

MANAGEMENT PLAN

ABOHAR WILDLIFE SANCTUARY

2020 -2029



KALPANA K, I.F.S
Divisional Forest Officer
Ferozpur Wildlife Division
Punjab

PREFACE

The Abohar Wildlife Sanctuary owes its uniqueness to the presence of Black Bucks. The sanctuary is characterized by the presence of 13 revenue villages predominantly occupied by Bishnoi community. Mostly area is dry and irrigated by canals. Since time immemorial the local community have been protecting the wildlife in this area. This is the main reason that Black Bucks are available there. The Bishnois are India's original environmentalists who inspired the Chipko Movement. The famous Chipko Movement was inspired by the true story of Amrita Devi Bishnoi who refused to let the King's men cut trees in her village. Her head was severed and more than 300 people who did the same were killed for trying to protect the trees.

The sanctuary, over the years have gone through a lot of changes in land use pattern, irrigation system, cropping patterns etc which pose severe threats owing to its private nature and it is a challenging task for the department to effectively carry out the management activities inside the sanctuary. Any effort for conservation in the sanctuary area is impossible without the will of the local people owing to private ownership of land and all rights are allowed here except hunting, shooting, killing and capturing of any kinds of animals and birds as per notification.

The management plan in its present shape is the first plan written for the sanctuary. Non availability of adequate scientific baseline data and scientific documents has been a major constraint in preparing the plan and hence the plan has a lot of scope for improvement owing to the unique nature of the sanctuary and complex problems associated with it owing to its private nature. This plan is written for the period 2020 to 2029 and it would provide a basis for scientific management of the area and would help in formation of a system for further management in landscape level by including the community reserves in the vicinity of the sanctuary and by incorporating the migration pattern and distribution studies of the blackbucks and conservation of state animal of Punjab in the future.

Kalpana K I.F.S
Divisional Forest Officer
Ferozepur Wildlife Division

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I duly acknowledge the inputs given by the field staff, particularly, Miss Anita Rani Range Incharge (Wildlife), Abohar for her sincere efforts. I also acknowledge the efforts of all the field staff who played an important role in providing the necessary information required for the plan.

I express my sincere thanks to local people of Abohar for their continuous support for the conservation and management of the sanctuary and their valuable inputs to our department.

Kalpana K, I.F.S
Divisional Forest Officer
Ferozepur Wildlife Division

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PART-1

SUMMARY OF FACTS ON WHICH THE PROPOSALS ARE BASED

Chapter-I

General Description of the Sanctuary

1.1 Introduction

Abohar Wildlife Sanctuary spreads over an area of 46513 acres in Fazilka District. It was declared as a Wildlife Sanctuary under Govt. Notification no. 40/4/98/Ft-IV/11505 dated 7/9/2000. The entire area of the Sanctuary comprises of 13 revenue villages of Abohar tehsil. Abohar Wildlife Sanctuary is a unique story of wildlife Conservation where Bishnoi community on its own has joined hands to protect the State Animal, Black Buck which is considered sacred by them. Blue Bull is another mammal protected religiously.



Figure 1.1:- Local Community with Black Buck in Abohar Wildlife Sanctuary

The sanctuary comprises the area of 13 revenue villages of Abohar tehsil of Fazilka District. Its north boundaries comprises village, Kala Tibba of Abohar Tehsil, in west village Bhagu Bhagsar of Abohar Tehsil and village Mala Rampura of Rajasthan State, in south Village Khuban and Chak Modi of Abohar Tehsil and in the east village Bahadur Khera of Abohar tehsil and Khema Khera, Bhai Kera, Mahni Khera of Shri Muktsar Sahib District.

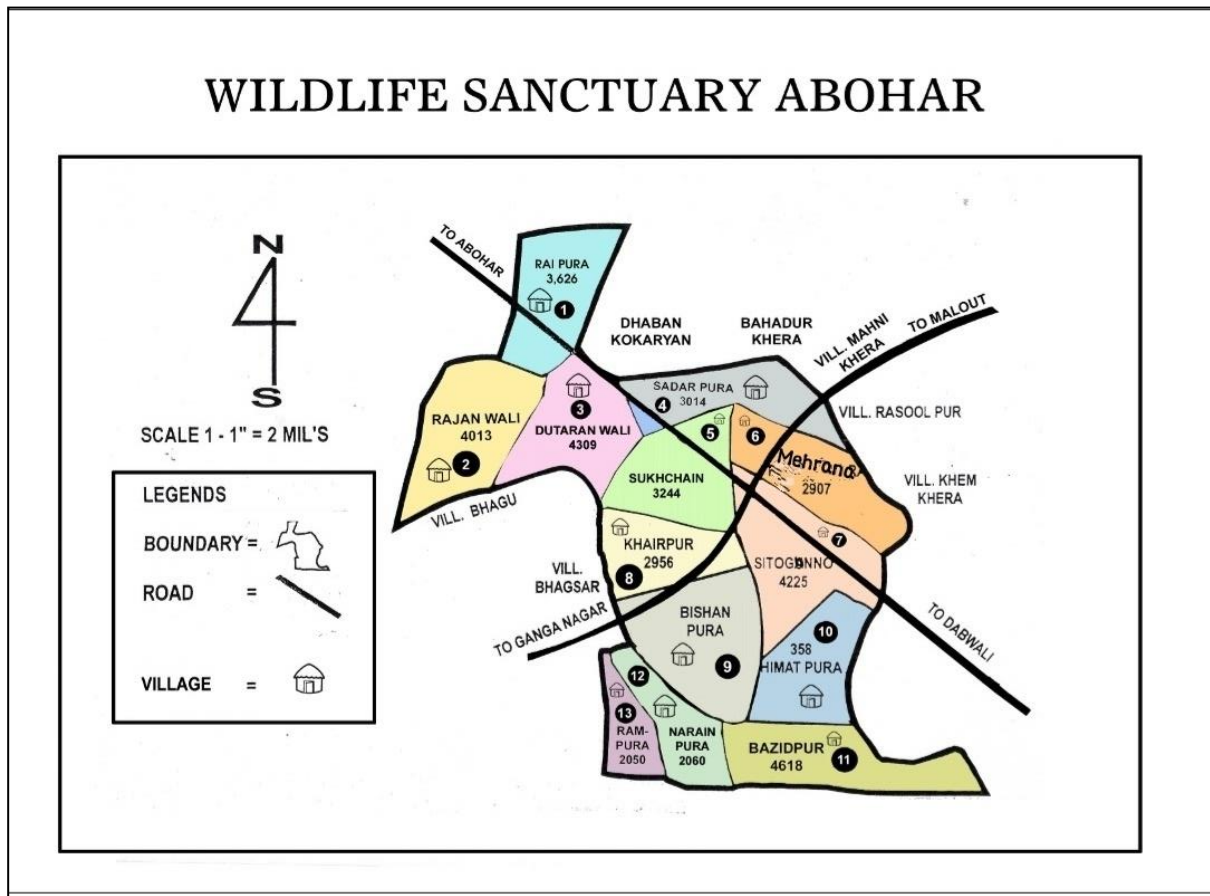


Figure 1.2 : Map of Abohar Wildlife Sanctuary

The following 13 revenue villages comprises the sanctuary :-

1. Raipura
2. Rajan Wali
3. Dutaranwali
4. Sardarpura
5. Khairpur
6. Sukhchain
7. SitoGunno
8. Mehrana
9. Himmatpura
10. Bazidpur Bhoma
11. Bishanpura
12. Rampura
13. Narainpura

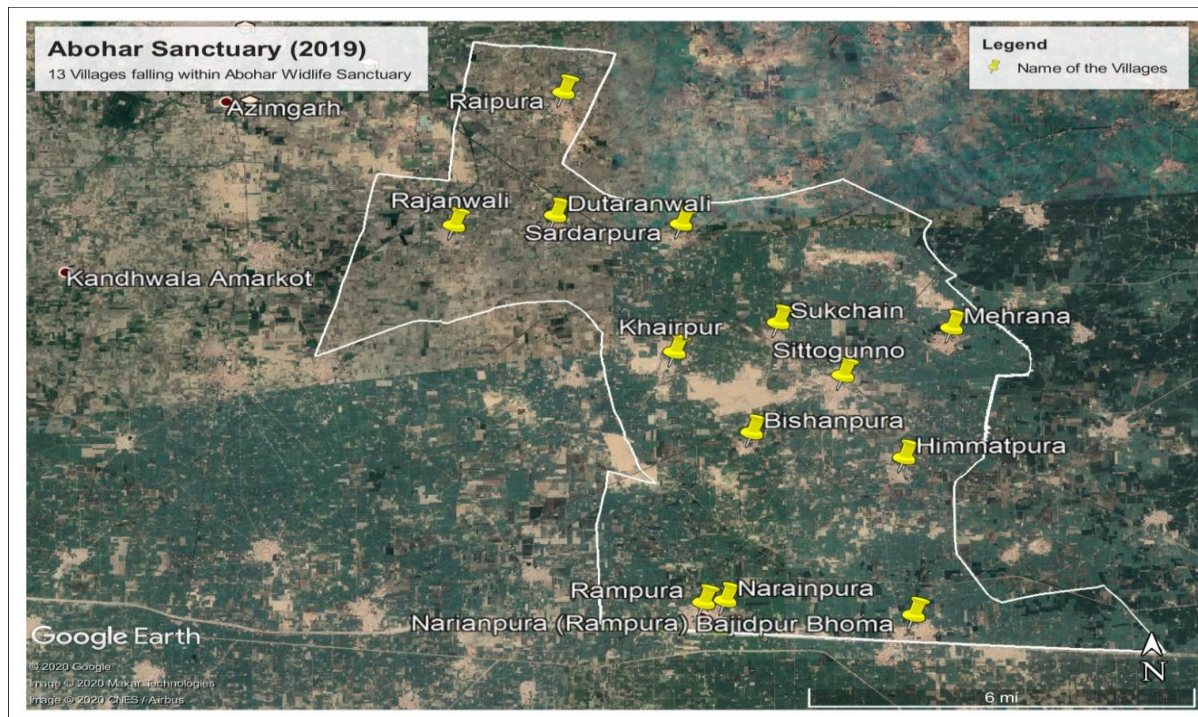


Figure 1.3 :- Map showing the location of 13 villages:

The people of these villages are mostly Bishnois. The Bishnoi community occupying parts of Rajasthan, Punjab and Haryana is known for the absolute protection they offer to the blackbuck and the khejari tree, as also protection of other plant and animal diversity within their village boundaries. Khejari is a multipurpose legume tree valued by the villagers for its pod (used as food), leaves (used as fodder and manure) and branches (used as construction material). Blackbuck and chinkara have on the other hand been placed in Schedule I of the Wildlife Protection Act because of their high conservation value. The habitat at Abohar is represented by semi-arid plains with scattered sand dunes, acacia trees, beri bushes and weeds.

The Bishnois are largely a farming community with fairly large landholdings; they meet most of their biomass requirements from their own fields. The dependence on

the surrounding forest is not very high. After the construction of Rajasthan Canal and Bikaner Canal by the government, this area has plenty of water and is being cultivated with wheat, gram, bajra, jowar, etc. Large landholders keep about 10–12 buffaloes and cattle per family, whereas the landless keep around 2 goats or cattle per family. Some families also keep camels. Bishnoi and other communities residing within the sanctuary help to conserve the whole wildlife. This is the reason that Black Buck, the precious species of wildlife is protected in Punjab. They fight against the poachers and help the wildlife staff in protection. The other communities which live in the villages also help the department in protecting them. In summers, the days are very hot and temperature touches 50 degree Celsius. There are many types of crops like wheat, barley, cotton, pulses, rice etc that are cultivated in this area. Some natural grasses are also available to feed the black Bucks. Usually, the Black Bucks do not destroy the crops since they feed on the grasses.

There are four villages outside the sanctuary named as Haripura, Panniwala, Gumjal and Diwan Khera, which have fair number of Black Bucks. The people of these villages are also Bishnois. These villages were declared as community reserve in 2015 under govt. notification no. 34/4/2015-FT-5/448962/1. There are many other species of wildlife (flora and fauna) in the Abohar sanctuary area. Fauna comprises species like nilgai, jackal, fox, jungle cat, doves, partridges, pigeon, peacocks, parakeets and sparrows. Few species of fauna are kikar, shisham, beri, safeda, pipal, jand, khejri etc..

1.2 Name, Location, Constitution and Extent of Area.

The name of the sanctuary is Abohar Wildlife Sanctuary. It falls in Abohar Tehsil, Fazilka District (Punjab). It is situated 8 Km from the city of Abohar. Few

roads passing through the sanctuary are Abohar-Dabwali Road, Malout-Shri Ganga Nagar Road etc. The whole area is private land and all the rights of local people except hunting, shooting, killing or capturing of wild animals and wild birds have been allowed to continue under section 24(c) of the Wildlife (Protection) Act, 1972. The roadsides and canal sides are covered with plantations done by forest department. 13 villages are located in the sanctuary and in all villages the people are mostly Bishnois.

1.3 Physical & Bio-Geographical Location

Abohar Wildlife Sanctuary covering an area of 46513 acres. It starts from for boundary of village Kala Tibba and village Raipura. The distance is only 8 km from Abohar and 128 km from Ferozepur and 83 km from Bathinda. It stretches at latitude of 30⁰ 04'-30⁰ 09' and Longitude of 74⁰ 12'-74⁰ 17'.

1.4 Approach and Access

The Abohar Wildlife Sanctuary is approachable both by bus and by rail. The nearest railway station is hardly 8 km from the Sanctuary. It is possible to reach there from Malout Shri Ganga Nagar (Rajasthan), Dabwali and Sangria Mandi (Rajasthan). The nearest airport is in Bhatinda and in Sirsa (Haryana).

1.5 Statement of Significance

The Abohar Wildlife Sanctuary is famous for Black Bucks. In Punjab it is the only area which has predominant number of free ranging blackbucks. Mostly area is dry and irrigated by canals. Since time immemorial the local community have been protecting the wildlife in this area . This is the main reason that Black Bucks are available there. Bishnois have already setup an N.G.O All India Jeev Raksha Bishnoi

Sabha which is doing a good job to protect the wildlife with the cooperation of wildlife department. They give every information about poachers to the department and help the wildlife staff when needed.

Why the Bishnois protect the wildlife? In brief their sentimental and religious thinking force them to do it. Their religion was initiated by their Guru Shri Guru Jambeshwar(or Jambaji) about 500 years ago. The Guru propagated 29 tenets, giving his followers the name ‘Bishnoi’ or ‘Twenty-niners’. Two of the main tenets are; “Jeev Daya Palani” which means Be compassionate / kind / merciful to all living beings and “Rukh Lila Nahi Ghave” which means “Don’t cut green trees”. In this way Shri Guru Jambeshwar Ji had made rules for and taught his followers not to kill any creation of God. Therefore Bishnois are bound to protect wildlife.

The Bishnois are Indias original environmentalist who inspired the Chipko Movement. The famous Chipko Movement was inspired by the true story of Amrita Devi Bishnoi who refused to let he Kings men cut trees in her village. Her head was severed and more than 300 people who did the same were killed for trying to protect the trees.

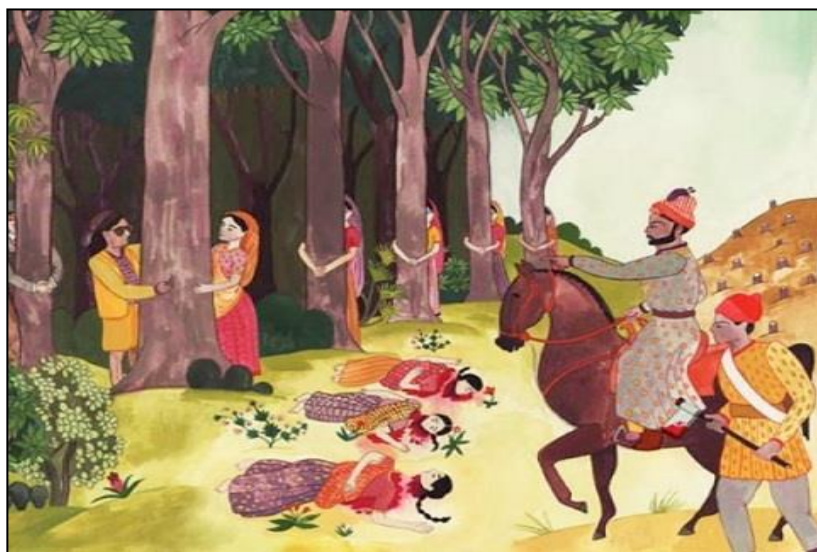


Figure 1.4:- Event that Inspired Chipko Movement

In Abohar Wildlife Sanctuary, there are many Bishnoi temples. Each village has its own temple. But Mehrana Dhora temple is main religious place for them. Every month on Amavas day there is a mela at Mehrana Dhora and mostly Bishnois reach there and discuss their problem. It is a good meeting place and very beneficial to protect the wildlife.

In their religious views Shri Guru Jambheshwar Ji helped those who save both animal & trees. They generally said where there is Krishan Mirg (Black Buck), there is original Love and Krishan Mirg is available only where there is holy land so where the Black Buck remains that region is holy region.

Every village of the Abohar Wildlife Sanctuary has its own school. There are Higher Secondary, High, Middle & Primary schools. All villages are connected with roads. There is a primary health centre at SittoGunno. The other villages have their own dispensary.

The Black Bucks are living in the fields of the sanctuary area. They eat grasses and some little crops and do not harm the big crops. In 1980-81, Gurcharan Singh, Wildlife Inspector did an experiment about this, in the fields of Sh. Sant Kumar Bishnoi, President, All India Jee v Raksha Bishnoi Sabha. He with the help of master Vishwas fenced two acres of wheat with barbed wire and did not allow any Black Buck in that 2 acres. Equal water and fertilizers were put in adjoining fields. The yields of fenced and unfenced area was not different.

So the Black Bucks are not so harmful to crops of the area. This is also the reason why people help to protect the Black Buck in the area. There are so many other animals in the sanctuary such as Nilgai, Jackal, Fox, Jungle Cat and so many other birds like peacocks, partridges, dove, pigeon, parakeets, owls, shikra, crow, green bee eaters etc. and so many reptiles like snakes, etc. In the village ponds tortoise, frogs and fish etc. are found.

1.5.1 *Vegetation , Plants and crops*

This area is mostly fertile and agriculture has been done in the whole area. The main crops are cotton, sugarcane, wheat barely, mustard .Some green fodder crops are also cultivated here.Kinnow, lemon, grapes, jamun, badam and ber are more important fruit trees are that are grown in sanctuary area.

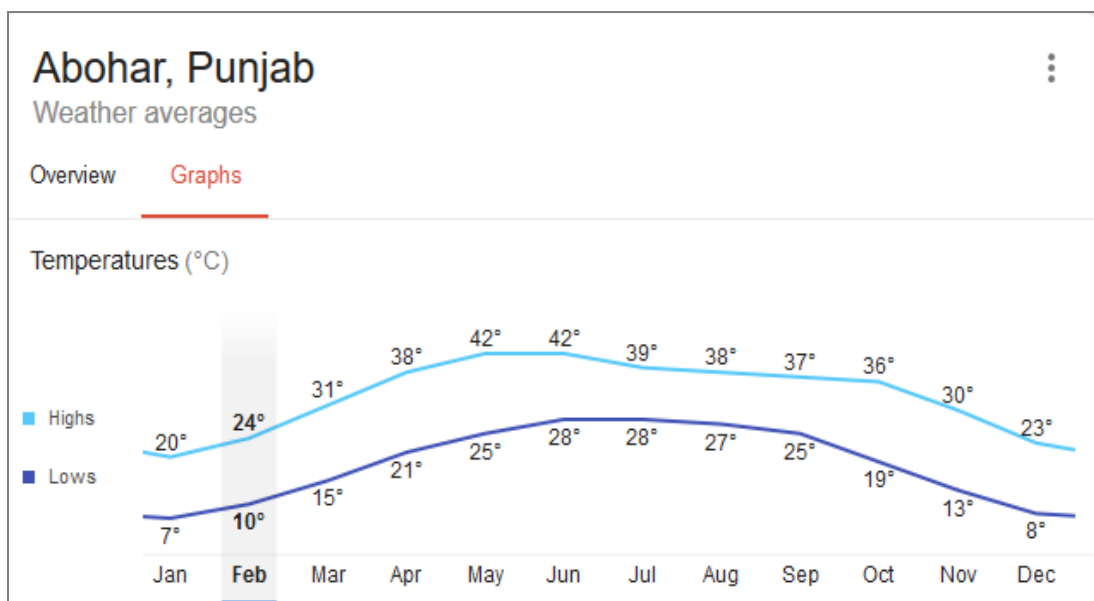
1.5.2 *Irrigation System*

The Canal Water is only way to irrigate the fields. When the canals go dry there is a big problem of drinking and irrigation water. The underground water is much deep, about 50 feet to 120 feet and ground water is not fit for the crops and as well as for the consumption of human being.

1.5.3 *Temperature*

This is a dry area. In summer the heat reaches its peak upto 48⁰ Celsius and in winter it ranges from 2⁰ Celsius to 10⁰ Celsius.

Figure 1.5: Weather Averages in Abohar



1.5.4 Soil

The soil of Abohar is mostly sandy in nature. The topography is dotted with scattered sand dunes. Sand hills and sand dunes are important geographic features found in this region. These features differ in their size, shape and location. While a long thin ridge of sand is called a sand dune, if the ridge is longer than the width, it is termed as a sand ridge. There are some ridges that can extend very long, they are referred to as longitudinal dunes. There are also some dunes that are irregular or circular in shape. They are known as sand mounds. The sand dunes that are crescent shaped are known locally as barkhans. The only river that flows through the region is Sutlej, the waters of which are used for several purposes in the area.

1.5.5 Economic status

The area is mostly fertile and the people are rich. The main occupation of people in this area is agriculture. Some land lords have large holdings of land with tractors and own agriculture instruments. Cars, Jeeps, Scooters and Motor Cycle are common vehicle in the area. Most of the people have their own conveyance. Every village has bus service. Some people depend on goats & sheep rearing, who are known as Bajigar.

1.6 Perceived values of Abohar Wildlife Sanctuary

Abohar Wildlife sanctuary is of immense significance as described below:

1.6.1 Ecological and environmental value

The area acts as the only ecosystem for the state animal of Punjab “Blackbuck” due to its unique semi arid environment and helps in maintaining ecological balance and ecological security of, thus making it an important conservation unit of Punjab.

1.6.2 Zoological value

It is a home to wide variety of fauna and plays a great role in maintaining the unique biodiversity of our country. This relatively small sanctuary plays a vital role in protecting habitat for wide-ranging species such as blackbuck, nilgai, jackal etc, which require large tracts of habitat and often disperse beyond the boundaries of nearby protected areas.

1.6.3 Botanical Value

The Original terrestrial vegetation of the area can be classified as "Northern Tropical Dry Deciduous Forest". The vegetation is semi arid in nature and consists of semi arid trees, shrubs, grasslands and also agricultural fields and orchards which serve as a suitable habitat for species like blackbuck and nilgai.

1.6.4 Cultural and historical value

This sanctuary was created at the request of Bishnoi community who play a huge role in the protecting the wildlife and in Abohar Wildlife Sanctuary. There are many Bishnoi temples. Each village has its own temple. But Mehrana Dhora temple is the main religious place for them. Every month on Amavas day there is a mela at Mehrana Dhora and mostly Bishnois reach there and discuss their problems. In their religious view, Shri Guru Jambeshwar Ji helps those who save both animal & trees. They generally believe where there is Krishan Mirg (Black Buck), there is original Love and Krishan Mirg is available only where there is holy land. So, where the Black Buck remains that region is considered a holy region.

1.6.5 Recreational Value

The sanctuary provides tremendous recreational value for nature tourism. Moreover, wildlife and nature viewing opportunities help in environmental education, and to help bring about a sense of responsibility for the conservation of nature in humans. The area has a huge scope for eco tourism.

Chapter II

Background Information and Attributes

2.1 Boundaries

This is an open wildlife sanctuary. Boundaries are as under:

North: The Raipur Village of Sanctuary is connected with the boundary of village Kala Tibba and Rajanwali village of the sanctuary is found adjoining Ramsara village.

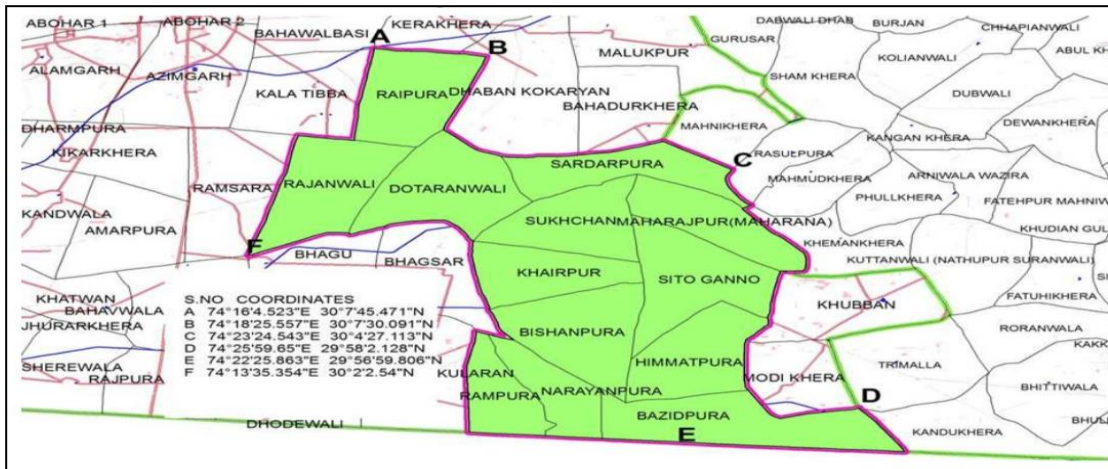
West: In the west of the sanctuary, the boundary of the sanctuary villages, Rajanwali, Dutarawali, Khairpur, Bishanpura are connected with villages Ramsara, Bhagu Bhagsar and Kular area.

East: In the East village Raipura, Sardarpur, Sukhchain, Mehrana are connected with the villages, Kera khera, Dhaban Kokrian, Bahadur Khera, Bhai kera.

South: Village Mehrana, Sitogunno, Himmatpura, Bazidpura Bhoma, Rampura NarianPura are connected with village Khema khera, Modi khera, chak Radhewala and the southwest with Rajasthan.

It can be seen on the map clearly and it looks like a hare in shape.

Figure 2.1 : Boundary Map of Abohar Wildlife Sanctuary



2.2 Roads

The Sanctuary is situated on the main G.T. Road Abohar to Dabwali and Sito Gunno to Sangaria and Malout to Shri Ganga Nagar Deface Road. The main road has so many link roads and every village is connected with it. It starts from 8 km of the Abohar-Dabwali Road. The first link road goes to village Rajanwali from Kalatibba, second from G.T. Road to Raipur.

2.3 Drainage and Water bodies

The sanctuary area is dependent upon canals for irrigation and drinking water. All sanctuary villages have their own water works which supply clean water for domestic use. Canal water is stored in large tanks at water works for supplying water to public. The main canals in the sanctuary area are as under: -

- (i) Ramsara Minor
- (ii) Sukhchain Minor
- (iii) Rasulpur Minor
- (iv) Khema Khera Minor
- (v) Lambi Minor

Drains also exist in the sanctuary. The main drains in the sanctuary area are as below:-

- (i) Bahav Wala Drain
- (ii) Abulkhurana Drain

2.4 Terrain

This area is a mostly plain area and devoid of high altitudes or elevated slopes. There are sand dunes (tibbas) where Black Buck generally live and most have been flattened and levelled and converted into agricultural fields over years.

2.5 Soils

The soil of Abohar is mostly sandy in nature. The topography is dotted with scattered sand dunes. Sand hills and sand dunes are important geographic features found in this region. These features differ in their size, shape and location. While a long thin ridge of sand is called a sand dune, if the ridge is longer than the width, it is termed as a sand ridge.

2.6 Forest

Government land is only on the sides of the roads & canals which are planted with species like kikar, shisham, safeda, neem, papal, jand, malah & bali.

2.7 Climate, temperature, and rainfall

Abohar Wildlife Sanctuary experiences four seasons:

(i) **Monsoon** beginning in July end and terminating by the end of September during which the maximum rainfall is recorded. The annual rainfall recorded is 600mm approx.

(ii) **Winter** period starts from November to March and characterized by little sporadic rainfall, heavy fog, frost and dew is recorded after rain.

(iii) **Summer** starts from April to mid July which are the hottest months of the year with a temperature reading upto 48°C. Hot winds, full of dust are quite common during the summer. Sometime normal rainfall and thunder storm

slowdown the temperature but it reaches its peak within a day or two. There is a significant difference between day & night temperature.

(iv) **Spring** appears between summer and winter for a very short period, during when flowers bloom and season change.

2.8 Wild life

2.8.1 Flora

The flora of the sanctuary is dominated by crops in the field and plantation along roads & canals. However the terrestrial flora play significant role in the ecosystem. List of trees, shrubs and grasses are attached in **APPENDIX 7**.

2.8.2 Fauna

Apart from the state animal of Punjab (blackbuck) and nilgai, Abohar wildlife sanctuary is home to many other wild mammals, reptiles, birds etc. Feral Cattle and stray dogs are also a huge problem in Abohar wildlife sanctuary. The sanctuary has gained its importance due to the population of blackbucks found in this region. It is the only region in Punjab where the black bucks were found in large numbers.

Its protection has become possible only because of the support and conviction of the bishnoi community for protection of all wildlife in the sanctuary. The detail of wild animals and birds in Abohar sanctuary is attached as **APPENDIX 8 and APPENDIX 9** respectively.

Chapter III

The Flora and Fauna

3.1 The Flora

The flora of the sanctuary is dominated by crops in the field and plantation along roads & canals. However the terrestrial flora play significant role in the ecosystem.

3.1.1 Terrestrial Area

3.1.1.1 Composition and condition of the crop:

The Original terrestrial vegetation of the area can be classified as "Northern Tropical Dry Deciduous Forest". However, over the years extensive exploitation of forest has taken place and area thus cleared has been utilized for development purpose and has been converted into agricultural fields. Now only few tree species with scattered presence of shrubs, grasses can be seen in non agricultural areas. This existing stand comprises of the following main tree species:-

1. *Prosopis cineraria* (Khejri)
2. *Acacia arabica* (Kikar)
3. *Dalbergia sissoo* (Shisham)
4. *Eucalyptus tereticornis* (Safeda)
5. *Albizia lebbek* (Siris)
6. *Azadirachta indica* (Neem)
7. *Prosopis juliflora* (Mesquite)
8. *Zizyphus jujuba* (Beri)
9. *Ficus religiosa* (Pipal)

10. *Ficus bengalensis* (Bohar)

11. *Mangifera indica* (Mango)

The undergrowth cover mostly comprises of *Ziziphus nummularia*, *Calotropis procera*, *Capparis aphylla*, *Cassia tora* etc. There is also rampant conversion of crop areas into orchards and increasing trend to establish rice and kinnow crops(orchards). Such gardens are affecting the habitat of the Black bucks.

3.1.2 Over wood: *Prosopis cineraria* (Jand/khejri), *Dalbergia sissoo* (Shisham), *Acacia nilotica* (Kikkar/Babul), *Eucalyptus tereticornis* (Safeda), *Mangifera indica* (Mango), *Morus alba* (Toot), *Syzygium cumini* (Jamun), *Albizia lebbek* (Siris), *Acacia leucophloea* (Reru), *Azadirachta indica* (Neem), *Melia azadirachta* (Drek) and *Ziziphus mauritiana* (beri).

However, there is also scattered presence of other species like *Ficus benghalensis*, *Ficus religiosa* (Pipal), *Butea monosperma* (Dhak), *Pheonix sylvestris* (Khajur) and *Cassia* species.

3.1.3 Under growth: It consists of *Zizyphus nummularia* (Mullah). *Artemisia scoparia* (Jhau), *Calotropis procera* (Akk), *Capparis sapiaria* (Mins) *Cannabis sativa* (Bhang), *Capparis aphylla* (Karir), *Carissa spinarum* (Karonda), *Cassia tora* (Panwar), *Lantana camara* (Punj Phulli) and *Adhatoda vasica* (Basuti).

3.1.4 Ground Flora: The vegetation is characteristic of normal forest strips of the adjoining areas as it comprises of considerably a large number of grasses, herbs and shrubs. *Cenchrus* species (Amjan) grow in sandy places and *Demostachya bipinnata* (Dab) flourishes under dry conditions.

List of trees, shrubs and grasses are attached in **APPENDIX 7**

3.2 The Fauna:

Abohar Wildlife sanctuary is home for several other wild animals apart from black bucks. Neel gai, hare, jungle cat, jackal, mongoose etc are wild animals found in Abohar Wildlife Sanctuary which comprises of agricultural private lands and panchayat lands of 13 Bishnoi villages.

3.2.1 Birds: The forest and wildlife Department has not carried out a detailed study with regards to birds in the sanctuary area. Partridges, parakeets, peacock, pigeon, doves, sparrows, cocktails, shikras, hawks, mynas, bulbuls, sunbirds,, common crow vulture, owls are common.

3.2.2 Mammals: Abohar Wildlife Sanctuary is a habitat for Black buck (*Antelope cervicapra*), Nilgai (*Boselaphus tragocamelus*), Jackal (*Canis aureus*), common mongoose (*Herpestes edwardsii*) and Common Indian hare (*Lepus nigricollis*).

The species of snakes recorded are Water snake (*Enhydros enhydris*), Natrix (*Xenochropis piscator*), Indian cobra (*Naja naja*), Indian Rat snake (*Ptyas mucosa*) etc are the common one. Porcupine, hedge log, and squirrels are also common.

3.2.3 Amphibians: Four species of amphibians are found . Frog species are: *Haplobatrachus tigerinus*, *Euphlyctis hexadactylus* and *Euphlyctis cynoplyctis*. *Bufo stomaticus* is the sole toad species found in the area.

3.2.4 Fishes: Fishes are found in village ponds and drain inside the sanctuary. The Common species are *Notopterus Chitala*, *Notopterus notopterus*, *Channa*

punctatus, Channa striatus, Catla catla, Labeo rohita, Wallago attu, Cirrhinus mrigala etc.

3.2.5 Invertebrates: Various protozoans, crustaceans, nematods, annelids and molluscs are found in the sanctuary area.

The details of wild animals and birds in Abohar sanctuary is attached as **APPENDIX 8** and **APPENDIX 9** respectively.

Chapter IV

Past History of Management and Current Practices

4.1 Legal status :

This Sanctuary was first declared as Wildlife Sanctuary vide Punjab Government notification No.1914-Ft-III-75/24837 dated 27.8.1975 for five years. The sanctuary was again notified for five years vide no.34/22/Ft-IV-80/7402 dated 07.04.1988 and also vide notification no.40/4/98-Ft-IV/10595 dated 20.08.1998 for five more years. The final notification was issued vide Punjab Government No. 40/4/98-Ft-IV/11505 dated 07.9.2000. The detailed notification along with the annexures is added in appendix no. 13

4.1.1 Eco Sensitive Zone:

In 2016, Under Environment (Protection) rules 1986, the central government had notified an area to an extent upto 100meters around the boundary of the Abohar wildlife Sanctuary a Eco-sensitive zone . The detailed notification along with the annexures is added in appendix no. 14

4.2 Control, prevention and action against wildlife crimes:

The range staff of the sanctuary are involved in continuous patrolling of the beats and blocks of the range and prevent poaching of wild animals and birds. Cases are lodged against hunting and poaching criminals and strict action is taken

against the offenders under wildlife protection act,1972 with full support from the local community. The bishnoi community and the other local people in the sanctuary play a huge role in providing intelligence, evidence and also transport facilities and such is the dedication of the local community.

Table 4.1:- Wildlife Crime Cases in Abohar Wildlife Sanctuary from 2009-10 to 2019-20

Year	Crime Date	Tools used	No. of Accused	Species hunted/ poached	DR No.
2009-10	07-08-2009	Net	01	Fishes	16621
	28-08-2009	Net	03	Fishes	16782
	11-09-2009	Gun	03	Black Buck	348401
2011-12	15-08-2011	Jeep	02	Turtles	16783
2012-13	10-04-2012	Net	02	Fishes	16622
2014-15	30-05-2014	Gun & Jeep	02	Partridge	348802
	02-11-2014	Fire	02	-	348803
	05-11-2014	Net, Trap	03	Wild Hare & Partridge	348804
2015-16	12-09-2015	Gun, Revolver, Car	03	Partridge	348805
	18-09-2015	Net, Motorcycle	02	Fishes	05168
2019-20	09-09-2019	Tractor, Water Pump	05	Fishes	05101

4.3. Rescue and rehabilitation of wildlife:

Since many years, the range staff along with the local community treat the injured wild animals in an adhoc manner in the area where they are injured with the help of the local veterinarian and trained watch and wards of the department with first aid medicines and release and rehabilitate them in the sanctuary in the safe areas. The wild animals are rehabilitated within the sanctuary itself by the field staff if they are fully capable to survive in the wild after its recovery or sent to suitable safe habitat outside the sanctuary like zoos in Bhatinda and Ludhiana. The dead animals are disposed off as per the bishnoi rituals by burying within the sanctuary.

A small rescue center for wild animals was built in the financial year 2018-2019 under PUNCAMPA scheme in Range complex looking at the immediate requirement for a safe place to isolate the animal from the field and recuperate before their rehabilitation. The center has its own limitations being small in size with two recovery rooms, one operation room and doctor room and two water holes. It can cater to only two animals at a time. There is a need for a dedicated doctor, medical assistant, tools, equipment and infrastructure for its effective functioning. Apart from this, proper rescue, treatment and rehabilitation center in a large area which is fully protected and fenced in all sides and can cater to more wild animals is required to save the animals from threats and injury.

Figure 4.1 :- Rescue of Rehabilitation Works in Abohar Wildlife Sanctuary

Range staff rescuing a blackbuck in Abohar Sanctuary



Animals being shifted for Rehabilitation in safe areas.



Rescue Center, Abohar



Treatment given by Veterinary Doctor in Rescue Center, Abohar



4.4 Data collection and monitoring :

The population estimate exercise of blackbucks has been carried out by the department by conducting census in the year 1978,1980 ,1988,1994 and 2011.Also In the year ,2017 ,Punjab Biodiversity Board conducted the census of Blackbuck with experts from WWF India,wildlife enthusiasts ,volunteers from Bishnoi community and field staff.Though various population estimate exercise has been conducted since many years,thorough foolproof scientific method of data collection,population studies of Blackbucks is yet to be conducted and it should be done by roping in scientific experts from reputed institute like Wildlife Institute of India,Dehradun.

Apart from this,in May 2019, Wildlife Institute of India,Dehradun was roped in by the Wildlife Department to provide technical assistance to propose mitigation measures and structural measures for the Project “Upgradation of Abohar-Sito Gunno-Dabwali road (NH-354E) section passing through Abohar Wildlife Sanctuary, Punjab. W.I.I has recorded technical data for the section of the 0km to 25 km of Abohar Sito Gunno Dabwali road during their study and has suggested eco friendly measures to mitigate linear infrastructure projects in Abohar wildlife sanctuary.Most of the wildlife surveys, distribution and relative abundance estimation on both sides of the road which was proposed for upgradation have been used by different survey approaches such as foot transect, transect, belt transect and in the habitat of the open terrain; aerial survey has also been deployed. Since most of the habitat of the study area is of open terrain therefore, they decided to use the ground as well as an aerial survey.

Figure 4.2 :- Identified vehicle and foot transects walked during the survey by W.I.I for the Project “Upgradation of Abohar-Sito Gunno-Dabwali road (NH-354E) section passing through Abohar Wildlife Sanctuary, Punjab.

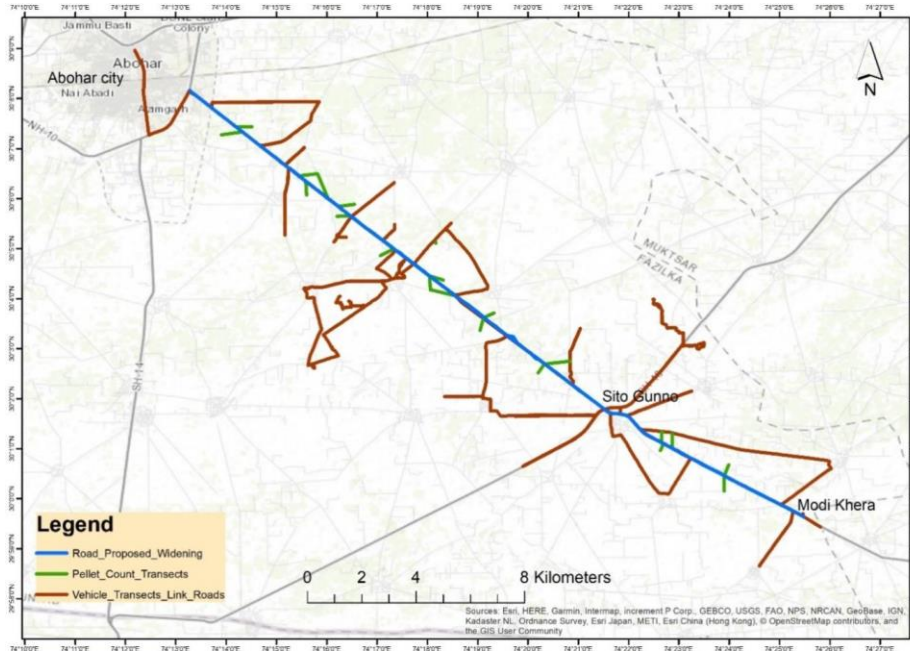
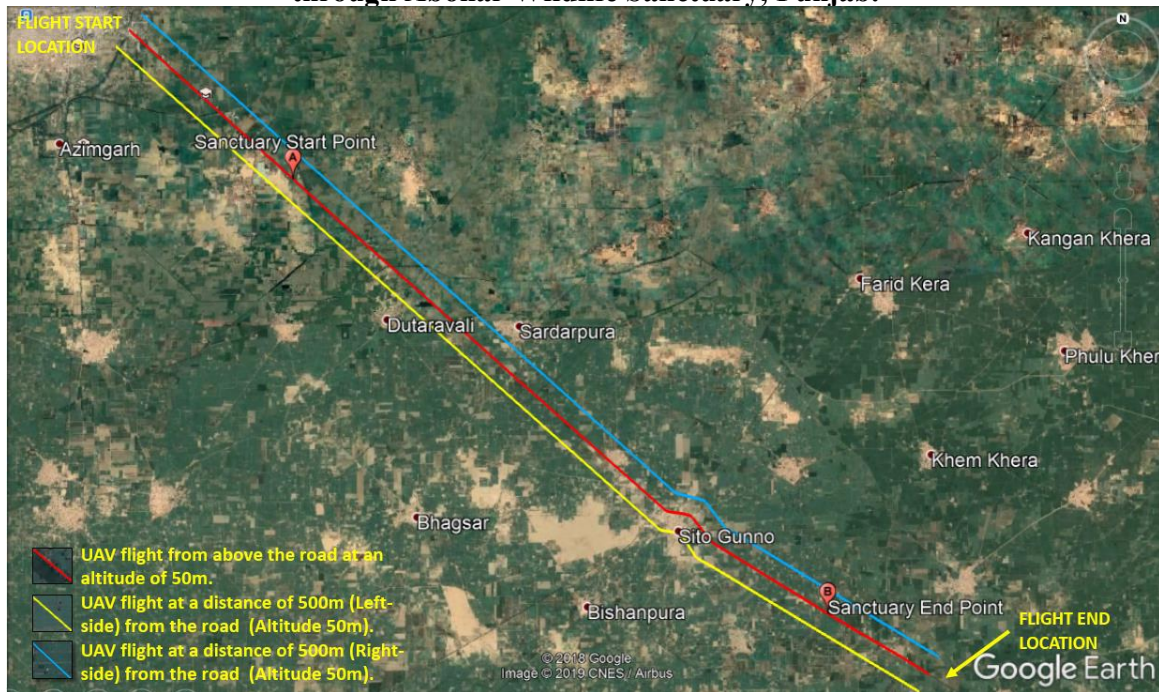


Figure 4.3 :- Map showing the path of the drone/area survey done by W.I.I Dehradun for the Project “Upgradation of Abohar-Sito Gunno-Dabwali road (NH-354E) section passing through Abohar Wildlife Sanctuary, Punjab.



Photographs of 1.Blackbuck 2.Nilghai (aerial view) and Indirect evidences 3.Hoof marks and 4.pellets of Blackbuck collected by Wildlife Institute of India,Dehradun.in 2019 .



Figure 4.4 :- Blackbuck



Figure 4.5 :- Nilghai

Indirect evidences are seen in the pictures given below:



Figure 4.6 :- Hoof Marks of Blackbuck



Figure 4.7 :- Pellets of Blackbuck

1. Thermal image of blackbucks captured using drone and 2. Direct sighting of nilgai done during the field study:in 2019 by W.I.I,Dehradun.

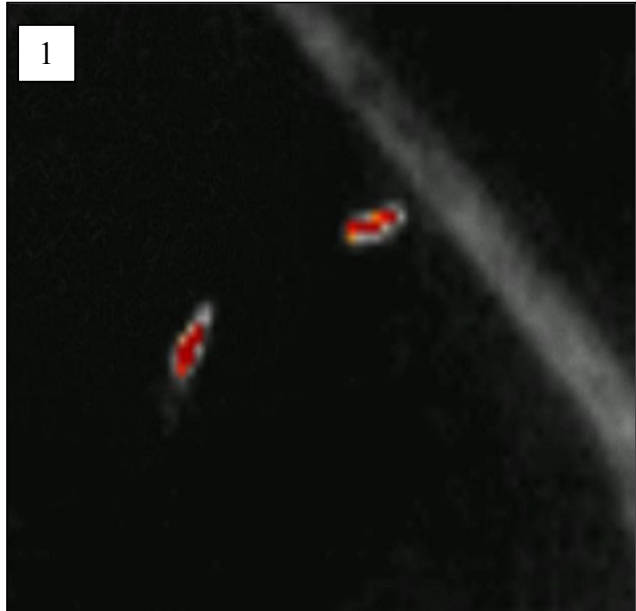


Fig 4.8 :- Thermal image of black buck Fig 4.9 :- Direct sighting of nilgai

In addition to the direct record of animals (a), an aerial survey could also document the evidence of animal movements such as hoof marks (b) and animal use area in agriculture fields (c) from a varying altitude of 30-50 meters using the drone flights at day-time.

Fig 4.10 :- Pictures captured by drone during day flight and recorded the sighting of (A) Nilgai (B) hoof marked and (C) trampling of crop.





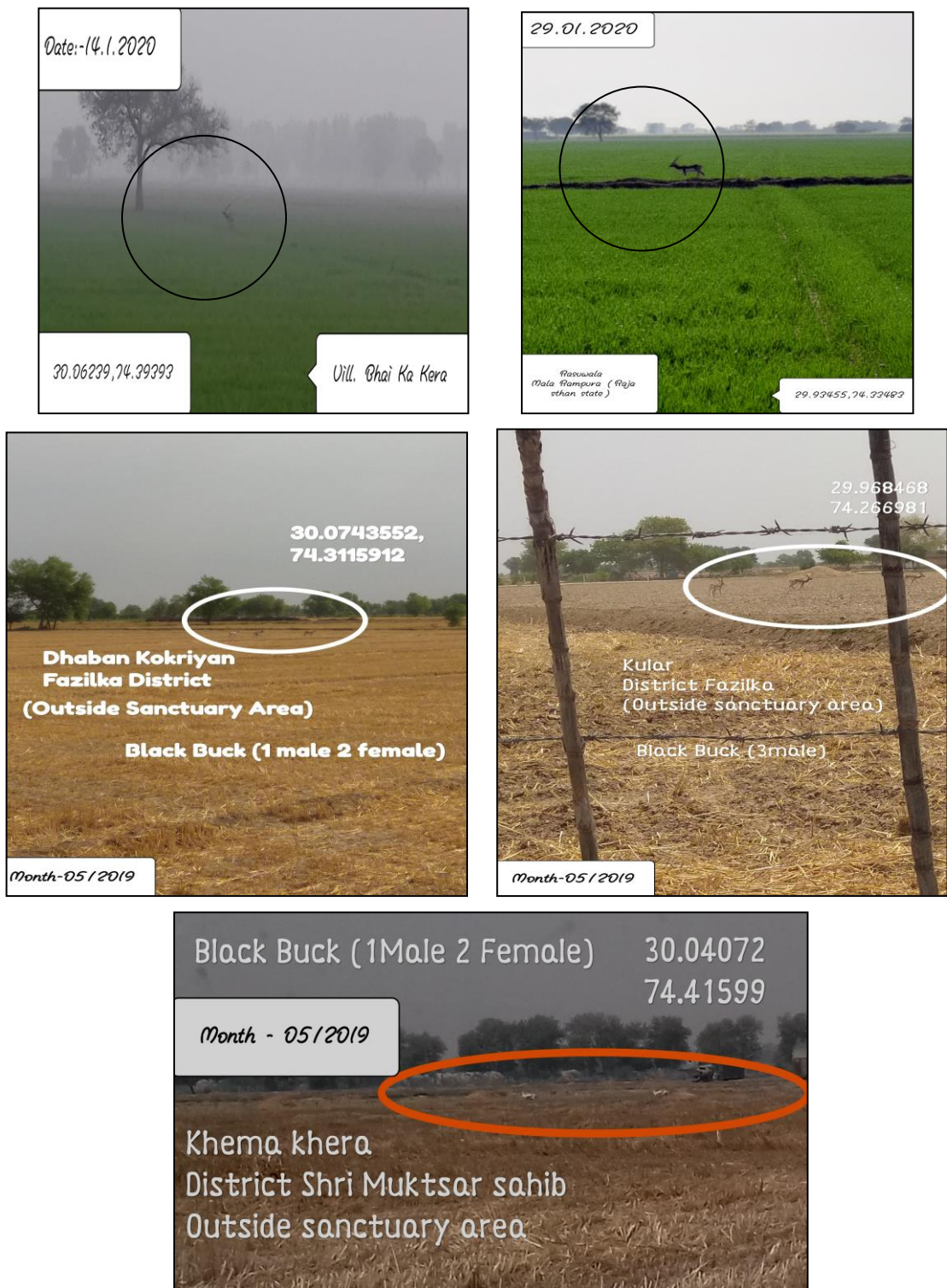
Apart from this, details about the movement of animals outside the sanctuary have been collected by the field staff in the year 2019 and 2020, during their field patrolling and surveys. This indicates a possible movement of the large groups of blackbucks outside the protected area due to various threats within the sanctuary like

habitat degradation, change in land use, fencing, stray dogs, stray cattle and competition from other ungulates like bluebills.

Table 4.2(a) :-Blackbuck Movement and sighting data outside Abohar Wildlife Sanctuary Area during field patrolling.

Month or Day	G.P.S. Location	Black Buck				Remarks
		Male	Female	Fawn	Total	
05/2019	30.120413, 74.314918	02	-	-	02	During survey, these black bucks were sighted in village Dhaban Kokriyan (Fazilka District)
05/2019	30.06143, 74.41039	02	02	-	04	During survey, these black bucks were sighted in village Bhai Ka Kera (Shri Muksar Sahib District)
05/2019	30.04072, 74.41599	01	02	-	03	During survey, these black bucks were sighted in village khema Khera (Shri Muksar Sahib District)
05/2019	30.0743552, 74.3115912	01	02	-	03	During survey, these black bucks were sighted in village Dhaban Kokriyan.(Fazilka District)
05/2019	30.1187735, 74.3553481	01	01	-	02	During survey, these black bucks were sighted in village Bahadar Khera(Fazilka District)
05/2019	29.959111, 74.277747	02	07	-	09	During survey, these black bucks were sighted in village Kular(Fazilka District)
05/2019	29.968468, 74.266981	03	02	-	05	During survey, these black bucks were sighted in village Kular(Fazilka District)
14-1-2020	30.06239, 74.39393	03	08	02	13	During survey, these black bucks were sighted in village Bhai Ka Kera (Shri Muksar Sahib District)
14-1-2020	30.06437, 74.40725	01	02	-	03	During survey, these black bucks were sighted in village Baloach Kera (Shri Muksar Sahib District)
29-1-2020	29.93455, 74.33483	04	01	-	05	During survey, these black bucks were sighted in boundary of villages Rasuwala and Mala Rampura (Rajasthan state)
06-2-2020	30.01522,	01	02	-	03	During survey, these black bucks were sighted in village khuban.(Fazilka District)

Figure 4.11 :- Blackbuck Sightings outside Abohar Sanctuary



A field survey was also conducted by the staff of Abohar Wildlife Range to collect data regarding movement and sightings of Blackbuck from 16.3.2020 to 18.3.2020 . Extensive area was covered outside the sanctuary by different field teams to collect the movement and sighting data of blackbuck sightings outside the sanctuary in villages in Fazilka District, Muktsar District ,Community reserve in Abohar and also in bordering villages of Rajasthan. The data indicates that the blackbuck are moving in batches through different routes to suitable location where threats like intense fencing, stray dogs and stray cattle are comparatively less severe unlike Abohar Sanctuary.

Table :4.2(b) Movement and Sighting Details of Blackbuck outside Abohar Wildlife Sanctuary collected during a three day survey conducted by field staff in March 2020.

Date	G.P.S. Location	Black buck			Remarks
		Male	Female	Total	
16-3-20	30.1033786, 74.3137051	01	01	02	During survey, these black bucks were sighted in village Dhaban Kokriyan (Fazilka District).
16-3-20	30.1028623, 74.3371945	02	06	08	During survey, these black bucks were sighted in village Dhaban Kokriyan (Fazilka District).
16-3-20	30.118774, 74.355348	01	01	02	During survey, these black bucks were sighted in village Malookpur (Fazilka District).
16-3-20	30.1133435, 74.3861894	01	03	04	During survey, these black bucks were sighted in village Jodhpur (Fazilka District).
16-3-20	29.9579893, 74.2811075	02	06	08	During survey, these black bucks were sighted in village Kular (Fazilka District).
16-3-20	29.968468, 74.266981	03	03	06	During survey, these black bucks were sighted in village Kular (Fazilka District).
16-3-20	29.9959458, 74.4181718	02	-	02	During survey, these black bucks were sighted in village Modi Khera (Fazilka District).
16-3-20	30.1207215, 74.3561839	03	05	08	During survey, these black bucks were sighted in village Bahadar Khera (Fazilka District).
16-3-20	30.0182983, 74.4130933	01	02	03	During survey, these black bucks were sighted in village khuban (Fazilka District).
16-3-20	30.06143, 74.41039	02	05	07	During survey, these black bucks were sighted in village Bhai Ka Kera (Shri Muktsar Sahib District)

16-3-20	30.06239, 74.39393	03	04	07	During survey, these black bucks were sighted in village Bhai Ka Kera (Shri Muktsar Sahib District)
16-3-20	30.0443252, 74.4175542	04	06	10	During survey, these black bucks were sighted in village khema Khera (Shri Muktsar Sahib District)
16-3-20	30.0942806, 74.3790179	04	06	10	During survey, these black bucks were sighted in village Mahni Khera (Shri Muktsar Sahib District)
16-3-20	30.06437, 74.40725	-	02	02	During survey, these black bucks were sighted in village Baloach Kera (Shri Muktsar Sahib District)
17-3-20	29.9374540, 74.3319019	04	08	12	During survey, these black bucks were sighted in Village Mala Rampura (Rajasthan state)
17-3-20	29.9333218, 74.334538	04	07	11	During survey, these black bucks were sighted in Village Rasuwala (Rajasthan state)
17-3-20	29.9222413, 74.3246817	05	10	15	During survey, these black bucks were sighted in Village Indergarh (Rajasthan state)
18-3-20	30.1619827, 73.9988141	04	08	12	During survey, these blackbucks were sighted in Village Bakainwala of Fazilka District (Boundary village Haripura).
18-3-20	30.1059633, 73.9507033	04	11	15	During survey, these black bucks were sighted in village Panjawa of Fazilka District near Bikaner Canal of Fazilka District (Boundary village Haripura).
18-3-20	30.1629926, 74.0228913	01	01	02	During survey, these black bucks were sighted in village Danewala of Fazilka District (Boundary village Panniwala Mahla)
18-3-20	29.962454 73.966079	04	11	15	During survey, these black bucks were sighted in village Bhagsar of Shri Ganganagar District, State Rajasthan (Boundary village Panniwala Mahla)
18-3-20	29.963687 73.937117	03	09	12	During survey, these black bucks were sighted in village Bhagsar of Shri Ganganagar District, State Rajasthan (Boundary village Panniwala Mahla)

During the survey the field staff have also reported that residents in the border village, Chak Mehrajka of Rajasthan has reported that they frequently sight around 40 blackbucks in their agricultural fields. These sighting data reveal there is movement of large number of blackbucks from the sanctuary area towards suitable habitat in

Rajasthan which is very close to their habitat in Punjab. Still more detailed landscape level approach of movement study and migration pattern has to be carried out by scientists and experts from reputed institutes like Wildlife Institute of India, Dehradun to understand the migration corridor of the animals in detail and plan for their conservation.

4.5 Provision of source of water for wildlife:-

To meet the drinking water problem of wild animals, the Wildlife department has constructed 5 water ponds. The water ponds were built in the villages Rajanwali, Khairpur in the year 1990, Sardarpura in the year 1989, Meherana and Sitorgunno in the year 1988 through centrally sponsored schemes. When the canals go dry, the Black Bucks drink water from these facilities. Some more tanks should be constructed in the sanctuary and the maintenance of the existing tanks are important. The tanks are established in the revenue villages and not in government land and this shows the dedication of the local community in providing their own land for purpose of wildlife protection. The water is filled regularly during lean summer season by the staff.

Figure 4.12 :-Water facilities for wild animals in 1.Rajanwali and 2.Khairpur village.



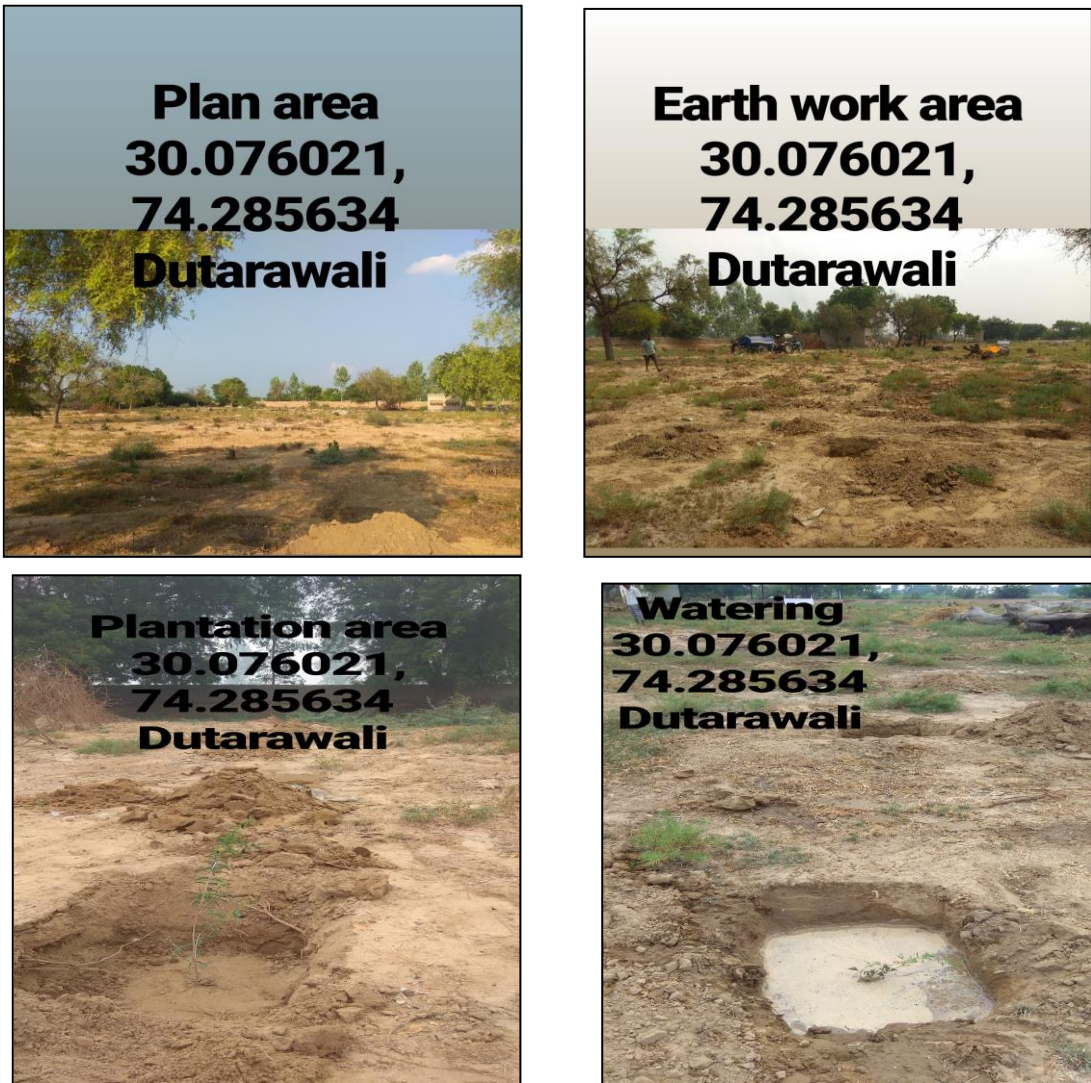
4.6 Habitat Improvement works:

To promote the growth of local tree species in the sanctuary, 6500 khejri tree species (*Prosopis cineraria*) were planted in the sanctuary in the year 2019-20 under PUNCAMPA scheme. Since the land belongs to local community, the habitat improvement has to be done with the consent of the local community.

Table 4.3 :- Details of Khejri Plantation done in 2019-20 under PUNCAMPA scheme in Abohar sanctuary

Name of Village	Plantation Area	Type of Land	No. of Plants	G.P.S location
Raipura	Shamshan Ghat	Panchayat Land	1500	30.124484, 74.304256
	Land of Sh. Jai Ram	Private Land	400	30.100976, 74.294495
Bajidpur Bhoma	Shamshan Ghat-1	Panchayat Land	350	29.956700, 74.383914
	Shamshan Ghat-2	Panchayat Land	75	29.951395, 74.375577
	Bishnoi Mandir	Panchayat Land	175	29.952506, 74.381240
Dutaranwali	Shamshan Ghat	Panchayat Land	600	30.076021, 74.285634
	Govt. Sr. Sec. School, Dutaranwali	Panchayat Land	324	30.077896, 74.290473
	Water Works	Panchayat Land	76	30.072599, 74.284769
Mehrana (Mehrajpur)	Bishnoi Mandir	Temple Land	1750	30.05123, 74.38714
Sitto Gunno	Shamshan Ghat	Panchayat Land	550	30.02479, 74.37016
	Land of Sh. Dharampal	Private Land	200	30.01633, 74.36704
Sukhchain	Gaushala	Panchayat Land	200	30.03471, 74.35002
Khairpur	Gaushala	Panchayat Land	300	30.02953, 74.31511
TOTAL=6500 Plants				

Figure 4.13: Plantation of Khejri under Pun-Campa Scheme in 2019-20



4.7 Extension activities:

To increase awareness and promote the importance of wildlife among the community and future generation the wildlife staff conduct awareness programmes in , public institutions and schools. The community is also felicitated at awareness programmes and functions to motivate them for their conservation works.

An interpretation center has been constructed in the range complex. The centre is used for conducting important meetings with the community and awareness camps

and other extension activities like celebration of wildlife week etc. It was constructed during the year 1991-92. Remaining work and construction of additional room was done during the year 1992-93. One additional hall(attached with interpretation centre) was constructed during the year 1993-94 under Central Sponsored Scheme . Renovation and refurbishment of interpretation centre was started during the year 2015. It was done by Punjab Heritage and tourism promotion board, Chandigarh under the ADB (Asian Development Bank) assisted project.

Table 4.4 :- Details of Awareness Camps held in the sanctuary :-

Year	Awareness Camp	Days/Months
2014-15	1. World Environment Day	06-6-14
	2. Wildlife Week	13-10-14
	3. Awareness Camps regarding Wildlife	04-10-14
2015-16	1. World Environment Day	05-6-15
	2. International Day against Drugs Abuse	26-6-15
2016-17	1. World Environment Day	05-6-16
	2. Swachh Bharat Mission	1-6-16 to 15-6-16
	3. Van Mahotsav	22-8-16
2017-18	1. World day to Combat desertification & drought	17-6-17
	2. Swachh Bharat Mission	29-9-17
	3. World Migratory Birds Day	13-1-18
2018-19	1. World Environment Day	05-6-18
	2. World day to Combat desertification & drought	18-6-18
	3. Tandarusat Punjab Mission	06-8-18
	4. Wildlife Week	04-10-18
	5. World Migratory Birds Day	13-10-18
	6. National Voters Day	25-10-19
	7. Awareness camps regarding removal of Cobra Wires	Months 02/19, 03/19
	8. World Wildlife Day	4-3-19 to 5-3-19
2019-20	1. Earth Day	22-4-19

2. Meetings and awareness camps regarding fencing wires, stray dogs, stray cattle	Month 04/2019
3. World Environment day	05-06-2019
4. Meetings and awareness camps regarding fencing wires, stray dogs, stray cattle	Month 07/2019
5. Awareness camp regarding Environment and Wildlife	06-08-2019
6. Awareness camps in villages and schools regarding removal of cobra wire, chain link fencing	Month 08/2019
7. Awareness camp regarding Wildlife Week (distribution of sparrow houses)	02-10-2019
8. Awareness camps regarding Wildlife Week in Sanctuary villages	03-10-2019 to 07-10-2019
9. World wetland day	05-02-2020

Figure 4.14 :- Awareness camps and meetings conducted by staff against cobra wire in 2018-19



Figure 4.15 :- Celebration of wildlife week and awareness camps for school children in 2018-19.



4.8 Coordinating activities with District Administration and other departments:

Since the sanctuary is of private nature, no initiative is possible in the sanctuary without the cooperation of local people and district administration. As per the notification, the whole area is private land and all the rights of local people except hunting, shooting, killing or capturing of wild animals and wild birds have been allowed to continue under section 24(c) of the Wildlife (Protection) Act, 1972. Therefore to address various issues like stray cattle, stray dogs, cobra wire, barbed wire ,land use changes and habitat identification for conservation of the species the wildlife department is hugely dependent on district

administration, animal husbandry department, police department and local government.

Role of Line Departments in management of the sanctuary:-

Animal Husbandry:

The issues like stray cattle and stray dogs are a huge threat to the existence of wild animals in the sanctuary area, The department has been raising this issue with the Animal husbandry department and also with district administration to find solutions and coordinate with the wildlife department and tackle the issue of stray dogs and stray cattle which is outside the mandate of this department since the sanctuary being dominated by private agricultural fields and lands.

Revenue Department

Since the sanctuary is undergoing habitat and land use changes to a drastic extent, the wildlife department is hugely dependent on the revenue department to identify lands that can be acquired from private people to develop suitable habitat of the blackbucks in the future since the tibbas and the natural habitat of the wild animals have shrunk to a large extent since the notification of the sanctuary.

Police Department

The wildlife department co-ordinates with the police department for controlling wildlife crimes and also for taking strict action against cobra wire. The district administration has banned the use of cobra wire/barbed wire and has directed the police administration to take strict action against people who use cobra/barbed wires. Also as per the field reports, the people from areas outside the sanctuary tend to illegally transport and unload feral cattle inside the sanctuary as result of which the local community has hugely fenced their private fields to prevent crop damage. The department has urged the district administration to direct the police department to act against such miscreants.

Local Government:

The department of local government is responsible to manage the population of stray dogs and stray cattle in the 13 villages which falls inside the sanctuary. The wildlife department requires a lot of support from the local governments and panchayats to tackle the issue.

In the financial year 2018-2019,2019-20 the staff raised all the issues pertaining to wildlife in meetings with officers of district administration and requested district administration to act against cobra wire and to discuss and frame solutions for various issues like stray cattle, fencing and stray dogs. Also on 1st,November 2019 and 5th March 2020 a stakeholder workshop was conducted under the chairmanship of Chief wildlife Warden,Punjab and Conservator of Forests,Parks and Protected Areas, Punjab respectively with officers of the line department and the local community regarding various issues concerning the conservation of wildlife in Abohar Sanctuary.

Figure 4.16 :- Meeting being held with 1. Sub divisional Magistrate, Abohar and 2. Deputy commissioner, Fazilka ,3. Under the chairmanship of Chief Wildlife Warden,Punjab about the pressing issues in Abohar sanctuary like cobra wire, stray cattle, stray dogs in the year 2018-2019 and 2019-20.





4.9 Census of Blackbuck

The Census of State Animal of Punjab i.e Blackbuck (*Antelope cervicapra*) and Blue bull is conducted at Abohar Wildlife Sanctuary. It is an initiative to scientifically assess the current population size of blackbuck at Abohar Wildlife Sanctuary. The census is also special as it is performed with

cohesive & co-ordinated efforts of all stakeholders including Wildlife enthusiast from Punjab and volunteers of Bishnoi Community.

In the past census was conducted in 1978 and then in 1980. The following methods were used for census:-

1. Direct counting.
2. Hoof mark counting.
3. People information,
4. Strip counting.

The number at that time was 3000 however the methods used at that time were not fool proof and all charges of error was were there, So in 1988 it was decided that an almost total count should be done scanning the whole area as for as possible. 17-18 th of May, 1988 was time chosen.

As the result of the counting following figures came up:-

Morning Session	Male	Female	Juvenile	Total
Black Buck	1072	2008	450	3530
Blue Bull	36	83	14	133

Evening Session	Male	Female	Juvenile	Total
Black Buck	1054	1980	446	3480
Blue Bull	29	81	9	119

Note:- As the difference in the countings of morning and evening was negligible, so the morning counting was taken as census figure.

In 2017, in collaboration with Punjab Biodiversity Board the Officers/officials of Ferozepur Wildlife Division, experts from WWF-India, selected wildlife photographers/ enthusiasts from Punjab and volunteers from Bishnoi community were grouped into 13 teams for the census activity. An orientation workshop for the teams was also conducted with regard to execution of the standardized scientific methodology of “Line Transect”. The whole area of sanctuary was represented through selection of 13 transect lines of 5 kms each subsequent to the detailed field level exercises. The selected teams conducted the census activity twice a day on 1st & 2nd June between 5.30 am to 10.30 am and 3.30pm to 7.00pm in the scorching temperature of more than 40°C. The teams were reshuffled every time to reduce the human error. All the sophisticated gadgets such as ranger finders, GPS, Binoculars and High end cameras were used in the census activity.

Figure 4.17 :- Census Team



Census Team



Census activity on 1st & 2nd June, 2017

Results

The results of the present census carried out with Line Transect Method in 13 villages were as under:

- Black Buck Population - 3273
- Nilgai Population - 1129
- Black Buck sex ratio - 35:65 (male: female)
- Nilgai sex ratio - 51:49 (male: female)
- Observed group size of Black buck = Highest (219), lowest (1)
- Observed group size of Nilgai= Highest (51), Lowest (1)
- Villages with highest density of Black Bucks were Duttarawali, Rajahwali, khairpur.
- Villages with highest density of Nilgai were Bishanpura, Himatpura, Khairpur.

Census Activities also conducting in 1994, 2011 and The details has been given in **Annexure-III**.

Chapter V

Summary of threats in Abohar Wildlife Sanctuary

5.1 Poaching and wildlife crimes

The Abohar sanctuary area is situated in a plain area and is open from all sides. It is easy to enter in the sanctuary area. But the staff are not in sufficient number. So the cadre strength in range should be increased since the range covers an area of more than 186 sq kms, The staff strength need to be increased. There are only two check posts in the sanctuary; one at Raipura Bus stand and other is at Sito Gunno to Shri Ganga Nagar Road.

Table 5.1 :- Wildlife Crime Cases in Abohar Wildlife Sanctuary from March 2009 to September 2019

Year	Crime Date	Tools used	No. of Accused	Species hunted/ poached	DR No.
2009-10	07-08-2009	Net	01	Fishes	16621
	28-08-2009	Net	03	Fishes	16782
	11-09-2009	Gun	03	Black Buck	348401
2011-12	15-08-2011	Jeep	02	Turtles	16783
2012-13	10-04-2012	Net	02	Fishes	16622
2014-15	30-05-2014	Gun & Jeep	02	Partridge	348802
	02-11-2014	Fire	02	-	348803
	05-11-2014	Net, Trap	03	Wild Hare & Partridge	348804
2015-16	12-09-2015	Gun, Revolver, Car	03	Partridge	348805
	18-09-2015	Net, Motorcycle	02	Fishes	05168
2019-20	09-09-2019	Tractor, Water Pump	05	Fishes	05101

5.2 Habitat degradation due to change in land use:

The habitat of the sanctuary area was mainly covered by semi arid terrain with large number of sand dunes and tibbas and shrubland with scattered presence of trees like khejari, jand and other dry deciduous trees. This was a perfect and suitable habitat for the wildlife. Though, the local community have a great passion towards conservation of wildlife and love the wild animals like any other human being, the private lands are slowly converted into agricultural fields and kinnow orchards over years and this is mainly attributed to the development of irrigation systems.

Since the sanctuary is of private nature, the tibbas are flattened at a faster rate to meet the economic aspirations of the local community and thus the habitat of the blackbuck has shrunk to a greater extent. The land use land cover data collected from different sources indicated that maximum area of the sanctuary is covered by agricultural land (95%) followed by villages and town (2.5%), sand dunes (2.3%) and waterbody (0.2%).

Figure 5.1 :- Natural tibbas were animal sightings are common:



Figure 5.2 :- Aerial view of sanctuary area characterized by kinnow plantations and agricultural fields taken by drone by Wildlife Institute of India,Dehradun in May,2019.



Tibbas have drastically reduced over the years due to changes in the economic activities of local community where most of the land use is changed due to good irrigation unlike earlier times. So animals which were free ranging earlier have slowly moved to small pockets where tibbas are present and have also adapted to exist in the agricultural fields. When the google images in 1992 to 2010 were compared it was very clear that the semi arid regions covered a huge area on the map in all the villages in 1992 and gradually over years the tibbas, semi arid land, sand dunes etc were flattened and converted into agricultural fields and kinnow orchards. This change in land use is mainly due to irrigation facilities that have developed over the years and green revolution. Food crops are also replaced by cash crops like cotton etc.

Figure 5.3 :- The google image given below shows the presence of tibbas in the year 1992

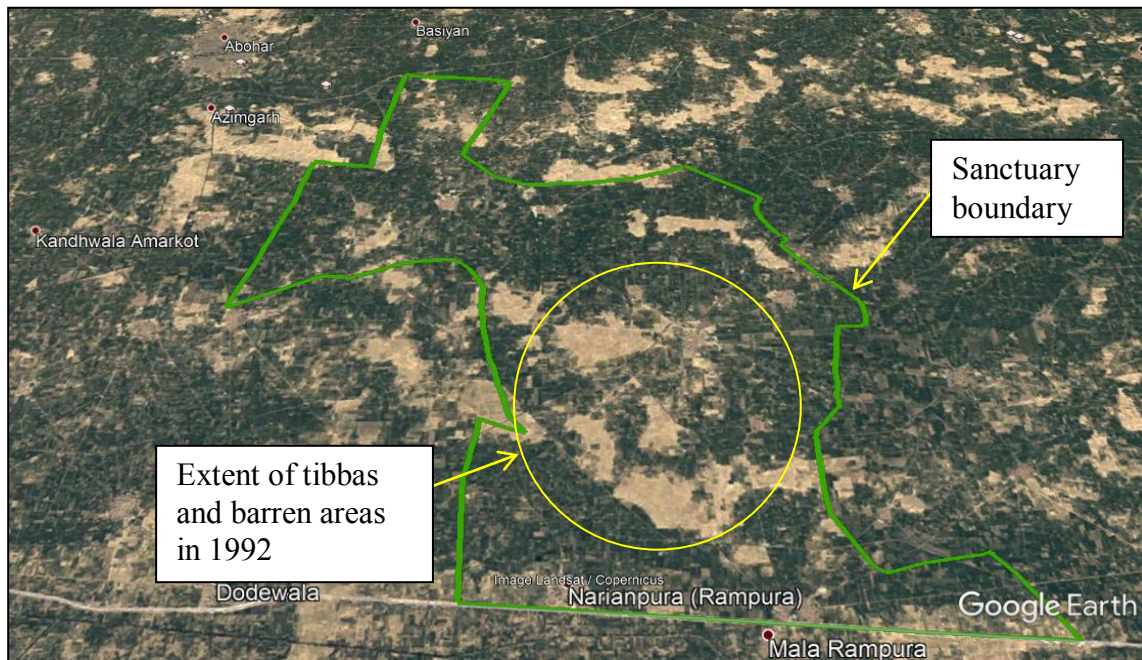
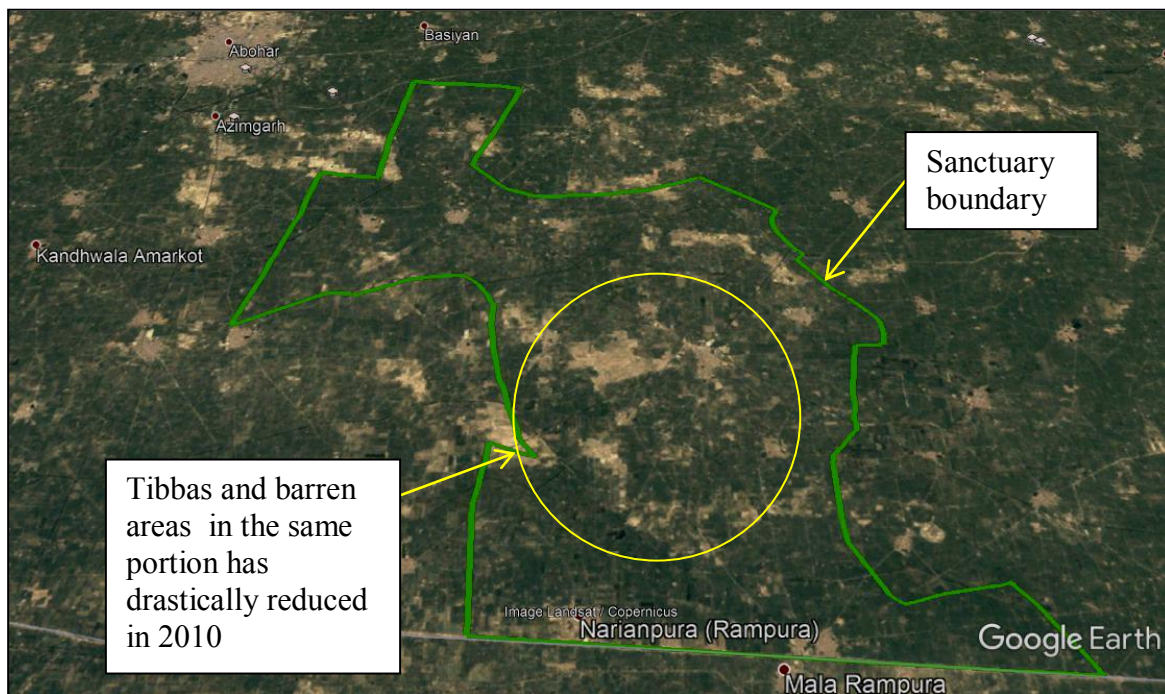


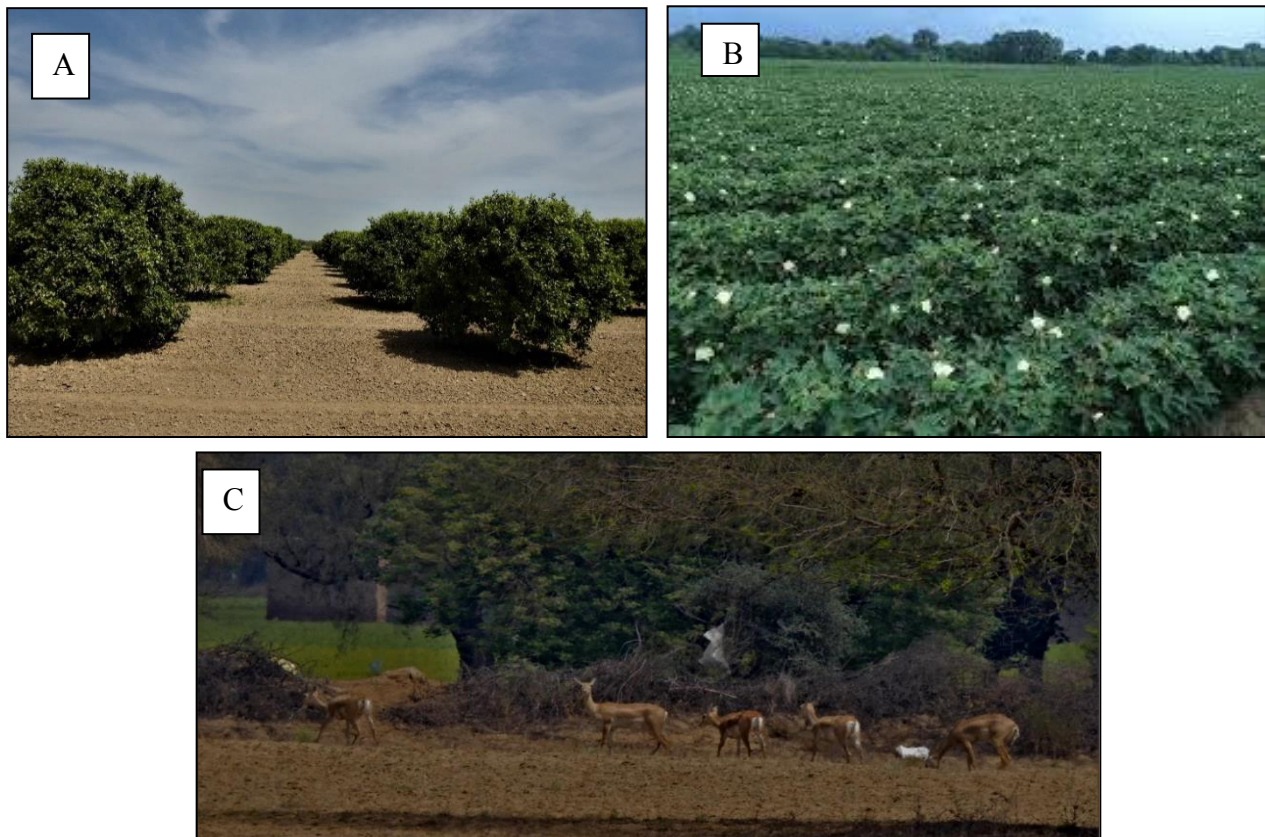
Figure 5.4 :- The google image given below shows the presence of tibbas in the year 2010



5.3 Habitat fragmentation:

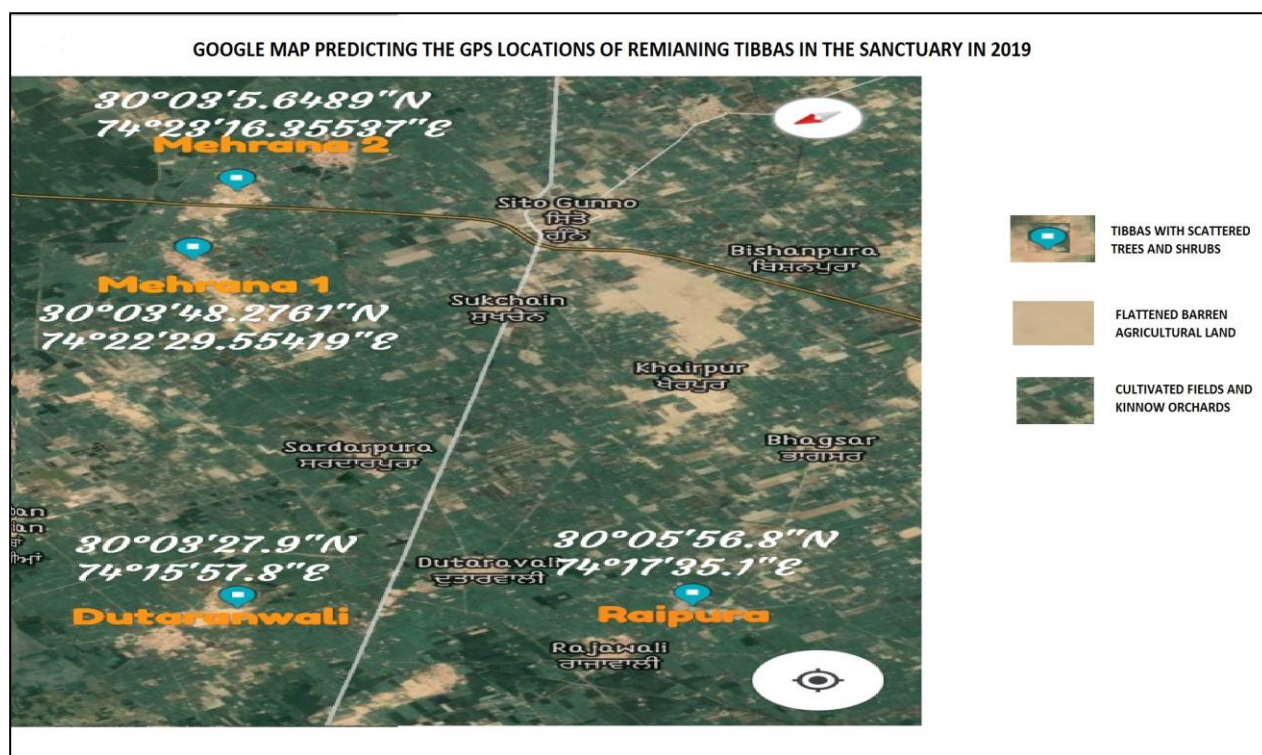
The habitat degradation and change in land use in the form of conversion of natural tibbas and sand dune areas into agricultural fields and orchards have also resulted in its fragmentation. In one way, large number of fencing has also resulted in fragmentation of habitat of wild animals which in turn results in the concentration of wild animal herds in specific habitats where remaining tibbas are present. As per the field data in 2019 almost all the tibbas in most of the villages have been converted into either know orchards or other agricultural fields and tibbas of few acres are found only in the above given locations in villages like Mehrana, Dutarawali and Raipura where nilgai and blackbuck sightings are very common. Developmental projects like road, canals and irrigation systems are also the reasons for habiatat fragmentation.

Figure 5.5 :- Habitat types (A) Kinno orchard (B) Cotton crop and (C) sand dunes.



At present out of the 186sqkm of the sanctuary, the approximate area of tibbas present in Mehrana,Raipura and Duutarawali are 70 acres,10 acres and 1 acre respectively.So the habitat is fragmanted to a large extent and hence the animal faces a lot of threat like stray dogs,habitation,stay cattle,fences,roads,canals when it has to move from one habitat to another.

Figure 5.6 :- Location of tibbas in Abohar wildlife sanctuary as on 2019.

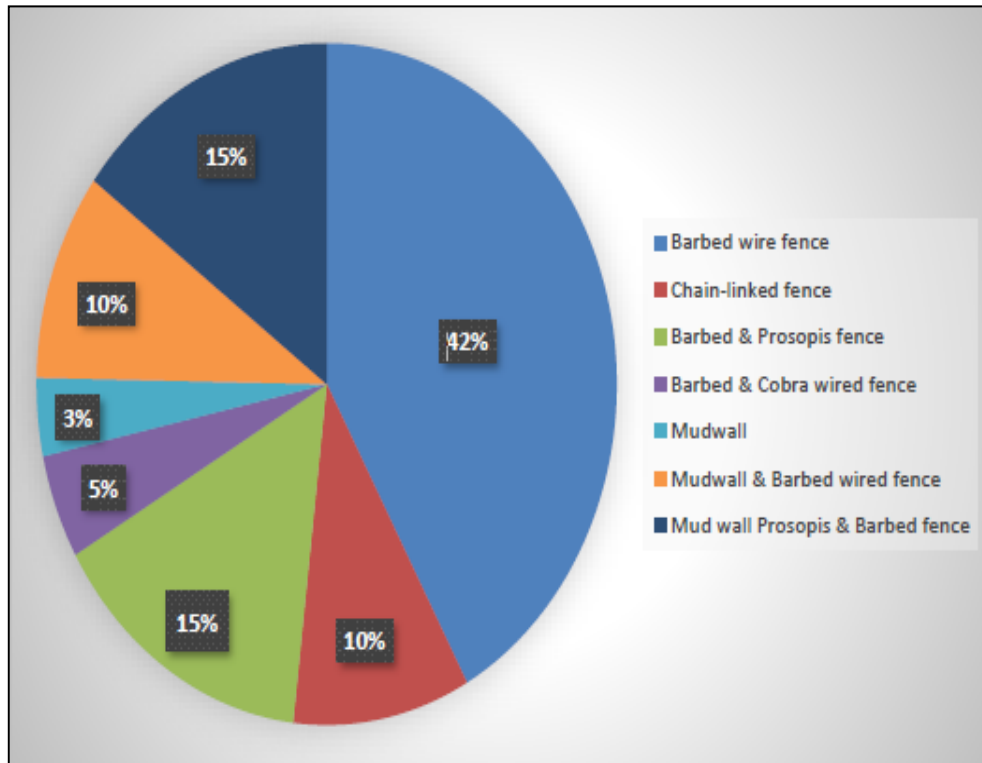


5.4 Fencing of fields and kinnow orchards:

The problem of stray and feral cattle is one of the huge threats to existence of wildlife. The farmers are under huge stress due to grazing of their agricultural crops by feral cattle and as a result of it they have fenced almost all their fields and plantations with cobra, barbed wires and also chain link fencing in the boundary of the fields. This not only restricts the movement of the wildlife and causes

fragmentation of the habitat but also leads to injury to wild animals which get caught in the wires when stray dogs chase them from the fields. The traditional mud walls which were the characteristic feature of this region have drastically reduced .

Figure 5.7 :- Type of fencing done in Abohar Wildlife Sanctuary as per Wildlife Institute of India, Dehradun Report on Abohar Road project in the year 2019.



In the year 2018-19, the wildlife staff conducted several meetings in different villages in the sanctuary and convinced the people to remove cobra wire from their fences and the people removed the cobra wires in large numbers due to efforts of the range staff. and as on May,2019 the cobra wire constitutes 5% of fencing and other fencing like barbed wire,chainlink fencing are on the rise.It is long way ahead to convince the local people to remove since it is linked with other complex issues like stray cattle and crop damage due to stray cattle.

Traditional mud walls replaced by barbed wire fencing. and chain link fencing

Figure 5.8 :- Mud wall Fencing

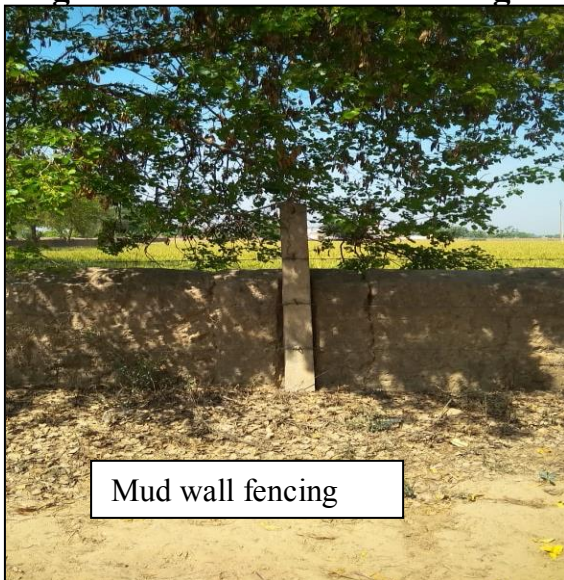


Figure 5.9 Chain link Fencing

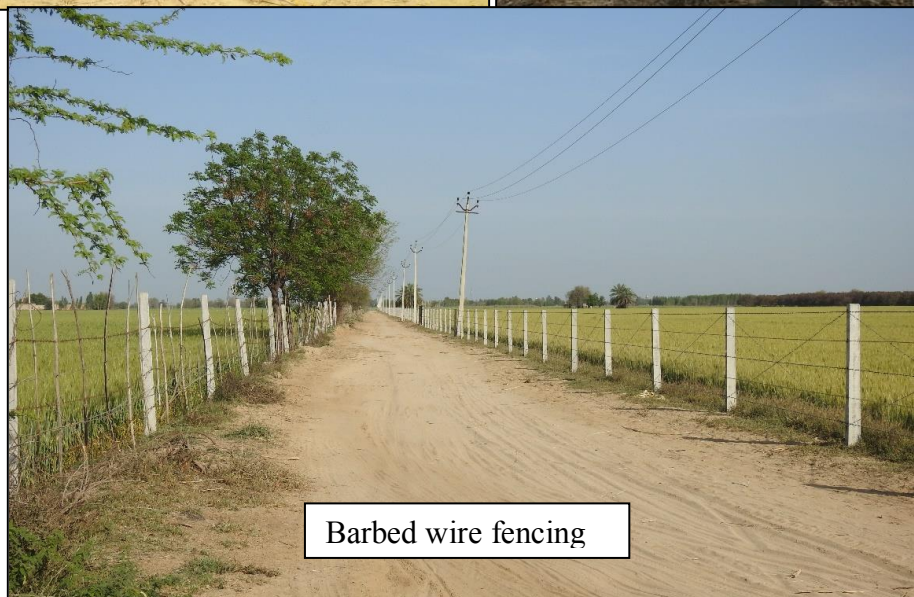


Figure 5.10 ;- Barbed wire Fencing

5.5 Feral Cattle : Stray cattle also pose a huge threat to the black bucks. The people inside the sanctuary area have tolerance to the crop damage by black bucks, but not to that of stray cattle. The stray cattle are mainly cattle that are unproductive in nature (non milching cows and hybrid bulls) and which are difficult to be maintained by the local community. So the local villagers tend to release the same in open when they become an economic burden. It has also been reported by the locals

that there is a problem of people living outside the sanctuary illegally transporting and unloading the stray cattle from adjoining areas. The free ranging cattle then becomes a huge menace since they start grazing the agricultural fields. So, the people start fencing their fields with barbed wires and cobra wires. The black bucks get hurt by these and are injured badly. The stray cattle management is the mandate of the animal husbandry department and illegal transporting of cattle should be handled by the police department.

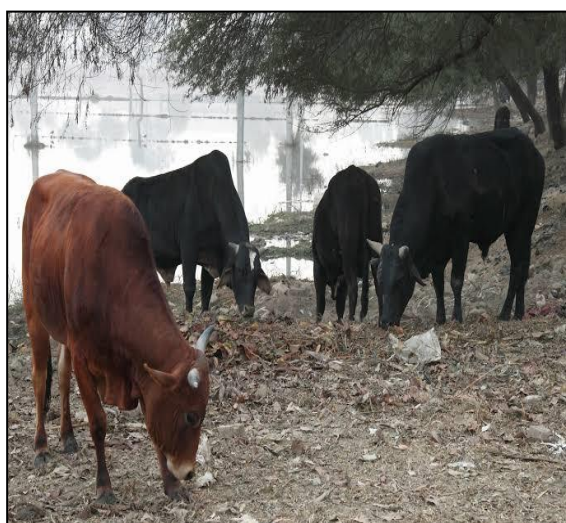


Figure 5.11 :- Feral cattles in Abohar wildlife sanctuary Fig 5.12 :- Aerial view of grazing by goats in tibbas

5.6 Stray Dogs: Stray dogs are a huge menace in Abohar Wildlife Sanctuary. As per the field reports of Range Officer, Abohar in the year 2018-2019, there are more than 1000 stray dogs presently inside the sanctuary which create a lot of havoc to the black buck population. They prey on the fawns and also chase the adult animals, which go and get hit and hurt in the cobra wires and barbed wires that are fixed along almost all the agricultural fields resulting in injury and mortality.

Fig 5.13: Stray Dog chasing Nilghai



There are reports of wildlife deaths which have been attributed to injury of the animals due to them getting stuck in the barbed or cobra wire when the stray dogs chase them from their habitat.

5.7 Inorganic/Chemical farming:

Figure 5.14: Inorganic/Chemical farming



The farming done by the local community is influenced by the green revolution where huge amount of chemical and inorganic pesticides, fertilizers and insecticides are used and hence it poses a serious threat for wildlife like bio-magnification and paves way for diseases due to consumption of crops grown in this way by the wild animals and the increase in the trend of chemical farming would pose a serious threat by contaminating the ground water table.

5.8 Road accidents :

The sanctuary is characterized by the presence of revenue villages with residential building, public infrastructure, roads, transmission lines and development of other infrastructure. There is a huge change in the lifestyle of the people living in these areas where traditional houses made of mud walls are replaced with cement based structures. The main roads and the link roads are often reported to be areas of wildlife accidents due to the vehicular movements in these roads. Since 2012, many road accidents have been recorded in the main roads and the link roads of the sanctuary and the wild animals affected due to vehicular traffic are nilgai, blackbuck, wild hare, mongoose, jackal etc. Due to increased vehicular traffic and speeding the animals suffer.

Precautions have been taken by spreading awareness among the public regarding the area coming under sanctuary zone. Some of the precautionary sign boards installed along the roads are as shown below. But still road accidents are prevailing the sanctuary area.



Khairpur Village



Raipura village

Figure 5.15 :-Road Signage

Figure 5.16 Speed limit signage

Wildlife Institute of India, Dehradun in its technical report where it proposed mitigation measures and structural measures in May 2019, to reduce impacts on wildlife for the Project “Upgradation of Abohar-Sito Gunno-Dabwali road (NH-354E) section passing through Abohar Wildlife Sanctuary, Punjab recorded technical data for the section of the 0km to 25 km of Abohar Sito Gunno Dabwali road during their study and also collected the Animal vehicle collision (AVCs) data from the forest department for the stretch of the road. They plotted the data on the map and found that the maximum number of wild animal-vehicle collision was recorded in 2014 followed by 2015 and 2016 . Most of the Animal -vehicle collisions

took place between Novembers and February (57.45%) followed by July to October (27.66%) . The maximum number of animal collided were Nilgai (61.70%) followed by Blackbuck (29.79%) and Jackal (6.38%) . Among the Nilgai and Blackbuck, the maximum number of animal struck were female, followed by male and yearlings . Moreover, the maximum number of collision occurred in Raipura village followed by Dutarawali and Sukhchain .

Figure 5.17 :- Number of wild animal-vehicle collision in Abohar Wildlife Sanctuary, Fazilka, Punjab during 2013-2018.

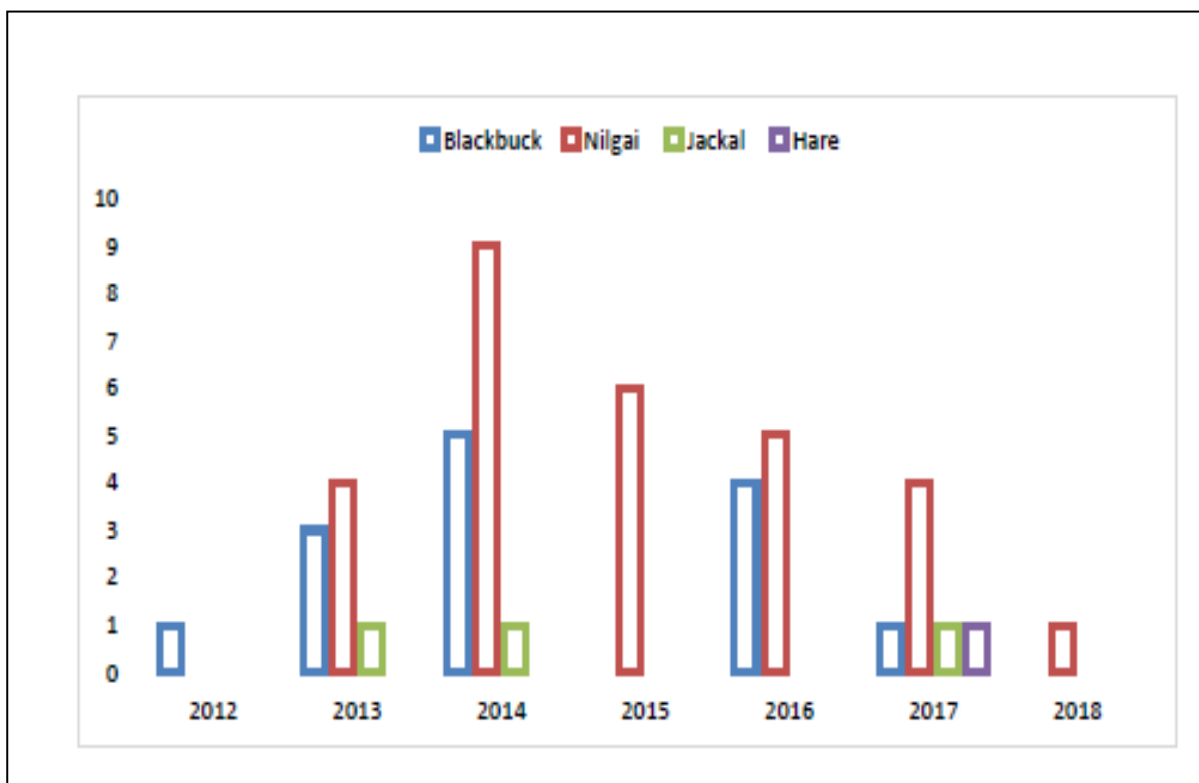


Fig 5.18 :- Observed wild animal-vehicle collision (AVC): (A) Seasonal (B) Wildlife species wise, (C) and in relation to sex, age classes in Abohar Wildlife Sanctuary, Fazilka, Punjab, during 2013-2018.

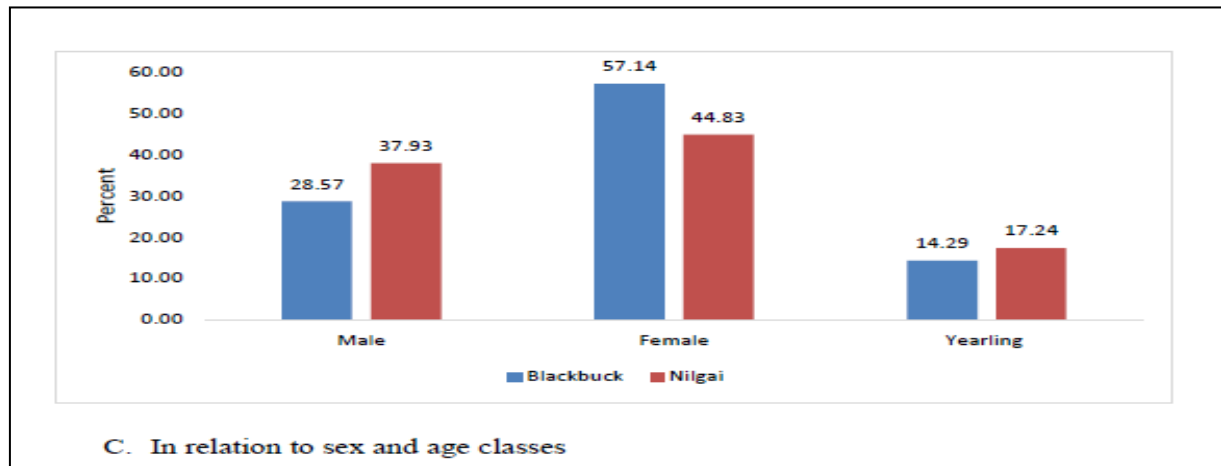
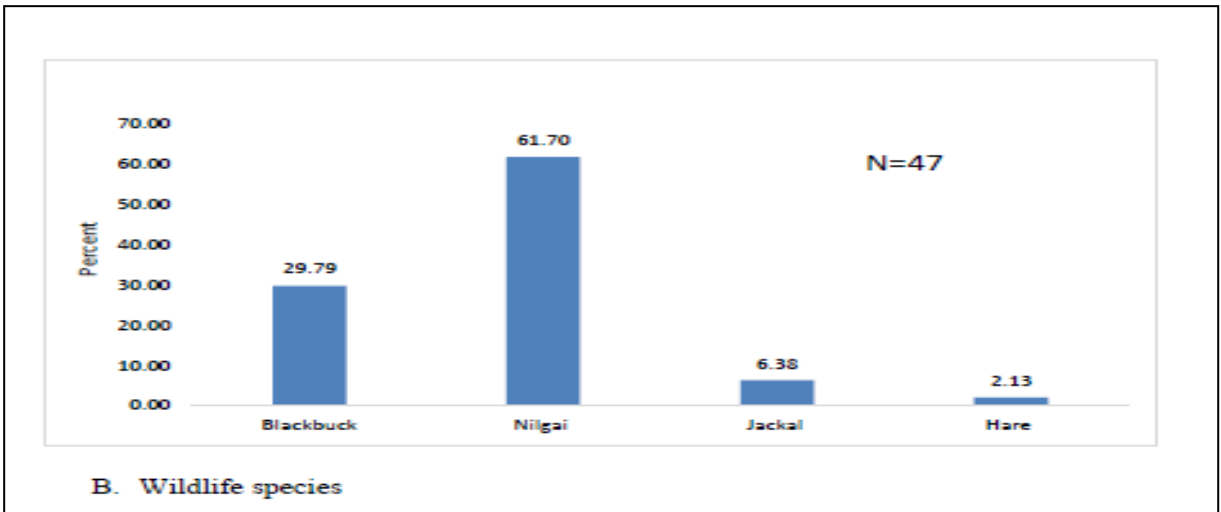
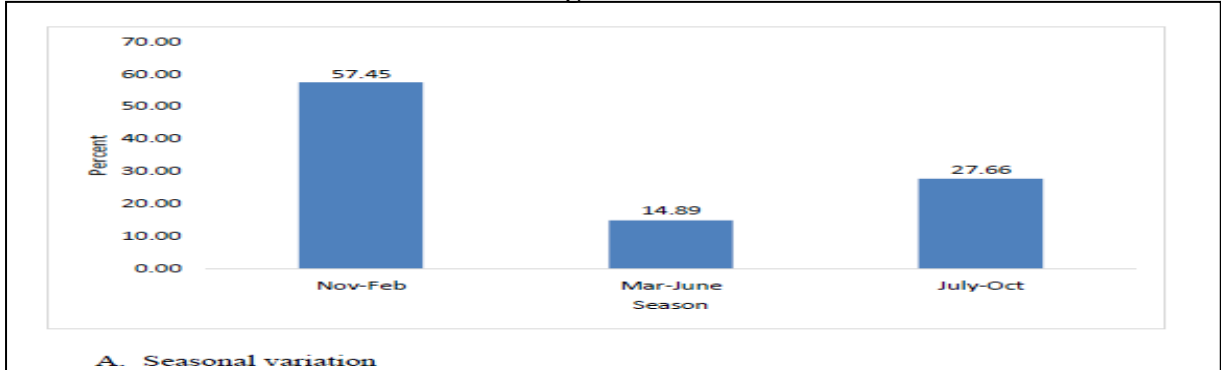


Figure 5.19 :- Observed wild animal vehicle collision in relation to different villages situated near the road from 2013-2018.

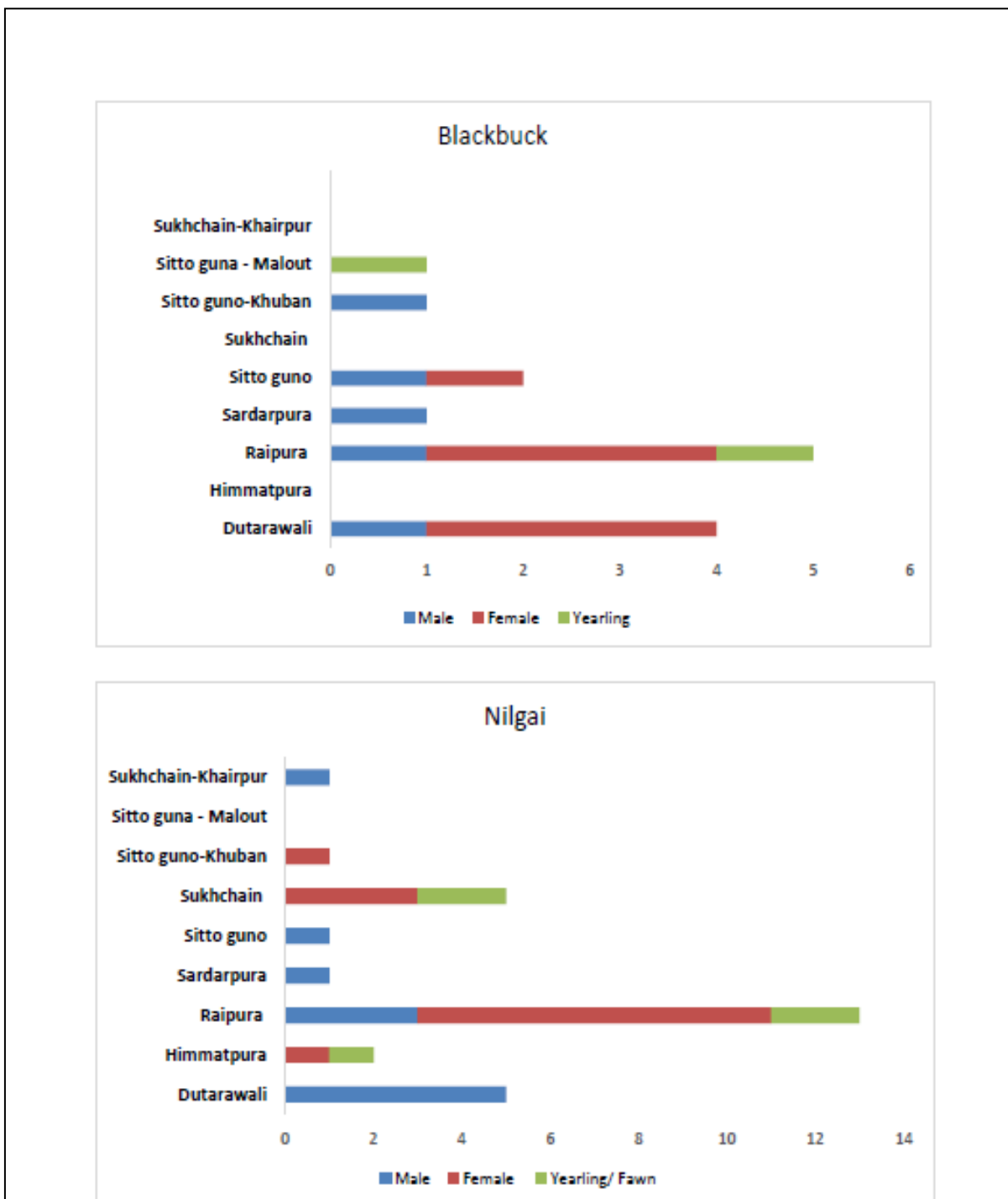


Figure 5.20 :- Percent of wild animal vehicle collision on Abohar-Sito Gunno Dabwali Road with reference to distance from the villages.

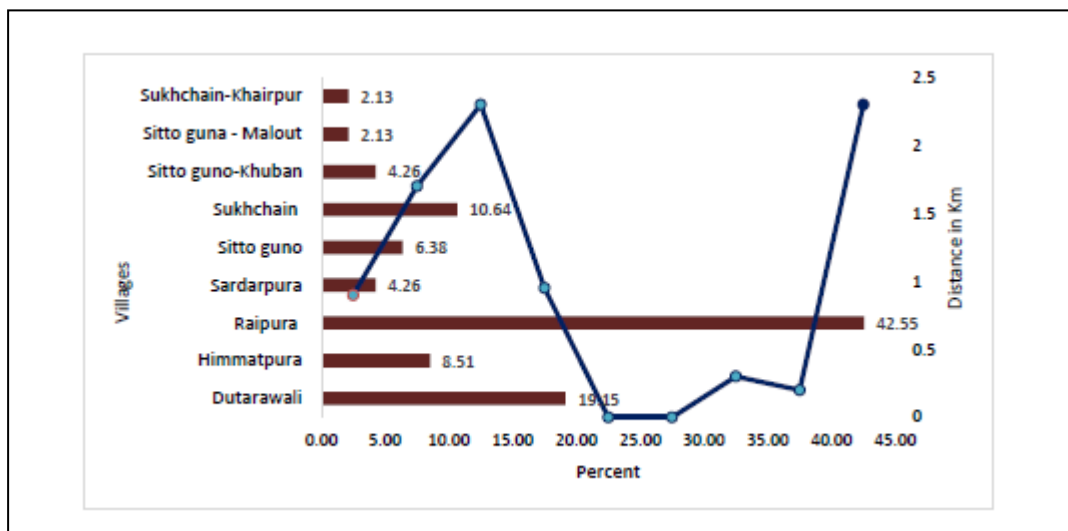


Figure 5.21 :- Wild animal-vehicle collision near different villages of Abohar Wildlife Sanctuary

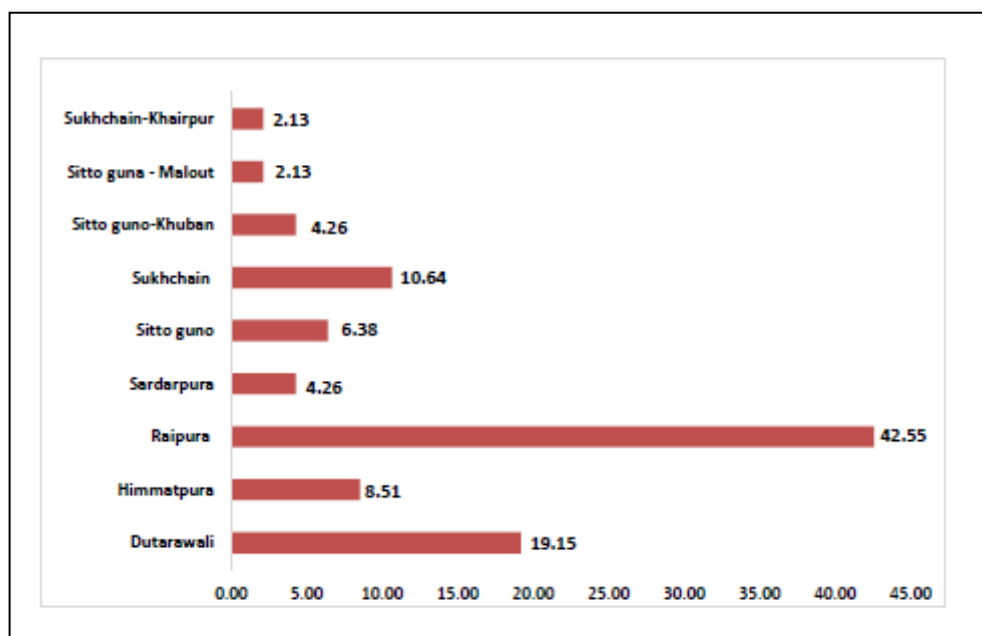


Figure 5.22 :- Animal herds found crossing the roads in Abohar wildlife sanctuary



Figure 5.23 :- GPS locations where accidental deaths of since year 2012.



5.9 Decline in native species and increase in intensive agriculture:

Many native species of Abohar wildlife sancturay have gradually declined due to land use change and hence the local native species like khejari, capparis and other semi arid trees and shrubs,grasslands that are the suitable vegetation for the survival, feeding, fawing, breeding cover etc for blackbuck have drastically declined and have been replaced by agricultural fields and orchards.

The images given below depict how the native species and shrublands are replaced by cashcrops and orchards which also one of the most serious threats in the sanctuary.



Figure 5.24 :- Tibbas with semi arid vegetation converted into agriculture fields.

5.10 Changes in the economic aspiration and attitude of the community:

Unlike older generation who lived in close harmony with the animals and when their economic aspirations were limited, the present generation of Bishnois, though are ardent animal lovers and also provide full support to the department for preventing any poaching activities and for rescue and rehabilitation works,

are drifting towards economic activities which are not sustainable in nature like flattening of tibbas, conversion of the semi arid lands to agricultural field and orchards, replacing mud walls with cemented walls, katcha nature friendly houses replaced by pucca cemented structures, fixing of cobra wire and barbed wires, chain link fencing and release of unproductive cattle etc.

The management plan mainly focuses on addressing the above mentioned threats and to bring about a balance where both the wildlife and local community can live in a sustainable and harmonious way.

Chapter VI

Infrastructure

6.1 Range office:

The range office of the sanctuary is in a very bad shape and is in condemned state and there is a requirement of construction of a new range office for wildlife staff.

6.2 Interpretation center:

The center is used for conducting important meetings with the community and awareness camps and other extension activities like celebration of wildlife week etc. It was constructed during the year 1991-92. Remaining work and construction of additional room was done during the year 1992-93. One additional hall (attached with interpretation centre) was constructed during the year 1993-94 under Central Sponsored Scheme. Renovation and refurbishment of interpretation center was started during the year 2015. It was done by Punjab Heritage and tourism promotion board, Chandigarh under the ADB (Asian Development Bank) assisted project.

Figure 6.1:- Interpretation Center in Range complex, Abohar



Fixing of creative signages, Dioramas, awareness materials and audio visual facilities to promote conservation of wildlife areas are yet to be established within the center to enable the local community and tourists to gain knowledge about the importance of the sanctuary. The rooms in the center may also be used for official purpose by the field staff when required.

6.3 Rescue center:

A small rescue center for wild animals was built in the financial year 2018-2019 under PUNCAMPA scheme in Range complex looking at the immediate requirement for a safe place to isolate the animal from the field and recuperate before their rehabilitation. The center has its own limitations being small in size with two recovery rooms, one operation room and doctor room and two water holes. It can cater to only two animals at a time. There is a need for a dedicated doctor, medical assistant, tools, equipment and infrastructure for its effective functioning. Apart from this, proper rescue ,treatment and rehabilitation center in a large area which is fully protected and fenced in all sides and can cater to more wild animals is required. to save the animals from threats and injury.

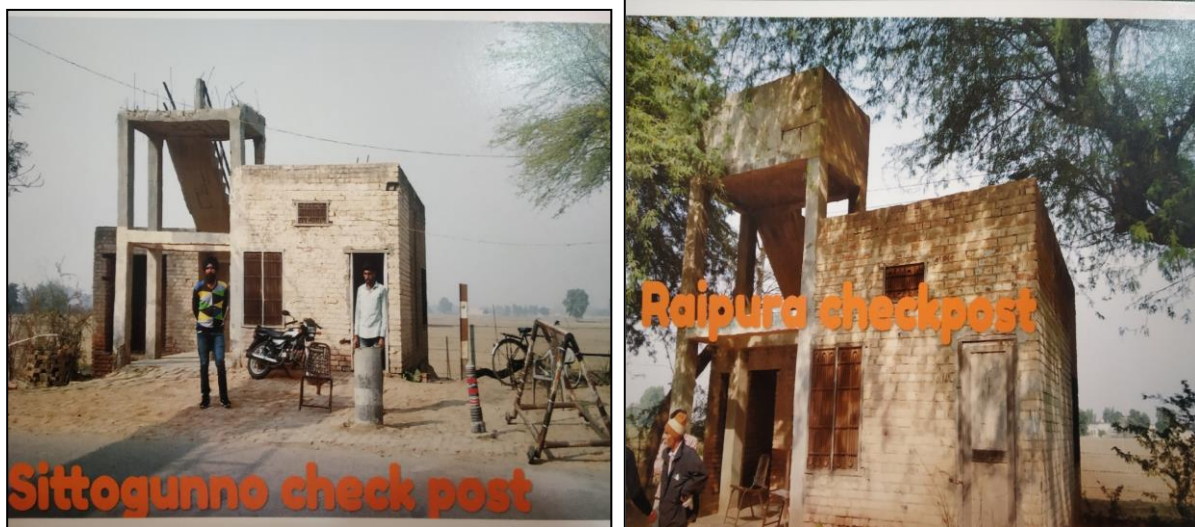
Figure 6.2 :- Rescue Center in Range complex, Abohar:



6.4 Check posts and Watch tower :

The sanctuary consists of two check posts in Raipura and Sito Gunno with watch tower in both the check posts. Both the checkpoints were constructed in the year 1995 under Centrally Sponsored Scheme. The two checkpoints are also very old and has to be repaired and refurbished. Three more checkpoints one in Mehrana, Rampura and Himmatpura with watchtowers also have to be constructed in the sanctuary area in strategic locations. At least two wild life guards and four helpers should be posted in one check post for 24x7 duty.

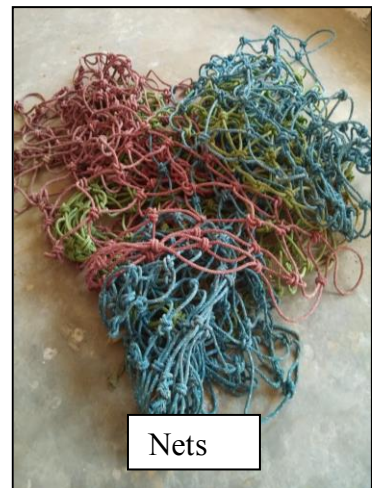
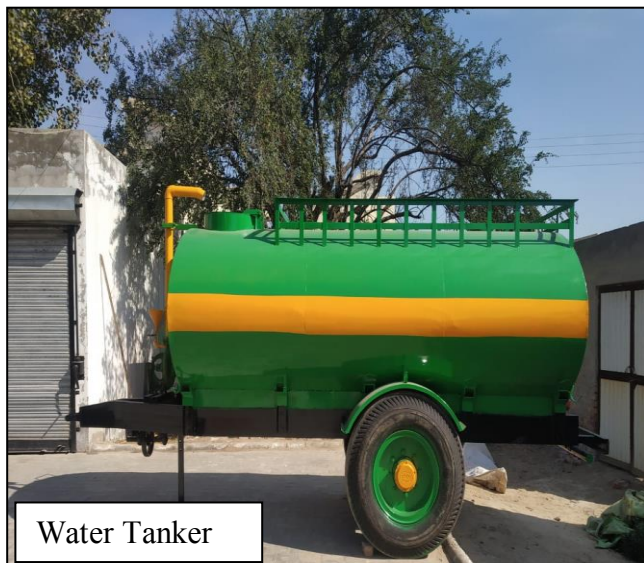
Figure 6.3 :- Check posts in Abohar Wildlife sanctuary



6.5 Ammunition, Vehicles and equipments:

The wild life staff has only vehicle in good condition for rescue of the wild animals and patrolling. One tractor, trolley and water tanker with few cages and nets is present in the sanctuary for rescue and rehabilitation. A dedicated rescue ambulance with basic facilities in it has to be made available for the range staff. The range staff do not possess any weapon.

Figure 6.4 :- Vehicles, Tools and Equipment



6.6 Staff strength:

Staff, labour availability and utilization is an important component of management. Permanent staff at the level of foresters and guards have to be increased to manage the sanctuary and adjoining areas within the Fazilka District.

Table 6.1:- Field staff details of Abohar Wildlife Range.

S.No	Name of post	Sanctioned	Working
1	Divisional Forest Officer	1	1
2	Wild Life Ranger/Deputy Ranger	1	0
3	Wild Life Foresters	2	1
4	Wild Life Guards/Forest Guards	7	7
5	Driver	1	1

As it can be seen from the above table, there is an shortage of field staff in the Ranger/Deputy Ranger and Forester. The range is managed by a forester and hence presence of Direct Range Officer/Deputy Ranger would definitely enhance the working sufficiency in the Range. Apart from the permanent staff, daily wage labourers are employed in the division on requirement basis to serve as watch and wards to protect the sanctuary from any illegal activities and also to rescue and rehabilitate the injured wild animals.

PART-II

FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED

Chapter-1

Vision, Objectives, Strategies for Management

1.1 The Vision:

“Conservation of Abohar wildlife Sanctuary with all its ecological, anthropological uniqueness and to maintain a viable population of Blackbucks and other wildlife in the sanctuary with the help of the local community.”

1.2 General Objects of Management

Why Management?

There is almost nothing in nature that could be called a stable environment. The element which the manager wishes to preserve in an area can easily be lost through the lack of management as the nature of sanctuary changes rapidly. The kind of management depends upon the objectives of given area. Bad management could be worse than no management. Good planning is a management tool, not an end itself. The management plan guides and controls the management of an area resources, uses of area and development of facilities needed to support the management and use.

The present management plan is planned and written for the period of ten years (2019-2020 to 2028-2029) under following sequences:

- (1) *Collection of information regarding various resources of area.*

- (2) *Consolidation and systematization of information.*
- (3) *Identification of key issues in present state.*
- (4) *Addition of facts to fill gaps in the management.*
- (5) *Formation of clear-cut objectives.*
- (6) *Proposed strategies for future implementation.*
- (7) *Justification of prescriptions and cost of implementation.*

The present management plan is written within framework of guidelines of Government of India and policies such as Wildlife (Protection) Act 1972, Indian Forest Act 1927, Forest conservation Act 1980, National Forest Policy and National Wildlife Action Plan (1983). Efforts have been made to stick to the guidelines, but necessary modifications have been done.

In light of above facts, the general objects of management of this management plan shall be as under:-

- *To create and develop ideal habitats for fauna by undertaking habitat improvement works and protection measures.*
- *To improve the environment of the sanctuary and to maintain the ecological balance of area.*
- *To increase the vegetative cover of the area by undertaking plantations of indigenous and site specific species beneficial for wildlife.*
- *To reclaim the sandy tibbas with the help of land owners and to create ideal habitats for blackbucks even by the process of land acquisitions from local people in and around the sanctuary.*
- *To create awareness among the various stakeholders about the importance of conserving wildlife.*

- *To involve the local population and the stakeholders in the management of the sanctuary by giving incentives to local community*
- *To enhance the aesthetic value of the area so that eco-tourism can be promoted.*
- *To find lasting solutions to the problems of stray cattle and dog menace by coordinating with district administration and other line departments like animal husbandry, local government etc.*
- *To improve the standards of rescue, rehabilitation operations.*
- *To enable the staff through training, capacity building and provide necessary infrastructure to the field staff.*

1.3 Approach to be adopted:

In order to fulfill the above objectives the following approach should be adopted:

- i. Creation of baseline data: As the management of the sanctuary needs specific prescriptions to address specific issues, it is very important to have a baseline data on wildlife, the habitat, socio economic factors that influence the habitat, historical data. This would include field works like surveys of topography, demography, socio-economic dynamics, census, population estimates, experiments, as well as interpretation and extrapolation of the data so gathered to draw inferences and arrive at certain conclusions. Existing literature as well as the expertise of expert institutions, scientists and NGOs who have already worked on the area shall be utilized.
- iii. Formation of theme plans so that similar problems are grouped, categorized in a scientific manner so that a common prescription can be given and that the available resource is optimally utilized.
- iv. To move towards sustainable and scientific management of the wild life in the sanctuary and towards landscape level of management and protection of

- blackbuck by understanding their migratory corridor and the movement of the animals in and out of the sanctuary in various seasons.
- v. Involvement and participation of the people living in and around the sanctuary in the management of the sanctuary.
 - vi. Give special impetus to generating awareness among the public through publicity campaign to highlight the importance, values as well as the problems of the sanctuary.
 - vii. Ensuring that all agencies/line departments responsible for management of specific issues of the sanctuary cooperate with each other and work in tandem so that all the resources and expertise available are utilized meaningfully.
 - viii. Appropriate and adequate training of the field staff in wild life management and capacity building for the staff to implement the themes and strategies adopted to effectively manage the area.

1.4 Constitution of Management Theme plans:

Abohar is a unique place being graced with great natural resource and beauty. It is the only place in Punjab where Black Bucks are found in large numbers. The sanctuary is also beset with many problems as mentioned previous chapters. The management of this region has become complicated because of various factors influencing the area. The sanctuary being privately owned , can be efficiently management only when the local community themselves come forward to protect the habitat from destruction. It is envisaged that objectives laid out in this plan and the prescriptions made herein would go a long way in better management of the sanctuary.

In order to achieve the general objectives of this Management Plan and keeping in view the method of treatment to be adopted, the following theme plans shall be formulated and implemented.

1. *Wildlife protection plan*
2. *Wildlife health management plan*
3. *Habitat management plan*
4. *Inter departmental coordination plan*
5. *Landscape level management plan*
6. *Eco Development theme plan*

1.5 Abstract of the theme plans

An abstract of the different theme plans proposed and their salient features are outlined below:-

(a) Wildlife protection plan: This theme plan deals with the protection of the sanctuary from poachers and other offences occurring in the sanctuary area and implementation of Wildlife Protection Act, 1972.

(b) Wildlife health management plan:- Although no big epidemic so far has been reported from this area but management should keep itself ready for any disaster or emergency situation by coordinating with other departments and agencies.

(c) Habitat Management plan:- Habitat management in wildlife areas primarily involves restoration of natural vegetation, protection of undisturbed habitat, proper water regime, improvement of ecological balance etc with adoption of suitable practices for the long term conservation.

(d) Inter departmental coordination plan: The sanctuary being private in nature, requires inter departmental coordination in various activities like management of stray dogs, stray cattle, prevention of habitat destruction and fencing and unsustainable agricultural practices.

(e) Community engagement plan: The formation of the sanctuary is based on the personal interest of the local people in protecting wildlife. So without the participation of the community no management practice will be feasible in this sanctuary consisting of private lands.

(f) Landscape level management plan :

The habitat of the sanctuary has drastically changed over several years. There is a huge mortality of the wild animals due to stray dogs and fencing in all the private lands and the wild animals are migrating to suitable habitats away from fenced areas and since the sanctuary is in close vicinity to Ganganagar and Hanumangarh districts of Rajasthan a landscape level approach is required in the future to protect the blackbucks.

(g) Eco Development theme plan:

Eco Development plan is a tool for developing alternate activities to resource exploitation and for involving local populations in environment protection. Abohar sanctuary derives its uniqueness from a community driven conservation ethos by the Bishnoi community.

1.6 Period of the Management Plan

This Management Plan will be for a 10 years i.e. from the year 2019-2020 to 2028-29. Although, no midterm revision is anticipated during the plan period, the Management Plan may be reviewed in the year 2024 in the light of prevailing conditions at that time.

1.7 Wildlife Protection Theme Plan

1.7.1 General Description:-

The protection of the sanctuary and its resources from various threats like poaching predation ,pollution and other activities harming the sanctuary is very important so that the habitat is protected. This theme plan is formed for the main purpose of focusing on the issues related to the protection of the sanctuary from such threats. It will cover the whole of the sanctuary.

1.7.2 Special objective of the theme plan:- The special objectives of the theme plan are :-

1. Identification of the threat perceptions faced by the sanctuary, their cause and possible remedies.
2. Take suitable measures for the protection of the sanctuary from such threat perceptions.
3. To involve the local people in the protection and management of the sanctuary.

1.7.3 Strategies to be adopted:-

The methods to be adopted in order to achieve the objectives are as follows:

(a) Survey and Mapping:-

It goes without saying the presence of survey sheets and maps are vital to for the management and protection of the sanctuary. The lack of proper survey and mapping has lead to mismanagement of the sanctuary in the past. In light of the above, it is very imperative that a proper and detailed survey is conducted for the main purpose of demarcation and fixing the boundary and limits of the Wild life Sanctuary. This has become more important after the final declaration of the area as a Wild Life sanctuary and the application of the provisions of the Wild Life (Protection) Act, 1972.

For the survey, the main strategy would be :

- The earlier works carried out by revenue department and other agencies would be referred. Involvement of institutes like Forest Survey of India, Wildlife Institute of India in carrying out scientific survey in the sanctuary shall be promoted.
- As the staff of the sanctuary has negligible knowledge and skills regarding survey works, the service of services of staff from the revenue department, retired patwari / kanugos, and experts may be requisitioned.
- The staff of the sanctuary would also be trained so that they gradually take over the work in future so that any component of the management of the sanctuary does not suffer because of dependence on other agencies.
- The use of modern technologies like GPS and GIS and satellite data like remote sensing data may be employed. Once the survey work is completed, maps would be generated.

The maps should be prepared using modern technology like the GIS software. The good offices of the Town Planning Officers and other agencies that have expertise in the field may be utilized. The maps should be prepared on the same scale so that integrating and interpreting different maps of the same areas is not troublesome.

(b) Fencing :-

As the Sanctuary is on private land of 13 Villages, traditional fencing like mudwalls can be promoted. Intensive Cobra, barbed wires, chain link fencing must be discouraged and stakeholder meetings need to be held to frame solutions to remove the fences or modify the fences into animal friendly fences. The complete fencing of the boundary of the villages instead of

individual agricultural fields with the agreement of land owners may be explored to prevent habitat fragmentation.

(c) Intelligence gathering:-

Informers can be used to tackle the problem of poaching. It can be best done with the help of villagers.

(d) Prevention and Prosecution of offenders:-

As the boundary is porous and there are many incidents of illegal activities in the sanctuary, It is important that besides taking preventive measures , the staff also has to keep constant vigil and take appropriate legal action against the offenders. The sanctuary encounters offences especially poaching. It is very important that these offences are kept in check and strict action is taken against the offenders under Wildlife Protection Act, 1972.

(e) Patrolling:-

One of the important aspects of protecting the sanctuary is to keep strict vigil by regularly patrolling the area and also by conducting surprise checks, raids and traps. The patrolling is to be done on land.

- Special Unit, within the staff (existing and upgraded, as and when is happens would be raised for the sole purpose of patrolling the areas)
- There will be two such Patrol Units, one for the night and one for the day time.
- Each patrol unit will consist of a Wild Life Forester, two guards and two laborers. During night patrol 2 policemen would also form part of the party.
- The patrol party would have mobile communication systems either in the form of wireless handset or mobile phones.

- All members of the fields staff would have to serve in the patrol unit for at least twice a week.
- A comprehensive time chart would be prepared containing details of the persons, time and date of patrolling to be done.
- This patrol would be over and above those carried out by the Wild Life Guards who have to control and manage the areas under their jurisdiction.

(f) Protection from stray dogs and Cobra wires:-

Stray dogs are the main problem for the wild animals specially the young fawns which get injured due to bite of these stray dogs. Therefore artificial birth control programme (ABC) for the stray dogs should be implemented with the help of the concerned line departments like animal husbandry, local bodies and also ensuring that a pivot role is played by the district administration to ensure that the respective departments play their role in carry out the activities to which are responsible for stray dog control. Apart from this the stray dogs can be translocated to other places with the coordination of animal husbandry department, district administration and local panchayats. The another major threat is deadly cobra wire with bladed edged iron wire mesh on the periphery of agricultural fields that are fixed by the villagers to avoid damages from stray cattle. Though, the department has made serious efforts to persuade people to remove cobra wires, still the fencing of agriculture fields with the barbed wires, chain link fences continues and it also restricts the free movement of black bucks, putting them under stress, besides causing severe and fatal injuries, especially during dog chase incidents. The injured animals are very easily predated upon by dogs. Fencing of the village boundaries and also usage of animal friendly fencing should be explored as

viable options for tackling the threat of dangerous fencing adopted by the people. The local people must be convinced to remove the deadly fences as a first measure and legal action must be taken as a secondary option since the sanctuary is basically a product of the conservation attitude of the people and it would be wrong if legal action is taken as the only measure against the local community to prevent the cobra and barbed wire fencing.

(h) Protection and Improvement of Green Cover:-

The following measures may be adopted, over and above the measures already outlined before.

- Identification of areas in the surrounding villages for plantation of trees having fuel wood and fodder qualities. These areas may be office complexes, school grounds, panchayat lands, link roads, gurudwaras etc.
- Create public awareness to encourage people to protect and manage the plantations so raised and to cause minimum damage to the habitat.

(i) Upgradation of infrastructure:-

One of the important features of protection which often is overlooked is the acquisition/ up gradation of the infrastructure needed for protection works.

Some of the important ones are highlighted below:-

1. Rescue vehicle/ambulance: For use in patrolling and rescue, rehabilitation and transport of injured animals. Patrolling vehicles like motorcycles to forest guards to cover large areas.
2. For better management of the area it is important that the staff are present at their headquarter and the residential provisions need to be looked after. The complex in the headquarters at Abohar has no adequate facilities for the staff, and there is no

residential provisions for the wildlife RO, foresters, guards, peons etc.. Therefore, some other buildings are required in other areas. The following buildings are recommended.

- ✓ Range office and Range Quarters.
- ✓ Wildlife Range/block Officer residence at Abohar.
- ✓ Guard quarter.
- ✓ Inspection huts
- ✓ Up gradation and repair of the existing Interpretation Centre.
- ✓ Rescue and rehabilitation centres for wild animals and sterilization centers for stray dogs and cattle.
- ✓ Renovation of existing checkposts and construction of new checkposts with watch towers. There are already 2 checkposts spread at strategic points around the sanctuary. Three more checkposts one in Mehrana, Rampura and Himmatpura with watchtowers also have to be constructed in the sanctuary area in strategic locations that may be changed as per the field conditions at any given time. Besides this more barriers also need to be set up to monitor movement of people and vehicle on the approach roads which are commonly used by the villagers as well as by the sanctuary.

Table 1.1:- Proposed Locations :

S.N	Village Name	Location	Distance from existing checkposts
1.	Mehrana	Malout-Ganganagar Road at Mehrana	From SittoGunno Checkpost= 5KM From Raipura Checkpost= 16 KM
2.	Rampura	Malout-Ganganagar Road at Rampura	From SittoGunno Checkpost= 6KM From Raipura Checkpost= 17 KM
3.	Himmatpura	Sittogunno-Dabwali Road Village Himmatpura	From SittoGunno Checkpost=5.5 KM From Raipura Checkpost= 16.5 KM

Apart from above, need based changes in location and number of the checkpoint may be done. Necessary equipment like binoculars, range finders, compass, cages, nets, net guns, tranquilizer gun, camera traps and other rescue tools for carrying out survey, monitoring, rescue, research and is required to be purchased to develop a basic management infrastructure.

(h) Rescue and Rehabilitation of injured animals

The staff should rescue the injured wild animals and treat the injured wild animals with the help of the trained staff and veterinary doctors and rehabilitate the animals with the available facilities. The fully recovered animals must be released and rehabilitated in the wild within the sanctuary releasing the animals which have recovered after rescue and treatment. The rescued and infirm animals which are not suited to be released in the wild and requires a secured and safe place for protection should be transported and released in suitable areas like zoos in the state like Ludhiana, Patiala and Chattbir Zoo.

(i) Human resources:-

Staff ,labour availability and utilization is an important component of management. Permanent staff at the level of foresters and guards have to be increased to manage the sanctuary and adjoining areas within the Fazilka District.

Table 1.2 :- Field staff details of Abohar Wildlife Range.

S.No	Name of post	Sanctioned	Working	Proposed	Justification
1	Divisional Forest Officer	1	1	1	-
2	Wild Life Ranger/Deputy	1	0	1	-

	Ranger				
3	Wild Life Foresters	2	1	3	To manage the sanctuary area and wildlife protection activities in Fazilka district
4	Wild Life Guards/Forest Guards	7	7	12	Five more guards are required to permanently guard the check posts.
5	Driver	1	1	2	Solely for rescue and rehabilitation work

As it can be seen from the above table, there is an shortage of field staff in the Ranger/Deputy Ranger and Forester level. The range is managed by a forester and hence presence of Direct Range Officer/Deputy Ranger would definitely enhance the working efficacy in the Range.

(j) Installation of Animal friendly Structural and Mitigation measures

Any non forestry projects like linear infrastructure ie, roads, railways etc passing through sanctuary should ensure that the impacts that it produces on the wildlife and its habitat are minimized to a greater extent by the installation of structural measures like underpasses, animal friendly fencing, over bridges and other mitigation measures as per the recommendations of Wildlife Institute of India, Dehradun in the document “Eco-Friendly measures to mitigate impacts of linear infrastructure on wildlife”. Apart from this the Wildlife Institute of India has recommended structural measures like cattle guards, animal underpasses, speed breakers, cautionary sign boards and animal friendly fencing and crossing points as structural measures to protect the wildlife movement and reduce the impact of development projects in the road widening case of Abohar Sito Gunno Dabwali road in the May 2019.

Figure 1.1:- Animal Crossing Points proposed by W.I.I for linear infrastructure projects for the road widening proposal of PWD(B&R),Abohar sito Gunno Road Project in May 2019

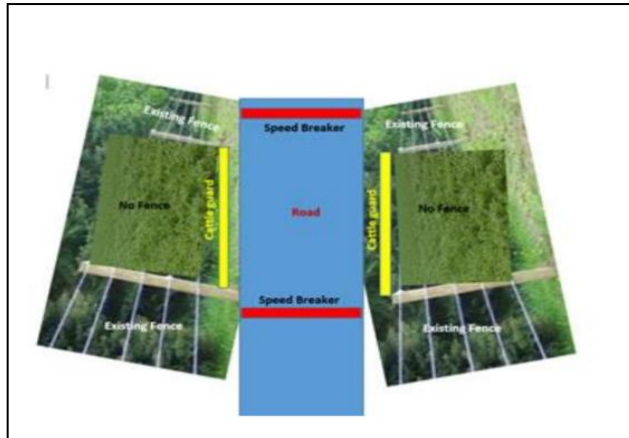


Figure 1.2:- Cattle guards proposed by W.I.I for animal crossing points for the road widening proposal of PWD(B&R),Abohar sito Gunno Road Project in May 2019



Figure 1.3:- Underpasses proposed W.I.I,Dehradun for the road widening proposal of PWD(B&R),Abohar sito Gunno Road Project in May 2019



1.8 Habitat Improvement Theme Plan

1.8.1. General Description:

Abohar is an important wildlife sanctuary. It is on private land. It is an abode for Black Buck which is the state animal and schedule-I mammal. Taking into consideration the above discussed points, it is very important that the natural habitat of blackbucks needs to be maintained and improved so that the rich biological heritage is conserved and preserved.

1.8.2 Special Objective of theme plan :- The special objects of management of this theme plan are:

- i. To improve the habitat for the wild birds and animals residing in the area.
- ii. To identify important feature and areas critical to the habitat and to take appropriate measure for their protection and improvement.
- iii. To prescribe specific measures for habitat improvement.
- iv. To best utilize the resources of the area in a sustainable manner without damaging the habitat.
- v. To involve people in the process of habitat improvement.

1.8.3 Strategies to be adopted:-

(a) Identification of areas for plantation:-

The total area of the sanctuary 46513 acre. The roads and canal sides are available for plantations as they are already declared as protected forests and are under the control of forest division, Muktsar. During the course of management Barani land will have to be reclaimed and made available for plantation in consultation with the people of the villages. Peripheral plantations along the boundary of the private agricultural fields and plantations in village common lands should be carried in consultation with the

local people since the sanctuary. Khejri and other fruit and fodder trees for wild animals which are suitable to this habitat may be planted. Even though Abohar is basically Black Buck sanctuary with private land of 13 Bishnois villages, the presence of trees, forests and woodland is very important in the sanctuary eco-system. It is therefore very important to take up plantation to :-

- Preserve the biodiversity of the area.
- Create ideal habitats for black buck to breed.
- To reclaim barren and problematic areas.
- To check and control over use of pesticides.

(b) Enhanced Breeding Programme:-

Efforts may be carried out to preserve and protect the genetic pool of wildlife especially Blackbucks in the Abohar sanctuary and also to carry out practices like identifying suitable habitat where the species could survive and intermingle with different genetic pool outside Abohar. This can be done by providing environment free of stress which would in turn increase their behavioral competence, enhance reproduction, health and survival. The programme should focus by improving enclosures or closed habitats free of all the threats which would address all their behavioural and physical needs. Breeding programme may also focus on behavior based enrichment, nutrition and integrated veterinary practices. The enhanced breeding programme would reduce pressure on wild stock thereby lessening the chances of extinction. Also methods like successful captive breeding allows the possibility of the species being reintroduced back into the wild.

(c) Reclamation of Barani lands as suitable wildlife habitat:-

The sanctuary is mainly characterised by private agricultural field as a result of development of irrigation canals and facilities in the region. Owing to this reason, the huge landscape consisting of sand dunes and tibbas with grasses have been almost entirely converted and flattened into kinnow orchards and agricultural fields. The future of the blackbucks in this area will be bleak if the remaining tibbas are also converted. So special measures to purchase the areas from local people and then doing habitat improvement works in such areas could be one possible solution to save the wildlife by reclaiming the original habitat of such animals. This is possible only when the local community come forward to sell their lands to the government for creating a suitable habitat with any disturbances for these wild animals. The tibbas are the resting places of Black Bucks but if some of these barani are reclaimed and converted into grass lands it will be an effective habitat for the wild animals to survive. Hence after the identification of suitable habitat ,land acquisition may be done by purchase of lands with the consent of the land owners and developing the areas as ideal habitats for black bucks,

(d) Creation of water holes and ensuring water supply in the holes during summer months:-

- i. Steps should be taken to create awareness among the people to treat the canals, water ponds as a life-line and not to make it a dumping site for waters.
- ii. Water holes would be created at private lands and panchayat lands with the consent of the local community and ensure water supply through water tankers in the holes during summer months

(e) Miscellaneous Activities:-

Besides the above mentioned measures which are treated in detail, the following points should be focused for sensitization since the sanctuary has privately owned fields.

- i. Dead, dry and fallen trees should not be removed as these are ideal habitats for the birds, insects and other organisms.
- ii. Snags, dens nests and other such structures used by the animals and birds should not be disturbed.
- iii. Termite hills, honeycombs etc. should not be destroyed or removed.
- iv. Snags should be maintained at the tibbas where animals like the Black Buck and Nilgai survives.
- v. Animal friendly fencing around individual farm land so as to bring more area under natural habitat for the movement of wild animals. This is possible only when the district administration and police department take strict action against the local community since the area is private land in nature.
- vi. The habitat fragmentation is mainly due to the conversion of the tibbas into agricultural field and orchards. This is a huge threat in the sanctuary and since all rights of the people are allowed except hunting, killing, shooting and capturing any kind of wild birds and animals as per the notification. The wildlife department along with the support of the local community and district administration should device out strategies to discourage the private land owners from converting these tibbas into agricultural fields. The only way forward in the protection of these wildlife habitat is the support of the local community in this task since the sanctuary is of private nature and no activity can be carried out without their support. Land purchase from the local

community by the department to develop secure safe habitat for wildlife is also the way forward to combat habitat degradation and fragmentation.

- vii: The huge menace of stray cattle and stray dogs have to be tackled in a systematic manner and solutions to this menace will only pave way for the removal of fences done by the local community. Stray cattle management and stray dogs management by all the concerned departments and district administration is the need of the hour to save the wildlife.

1.9 Wildlife Health Management Theme Plan

1.9.1 General Description:

Although no big epidemic so far has been reported from this area but management should keep itself ready for any disaster or emergency situation.

1.9.2 Special objects of management

1. To introduce and maintain the wildlife health monitoring protocol and disease surveillance system.
2. To prevent and control the epi zootic diseases to the wild animals
3. To improve wild animal rescue and rehabilitation facilities.

1.9.3 Strategies to be adopted

Presence of stray cattle, stray dogs , lack of expertise and infrastructure, funds ,lack of trained staff, gaps in inter departmental coordination are some of the constraints in adopting these strategies.

- i) Wild animals need protection against contagious diseases transmitted through domestic cattle/dogs. The most important prevention is to immediately drive out stray cattle and dogs from sanctuary. This can be ,made possible only when the district administration, local panchayats

and animal husbandry department take focused measures in the 13 villages of the sanctuary. Since the sanctuary is open in nature, a suitable habitat for the domestic cattle and dogs have to be established since they cannot be released in the same area after capture. Stray dogs play a huge menace and every year wildlife death takes place in large numbers due to stray dogs menace in the villages.

- ii) Measure should be taken to vaccinate all the cattle of all villages. Immunization should be ensured with certificate or tagging of the animals by the department of animal husbandry.
- iii) Help of local animal husbandry department will be taken for immunization, prevention and control.
- iv) All cases of major cattle and poultry diseases etc in adjoining areas will be reported by the animal husbandry department to wildlife department.
- v) General health of wild animals will be regularly monitored with the involvement of animal husbandry department. Staff will be trained in collecting samples and study disease symptoms by taking appropriate training from concerned departmental experts.
- vi) The rescue and rehabilitation facility for treatment of diseased animal needs to be strengthened. Selected staff will be trained in tranquilizing and rescue operations.

1.10 Inter departmental Coordination Theme plan

1.10.1.General Description:

Abohar sanctuary is unique in nature due to the private ownership of the habitat. The area was notified as a sanctuary to protect the blackbucks in its own habitat. A serious issue which the department faces in this sanctuary management is though the

bishnoi community protect the blackbuck and other wild animals from hunting and poaching and coordinate with the department by providing information regarding the illegal activities by offenders, the habitat has been transformed by the same local community into vast agricultural lands and kinnow orchards by flattening the tibbas and fencing the cultivate areas intensively. The problem of stray cattle throughout the area has resulted in fixing up of barbed, cobra wire and chainlink fences in large numbers and the mud walls which were nature friendly are a rarity these days. The stray dogs have also increased in numbers and pose a huge threat to fawns and even adult wild animals when they are vulnerable. Large number of deaths are due to the problem of stray dogs and wild animal injury due to cobra and barbed wire. Though district administration has banned cobra and barbed wire the community still have done intense fencing in the fields and they have requested the district administration to manage the stray cattle menace to make their fields fence free.

The wildlife staff play a huge role in rescuing the injured animals, providing treatment and rehabilitating the injured wild animals with the cooperation of the local people, Large number of awareness camps village wise has been conducted against cobra wires and intense fencing but still the problem is so complex that other department like animal husbandry, district administration and village panchayat should play a huge role in solving these complex issues. So, inter departmental coordination is the need of the hour to save these wild animals in Abohar.

1.10.2 Role of Line Departments in management of the sanctuary:-

Animal Husbandry: The issues like stray cattle and stray dogs are a huge threat to the existence of wild animals in the sanctuary area, The department has been raising this issue with the Animal husbandry department and also with district administration to

fine solutions and coordinate with the wildlife department and tackle the issue of stray dogs and stray cattle which is outside the mandate of this department since the sanctuary being dominated by private agricultural fields and lands.

Revenue Department

Since the sanctuary is undergoing habitat and land use changes to a drastic extent, the wildlife department is hugely dependent on the revenue department to identify lands that can be acquired from private people to develop suitable habitat of the blackbucks in the future since the tibbas and the natural habitat of the wild animals have shrunk to a large extent since the notification of the sanctuary.

Police Department

The wildlife department co-ordinates with the police department for controlling wildlife crimes and also for taking strict action against cobra wire. The district administration has banned the use of cobra wire/barbed wire and has directed the police administration to take strict action against people who use cobra/barbed wires. Also as per the field reports, the people from areas outside the sanctuary tend to illegally transport and unload feral cattle inside the sanctuary as result of which the local community has hugely fenced their private fields to prevent crop damage. The wildlife department requires support from the police department to take action against offenders and also to take strict action against cobra and barbed wires.

Local Government:

The department of local government is responsible to manage the population of stray dogs and stray cattle in the 13 villages which falls inside the sanctuary. The wildlife department requires a lot of support from the local governments and panchayats to tackle the issue.

1.10.3.Objective of the theme plan:

1. To formulate strategic plans to conserve the sanctuary by coordinating with district administration and other line departments like animal husbandry, police department, local government to tackle issues outside the purview of wildlife department like problem of stray cattle and stray dogs.

2. To conduct regular meetings with field staff of other department to frame solutions for cattle and stray dog menace.

3. To promote capacity building of local veterinary doctors to provide treatment for wild animals.

1.10.4 Strategies to be adopted

1. The district administration will be urged to take strict action against people who do fencing that cause damage to wild animals. To persuade the district administration to formulate plan and solutions for the issue of stray dogs and stray cattle by directing the concerned departments to tackle the issue thereby facilitating wildlife conservation.

2. Suitable habitats like barren lands and tibbas that are conducive to accommodate the wild animals like blackbuck and nilgai should be identified with the help of revenue department and land can be purchased from the local people in and around the sanctuary to develop such areas into secured habitats free of stray cattle and stray dogs in coordination with the local panchayats and revenue department.

3. The animal husbandry department and the local government must be seriously urged to tackle the issue of stray dogs and stray cattle under the leadership of district collector so that suitable solutions can be implemented to tackle the threat. Prime focus should be given on these 13 villages to tackle the menace of stray

dogs and stray cattle and to develop infrastructure with the help of the concerned departments to accommodate the animals.

4. The police department will be asked to provide strong support to the wildlife department to act against people using fences harmful to wildlife and also issues like illegal transport of stray cattle from the nearby areas and unloading the animals inside the sanctuary.

5. The animal husbandry department in coordination with the wildlife department should provide training in wildlife health management, rescue, treatment and rehabilitation of wild animals by organizing training and workshops for veterinary officers and doctors.

6. The agriculture department also must be urged to promote organic farming facilities in the wildlife area so that the habitat is protected against threat of stray cattle from areas outside the sanctuary.

7. Department of local government will be involved to spread awareness in the 13 villages regarding various threats like stray cattle, stray dogs and frame solutions to tackle the problems of stray cattle and dogs.

The above said strategies can be effectively implemented when all the departments come together to manage the habitat of this unique wildlife sanctuary.

1.11. Landscape level management theme plan

1.11.1 General Description

This theme plan focuses on future planning for this sanctuary. With tremendous change in land use, irrigation facilities, economic activities, the management and conservation of the blackbuck should be slowly switching to landscape level due to this sanctuary being open in nature. The bishnoi community who are animal friendly in

nature have protected these animals since time immemorial but with the coming generations and changes in economic aspirations the conducive habitat for these animals to coexist with the community has degraded. There is movement of these wild animals outside the sanctuary to nearby districts of Punjab and bordering areas of Rajasthan like Ganganagar and Hanumangarh, also due to a lot of problems like intense fencing, stray dogs, lack of shrub land and tibbas and fence free habitats.

1.11.2 Objectives of the theme plan:

To move towards a holistic approach of management of blackbuck species by doing a detail study on the migratory pattern of the black buck in a landscape level.

1.11.3 Strategies to be adopted:

- ✓ Involving experts and scientists from reputed institutes like Wildlife Institute of India, Dehradun to carry out landscape studies and distribution pattern of the black bucks in the region.
- ✓ To carry out focused migration study and seasonal movements and behavioural studies of the black bucks in the region by wildlife experts.
- ✓ To collect the data and research studies done on the landscape level and gradually shift the focus towards species specific (Black buck) conservation and creation of suitable habitat for the species and management of same since the sanctuary has drastically shifted into a habitat which is difficult for existence of these species due to various problems like intense fencing, stray dogs, stray cattle and flattening of tibbas and conversion of the same into orchards and agricultural fields.
- ✓ Efforts will be made to ensure enhanced monitoring of inter state movement of animals so as to take suitable management measures accordingly.

1.12 Community Engagement Theme Plan

1.12.1 General Description

In today's world of globalization and increased empowerment of the people it would be absurd to keep away people's involvement in the very things which were meant to benefit them. Basically, it envisages conservation of biodiversity by addressing both the inputs of the local people on the protected area and the protected area on the local people.

It is with this observation that the need of giving a separate theme plan was felt so that the issue is addressed head on and the benefits of people involvement are reaped.

1.12.2 Strategies to adopted for community engagement

1. To encourage people participation in management of the sanctuary by carrying out stakeholder workshops to understand and discuss the various issues in the sanctuary and to build solutions by involving the community.
2. To win the confidence of the people in the area so that general interest of the sanctuary is safeguarded by carrying out participatory activities in the community by involving them in the awareness programmes and other conservation related activities.
3. To create certain assets which would be beneficial for the general public as a whole like interpretation center promoting their culture and community, rescue centers ,gaushalas and involve the community and generate labour for the local people.
4. To promote land practices compatible with the objective of biodiversity conservation in the villages by generating awareness and by encouraging volunteers in the community to support the department.

5. To create awareness and a sense of responsibility among the people to not only protect the animals but also the habitat on which the wild animal resides.
6. To urge the community to frame the solutions from ground level for various threats faced by the sanctuary as a whole and promote conservation by encouraging the gram sabha and panchayat heads to take leadership roles to encourage the local people to act against stray dogs and stray cattle and also by helping the concerned departments to tackle the menace.

Since the area under consideration is all private lands community engagement in protecting the habitat of the wild animals will not be possible without the involvement of district administration and other departments which should give a special focus to the people needs in these 13 villages.

1.12.3 Involvement of committees through formation of Management Committees.

For engaging communities in the process of management as per the Section 33B in The Wild Life (Protection) Act, 1972 an advisory Committee is constituted as per following provisions:—

- (1) The State Government shall constitute an Advisory Committee consisting of the Chief Wild Life Warden or his nominee not below the rank of Conservator of Forests as its head and shall include a member of the State Legislature within whose constituency the sanctuary is situated, three representatives of Panchayat Raj Institutions, two representatives of non-governmental organisations and three individuals active in the field of wild life conservation, one representative each from departments dealing with Home and Veterinary matters, Honorary Wild Life Warden, if any, and the officer-in-charge of the sanctuary as Member-Secretary.

- (2) The Committee shall render advice on measures to be taken for better conservation and management of the sanctuary including participation of the people living within and around the sanctuary.
- (3) The Committee shall regulate its own procedure including quorum.]

The procedure for advisory committee is underway and it's soon expected to be notified. Draft for the notification is already prepared and sent to the concerned authorities.

1.13 Eco development Theme Plan

1.13.1 Definition:

The term eco-development is used to describe an integrated, sustainable approach to environment and development. It is defined in the United Nations (1997) Glossary of Environmental Statistics as:

Development at regional and local levels, consistent with the potentials of the area involved, with attention given to the adequate and rational use of natural resources, technological styles and organizational forms that respect the natural ecosystems and local social and cultural patterns.

Eco-development is a strategy for securing support from local communities and other stakeholders for protected areas management. Activities taken up under eco-development should provide a strong linkage between conservation and development; and they may include ecotourism and off-farm activities, as well as providing specific alternatives to local biomass dependencies on protected areas

1.13.2 Micro-planning for purposes of eco-development:

Micro-planning at the village level is the participatory process aimed at an inclusive identification and assessment of potential activities, including ecotourism, for promoting under the eco-development strategy. Such activities need to reflect a balance between conservation measures and income-generating initiatives. Often conservation measures can be realised in ways that also generate income and vice versa. For example, villagers may be hired by the protected area management authority to augment fire control and anti-poaching patrols. The output of micro-planning is a plan, popularly called a 'Micro-Plan', which explains in simple, plain language the physical, biological, socio-economic and cultural context of the village and its surrounds, together with the various activities proposed for addressing the threats to biodiversity and improving local livelihoods. The outcome of micro-planning is likely to be most effective, if those members of a community most dependent on forest resources can be identified through an inclusive, transparent participatory process and prioritised for support in adopting alternative, income-generating activities.

The main stages of micro-planning proposed for purposes of eco-development, in Abohar Wildlife Sanctuary is as follows:

1. Develop a common vision for the protected area (if not already done in a participatory manner as part of the management planning process) among the protected area staff responsible for its management to ensure that a consistent message is delivered to other stakeholders, particularly those subject to eco development.
2. Identify a conceptual model for eco-development within the local, geographic context.

3. Identify and develop the capacity of members of a Facilitation Team that will be responsible for developing micro-plans for individual villages.
4. Develop micro-plans in accordance with established micro-planning principles and practices for each village within a cluster, taking care to focus on identifying dependencies on forest resources and their alleviation through a range of income-generating activities. This stage includes the establishment, reinstatement or re-vitalisation of the Eco-Development Committee (EDC) .
5. Develop a set of agreed strategic interventions, which will provide appropriate levels of resourcing the implementation of priority activities.
6. Identify reciprocal contributions and commitments from village communities and establish mechanisms for sharing the benefits of income-generating activities.
7. Establish a mechanism for prioritising and coordinating village micro-plan activities, including the development of Eco-development Action Plan, at the cluster level.
8. Develop mechanisms for monitoring implementation of village micro-plans and cluster Eco-development Action Plans.

1.13.3 Framework for vision

A simple framework for developing a vision among a representative group of protected area staff (DFO, Range Officers, Foresters, Forest Guards) is as follows:

- Identify the values (natural, cultural and other) of the protected area.
- Identify threats to these values (identified in the preceding step).
- Identify how those threats can be addressed or mitigated.
- Formulate what will have been achieved over the longer term (10 or 20 years is a useful timeframe) to conserve and enhance the values – the vision.

1.13.3.1 Identify a conceptual model for eco-development

It is important to consider the strategic context within which eco-development can be most effectively applied to a given protected area, in terms of prevailing legislation and policies, the existing management plan, and spatial and temporal pressures on the natural resources that result from the local communities. Eco-development activities will need to be prioritised, certainly at the outset when financial resources will be in greatest demand, towards reducing these dependencies in core areas of biodiversity and buffering them by areas in which local communities are able to meet their needs sustainably, in ways that no longer reduce biodiversity.

1.13.3.2 Build a facilitation team

The micro-planning process needs to be facilitated by a team trained in participatory processes and skilled in facilitation techniques. Members of the team should be available to see the entire process through to ensure consistency in approach and, for purposes of building trust, continuity. Dedicated Forest Extension Officers and Village Forest Workers in place to lead the micro-planning process in the villages is required for the participatory process.

1.13.4 Develop village micro-plans

Phase 1: Making contact / breaking the ice with the village community

Phase 2: Reaching out to each hamlet separately

Phase 3: Visioning with the entire village

Phase 4: Village meeting to assess relative ‘wildlife habitat dependency’ and wellness’

Phase 5: Collecting socio-economic information from households

Phase 6: Forming the EDC and electing the Executive Committee

Phase 7: Preparing the micro-plan document with the EDC Executive Committee

The above guidelines and methodologies can be incorporated while carrying out Eco development measures in and around Abohar Sanctuary. These measures are highlighted in bullets below-

- Involvement of Villagers of Abohar wildlife Sanctuary and Community Reserve in management of the Black buck region and corridor
- Ecotourism through creation of villages guides /wildlife guides
- Management of stray cattle menace
- Management of Stray Dogs menace
- Dwindling habitat management of Blackbucks and re creating a suitable habitat in the area with inputs from village community.
- Plantation activities in and around the Blackbuck habitat
- Eco clubs in Schools of Fazilka District for awareness generation
- Involving Local community in Rescue and Rehab of Blackbucks, Neelgai, etc
- Promotion of Organic farming by providing incentives in this Fertilizer and pesticide intensive belt of Abohar region
- Implementation of Entry point Activities inside villages in the Sanctuary area through the EDC.

Chapter-II

Miscellaneous Regulations

2.1 Monitoring and Evaluation

The effects and results of the prescriptions given in the Plan and their implementations, like habitat improvement measures, plantation and other treatments will be monitored and evaluated yearly preferably by a separate unit set up for the purpose. The corrective measures will be taken, if need be, on the basis of the results of the study.

2.2 Research and Development

The Management of the sanctuary depends largely on the data availability i.e data on the problem and threat perceptions, their causes, possible solutions, interrelationship between various biotic & abiotic factors etc. Without having these data, appropriate remedies cannot be prescribed. Not many studies have been carried out on the ecology of the sanctuary.

It is therefore recommended that an integrated approach is adopted where research work treats the sanctuary as an ecological unit and the various factors involved in it.

Some of the possible areas of study are:-

1. The potential of sanctuary ecosystem.
2. Documentation of the biological diversity existing in the area, right from the microbes to mammals, their inventory and establishing the role of the organisms in the ecosystem.
3. The population estimate of fauna by experts.
4. Minimum vegetation area required for providing feeding and breeding for Black Buck.

5. The physiology and dynamics of animal migration within area and also study about the wildlife corridors that are linked with this sanctuary and other protected areas.
6. Land use management in the entire sanctuary area.
7. The role of Eco-development and their impact on the people.

2.3 Maintenance of Records

A details records of each management activity like habitat improvement works, plantation etc. shall be maintained in order to have a solid database for scientific monitoring, evaluation and future planning. The controlling officers should check all these records and documents in their field tours.

The records to be maintained include:-

1. Annual Plan of Operations

The Divisional Forest Officer should prepare annual Plan of operations in advance and works executed according to the approved plan. The plan would be in conjunction with the prescriptions laid down in the Management Plan.

2. Deviation Statement

For several reasons management will have to deviate from the plan strategy. This is due to change in policy, change in expected output, constraints of funds, circumstantial needs etc. All such deviations should be prepared in the form of deviation proposals. All such deviations should be duly sanctioned by sanctioning authorities.

3. Labour details:

The management strategies proposed in this plan will generate many man-days of work. Each activity will be entered under the respective work schedule. Records of all permanent, casual, seasonal, potential and actual generation of employment will be maintained.

4. The control forms

Control forms are essential to monitor the activities undertaken under the plan prescriptions.

5. Use of a pocket field guide for plan implementer.

A pocket guide for the field staff will be prepared containing following information-

- ✓ Location details & detailed map
- ✓ Objectives & Strategies of the plan
- ✓ Implementation tips
- ✓ Monitoring methodology and field observations to be made
- ✓ Concepts of habitat change, their distribution, monitoring etc.

2.4 Publicity and awareness

Even though the sanctuary has gained national recognition, there is still very little awareness among the people, especially those living around the sanctuary. It is very important that the unique features of the sanctuary, its enchanting beauty, its aesthetic, environmental and economic values as well as the threats faced by it are highlighted and widely publicized, so that awareness is created. This can be achieved by:-

- Promoting eco-tourism, as discussed in the next chapter.

- Utilizing the services of local media
 - Publication of information brochures, pamphlets containing all types of information about the area.
 - Setting up of signboards containing vital information at the International Airport at Amritsar, the Railway station and Bus stands in the immediate vicinity of the area as well as in major cities and around the state.
 - Large scale celebration involving public participation on occasions like World Environment Day and wildlife week etc.
 - Utilizing the facilities available at the Interpretation center for educating the local people as well as students and groups visiting the sanctuary.
-

Chapter III

Ecotourism

3.1 Concept of Eco-Tourism

The concept of ecotourism has evolved over the past decade due to an increased awareness of the world's dwindling biological diversity, and as a reaction against mass tourism. The major underlying assumption of successful ecotourism is that visitor can provide the necessary economic incentives to achieve local conservation and development. That is, ecotourism is able to generate revenue, which can be used to protect and conserve the exiting biodiversity and natural environmental that draw visitor to a particular site. Eco tourism's objectives therefore, include visitor education, non-alteration of ecosystems and local economic benefits.

Ecotourism is basically a very specific type of nature based tourism, in which small groups of people are taken to experience various aspects of nature and participate in Wildlife viewing, nature trekking, education tours and so on. Special care is taken to prevent negative impacts of the ecosystems, and tourist education in matter related to the environment is given high priority. The distinguishing feature of ecotourism is that it emphasizes the ecological fragility, carrying capacity and biodiversity conservation of the region, while acting as a liaison between communities and tourism industry.

Abohar wildlife sanctuary due to its unique biodiversity and enchanting beauty has a great potential for ecotourism. As ecotourism needs the involvement of other agencies like the Department of Tourism, huge financial outlay, massive advertisement a which go beyond the physical limits of the sanctuary and beyond the jurisdiction of this Management Plan and also keeping into view the legal issues of working in a notified Wildlife Sanctuary, the larger strategy is left to the government.

However, keeping in view the huge potential of ecotourism in the area, and for the purpose of this Management Plan, the following measures are recommended:

Utilization of existing facilities and new facilities (created for management purpose) to facilities visitors as well. These features may include:-

1. Nature trails over the Tibbas as well as barani land.
2. Bicycling routes for animal lovers through villages.
3. Development of visitor education facilities. This includes enhancement and up gradation of the Interpretation Centre existing in the office complex at Abohar.
 - Setting up of museum exhibits, audio-visuals nature shop having books, souvenirs, local handicraft etc. at the Interpretation centre.
 - Utilization of check-post as kiosks for making available information brochures, books, guides etc.

3.2 Constraints

- 1) No previous activities of eco tourism
- 2) Remote wildlife sightings
- 3) Vegetation cover is not very attractive for people.
- 4) Lack of funding and Infrastructure.
- 5) Private ownership of land.

3.3 The Strategies

New infrastructure and various facilities can be developed in different villages. A separate nature trail can be developed on which visitors will be allowed. The different villages can be earmarked for the development and promotion of ecotourism in the Abohar WLS.

3.3.1 Identification of villages

The tourism zone in the Sanctuary will be covering/passing through all the villages.

3.3.2 Development of Infrastructure/Eco tourism facilities

After the creation/development of infrastructure, habitat improvement and renovation of existing important structure for tourism as per the existing policies and guidelines, the eco tourism activities can be started.

The existing interpretation center in the range complex has to be upgraded with various audio visual models. Camps of school students can be allowed with prior permission from competent authority. Various theme based photo-galleries can be created viz. Animal, Plants, type of Forest, Impact of anthropogenic activities/ population over forests, wildlife and environment etc.

3.3.3 Strategies for the promotion of conservation education

Conservation education is the process of educating people for conservation of flora, fauna, environment and ecology. Conservation education for Abohar WLS will be achieved through eco-tourism. eco-development and interpretation activities besides involvement of schools, villagers and celebration of various events.

The following strategies can be adopted:-

1. Display of wild life related movies in nearby schools on a particular day/date after coordination with school authorities. Film shows can be organized in villages after Panchayat meeting to involve the villagers.
2. Conducting tours and visits of students and teachers to wild life areas in the state like Chhatbir Zoo, Deer Park, Patiala.
3. Organizing work shops, various competitions, bird watching etc. for schools, colleges city/village residents, other department to sensitive them towards the wildlife and conservation.

4. Involvement of volunteer students, activating eco-clubs in schools, creating youth rakshaks from villages and training them in rescue operations or post rescue care activities.
5. People from villages, students, youth may be involved in landscaping, and can serve as a great help to WLS staff in various activities like participation in conservation efforts.
6. Local people can be promoted to open shops for traditional clothes, food etc to attract visitor outside the WLS area.
7. Distribution of pamphlets, stickers, caps, photographs etc in the schools and to the visitors.
8. Promotion of Home stays and eco huts in the village areas for accommodation of tourists thereby promoting revenue generation for local villagers.
9. Training of local villagers as tour guides and generating employment opportunities for them.

3.4 Regulations. Monitoring and Evaluation

Regulation and monitoring will be done as follows:-

1. Guidelines to be followed in tourism zone will be published and displayed at all locations/ important points to generate awareness. Guidelines will be given to all visitors while allowing the entry.
2. All the relevant rules and regulations will be obeyed within the WLS area.
3. No visitor will be allowed during night time except prior permission from competent authority for night camping/patrolling with staff.
4. Local people participation in conservations efforts as guides, shopkeepers, upkeep of WLS etc. will be a significant focus.

Chapter IV

RESEARCH, MONITORING AND TRAINING

4.1 Introduction

There is no history of specific research and monitoring of the Abohar WLS. Further, it is also well established that research, monitoring and training play very important role in evaluation and better implementation of the management plan.

1. An ecological study can be done to know the existing food chains and food webs and their interrelationship.
2. Inventory of Bird species visiting/ resident of WLS should be made to estimate avian biodiversity of the Abohar WLS.
3. Habitat occupancy maps (HOM) should be prepared to know the habitat and niche of different species and their interrelationships.
4. Study for possibilities of corridor for WL.
5. Study to know the socio-economic and ecological impacts of WLS on villages and vice-versa.
6. Efforts will be made through FSI/IIRS to prepare digital map/digitization of map.
7. Providing opportunities for research and monitoring.

4.2 Monitoring

Indicators for various discipline viz biological, ecological, socio-economical will be prepared separately to know the impacts.

1. Protocols for monitoring will be developed for all level of staff.

2. Monitoring will be done to study the improvement in vegetation cover, increase in the number of animal or birds etc.
3. Monitoring methods will be prepared to study the impact of water management, creation of water holes/water body.

4.3 Training

Training of all field level staff viz. watcher, forest guard, forester, Deputy Ranger/RFO, Dy. DFO, DFO, about laws, eco tourism, management communication , survey techniques, population estimate techniques, regular monitoring techniques, rescue operations etc.

1. Training of EDC members/ villagers for tourist guide, entry point activities, running of souvenir shop etc.
2. Coordination with various training institutes such as WII, ICFRE, FRI, SFS, IGNFA Dehradun ; PAU Ludhiana; Punjabi University, Patiala etc.
3. Establishing a permanent learning centre for knowledge dissemination.

4.3.1 On the job training

(A) Application of laws and regulations:-

- Various training courses will be organized for all level of staff for application of laws, various related acts to promote the protection and conservation of willdife in the area.
- Training for rules and regulations and procedures to be adopted will be organized for filing of cases, court procedure including procedure for investigation, collection of evidences etc.

(B) Post mortem and wild life health care matters

- Training will be provided to field staff about essentials of post mortem, collection & preservation of samples and their dispatch to laboratory.
- Training will be organized to provide knowledge to the staff about common disease of animals, animal health indicators on regular basis.
- Training for the staff will be organized for improving proficiency in identification of wildlife signs and their interpretation on a regular basis.
- Participatory management training and social, communication skills and public dealing will be given to the staff to work in harmony with the community.

4.3.2 Formal training courses

- Formal training courses may be organized or staff may be allowed to join these courses to upgrade their skills, better scientific management in various disciplines like conservation, GIS and computer applications, law and procedures, ecotourism etc.
- Support from various institutes like WII Dehradun, Police department etc. may be taken to train the staff in field research techniques, weapon handling and maintenance etc.

CHAPTER V

ORGANISATION AND ADMINISTRATION

5.1 Structure and Responsibilities

Structure:- For better management following staff strength is prescribed for Abohar WLS.

- A Divisional Forest Officer (WL) at the Division level to supervise the division.
- A permanent post of Range Officer (Wildlife) to subordinate the DFO and carry out the work of the division. He will be the incharge for vigilance and flying squad.
- A permanent post of Range Forest Officer who will be the in charge of the WLS and will carry out execution of works.
- 2 Foresters will help the RFO in the execution of works, protection, court cases.
- 5 Forest guards will be appointed as incharge of 5 beats after the division of beats for better management and protection. One forest guard will look after the nature interpretation center and related activities and two forest guards per checkpost should be made available as per the field requirements.
- Staff to manage the rescue centres that are to be constructed in the future to manage the rescued animals.
- Daily Wages/ Watchers will be employed as per requirement.
- One computer technician at division level is required to maintain all records, GIS data etc.
- One social facilitator will be appointed for the establishing relations with local people framing eco-development activities and arranging meeting with wildlife functionaries.

- One Veterinary officer will be appointed to deal with postmortem, rescues operations, animal health etc and one trained medical assistant to assist the doctor.

5.2 Staff Amenities.

The Abohar WLS does not have adequate infrastructure for staff. The availability of housing and other facility will enable the staff to perform their duties more efficiently.

A) Amenities, Infrastructure, Uniform, Weapon and communication

- Each staff should be provided a house/ rental accommodation near to the WLS area.
- Transport facilities up to Forest Guard should be provided for effective execution of work and patrolling bike to Forest Guard/ Foresters and bicycle to watcher/Daily wager must be given.
- A four wheeler vehicle like pickup trucks or rescue vehicles should be made available at Wildlife Sanctuary to meet any emergency/ rescue or would serve as an ambulance etc.
- Check posts will be renovated and new check posts will constructed in strategic ;locations as prescribed earlier.
- Facilities like safe drinking water, furniture,electricity must be provided for the field staff should be made available.
- Uniforms along with field equipments viz binoculars, measuring tape, compass, range finder etc, field books,tranquilizers warm clothing in winters must be provided.
- Each staff will be provided PDA (Personal Digital Assistant) for field duties.
- All the staff must be given the uniform, arms and training to use arms .Necessary amendments in the relevant Acts may be sought through competent authorities.

(B) Incentive and Rewards

- A special pay must be given to all the field staff for encouraging the staff. The provisions of Government of India for special pay must be explored and implemented.
- Rewards/ incentive or commendation certificate should be given to the staff for meritorious work done to motivate the staff. The DFO (WL) may give citation/certificate to the meritorious staff.
- The provisions for incentives and awards at central government level should be explored and applied as per procedure for officials and non officials.
- A corpus fund can be created for the welfare of WLS by the WLS authorities or the families of staff working in Sanctuary. This corpus fund may be used as welfare fund or to run the Souvenir shop.

CHAPTER VI

CLIMATE CHANGE

6.1 Climate change in Punjab

Punjab is located in the North Western region of India and is bounded on the West by Pakistan, on the North by the state of Jammu & Kashmir, on the North East by Himachal Pradesh and on the South by Haryana and Rajasthan. The state is subdivided into three parts namely Malwa, Majha and Doaba. Malwa region covers major part of the state and comprises of cities like Ludhiana, Patiala, Sangrur, Bathinda and Mohali. The main districts of the Majha region include Amritsar, Gurdaspur and Tarn Taran. Doaba is one of the most fertile regions in the state and was the centre of the Green Revolution in India. This region includes the cities such as Jalandhar, Kapurthala, Hoshiarpur, Nawanshahr and Phagwara.

The state is an exquisite land with lush green fields, has monuments and religious sites of historic significance, and enchanting scenic areas of natural beauty particularly in Shivaliks. As of 2011, Punjab has 22 districts and a population of 27.7 million. More than 62% of the population lives in rural areas. Though the share of agriculture in the total GDP of the state is lowest (23.5% in 2010-11), the state remains predominantly agrarian. The current challenges with respect to climate change in Punjab are as under:

Water and agriculture: Punjab has been the top food producer in the country for a very long time. In order to maximize grain productivity vast areas have been put under intensified rice and wheat cropping system. These have become synonymous with excess use of chemical fertilizers, over extraction of ground water, and burning of crop

residue to quickly get the field cleared for the next seasonal crop. However, over a period of time, these practices have caused soil and water degradation leading to saturation in agricultural productivity and hence drop in agricultural incomes. Further indigenous biodiversity of crops that are climate resilient are less and less being grown.

The government is striving to overcome these challenges by putting in place various policies and acts. For example it is successfully implementing the Punjab Preservation of Subsoil Water Act, 2009, that encourages paddy planting in consonance with onset of monsoon thus avoiding extraction of ground water if planted earlier.

Forests: To extend area under forests as per the draft Forest policy is a challenge for the state because of limited land availability. It is trying to reach the target by planting more and more trees outside the forests. As a result the total tree cover in the state has increased by 100 square km between the period 2007 and 2009. However, there are indications of increase in open forest cover, reflecting that the forests are degrading. High levels of disturbance index in the Shivaliks hills have been noted through assessments carried out in 2001 and 2008 indicating fragmentation of forests.

Ecosystem and Biodiversity: Biodiversity of forest species, crops and that of wetlands in the state are threatened largely by pressures of development. Many species of flora and fauna within and outside forests in Punjab are in different threat categories as per IUCN or are lost. Punjab is also facing some kind of natural threat leading to reduction in distribution and spread of its state tree – *Dalbergia sissoo* (Tahli). Besides the pressures of development, the other drivers include invasion of exotic species such as Lantana and neglect of native forest species due to extensive plantation of poplar and Eucalyptus, grazing pressures, forest fires and over exploitation of forest resources. Wetland biodiversity are threatened by over diversion of water, pollution,

encroachment, invasion of exotic weeds, soil erosion and wetland reclamation and due to silting and sedimentation.

Establishment of Protected Area (PA) Networks, Wildlife Sanctuaries and Community Reserves, Biodiversity Management Committees (BMCs) and Technical Supporting Groups (TSGs), preparation of People Biodiversity Register, Declaration of biodiversity heritage sites, Crop diversification activities, Soil and Water Conservation, and Wetland Conservation are some of the ongoing activities of the state that are towards addressing the mentioned challenges.

Urban Habitats: Urban Habitats are essentially a function of the people living in them and the facilities built to sustain the same through appropriate urban planning. The planning is made in such a way so as not to degrade the environment and to withstand the vagaries of climate. The urban population in Punjab is concentrated in its 4 main cities, namely in Ludhiana, Amritsar, Patiala and Jalandhar, with high rates of rural –urban migration. City amenities though being upgraded continuously, are not adequate vis a vis housing, waste disposal, water supply and sanitation coverage especially in the slums and peri urban areas. Poor water and air quality is prevalent due to industrial activities. Further, the roads and parking spaces are not enough for the ever increasing passenger vehicles .

Energy: The gap in energy supply and demand has been brought down significantly as the Transmission and distribution losses of electricity have gone down from 30.82% during 1999-2000 to 20.12% during 2010-11. However, increasing energy demand and inefficient energy use in industries especially in SMEs and for pumping water in the agriculture sector are some of the causes that continue to create deficit of electricity especially during peak demand periods. The CEA estimates indicate that the deficits in peak electricity demand in Punjab can be as high as 14%.

Energy conservation, improvement in energy efficiency and impetus to renewable energy development are some of the policies being promoted by the government.

6.2 Management prescriptions and Climate Change:

The management plan of the abohar wildlife sanctuary focuses on aligning the management prescriptions to either adapt or mitigate the various impacts of climate change. The management activities should be aligned towards the following objectives that combat climate change and promotes planning for climate change adaptation and mitigation.

- 1. Building on the existing knowledge to further develop deeper understanding about the key climate change issues, processes and the anthropogenic drivers.*
- 2. Creating Climate Change Information Bank and Strengthening Knowledge Network.*
- 3. Documentation and dissemination of strategic Climate Change knowledge.*
- 4. Undertaking/promoting Research and Development of new and innovative Climate friendly technologies in collaboration with research institutes and universities.*
- 5. Technology identification and pilot scale demonstration & extension.*
- 6. Capacity building of various stakeholders and institutions.*
- 7. Development of target specific resource material including educational multi-media CDs and video films.*
- 8. Managing and interpreting data and information and to address Intellectual Property Rights Issues.*
- 9. Undertake climate change related vulnerability and risk assessment.*

10. Developing knowledge networks among the existing knowledge institutions engaged in research and development relating to climate science and facilitate data sharing and exchange.

11. Complementing the efforts under other national missions, strengthen indigenous capacity for the development of appropriate technologies for responding to climate change through adaptation and mitigation and promote their utilization by the Government and societies for sustainable growth of economies.

The strategies that are proposed in the management plan to improve the habitat, promotion of organic farming, development of grasslands, eco-tourism, research, monitoring, combating poaching, livelihood generation, plantation etc. Are closely aligned with the adaptation and mitigation strategies against impact of climate change and are aligned with 8 missions of National Action Plan on Climate Change and state mission.

Missions	National Objective	State Objectives and Targets
Water Mission	Water conservation and river basin management	The state aims to undertake an integrated approach for conservation and management of its water resources, improve water use efficiency, control water pollution, minimize wastage and ensure equitable distribution of water across the state by addressing the impacts of climate change on water resources.
Sustainable Agriculture Mission	Develop agriculture plans at agro-climatic zone level, Link research with practice to maximize productivity, Encourage innovation, Promote dry land agriculture, Risk Management through insurance, enhance livelihood opportunities, seek convergence with other missions	Usher in 2 nd green revolution through sustainable management of agricultural practice, and hence ensure food security in a changing climate scenario. Approach to include crop diversification, efficient resource utilization, appropriate use of technologies and inputs from new research. Promote power generation from agricultural residue.
Green India Mission	20 million ha area to be	Increase green cover in the state to 15% of the area of the state by 2022, enhance plantation

	afforested/ eco-restored by 2020.	in degraded forests and increase the incomes generated from ecosystem services provided by the forests.
Sustainable Himalayan Mission	Conservation, adaptation, glacier monitoring	Conserve flora, fauna, wetlands, along with agriculture and forest biodiversity to sustain the Shivalik Ecosystem.
Sustainable Habitats Mission	Efficient buildings, transport system and Solid Waste Management	The state aims to develop policies and strategies that enable the habitats to adapt to climate change concerns. Identify and implement strategies in urban areas to reduce enhanced heat island effect and sustainably manage municipal solid waste and transport.
Solar Mission	20,000 MW by 2022	Increase the solar energy mix by at least 2000 MW by 2022.
Mission on Enhanced Energy Efficiency	10,000 MW savings by 2012	To achieve 3-7% energy efficiency improvement in large energy consumers designated by BEE and 15-20% in SME sector.
Mission on Strategic Knowledge	Vulnerability assessment, Research and Data management, knowledge sharing	The Punjab Mission on Strategic Knowledge aims to build a greater understanding of the climate change processes, its implications on various sectors, and vulnerabilities associated with the same to enable it to sustainably adapt to climate change and mitigate drivers of climate change.

Chapter-VII

The Plan Budget

7.1 The Plan Budget

The plan budget refers to the budget required to operate the management plan strategies irrespective of classification of funds. As funding is the main running force for the implementation of a plan. The budget is always a constraint for the management of the Abohar WLS. Presently no separate fund is available exclusively for the sanctuary which is the main hurdle to undertake development work and only those funds which are allotted according to the annual plan of operation sanctioned under CAMPA scheme for wildlife related activities and funds allotted through state scheme FT-14 are utilized for meeting the basic urgent requirements for management,

1. *For proper funding various schemes of Government of India, State government, International agencies must be explored.*
2. *Funds can also be sought through research projects from Department of science and technology, environment.*
3. *All the developmental schemes must be linked with eco-development. A special component must be allocated to the eco-development of villages at the periphery of the WLS.*
4. *Uniforms, shoes, equipment etc. should be purchased through collaboration with NGOs and other agencies.*
5. *A WLS welfare society can be formed to secure the funding through various agencies.*

6. *Funding can be explored through CSR activities from the private organisations and other profit making agencies, business entities.*
7. *Funds from mitigation plans if developed for particular projects for eg any road widening cases or forest area diversion area cases in sanctuary jurisdiction.*

7.2 Budget allocated and spent for the past ten years:

The budget allocated and spent for the past ten years since 2008-2009 to 2018-2019 and is attached as **Annexure-I**.

7.3 Planning of activities

The Financial forecasts for the plan period 2019-2020 to 2028-29 has been given in **Annexure-II**.

Punjab Forestry Watershed Development Project	0.40	0.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Plan scheme Ft.21 Development of wild life in the state	-	-	-	-	-	-	1.00	1.00	3.44	3.44	-	-	5.34	5.34	3.37	3.37	4.36	4.36	5.68	5.68		
Punjab Compensatory Afforestation Fund Management and Planning Authority (CAMPA PROJECT)	-	-	-	-	-	-	-	-	-	-	0.80	0.80	10.49	10.49	2.71	2.71	1.66	1.66	9.71	9.71		
Total	11.84	11.84	0.92	0.92	0	0	6.93	6.93	4.09	4.09	0.8	0.8	15.99	15.99	12.47	12.47	7.51	7.51	16.6	16.6		

Annexure-II

Abohar Wildlife Sanctuary- Financial Forecast for the next ten years

Description of works	Proposed details	Tentative Year wise phasing of the financial forecast (in Lakhs)										Grand Total (in lakhs)
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
1.Management Plan	The WLS requires a comprehensive management plan, to carry out any approved technical intervention	-	-	-	2	-	-	-	-	-	-	2
Total of 1		-	0	0	0	2	0	0	0	0	0	
2.Survey & Demarcation												0
Survey of the Sanctuary	To carry out survey works in the sanctuary	1	1	1	1	1	1	1	1	1	1	10
Total of 2		1	1	1	1	1	1	1	1	1	1	10
3.Infrastructure & communication improvement												0
Buildings												0
	Range office (1 No.)	25	-	-	-	-	-	-	-	-	-	25
	Range officer Residence(1 no.)	-	-	-	-	20	-	-	-	-	-	20
	Wild life guard residence(4 nos.)	-	-	30	-	-	30	-	-	-	-	60
	store room(1 no.)	-	-	5	-	-	-	-	-	-	-	5
	Construction of Inspection hut(1 no.)		30									30
	class four residence(1 no.)	-	-	7	-	-	-	-	7	-	-	14
Check Posts	Creation of new check posts with watch towers(3 nos.)		2	-	-	2	-	-	2		-	6

Description of works	Proposed details	Tentative Year wise phasing of the financial forecast (in Lakhs)										Grand Total (in lakhs)
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
	Generation of database in GIS domain, software, exercises, documentation	2	1	1	1	1	1	1	1	1	1	11
In house training	Holding regular workshops by senior and already trained officers for other staff. Training in areas such as conducting wildlife census, survey, population estimate identification of avian fauna etc could be arranged using already available departmental expertise	2	2	2	2	2	2	2	2	2	2	20
External training	Suitable organizations such as WII, BNHS, and other resource persons should be requested for imparting training in areas such as estimating habitat quality, monitoring of introduced species, behavioral ecology of wild ungulates etc	2	2	2	2	2	2	2	2	2	2	20
Total of 7		17	16	16	16	16	16	16	16	16	16	161
8. Other Recurring expenditure												

Description of works	Proposed details	Tentative Year wise phasing of the financial forecast (in Lakhs)										Grand Total (in lakhs)
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Repair and Maintenance of Infrastructure	Repair and Maintenance of range complex	2	2	2	2	2	2	2	2	2	2	20
Check post	-do-	1	-	-	1	-	-	1	-	-	1	4
Patrolling kit	-do-		-	0.5	-	0.4	-	0.5	-	0.5	0.6	2.5
Nature Interpretation Centre Building	-do-	1	1	0.5	0.5	0.6	0.6	0.8	0.8	1	1	7.8
Electronic items	-do-	-	-	0.2	0.2	0.4	0.4	0.6	0.6	0.8	0.8	4
Staff Amenities	Awards/ incentives	1	1	1	1	1	1	1	1	1	1	10
Rescue vehicles	Repair & maintenance	3	3	3	3	3	3	3	3	3	3	30
Total of 8		8	7	7.2	7.7	7.4	7	8.9	7.4	8.3	9.4	78.3
Grand total		199.10	135.30	138.50	90.00	128.70	135.30	90.70	97.20	88.10	94.20	1202.30

Note:Salaries and other office related expenditure are excluded and above financial forecast can vary while planning for operations every year based on the field conditions and requirements during management.

ANNEXURE III

1. The Detail of census conducted in Year 1994

S. No.	Name of Village	Black Buck				Neel Gai				Stray Dogs	Stray Cattles
		Male	Female	Juvenile	Total	Male	Female	Juvenile	Total		
1.	Rajanwali	44	83	60	187	4	3	1	8	34	14
2.	Dotarnwali	44	110	27	181	16	5	7	28	38	14
3.	Sardarapur	19	39	-	58	-	-	-	-	8	4
4.	Wazidpura	9	54	6	69	-	-	-	-	17	14
5.	Himmatpura	8	51	1	60	1	1	-	2	9	8
6.	Raipura	43	27	21	191	1	2	1	4	30	25
7.	Rampura	18	21	2	41	2	2	-	4	6	6
8.	Sitaguno	66	219	44	329	-	4	-	4	22	6
9.	Mehrana	52	166	36	254	-	-	-	-	33	16
10.	Narainpura	10	10	-	20	-	-	-	-	1	-
11.	Sukhchain	8	11	3	22	-	-	-	-	4	-
12.	Khairpur	109	286	36	431	-	-	-	-	8	-
13.	Bishanpura	169	335	131	635	9	11	6	26	64	25
14.	Haripura	125	104	96	325	11	24	6	41	47	16
15.	Panniwala	176	253	146	575	36	26	10	72	40	23
16.	Gumjal	103	134	34	271	-	-	-	-	21	-
	Total	1003	2003	643	3649	80	78	31	189	382	171

2. The Detail of census conducted at Abohar Wildlife Sanctuary and Abohar Community Reserve area dt. 02-03-2011

S. N.	Village Name	Black Buck				Blue Bull (Rojh)				Peacock			
		Male	Female	Fawn	Total	Male	Female	Fawn	Total	Male	Female	Fawn	Total
1.	Raipura	203	263	40	506	260	456	60	776	04	06	0	10
2.	Sardarpura	180	220	32	432	210	252	35	497	0	0	0	0
3.	Rajanwali	57	194	16	267	135	109	17	261	02	03	0	05
4.	Dutaranwali	152	113	12	277	157	149	23	329	15	0	0	15
5.	Khairpur	178	186	04	368	187	229	143	559	02	05	0	07
6.	Sukhchain	130	104	02	236	267	208	109	584	0	0	0	0
7.	Mehrana	268	264	119	651	382	240	110	732	04	08	0	12
8.	SittoGunno	209	252	67	528	300	385	149	834	05	08	0	13
9.	Himmatpura	86	94	16	196	35	137	74	246	03	06	0	09
10.	Bajidpur Bhoma	70	200	18	288	105	144	45	294	0	0	0	0
11.	Bishanpura	191	72	16	279	73	37	12	122	04	8	0	12
12.	Rampura	28	75	12	115	52	44	15	111	05	11	0	16
13.	Narainpura	60	83	14	157	104	96	12	212	12	10	0	22
14.	Haripura	10	45	07	62	14	30	06	50	03	04	0	07
15.	DiwanKhera	04	09	0	13	32	40	08	80	0	0	0	0
16.	Gumjal	65	180	27	272	55	110	24	189	0	0	0	0
17.	Panniwala	24	45	12	81	45	70	20	135	0	0	0	0
	TOTAL	1915	2399	414	4728	2413	2736	862	6011	59	69	0	128

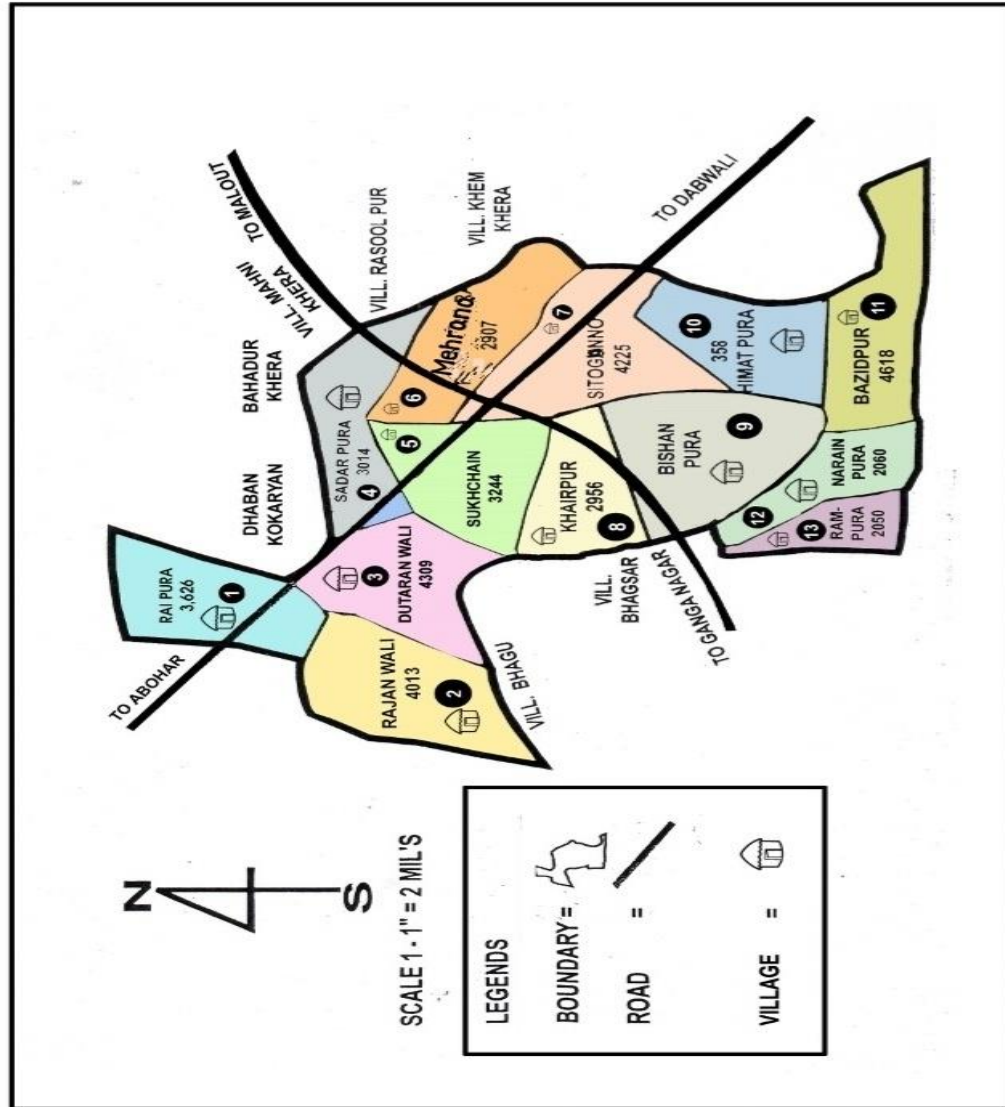
PART-III

MAPS AND APPENDICES

MAP 1

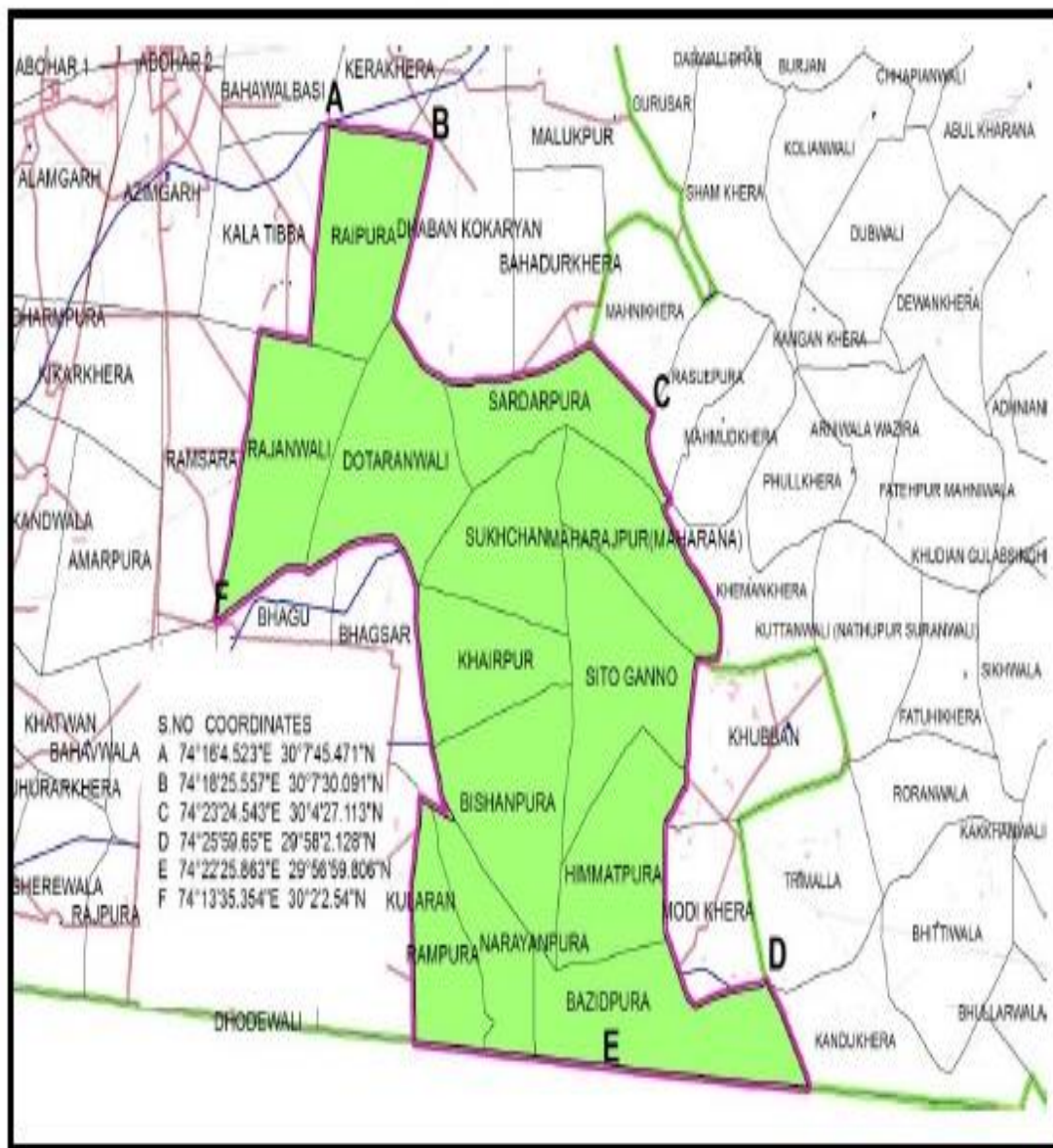
ABOHAR WILDLIFE SANCTUARY

WILDLIFE SANCTUARY ABOHAR



MAP 2

MAP SHOWING ECO-SENSITIVE ZONE (ESZ) OF ABOHAR WILDLIFE SANCTUARY, PUNJAB



APPENDIX-1

LIST OF VILLAGES IN SANCTUARY WITH AREA

Sr.No.	Name of Village	Area (In Acres)
1	Raipura	3626
2	Rajanwali	4013
3	Dutranwali	4309
4	Sardarpura	3014
5	Khairpur	2956
6	Sukhchain	3244
7	SitoGunno	4225
8	Mehrana	2907
9	Himmatpura	5381
10	Bazidpur Bhoma	4618
11	Rampura	2050
12	Narianpura	2066
13	Bishanpura	4104

APPENDIX-2

DETAILS OF CHECK POSTS AND WATER PONDS

Sr. No.	Name of Village	Check Posts	Water Ponds
1	Raipura	1/1	-
2	Rajanwali	-	1
3	Dutranwali	-	-
4	Sardarpura	-	1
5	Khairpur	-	1
6	Sukhchain	-	-
7	SitoGunno	1/1	1
8	Mehrana	-	1
9	Himmatpura	-	-
10	Bazidpur Bhoma	-	-
11	Rampura	-	-
12	Narianpura	-	-
13	Bishanpura	-	-

APPENDIX-3

DETAILS OF CATTLE OWNED BY VILLAGERS

Census 2012			
Sr. No.	Name of Village	Cows	Buffaloes
1.	Raipura	1715	1265
2.	Rajanwali	992	873
3.	Dutaranwali	1312	1014
4.	Sardarpura	1214	1129
5.	Khairpur	477	285
6.	Sukhchain	633	723
7.	Bishanpura	401	504
8.	Sittogunno	932	671
9.	Mehrana	668	506
10.	Himmatpura	597	584
11.	Bajidpur Bhoma	2217	1393
12.	Rampura	948	658
13.	Narainpura	806	632
Total		12912	10237

APPENDIX-4

VILLAGES IN 10 KM RADIUS

Sr. No	Sanctuary area's village	Villages in 10 Km Radius
1	Raipura	Chackar, Kala Tibba, Ramsara, Kera Khair, Balluana
2	Rajanwali	Bhagu Bhagsar, Kular, Bhaw Wala, Amarpura
3	Dutranwali	Dhaba Kokarian, Bahawal Bassi, Malookpur
4	Sardarpura	Bhadur Khera, Mahanikhera, Jodhpur
5	Khairpur	Doda, Kular
6	Sukhchain	Bhaikhera, Rasulpur Khera
7	Mehrana	Khema Khera, Khuban, Fullu Khera
8	SitoGunno	Modhi, Chak Gadhe Wala, Ranjitpura
9	Bishanpura	Rajpura, Dode Wala
10	Himmatpura	Kandhu Khera, Tarmala
		Villages Near Rajasthan
11	Rampura	Dhingtania, Kishanpura, Inderpura
12	Narianpura	Rasuana, Nukera, Kishanpura, Dingarh
13	Bazidpur Bhoma	Malagampura, Santpura, Dholnagar, Bhakhra Wali, Haripura

APPENDIX-5

According to Census 2011					
Sr. No	Name of Village	Hadbast No.	Total Population	Agriculture	Non Agriculture
1.	Raipura	112	3896	277	770
2.	Rajanwali	64	3434	352	224
3.	Dutaranwali	65	3118	890	419
4.	Sardarpura	62	3310	256	279
5.	Khairpur	68	1477	399	213
6.	Sukhchain	66	3020	240	195
7.	Bishanpura	69	2465	803	466
8.	Sittogunno	41	4943	347	733
9.	Mehrana	42	2765	573	258
10.	Himmatpura	40	2977	859	598
11.	Bajidpur Bhoma	21	4137	652	177
12.	Rampura	112	2541	278	195
13.	Narainpura	70	2993	428	311

APPENDIX-6

Human Population Detail of Abohar Wildlife Sanctuary

Population in Abohar Wildlife Sanctuary (Census 2011)							
Sr. No	Name of Village	Hadbast No.	Total Population	Male	Female	Children	Family
1.	Raipura	112	3896	2071	1825	518	729
2.	Rajanwali	64	3434	1815	1619	417	632
3.	Dutaranwali	65	3118	1620	1498	396	557
4.	Sardarpura	62	3310	1729	1581	449	632
5.	Khairpur	68	1477	798	679	206	264
6.	Sukhchain	66	3020	1573	1447	402	588
7.	Bishanpura	69	2465	1300	1165	308	478
8.	Sittogunno	41	4943	2608	2335	625	905
9.	Mehrana	42	2765	1449	1316	343	502
10.	Himmatpura	40	2977	1568	1409	361	556
11.	Bajidpur Bhoma	21	4137	2207	1930	421	784
12.	Rampura	112	2541	1340	1201	270	484
13.	Narainpura	70	2993	1575	1418	356	539

APPENDIX 7

LIST OF TREES, SHRUBS AND GRASSES (BOTH INDIGENOUS AND EXOTIC)

ABOHAR WLS, ABOHAR

S.no	Local Name	Botanical Name	Family	Habit
1	2	3	4	5
	TREES			
1	Arjun	<u>Terminalia arjuna</u>	Combretaceae	A large ever green tree
2	Ber, Beri	Zizyphus	Rhamnaceae	A fruit tree
3	Bohar	Ficus benghalensis	Urticaceae	A large sized deciduous tree
4	Bahera	T. belerica	Combretaceae	A large ever green tree
5	Bel	Aegle marmelos	Rutaceae	Evergreen armed tree
6	Dhak, flame	Butea monosprema	leguminosae	A moderate deciduous tree
7	Hins	Capparis sepieria	Urticaceae	A large size deciduous
8	Jand/Khejri	P.cineraria	Leguminosae	Deciduous tree
9	Kikar	Acacia nilotica	"	A moderate to large deciduous thorny tree

10	Kala siris	Albizia lebbeck	Leguminosae	A medium sized deciduous tree
11	Karaunda	Carissa carandas	Apocynaceae	A large size deciduous tree
12	Khajoor	Phoenix dactylifera	Arecaceae	Evergreen tree
13	Lasura	Cordia dichotoma	Boraginaceae	A medium sized tree
14	Mesquite	Prosopis juliflora	Leguminosae	A shrub to middle size thorny tree
15	Mulberry Toot	Morus alba	Urticaceae	A large size deciduous tree
16	Neem	Azadirachta Indica	Meliaceae	A large sized Evergreen tree
17	Phalahi	Acacia nilotica	Leguminosae	A small to middle sized thorny tree
18	Pipal	Ficus religiosa	Urticaceae	A large size deciduous tree
19	Rehru	Acacia leucophloea	Leguminosae	A small size shrub on tree
20	Safeda or Mysore gum	Eucalyptis hybrid or E. tereticornis	Myrtaceae	A large sized Evergreen tree
21	Shisham, Tahli	Dalbergiab sissoo	Leguminosae	A large sized Evergreen tree
22	Simbal	Bombax ceiba	Malvaceae	A medium sized tree

23	Teak, Sagwan	Tactona grandis		A large size deciduous tree
	<i>SHRUBS</i>			
1	Ak	Colotropis procera	Asclepidanae	A shrub
2	Bathu	Chenopodium album	Chenopodiaceae	A annual weed
3	Bhang	Cannabis sativa	Urticaceae	A tall annual weed
4	Kaui	Capparis decidua	Capparidiaceae	A thorny Shrub
5	Karaunda	Capissa spinariun	Apocynaceae	A thorny Shrub
6	Puthkanda	Achyranthes aspera	Amaranthaesae	An erect shrub
7	Mallah	Zizphus Nummularia	Rhamnaceae	A bushy Shrub
8	Giloe	Tinospora malabarica	Manispermaceae	A twining large sized tree
	<i>GRASSES</i>			
1	Anjan	Cenchrus ciliaris	Urticaceae	A perennial grass
2	Dib	Desmostachya bipinnara	-----do-----	-----do-----
3	Khabbal	Cynodon dectylon	-----do-----	-----do-----
4	Kahi	Saccharum spontaneum	-----do-----	-----do-----

APPENDIX-8

CHECK LIST FOR WILD ANIMALS OF ABOHAR WLS, ABOHAR

Sr.No	Common name	Scientific Name
1	Blue bull	<i>Boselaphus tragocamelus</i>
2	Black Buck	<i>Antilope Cervicapra</i>
3	Common Indian Hare	<i>Lepus nigricollis</i>
4	Common Mon goose	<i>Herpestes adwardsi</i>
5	Common house rat	<i>Rattus rattus</i>
6	Common squirrel	<i>Funambulus pennantii</i>
7	Cobra	<i>Naja naja</i>
8	Fruit bat	<i>Rousettus leschenaultia</i>
9	Indian	<i>Hystrix indica</i>
10	Jackal	<i>Canis aureus</i>
11	Jungle Cat	<i>Felis Chaus(Gille tenstaedt)</i>
12	Krait	<i>Bungarus caeruleus</i>
13	Monitor Lizard	<i>Varanus spp.</i>
14	Rhesus Monkey	<i>Macaca mulatta</i>
15	Mammals	<i>Amphlians & Reptites</i>
16	Smaller Indian Civet	<i>Vivestricula indica</i>
17	Viper	<i>Daboi russelii</i>

APPENDIX-9

Check list of Wild birds of Abohar Wild life Sanctuary, Abohar

S.No	Common Name	Scientific Name
1	Pond Heron	<i>Ardeola grayii</i>
2	Cattle Egret	<i>Bulbulcus ibis</i>
3	Black Wings	<i>Elanus careuleus</i>
4	Brahminy Kite	<i>Haliastur Indus</i>
5	Shi-kra	<i>Accipitor badius</i>
6	Scavenger vulture	<i>Neoplron peronopterus</i>
7	Black partridges	<i>Francolinus</i>
8	Grey partridges	<i>Francolinus franwiunes</i>
9	Pea fowl	<i>pavo cristatus</i>
10	Red Wattled lapwing	<i>Venellus leucurus</i>
11	Indian ring dove	<i>Streptopelia decocto</i>
12	Spotted Dove	<i>Streptopelia chirenis</i>
13	Large Indian parakeet	<i>Paittacula egpatria</i>
14	Rose Rimged parakeet	<i>Paittacula krameri</i>
15	Black drango	<i>Dicrures adsimiliss</i>
16	Pied Myna	<i>Strunus contra</i>
17	Bank Myna	<i>Acridotheres ginginianus</i>
18	House crow	<i>Corvus splendens</i>
19	Indian robbin	<i>Corvus corax</i>
20	Red vented Bulbul	<i>Pucnonotus cafe</i>
21	Common babbler	<i>Turdoides cauatus</i>

22	Jungle babbler	<i>Turdoides striatus</i>
23	Magpie robin	<i>Cposychus Saularis</i>
24	Purple sunbrid	<i>Nectarinia asiatica</i>
25	Indian weaver bird	<i>Ploceas phillippinus</i>
26	Red Munia	<i>Estrilda amandava</i>
27	Brahmany Mynah	<i>Strunus pagodarun</i>
28	Tailor Bird	<i>Orthothomous sutorius</i>
29	Koel	<i>Eudyanamy scolopacea scolopacea</i>
30	Hoopoe	<i>Upupa epopus</i>
31	Cockoo	<i>Clamator jacobiana</i>
32	Pariah Kite	<i>Malvus migrana</i>

APPENDIX-10

THE RESPONSIBILITIES OF STAFF

DFO (WL)	-Will be the overall incharge of the Division.DFO will Supervise all the activities and coordinate with higher authorities.
DY. DFO (WL)	-Dy. DFO will be the incharge of vigilance squad. The Dy DFO will supervised all the staff under him and field requirement. The Dy.DFO will coordinate between staff and DFO.
RFO	-will be the incharge of wildlife range and execute all the works within the WLS.
Dy. RFO / Forester	-will act under RFO to help him in execution of Work, protection, investigation and court cases.
Forest Guards	-will be incharge of beats and will be responsible for all the work and protection of beat.
Watchers/DailyWagers	-will be employed on protection/Patrolling duties and other field works under the supervision of Forest Guards.
Computer Technician	-will maintain all the record in computer, GIS data, digital maps etc. in the Division office.
Wireless operator	-Will be the incharge of wireless communication.
Veterinary officer	-will deal with the animal health issues, postmortem of dead animals rescue operations etc.

APPENDIX -11

Schools in Abohar Wildlife Sanctuary.

Sr. No.	Village Name	Govt. Primary School	Govt. High School	Govt. Sr. Sec. School	Govt. Middle School	Private School
1.	Raipura	1	-	-	-	1
2.	Rajanwali	1	-	-	-	2
3.	Dutaranwali	1	-	1	-	1
4.	Sardarpura	1	-	-	1	1
5.	Sukhchain	1	-	-	-	-
6.	Khairpur	1	-	-	-	1
7.	Sittogunno	1	-	1	-	3
8.	Bishanpura	-	-	-	1	-
9.	Mehrana	1	-	-	-	1
10.	Himmatpura	1	1	-	-	2
11.	Rampura	1	-	1	-	1
12.	Narainpura	-	-	-	-	-
13.	Bajidpur Bhoma	1	1	-	-	-

APPENDIX 12

VETERINARY HOSPITAL AND DISPENSARY IN ABOHAR

SANCTUARY

Sr. No.	Name of Village	Veterinary Hospital	Veterinary Dispensary
1.	Raipura	-	-
2.	Rajanwali	-	-
3.	Dutaranwali	01	-
4.	Sardarpura	-	-
5.	Khairpur	-	-
6.	Sukhchain	-	-
7.	Bishanpura	-	-
8.	Sittogunno	01	-
9.	Mehrana	-	-
10.	Himmatpura	-	-
11.	Bajidpur Bhoma	01	-
12.	Rampura	-	01
13.	Narainpura	-	
Total		03	01

Veterinary Hospitals/Dispensary near Abohar Wildlife Sanctuary.

Sr. No.	Name of Village	Veterinary Hospital	Veterinary Dispensary
1.	Bhagu	01	-
2.	Kular	01	-
3.	Khuban	01	-
4.	Malukpura	01	-
Total		04	-

APPENDIX-13

GOVERNMENT OF PUNJAB
DEPARTMENT OF FORESTS AND WILD LIFE PRESERVATION
(FOREST BRANCH)
NOTIFICATION

No. 40/4/98/Ft-IV/11505 Dated Chandigarh 7/9/2000

Whereas Government of Punjab Forest Department Notification No. 40/4/98-Ft-IV/10595 dated 20.8.99, Abohar Wild Life Sanctuary has been declared for the purpose of protecting, propagating and developing Wild Life and its environment for a period of 5 years under sub section 1 of section 18 of the Wild Life (Protection) Act, 1972;

And whereas the area described in the specifications below has been considered by the state Government to be of adequate ecological, faunal, floral, geomorphological, natural and biological significance for the purpose of protecting, propagating and developing wild life and its environment;

Whereas rights of local people in or over land within the limits of Abohar Wild Life Sanctuary except hunting, shooting, killing and capturing of any kinds of wild birds and animals have been allowed under section 24(c) of Wild Life (Protection) Act, 1972 by District Collector Ferozepur in consultation with Chief Wild Life Warden Punjab .

Now, therefore, in exercise of the powers conferred by sub-section (1) of section 26-A of the aforesaid Act, and all other powers enabling him in this behalf, the Governor of Punjab is pleased to specify the limits of the area as described in the specifications below which shall be comprised within the Sanctuary and declare

Thind

19

GOVERNMENT OF PUNJAB
DEPARTMENT OF FORESTS AND WILD LIFE PRESERVATION
(FOREST BRANCH)
NOTIFICATION.

No. 40/4/98/Ft-IV/11505 Dated Chandigarh 7/9/2000

Whereas Government of Punjab Forest Department Notification No. 40/4/98-Ft-IV/10595 dated 20.8.99, Abohar Wild Life Sanctuary has been declared for the purpose of protecting, propagating and developing Wild Life and its environment for a period of 5 years under sub section 1 of section 18 of the Wild Life (Protection) Act, 1972;

And whereas the area described in the specifications below has been considered by the state Government to be of adequate ecological, faunal, floral, geomorphological, natural and biological significance for the purpose of protecting, propagating and developing wild life and its environment;

Whereas rights of local people in or over land within the limits of Abohar Wild Life Sanctuary except hunting, shooting, killing and capturing of any kinds of wild birds and animals have been allowed under section 24(c) of Wild Life (Protection) Act, 1972 by District Collector Ferozepur in consultation with Chief Wild Life Warden Punjab .

Now, therefore, in exercise of the powers conferred by sub-section (I) of section 26-A of the aforesaid Act, and all other powers enabling him in this behalf, the Governor of Punjab is pleased to specify the limits of the area as described in the specifications below which shall be comprised within the Sanctuary and declare

Thind

that the said area shall be Sanctuary from the date of publication of this notification in the official Gazette:-

SPECIFICATIONS

<u>District</u>	<u>Sub-Division</u>	<u>Village</u>	<u>Area in acres</u>
Ferozepur,	Abohar.	1. Raipur	3626
		2. Rajanwali,	4013
		3. Dotarañwali	4309
		4. Sardarpur	3014
		5. Sukhchain	3244
		6. Khairpur	2956
		7. Mehrajpura alias Mehrana	2907
		8. Sitoguno	4225
		9. Bishanpura	4104
		10. Himatpur	5381
		11. Narainpur	2066
		12. Rampur	2050
		13. Bajidpur	4618
(Total area 46.513 acres)			

GURBINDER CHAHAL
Financial Commissioner and Secretary to Govt.
Punjab, Deptt. of Forests & Wildlife-
Preservation.

Undst. No. 40/4/98/Ft.IV/ 11506 Chandigarh, dated the 7/9/2000

A copy is forwarded to the following for information

Thiruk

2/-

and necessary action :-

1. Controller Printing and Stationary Pb.,
Chandigarh alongwith a spare copy to
Publish the notification in the Govt.
He is requested to send the 50 copies of the
printed copies of the notification.
2. Principal Chief Conservator of Forests
Pb.Chandigarh .
3. ✓ Principal Chief Conservator of Fo ests
and Chief Wild Life Warden Pb.Chandigarh .
4. Commissioner Ferozpur Division Ferozpur.
5. Deputy Commissioner Ferozpur .
6. Private Secretary to Forest Minister
Punjab.
7. P/s Financial Commissioner Forests and
Secretary to Government Pb.Chandigarh
Department of Forests and Wild Life
Preservation.

[Signature]
Secretary to Govt. Pb.,
Department of Forests.,
Wild Life Preservation.

[Signature]
Thind

[Handwritten notes]
1/6/73
2
15/8/73

6. पर्यावरण प्रभाव निर्धारण अधिसूचना, 2006 के अधीन न आने वाली गतिविधियों की संविधा के मामलों का सारांश। ब्यौरे एक पृथक् उपाबंध के रूप में उपाबद्ध किए जा सकते हैं।
7. पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अधीन दर्ज की गई शिकायतों का सारांश।
8. कोई अन्य महत्वपूर्ण विषय।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 25th July, 2016

S.O. 2638(E).—WHEREAS, a draft notification was published in the Gazette of India, Extraordinary, *vide* notification of the Government of the India in the Ministry of Environment, Forest and Climate Change number S.O. 1382(E), dated the 22nd May, 2015, inviting objections and suggestions from all persons likely to be affected thereby within the period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

WHEREAS, Abohar Wildlife Sanctuary is a unique example of a community conserved area situated at a distance of 8 kilometres from Abohar city, Ferozepur District in the State of Punjab and bordering Rajasthan. The sanctuary having an area of 186.5 square kilometres is spread over 13 Bishnoi villages.

AND WHEREAS, the protected area as per the forest classification of Champion and Seth fall under arid to semi-arid type and the main tree species such as *Albiziatortilis*, *A.lebbeck*, *Azadirachataindica*, *Dalbergiasissoo*, *Meliaazedarach*, *Prosopis cineraria* and *P. juliflora*;

AND WHEREAS, the area is known to support more than 3500 Black Bucks that roam freely over the land of sanctuary area besides Blue bulls are also present;

AND WHEREAS, it is necessary to conserve and protect the area, the extent and boundaries of which is specified in paragraph 1 of this notification around the protected area of the Abohar Wildlife Sanctuary as Eco-sensitive Zone from ecological and environmental point of view and to prohibit industries or class of industries and their operations and processes in the said Eco-sensitive Zone;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1) and clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent upto 100 metres around the boundary of the Abohar Wildlife Sanctuary in the State of Punjab as the Abohar Wildlife Sanctuary Eco-sensitive Zone (hereinafter referred to as the Eco-sensitive Zone), details of which are as under, namely:-

1. **Extent and boundaries of Eco-sensitive Zone.**-(1) The extent of Eco-sensitive Zone is upto 100 meters from the boundary of the Abohar Wildlife Sanctuary comprising an area of 852.82 hectares. The co-ordinates of Abohar Wildlife Sanctuary is appended as **Annexure-I**.

(2) The map of Eco-sensitive Zone boundary together with its latitudes and longitudes of extremes and extent is appended as **Annexure II**.

(3) The Eco-sensitive Zone is bounded by 29°58'2.128"N latitude and 74°25'59.65"E longitude towards east-south (point No. D of Annexure II); 30°2'2.54"N latitude and 74°13'35.354"E longitude towards west (point No. F of Annexure II); 30°7'45.471"N latitude and 74°16'4.523"E longitude towards north (point No. A of Annexure II) and 29°56'59.806"N latitude and 74°22'25.863"E longitude towards south (point No. E of Annexure II).

(4) The list of the villages falling within the Eco-sensitive Zone alongwith longitudes and latitudes at prominent points is appended as **Annexure III**.

2. **Zonal Master Plan for the Eco-sensitive Zone.**-(1) The State Government shall, for the purpose of the Eco-sensitive Zone prepare, a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, in consultation with local people and adhering to the stipulations given in this notification.

(2) The Zonal Master Plan shall be approved by the competent authority in the State Government.

(3) The Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government in such manner as is specified in this notification and in consonance with the relevant Central and State laws and the guidelines issued by the Central Government, if any.

- (4) The Zonal Master Plan shall be prepared in consultation with all concerned State Departments for, namely:-
- (i) Environment,
 - (ii) Forest,
 - (iii) Urban Development,
 - (iv) Tourism,
 - (v) Municipal,
 - (vi) Revenue,
 - (vii) Agriculture, and
 - (viii) Punjab State Pollution Control Board,

for integrating environmental and ecological considerations into it.

(5) The Zonal Master Plan shall not impose any restriction on the approved existing land use, infrastructure and activities, unless so specified in this notification and the Zonal Master Plan shall factor in improvement of all infrastructure and activities to be more efficient and eco-friendly.

(6) The Zonal Master Plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.

(7) The Zonal Master Plan shall demarcate all the existing worshipping places, village and urban settlements, types and kinds of forests, agricultural areas, fertile lands, green area, such as, parks and like places, horticultural areas, orchards, lakes and other water bodies.

(8) The Zonal Master Plan shall regulate development in Eco-sensitive Zone so as to ensure eco-friendly development and livelihood security of local communities.

3. **Measures to be taken by State Government.**-The State Government shall take the following measures for giving effect to the provisions of this notification, namely:-

(1) **Land use.**- Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industries related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the Monitoring Committee, and with the prior approval of the State Government, to meet the residential needs of local residents, and for the activities listed against serial numbers 24, 28, 32 and 37 in column (2) of the table in paragraph 4, namely:-

- (i) Small scale industries not causing pollution;
- (ii) eco-friendly cottages for temporary occupation of tourists, such as tents, wooden houses, etc. for eco-friendly tourism activities;
- (iii) rainwater harvesting; and
- (iii) cottage industries including village artisans:

Provided further that no use of tribal land shall be permitted for commercial and industrial development activities without the prior approval of the State Government and without compliance of the provisions of article 244 of the Constitution or the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of the Monitoring Committee, once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph:

Provided also that there shall be no consequential reduction in green area, such as forest area and agricultural area and efforts shall be made to reforest the unused or unproductive agricultural areas.

(2) **Natural springs.**-The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and guidelines shall be drawn up by the State Government in such a manner as to prohibit development activities at or near these areas which are detrimental to such areas.

(3) **Tourism.**-(a) The activity relating to tourism within the Eco-sensitive Zone shall be as per Tourism Master Plan, which shall form part of the Zonal Master Plan.

(b) The Tourism Master Plan shall be prepared by the Department of Tourism, Government of Punjab in consultation with Department of Revenue and Forests, Government of Punjab.

(c) The activity of tourism shall be regulated as under, namely:-

(i) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the eco-tourism guidelines issued by the National Tiger Conservation Authority, Ministry of Environment, Forest and Climate Change (as amended from time to time) with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(ii) new construction of hotels and resorts shall not be permitted within the Eco-sensitive Zone;

(iii) till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the Monitoring Committee.

(4) **Natural heritage.**- All sites of valuable natural heritage in the Eco-sensitive Zone, such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc., shall be identified and preserved and plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) **Man-made heritage sites.**- Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be identified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) **Noise pollution.**- The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(7) **Air pollution.**- The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder.

(8) **Discharge of effluents.**- The discharge of treated effluents in the Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the rules made thereunder.

(9) **Solid wastes.** - Disposal of solid wastes shall be as under:-

(i) the solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Solid Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number S.O. 1357(E), dated the 8th April, 2016, as amended from time to time;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) the biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material may be disposed in an environmentally acceptable manner at site(s) identified outside the Eco-sensitive Zone and no burning or incineration of solid wastes shall be permitted in the Eco-sensitive Zone.

(10) **Bio-medical waste.**- The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste Management Rules, 2016 published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* notification number G.S.R 343(E), dated the 28th March, 2016, as amended from time to time.

(11) **Vehicular traffic.** - The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal Master Plan is prepared and approved by the Ministry of Environment, Forest and Climate Change, the Monitoring Committee shall monitor compliance of vehicular movement under the relevant Acts and the rules and regulations made thereunder.

4. List of activities prohibited or to be regulated within the Eco-sensitive Zone.-All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and the rules made thereunder and shall be regulated in the manner specified in the table below, namely:-

TABLE

Sl. No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited except for the domestic needs of <i>bona fide</i> local residents. (b) The mining operations shall strictly be in accordance with the interim orders of the Hon'ble Supreme Court, dated the 4 th August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. Union of India in Writ Petition (Civil) No. 202 of 1995 and order of the Hon'ble Supreme Court, dated the 21 st April, 2014 in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 435 of 2012.
2.	Setting up of saw mills.	No new and expansion of existing saw mills shall be permitted within the Eco-sensitive Zone.
3.	Setting up of industries causing water or air or soil or noise pollution.	No new or expansion of existing polluting industries in the Eco-sensitive Zone shall be permitted.
4.	Use or production of any hazardous substances.	Prohibited (except as otherwise provided) as per applicable laws.
5.	Commercial establishment of hotels and resorts.	No new or expansion of existing commercial establishments such as hotels and resorts shall be permitted within the Eco-sensitive Zone.
6.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
7.	Establishment of new major hydroelectric projects.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Undertaking activities related to tourism like over-flying the sanctuary area by hot-air balloons, etc.	Prohibited (except as otherwise provided) as per applicable laws.
9.	Uses of plastic carry bags.	Prohibited (except as otherwise provided) as per applicable laws.
10.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited (except as otherwise provided) as per applicable laws.
11.	Construction activities.	No new construction of any kind shall be permitted within the Eco-sensitive Zone, except for the domestic needs of local residents including the activities listed in sub-paragraph (1) of paragraph 3. In case of the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum.
Regulated Activities		
12.	Felling of trees.	(a) There shall be no felling of trees on the forest land or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
13.	Drastic change of agriculture system.	Regulated under applicable laws.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be permitted only for <i>bona fide</i> agricultural use and domestic consumption of the occupier of the land. (b) The extraction of surface water and ground water for industrial or commercial use including the amount that

		can be extracted, shall require prior written permission from the concerned regulatory authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	Regulated under applicable laws.
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
19.	Introduction of exotic species.	Regulated under applicable laws.
20.	Protection of hill slopes and river banks.	Regulated under applicable laws.
21.	Commercial sign boards and hoardings.	Regulated under applicable laws.
22.	Air (including noise) and vehicular pollution.	Regulated under applicable laws.
23.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluents shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
24.	Small scale industries not causing pollution.	Non-polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone which do not cause any adverse impact on environment shall be permitted.
25.	Collection of forest produce or Non-Timber Forest Produce (NTFP).	Regulated under applicable laws.
26.	Security Forces Camp.	Regulated under applicable laws.
27.	New wood based industry.	No establishment of new wood based industry shall be permitted within the limits of Eco-sensitive Zone: Provided that new wood based industry may be set up in the Eco-sensitive Zone using 100% imported wood stock.
28.	Eco-friendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities	Regulated under applicable laws.
29.	Solid Waste Management.	Regulated under applicable laws.
30.	Eco-Tourism.	Regulated under applicable laws.
Promoted Activities		
31.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming and fisheries.	Permitted under applicable laws.
32.	Rain water harvesting.	Shall be actively promoted.
33.	Organic farming.	Shall be actively promoted.
34.	Adoption of green technology for all activities.	Shall be actively promoted.
35.	Use of renewable energy sources.	Permitted under applicable laws.
36.	Vegetative fencing.	Permitted under applicable laws.
37.	Cottage industries including village artisans, etc.	Shall be actively promoted.
38.	Agro Forestry.	Shall be actively promoted.
39.	Environmental Awareness.	Shall be actively promoted.

5. **Monitoring Committee.-** The Central Government hereby constitutes a Monitoring Committee for three years, for effective monitoring of the Eco-sensitive Zone, which shall comprise of the following, namely:-

- (a) The Chief Conservator of Forests (Wildlife), Government of Punjab – Chairman;

- (b) Representative, Department of Rural Development and Panchayat, Government of Punjab - Member;
- (c) Representative of the Ministry of Environment, Forest and Climate Change –Member;
- (d) Regional Officer, Punjab State Pollution Control Board-Member;
- (e) One representative of non-Governmental Organisation -Member;
(Working in the field of environment including heritage Conservation) to be nominated by the Government of Punjab for a period of three years
- (f) An expert in the area of ecology and environment -Member;
to be nominated by the Government of Punjab for a period of three years
- (g) Representative of Department of Rural Development and Housing Department, Government of Punjab – Member;
- (h) Representative of Agricultural, Government of Punjab – Member;
- (i) Representative of District Collector of Ferozepur – Member;
- (j) Representative of State Bio Diversity Board – Member;
- (k) Divisional Forest Officer (In-charge of PA) – Member-Secretary.

- 6. Terms of Reference.-** (1) The Monitoring Committee shall monitor the compliance of the provisions of this notification.
- (2) The activities that are covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.
- (3) The activities that are not covered in the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 and are falling in the Eco-sensitive Zone, except for the prohibited activities as specified in the table under paragraph 4 thereof, shall be scrutinised by the Monitoring Committee based on the actual site-specific conditions and referred to the concerned regulatory authorities.
- (4) The Member-Secretary of the Monitoring Committee or the concerned Chief Conservator of Forests (Wildlife) shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 (26 of 1986) against any person who contravenes the provisions of this notification.
- (5) The Monitoring Committee may invite representatives or experts from concerned departments, representatives from industry associations or concerned stakeholders to assist in its deliberations depending on the requirements on issue to issue basis.
- (6) The Monitoring Committee shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Chief Wild Life Warden of the State as per proforma appended at
- (7) The Central Government in the Ministry of Environment, Forest and Climate Change may give such directions as it deems fit, to the Monitoring Committee for effective discharge of its functions.
- 6.** The Central Government and State Government may specify additional measures, if any, for giving effect to the provisions of this notification.
- 7.** The provisions of this notification shall be subject to the orders, if any, passed or to be passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal.

[F. No. 25/27/2014-ESZ/RE]

Dr. T. CHANDINI, Scientist 'G'

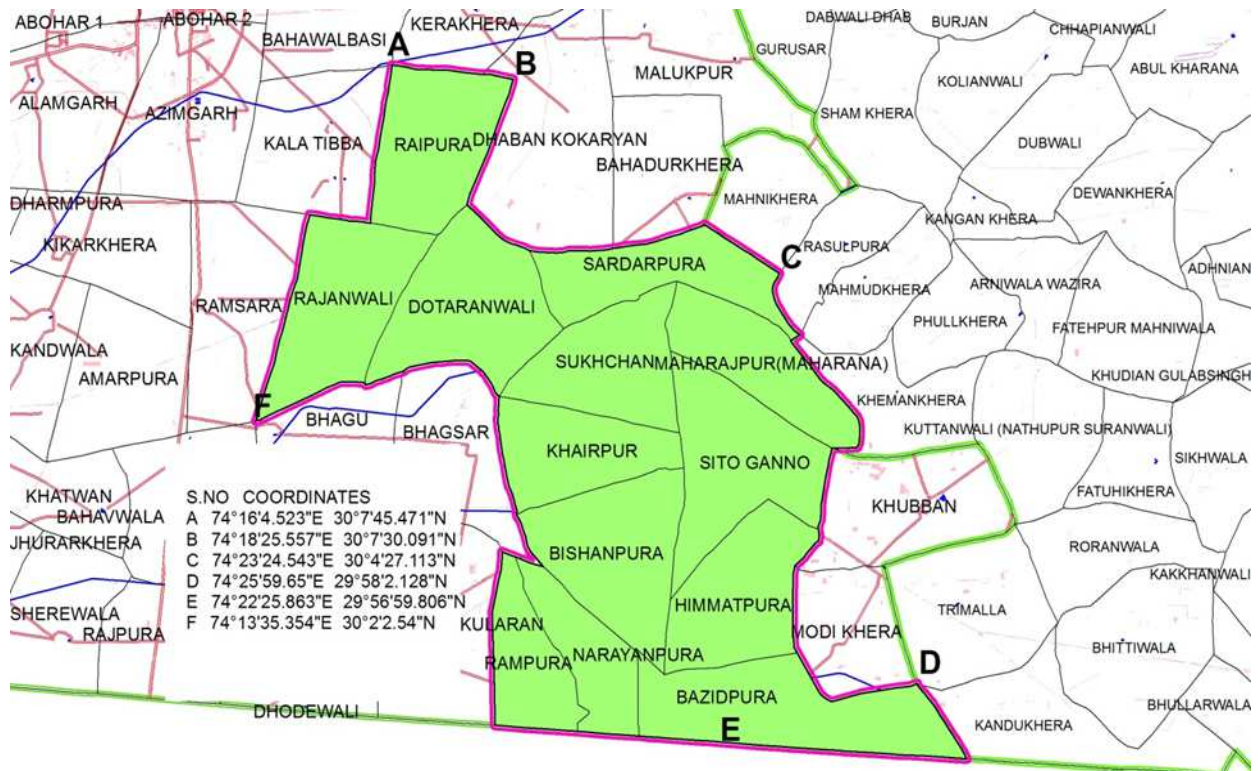
Annexure-I

Co-ordinates of Abohar Wildlife Sanctuary

Sl. No.	Latitude			Longitude		
	Degree	Minute	Second	Degree	Minutes	Second
1	74	18	59.565	30	6	33.979
2	74	18	16.626	30	4	57.292
3	74	23	32.636	30	3	40.094
4	74	23	38.64	29	59	5.704
5	74	18	4.139	29	59	8.655
6	74	18	8.701	30	2	2.127
7	74	14	6.775	30	3	32.533
8	74	13	48.631	30	2	9.894
9	74	18	23.081	30	1	2.293
10	74	17	22.025	30	7	34.944

Annexure II

Map of Eco-sensitive Zone boundary of Abohar Wildlife Sanctuary, Punjab together with its latitudes and longitude of extremes and extent.



ANNEXURE-III

List of villages falling within the proposed Eco-sensitive Zone of Abohar Wildlife Sanctuary, Punjab.

Sl. No.	NAME	Latitude			Longitude		
		Degree	Minute	Second	Degree	Minute	Second
1.	Kalatibba	30	06	03.80	74	15	05.65
2.	Kikarkhera	30	04	44.61	74	09	59.57

3.	BahawalBasi (Basiyan)	30	09	14.29	74	16	08.76
4.	Ramsara	30	03	54.91	74	12	48.66
5.	Bhagu	30	01	45.71	74	15	42.14
6.	Bhagsar	30	01	38.56	74	20	35.80
7.	Dhabankokrian	30	06	44.15	74	19	32.94
8.	Bahadurkhera	30	05	31.66	74	21	28.90
9.	Mahmudkhera (Bhaikakera)	30	04	33.38	74	24	57.27
10.	Rasulpura (Faridkera)	30	04	51.25	74	24	36.11
11.	KhemaKhera	30	02	29.70	74	25	42.28
12.	Drain (Samnala)	30	01	28.34	74	25	06.23
13.	Ranjeetpura (Khemkhera Bus Stand)	30	02	28.58	74	25	42.30
14.	Khuban	30	00	39.13	74	26	11.12
15.	Kularan	29	58	22.54	74	17	00.88
16.	Chakradhewala	29	58	37.92	74	24	28.26
17.	Modikhera	29	59	55.07	74	25	09.98
18.	Kera Khera Mahalampura (Mehrajpur)	30	03	10.17	74	22	45.64
19.	Rajasthan link road channel border (Bazid Pura)	29	57	02.79	74	23	16.92

Annexure IV**Proforma of Action Taken Report:- Eco-sensitive Zone Monitoring Committee.-**

1. Number and date of meetings.
2. Minutes of the meetings: Mention main noteworthy points. Attach minutes of the meeting on separate annexure.
3. Status of preparation of Zonal Master Plan including Tourism Master Plan.
4. Summary of cases dealt for rectification of error apparent on face of land record. Details may be attached as annexure
5. Summary of cases scrutinised for activities covered under Environment Impact Assessment Notification, 2006. Details may be attached as separate annexure.
6. Summary of case scrutinised for activities not covered under Environment Impact Assessment Notification, 2006. Details may be attached as separate annexure.
7. Summary of complaints lodged under section 19 of the Environment (Protection) Act, 1986.
8. Any other matter of importance.