim to conserve the habitat for ensuring a viable population of Royal Bengal Tigers along with their prey base in their habitat.

List of Tiger Reserves

Sl. No.	Protected Area	Area in Sq.Km.	Notification No. and Date	District
1	Similipal Tiger Reserve	2750.00 sq.km	Notification No.8F(T)-9/2007/20801/F&E Dated 31.12.2007	Mayurbhanj
2	Satkosia Tiger Reserve	1136.70 sq.km	Notification No.8F(WL) 15/2018-26865 Dated 14.12.2018	Angul, Nayagarh and Boudh

Similipal Tiger Reserve

Similipal Tiger reserve in the northern part of Mayurbhanj district covers an area of 2750 sq km dedicated for Tiger conservation. It holds the highest tiger population in the state of Odisha with a distinction of only natural home of melanistic Tigers.

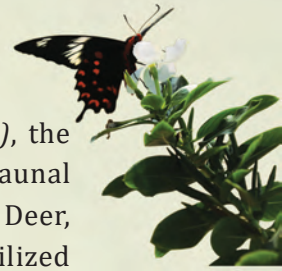
Tiger is only an indicator species but the project in Similipal has provided incidental conservation to the entire biota contained in these forests. Apart from the tiger, the major mammals are leopard, sambar, barking deer, gaur, jungle cat, wild boar, four-horned antelope, giant squirrel and common langur. Grey hornbill, Indian pied hornbill and Malabar pied hornbill are also found here. The park also has a sizeable population of reptiles, which includes the longest venomous snake, the King cobra and the Tricarinate hill turtle. The Mugger Management Programme at Ramatirtha has helped the mugger crocodile to flourish on the banks of the Khairi and Deo Rivers.

The enriched fauna and flora including 94-species of orchids 'indicate' the positive impact of Project Tiger on the health of the ecosystem, and the prevailing microclimate of Similipal.

Major threats to Similipal centre round four lakh people living in the periphery and ten thousand people living inside it. Most of them 'use' Similipal to make a living, and the population continues to rise at a rapid rate for each decennial period. However major success has been achieved in minimizing the age old practice of "Akhanda Shikar" prevalent among the local tribal community through organization of archery and other sports competitions with lucrative prize system.

Satkosia Tiger Reserve

The Satkosia Tiger Reserve is located in the Central Zone of Odisha and spreads over Angul, Cuttack, Nayagarh and Boudh districts covering an area of 1136.70sq.kms. It encompasses the Satkosia Gorge Sanctuary constituted in May 1976 and the Baisipalli Sanctuary constituted in November 1981. The Tiger Reserve is rich in large cats and their prey along with wetland fauna and rich biodiversity in the terrestrial ecosystem



Satkosia Gorge is the home of the most endangered Gharial (*Gavialis gangeticus)*, the Mugger crocodiles *(Crocodylus palustris)* and a variety of freshwater turtles. Other faunal elements include Tiger, Leopard, Wild dog, Gaur, Nilgai, Sambar, Spotted Deer, Barking Deer, Bear, Ratel, Jackal, Porcupine, Indian Hare, and Giant Squirrel etc. A viable but stabilized population of about 240 elephants thrives in this region which forms a part of the Mahanadi Elephant Reserve.

Both the resident as well as migratory birds are found in this sanctuary. The resident birds include the Hornbills, Peafowl, Kingfishers, Egrets, Cormorants, River Tern, Owls, Pigeons, Myna, Parakeets, Drongo, Doves, Woodpecker, Gulls, Golden Oriole, Vultures, Babblers, Barbets, Minivets, Sun Bird, Eagle, Crow Pheasants etc. The migratory birds include Brahminy Ducks,Bar Headed Geese etc. Recently the highly vulnerable species of Indian Skimmers flocks have also been noticed in the area.

E . BIOSPHERE RESERVE

List of Biosphere Reserve

Sl.No.	Protected Area	Area Sq. Km.	Notification No. and Date	District
1	Similipal Biosphere Reserve	5569 sq.km	Notification No.8/96/11319 & Dated 20.05.1996	Mayurbhanj

Biosphere Reserve is intended to preserve genetic diversity in representative ecosystems and provide opportunities for research on ecosystem processes in nature. Criteria for selection of Biospheres include representativeness, naturalness, biological diversity and potential as effective conservation unit.

Similipal Biosphere Reserve

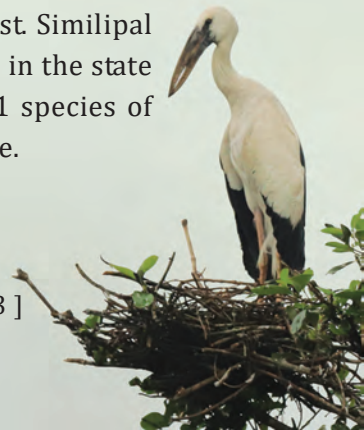
Similipal and adjoining area comprising of 5569 sq.km. was declared as a Biosphere Reserve by Government of India on the 22nd June, 1994 with the objectives of(a) Conservation of the area as a representative ecosystem of the “Mahanadian Biogeographic Region”.

(b) Provision of long term in-situ conservation of genetic diversity

(c) Promotion of basic and applied research and monitoring; and

(d) Dissemination of experience for education and training.

The vegetation is a mix of different forest types and habitats, with Northern tropical moist deciduous dominating some semi-evergreen patches. Sal is the dominant tree species here. Similipal also has extensive grasslands that are grazing grounds for many of the herbivores. These forests boast of many plants that have medicinal and aromatic properties. An astounding 1078 species of plants including 94 species of orchids find their home in the forest. Similipal is known for the tiger, elephant and hill myna. It holds the highest tiger population in the state of Orissa. 55 species of mammals, 304 species of birds, 60 species of reptiles, 21 species of frogs, 38 species of fish and 164 species of butterflies have been recorded there.

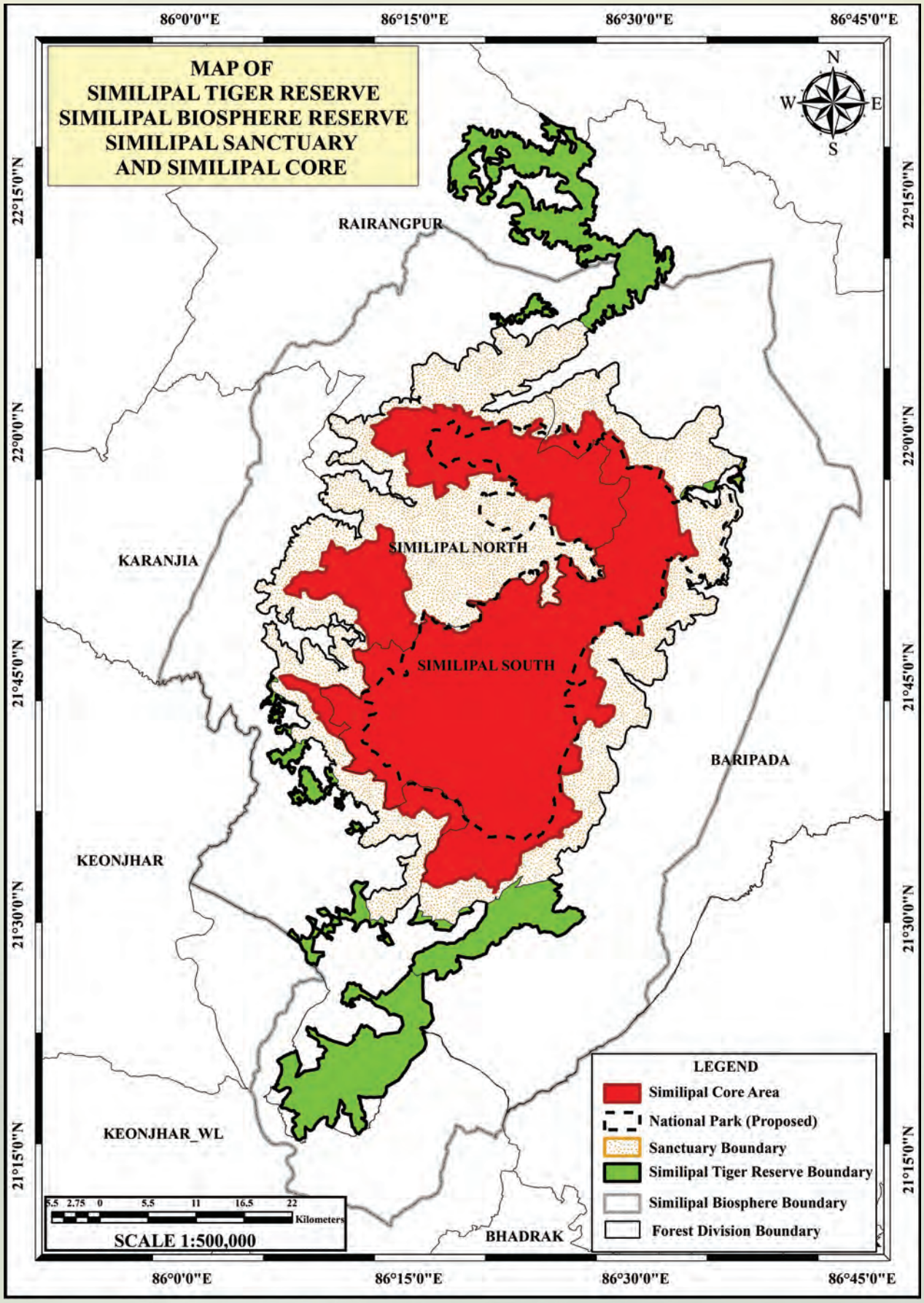


A	Area of Biosphere Reserve	5569 sq.km
B	Zonation	
	(i) Core area	845 sq.km
	(ii) Buffer area	2129 sq.km
	(iii) Transition area	2595 sq.km
C	Villages	
	(i) No. of Villages in the Core area	1
	(ii) No. of villages in the Buffer area	64
	(iii) No. of villages in the Transition area	1200
D	Population	3.5 lakh
	(i) Tribal population	73.44%
	(ii) SC population	5.21%
	(iii) Other population	21.35%
E	Common Tribes: Bhumija, Bathudi, Kolha, Ganda, Santhal, Khadia, Mankadia	

Similipal Protected Area Network (BR, TR, ER, NP, Sanctuary)

Similipal Tiger Reserve originated as a hunting ground for the surrounding royalty. It was formally designated a tiger reserve under Project Tiger in May 1973. The Government of Odisha declared Similipal as a wildlife sanctuary in 1979 with an area of 2750 sq. km. Later in 1980, Government of Orissa proposed 303 sq. km of the sanctuary as National Park. Further in 1986, the area of the National Park was increased to 845.70 sq. km. The Government of India declared it as a biosphere reserve in 1994. UNESCO added this Sanctuary and neighbouring area to its list of Biosphere Reserves in May 2009. This tiger reserve also comes under Mayurbhanj Elephant Reserve that includes the adjacent Hadgarh and Kuldiha Wildlife sanctuary.The park have some beautiful waterfalls like Joranda and Barehipani. This is surrounded by high plateaus and hills, the highest peak being the twin peaks of Khairiburu and Meghashini (1515m above mean sea level). At least twelve rivers cut across the plain area, all of which drain into the Bay of Bengal. The prominent among them are Burhabalanga, Palpala, Bhandan, Salandi, Kahairi and Deo.

Jenabil landscape, Similipal


MAP OF
SIMILIPAL TIGER RESERVE
SIMILIPAL BIOSPHERE RESERVE
SIMILIPAL SANCTUARY
AND SIMILIPAL CORE
86°0'0"E
86°15'0"E
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86°45'0"E
22°15'0"N
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RAIRANGPUR
SIMILIPAL NORTH
SIMILIPAL SOUTH
KARANJIA
BARIPADA
KEONJHAR
KEONJHAR_WL
BHADRAK
LEGEND
Similipal Core Area
National Park (Proposed)
Sanctuary Boundary
Similipal Tiger Reserve Boundary
Similipal Biosphere Boundary
Forest Division Boundary
5.5 2.75 0 5.5 11 16.5 22
Kilometers
SCALE 1:500,000

EX-SITU CONSERVATION

Indian mythology, history and literature are replete with accounts of wild animals patronized by kings, emperors and nobles for work, warfare and entertainment. Scriptures also record the existence of a Deer Park where Lord Buddha gave his first discourse. In the arena of wildlife conservation, zoos play a significant role. The zoos provide environmental education, eco-system awareness, and nature interpretation. They facilitate research on wild animals maintained in captivity and help in maintaining the gene pool of the critically endangered species. They also serve as rescue centres for straying wild animals rescued from near by human habitations.

Zoos in India are regulated by Central Zoo Authority, Govt. of India under the provisions of Section-38H of the Wildlife (Protection) Act, 1972 and are guided by the National Zoo Policy, 1998. The Government of India have formulated Recognition of Zoo Rules, 2009, and fixed standards and norms for management of Zoos in the country. Central Zoo Authority (CZA), which is a statutory body under the Ministry of Environment & Forests, Govt. of India over sees the functioning of Zoos in the country and provides technical guidance and assistance as assigned under Section 38C of the Wildlife (Protection) Act, 1972. The CZA also regulates minimum standards and norms for upkeep and health care of animals in Indian Zoos and controls mushrooming of unplanned and ill-conceived Zoos which used to crop up in the country as adjuncts to public parks, industrial complexes and waysides. State Wildlife Organization with financial and technical support from the Central Zoo Authority endeavors to maintain standards and quality of the Zoos, so that the very purpose of operating Zoos is achieved.

Presently, there are one large Zoo, three small Zoos and seven Mini Zoos in the state that enjoy the recognition from Central Zoo Authority(CZA). Nandankanan is the only large zoo in the state. Besides this, two small zoo and five Mini Zoo are managed by Forest Department. The other one small zoo and two mini zoo in the state are owned/ managed by other agency.

NANDANKANAN

Nandankanan Zoological Park is one among premier large Zoos of India located amidst beautiful natural surroundings spreading over an area of 3.62 Sq. Km in the outskirts of Bhubaneswar. The Zoological Park was dedicated to public on 29th December, 1960. The undulating topography with natural moist deciduous forest, water bodies and enchanting landscape provides the zoo inhabitants an appropriate ambience to live in harmony with nature.

VISITORS

26,27,546 visitors had their footfall at Nandankanan during the year 2019-2020 (From 1st April 2019 to 14th March, 2020). Zoo remained closed due to Covid-19 pandemic from 15th March, 2020 onwards.

Revenue

An amount of Rs. 14,98, 81,010/- has been realised during the year 2019-20 (From 1st April 2019 to 14th March, 2020) towards revenue from different sources

Nandankanan is known for the following

- Birth of white tiger from normal coloured parents in the year 1980. And Melanistic Tiger cubs in2014.
- White Tiger Safari established in 1991.
- First captive breeding programme for Gharial in 1980.
- First Indian Zoo to become a member of WAZA and to breed Rattle and Pariah Kite.
- Puri-New Delhi Superfast Express has been named as Nandankanan Express. Nandankanan is the first Zoo in the country after which an express train has been named.
- Second largest heronry of the State for Open-billed Storks (more than 12,000).
- Has a captive fodder farm (over 33 Acres) and a Slaughter house to cater the dietary needs of carnivorous Zoo animals.
- Has the largest pool for housing Gharials and Hippopotamus.
- Prioritizing awareness, education and training programmes on wildlife conservation and research.
- Nandankanan is not only a Zoo but also an ideal centre for research, education and ecotourism.
- After successful mating of zoo bred tigress 'Megha' with wild tiger 'Nandan' in Nandankanan, it was the day to remember when tigress Megha gave birth to two cubs on 20.04.2016 as Nandankanan got wild tiger gene for the first time in its history.
- Nocturnal house at Nandankanan established over 5000 sq.m of area is intended to exhibit nocturnal animals of regional importance in spacious naturalistic enclosures simulating their natural habitat with species specific enrichment to fulfill their biological needs.
- Nandankanan Biological Park is the first of its kind among all zoos of India to display carnivorous plants. Carnivorous Plant garden is established over 800 sq.ft area in StateBotanical Garden, Nandankanan with an intention to exhibit carnivorous plants of regional importance.

NEW FACILITIES

Exotic Primate Enclosures

- Three Exotic Primate Enclosures were created over an area of 281.25 Sq. Metres with a total expenditure of Rs. 20 lakhs from the Society Budget of Nandankanan to house three exotic primate species. Each enclosure width 60 Sq. Metres exhibit area along with two retiring cells and species specific enclosure enrichments has superior-strength glass

fronted viewing area which provides proper visibility and better visitor experience. A pair of Tufted Capuchin, a pair of Common Squirrel Monkey and one female Red Hand Tamarin is exhibited in these enclosures.




Indian Wolf Enclosure

- An Indian wolf enclosure was created over an area of 1087 M^2 utilizing Rs. 53.84 lakhs from the Society Budget of Nandankanan. The enclosure has an exhibit area of 207 M^2 with species specific enrichment, two back kraals, 6 retiring cells and keeper's corridor. The construction adhered to CZA guidelines and design for better management and health care of species. One female Indian Grey Wolf is exhibited in the enclosure.


Exchange & Procurement of Animals

Sl. No.	Species	Sex (M:F:U)	Zoo /Farm Name	Date of arrival
1.	Black Tufted Marmoset	0:2:0	Purchased from AFAZ Farm, Madurai	15.02.2019
2.	Indian Fox	1:1:0	Kamala Nehru PraniSangrahalaya, Indore	08.08.2019
3.	Indian Grey Wolf	0:1:0	Kamala Nehru PraniSangrahalaya, Indore	08.08.2019
4.	Tufted Capuchin	1:1:0	Purchased from Jai Farm, Chennai	03.10.2019
5.	Squirrel Monkey	1:1:0	Purchased from Jai Farm, Chennai	03.10.2019
6.	Nile Crocodile	2:1:0	MCBT, Mahabalipuram	22.10.2019
7.	Yellow Anaconda	0:0:8	MCBT, Mahabalipuram	22.10.2019
8	Asiatic Lion	4:0:0	KananPindari Zoological Garden, Bilaspur	17.03.2020
9	Indian Fox	1:1:0	KananPindari Zoological Garden, Bilaspur	17.03.2020

CZA Recognition:

Large Zoo/Notification No.F.No.19-64/92-CZA(212) (Vol.IX) (BKG) /2928 dt:13.04.2018

The other various *Ex-Situ* Conservation Sites in the State of Odisha are given below:

KAPILASH SMALL ZOO

This Small Zoo is situated at the foot hills of Kapilash Reserve Forest from where visitors can travel by ghat road to visit Lord Chandrasekhar at the hill top and view the scenic beauty of the forest and nearby natural water body.

Kapilash Zoo in Dhenkanal district was established in the year 1979 and initially it covered an area of 5 Ha. Later the area was extended to 26.64ha., which includes 11.30ha. of Debottar land and 15.34 ha. of Kapilash Reserve Forest. This Zoo provides recreational and amusement facilities to visitors. There is one Elephant rescue centre in "off exhibit" area of the Zoo. One Science Park exists adjoining to the zoo where picnic is being allowed. It is under the administrative control of the Divisional Forest Officer, Dhenkanal Forest Division.

CZA Recognition

Small Zoo/Notification No. F.No.19-106/92 CZA(211)(AK)/2708/2016 dated 26.09.2016

WILD ANIMAL CONSERVATION CENTRE, MOTIJHARAN

The Wild Animal Conservation Centre, Motijharan is situated between 21^0 28' 04''-21^0 28'32'' North latitude and 83^0 59' 10''-83^0 59'48'' East longitude in Sambalpur district. It is located inside the Motijharan Reserve Forest locally known as "Brookshill" which is a picturesque spot inside Sambalpur town. It is a low lying hillock with moderate vegetation on northwestern side. This Small Zoo is 8 Km. from the Sambalpur Railway Station and only 3 Km. away from N.H.53.

The Wild Animal Conservation Centre, Motijharan at Sambalpur made its beginning as a "Deer Park" in the year 1980. Initially it was established over an area of 6 ha. At present, it is designated as a Small Zoo by the Central Zoo Authority. It is under the administrative control of Hirakud Wildlife Division with Headquarters at Sambalpur.

CZA Recognition

Small Zoo/Notification No.F.No.19-3/93-CZA(201)(BKG)/2679/ 2016 date: 23.09.2016.

HARISHANKAR MINI ZOO

Harishankar Deer Park, now designated as a Mini Zoo is located on the foot hills of Gandhamardan in Bolangir district. It is a picturesque spot and rich with floral and faunal diversity. It is located at a distance of 13 Km. from the Khaparkhol Block Headquarters.

The Deer Park was created in the year 1971 with eight number of Spotted deer (*Axis axis*). It covers an area of 1.5 ha. and is located in the village Forest area of the Khaparakhol Tehsil. A perennial waterfall, being a source of natural fresh water is an added attraction of this spot. Besides, the temple of Lord Harishankar is situated very close to the Mini Zoo. It is under the administrative control of the Divisional Forest Officer, Bolangir Forest Division.

CZA Recognition

Mini Zoo/Notification No.F.No.19-1/93-CZA (194) (AK)/2666/2016 Date: 22.09.2016

TAPTAPANI MINI ZOO

In the year 1986, a Deer Park was established at Taptapani in Ganjam district, which is now recognised as a Mini Zoo. The existing area of the Zoo is 4.00 ha. It is located adjacent to State High-way No.17 (Berhampur to Rayagada) in Ganjam district at a distance about 55 Km from Berhampur with a panoramic view of Hot spring nearby. It is under the administrative control of the Divisional Forest Officer, Paralakhemundi Forest Division.

CZA Recognition

Mini Zoo / Notification No.F.No.19-107/92-CZA(196) (NS)/8077 Date: 30.11.2015.

KUANRIA MINI ZOO

The Deer Park at Kuanria was established in the year 1985 with only eight Spotted deer (*Axis axis*) in an area spreading over 06 ha, now recognized as mini zoo.It is situated at Kuanria on NH-224 in Nayagarh district, which is 7Km. from Dasapalla town, situated on the foot hills of Baisipalli Wildlife Sanctuary, which is at present a part of Satkosia Tiger Reserve. The Kuanria Minor Irrigation Dam is adjacent to this Mini Zoo. It is under the administrative control of the Divisional Forest Officer, Mahanadi Wildlife Division.

CZA Recognition

Mini Zoo/Notification No. F.NO.19-105/92-CZA(195)(AK)/2669/2016 dated 22.09.2016

PAPADAHANDI MINI ZOO

Papadahandi Mini Zoo in Nabarangpur district was initially established as a "Deer Park" in the year 1986. The Zoo is located on side of N.H. 201 i.e. the road from Boriguma to Bargarh at a distance of 10km from Nabarangpur and 1km from Papadahandi. It is 50km away from Jeypore. It is within the Papadahandi Reserve Forest having dense Sal growth. It is under the administrative control of the Divisional Forest Officer, Nabarangapur Forest Division.

CZA Recognition

Mini Zoo/Notification No.F.No.19-112/92-CZA(197) (NS)/1498/2019 Date: 26.09.2019.

GHARIAL RESEARCH AND CONSERVATION UNIT (GRACU)

Gharial Research and Conservation Unit (GRACU) was established by the Odisha Forest Department in March 1975 at Tikarpada adjacent to the Satkosia Gorge as in mid 70s, Govt. of India with technical assistance from FAO of the United Nations Development Programme (UNDP) initiated "Crocodile Conservation & Management Programme" in Odisha and also in other parts of the country to save the dwindling population of the Gharials as well as two other crocodilian species Saltwater crocodiles (*Crocodylus porosus)* and Mugger crocodiles *(Crocodylus palustris)*. The GRACU, Tikarpada is 60 km from Angul. It is under the administrative control of the Divisional Forest Officer, Satkosia Wildlife Division.

CZA Recognition

Mini Zoo/Notification No.F.No.19-46/93-CZA(200) (BKG)/ 1119/2017 Date: 16.06.2017.

MINI ZOO AT BERHAMPUR UNIVERSITY

CZA Recognition

Notification No.F.No.19-103/93-CZA(198) (M)/2376 Dated: 12.03.2013 cancellation of recognition communicated by CZA.

History – Bhanjavihar Deer Park was established in the year 1989 with one pair of spotted deer (*Axis axis*) from Rajbhawan Deer Park, Bhubaneswar. This pair was kept in an enclosure of 2.2 acre (0.926 ha) which was fenced with chain link mesh inside a spectacular location in the Berhampur University, Bhanjavihar under the management of the Zoology Department of the University. The Central Zoo Authority (CZA) gave recognition to the deer park in 1995 as a "mini zoo" initially for one year. However, during evaluation of the deer park by the CZA it was disqualified to be acclaimed as a mini zoo as per the guidelines outlined by the CZA for the purpose. Recognition of deer park was cancelled in 2005 under section 38 H (6) of Wildlife Protection Act, 1972 vide F.No. 19-103/93-CZA(198) dated 21-06-2005. Accordingly, the CZA requested the Forest Department to take over the responsibility of the animals and translocate them to another location or release them to the wild following all guidelines.

Translocation of Deer

Translocation of captive animals from the Deer Park, Bhanjavihar, Berhampur University Campus to Lakhary Valley Wildlife Sanctuary of Paralakhemundi Forest Division.

Initially it was proposed to shift the deer population to a new deer park to be established at Narayani under Berhampur Forest Division. After many rounds of discussions at the level of PCCF(WL) & CWLW, Odisha, RCCF, Berhampur Circle for selection of place for translocation and approval by the Central Zoo Authority, it was decided that the animals will be translocated by the Divisional Forest Officer, Berhampur Division to Lakhary Valley Wildlife Sanctuary under Paralakhemundi Forest Division under soft release technique under the guidance of the RCCF, Berhampur Circle. Accordingly one area was identified near Balliganda area inside the Sanctuary and one pre-release enclosure over an area of 2.0 hectare was constructed inside the Lakhary Valley Wildlife Sanctuary in 2019-20. The process of translocation of deer from the Bhanjavihar University to lakhary Valley Wildlife Sanctuary under soft release technique was completed within a period of 6 days ranging from 10.04.2020 to 15.04.2020 in 4 phases. The detailed account of translocation and aftercare is as given below:

1. Since the Bhanjavihar Deer Park was not under the administrative control of the Berhampur Forest Division, it was decided that a committee will be constituted comprising members from Forest Department, Wildlife Expert and Veterinarian (deputed by Nandankanan Zoological Park or Chief District Veterinary Officer) which will be totally responsible for the Detailed inventory of the population and status of the animals (Spotted Deer-*Axis axis*), shed antlers in the Bhanjavihar Deer Park since the deer park was under the management of the Berhampur University and no census exercise has been done as per records available with Bhanjavihar, taking full responsibility of the translocation of the animals from Bhanjavihar Zoo to Lakhary Wildlife Sanctuary enclosure abiding by all the regulations of the Central Zoo Authority and IUCN, submit daily status of translocation of the animals to the Divisional Forest Officer, Berhampur Division, resolve any dispute within both the Divisions regarding translocation under due intimation to both DFO Berhampur and Paralakhemundi.

2. Prior to translocation of the animals a meeting with the staff of Berhampur and Paralakhemundi Divisions was held on the strategy to be adopted for the translocation. The spotted deer were enumerated by the team constituted and health check up against contagious diseases, especially Tuberculosis was done by the Specialist Veterinary Doctor of the Nandankanan Zoological Park who certified that the animals were found in good and sound health and fit for translocation.

3. The herbivore transport vehicle having specialized facilities for translocation was requisitioned from the Director, Nandankanan Zoological Park. All arrangements were made in the vehicle for safe translocation of the animals from the Deer Park to Lakhary Valley Wildlife Sanctuary which was about 120 kms from Bhanjavihar consisting of normal, ghat and forest roads. Proper straw padding along with banana stems on the side walls was done inside the vehicle. Arrangements for proper ventilation system, CCTV, space for turning around, sprinkling of water and keeping cool environment throughout the journey of the animals was ensured. Time chosen for translocation was in between 5.30 am to 9.00 am.

4. Multiple channel boma was constructed at the Bhanjavihar deer park with the help of agroshade nets, bamboo poles and foliage for guiding the animals into the vehicle in a like natural atmosphere without touching them to avoid risk of casualties / capture myopathy. Appropriate excavation and creation of ramp was also done at one end of the deer park where the vehicle was docked.

5. A total of 42 (fortytwo) animals (both male and female) were present as enumerated by the team constituted. The animals were guided to the boma from one end of the deer park into the vehicle. In this process the animals could be translocated to Lakhary Valley Wildlife Sanctuary in the following four phases as detailed below

Date	No. of Animals Translocated
10.04.2020	7 (seven)
11.04.2020	14 (Fourteen)
13.04.2020	10 (Ten)
15.04.2020	10(Ten)
Total	**41(Forty one)**

During the above translocation exercise, in total there were 4 animal deaths which occurred on 10.04.2020. One animal died at Bhanjavihar before translocation due to previous injuries. Other three animals died after reaching the Lakhary Valley Sanctuary due to stress and capture myopathy even after all necessary treatments by the Block Veterinary Officer, Mohana who was deputed by the Chief District Veterinary Officer, Gajapati as per the request of the DFO, Paralakhemundi for the whole exercise. The other animals were certified to be in good condition by the veterinarian. All the animals were released after translocation in the pre-release enclosure constructed by the DFO, Paralakhemundi Division in the Lakhary Valley Wildlife Sanctuary as per soft release guidelines.

6. The other conditions for the transportation of captive animals as per guidelines of the CZA/ IUCN were followed. Pregnant females were transported in the last phase with extra padding material and care. No infants were there and accordingly none transported. As it was a translocation in order to set the animal free following the process of soft release as well as setting the existing deer park closed, every single animal needed to be translocated. However, the animals in velvet were transported with extra care to avoid any risk of injury and casuality. All papers and communications which were available accompanied the animals during the transportation. Also, a special permission from the district administration was obtained for COVID-19 restrictions in the lockdown phase. As it was a soft release process, all animals translocated were in an enclosure and under quarantine. They will be there approximately kept in enclosure for a period of 4 months before they get released to the natural forest. As it was a short duration journey and the animal

were translocated during the early morning the feeding had not been provided. Further, no sedation has been used in the operation and handling of the animals have also not been done. A team of experts including experienced forest officers, wildlife experts and veterinarian accompanied the translocation to attend to any unforeseen situations. All necessary drugs, medicines, first aids etc were kept ready by the team of experts. Adequate fund arrangement was also done to meet any unforeseen emergency during the transportation. The cooperation and guidance of the nearest existing zoo (Nandankanan) was also taken.

7. The animals were handed over to the DFO, Paralakhemundi Division after proper documentation. The precautionary measures issued by CZA for COVID-19 were also strictly followed.

8. As per CZA guidelines, prior to translocation of animals from Bhanjavihar, preparations were made at this end for safe release of the animals in the natural habitat. A pre-release enclosure of about 2 Ha was constructed near the release site having attributes of the wildlife habitat where the animals are proposed to be released.

9. Socio economic studies have been made along with regular interaction with the local people of Baliganda and Manikapur and nearby villages. Steps have been taken to address their apprehensions of release of the animals in the wild and they have consented for the aforementioned release with conditions such as improvement of road connectivity etc.

10. Public awareness both before release and after release was done using print and electronic media for consciousness of the people and knowing on the benefits of the proposed release with relation to the maintenance of a healthy ecosystem and benefits thereof. Further a short documentary film has been prepared covering all steps of the translocation exercise for awareness of the people post translocation.

11. The execution of all phases of the release programme have been carried out under the direct supervision of the senior officers along with trained staff of the department, veterinary officials and wildlife experts and necessary advice has been taken from the experts regarding monitoring of the population post release. Scientific methodologies have been adopted starting from creation of multiple channel boma and then transporting the animals through a specialized vehicle and release in a pre-release enclosure under soft release process without touching the animals to avoid casualties and capture myopathy has resulted in a successful translocation of the animals under a structured transport plan. Post release care is also being carried out in a scientific approach through trained personnel. Modern gadgets are also being used such as CCTV cameras, Trap cameras etc. for monitoring the behaviour relating to feeding, movement, mating etc in the pre-release enclosure. A team of 7 local people have also been provided wages from the Forest Department to look after the deer population on day to day basis and provide prompt information.

12. Steps have been taken to adapt the animals to the wild environment. As an enrichment, branches of edible leaves have been tied at a browsable height for studying their feeding behaviour. The deer feed which is provided daily is being regulated to acclimatize the animals for thriving on green fodder available in forest. It is seen that exercise has been successful. The deer are now more dependent on the leaves etc. rather than deer feed. The animals are reportedly thriving well in the location and wild behaviour is becoming evident.

13. Out of the funds provided by Bhanjavihar authorities, it has been planned to immunize the cattle in the locality against contagious diseases within a month before release of the animals to the wild habitat.

14. Continued evaluation of all the animals on a daily basis, births, deaths etc are being done through various identified parameters.

15. The animals will be released very soon from the pre-release enclosure after due assessment.

Construction of Boma

Herbivore rescue vehicle

Enclosure at Lakhary

MINI ZOO AT HINDUSTAN AERONAUTICS LTD. (HAL), SUNABEDA, KORAPUT

HAL Deer Park covering an area of 2.05 ha. was established near HAL Nursery in Sector-VII of HAL Township, Sunabeda in the year 1979. This Mini Zoo is well connected to the District Head Quarters by NH-43. It is under administrative control of Hindustan Aeronautics Ltd.

CZA Recognition

Mini Zoo/Notification No.F.No.19-42/93-CZA(209) (M)/3063 Date: 24.06.2013

INDIRA GANDHI PARK ZOO & DEER PARK, ROURKELA

The zoo is situated at ring road of the Rourkela city. Later some rare animal and bird species were added to deer park. While establishing a Botanical Garden in early 60's, a couple of Spotted deer and a variety of birds, in small number, were exhibited as a feature of the garden. The Botanical garden was subsequently renamed as Indira Gandhi Park Zoo in 1988 which covers an area of 50 acres (approx). Indira Gandhi Park Mini Zoo is under the administrative control of Steel Authority of India Ltd., Rourkela Steel Plant.

CZA Recognition

Small Zoo/ Notification No.F.No.19-155/93 CZA(199) (Vol.III)(M)/4096 Date: 07.01.2014

MUNICIPAL MINI ZOO, CUTTACK

The Municipal Corporation Deer Park, now designated as a "Mini Zoo" is located at Tulasipur (Ward No.13) of Cuttack. In the year 1981, on local self Government day (31.08.1981) a Deer Park was established by the Cuttack Municipality. It covers an area of 2 acres. As per the stipulation of Central Zoo Authority, Ministry of Environment & Forests, Govt. of India, the District Administration has been requested to provide a patch of suitable land extending over an area of 5ha. in Sector-8 of CDA at Bidanasi to accommodate the growing population of deer, improvement of the facility and better management of this Mini Zoo.

Administrative Control

It is under the administrative control of the Cuttack Devlopment Authority.

CZA Recognition

Mini Zoo/Notification No.F.No.19-206/93-CZA(204) (NS)/ 6970 Date: 17.04.2015

CHAPTER IV

WILDLIFE CONSERVATION INITIATIVES BY COMMUNITY

In Odisha, it is not only Protected Areas (PAs) which are home to rich diversity of wildlife but areas outside PAs are also home to variety of species. Taking care of conservation needs of such species is also part and parcel of the department responsibilities. However contribution and support of local communities in conservation and management of such species is also praiseworthy. In some parts of the state, due to social and religious reasons, local communities are protecting some species and as a result they have become shining examples of community led protection efforts and are highly acclaimed not at state level but at National and International level also. Some examples of such community led initiatives are detailed below.

1. BLACKBUCKS OF GHUMSUR

This graceful and slender species is locally called as "Kala Bahutia" or Krushnasara Mruga. It is present in eastern India in few pockets of Ganjam only. The belief of the people about the blackbuck is that it is the precursor of prosperity and presence of this living creature not only breaks the long spell of drought but also bless the area with plenty of food and wealth as experienced by the local people. Therefore the blackbuck have occupied a vital place in the religious belief, that encourage people of Ganjam to protect and conserve it.

DIFFERENT STAGES OF BLACKBUCK

One week old Fawn

One month old Fawn

Adult Female (Doe)

Adult male

Bachelor herd

Female herd

Territorial herd

Blackbucks in this area are mainly distributed in Buguda, Aska and Polsara Ranges. However gradually they are also migrating to Ghumsur North Division (Jagannath Prasad Range) and Berhampur Division (Khalikote Range) and to other near by Divisions. Bhetnai-Balipadar area is one of the wildlife destination of the State.

Census report of Blackbuck conducted during the year 2011, 2015, 2018 and 2020 shows the picture of remarkable growth in population due to favourable habitat condition & protection provided by the local people and Forest department.

Year of Census	Population Blackbucks			
	Male	Female	Young	Total
2011	386	993	154	1533
2015	782	1490	346	2618
2018	812	1669	328	2809
2020	1357	4476	1042	6875

Black Buck *(Antelope cervicapra)* is one of the three species of antelopes found in Odisha. The other two are Nilgai *(Boselaphus tragocamelus)* and the Chousingha *(Tetracerus quadricornis)*. The male Blackbuck is larger than the female and more conspicuously coloured, with the coat being a rich dark brown along the back. Both sexes are white on the underside and insides of the legs and have a white ring around each eye. This species has a narrow muzzle, short tail and pointed hooves.

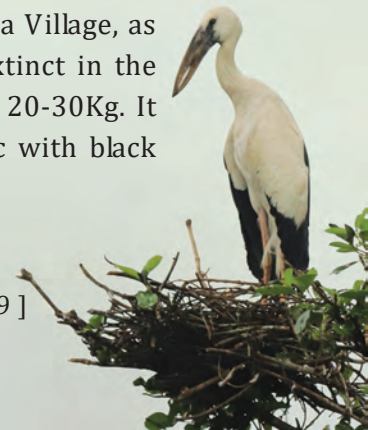
There are nearly 70 villages where these Blackbucks can be seen. The major part of the population is concentrated in the areas covering villages like Bhetnai, Sishanai, Narayanpur, Babanpur, Gollapalli, Nuapalli, Balipadar, Thanapalli, Talasakar, Sholamailli, Kholakhali, Ramanda, Ramagada etc. This example of community led conservation initiative finds a special place in conservation efforts of the state of Odisha.

2. GIANT FRESH WATER TURTLE (*TRIONYX GANGETICUS*)

GOLIA OF BUGUDA AREA OF GANJAM

Kurma also known as "Kurma Raja" (Tortoise King) is in 10 Avatar of the Hindu god "VISHNU" who restore peace and sanity.

Giant Fresh Water Turtle (*Trionyx gangeticus*), a Schedule-I species under the Wildlife (Protection) Act, 1972, is available in a pond in the village Golia of Buguda Block of Ganjam District. This species is the same that was once found in the legendary "Indradyumna tank" at Puri. It is locally known as 'Kurma'. The legend says that it was brought to Golia by Sardar of Bhanja army, namely D. Hatiram Dora of Golia Village, as a gift for his bravery from the king of Puri. At present, this species is extinct in the "Indradyumna tank at Puri". The species is of large size and weighs about 20-30Kg. It is distinguished by the greenish black streaked head and olive green disc with black reticulation or yellow vermiculation.



Conservation of Giant fresh water turtle in "Neliabandha" pond in the village Golia of Buguda Range gives unique position to this area in the wildlife map of Odisha. The population is estimated to be around 350 nos. These ancient reptiles are diminishing in numbers and due to sincere efforts and protection by the villagers, population of the fresh water turtle is increasing. The villagers are taking care, protection measures like cleaning of pond in regular intervals by removing debris, garbages and strictly prohibited fishing and hooks. They have also undertaken habitat restoration and planted some grasses around the pond for nesting during breeding period.

Giant Fresh Water Turtle *(Trionyx gangeticus)*

3. PEACOCK CONSERVATION IN ASKA AREA OF GANJAM

Birds are widely known as biological indicators of environment and are used as a tool for any conservation and environmental impact assessment of any local habitat. This Phasianidae species too is a valuable indicator of environmental quality and assessment of its status can provide essential clues for the management of ecosystems. The peafowl plays a dynamic role from the biological point of view as an omnivorous species. It is a potential natural control agent that feeds on insect pests of crops and contributes to maintaining a healthy and sustainable ecosystem. Hence, the peafowls provide a valuable ecological scavenger and act as a biological pest controller.

Peacock the National Bird of India is a Schedule-I Bird species under the Wild Life (Protection) Act, 1972. Peacocks are found in the forest of entire area & their population is highly concentrated in Pakidi DPF /nearby village (area- Cheramaria, Sobhachandrapur, Ambuabadi, Kerikerijhola, Bhusanda & khadabhaga) of Aska Range of Ghumsur South division

which is estimated to be around 1,000Nos. For protection of peacocks a "Peacock Protection Committee" has been formed by involving people of the villages located around Pakidi DPF. Water bodies have been created inside habitat area to provide drinking water and to check their movement to vicinity of nearby village. During summer special arrangements are made to provide water by fixing pitches and making small masonry water tanks inside habitat area, which are filled by water. However, the peacocks come outside the habitat area at times. Use of insecticides in crop fields surrounding the habitat area and establishment of stone crushers and quarrying of stones in the adjoining areas and use of explosives are threats that loom over the survival of the species. The villages of Cheramaria, Sobhachandrapur, Ambuabadi, Kerikerijhola, Bhusunda & Khadabhaga villages have made excellent community efforts for conservation & protection against poaching to our National Bird in Pakidi DPF. During last two years due to massive effort of forest field staff and villagers control of forest fire has been done in all habitat area resulting in amelioration of habitat and number.




4. HATIMINAR (ELEPHANT MEMORIAL) - KEONJHAR FOREST DIVISION

On 7th November, 2009, a tusker from Jyotipur Reserve Forest stepped towards paddy field of village Jally in Champua Block in Keonjhar District on Odisha-Jharkhand border. It did not know sagging electric live wire is waiting ahead. It reached the paddy field of Padmini Naik and the tusker raised its trunk only to touch the sagging high voltage power line and died. "My mother was too shocked about the Elephant dying on our field as she considered Elephant as

"Vehicle of Laxmi" (Gaja Lakhshmi) the Goddess of wealth. She asked me to build a memorial for the dead animal and she did not take food for next 2 to 3 days" said Dr. Krushna Chandra Naik, son of Padmini Nailk. Respecting her mother's wish, Dr. Krushna Chandra Naik, a retired Odiya teacher from a local College, in January, 2019 erected a 35 feet tall memorial for the dead Elephant on the same paddy field and called it "Hathi Minar".

In the current year 2020, two thousand (2000) number of saplings have been planted around the Minar over an area of 2.00 Acre and developed into a park.

Building a Memorial for Elephant shows an emotional attachment of the community towards Elephant, a respect, love and affection. It carries a message to the humankind "Save Elephant".

Dr. Krushna Chandra Naik

Mrs. Padmini Naik

Memorial

5. GHODAHADA - MUGGER CONSERVATION

Ghodahada is actually the name of a river which originates from Mahendragiri RF of Parlakhemundi Division and runs between Gaida DPF of Digapahandi Range of Brahmapur Division in the north and Ramagiri RF of Pudamari Range of Parlakhemundi Division in the South. A dam was constructed on the river between 1962 to 1977 intercepting a catchment of 138 sq kms. This has added a wetland of about 5.0 sqkm to the ecosystem, further enriching the bio-diversity. Ghodahada reservoir is large water body with ample scope for cruising and water sports. Ujjaleswar Temple, which is an important religious place is also nearby and an added attraction. On the southern side of the reservoir, Lakhari Valley wild life sanctuary is located and wild animals particularly elephants can be seen often in the year in addition to Crocodiles. This can also act as a base camp for tourists visiting Mahendra Giri and Lakhary valley etc. Small islands in the waterbody and some ancient rocks and submerged temple of the old Ghodahada Village which is now completely submerged adds to the beauty.

Faunal characteristics of the area:

Gaida DPF is also a transit place of Elephants from Lakhary Valley. Besides there are other species seen in water as well as the forests on both sides of the reservoir

a) Mugger crocodile, Terapins *(Trionix gangeticus)*, King Cobra *(Ophiophagus Hannah)*, Brahminy Kite *(Haliastur Indus)*, Open Billed Stork *(Anastomus oscitans)*, Elephant *(Elephas maximus)* Paniodha *(Lutra perspicillata)*, Sambara *(Cervus unicolor)*, Chital *(Axis axis)* and a number of Snakes

b) During a census conducted in January 2008 as many as 29 adult Mugger crocodiles *(Crocodilus palustris)* were counted for the first time. The total number of crocodiles, a Schedule-I species will be more than 200 as per information collected locally. However the census of crocodiles done through direct sighting method in various years shows numbers as given below:

CENSUS OF CROCODILES AT GHODAHADA RESERVOIR

Year	Census figure	Period of census
2016	55	10th January, 2016
2017	55	8th January, 2017
2018	45	9th January, 2018
2019	58	9th January to 11th January 2019
2020	65	10th January, 2020

Conservation of Mugger

Conservation of such a huge number of Muggers in this reservoir is now managed by the department as well as local community. Due to intervention of the fishermen community and their tolerant approach towards the crocodiles, they are surviving and breeding in this reservoir. Accordingly in UNDP Project a Ghodahada Cluster committee was formed and alternative livelihood support was provided to the nearby villagers to decrease their dependence on the reservoir for fishing. A society of the fisherman has been formed in the name of "Maa Ramachandi Machya Samabaya Samiti". The fish population is annually augmented by release of fish seeds by the local fishermen community (who have taken lease of the reservoir for fishing) as the population of Mugger Crocodiles at Ghodahada dam is heavily dependent on the fish of the reservoir.

Alternate Livelihood supports provided to local community

1) Encouraging fishing in captive ponds.
2) Establishment of fish seed hatchery.
3) Promoting other traditional vocations like mixture making, *chuda & mudhi* making.
4) Promoting Poultry.
5) Promoting Duckery.
6) Promoting Dairy.
7) Bee Keeping.
8) Social Forestry.

9) Candle Making.

10) Agarbatti Making.

11) Tailoring.

GHODAHAD

6. CONSERVATION OF INDIAN SKIMMER BY COMMUNITY PARTICIPATION

The Indian Skimmer is a conservation priority riverine bird and categorized as Vulnerable in the IUCN Red List of Threatened Species. The bird predominantly breeds in sandy Islands along riverine habitats in India and earlier it was known to breed mostly in different localities along the Chambal River. The species being obligatory to riverine habitats for breeding is vulnerable from multiple anthropogenic threats and their global population is continuously declining. After getting evidence on the breeding activities of this bird from several permanent as well as seasonal Islands along the Mahanadi River in Odisha, the Wildlife Wing of State Forest Department has taken up need based short term research initiatives since 2017 to protect the nesting sites to ensure their breeding success and understand their breeding ecology. As the nesting sites of Indian Skimmer along the Mahanadi River in Odisha are situated within anthropogenic zone outside Protected Areas, the Wildlife Wing of State Forest Department is implementing conservation measures with the support of the local communities.

During the last four years of monitoring, although nesting activities of Indian Skimmer has been sporadically reported from seasonal Islands near Botalama, Bheda and Jatamundia of Khordha Forest Division, and Kakhadi of Athgarh Forest Division, major and regular nesting activities (more than 70% of the nests each year) occur along the up and down-stream areas adjoining to Mundali barrage in Damapara Wildlife Range of Chandaka Wildlife Division. The major threats perceived by the breeding birds are from unintentional disturbances out of peripheral fishing activities near the nesting sites and livestock (Buffalo) grazing in the nesting sites; though these are the primary livelihood of local Bada Mundali and Sana Mundali villagers. To avoid the conflict between breeding activities of Indian Skimmers and livelihood of local people, staff of Chandaka Wildlife Division organized and conducted regular community awareness activities to elicit support for conservation of Indian Skimmer. Besides that, as a part of this conservation activity, every year the department also provides livelihood to local youths by hiring them as nest guardians. The Indian Skimmer, locally known as "Paanichiri" and their habitat is well protected due to support of the sensitized local communities. As a result, the breeding success rate of this migratory species is gradually increasing.

Table 1: Yearly data on breeding population and breeding success rate of Indian Skimmer along the Mahanadi River in Odisha since 2017

Year	2017	2018	2019*	2020
Breeding population	188	228	172	168
Number of nests	101	129	107	77
Hatching Success Rate	72.2%	52.7%	42.1%	92.2%
Chick Survival Rate	27.9%	33.2%	17.5%	38.8%

**During the year 2019, the breeding success rate of Indian Skimmer fallen down due to the negative effects of "FANI"*

Community Awareness meeting at Mundali

Indian Skimmers in the breeding ground at Mundali

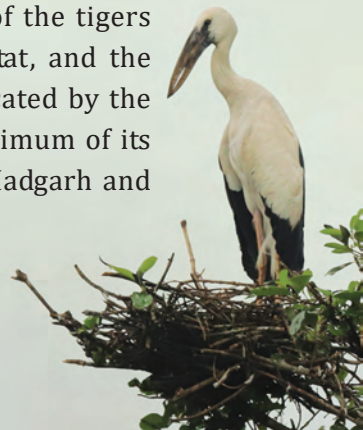
CHAPTER V

WILDLIFE CENSUS

Wildlife research, population study and documentation is a recognized need for planning and management of the wildlife in the state. Population estimation of various wildlife species in entire state has been done regularly for better understanding of wildlife and their habitat which form a vital input for better management planning.

As a practice, regular census of Elephant, Tiger and Blackbuck in the terrestrial (forest) habitat; the Gharial, Mugger and Waterfowl in the freshwater habitat; the Estuarine Crocodile, the Waterfowl, Dolphins in saline water and the nesting turtles in the sea coast habitat are being conducted.

Mayurbhanj District holds most of the tiger population of the state. Less than thirty tigers were surviving here in the year 1975. Sustained protection measures and management initiatives were initiated under Project Tiger. Recent census of tigers conducted by the use of camera trap techniques in the year 2018 shows presence of 28 tigers. Similipal is the only place in the world that houses the source population of melanistic tigers. Most of the tigers from North Similipal are moving to south Similipal that remains a better habitat, and the leopards, more adaptable than the tiger, are appearing in most of the habitats vacated by the tiger. These observations suggest that Similipal habitat may be reaching the maximum of its carrying capacity for tiger. The future seems dependent on adjoining forests of Hadgarh and Kuldiha that are better known as elephant habitats.



WILDLIFE CENSUS RESULTS

(2015-16 to 2019-20)

Sl. No.	Species	Census area / site	2015-16	2016-17	2017-18	2018-19	2019-20
1	Saltwater crocodile (Baula)	Bhitarkanika	1683	1694	1713	1763	1809
2	Mugger crocodile (Mugger/Gomunha)	(i) Satkosia / Mahanadi river	103	86	89	104	113
		(ii) River systems of Similipal Tiger Reserve	79	77	84	85	73
		(iii) Ghodahada Reservoir, Digapahandi, Ganjam	55	55	45	58	65
3	Gharial (Ghadial)	Mahanadi river system	3	9	7	8	8
4	Olive Ridley sea turtle	Gahirmatha	0.52 lakhs	6.04 lakhs	6.65 lakhs	4.51 lakhs	4.07 lakhs
		Rushikulya river mouth	0	3.71 lakhs	4.45 lakhs	No Mass nesting	3.23 lakhs
		Total	0.52 lakhs	9.75 lakhs	11.10 lakhs	4.51 lakhs	7.30 lakhs
5	Irrawaddy Dolphins	Chilika lagoon	Census not done	121	114	113	146
	Bottle nose	Chilika lagoon	Census not done	13	12	0	17
	Dolphins (7 species)	Entire coastal Odisha including Chilika lagoon	Census not done	257 Irrawaddy-181 Bottle Nose-31 Humpback -34 Humpback-6 Pantropical spotted-5 Finless-0 Gaanges River-0)	469 Irrawaddy-163 Bottle Nose-121 Humpback-116 Humapback-69	259 Irrawaddy-130 Bottle Nose-16 Humpback-107 Humapback-6	232 Irrawady-208 Bottle Nose-22 Humpback-2

6	Blackbuck	Balukhand-Konark Wildlife Sanctuary	0	0	0	Census not done	Census not done
		Blackbuck habitat area of Ganjam District	-	-	4082	Census not done	6875
7	Elephant	Entire State	-	1976	-	-	-
8	Tiger	Entire State	40 (Census by both Camera trap and Pugmark method by State)	-	-	28 (26-30) Summary Report of NTCA & WII, 2018	-
9	Leopard	Entire State	318	-	-	-	-
10	Migratory Birds	(i) Chilika lagoon	8.39 lakhs 94 species	9.24 lakhs 100 species	8.68 lakhs 95 species	10.21 lakhs 105 species	10.71 lakhs 109 species
		(ii) Bhitarkanika Mangrove Wetland	01.06 lakhs 131 species	0.76 lakhs 109 species	1.13 lakhs 83 species	01.09 lakhs 74 species	1.18 lakhs 105 species
		(iii) Hirakud reservoir	0.96 lakhs 60 species	0.78 lakhs 57 species	1.37 lakhs 82 species	01.46 lakhs 92 species	0.98 lakhs 93 species

A. ELEPHANT CENSUS DETAILS

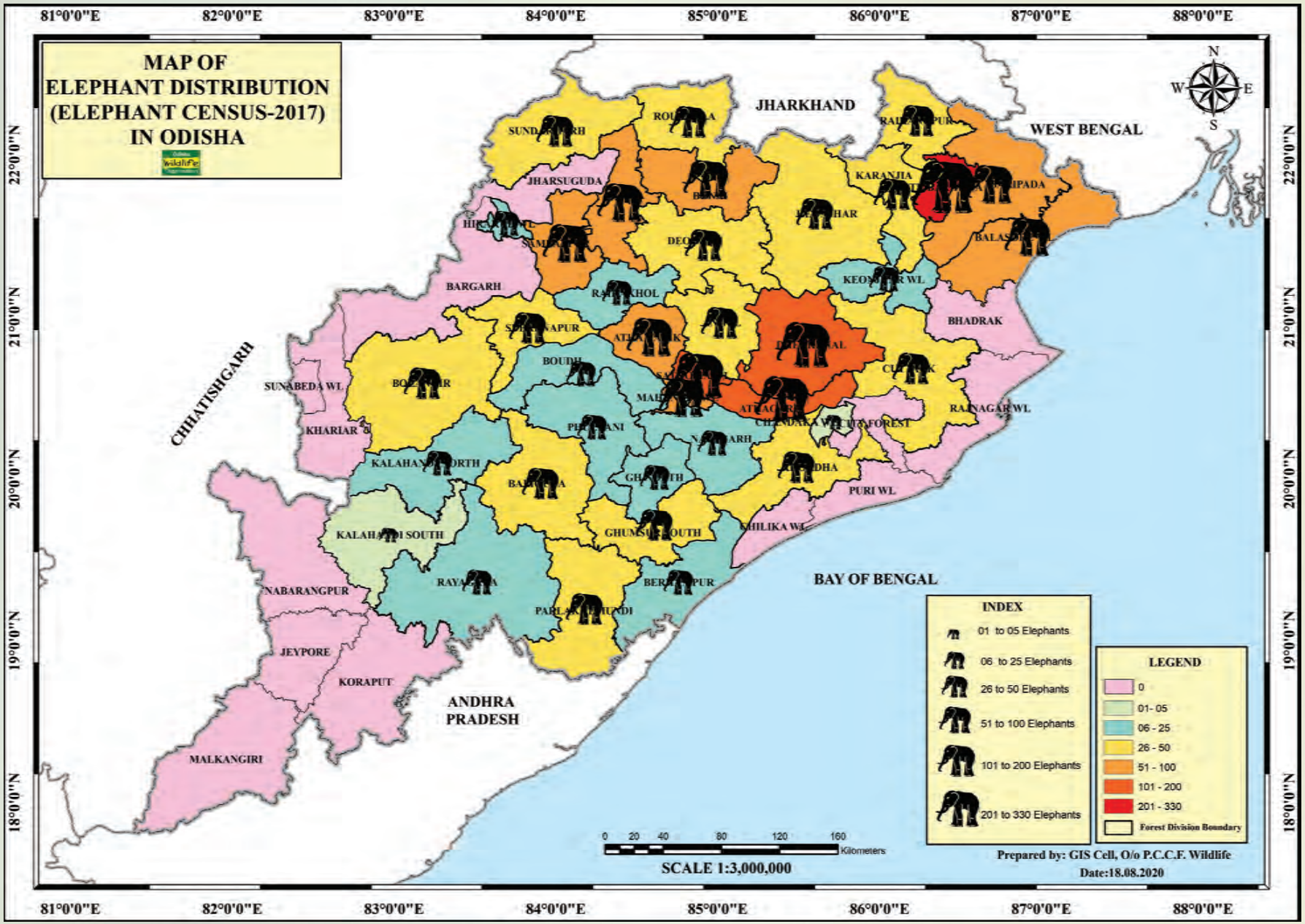
The census of Elephants was conducted in all divisions having Elephant during the month of May, 2017. The census dates are decided in consultation with the states of Jharkhand, Chhatisgarh and West Bengal, all of which share the Eastern Range Elephant Habitat, with Odisha state. Odisha holds about 70% of the Elephants in the region. The Wildlife Headquarters of Odisha Government organizes the training at the regional level. The technique involved is actual count method.

The Census of elephants in Odisha was conducted in the years 1979, 1999 and 2002, 2007, 2010, 2012 2015, and 2017. The technique for census of Elephant has been developed and refined with every successive census operation. The traditional method involves fixed point counts from salt-licks, water bodies, watch towers, etc. combined with perambulations during the day time.

ODISHA : ELEPHANT CENSUS RESULT-2017

Name of the Division	Male	Female	Unknown Sex	Young	Total
Angul	13	22	0	10	45
Athmalik	10	30	2	17	59
Dhenkanal	30	94	15	30	169
Athagarh	17	57	0	41	115
Cuttack	7	17	0	13	37
Satkosia WL	22	88	0	37	147
Mahanadi WL	14	50	0	29	93
Total Angul Circle	**113**	**358**	**17**	**177**	**665**
Balasore WL	19	51	0	27	97
Rairangpur	12	25	0	9	46
Karanjia	8	21	0	14	43
Baripada	17	34	0	19	70
Similipal TR Core	38	203	2	87	330
Keonjhar WL	11	26	0	12	49
Total Baripada Circle	**105**	**360**	**2**	**168**	**635**
Berhampur	2	6	2	1	11
Ghumsur North	4	5	0	8	17
Ghumsur South	5	13	2	5	25
Parlakhemundi	4	18	5	0	27
Balliguda	4	17	0	9	30
Boudh	3	7	0	5	15
Phulbani	6	13	0	4	23
Total Berhampur Circle	**28**	**79**	**9**	**32**	**148**

Name of the Division	Male	Female	Unknown Sex	Young	Total
Kalahandi North	4	9	0	4	17
Kalahandi South	1	0	1	0	2
Subarnapur	4	30	0	10	44
Bolangir	9	20	0	3	32
Khariar	0	0	0	0	0
Total Bhawanipatna Circle	**18**	**59**	**1**	**17**	**95**
Chandaka WL	1	0	0	0	1
Chilika WL	0	0	0	0	0
City Forest	0	0	0	0	0
Khurda	5	10	1	17	33
Nayagarh	2	6	0	6	14
Total Bhubaneswar Circle	**8**	**16**	**1**	**23**	**48**
Rayagada	3	8	1	4	16
Koraput	0	0	0	0	0
Total Koraput Circle	**3**	**8**	**1**	**4**	**16**
Bonai	14	38	0	7	59
Deogarh	5	14	1	7	27
Keonjhar	9	24	0	7	40
Rourkela	2	21	2	10	35
Sundargarh	9	12	0	5	26
Total Rourkela Circle	**39**	**109**	**3**	**36**	**187**
Sambalpur	9	31	4	9	53
Jharsuguda	0	0	0	0	0
Rairakhol	5	8	0	3	16
Bamra WL	12	52	0	30	94
Hirakud WL	4	12	0	3	19
Bargarh	0	0	0	0	0
Total Sambalpur Circle	**30**	**103**	**4**	**45**	**182**
ODISHA GRAND TOTAL	**344**	**1092**	**38**	**502**	**1976**


MAP OF
ELEPHANT DISTRIBUTION
(ELEPHANT CENSUS-2017)
IN ODISHA
81°0'0"E
82°0'0"E
83°0'0"E
84°0'0"E
85°0'0"E
86°0'0"E
87°0'0"E
88°0'0"E
22°0'0"N
21°0'0"N
20°0'0"N
19°0'0"N
18°0'0"N
N
S
E
W
JHARKHAND
WEST BENGAL
CHHATISHGARH
ANDHRA
PRADESH
BAY OF BENGAL
JHARSUGUDA
BARGARH
SUNABEDA WL
KHARIAR
KALAHANDI NORTH
KALAHANDI SOUTH
NABARANGPUR
JEYPORE
KORAPUT
MALKANGIRI
BOUDH
KEONJHAR WL
BHADRAK
CHILIKA WL
PURI WL
RAIRANGPUR
KARANJIA
BALASORE
INDEX
01 to 05 Elephants
06 to 25 Elephants
26 to 50 Elephants
51 to 100 Elephants
101 to 200 Elephants
201 to 330 Elephants
LEGEND
0
01- 05
06 - 25
26 - 50
51 - 100
101 - 200
201 - 330
Forest Division Boundary
0 20 40 80 120 160
Kilometers
SCALE 1:3,000,000
Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:18.08.2020

ELEPHANT POPULATION TREND IN ODISHA FROM 1979 TO 2017

Sl. No.	Name of Divisions	May-79	May-99	May-02	May-07	Apr-10	Jun-12	May-15	May-17
1	Angul	173	162	24	76	40	56	40	45
2	Athamallik	0	29	37	23	15	28	56	59
3	Athgarh	75	154	156	139	133	131	114	115
4	Balasore WL	0	41	56	67	81	93	89	97
5	Balliguda	54	17	32	35	41	36	46	30
6	Bamra WL	179	183	201	194	152	176	102	94
7	Bargarh	0	0	0	0	0	15	0	0
8	Baripada	0	0	0	48	48	52	68	70
9	Berhampur	0	0	0	9	37	35	20	11
10	Bhadrak WL	0	0	0	2	0	0	0	0
11	Bolangir	0	0	0	0	10	22	28	32
12	Bonai	25	53	82	69	45	42	65	59
13	Boudh	0	15	0	16	8	4	08	15
14	Chandaka WL	0	83	62	67	23	24	08	1
15	Chilika WL	0	0	0	0	0	0	0	0
16	City Forest	0	0	0	0	0	0	0	0
17	Cuttack	0	0	0	8	14	22	35	37
18	Deogarh	7	21	9	27	58	49	42	27
19	Dhenkanal	92	94	81	132	157	162	164	169
20	Ghumsur (N)	5	24	9	17	13	17	21	17
21	Ghumsur (S)	8	5	6	0	0	32	42	25
22	Hirakud WL	0	0	0	0	0	16	20	19
23	Jeypore	0	0	0	0	0	0	0	0
24	Kalahandi (N)	0	0	0	26	34	34	19	17
25	Kalahandi (S)	60	24	61	27	30	0	7	2
26	Karanjia	0	28	44	40	32	23	56	43
27	Keonjhar	90	75	112	33	41	73	47	40
28	Keonjhar WL	0	0	0	27	35	40	51	49
29	Khariar	0	0	0	0	0	0	0	0
30	Khurdha	57	0	0	8	6	14	31	33
31	Koraput	0	0	0	0	14	8	0	0
32	Mahanadi WL	0	0	25	1	7	5	88	93
33	Malkangiri	0	0	0	0	0	0	0	0
34	Mangrove WL	0	0	0	0	0	0	0	0
35	Nabarangpur	0	0	0	0	0	0	0	
36	Nayagarh	51	0	0	6	12	5	17	14
37	Parlakhemundi	217	86	42	44	21	19	21	27
38	Phulbani	121	3	6	14	1	6	8	23
39	Puri WL	0	0	0	0	0	0	0	0
40	Rairakhol	51	170	165	11	16	6	9	16
41	Rairangapur	0	0	0	48	48	47	48	46
42	Rayagada	102	10	0	24	12	4	9	16
43	Rourkela	0	0	0	0	11	11	39	35
44	Jharsuguda	0	0	0	1	4	0	1	0
45	Sambalpur	7	54	64	91	77	16	5	53
46	Satkosia WL	0	0	155	194	224	229	146	147
47	STR Core	670	496	412	298	331	334	337	330
48	Subarnapur	0	0	0	23	30	31	37	44
49	Sunabeda WL	0	0	0	0	0	0	0	0
50	Sundargarh	0	0	0	17	25	13	10	26
	GRAND TOTAL	**2044**	**1827**	**1841**	**1862**	**1886**	**1930**	**1954**	**1976**

B. TIGER/ LEOPARD CENSUS

'Pugmark Tracking' involves collection of pugmark tracings and plaster casts from the field and analysis of these separately for individual male, female, and cub of tiger and leopard, and their diagnostic track dimensions and study of spatial distribution of tigers.

The final result indicates the (a) total numbers of male, female and cub of tiger and leopard, (b) their pugmark dimensions with stride where available, (c) the names of locations where the pugmarks of each tiger have been traced to show the gross movement areas (d) inter relationship among different tigers by linking each male to female and the latter to cubs tracked in the movement area, and finally (e) spatial distribution map.

192 tigers were estimated to be found in the State during the year 2004 and 40 in 2016 (Table-2) by pug-mark technique.

In the year 2004-05, the Project Tiger authorities and the Wildlife Institute of India together devised a monitoring method. In this method, there were two approaches to collect field data. First, information on habitat conditions and different signs of Tiger evidences were to be collected, and second, by using camera traps Tiger photographs were to be obtained from all Tiger areas.

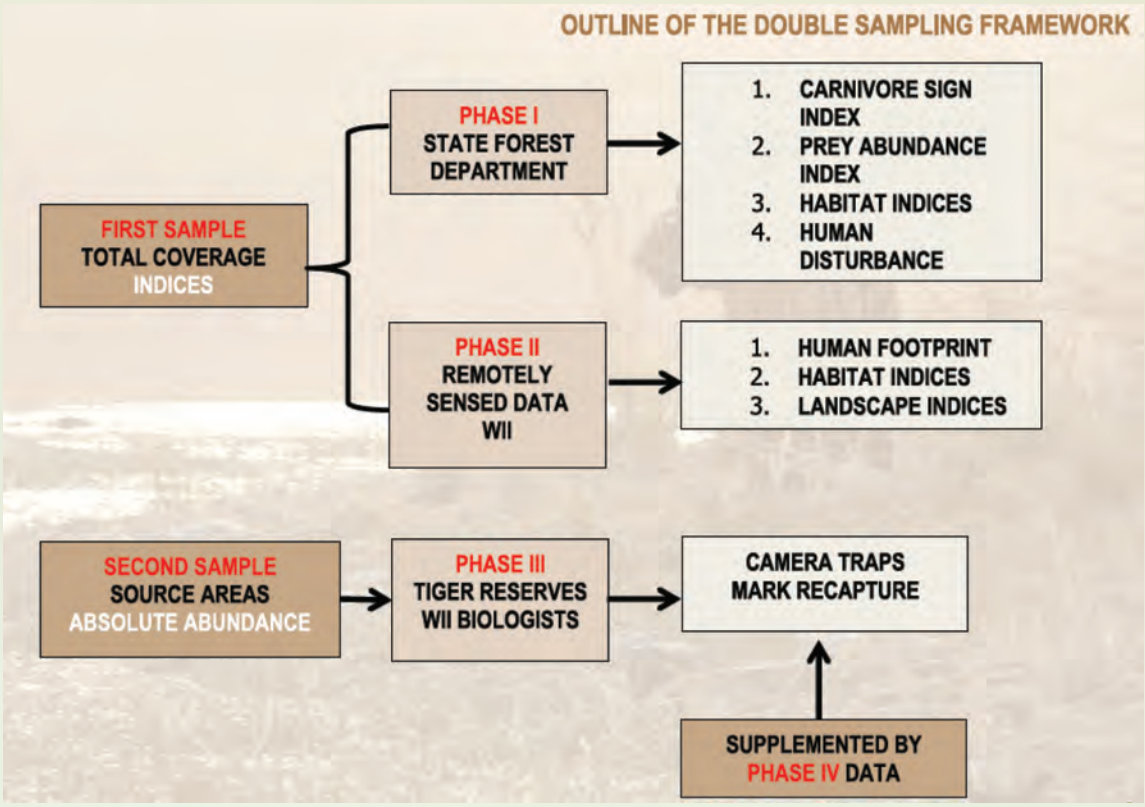
This process involves following phases namely:

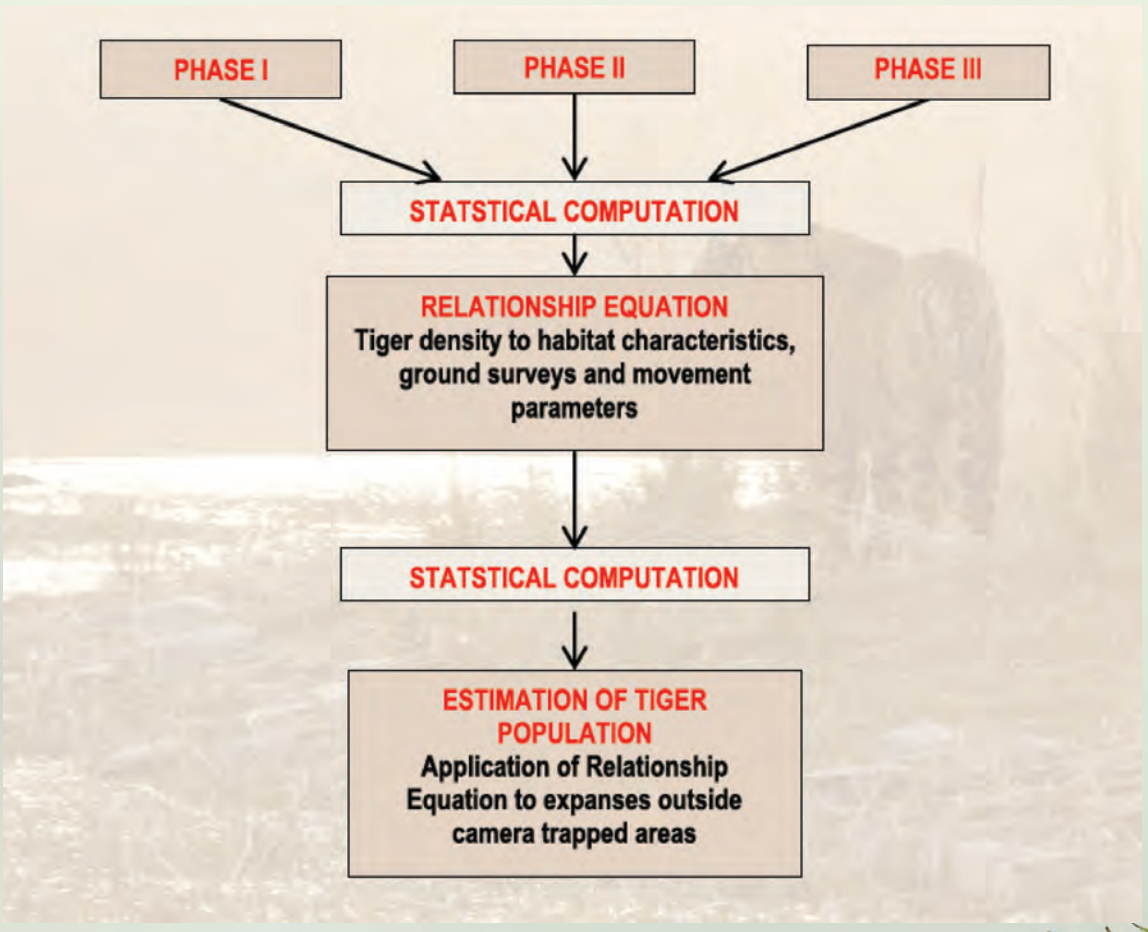
Phase-I: involves field data collection at the beat level using a eight-day standardized protocol after due training to field personnel in states. The eight day protocol consists of field data collection of evidence pertaining to carnivore (tiger, leopard), signs, ungulate abundance, human disturbance and status of habitat. Formats for the eight-day beat level data collection were made available in local vernacular language to help field staff.

Phase-II: involves computation of human disturbance indices, habitat indices and landscape indices from remotely sensed data (done at the Wildlife Institute of India).

Phase-III: involves computation of tiger density using camera traps in a mark recapture statistical framework through research biologists deployed by the Wildlife Institute of India, besides computation of ungulate density using distance sampling. The result of camera trap method are given as below:

Phase-IV:


OUTLINE OF THE DOUBLE SAMPLING FRAMEWORK
FIRST SAMPLE
TOTAL COVERAGE
INDICES
PHASE I
STATE FOREST
DEPARTMENT
1. CARNIVORE SIGN INDEX
2. PREY ABUNDANCE INDEX
3. HABITAT INDICES
4. HUMAN DISTURBANCE
PHASE II
REMOTELY
SENSED DATA
WII
1. HUMAN FOOTPRINT
2. HABITAT INDICES
3. LANDSCAPE INDICES
SECOND SAMPLE
SOURCE AREAS
ABSOLUTE ABUNDANCE
PHASE III
TIGER RESERVES
WII BIOLOGISTS
CAMERA TRAPS
MARK RECAPTURE
SUPPLEMENTED BY
PHASE IV DATA


PHASE I
PHASE II
PHASE III
STATSTICAL COMPUTATION
RELATIONSHIP EQUATION
Tiger density to habitat characteristics, ground surveys and movement parameters
STATSTICAL COMPUTATION
ESTIMATION OF TIGER POPULATION
Application of Relationship Equation to expanses outside camera trapped areas

Summary of AITE-2018 in Odisha

- Out of 51 Divisions, Tiger Estimation conducted in 47 Divisions
- Estimation not conducted in 4 Divisions i.e. City Forest, Bhadrak WL, Mangrove FD (WL), Rajnagar, Chilika WL
- Phase-III exercise was done in both the Tiger Reserves which includes (STR Core, Baripada, Rairangpur, Karanjia, Satkosia WL and Mahanadi WL) and 13 Territorial Divisions (Bonai, Rourkela, Sundargarh, Bamra WL, Hirakud WL, Bargarh, Sunabeda, Bolangir, Khariar, Kalahandi North, Kalahandi South, Keonjhar WL and Balasore WL).

TABLE-1 SHOWING ALL INDIA TIGER ESTIMATION BY CAMERA TRAP METHODS BY NTCA*

Sl.No.	Name of the Tiger Reserve	Year 2006	Year 2010	Year 2014	Year 2018
1	Similipal Tiger Reserve	20(17-23)	23(12-34)	Whole State	Whole State
2	Satkosia Tiger Reserve	6	8(7-9)		
3	Sunabeda Tiger Reserve	9	Census not done		
4	Sporadic Occurrence	6			
ODISHA TOTAL		**45 (37-53)**	**32 (20-44)**	**28**	**28 (26-30)**

* This is only CAMERA TRAP estimation conducted by NTCA, which is different from earlier process of sampling through pugmark survey. Hence, they are not comparable.

Earlier Tiger Estimation was carried out by pugmark technique during 2004 and 2016. The details of the estimation for the year 2004 and 2016 is given below:

Table-2 Odisha Tiger Estimations 2004 & 2016

Name of the Circles	Odisha Tiger Census 2004				Odisha Tiger Census 2016			
	Male	Female	Cub	Total	Male	Female	Cub	Total
Bhawanipatna Circle	12	13	12	37	02	03	00	05
Koraput Circle	4	3	0	7	00	00	00	00
Angul Circle	4	6	1	11	01	01	00	02
Sambalpur Circle	3	4	0	7	00	00	00	00
Berhampur Circle	3	5	13	21	00	00	00	00
Rourkela Circle	0	0	0	0	01	03	00	04
Bhubaneswar Circle	3	2	2	7	00	00	00	00
STR Circle	28	42	32	102	09	17	03	26
Odisha G. Total	**57**	**75**	**60**	**192**	**13**	**24**	**03**	**40**

Table-3 Odisha Leopard Estimations 2004 & 2016

Name of the Circles	Odisha Tiger Census 2004				Odisha Tiger Census 2016			
	Male	Female	Cub	Total	Male	Female	Cub	Total
Bhawanipatna Circle	19	34	8	61	22	24	5	51
Koraput Circle	24	24	4	52	8	7	0	15
Angul Circle	26	28	3	57	23	29	1	53
Sambalpur Circle	21	21	2	44	20	24	2	46
Berhampur Circle	46	47	5	98	24	33	1	58
Rourkela Circle	5	18	2	25	8	10	1	19
Bhubaneswar Circle	10	8	0	18	4	7	0	11
STR Circle	45	68	19	132	35	20	10	65
Odisha Total	**196**	**248**	**43**	**487**	**144**	**154**	**20**	**318**

CHAPTER VI

MANAGEMENT OF ELEPHANT

Elephant being the mega herbivore, for long term conservation of elephants in the state, providing appropriate habitat is the bare minimum requirement. Defining such areas properly with focused habitat development holds the key to long-term survival of elephant in the state. The most important factor which has made situation very alarming is destruction, degradation and fragmentation of habitat. Elephant is a long-ranging animal. It needs large forested areas to fulfil its dietary requirements and, in the process, cover large areas every day.

To fulfil the habitat needs of the elephant population, Govt. of Odisha has declared following three elephant reserves: (ERs) during 2001 and 2002.

1. Mayurbhanj Elephant Reserve (7043.74 sq. km)
2. Mahanadi Elephant Reserve (1038.30 sq. km)
3. Sambalpur Elephant Reserve (426.91 sq. km)

These three elephant reserve areas taken together accommodate about 50% population of the elephants of the state. Due to habitat shortage the other 50% population strays out to new and human dominated areas resulting in increased conflict and develop high level of intolerance towards elephants. Among the present Elephant Reserve in the state, only Mayurbhanj Elephant Reserve with an area of 7043.74 sq.km is adequate. The other two Elephant reserves i.e. Mahanadi and Sambalpur with area of 1038.30 and 426.91 sq. km respectively are grossly inadequate. Sambalpur Elephant Reserve is not even enough for one herd of elephants.

Considering the biological requirements and known ranging patterns of this mega-herbivore, the Wildlife wing prepared a perspective plan for all existing and proposed ERs in the year 2005 and proposed for two new ERs namely South odisha and Baitarani ERs along with expansion of Mahandi and Sambalpur ERs. Keeping in view the recommendations of ANCF in its report titled “Elephant carrying capacity of Odisha’s Forests” proposal for expansion of Mahanadi and Sambalpur ERs has been submitted to Govt. of Odisha for consideration.

1. EXTENSION OF MAHANADI ELEPHANT RESERVE:

At present Mahanadi Elephant Reserve extends over an area of 1038.30 sq. km and cover following forest divisions. 1) Satkosia Wildlife 2) Mahandi Wildlife 3) Boudh 4) Athagarh and 5) Nayagarh falling in districts of Angul, Nayagarh, Cuttack and Boudh.

Proposal: It is proposed to extend area of Mahanadi Elephant Reserve **to 2784.7061** sq. km by adding 1746.4061 sq. km as below:

District	Name of the Forest Division	Area (in sq. km) proposed for extension
Angul	Athamallik	653.5661
	Angul	138.2
	Satkosia	38.47
Cuttack	Athagarh	398.03
Dhenkanal	Dhenkanal	156.25
Nayagarh	Nayagarh	2.2
	Mahanadi	0.01
Boudh	Boudh	359.68
	Total	**1746.4061**

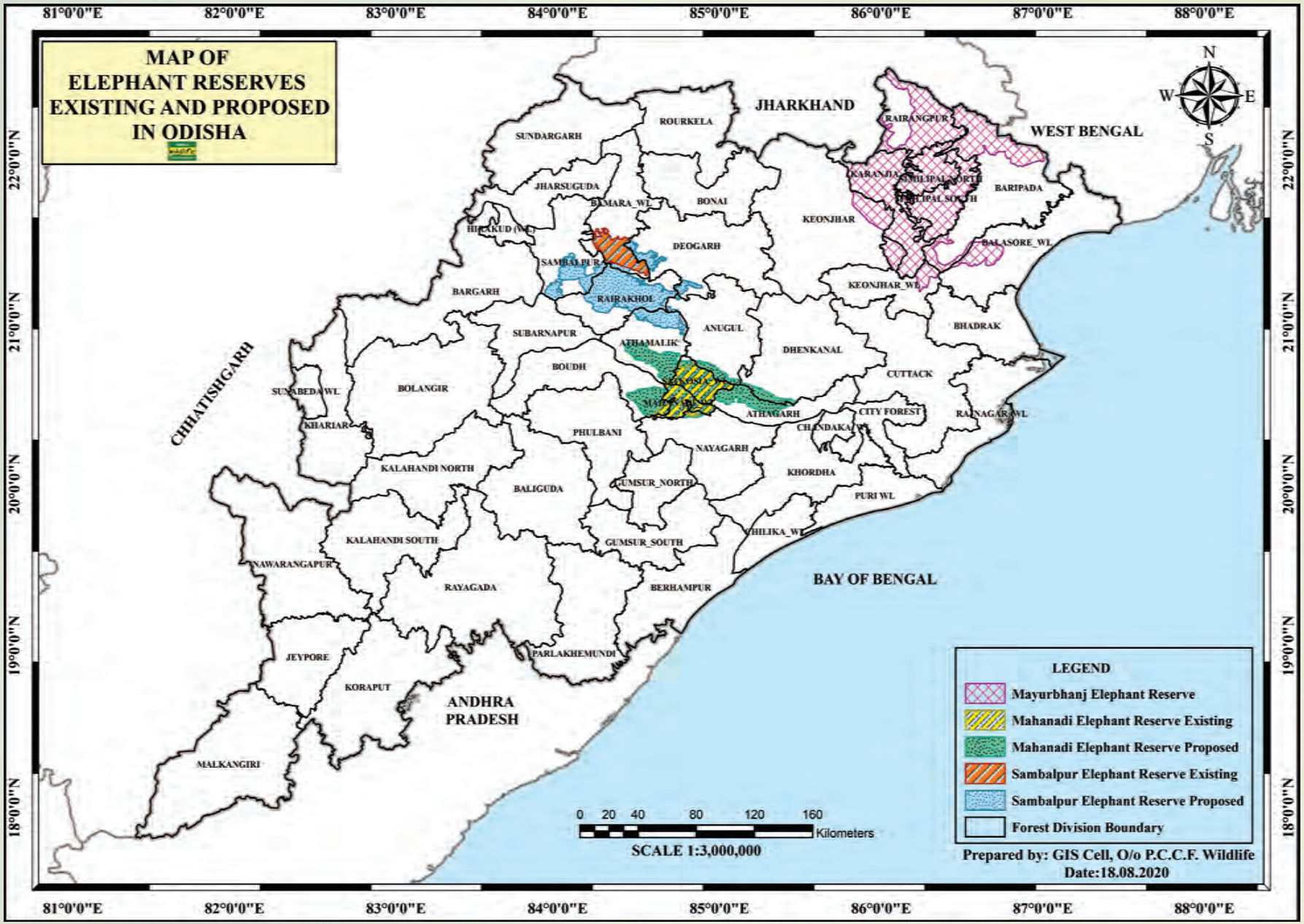
2. EXTENSION OF SAMBALPUR ELEPHANT RESERVE:

Presently, Sambalpur Elephant Reserve covers an area of 426.91sq.km. This area extends over Bamra Wildlife division.

Proposal: It is proposed to extend area of Sambalpur Elephant Reserve to 2605.79sq.km. by adding 2178.79sq.km. as below.

District	Name of the Forest Division	Area (in sq. km) proposed for extension
Angul	Angul	23.66
	Athamallik	293.24
Deogarh	Deogarh	222.11
Sambalpur	Rairakhol	1109.57
	Bamra (WL)	104.47
	Sambalpur	425.74
	Total	**2178.79**

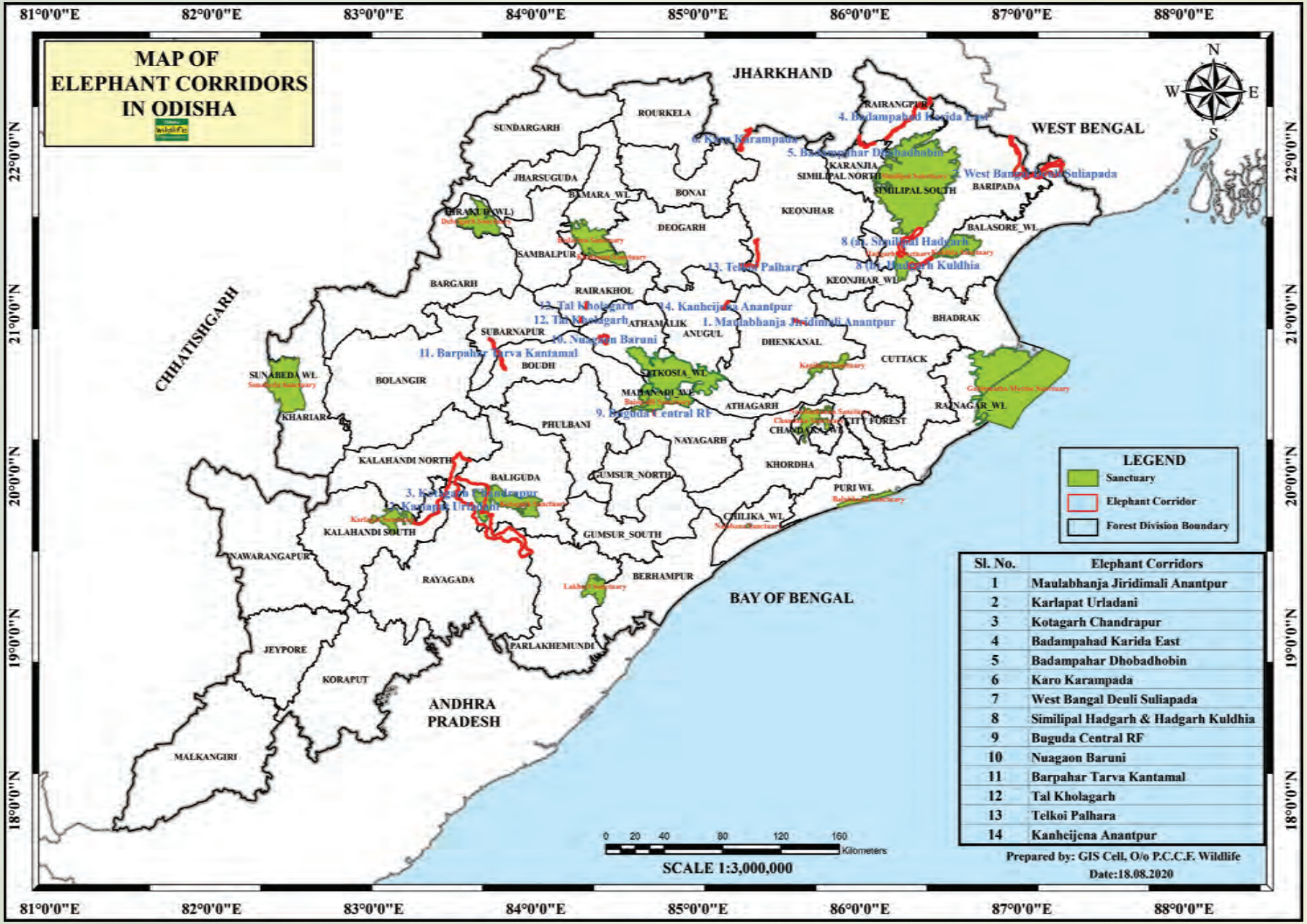
With this addition of 1746.4061sq.km. in Mahanadi Elephant Reserve and 2178.79sq.km. in Sambalpur Elephant Reserve, about 75% of elephant population of state will be covered in Elephant Reserves.


MAP OF
ELEPHANT RESERVES
EXISTING AND PROPOSED
IN ODISHA
81°0'0"E
82°0'0"E
83°0'0"E
84°0'0"E
85°0'0"E
86°0'0"E
87°0'0"E
88°0'0"E
22°0'0"N
21°0'0"N
20°0'0"N
19°0'0"N
18°0'0"N
N
W
E
S
JHARKHAND
WEST BENGAL
CHHATISHGARH
ANDHRA
PRADESH
BAY OF BENGAL
SUNDARGARH
ROURKELA
JHARSUGUDA
BONAI
KEONJHAR
BARIPADA
BALASORE_WL
KEONJHAR_WL
BHADRAK
DEOGARH
SAMBALPUR
BARGARH
RAIRAKHOL
SUBARNAPUR
ANUGUL
DHENKANAL
BOUDH
CUTTACK
SUNABEDA WL
BOLANGIR
ATHAGARH
CITY FOREST
RAJNAGAR WL
KHIARIAR
PHULBANI
CHANDAKA WL
NAYAGARH
KALAHANDI NORTH
KHORDHA
BALIGUDA
GUMSUR_NORTH
PURI WL
KALAHANDI SOUTH
GUMSUR_SOUTH
CHILIKA_WL
NAWARANGAPUR
RAYAGADA
BERHAMPUR
JEYPORE
PARLAKHEMUNDI
KORAPUT
MALKANGIRI
0 20 40 80 120 160
Kilometers
SCALE 1:3,000,000
LEGEND
Mayurbhanj Elephant Reserve
Mahanadi Elephant Reserve Existing
Mahanadi Elephant Reserve Proposed
Sambalpur Elephant Reserve Existing
Sambalpur Elephant Reserve Proposed
Forest Division Boundary
Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:18.08.2020

IDENTIFIED ELEPHANT CORRIDORS IN ODISHA

An elephant corridor can be thought of as a relatively narrow strip of land connecting two or more viable habitats or providing passage for genetic connectivity between two or more viable elephant population, for ensuring their long term survival. In the scenario of fast-growing developmental projects, fragmented forests need linking through management of corridors. The state has identified fourteen corridors in 2011, which were presumably used by elephants to move between different habitats. These corridors are given below:

Sl. No.	Name of the Corridor	Extends over District	Name of the Division	Length of the corridor in km	Width of the corridor in km	Total area Sq.km.
1	Badampahar (Mayurbhanj)-Dhobadhobin (Jharkhand) INTERSTATE	Mayurbhanj	Karanjia, Rairangapur	16	0.5-1.5	24.3
2	Badampahar (Mayurbhanj)-Karida (Jharkhand) INTERSTATE	Mayurbhanj	Rairangapur	43	0.2-2.6	26.09
3	W.Bengal-Deuli-Suliapada (Passage) INTERSTATE	Mayurbhanj, Balasore; (West Bengal)	Baripada	72	0.1-0.7	39.5
4	Similipal-Hadagarh-Kuldiha INTER-DISTRICT	Mayurbhanj; Keonjhar; Balasore	Baripada, Balasore WL, Keonjhar WL	41.7	0.7-3.5	91.39
5	Telkoi-Pallahara INTER-DISTRICT	Keonjhar; Angul	Keonjhar, Deogarh	30.4	0.2-0.6	13.24
6	Karo(Keonjhar)-Karampada (Saranda, Jharkhand) INTERSTATE	Keonjhar; (Jharkhand)	Keonjhar	15	0.3-2.3	17.3
7	Maulabhanja - Jiridamali-Anantapur INTRA-DISTRICT	Dhenkanal	Dhenkanal	6.5	0.25-0.28	1.55
8	Kahneijena-Anantapur INTER-DISTRICT	Angul; Dhenkanal	Angul Dhenkanal	6.6	0.4-1.1	5.22
9	Buguda-Central RF INTRA-DISTRICT	Nayagarh	Nayagarh	2.6	0.8-0.6	0.76
10	Nuagaon-Baruni INTRA-DISTRICT	Angul	Athmallik	4.5	0.4-4.6	20.7
11	Tal-Kholgarh INTRA-DISTRICT	Sambalpur	Rairakhol	6.3	0.5-0.08	4.56
12	Barpahad-Tarava-Kantamal INTER-DISTRICT	Subarnapur, Boudh	Subarnapur, Boudh	24.2	0.38-1.5	21.7
13	Kotagarh-Chandrapur INTER-DISTRICT	Kandhamal; Rayagada	Balliguda, Rayagada	77	2.0-22.4	575.4
14	Karlapat-Urladani INTER-DISTRICT	Kalahandi; Rayagada	Kalahandi(S), Kalahandi(N) Rayagada	75	0.2-0.5	28.9
			Total		**421**	**870.6**



LEGEND

- Sanctuary
- Elephant Corridor
- Forest Division Boundary

Sl. No.	Elephant Corridors
1	Maulabhanja Jiridimali Anantpur
2	Karlapat Urladani
3	Kotagarh Chandrapur
4	Badampahad Karida East
5	Badampahar Dhobadhobin
6	Karo Karampada
7	West Bangal Deuli Suliapada
8	Similipal Hadgarh & Hadgarh Kuldhia
9	Buguda Central RF
10	Nuagaon Baruni
11	Barpahar Tarva Kantamal
12	Tal Kholagarh
13	Telkoi Palhara
14	Kanheijena Anantpur

Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:18.08.2020

HABITAT IMPROVEMENT

Habitat improvement is the most important activity in Wild Life Management. Various developmental processes, biotic interferences and incidences of fire in forest areas are the main cause of degradation of wildlife habitat. In order to mitigate the degradation following activities are being undertaken for improvement of Wildlife habitats under CAMPA and other Budgetary heads.

- **Creation and Maintenance of Water Bodies:**

  In order to reduce the water scarcity in wildlife habitat, creation and maintenance of water bodies are being taken up. 223 Nos. water bodies of size 40mtr x 30mtr x 3mtr and 40 water harvesting structure would be created during 2020-21 and likewise 193 Nos. of water bodies created in previous years would be maintained this year.

- **Plantation of fruit bearing and fodder species around the water bodies:**

  To augment the food and fodder requirement of wild animals, 50 Nos. of fruit bearing and fodder seedlings would be planted around each water body. The plants will be protected by providing gabions and watering will be done during summer months. During the current year, 81 nos of water bodies have been selected for planting of 50 nos of seedlings around each water body. Further the plantations created during 2018-19 & 2019-20 around the water body would also be maintained during this year.

- **Fodder block plantation and its maintenance:**

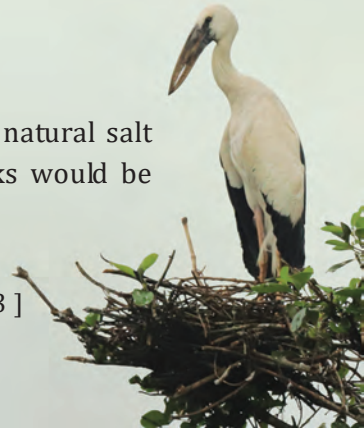
  Fodder plantations are being raised in the wildlife habitats in order to supplement the requirement particularly in poor areas. During the current year 463 ha have been selected for taking up fodder plantations. Further the plantations raised during 2018-19 & 2019-20 would also be maintained. In addition to this Bamboo seed ball planting has been taken up in elephant habitat areas. This will help in augmentation of fodder availability.

- **Rejuvenation of Wildlife Corridor:**

  Elephant being the long ranging animal use various migratory routes for commuting between different forests. These routes known as corridors are essential to be safeguarded and rejuvenated through habitat improvement for ensuring minimal human-elephant conflict & to conserve the gene pool of the pachyderms. Activities under this item will be carried out as per the approved plans meant for management of elephants and its corridors. During the current year 85 ha area will be taken up for plantation of fruit and fodder species. Plantations created during 2019-20 will also be maintained. In addition to this ecodevelopment activities, water harvesting structures, providing crossing points etc have been taken up in selected corridors.

- **Creation and Maintenance of Salt licks:**

  In order to prevent the wild animal becoming prey to poachers by visiting natural salt licks as well as meeting the salt requirement of herbivores, new salt licks would be created and old salt licks would be maintained under this activities.



Bamboo Seed Ball Plantation

- **Immunization of Cattle:**

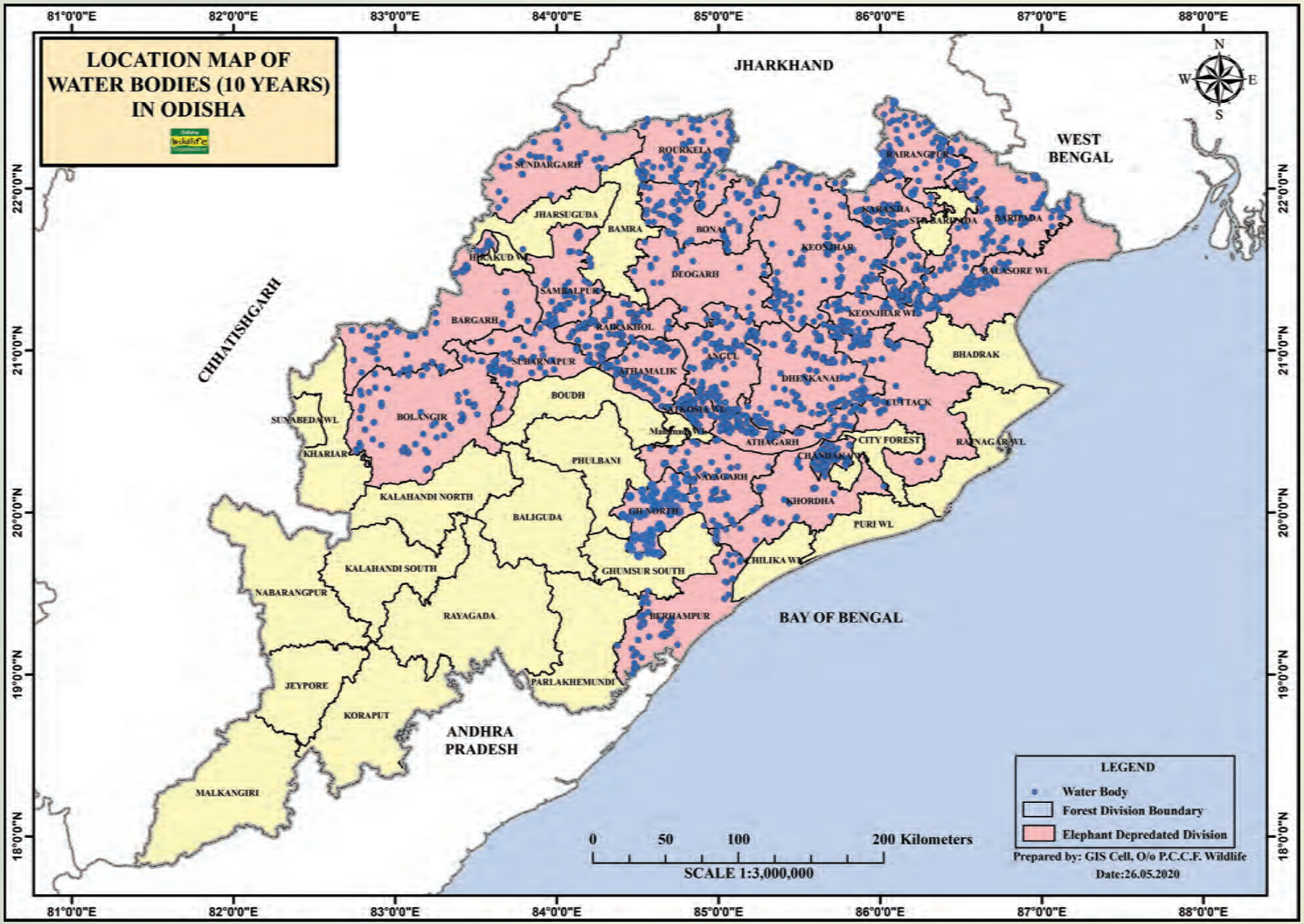
  The cattle of forest fringe villages and villages located inside the PAs do graze in forest areas. The infected cattle may cause spreading of contagious diseases to wild animals. To prevent such incidences, there is a provision to immunize the cattle with the help of local veterinary officers.

- **Invasive weed eradication:**

  Unwanted weeds will be uprooted and destroyed so as to facilitate the growth of palatable grass/shrubs/trees in the wildlife habitats.

- **Meadow Development:**

  Meadows will also be developed and maintained to supplement the food material shortage of the herbivores.


LOCATION MAP OF WATER BODIES (10 YEARS) IN ODISHA
JHARKHAND
WEST BENGAL
CHHATISHGARH
ANDHRA PRADESH
BAY OF BENGAL
N
S
E
W
81°0'0"E
82°0'0"E
83°0'0"E
84°0'0"E
85°0'0"E
86°0'0"E
87°0'0"E
88°0'0"E
22°0'0"N
21°0'0"N
20°0'0"N
19°0'0"N
18°0'0"N
SUNDARGARH
ROURKELA
RAIRANGPUR
JHARSUGUDA
BAMRA
BONAI
KARANJIA
BARIPADA
HIRAKUD WL
DEOGARH
KEONJHAR
BALASORE WL
SAMBALPUR
KEONJHAR WL
BARGARH
RAIRAKHOL
BHADRAK
SUBARNAPUR
ATHAMALIK
ANGUL
DHENKANAL
BOUDH
SATKOSIA WL
CUTTACK
SUNABEDA WL
BOLANGIR
Mahanadi WL
ATHAGARH
CITY FOREST
RAJNAGAR WL
KHARIAR
CHANDAKA WL
PHULBANI
NAYAGARH
KALAHANDI NORTH
KHORDHA
BALIGUDA
GH NORTH
PURI WL
CHILIKA WL
KALAHANDI SOUTH
GHUMSUR SOUTH
NABARANGPUR
RAYAGADA
BERHAMPUR
JEYPORE
PARLAKHEMUNDI
KORAPUT
MALKANGIRI
LEGEND
Water Body
Forest Division Boundary
Elephant Depredated Division
0
50
100
200 Kilometers
SCALE 1:3,000,000
Prepared by: GIS Cell, O/o P.C.C.F. Wildlife
Date:26.05.2020

MONITORING OF ELEPHANTS

A) 24 X 7 CONTROL ROOM

Effective guidelines has been implemented to monitor movement of elephants throughout the state through control rooms on 24x7 basis. Accordingly dedicated control rooms have been established in the divisions, circle levels and State wild life Head Quarters. The primary objective of constitution of control rooms at various level is to keep track of the movements of elephants in their respective areas and make alert the villagers in advance. In case of need, the field staff are required to take up anti-depredation activities by mobilising local people with available resources and anti depredation teams of the department.

Accordingly, Range is basic unit for monitoring of elephant movements and Range officer concerned is responsible for monitoring of such movements in his area. Every day in the afternoon, the Range officer shall assess the presence of elephants in his Range jurisdiction based on available information. At Division level, the Division control room is the focal point for monitoring the movements of the elephants. 51 Division control rooms work 24x7 and are managed by one ACF assisted by F.R/Dy. R.O., two foresters and three Forest Guards. The overall responsibilities of the control rooms rests with the D.F.O. He (DFO) is required to co-ordinate with other organisations like Electricity Department, Railways, National Highway and neighbouring Divisions for safe movements of elephants in his jurisdiction. Important information is passed on to the R.C.C.F. concerned and Wild Life Head Office for needful action. Similar to division office, elephant monitoring mechanism has been developed in eight circle offices (Angul, Bhubaneswar, Baripada, Berhampur, Bhawanipatna, Koraput, Rourkela, Sambalpur circle). The circle office control room 24x7 has important role in co-ordinating inter division and inter circle movements of elephants and pass on important information to concerned quarter. The circle control rooms have been functioning in the R.C.C.F Offices with one Dy CF/ACF, two Forest Rangers, two Foresters and three Forest Guards.

One 24x7 control room is also functioning in the office of the PCCF (Wlidlife). It is being headed by one DCF, assisted by two ACFs, Three Forest rangers and other support Staff to work in three shifts. The head office control room monitors all data uploaded in the app, scrutinises the information received from field units and other sources. Information received from other sources are also promptly passed on to field units.

B) ELEPHANT MONITORING APP

The Elephant App developed by Wildlife Organization helps to track the elephant movement. Field Staff/Forest Guards/Squads are uploading the data on regular basis in day and night providing the location of elephant movement after direct sighting and also through indirect signs like trumpeting sound, fresh dungs, fresh foot prints and other sign. The information received through the App describes details of the elephant herd, total number of elephants, number of male, tusker, makhna, female and calf. All the data are stored in the website and analysed at Hq and the total number of elephant sighted in State is viewed everyday. The information gathered is used for deployment of appropriate measures.

C) GAJABANDHU

As an approach towards more and more involvement of people in anti-depredation work/driving elephants/minimising elephant-man conflict, one local villager of the frequent elephant movement area is selected by the VSS /EDC and engaged by the department at village level named 'Gajabandhu'. He is the preliminary informant of elephant movement and also acts as primary response force for elephant tracking in the field. Gajabandhus are engaged in Dhenkanal, Angul, Athagarh and Khurda divisions, this year and will be engaged in other divisions also. Feed back from these divisions underlines the vital role and involvement of people for care and protection of elephants.

D) TRACKERS /SQUADS

Dedicated trackers and elephant squads have been deployed in the vulnerable locations in the State for the protection / conservation / to prevent depredation by elephants. Anti-poaching / Anti-smuggling squads equipped with vehicle, arms, communication network have been deployed at vulnerable points, to prevent occurrence of poaching and monitor the movement of suspected poachers also. Anti-depredation committee and Rapid Response Teams have been constituted in the Forest Divisions to address the problems arising out of wild elephant menace as per the Standard Operating Procedure (SOP) approved by State Govt. and to chalk out the strategies for preventing wild animal depredation and to take instant action.

E) MONITORING BY DRONE

Wildlfe wing is also exploring the advanced technological devices like Drone for tracking the elephant movement in some important areas.

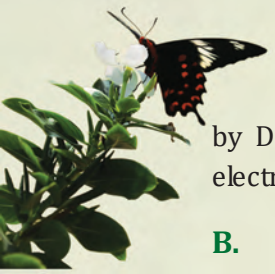
F) EARLY WARNING SYSTEM

Movement of elephants frequently to human habitations due to various reasons is the prime cause of man-animal conflict creating a huge loss of life and property of both man and elephant. So the early warning system of elephant movement plays a vital role to save human life. Bulk SMS system for early warning is very successful at Angul and Keonjhar Division to alert the villagers in the area.

MAJOR THREATS TO ELEPHANTS & STEPS TAKEN

A. ELECTROCUTION

In recent past, accidental electrocution and deliberate electrocution is the major factor responsible for increasing death rate of elephants in the state. Strategic planning by identification of vulnerable points of each division and appropriate mitigation measures are undertaken for all vulnerable areas. Regular co-ordination meetings are conducted with Energy dept. at various level. The list of villages prone to illegal hooking have been provided to energy department to prevent deliberate electrocution of Wild Animals. Hooking is now reduced due to cabling and joint patrolling by both the departments. The DISCOMs have taken action against theft of electricity from L.I. points. They have discontinued all the connections from damaged LI points. Again, all the functional LI points will be connected with insulated cables as reported



by DISCOM officials which will prevent a number of wild animal life.In case of emergency electricity supply is also disconnected in elephant movement areas.

B. RAILWAY ACCIDENTS

With the rise of railway networks, the threats of accidental death of the elephants is also increasing. Regular co-ordination meetings are carried out at State Hq level and also at Division level. Provision of overpass and underpass required for movement of elephants in upcoming projects as well as in existing railway lines are given importance for implementation. Railway authorities are requested to clear vegetation growth in vulnerable areas for clear visibility. It was also agreed by railway authority that IRCTC would be requested not to dump left out food in vulnerable sections. Railway authorities have put up signages along railway tracks. In Khurda Road railway division a 24x7control room is functioning to co-ordinate the elephant movement and movement of trains in particular area and so as to prevent the probable accident.

C. ROAD ACCIDENTS

Road network passing through the elephant habitats is creating obstructions for free movement of mega animals in their own home, sometimes leading to painful accidents of wild animals, particularly elephants. Identification of vulnerable points of elephant crossing on each NH has been carried out and regular co-ordination meetings are being carried out with NHAI at all levels. NHAI and state authorities have been impressed to post permanent signage on completed stretch at elephant crossing points on National Highway and State Highways. In vulnerable stretches provision of road underpasses and overpasses are made in all road expansion and new road projects.

D. DISEASE

Diseases like Anthrax and Herpes are emerging as major challenge for elephants. Vaccination schedule in the fringe villages of elephant habitats are being carried out regularly to prevent transmission of Anthrax and FND like disease to the wild animals from the domestic cattle. Diseased / injured animals are being treated with the help of expert Vets from Nandankanan Zoological Park and Veterinary Collage of OUAT, Bhubaneswar. During 2019-20, the Centre for Wildlife Health at OUAT campus, Bhubaneswar was involved in incidents of elephant death due to diseases. The post mortem report is investigated by expert scientist / researchers in the centre.

RESCUE AND REHABILITATION

A) ESTABLISHMENT OF RESCUE CENTRE FOR ELEPHANTS

Our state has about 1976 Asian Elephants as per last census. Elephant being a mega herbivore species is always in focus. So, facility of rescue centre is badly needed in the State of Odisha to handle capture of problematic elephants as well as handling of orphan, sick/ injured elephants. Due to various adverse factors resulting in loss and degradation of habitat more and more cases of negative interactions between elephants and human beings are faced.

As a part of management many a time, need for Rescue Center for abandoned, sick, inured and problem elephants is felt. Hence, it is decided to establish elephant rescue center in our State to take care of health needs of captured elephants.

For this purpose, one site has been identified at Kumarkhunti in Chandaka Wildlife Sanctuary. It is proposed to establish a rescue centre for accommodating about 5 (five) elephants at a time. The master plan has been prepared for rescue centre extending over an area of 105 ha. and covering Quarantine centre, Isolation centre, Veterinary care, Fodder unit, water facilities and housing facility of Mahouts etc. The establishment of rescue centre will take some time for fulfilling the procedural requirements. Therefore, in view of conflict season, it has been proposed to establish a transit camp facility over 54.42 ha. for immediate need for this purpose. Accordingly, Preliminary Plan & Estimates has also been prepared by the DFO, Chandaka Wildlife Division for an amount of Rs.6.0 crores. The same proposal has

Foundation Stone laid by Hon'ble Minister, Forest & Environment for establishment of Rescue Centre at Kumarkhunti

been submitted to Government of Odisha for approval and sanction of funds during this financial year. The Government has approved the said proposal. Honourable Minister Forest & Environment has laid the foundation stone on 15.09.2020.

B. WTI-MVS

Wildlife Trust of India (WTI) is a leading Indian nature conservation organization committed to the service of nature for "Wild Rescue and Rehabilitation" in our State. Its mission is to conserve wildlife and its habitat and to work for the welfare of individual wild animals, in partnership with communities and governments. Wild Rescue functions by conducting rescue, rehabilitation and release of temporarily displaced wild animals, through

appropriate veterinary services are undertaken. It operates either by direct action (establishment of rescue-rehab centers and mobile veterinary service (MVS) units or indirectly through involvement of members from Emergency Relief Network (ERN). The Mobile Veterinary Service (MVS) project envisages the deployment of trained wildlife veterinarians in Protected Areas and across India to ensure that 24x7, quality veterinary support is made available to such displaced wildlife in distress. Such projects are set up with the formation of local rescue teams and their capacity building through regular trainings and mock drills. In Odisha, WTI came up with this unique method of conserving wildlife by setting up its mobile veterinary service at Similipal TR in 2014 and Keonjhar Forest Division in 2019.

C) CENTRE FOR WILDLIFE HEALTH

Centre for Wildlife health is functioning in the campus of College of Veternary Science & Animal Health, Odisha University of Agriculture & Technology. It is headed by Prof. Niranjan Sahu, Project Co-ordinator, one Vetenery Doctor and research scholars. The organisation is financially assisted by Wildlife wing. Mostly, disease digonsis of sick animals and scientific post-mortem of dead animals is performed by the centre to acertain the cause of death. The Centre also acts as a rescue centre for the sick wild animals. Wildlife wing is also utilising the services of experts from the centre for treatment and rescue of abadoned/sick animals. The centre experts are also requested for on-site treatment of the sick elephants.

AWARENESS ACTIVITY

Forest field staffs are regularly trained to create awareness among the villagers regarding elephant movement, for better understanding of animal behaviour and how to deal with it. Big signages indicating “Dos & Don’ts” are fixed at village entry points and other important place. Wildlife wing is also utilising Electronic Media/Mass Communication facilities like TV/Radio for creating awareness among masses. Rally/Functions are organised at school and village levels for creating awareness for wild animals specially the Mega Herbivore, Elephant and to create tolerance for co-existance of man and animals. Informations are collected to protect the elephants by upgrading the intelligence network and co-ordination with locals and also district administration.

Monitoring of Wild Elephant inside Hadagarh Sanctuary

Elephant in balasore WL Division

CHAPTER VII

MANAGEMENT OF HUMAN - WILDLIFE CONFLICT

Human-animal conflict is among the biggest emerging challenges to effective wildlife conservation globally. Due to a complex set of reasons and in the scenario of fast growing developmental projects the elephants are in constant search for new habitats and corridors for movement. The presence of elephants is now seen in places where elephants have never been seen in recent past, resulting in recent increasing trends of human-animal conflict. The continuous growth of the human population and shrinking of forest area have brought wildlife and humans together which further generates these conflicts. This is exhibited in worst, from where people's livelihood directly depends on the forest products, agricultural activities and other land uses in the buffer zones. The frequency and severity of human-wildlife conflict has continually increased over the years in the state resulting in human kill, human injury, house damage, crop damages and livestock depredation.

APPROACHES TO MANAGING HUMAN-ANIMAL CONFLICTS

There are two basic approaches to managing human wildlife conflicts: prevention and mitigation. A rather different approach is represented by changing attitudes towards wildlife through education and by ensuring that affected communities and individuals are active participants in, and enjoy tangible benefits from, wildlife management.

Measures that can prevent or minimise the risk of conflicts arising between people and animals include the extreme one of completely removing either the people or the animals, physically separating the two by the use of barriers, managing by a variety of means the numbers of animals, to reduce the risk of conflict and employing a variety of scaring and repelling tactics.

1. Payment of Compassionate Grant

Compassionate payment is one of the most important mitigational measure in the field of animal depredation.

Table showing Amounts approved for Compassionate payments

Rate of Compassionate payment due to depredation by specified wild animals under provisions of Wildlife (Protection) (Odisha) Rules, 1974.

Sl. No	Type of depredation	Reference of Wildlife (Protection) (Odisha) Rule	Current Rate of Compassionate payment
1	Human kill	45-AA	Rs.4.0 lakhs
2	Permanent injury	45-BB	Rs.1.0 lakh
3	Temporary injury	45-BB	Rs.5000/- + free treatment in Govt. Hospital
4	Bullock/Cow/Buffalo	45-CC	Rs.5000/
5	Calf	45-CC	Rs.2500/
6	Sheep / Goat	45-CC	Rs.2000/-
7	Lamb	45-CC	Rs.750/-
8	Crop damage (paddy & Cereals)	45-EE	Rs.10000/ per Acre
9	Crop damage (Cash crop)	45-EE	Rs.12000/ per Acre
10	House damage (part)	45-FF	Rs.2000/
11	House damage (full)	45-FF	Rs.10000/+ allotment of house under 'Mo Kudia' Scheme

ANUKAMPA APP

To facilitate quick payment of compassionate grant to the victims of wildlife depredation Wildlife Organization initiated development of on-line disposal of application and payment of compassionate grant on digital platform. For the purpose Odisha Remote Sensing Application Centre has been entrusted to develope software for on-line sanction and payment. The compassionate grant payment has been included under 5T Charter as well as ORTPSA Act and the mobile APP is ready for launching during Wildlife Week.

2. Use of Physical Barriers

Use of physical barriers can, in many situations, be an effective method of minimising human-wildlife conflicts. If they are properly designed, constructed and maintained, fences can be completely effective in preventing conflict between people and wild animals. This will vary depending on many factors among them topography, type of fence and the species it is designed to contain.In our State three types of fences are used i.e. Stone wall, Solar Fencing and trench fencing.

Wildlife wing has started PPP mode of financial support for installation of solar fence. State government has approved proposal for taking up solar powered electric fence with community participation in elephant conflict areas. As per approval, in case of community 10% of the total cost of solar fence and in case of individual (orchard owners only) 50% of the total cost of solar fence is to be deposited with DFO concerned by community and orchard owner respectively. The scheme approved by Govt. Prescribes for community participation and maintenance of 5 years by empanelled agencies.

3. Guarding Crops and Livestock

Watch towers that provide good vantage points, built around fields of crops, movement paths etc. increase the farmers' chances of being alerted to the presence of wildlife before damaging his crop. Local simple alarm systems, Scare crows, Acoustic devices creating recorded sounds are also helpful.

4. Use of Repellents

Another way to alter animal behaviour with the goal of minimising human-wildlife conflicts is the use of repellents like bee sound as repellents to elephants. In Keonjhar Wildlife Division this is being implemented on trial basis. Depending on the success this will be extended to other Divisions. Use of chilli extract that cause irritation to the elephant is also being tried but is not so effective as the elephants gets acclimatized to the irritation.

5. Sharing Information

The Wildlife App developed by the Wildlife Organisation helps to track the elephants straying near human habitation to prevent any untoward situation. The information received is being mapped for deployment of appropriate conflict mitigation measures. Explicit GIS analyses is undertaken to document distribution and type of conflict, species involved, severity, causal factors of conflict and to produce predictor variables for conflict. Such information is being used to combat the problem, and also to inform the authorities like railways, energy department etc. who want to help but have inadequate information for prompt action.

6) Crime cell at State HQ

A crime cell has been constituted in the office of the Principal CCF (Wildlife) & CWLW, Odisha for proper and timely investigation of wildlife cases. To accelerate its functioning, last year one "crime cell supervision committee" was constituted. The committee held meeting twice during 2019-20 and reviewed the important pending cases related to elephant death due to poaching / deliberate electrocution. In the last meeting the investigating officers of 12 Wildlife Divisions were trained by Legal Consultants to strengthen the case records to assure exemplary punishments for the accused involved in wildlife crime. Creation of crime data base for the state has been started and is under progress.

7) Wildlife Crime Cell at Police HQ

In addition to above, a "Wildlife Crime Cell" has been constituted in the office of the Additional Director General of Police, Criminal Investigation Department, Crime Branch, Odisha, Cuttack to take up investigation of wildlife cases and to file complaint. A dedicated team of officers from Police and Forest Department is working for the purpose with Additional SP/ Deputy SP as in-charge, Two Inspectors as investigator, Two Sub-Inspector / Assistant Sub-inspector of Police as assisting staff and one ACF and one Forest Ranger from Forest Department. During the last 5 years 19 serious offence cases have been handed over to Crime Branch for investigation.

8) Technological Intervention in elephant tracking

(a) State wildlife organization forwarded a step towards technological interventions by high end technical institution, IIT Bhubaneswar in elephant management. Interactions and meetings with professionals were conducted and some research proposals are in progress in the direction of non-contact electric voltage detectors/ Amplification of communication sounds of elephants, etc. It may help in mitigation of conflict in near future.

(b) Radio Collaring

Radio collaring of elephants has been planned in Sundargarh Division by Wildlife Institute of India (WII) for monitoring movement of elephants. Proposal was given to Govt. of India for radio collaring of elephants in Keonjhar, Angul and Redhakhol Divisions. The same is approved and work shall be executed soon.

(c) Drone

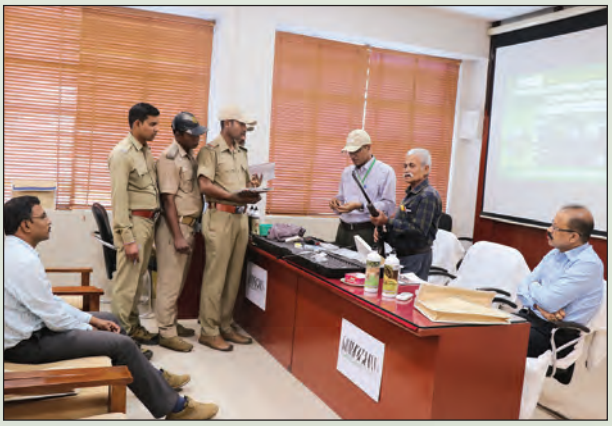
Wildlife wing is also facilitating the use of the technological advanced devices like drone. Presence of wild animals are monitored by Drone in some important areas.

9) Special Vehicle

Specialized vehicle "GAJA" with all the modern amenities to tackle the man-elephant conflict situation has been introduced in Keonjhar & Dhenkanal division and special vehicle for rescue of herbivores are also introduced and recently used for translocation of Deers form Bhanjavihar university to Lakhary valley sanctuary.

10) Tranquilization Training

A team of forester and forest guards from each circle are trained on tranquilisation to address the conflict issues within circle. Training is imparted by experts from Nandankanan zoological park each year. The practice training and hands on training is facilitated at regular intervals at circle level.






CAPTURE OF PROBLEMATIC ELEPHANT

In extreme cases problem elephants are captured to safeguard human lives. During 2019-20 following two cases of capture were undertaken.

A) ANGUL DIVISION

One full grown tusker which had killed many people (more than ten) in Dhenkanal & Angul Division had entered Talcher area of Angul division on 19.04.2019 and killed 5 persons unprovoked (all were sleeping) in one night including 3 from one family. At that time, its tusks were trimmed to bring in behavioural change to reduce its aggressive nature. However, there was not much change in behaviour of the said tusker. The DFO, Angul vide memo no. 303, dtd. 16.01.2020, informed that the same tusker had again entered Talcher and caused lot of damage and had become real threat to the life of local people. The entire town remained awake as the elephant was frequently chasing the people in the night and in many cases, they had to be rescued. It was also informed that the situation in the entire Talcher area was very tense and the local people were agitating over the presence of killer elephant which remained a continuous threat to their life. As per seriousness of the situation, the elephant was allowed to be captured through chemical immobilization and was kept at Kapilash, which is the nearest suitable place for care & monitoring of captured elephant. For taking care, two trained Mahouts, Veterinary Officer of Satkosia Tiger Reserve, Angul and local Veterinary officer have been engaged. In time of need, consultations are also made with Center for Wildlife Health,

Nandankanan and Veterinary College of OUAT, Bhubaneswar. Prominent Veterinary Officers like Dr. K.K. Sharma of Assam has also been consulted. Proper arrangement for shade, feed, drinking water, etc. have been made and all possible care is taken.

In the meantime, an expert committee constituting of eminent persons were called on to advice on the future course of action regarding problematic elephant kept at Kapilash.

After detailed deliberation, the committee advised that elephant can be shifted to Kraal. Accordingly, the elephant has been shifted to Kraal and freed from chains tied to its legs earlier. Further, the committee was unanimous that looking at the past behaviour of the said elephant and human causalities caused, it should not be released into the wild. The committee was also of the opinion that after full recovery and training the elephant can be used for forest & wildlife protection, etc. Recently, this elephant has been released into a one hactare enclosure.

B) CUTTACK FOREST DIVISION

One rogue tusker was detected on 18.01.2020 at about 6.30 PM in village-Ambabeda near Mohagiri DPF of Tomka Forest Range while the staff & squad of Tomka Range were on duty. On 18.01.2020/19.01.2020 night, the said tusker damaged 5Nos. of houses in village-Phuljhar in said Mohagiri DPF of Tomka Range. On 19.01.2020, during drive of the elephant to Mohagiri DPF, the said tusker caused one human casualty in village-Ulibeda under Kalinganagar P.S of Jajpur District. After all out effort by the staff of Tomka and Sukinda Range, the said elephant did not move towards Mohagiri DPF, rather the elephant moved towards Bhalubasa village & stayed inside Bhalubasa revenue forest. On 20.01.2020, the said tusker moved towards Baranga RF of Keonjhar WL Division, Anandapur. On 21.01.2020, one coordination meeting was conducted among the staff of Keonjhar WL Division, Anandapur and staff of Cuttack Forest Division at Ganhpur Beat house of Keonjhar WL Division, Anandapur for safe drive of the elephant to Mohagiri DPF under Cuttack Forest Division. On 22.01.2020 night, the said tusker moved towards Jokadia (Brahman Narsinghpur) under Kuakhia P.S of Jajpur District covering a distance about 40Km via Panikoili. On 23.01.2020, the tusker returned on the same way & during his movement, 2Nos. of human casualties occurred in village Godipatna under Jajpur Road P.S of Jajpur District & finally stopped his movement inside Dhuligarh Revenue Forest of Jajpur Road Range and took shelter. On 24.01.2020, the elephant did not move out of the Dhuligarh revenue forest area but caused some house damage in the late night. On 25.01.2020 evening, DFO with ACFs, 04 Range Officers, 10 Foresters, 20 Forest Guards and around 100 squad personnels of Cuttack Forest Division monitored the movement of the said tusker near Dhuligarh Revenue Forest and tried to guide the movement of elephant to Mahagiri DPF.

The elephant came out of Dhuligarh Forest at around 6.15 PM, after driving the elephant for about 500m, it was not possible to drive further due to gathering of crowd to see the elephant. Unfortunately, during the course of movement of elephant, one 15year old boy standing in the gathering got attacked by the elephant and got severely injured. He was immediately rushed to the hospital at Danagadi where he was declared dead by the Doctor. Thereafter the crowd got agitated and gheraoed forest staff and started pelting stones at vehicles. The staff left the driving operation to save their life. There has been severe public

resentment due to 4 Nos. of human casualties and 09 nos. of major injury over a short span of 06 days. Peoples representatives strongly demanded for tranquillization and shifting of the rogue elephant. It was concluded that the rogue elephant is needed to be tranquilised and shifted. After the death of 15 year old boy, local people blocked the Duburi-Panikoili road near Danagadi at around 9.30 PM and paralysed the traffic.

In view of above, DFO requested to depute the tranquilization team on 26.01.2020 to tranquilize the rogue elephant and shifting of the same to other forest area to mitigate the issue. In exercising power under sec-11(a)of WPA1972,PCCF granted the permission and accordingly the elephant was captured and brought to Chandaka.

Release of rescued elephant into the enclosure at Kapilash

Table showing depredation trend over last ten years

(YEARWISE FIGURE DEPREDATION DUE TO WILD ANIMALS FROM 2010-11 TO 2019-20)

Year	Human Kill			Human Injury			Cattle Kill					House Damage			Crop Damage (in Acres)					
	Due to Elephant	Due to Others	Total	Due to Elephant	Due to Others	Total	Due to Elephant	Due to Others	Sheep by wolf Dead/Injured		Total	Part	Full	Total	Due to Elephant Victim / Area		Due to Others Victim / Area		Total Victim / Area	
2010-11	61	12	73	21	103	124	13	2			15	454	205	659		10108.4			0	10108.4
2011-12	41	17	58	28	81	109	0	7			7	498	303	801	-	20763.00	-	-	0	20762.617
2012-13	80	12	92	28	154	182	0	34			34	732	313	1045	-	13265.73	-	768.35	0	14034.0803
2013-14	67	26	93	38	170	208	9	29	-	-	38	863	176	1039	24378	11769.22	967	466.41	25345	12235.6307
2014-15	65	9	74	34	106	140	8	22	-	-	30	570	209	779	25819	9638.27	828	1126.62	26647	10764.891
2015-16	89	18	107	65	244	309	6	50	-	-	56	521	144	665	34260	11643.75	2459	977.40	36719	12621.14480
2016-17	66	30	96	29	219	248	20	35	-	-	55	536	185	721	35342	9596.47	2031	555.32	37373	10151.7902
2017-18	105	27	132	51	232	283	30	82	178	10	300	814	464	1278	40585	10390.54	3527	856.31	44112	11246.85268
2018-19	85	27	112	63	174	237	50	77	30	0	157	847	685	1532	37782	10513.28	3528	937.14	41310	11450.42135
2019-20	117	23	140	67	277	344	16	60	38		114	1337	1369	2706	49605	15264.13	7048	1600.6626	56653	16864.79285
Total	**776**	**201**	**977**	**424**	**1753**	**2177**	**152**	**398**	**246**	**10**	**806**	**7172**	**4053**	**11225**	**247771**	**122975.369**	**20388**	**7288.21516**	**268159**	**130263.2008**

Table showing Elephant death due to various reasons in Odisha during last ten years

DEATH OF ELEPHANTS FOR VARIOUS REASONS IN ODISHA

Sl No	Year	Poaching	Poisoning	Electrocution		Accident			Disease			Natural	RNK	Total
				Accidental	Deliberate	Train	Road	Other Accident (Infighting, falling from hill top like natural causes	Anthrax	Herpes	Other			
1	2010-11	10	6	5	13	0	0	4	0		18	8	19	83
2	2011-12	4	4	5	8	2	0	5	0		8	17	15	68
3	2012-13	5	3	6	7	11	0	4	0		24	8	14	82
4	2013-14	11	1	1	5	1	0	5	0		14	15	17	70
5	2014-15	4	1	2	2	0	1	12	4		12	9	8	55
6	2015-16	2	0	5	9	1	1	11	12		17	11	16	85
7	2016-17	2	0	3	3	0	0	14	13		20	5	15	75
8	2017-18	2	1	5	4	2	0	19	2		25	4	14	78
9	2018-19	2	0	15	9	7	0	19	3		27	4	7	93
10	2019-20	4	0	0	8	1	4	15	5	2	19	3	19	80
	Total	**46**	**16**	**47**	**68**	**25**	**6**	**108**	**39**	**2**	**184**	**84**	**144**	**769**

*RNK (Reason Not Known / inconclusive post mortem)

*Other accident (Infighting, stampede, falling from hill, falling in well, muddy tank & nala, lightening, heart stroke, etc.)

BAR GRAPHS SHOWING THE DIVISION WISE ELEPHANT DEATH AND HUMAN KILL BY ELEPHANT IN ODISHA FROM 2010-11 TO 2019-20

DIVISION-WISE ELEPHANT DEATH & HUMAN KILL BY ELEPHANT IN ODISHA FROM 2010-11 TO 2019-20

SL.NO.	DIVISION	Elephant Death in No.	Human Kill by Elephant in No.
1	ANGUL	35	68
2	ATHAGARH	82	24
3	ATHAMALIK	18	36
4	BALASORE WL	28	11
5	BALIGUDA	8	9
6	BAMRA	16	15
7	BARGARH	11	22
8	BARIPADA	26	38
9	BERHAMPUR	15	13
10	BHADRAK	0	1
11	BOLANGIR	10	8
12	BONAI	21	20
13	BOUDH	3	3
14	CHANDAKA WL	3	2
15	CHILIKA WL	2	0
16	CITY FOREST	0	0
17	CUTTACK	8	9
18	DEOGARH	35	14
19	DHENKANAL	123	165
20	GH NORTH	15	5
21	GHUMSUR SOUTH	12	5
22	HIRAKUD WL	1	0
23	JEYPORE	0	3
24	JHARSUGUDA	10	31
25	KALAHANDI NORTH	8	6
26	KALAHANDI SOUTH	3	1
27	KARANJIA	26	18
28	KEONJHAR	46	94
29	KEONJHAR WL	22	10
30	KHARIAR	0	4
31	KHORDHA	5	19
32	KORAPUT	4	2
33	Mahanadi WL	2	0
34	MALKANGIRI	0	0
35	NABARANGPUR	0	0
36	NAYAGARH	9	4
37	PARLAKHEMUNDI	0	1
38	PHULBANI	5	0
39	PURI WL	0	1
40	RAIRAKHOL	10	20
41	RAIRANGPUR	14	11
42	RAJNAGAR WL	0	0
43	RAYAGADA	8	4
44	ROURKELA	20	69
45	SAMBALPUR	9	21
46	SATKOSIA WL	31	12
47	STR BARIPADA	48	1
48	SUBARNAPUR	8	6
49	SUNABEDA WL	0	0
50	SUNDARGARH	7	52

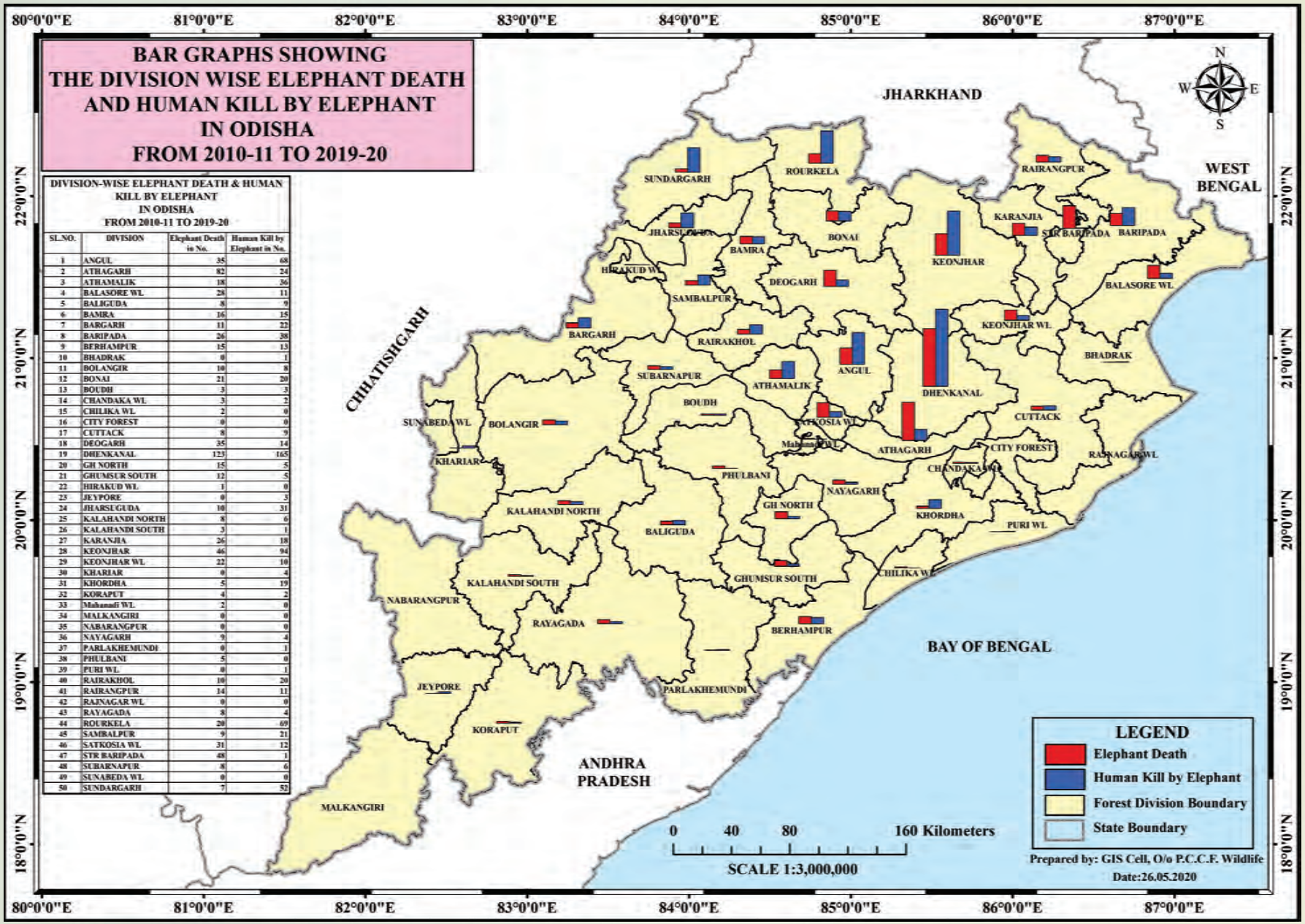


Table showing Compassionate Grant Payment over last ten years in Odisha

COMPASSIONATE AMOUNT PAID IN ODISHA FOR ELEPHANT DEPREDATION FROM 2010-11 TO 2019-20.

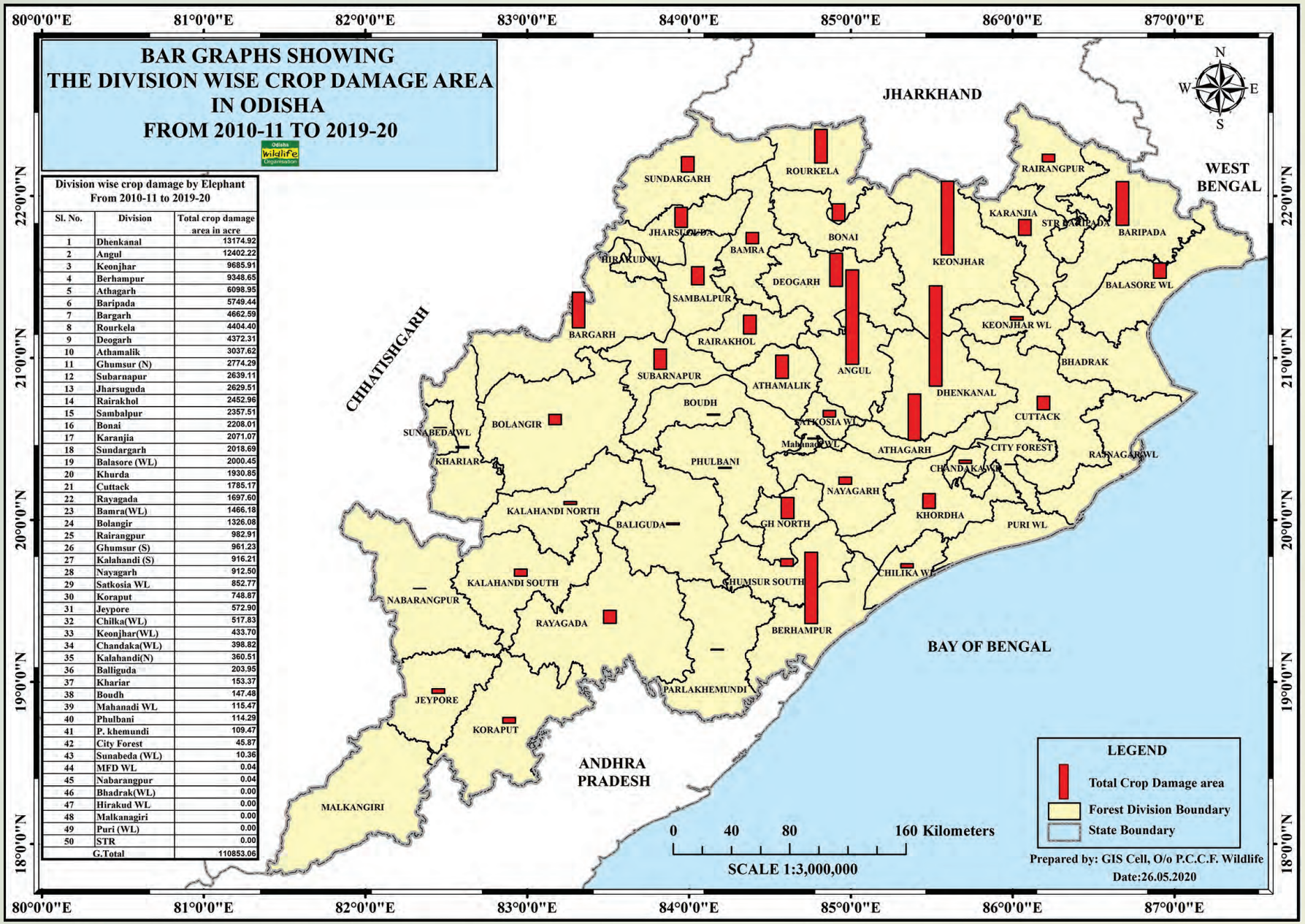
Year	Human Kill		Human Injury		Cattle Kill		House Damage		Crop Damage			Total
	No. of victims	Amount paid	No. of victims	Amount paid	No. of victims	Amount paid	No. of victims	Amount paid	Victims	Area (in acres)	Amount paid	
2010-11	62	60.42	11	2.0798	7	0.14	1139	25.159		15656.39	156.5639	244.3627
2011-12	61	70.13	28	2.8931	7	0.26	1149	46.4165		11092	267.44837	387.14797
2012-13	80	147.93	35	9.6498	6	0.31376	1075	38.6655		18456.26	800.31761	996.87667
2013-14	64	122.40	32	9.9233	9	0.375	916	29.6445		13211.534	983.20962	1145.55242
2014-15	99	196.565	27	8.32	7	0.35	1196	46.4645		14788.3482	1346.0454	1597.7449
2015-16	80	203.21	65	19.71	4	0.175	1136	47.097	38239	12496.7612	1149.0652	1419.2572
2016-17	88	251.33	43	17.77	4	0.20	955	36.94	43201	11273.61	1203.08	1509.32
2017-18	90	259.80	27	8.9	26	1.25	1557	94.85	43831	11545.0811	1176.29	1541.08
2018-19	80	270.79	34	16.7	42	2.14	1557	86.54	33838	9176.99365	955.00	1331.16
2019-20	131	362.48	42	15.35	16	0.75	2161	127.26	46124.6	14137.3867	1473.35	1979.19

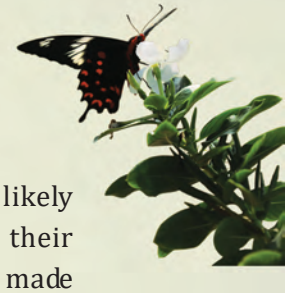
Note: The numbers of victims, area of crop damaged and amount of compassionate grant paid during any year reflect the position of payment during that year. It includes the victims of the said year as well as back log of previous years.

BAR GRAPHS SHOWING THE DIVISION WISE CROP DAMAGE AREA IN ODISHA FROM 2010-11 TO 2019-20

Division wise crop damage by Elephant
From 2010-11 to 2019-20

Sl. No.	Division	Total crop damage area in acre
1	Dhenkanal	13174.92
2	Angul	12402.22
3	Keonjhar	9685.91
4	Berhampur	9348.65
5	Athagarh	6098.95
6	Baripada	5749.44
7	Bargarh	4662.59
8	Rourkela	4404.40
9	Deogarh	4372.31
10	Athamalik	3037.62
11	Ghumsur (N)	2774.29
12	Subarnapur	2639.11
13	Jharsuguda	2629.51
14	Rairakhol	2452.96
15	Sambalpur	2357.51
16	Bonai	2208.01
17	Karanjia	2071.07
18	Sundargarh	2018.69
19	Balasore (WL)	2000.45
20	Khurda	1930.85
21	Cuttack	1785.17
22	Rayagada	1697.60
23	Bamra(WL)	1466.18
24	Bolangir	1326.08
25	Rairangpur	982.91
26	Ghumsur (S)	961.23
27	Kalahandi (S)	916.21
28	Nayagarh	912.50
29	Satkosia WL	852.77
30	Koraput	748.87
31	Jeypore	572.90
32	Chilka(WL)	517.83
33	Keonjhar(WL)	433.70
34	Chandaka(WL)	398.82
35	Kalahandi(N)	360.51
36	Balliguda	203.95
37	Khariar	153.37
38	Boudh	147.48
39	Mahanadi WL	115.47
40	Phulbani	114.29
41	P. khemundi	109.47
42	City Forest	45.87
43	Sunabeda (WL)	10.36
44	MFD WL	0.04
45	Nabarangpur	0.04
46	Bhadrak(WL)	0.00
47	Hirakud WL	0.00
48	Malkanagiri	0.00
49	Puri (WL)	0.00
50	STR	0.00
	G.Total	110853.06





15) SITE SPECIFIC WILDLIFE MANAGEMENT PLAN

Odisha, being rich in wildlife wealth has excellent mineral resources also. It is very likely that during the process of mining and other developmental activities the wildlife and their habitats are affected adversely. So, a site specific wildlife conservation plan has been made mandatory wherever required for any clearance of mining or industrial projects. The Plan takes care of protection & conservation requirements of wildlife and improvement of their habitat in that very specific site. The implementation of site spefic plans supports in someway to mitigate the Man-Animal conflict issues of that area by facilitating financial support for infrastructure development and deployment of squads.

16) ECO DEVLOPMENT COMMITTEE

For involving local communities in wildlife management around Protected Areas following Eco development committee has been constituated.

List of EDC involved in Wildlife Conservation

SlNo.	Name of the Division	Name of the District	No. of EDC
1	Satkosia WL	Angul	37
2	Mahanadi WL	Nayagarh	17
3	Balasore WL	Balasore	3
4	STR, Baripada	Mayurbhanj	180
5	Puri WL	Puri	29
6	Chandaka WL	Khurda	27
7	Rajnagar WL	Kendrapara	48
8	Bhadrak WL	Bhadrak	20
9	Kalahandi South	Kalahandi	14
10	Sunabeda WL	Nuapada	4
11	Keonjhar WL	Keonjhar	5
12	Bamra WL	Sambalpur	25
13	Hirakud WL	Sambalpur	23
14	Balliguda	Kandhamal	80
15	Parlakhemundi	Gajapati	4
16	Dhenkanal	Dhenkanal	23
		Total:	**539**

CHAPTER VIII

COMMUNITY MANAGED NATURE TOURISM

With about 39% forest cover & 480 KM Coastline, Odisha favors some of the important ecosystems of the world and some of the beautiful landscapes of the Eastern Ghats are displayed here. Of the total population of Odisha, around 80 percent live in the rural areas and their role in conserving the natural resources of state is pivotal. During the year 2016, Forest & Environment Dept., Govt. of Odisha prioritizing the need of getting support of these forest dependent communities for forest & wildlife conservation initiated **"Community Managed Nature Tourism"** in Odisha. The objective of "Community Managed Nature Tourism" is to support forest & wildlife conservation by providing alternative livelihood to the forest dependent communities through responsible tourism. Villagers or community members are stakeholders in Ecotourism projects and 80% of revenue benefit directly goes to them. 600 trained local community members are now managing 41 Nature Tourism destinations all over the state & earning their livelihood. It has been an alternative income for them as they earlier used to rely on forest for their survival by poaching, smuggling, fishing, collecting honey, firewood, etc. Indirectly, 5 to 6 villages per Ecotourism project are now earning their livelihood by providing daily requirements to the Ecotourism projects (i.e. by selling vegetables, handmade articles, different food items, milk, non-veg products, travel facilities etc). From Ecotourism during 2015-16, State earned revenue of Rs.47 Lakhs with 1900 visitors which leaped to Rs.1.5 Cr with 9300 visitors in 2016-17 & during 2018-19 revenue reached Rs.5.6 Crore with 20,000 visitors from all over the world. Maintaining the success, during 2019-20 the State witnessed 31,000 visitors with revenue of Rs.6.6 Crore.

Odisha has emerged as the only State in India for having a Community model of Ecotourism. Starting from 14 Ecotourism destinations during 2016, by 2019-20 forty-one Ecotourism destinations covering 16 districts with all basic amenities have been developed. Total 309 rooms (tents & cottages) are available to accommodate 940 nos. of Ecotourists per day.

Since 2016, online booking portal www.ecotourodisha.com is functioning for booking of Nature Camps/Ecotour destinations and a logo has been assigned for Ecotour Odisha. Eco Development Committees/Vana Sanrakshyana Samities have been formed in all the villages and a core management committee (one person from each family) named as "Ecotourism Group (ETG)" has been created individually for all destinations for managing the Nature Camps. All the community members have been trained on hospitality & ecotourism services by government institutions since 2018. The members play different roles in management of Nature Camps ie. housekeeping, accounting, store, reception, service, cooking, cleaning etc. The total income generated through online booking is shared as below:

ETG wages- 35%, Recurring Expenses- 25%, Infrastructure Development- 10%, EDC- 10%, Corpus- 10% (for engaging hospitality experts in all destinations), Govt. Revenue- 10%.

Inbound & outbound Tour Operators have been enrolled in this scheme for bigger publicity of the destinations. Till 2020, total of 86 Travel Operators are registered operators of Ecotour and Taxi Operators have also been enrolled for facilitating Indian & Foreign

tourists. As per the MoU signed between Forest Dept. (1st Party) & Tourism Dept. (2nd Party), Tourism Dept is promoting Odisha Ecotourism in large scale in India & abroad. Different National Level News letters & Magazines have covered different articles on Odisha Ecotourism.

Plastics are banned in Ecotourism destinations, cleanliness & hygiene is given top priority with control over vehicular pollution and sound pollution. Tourists and vehicles are permitted as per the approved "Carrying Capacity" of the landscapes as mentioned in respective Management Plans.

Activities: Trekking, Boating, Jungle Safari, Sports, Cultural Programme by Local community, Birding, Cycling, Library, Film Shows, Farm Visits, Star Gazing, Canopy Walk, Adventure Sports (under progress) etc.

NEW INITIATIVES DURING 2019-20 :

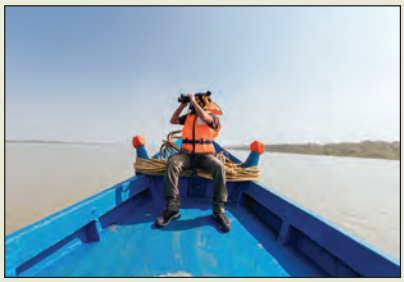
- Memorandum of Understanding have been signed with Odisha Biodiversity Board and Institute of Hotel Management, Bhubaneswar.

  The MoU with Biodiversity Board intends to create Naturalists/ Eco-Guides in all the Ecotourism destinations of Odisha by training all community members engaged in Ecotourism activities. Institute of Hotel Management will provide trainings to community members for management of Ecotour destinations.

- The MoU with Department of Tourism, Govt. of Odisha has been renewed for branding and promotion of Eco-tour properties at National & International level.

- New Hiking/Trekking programme **"Eco-Trails Odisha"** has been launched during January'20. The Hiking programme covers all Forest Trails and Waterways around 10 Sq.Km area of each Nature Camp.

- "Chief Minister's Award for Excellence in Forest Protection through Nature Tourism" has been started by Govt from the year 2020 for rewarding the Community members who have performed well in Ecotourism and also have significant contribution in controlling pollution, protection of forest & wildlife from fire, poaching etc.



- Steps have been taken for expansion of Safari Tourism in different areas of State and also steps for upscaling of eco-tour experiences is under progress.
- The First Coffee Table Book on Odisha Ecotourism has been launched and photo documentation of all Ecotourism areas has been completed during 2019-20.
- 4 new Ecotourism destinations have been created at Barehipani (Similipal), Chandipur (Dist-Balasore), Chitrakonda (Dist-Malkangiri, near Chitrakonda Dam), Satiguda (Dist-Malkangiri, near Satiguda Dam). New destinations are under construction at Koraput Pine Forest (Dist-Koraput), Patora Dam (Dist-Nuapada), Tensa (Dist-Sundargarh). These locations will provide opportunity for nature enthusiasts for exploring other parts of State. 17 number of new rooms have been added in 4 eco-tour properties.

IMPACT OF COMMUNITY MANAGED NATURE TOURISM:

1. Provides livelihood support to the forest dependent communities of State.
2. Employment to rural women & tribal communities in wildlife areas who were earlier dependent on poaching & anti forestry activities for their living. Almost 60% of the community members engaged in all the 40 Ecotourism destinations of Odisha are rural women.
3. Significantly low forest fire and poaching in those landscapes where communities are engaged in Ecotourism activities.
4. Ecotourists are engaged in different activities like trekking, birding, boating, cycling, farm land visit, cultural programmes by locals, safari, watching wildlife movies in Nature Camps, canopy walk etc. to provide the visitor holistic experience on forest, culture & traditions of the local communities. Eco guides, boatman etc. employed in ecotourism destinations are all trained.
5. The Ecotourism destinations have been developed covering different landscapes of the State, i.e., forests, hill stations, lakes, rivers, beaches, lagoon, etc. which also provide basic knowledge to the tourists about natural ecosystems.
6. As Ecotourism destinations are providing job opportunities for the local communities, they themselves are conserving & protecting nature and also maintaining cleanliness of the landscape.

7. Communities are also running programmes like “Poacher Turned Protectors”, “Know Your Birds” etc. in different destinations.

8. The model “Community Managed Nature Tourism” adopted by Odisha Govt. is unique in the Country as forest dependent communities are utilizing 80% share of the state revenue & out of it 35% goes towards their salary.

9. One of those 40 Ecotourism destinations in Odisha is “Satkosia Sands Resort & Nature Camp” at Badmul in Satkosia Tiger Reserve (started since 2016), managed by 34 villagers. The destination has earned 1.03 crore during the financial year 2018-19 and 1.07 crore during 2019-20. Similarly, Similipal Nature Camps has also earned revenue of more than 1 crore each during 2018-19 & 2019-20.

10. Community Managed Nature Tourism is a model of responsible tourism which sustainably contributes towards forest, wildlife and habitat conservation by offering better living conditions to the local communities and also helpful in making each tourist the future custodian of our forests. Conservation brings economic returns and also helps reducing dependence on forest bringing in a social change among the locals. Not only villagers, children and youth from those communities are also future stakeholders of our forests.



Ecotourism Cell & City Booking Centre : From 1st May 2019, the Ecotourism Cell with Cell Managers and Marketing Manager is functioning in the Ground Floor of Prakruti Bhawan, O/O PCCF (WL) & CWLW, Bhubaneswar, Odisha. The same has been shifted from OFDC Ltd. by government orders for smooth management of Eco-tour properties. The Ecotourism Cell is functioning 24X7. Hospitality Managers have been engaged in different Ecotour properties all over State for training, capacity building of community members and for better services in Nature Camps.

Email: dcfecowlodisha@gmail.com,
contact@ecotourodisha.com,
support@ecotourodisha.com

Phone: 0674- 2549553/2549558 (10 AM to 5 PM on Working days)
08018656987/ 09861806741 (24 Hours).

Contact numbers of Site Managers, ETG Managers, Ecotourism Control Room at Division Level have been displayed in www.ecotourodisha.com.

Awards: The Community model of Ecotourism adopted by Odisha has received "Best Ecotourism Initiative Award" by Federation of Indian Chambers of Commerce & Industry (FICCI) during the year 2019.

CHAPTER IX

RESEARCH AND AWARENESS

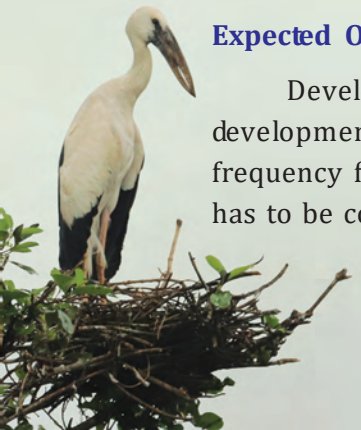
Wildlife management is an art and science through which various fauna and their habitat have been manipulated and managed on a sustainable basis. It is an interdisciplinary subject that deals with protecting FAUNA species and their habitats. Wildlife management emphasizes the both applied and basic research about wildlife ecology, management, education and extension. The aim is to conserve and restore the Protected Area and other biodiversity rich areas in its original quality and quantity in terms of its biodiversity values and ecosystem services that support every life that are dependent on it, in a sustainable basis through constructive cooperation and participation of all stakeholders at local, national and international level.

A. TECHNOLOGICAL INTERVENTIONS

(I) COLLABORATION WITH IIT, BHUBANESWAR

Technology is helping us to work smarter, giving us better ways to analyze data, improve workflow, streamline supply chains, identify problems faster, improve protection and management processes to reduce human-animal conflict.Wildlife Organization is taking many initiatives to tackle various field related issues. Few of the important technological intervention/ research in wildlife management has been initiated during the last year in collaboration with Indian Institute of Technology, Bhubaneswar. Financial support for initiating research in the following project proposals are already approved by the Wildlife wing.

1. Design and development of portable non-contact electric fence presence detector & wireless enabled fence fault sensing node.
2. Development of efficacy testing of infrasonic repellant for elephant herd control developed.
3. Lightweight high-performance material for tiger cages.
4. Polymer composite materials for animal cages.



Expected Outcome:

Development and efficacy testing of infrasonic repellent study will be helpful for development of a prototype of an infrasonic sound generator with variable resonating frequency for elephant herd control. Lightweight high-performance material for tiger cages has to be cost effective, readily available and durable. Polymer composite materials for small

animal cages will be animal friendly (being biocompatible polymers) and also safe guard them from different bacterial infection due to antibacterial properties of the cage material.

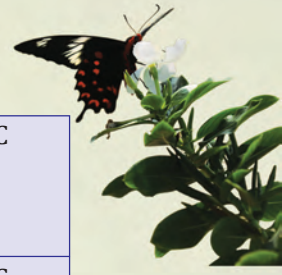
(II) ONGOING RESEARCH PROJECTS FUNDED BY THE WILDLIFE WING

Sl. No.	Title of the Project	Name of PI / Co-PI, Institution	Study area	Year of Approval	Project Cost
1	Monitoring the breeding ecology and fostering breeding success rate of Indian Skimmer along the Mahanadi River in Odisha, India	Sri Kedar Kumar Swain, DFO, Chandaka Wildlife Division	Entire length of Mahanadi river in Odisha	2019-20 (8 months, January, 2020 to August, 2020)	4,07,500/-
2	Species Recovery of Gharials (*Gavialis gangeticus*) in river Mahanadi	Director, Nandankakan Zoological Park	Mahanadi river, Odisha	2019-20 (4 years)	77,27,800/-
3	Design and Development of portable non-contact electric fence presence detector	Prof. N. C. Sahoo, Professor and Head, School of Electrical Sciences, IIT, Bhubaneswar	State of Odisha	2019-20 (One Year & Six Month)	18,51,300/-
4	Development and efficacy testing of infrasonic repellent for elephant herd control developed	Dr. S N Panigrahi Associate Professor, School of Mechanical Sciences, IIT, Bhubaneswar	State of Odisha	2019-20 (One Year)	18,39,200/-
5	Polymer composite materials for animal cages	Dr. Vijayakrishna Kar, Associate Professor, SBS, IIT, Bhubaneswar	State of Odisha	2019-20 (One Year)	7,15,000/-
6	Lightweight high-performance material for tiger cages	Dr. Mithipati Siva Bhaskar Assistant Professor, SMMME, IIT, Bhubaneswar	State of Odisha	2019-20 (One Year)	8,30,000/-

(III) RESEARCH PROJECT PROPOSAL SCRUTINIZED BY RESEARCH ADVISORY COMMITTEE (RAC) DURING 2019-2020.

The Research Advisory Committee (RAC) has been constituted in the office of the Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Odisha to monitor and review the wildlife research activities, identify priority areas for wildlife research works, scrutinize and recommend the research proposals in the wildlife sector. Principal Chief Conservator of Forests (Wildlife) is the Chairman of this Committee. This committee scrutinized following research proposals during 2019-20.

Sl. No.	Title of the Project	Year of Approval	Status
1.	Assessment of amphibian diversity of central India and identification of cryptic species using integrative taxonomic approach	02.07.2019	Recommended by RAC
2.	Age and origin of the volcanic rocks of the Similipal basin, Orissa	02.07.2019	Not Recommended by RAC
3.	Studies on medicinal plant resources of Balasore district of Odisha and their uses	02.07.2019	Not Recommended by RAC
4.	Study on habitat preference, food and feeding pattern of avifauna at Mangalajodi marshes of Chilika lake, Odisha	02.07.2019	Recommended by RAC
5.	Studies on diversity, distribution and medico-botany of lichen flora of Mayurbhanj district of Odisha	02.07.2019	Recommended by RAC
6.	Monographic studies of the Gymnosperm Genus *Cycas* in India	02.07.2019	Not Recommended by RAC
7.	Exploring the biogeographic and phylogeographic patterns shown in the diversity and distribution of Typhlopoids in India	02.07.2019	Not Recommended by RAC
8.	Biodiversity Characterisation at community level in India using Earth Observation Data	02.07.2019	Not Recommended by RAC
9.	Inventory of macrolichen diversity of Odisha State	02.07.2019	Not Recommended by RAC
10.	Preclinical evaluation and commercialization of anti snake venom anti hemotoxin and anti neurotoxins	02.07.2019	Not Recommended by RAC
11.	Salinity gradient dynamics and phyto sociology of Bhitarakanika mangrove forest	02.07.2019	Not Recommended by RAC
12.	Community based Practices for Conservation of Olive Ridley Turtles	02.07.2019	Not Recommended by RAC
13.	Effect of forest fire on vegetation dynamics and soil physico-chemical and biological properties in Debrigarh Wildlife Sanctuary	02.07.2019	Not Recommended by RAC
14.	Phycodiversity assessment of Bhitarkanika	02.07.2019	Recommended by RAC
15.	Research permission for Synthesis of Zinc Oxide Nanoparticles by a Potent Cyanobacterium and Study on its anti-bacterial and anti-cancer activity	05.12.2019	Not Recommended by RAC
16.	Permission for filed visits requested a DST SERB, Govt. of India Project on the Indian Cycads regarding "Systematics and Conservation of the Genus Cycas L. (Cycadaceae) in India"	05.12.2019	Not Recommended by RAC
17.	Research proposal for granting permission to work in Bhitarkanika National Park and collection of Mangrove plant and soil samples from Bhitarkanika National Park for Ph.D. Work	05.12.2019	Not Recommended by RAC
18.	Research Permission for Assessing Spatio-Temporal Health of Mangrove Cover in response to sea level rise and sediment dynamics and ecological consequences along the eastern coast of India	05.12.2019	Not Recommended by RAC



19.	Research Permission for ground and remote sensing-based measurements of leaf area index and estimating net primary productivity in tropical deciduous and semi-evergreen forests of India	05.12.2019	Recommended by RAC
20.	Research Permission for Study of Genetic Variation with respect to Geographical Location in Indian Sloth Bears (*Melursus ursinus*) using Single Nucleotide Polymorphic (SNPs) Markers	05.12.2019	Recommended by RAC
21.	Research Permission for exploring the bio-geographic and phylo-geographic patterns shown in the diversity and distribution of Typhlopoids in India	05.12.2019	Not Recommended by RAC
22.	Research Permission Assessment of Genetic and Morphological variations in the Indian Star Tortoise (*Geochelone elegans)*	05.12.2019	Not Recommended by RAC
23.	Research Permission for Faunal Diversity of Lakhari Vally Wildlife Sanctuary, Ganjam, Odisha	05.12.2019	Not Recommended by RAC
24.	Research Permission for Biogeography and Phylogeographic of Wetland Associated Snakes (Family: Homalopsidae)	05.12.2019	Recommended by RAC
25.	Research topic on coastal ecosystems of Odisha and their vital role in carbon economics and climate change mitigation	05.12.2019	Not Recommended by RAC
26.	Project proposal on monitoring the breeding ecology and fostering breeding success rate of Indian Skimmer (*Rynchops albicollis*) along the Mahanadi River in Odisha	05.12.2019	Recommended by RAC
27.	Project proposal on study on migration pattern & habitat use of Asian Elephants in Chandaka-Dampara Wildlife Sanctuary	05.12.2019	Not Recommended by RAC
28.	Project proposal on camera trap survey to assess the species richness, relative abundance and distribution of mammalian fauna in Chandaka-Dampara Wildlife Sanctuary, Odisha, India	05.12.2019	Recommended by RAC
29.	Permission for conducting field study in Similipal Biosphere Reserve under the Project titled "Biodiversity Characterization at Community level in India using Earth Observation Data"	05.12.2019	Recommended by RAC
30.	Permission for biogeography, genetics connectivity and evaluation birds in peninsular India Research	05.12.2019	Recommended by RAC

NB-The research proposals not recommended by the RAC are not accepted by WL wing. The concerned Institutions/individuals are requested to submit their revised proposals suitable for significance of the study relating to Wildlife.

B. AWARENESS PROGRAMME

NANDANKANAN ZOOLOGICAL PARK

OBSERVATION OF DIFFERENT DAYS

A. World Wetland Day 2020

B. World Pangolin Day 2020

C. World Wildlife Day 2020

D. World Environment Day 2020

E. Vanmahotsav 2020

F. International Tiger Day 2020

G. World Elephant Day 2020

H. International Vulture Awareness Day 2019

I. Wildlife Week 2019

J. 60th Foundation Day 2019

ZOO OUTREACH PROGRAMME

To educate and enrich the knowledge of students, Nandankanan organizes capacity building programmes about different flora and fauna, conservation breeding programme, identifying the floral diversity, wetland education etc. This programme was started from December 2019, this one day programme is organized on mainly government holidays and students at various levels participate in these programmes.

CHAPTER X

ACHIEVERS IN THE FIELD OF WILDLIFE CONSERVATION

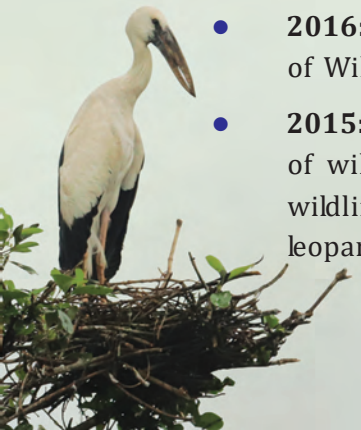
THE BIJU PATNAIK WILDLIFE CONSERVATION AWARD

STATE LEVEL

- The State Government of Odisha in Forest and Environment Department vide their resolution No.14585-I-Affn-6/2012-F&E dtd. 03.08.2012 had approved the modalities for the "**Biju Patnaik Award for Wildlife Conservation**", to be presented each year in the month of October at a State Level Function to recognize the contribution of individuals/institutions towards conservation of wildlife.
- This award is given every year to individuals or institutions operating in the State of Odisha and engaged in wildlife and biodiversity conservation, research and education. The award is given at the State Level Function as well as in the Sub-Divisional Level Function.
- The State level award consists of a certificate with cash award of Rs.2, 00,000/- (Rupees two lakhs) only. Initially the cash award was Rs.50, 000/-; subsequently enhanced to Rs.1, 00,000/- and then to Rs.2, 00,000/- during the year 2007 and 2008 respectively. The amount of cash award for sub-division is Rs 5000/-.

THE STATE LEVEL AWARDEES OF PREVIOUS YEARS ARE AS FOLLOWS:

- **2019:** Shri Bichitrananda Biswal for his sustained contribution for protection and conservation of coastal biodiversity in Puri District, especially Olive Ridley Sea turtles, Dolphins, Deer, House Sparrow, snake and Mangroves.
- **2018:** Prof. Sushil Kumar Dutta for his sustained contribution for protection and conservation of reptiles and amphibians of the state in Odisha.
- **2017:** Shri Chakradhara Hembram for his sustained contribution for protection and conservation of wildlife. He has played a vital role in village relocation in around Similipal Tiger Reserve, Mayurbhanj.
- **2016:** Dr Gauranga Charan Rout for his sustained efforts for protection and conservation of Wildlife in Odisha.
- **2015:** Shri Satrughna Rout for his sustained contribution for protection and conservation of wildlife. He played a vital role in providing valuable information for detection of wildlife offence cases and effecting seizure and recovery of ivory, skins of tiger and leopard around Similipal Tiger Reserve.



- **2014:** Prof. Priyambada Mohanty-Hejmadi for her life time sustained contribution towards Conservation of Wildlife, especially Olive Ridley Sea turtles & Estuarine Crocodile in the State.
- **2013:** Dr Lala Aswini Kumar Singh and Swaraj Kumar Kanhar for their life time contribution for wildlife conservation in Odisha.
- **2012:** Shri Shyama Om Prasad Mishra-for House Sparrows for his sustained contribution for conservation of House Sparrows with own initiatives at local level to build up its dwindling population in the State.
- **2011:** Dr. Lakshmi Narayan Acharjyo and Sri Prasanna Kumar Behera for their life time contribution for wildlife conservation and protection in Odisha.
- **2010:** Sri Amarendra Lal Bose-for sustained campaigning in the print media over last forty years for conservation of wildlife, emphasizing flora and fauna of Similipal.

  Sri Saroj Kumar Patnaik-who made a mark nationally as a wildlife expert and a professional in the field of ex-situ management.
- **2009:** Dr Udaya Narayan Dev-for his sustained lifetime contributions in wildlife, particularly the birds of Odisha.

  Dr. Sundara Narayana Patro - for sustained life-time contributions and campaign for the cause of conservation of wildlife and biodiversity of Odisha.
- **2008:** Prof. Basanta Kumar Behura-for sustained work for over sixty years on all faculties of wildlife science, i.e. Education, Research and Conservation.
- **2007:** Sri Mahabir Pakshi Surakshya Samiti of Mangalajodi for taking exemplary initiatives for bird conservation in and around Chilika lagoon.
- **2006:** The Peacock Protection Committee, Ganjam for collective effort of villagers that have made the peafowl sustain and thrive in the Pakidi hill area.
- **2005:** Blackbuck Management Committee, Ganjam - for outstanding contribution to the cause of protection of blackbucks, and for the larger cause of spreading the wildlife conservation ethos.

AWARDEE LIST FOR SUB- DIVISIONAL LEVEL BIJU PATNAIK AWARD 2019

Sl. No.	Name of Circle	Name of Forest Division	Name of Sub-Division	Name of selected candidate
1	Angul	Angul/Satkosia	Angul WL Division	Sri Sanjay Pradhan, President, Dahimal Vana Surakhya Samittee, At-Dahimal, PO-Katada, PS-Jarapada, Dist-Angul
2			Talcher	Sri Haresh Chandra Pradha, President Biru Puruna Sahi Vana Surakhya Samittee, At/PO: -Biru PS-Samal Barrage, Dist-Angul
3		Dhenkanal	Kamakshya Nagar	Sri Rajesh Ranjan Sahoo, S/o–Ratikanta Sahoo, At-Nua Rekula, PO-Kamakshyanagar, Dist-Dhenkanal
4			Hindol	Sri Anata Charan Biswal, S/o Jatadhar Biswal, At/PO-Babandha Via: Hindol Road, Dist-Dhenkanal
5		Mahanadi WL	Nayagarh	Smt. Nepei Majhi, At- Gochhabari, PO - Badasilinga, PS-Gania, Dist-Nayagarh
6	Baripada	Karanjia	Panchpir	Sri Ramakanta Nayak
7		Baripada	Baripada	Mundhakata- Salasahi VSS
8		Keonjhar WL	Anandpur	Sri Sankarsan Sha
9		Balasore WL	Balasore Sadar	Sri Ashwini Kumar Das
10	Bhawanipatana	Balangir	Balangir	Sri Satya Sundar Bhanja, At-Barkani, PO-Sadeipali, Via-Rajendra College, Dist-Bolangir
11			Titilagarh	Sri Jujesti Meher, At/PO-Rugudhipara, Dist-Bolangir
12		Kalahandi North/ Kalahandi South	Bhawanipatana	Sri Biswanath Bibhar, S/o Dutia Bibhar, At-Bhatel, PO-Seragada, PS-Narla, Dist-Kalahandi
13			Dharamgarh	Sri Kamal Majhi, S/o Abhiram Majhi, At/PO-Chapria, PS-Kegaon, Dist-Kalahandi
14		Khariar	Nuapada	Sri Tulshi Ram Bag, S/o Late Arjun Bag, At-Shantinagar, PO/PS-Khariar, Dist-Nuapada
15		Subarnapur	Birmaharajpur	Sri Jitendra Pardia, At/PO-Chadaipank, Via-Ullunda, Dist-Subarnapur
16			Sonepur	Balpur VSS, At-Balpur, PO-Kutasingha, PS-Dungripali, Dist-Subarnapur
17	Bhubaneswar	Nayagarh	Nayagarh	Sri Panchu Nahak, S/o Late Bhramara Nahak, At/PO/PS-Sarankul, Dist-Nayagarh
18		MFD (WL), Rajnagar	Jagatsinghpur	Mr. Amaresh Naresh Samanta, At-Biswali, PO-Bhutamundai, Via-Kujang, Dist-Jagatsinghpur-754141
19		Puri	Puri	Sri Dillip Ku. Biswal

Sl. No.	Name of Circle	Name of Forest Division	Name of Sub-Division	Name of selected candidate
20	Koraput	Koraput	Koraput	Sri Pratik Kumar Pattnaik, S/o Sri Sitaram Pattnaik, At-Aditya Nagar, PO/Dist-Koraput, Pin-764020
21		Jeypore	Jeypore	Sri Rajeev Nain Dubey, ACCOB Dandabadi, 13 Bn. BSF, At-Dandabadi, PO-Baipariguda, Dist-Koraput, Pin-764043
22		Malkangiri	Malkangiri	Sri Sibananda Lenka, Forester, Balimela Section, S/o Sri Netrananda Lenka, At/PO-Balimela, PS-Orkel, Dist-Malkangiri
23		Nabarangpur	Nabarangpur	Sri Lohit Kumar Bissoi, S/o Susanta Bissoi, At/PO-Taragam, PS/Dist-Nabarangpur
24	Sambalpur	Sambalpur/ Hirakud WL	Sambalpur	Sri Damodar Meher, At-Bhikhampur, PO-Parmanpur, Via-Sason, Dist-Sambalpur
25		Rairakhol	Rairakhol	Sri Sibaram Sahoo, S/o Bhabagrahi Sahoo, At/PO-Redhakhol, Dist-Sambalpur
26		Bamra (WL)	Kuchinda	Sri Pradeep Chhatria, S/o Purna Chandra Chhatria, At-Nuniamunda, PS-Govindpur, Dist-Sambalpur
27		Jharsuguda	Jharsuguda	Sri Sribatsa Panda, S/o Ram Prasad Panda, Vill- Fatamunda, Patnagarh, Balangir
28		Bargarh	Bargarh	Sri Sanjaya Khaman, S/o Biranchi Khamari, At-Karlajhori, PO-Karngaon, Dist-Bargarh
29			Padampur	Sri Purna Chandra Bariha, S/o late Badi Bariha, Vill-Jharai, PO-Jhar, PS-Sohela, Dist-Bargarh
30	Berhampur	Ghumsur South/ Berhampur	Bhanjanagr	Sri Gouri Sankar Mishra, Head Master, Mahamayee High School, Block-Buguda, Dist-Ganjam
31		Boudh	Boudh	Sri Dhananjaya Patra, S/o Dwaru Patra, At/Po-Bandhapathar, PS/Dist-Bouidh-762024
32	Rourkela	Rourkela	Panposh	Kanarsuan VSS
33		Deogarh	Pallahara	Batisuan VSS
34		Deogarh	Deogarh	Sri Lalit Mohan Sahu
35		Bonai	Bonai	Sri Prasanta Kumar Tirkey
36		Keonjhar	Keonjhar	Sri Netrananda Moharana
37		Keonjhar	Champua	Sri Daityari Mahanta
38		Sundargarh	Sundargarh	Sri Rabinra Kumar Pateal

CHAPTER XI

BUDGET

PROJECTS AND SCHEMES....

Wildlife organization has different schemes for wildlife management which are funded under Administrative Expenditure and Programme Expenditure.

Table showing the details of Budget provision, Funds released by GoI, sanctioned by State Govt. and Expenditure incurred under Administrative Expenditure (EOM) & Programme Expenditure in respect of Wildlife Organisation during 2019-20. (*Rs. in lakh*)

Sl. No.	Code No.	Name of the Scheme	Budget Provision	Released by Govt. of India	Sanctioned by State Govt.	Expenditure incurred
1		**Administrative Expenditure** (Establishment, Operation & Maintenance Expenditure)	7303.54	0.00	7303.54	6734.52
		PROGRAMME EXPENDITURE				
		STATE SECTOR SCHEMES				
1	3128	Wildlife protection and conservation measure	3000.00		3000.00	2990.31
2	3173	Management of Elephant and Corridor	1554.00		1554.00	1553.95
3	2316	Development of Eco-Tourism	776.99		776.99	756.98
4	2216	Devt. and beautification of Nandankanan Zoo	300.00		300.00	300.00
		Total State Sector	**5630.99**	**0.00**	**5630.99**	**5601.24**
		Centrally Sponsored Schemes				
1	0361	Elephant Management Project	664.86	387.04	645.06	627.98
2	2313	Integrated Development of Wildlife Habitats	1207.56	715.13	1191.88	1147.51
3	2239	Satkosia Tiger Reserve	1708.56	723.78	1277.34	1246.42
4	1283	Similipal Tiger Reserve	2331.50	670.72	1250.38	1246.29

Sl. No.	Code No.	Name of the Scheme	Budget Provision	Released by Govt. of India	Sanctioned by State Govt.	Expenditure incurred
5	3414	Development of Zoo	18.00	0.00	0.00	0.00
6	1282	Similipal Bio-sphere Reserve	1000.00	188.13	313.54	313.54
7	0175	Conservation and management of Mangroves	249.07	0.00	81.40	75.47
		Total Central Sector	**7179.55**	**2684.79**	**4759.61**	**4657.22**
		Grand Total Programme Expenditure	**12810.54**	**2684.79**	**10390.60**	**10258.46**
		Outside Budget				
1	0175	CSS-Conservation and management of Mangroves (Central share)		122.11		120.51

Open billed strock, Mathaadia, Bhitarkanika

WILDLIFE MANAGEMENT ACTIVITIES UNDER CAMPA APO: 2019-20

There was approved outlay of Rs.15655.68 lakh under CAMPA APO during 2019-20 against which the financial achievement has been made for Rs.12685.18 lakh for different activities under taken in the Wildlife Management as per details shown below in Table-A

TABLE-A

(Rs. in lakhs)

Activities	Approved financial outlay	Financial Achievement
A-Wildlife Management (80 % NPV)		
Protection Activities	1926.11	1733.49
Forest Fire Prevention and Control	574.12	459.30
Anti-depredation Activities	2885.16	2308.13
Voluntary Relocation of Villages from Protected Areas and Tiger Reserve	1571.00	1256.80
Habitat Improvement	1547.73	1238.18
SMC in Wildlife Habitat	470.885	378.65
Implementation of Action Plan for Soil Moisture Conservation Measures	100.00	100.00
Establishment, Operation and maintenance of animal rescue centre and veterinary treatment facilities for wild animals	471.50	465.40
Supply of wood-saving cooking appliances and other forest produce saving devices in forest fringe villages as specified by the National Authority from time to time	141.88	120.60
Management of Biological diversity and Biological resources	10.00	10.00
Total (80 % of NPV)	**9698.385**	**8070.55**
Wildlife Management (20 % NPV)		
Strengthening of Communication facilities	1112.57	890.5
Infrastructure Development	1090.00	872.00
Research Activities	35.00	29.75
Publicity & Awareness	75.00	65.00
Total- (20 % of NPV)	2312.57	1857.25
Total- (80 % + 20% of NPV)	12010.96	9927.80
B- Preparation of Comprehensive Wildlife Management Plan	73.00	0.00
C- Implementation of Site Specific Wildlife Conservation Plan	3571.72	2757.38
Grand Total {A(80 % + 20%)+B+C}	**15655.68**	**12685.18**

WILDLIFE MANAGEMENT ACTIVITIES UNDER CAMPA APO: 2020-21

There is financial target for Rs.15642.50 lakh has been proposed in CAMPA APO during 2020-21 for implementation of different activities to be under taken for Wildlife Management as per details shown below in Table-B.

TABLE-B

(Rs. in lakhs)

Activities	Approved financial outlay
A-Wildlife Management (80 % NPV)	
Protection and Anti-Depredation Activities	4931.89
Forest Fire Prevention and Control operations	646.75
Voluntary Relocation of Villages from Protected Areas and Tiger reserves	1000.00
Improvement of Wildlife Habitat	1861.44
SMC in Wildlife Habitat	642.33
Establishment, operation and maintenance of animal rescue centre and veterinary treatment facilities for wild animals	950.00
Supply of wood-saving cooking appliances and other forest produce saving devices in forest fringe villages as specified by the National Authority from time to time	50.00
Management of biological diversity and biological resources.	25.00
Total- (80 % of NPV)	**10107.41**
Wildlife Management (20 % NPV)	
Strengthening of Communication facilities for Protection of Wildlife	525.09
Construction & Maintenance of Infrastructure for Protection of Wildlife	1092.50
Research Activities	150.00
Publicity & Awareness Programmes	75.00
Monitoring and Evaluation	50.00
Total- (20 % of NPV)	**1892.59**
B- Preparation of Comprehensive Wildlife Management Plan	500.00
C- Implementation of Site Specific Wildlife Conservation Plan	3142.50
Grand Total {A(80 % + 20%)+B+C}	**15642.50**

THE STATE ICONS

State Tree - Kadamba (*Neolamarckia cadamba*)

State Flower - Ashoka (*Saraca asoca*)

State Animal - Sambar (*Rusa unicolor*)

State Bird - Indian Roller (*Coracias benghalensis*)

National Heritage Animal – In October, 2010, Indian Government declared the Elephant an National Heritage Animal.

National Animal – The Tiger was accorded the status of National Animal in 1973 with the initiation of Project Tiger, a National Tiger protection programme. Before this, the National Animal was Lion.

National Aquatic Animal – Gangetic Dolphin was declared as the national aquatic animal in October 2010.

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