Mangalmurti
Bio - Chem Pvt. Ltd.
Manufacturer of :
Balaji Brand N.P.K. Mix Fertilizer, Soil Conditioners,
Growth Promoters, Micronutrients, Chemicals & Bio-Pesticide
Corporate Office : 230-31, 2nd Floor, Umiya Complex, Opp. CNG. Pump, KAMREJ - 394 185, Dist. Surat (Guj.)
Tel : 02621 254888, 254988, E-mail : sales@mangalmurati.co.in, Website : www.mangalmurati.co.in

September 22, 2020 **BY HAND DELIVERY/RPAD**

To,
The Member Secretary (Industry-II)
Ministry of Environment, Forest & Climate Change,
Government of India,
Indira Paryavarn Bhavan,
Aliganj, Jor Bagh Road,
New Delhi – 110 003

SUB: **ADDITIONAL INFORMATION TO OBTAIN ENVIRONMENTAL CLEARANCE FOR PROPOSED PESTICIDES, PESTICIDE INTERMEDIATES (633 MT/MONTH) AND SPECIALTY CHEMICALS (451 MT/MONTH) IN EXISTING UNIT AT SURVEY NO. 311/2, BLOCK NO. 261, AT & PO: NANA BORASARA, TAL: MANGROL, DIST. SURAT-394125, GUJARAT OF M/s. MANGAL MURTI BIO-CHEM PVT. LTD.**
CATEGORY: **A-5(f) UNIT LOCATED OUTSIDE INDUSTRIAL/NOTIFIED AREA**
REF: **MINUTES OF THE 20th MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF INDUSTRY-2 SECTOR PROJECTS CONSTITUTED UNDER EIA NOTIFICATION, 2006, HELD DURING JUNE 15 - 17, 2020**
PROPOSAL NO.: IA/GJ/IND2/146898/2017
KIND ATTN.: **DR. R. B. LAL**

Dear Sir,
This is with reference to the above mentioned subject matter. We are submitting herewith the additional information as required as per the Minutes of 20th EAC Meeting dated June 15 – 17 2020. We hope you would find the same in order and oblige.

Sr. No.	Query Raised	Query Reply Given	Page No.
1.	The EAC observed that the project proponent is producing DAP since 2018. The PP need to clarify whether the said Fertilizer i.e. Di Ammonium Phosphate requires prior EC or not. Clarification in respect of manufacturing of DAP without obtaining prior EC needs to be submitted.	Diammonium phosphate is an inorganic phosphate, being the diammonium salt of phosphoric acid. It has a role as a fertilizer. As per S.O. 1533 (E), EIA Notification dated 14th September, 2006, inorganic products do not require EC. Hence EC was not obtained for existing inorganic manufacturing unit. The unit has obtained CC&A from GPCB, Gandhinagar for diammonium phosphate vide Consent Order No. AWH-80134 dated 07/07/2016 and there is no any violation made by the company. Sources: https://pubchem.ncbi.nlm.nih.gov/compound/Diammonium-hydrogen-phosphate https://www.cropnutrition.com/resource-library/diamm onium-phosphate	--

		https://www.ebi.ac.uk/chebi/searchId.do;jsessionid=D9205AEE8CCFB34F1FA50C5B47915079?cheb iId=CHEBI:63051	
2.	Detailed rain water harvesting plan needs to be submitted. Fresh water requirement shall be reduced utilizing the harvested rain water. Accordingly, revised water balance shall be submitted.	Arrangement is made for rain water harvesting from the roof tops of the building and to collect the rain water in a collection tank and use the same water for the various activities of the project to conserve fresh water. Rain water harvesting plan is attached as **Annexure-1.**	3
3.	The Committee noted that the PP needs to conduct the process safety and Risk assessment studies using advanced/3D modeling and the mitigating measures needs to be analyzed along with the action plan.	Process safety and Risk assessment studies using advanced/3D modeling and the mitigating measures are analyzed along with the action plan and attached as **Annexure-2.**	7
4.	Commitment for inventory for raw materials, products and by-products for 3 days.	Commitment for inventory for raw materials, products and by-products for 3 days is attached as **Annexure-3.**	8
5.	Copy of submission of conservation plan for schedule-I species to CWLW of the State Government as there are 12 schedule-I species are reported in the study area.	Submission of conservation plan for Schedule-I species to The District Forest Officer, Bharuch vide dated 30/05/2020 is attached as **Annexure-4.**	9

Thanking you.
Yours faithfully,

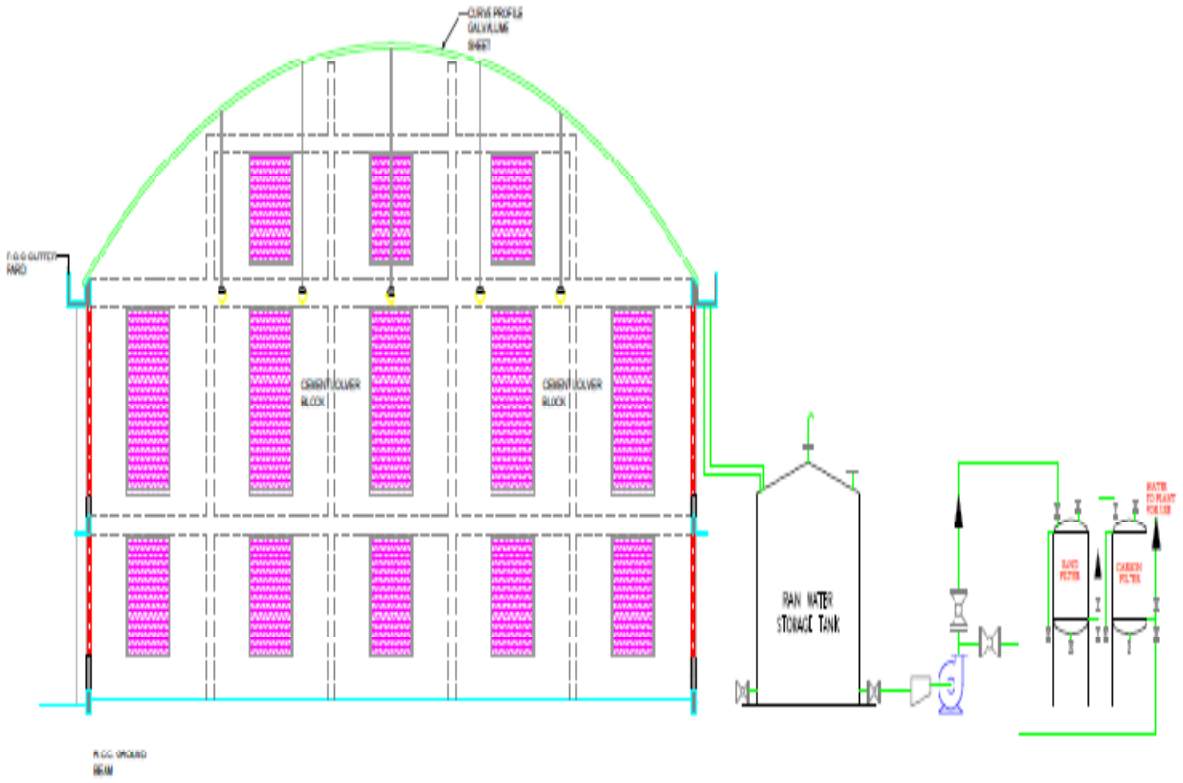
For Mangal Murti Bio-Chem Pvt. Ltd.

Bharat Tank
(Executive Director)

Annexure-1

Revise Water Balance Diagram by utilizing the harvested rain water

We have made arrangement for rain water harvesting from the roof tops of the building and collect the rain water in a collection tank and use the same water for the various activities of the project to conserve fresh water.



WATER CONSUMPTION

Description		**Water Consumption (KL/DAY)**		
		Existing	**Proposed**	**Total**
Industrial	Process	3.4	55.1	58.5
	Boiler	11.0	169.5	180.5
	Cooling	5.0 (3.6 Fresh + 1.4 Reused)	23.5	28.5
	APCM	0.74	- 0.74	0.0
	Washing	-	10.0	10.0
	Softener Generation	-	15.2	15.2
Total		**20.14** (18.74 Fresh + 1.4 Reused)	**272.56**	**292.7**
Domestic		3.0	4.0	7.0
Gardening		10.0	10.0	20.0
Grand Total		**33.14** (31.74 Fresh + 1.4 Reused)	**286.56** (201.96 Fresh + 84.6)	**319.7** (227.7 Fresh + 86 Reused + 6 Rain Water)

WASTE WATER GENERATION

Description		**Wastewater Generation (KL/DAY)**		
		Existing	**Proposed**	**Total**
Industrial	Process	0.5	41.4	41.9
	Boiler	1.4*	14.4	15.8
	Cooling	-	5.0	5.0
	APCM	-	-	-
	Washing	-	10.0	10.0
	Softener Generation	-	15.2	15.2
Total		**1.9**	**86**	**87.9**
Domestic		2.8	3.7	6.5
Gardening		-	-	-
Grand Total		**4.7 -1.4* =3.3**	**89.7**	**94.4**

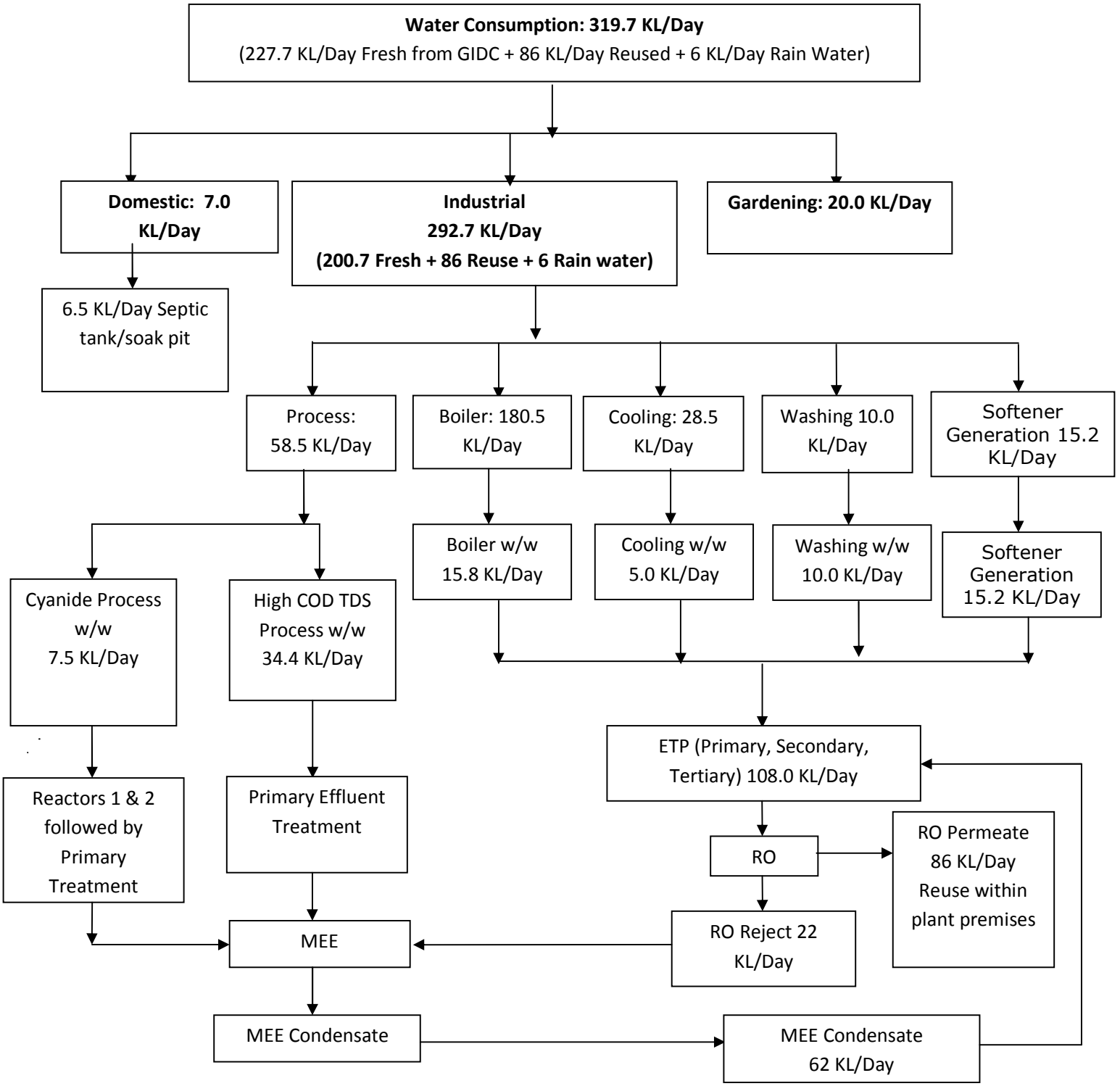
Existing:

1. Total water requirement is 33.14 KL/Day (Fresh: 31.74 KL/Day + Reuse: 1.4 KL/Day).
2. Boiler blow down is reused into plant for cooling purpose after necessary treatment.
3. High COD process waste water (0.5 KL/Day) is sent to common spray dryer of M/s. PETL, Panoli for further treatment & disposal.
4. Domestic wastewater is disposed of through septic tank/soak pit.

Total Proposed:

1. Total water requirement will be 319.7 KL/Day (Fresh: 227.7 KL/Day + Reuse: 86 KL/Day + Rain Water: 6 KL/Day).
2. Total waste water generation will be 94.4 KL/Day (Existing: 4.7 KL/Day + Proposed: 89.7 KL/Day).
3. Low COD & TDS waste water (46 KLD) from boiler, Cooling, Washing and Softener Generation will be treated in ETP within premises along with MEE Condensate (62 KLD) followed by RO. RO permeate (86 KLD) will be reused within plant premises. RO reject (22 KLD) will be sent to MEE.
4. Cyanide Process waste water (7.5 KLD) will be treated in Reactors-1 & 2 followed by primary settling and treated waste water will be sent to MEE.
5. High TDS Process waste water (34.4 KLD) will be given primary treatment and treated waste water will be sent to MEE.
6. MEE Condensate (62 KLD) will be sent to ETP for further treatment.

Water Balance Diagram:



Annexure-2

3D Risk Assessment Report

Mangalmurti
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Tel : 02621 254888, 254988, E-mail : sales@mangalmurati.co.in, Website : www.mangalmurati.co.in

Ref : MBCPL/3D/RA/001/20-21 **Date : 12th August , 2020**

To,
The Managing Director
M/s- Aqua-Air, Environmental Engineers Pvt.Ltd.
403, Centre Point, Nr-Kadiwala School, Ring- Road,
Surat- 395 002 – (Guj) India.

K/A – Shri – Jayesh Patel (Managing Director)

Sub : Work order of 3D Modeling & Consequence Analysis study of our proposed Expansion.

Ref : Your offer ref no. AEE/51101/749/2020 Dated 14/02/2020.

Dear Sir,

With reference to the above subject, and subsequent to the telephonic discussion had with your Author(s) Shri – Chetan Kabariya , Dhaval Jhaveri & ourself on the subject matter .

Herewith we are pleased to place work order for 3D Risk assessment & Consequence Analysis Study of our upcoming project at R.S.No.261, N.H.8, At & PO- Nana Borasra, Tal- Mangrol, Dist- Surat Gujarat.

We have read the content carefully and agreed the all terms and condition as mentioned in your offer copy enclosed as **annexure – 1.** However in the same charges you have to consider the 3D modeling & Consequence analysis study of location of Gas sensor detector

We agreed the charges for following job as per payment terms mentioned in the offer to carry out all the job to be obtained of **environment clearance** for which we have been granted of TORR vide proposal ref **IA/GJ/IND2/106010/2017, IA-J-11011/536/2017-IA-II(I) from MOEF - Delhi**

01. Total Charges as per your offer covering task from 01 to 05 And including location Of Gas sensor detector if reqd	Rs. 7,50,000-00
Total	**Rs. 7,50,000-00**

The above amount exclude of GST. Apart from above amount other expenses like hotel stay and food charges and travelling expenses shall be paid by yourself .

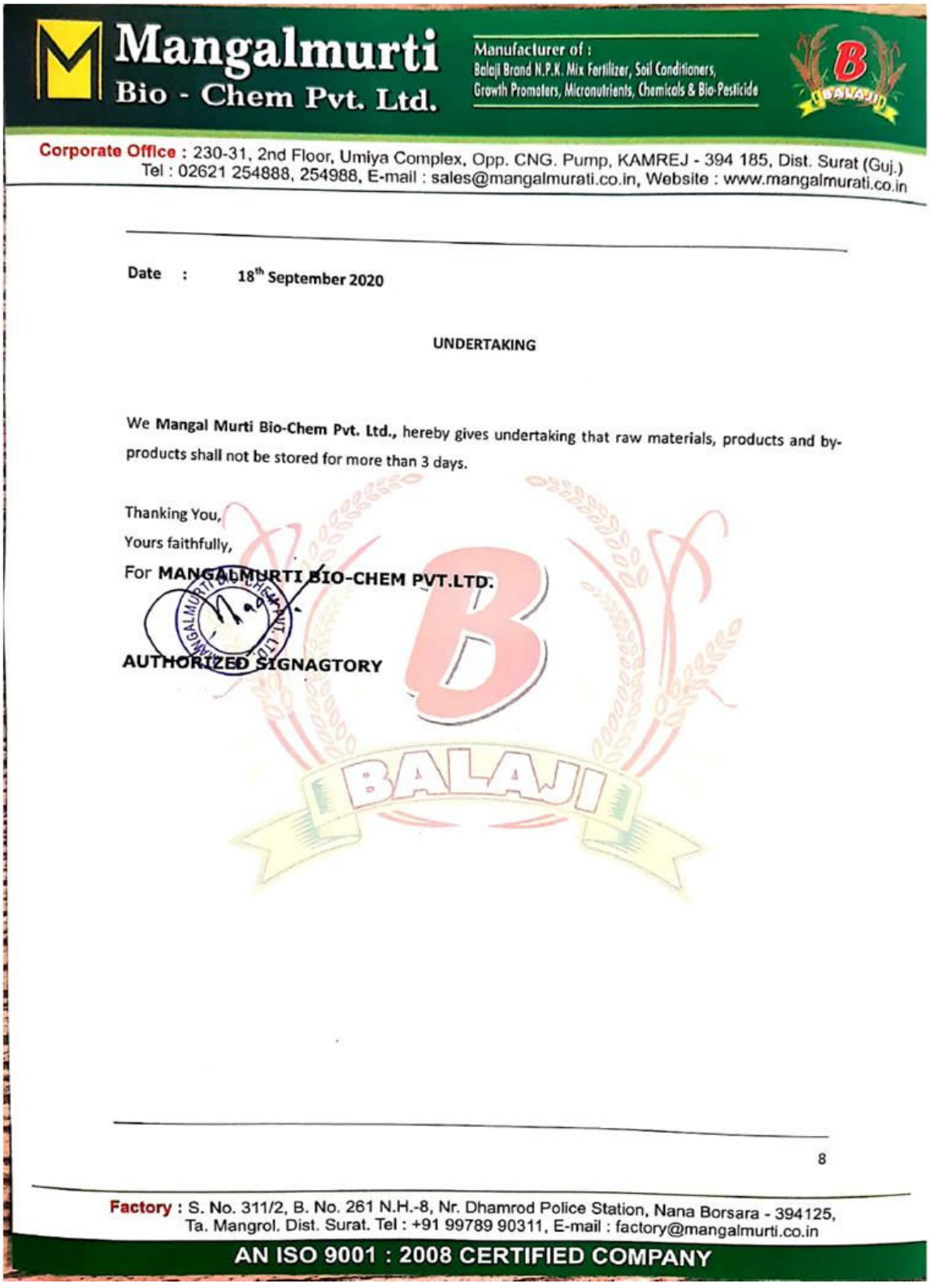
Kindly confirm your acceptance and send us your acknowledge of above work order.

Thanking you
Yours faithfully
For MANGALMURTI BIO-CHEM PVT.LTD

AUTHORIZED SIGNATORY

Annexure-3

Commitment for inventory for raw materials, products and by-products for 3 days.



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Tel : 02621 254888, 254988, E-mail : sales@mangalmurati.co.in, Website : www.mangalmurati.co.in

Date : 18th September 2020

UNDERTAKING

We **Mangal Murti Bio-Chem Pvt. Ltd.,** hereby gives undertaking that raw materials, products and by-products shall not be stored for more than 3 days.

Thanking You,

Yours faithfully,

For **MANGALMURTI BIO-CHEM PVT.LTD.**

AUTHORIZED SIGNAGTORY

8

Factory : S. No. 311/2, B. No. 261 N.H.-8, Nr. Dhamrod Police Station, Nana Borsara - 394125,
Ta. Mangrol. Dist. Surat. Tel : +91 99789 90311, E-mail : factory@mangalmurti.co.in

AN ISO 9001 : 2008 CERTIFIED COMPANY

Annexure-4

Copy of submission of conservation plan for schedule-I species to CWLW of the State Government

Mangalmurti
Bio - Chem Pvt. Ltd.

Manufacturer of :
Baloji Brand N.P.K. Mix Fertilizer, Soil Conditioners, Growth Promoters, Micronutrients, Chemicals & Bio-Pesticide

Corporate Office : 230-31, 2nd Floor, Umiya Complex, Opp. CNG. Pump, KAMREJ - 394 185, Dist. Surat (Guj.)
Tel : 02621 254888, 254988, E-mail : sales@mangalmurati.co.in, Website : www.mangalmurati.co.in

May 29, 2020 BY HAND DELIVERY/RPAD

To,
The District Forest Officer
District Bharuch
Gujarat

SUB: PROPOSAL FOR SPECIES SPECIFIC CONSERVATION PLAN FOR SCHEDULE-I SPECIES ALONG WITH BUDGETARY ALLOCATION FOR OUR PROJECT LOCATED AT SURVEY NO. 311/2, BLOCK NO. 261, AT & PO: NANA BORASARA, TAL: MANGROL, DIST. SURAT- 394125, GUJARAT OF M/s. MANGAL MURTI BIO-CHEM PVT. LTD.

Dear Sir,
This has reference to above mentioned subject matter, we are submitting herewith Species Specific Conservation Plan for Schedule-I Species along with Budgetary Allocation for our project at Survey No. 311/2, Block No. 261, At & Po: Nana Borasara, Tal: Mangrol, Dist. Surat- 394125, Gujarat Of M/s. **Mangal Murti Bio-Chem Pvt. Ltd.** Industrial Sector Project-Category: A- 5(b)&A- 5(f) Located outside Notified Industrial Area]

We request you to approve our proposal for our project.

Thanking you
Yours faithfully,
For MANGALMURTI BIO-CHEM PVT.LTD.

AUTHORIZED SIGNATORY

30/5/2020
Deputy Conservator of Forests
Extension Division
BHARUCH

Deputy Conservator of Forests
Extension Division
BHARUCH

Factory : S. No. 311/2, B. No. 261 N.H.-8, Nr. Dhamrod Police Station, Nana Borsara - 394125,
Ta. Mangrol. Dist. Surat. Tel : +91 99789 90311, E-mail : factory@mangalmurti.co.in

AN ISO 9001 : 2008 CERTIFIED COMPANY

The proponent has proposed a sum of Rs. 3, 07, 500/-for the "3 Species" conservation plan under the following heads:

Sr. No.	Species	Budget
1.	"Oriental Honey Buzzard" Conservation Plan	Rs. 1,02,500 /-
2.	"Shikra" Conservation Plan	Rs. 1,02,500 /-
3.	"Common pierrot" Conservation Plan	Rs. 1,02,500/-
	Total Budget	**Rs. 3, 07, 500/-**

Note: - We have allotted budget of Rs. 3, 07, 500/- for conservation of above 3 Schedule-I species. If require additional budget for other species, we will increase for the same.

a) Whether there is presence of schedule-I species?
The Schedule- I species as per Wildlife Protection Act -1972 are:

Sr. No.	Animal Type	Scientific Name (Zoological Name)	Local Name	WPA Status	IUCN Status
1	Oriental honey buzzard	*Pernis ptilorhynchus*	Madhiyo baj	I	LC
2	White-eyed buzzard	*Butastur teesa*	-	I	LC
3	Black kite	*Milvus migrans*	Samadi	I	LC
4	Shikra	*Accipiter badius*	Shakro	I	LC
5	Short-toed snake eagle	*Circaetus gallicus*	-	I	LC
6	Indian peafowl	*Pavo cristatus*	Mor	I	LC
7	Black-shouldered kite	*Elanus axillaris*	Kapasi	I	LC
8	Indian python	*Python molurus*	Ajgar	I	LC
9	Danaid eggfly	*Hypolimnas misippus*	Patangiu	I	LC
10	Common pierrot	*Castalius rosimon*	Patangiu	I	LC

b) Whether conservation plan for schedule-I species has been prepared?

Conservation Plan for Schedule – I species documented from project site

Introduction

A detailed biological survey of the core zone (Project site) and buffer zone (10 km radius from periphery of the project site) was carried out giving details of flora and fauna. However, peacock which belongs to Schedule I of the Wildlife (Protection) Act 1972 are the only species of fauna found in the study area.

A detailed field survey was carried out for complete documentation of floral as well as faunal biodiversity for the core zone which is at Project site and the buffer zone which is 10 km aerial circular area from the project site. The Oriental Honey Buzzard (*Pernis ptilorhynchus),* White Eyed Buzzard (*Butastur teesa),* Black Kite (*Milvus migrans*), Shikra (*Accipiter badius*), Short Toed Snake Eagle (*Circaetus gallicus*), Black Shouldered Kite (*Elanus axillaris*), Indian Peafowl (*Pavo cristatus*) among the birds, Indian Python (*Python molurus*) among the reptiles and Two butterflies Danaid Eggfly (*Hypolimnas misippus*) and Common pierrot Butterfly (*Castalius rosimon*) was recorded from the study area and these faunal species belongs to Schedule – I of the Wildlife Protection Act – 1972. Following are species wise conservation plans and also generalized measures for their conservation.

Oriental Honey Buzzard (*Pernis ptilorhynchus)*

Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Accipitriformes
Family: Accipitridae
Genus: *Pernis*
Species: ***P. ptilorhynchus***

Binomial name

Pernis ptilorhynchus

General Description of the species

Despite its name, this species is not related to Buteobuzzards, and is taxonomically closer to the kites. It appears long-necked with a small head (resembling that of a pigeon), and soars on flat wings. The head lacks a strong superciliary ridge, giving it a facial appearance very unlike a raptor. It has a long tail and a short head crest. It is brown above, but not as dark as European honey buzzard, and paler below. A dark throat stripe is present. Unusually for a large bird of prey, the sexes can be distinguished. The male has a blue-grey head, while the female's head is brown. She is slightly larger and darker than the male. The male has a black tail with a white band. It is larger and longer-winged than its western counterpart, the European honey buzzard, *Pernis apivorus*.

Breeding of the species

It breeds in Asia from central Siberia east to Japan. It is a summer migrant to Siberia, wintering in tropical Southeast Asia. Elsewhere, it is more-or-less resident.

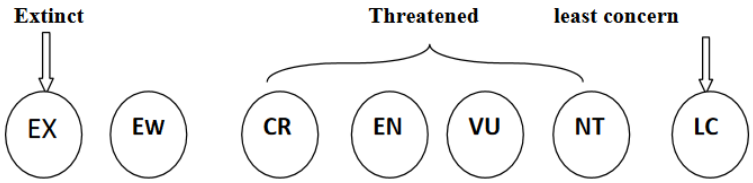
Food Habits&Behaviour of the Species

It is a specialist feeder, living mainly on the larvae of social bees and wasps, and eating bits of comb and honey. It takes other small insect prey such as cicadas. The crested honey buzzard breeds in woodland, and is inconspicuous except in the spring, when the mating display includes wing-clapping. The display of roller-coasting in flight and fluttering wings at the peak of the ascent are characteristic of the genus Pernis.

Conservation and Its relationship with Humans

In Gujarat State it is very common bird of prey and can be easily seen everywhere. It have very good adaptability to every ecosystems such as Agro, Urban, Rural, Forest and Wetlands. As it prefers the larvae of social bees and wasps, and eating bits of comb and honey. It takes other small insect prey such as cicadas as food and so it is very much associated to humans. But in this study area neither any such threat to the species observed nor any harm by humans practiced. The species is well associated with human habitations without any problem.

CONSERVATION STATUS



IUCN : Least Concern

IWPA : Schedule I

Probable Threats to the species

- This is large bird of prey and it prefers large trees for roosting and nesting so decreasing amount of such trees is kind of direct threat to the species.
- It prefers social bees and wasps for food as well as bits of honey comb so the indirect loss of such species can disturb the food availability of Honey buzzard. It also prey upon small insects such as cicadas so application of various pesticides can indirectly harm the species.
- Global Warming and Air pollution can harm this species in seasonal migration and the health of the species.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to theHoney Buzzard. This can be achieved by planting of trees (a group of trees that grow

close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.

- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of OrientalHoney buzzard populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.
- With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

The proponent has proposed a sum of Rs. 102500/-for the "Oriental Honey Buzzard" conservation plan under the following heads:

S. No	**Work or Activity**	**Approximate Cost. Rs.**
1	Plantation-350 tree plants (5 feet heightas per the plant species-Cost of sapling will be changed per year)	52,500/-(@ 150/-per plant)
3	One awareness programme for conservation	20,000/-
4	3 cash prizes @ 10000 in a year will be awarded to the informer of poachers.	30,000/-
TOTAL		1,02,500/-

- **White Eyed Buzzard (Butastur teesa)**

Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Accipitriformes
Family: Accipitridae
Genus: *Butastur*
Species: ***B. teesa***

Binomial name

Butastur teesa

General Description of the species

The **White-eyed buzzard** (*Butastur teesa*) is a medium-sized hawk, distinct from the true buzzards in the genus *Buteo*, found in South Asia. Adults have a rufous tail, a distinctive white iris, and a white throat bearing a dark mesial stripe bordered. The head is brown and the median coverts of the upper wing are pale. They lack the typical carpal patches on the underside of the wings seen in true buzzards, but the entire wing lining appears dark in contrast to the flight feathers. They sit upright on perches for prolonged periods and soar on thermals in search of insect and small vertebrate prey. They are vociferous in the breeding season, and several birds may be heard calling as they soar together.This species is widely distributed in South Asia, throughout India in the plains and extending up to 1000 m in the Himalayas. It is a resident in Iran, Pakistan, Nepal, Bangladesh, and Myanmar.It is mainly found in the plains, but may go up to 1200 m altitude in the foothills of the Himalayas.A survey in the late 1950s estimated about 5000 birds in the vicinity of Delhi in an area of about 50,000 km^2 giving a density of 0.1 per square kilometre.

Breeding of the species

The breeding season is February to May. The nest is loose platform of twigs not unlike that of a crow, sometimes placed in a leafless tree.The usual clutch is three eggs, which are white and usually unspotted.Both sexes share nest-building and feeding young; the female alone incubates for about 19 days until the eggs hatch.

Food Habits&Behaviour of the Species

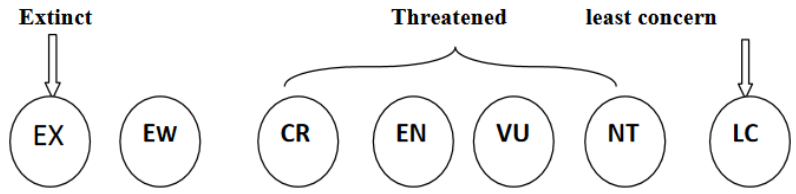
This species is usually seen soaring alone in thermals or perched still. Groups of two or three may sometimes be seen. They have a mewing call or falling whistle (transcribed as *pit-weer*) that is repeated when pairs are soaring. They are vociferous in the breeding season.They feed mainly on locusts, grasshoppers, crickets, and other large insects, as well as mice, lizards, and

frogs. They may also take crabs from near wetlands and have been reported to take larger prey such as the black-naped hare (*Lepus nigricollis*).

Conservation and Its relationship with Humans

This species is found in agricultural habitats and scrublands near human habitations. This species is given special attention as it is included under Schedule-I of the Wildlife Protection Act-1972.

CONSERVATION STATUS



IUCN : Least Concern

IWPA : Schedule I

Probable Threats to the species

- This bird of prey prefers large trees for roosting and nesting so decreasing amount of such trees is kind of direct threat to the species.
- They feed mainly on locusts, grasshoppers, crickets, and other large insects, as well as mice, lizards, and frogs. Application of various pesticides can indirectly harm the species.
- Global Warming and Air pollution can harm this species in seasonal migration and the health of the species.
- A study of power lines in Rajasthan in 2011 found white-eyed buzzards to be the second most common raptor killed by electrocution after kestrels.
- But there is not any serious threat has been observed in the study area.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to theWhite Eyed Buzzard. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people

inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.

- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area ofWhite Eyed buzzard populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.

With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Black Kite (*Milvus migrans*)**

Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Accipitriformes
Family: Accipitridae
Genus: *Milvus*
Species: ***M. migrans***

Binomial name

Milvus migrans

General Description of the species

The **black kite** (*Milvus migrans*) is a medium-sized bird of prey in the family Accipitridae, which also includes many other diurnal raptors. It is thought to be the world's most abundant species of Accipitridae, although some populations have experienced dramatic declines or fluctuations. Current global population estimates run up to 6 million individuals. Unlike others of the group, black kites are opportunistic hunters and are more likely to scavenge. They spend a lot of time soaring and gliding in thermals in search of food. Their angled wing and distinctive forked tail make them easy to identify. They are also vociferous with a shrill whinnying call. This kite is widely distributed through the temperate and tropical parts of Eurasia and parts of Australasia and Oceania, with the temperate region populations tending to be migratory. Several subspecies are recognized and formerly had their own English names. The European populations are small, but the South Asian population is very large.

The species is found in Europe, Asia, Africa and Australia. The temperate populations of this kite tend to be migratory while the tropical ones are resident. European and central Asian birds (subspecies *M. m. migrans* and black-eared kite *M. m. lineatus*, respectively) are migratory, moving to the tropics in winter, but races in warmer regions such as the Indian *M. m. govinda* (small Indian/pariah kite), or the Australasian *M. m. affinis* (fork-tailed kite), are resident. In some areas such as in the United Kingdom, the black kite occurs only as a wanderer on migration.

In India, the population of *M. m. govinda* is particularly large especially in areas of high human population. Here the birds avoid heavily forested regions. A survey in 1967 in the 150 square kilometres of the city of New Delhi produced an estimate of about 2200 pairs or roughly 15 per square kilometre. Another survey in 2013 estimated 150 pairs for every 10 square kilometres.

Breeding of the species

The breeding season of black kites in India begins in winter (mainly January and February), the young birds fledging before the monsoons. The nest is a rough platform of twigs and rags placed in a tree. Nest sites may be reused in subsequent years. The nests may sometimes be decorated with bright materials such as white plastic and a study in Spain suggests that they may have a role in signalling to keep away other kites. After pairing, the male frequently copulates with the female. Unguarded females may be approached by other males, and extra pair copulations are frequent. Males returning from a foraging trip will frequently copulate on return, as this increases the chances of his sperm fertilizing the eggs rather than a different male. Both the male and female take part in nest building, incubation and care of chicks. The typical clutch size is 2 or sometimes 3 eggs. The incubation period varies from 30–34 days. Chicks of the Indian population stayed at the nest for nearly two months. Chicks hatched later in European populations appeared to fledge faster. The care of young by the parents also

rapidly decreased with the need for adults to migrate. Siblings show aggression to each other and often the weaker chick may be killed, but parent birds were found to preferentially feed the smaller chicks in experimentally altered nests. Newly hatched young have down (prepennae) which are sepia on the back and black around the eye and buff on the head, neck and underparts. This is replaced by brownish-gray second down (preplumulae). After 9–12 days, the second down appears on the whole body except the top of the head. Body feathers begin to appear after 18 to 22 days. The feathers on the head become noticeable from the 24th to 29th day. The nestlings initially feed on food fallen at the bottom of the nest and begin to tear flesh after 33–39 days. They are able to stand on their legs after 17–19 days and begin flapping their wings after 27–31 days. After 50 days, they begin to move to branches next to the nest. Birds are able to breed after their second year. Parent birds guard their nest and will dive aggressively at intruders. Humans who intrude the nest appear to be recognized by birds and singled out for dive attacks.

Food Habits & Behaviour of the Species

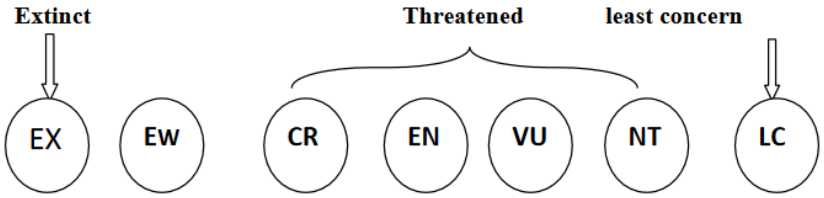
Black kites are most often seen gliding and soaring on thermals as they search for food. The flight is buoyant and the bird glides with ease, changing directions easily. They will swoop down with their legs lowered to snatch small live prey, fish, household refuse and carrion, for which behaviour they are known in British military slang as the shite-hawk. They are opportunist hunters and have been known to take birds, bats, and rodents. They are attracted to smoke and fires, where they seek escaping prey. Black kites in Spain prey on nestling waterfowl especially during summer to feed their young. Predation of nests of other pairs of black kites has also been noted. Kites have also been seen to tear and carry away the nests of baya weavers in an attempt to obtain eggs or chicks.

Conservation and Its relationship with Humans

This species is very commonly found in human settlements as well as around agricultural habitats and scrublands near human habitations. This species is given special attention as it is included under Schedule-I of the Wildlife Protection Act-1972.

The Indian populations are well adapted to living in cities and are found in densely populated areas. Large numbers may be seen soaring in thermals over cities. In some places, they will readily swoop and snatch food held by humans.The birds avoid heavily forested regions. A survey in 1967 in the 150 square kilometres of the city of New Delhi produced an estimate of about 2200 pairs or roughly 15 per square kilometre. Another survey in 2013 estimated 150 pairs for every 10 square kilometres.

CONSERVATION STATUS



IUCN : Least Concern

IWPA : Schedule I

Probable Threats to the species

- Black kites often perch on electric wires and are frequent victims of electrocution.
- Their habit of swooping to pick up dead rodents or other roadkill leads to collisions with vehicles.
- Instances of mass poisoning as a result of feeding on poisoned pests in agricultural fields.
- As a large raptorial bird, the black kite has few natural predators. However, they do have a single serious predator: the Eurasian eagle-owl (*Bubo bubo*).
- Like most bird species, they have parasites, several species of endoparasitic trematodes are known and some Digenea species that are transmitted via fishes.
- In this study area there are no such threats have been observed for this species.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to the Black Kite. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.
- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.

- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area ofBlack Kite populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.

With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Shikra (*Accipiter badius*)**

Scientific classification

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Accipitriformes

Family: Accipitridae

Genus: *Accipiter*

Species: *A. badius*

Binomial name

Accipiter badius

General Description of the species

The **shikra** (*Accipiter badius*) is a small bird of prey in the family Accipitridae found widely distributed in Asia and Africa where it is also called the **little banded goshawk**. The African forms may represent a separate species but have usually been considered as subspecies of the shikra. The shikra is very similar in appearance to other sparrow hawk species including the Chinese goshawk and Eurasian sparrow hawk. They have a sharp two note call and have the typical flap and glide flight. Their calls are imitated by drongos and the common hawk-cuckoo resembles it in plumage.

The shikra is a small raptor (26–30 cm long) and like most other *Accipiter* hawks, this species has short rounded wings and a narrow and somewhat long tail. Adults are whitish on the underside with fine rufous bars while the upperparts are grey. The lower belly is less barred and the thighs are whitish. Males have a red iris while the females have a less red (yellowish orange) iris and brownish upperparts apart from heavier barring on the underparts. The females are slightly larger. The mesial stripe on the throat is dark but narrow. In flight the male seen from below shows a light wing lining (underwing coverts) and has blackish wing tips. When seen from above the tail bands are faintly marked on the lateral tail feathers and not as strongly marked as in the Eurasian sparrowhawk. The central tail feathers are unbanded and only have a dark terminal band. Juveniles have dark streaks and spots on the upper breast and the wing is narrowly barred while the tail has dark but narrow bands. A post juvenile transitional plumage is found with very strong barring on the contour feathers of the underside. The call is *pee-wee*, the first note being higher and the second being longer. In flight the calls are shorter and sharper *kik-ki ... kik-ki*. The Chinese sparrowhawk is somewhat similar in appearance but has swollen bright orange ceres and yellow legs with the wing tips entirely black.

Breeding of the species

The breeding season in India is in summer from March to June. The nest is a platform similar to that of crows lined with grass. Both sexes help build the nest, twigs being carried in their feet. Like crows, they may also make use of metal wires. The usual clutch is 3 to 4 eggs (when eggs are removed they lay replacements and one observer noted that they could lay as many as 7 in a season) which are pale bluish grey stippled on the broad end in black. The incubation period is 18 to 21 days.

Food Habits&Behaviour of the Species

The Shikra is found in a range of habitats including forests, farmland and urban areas. They are usually seen singly or in pairs. The flight is typical with flaps and glides. During the breeding season pairs will soar on thermals and stoop at each other. Their flight usually draws alarms among smaller birds and squirrels. They feed on rodents (including *Meriones hurrianae*), squirrels, small birds, small reptiles (mainly lizards but sometimes small snakes) and insects. Small birds usually dive through foliage to avoid a Shikra and a Small Blue Kingfisher has been observed diving into water to escape. Babblers have been observed to rally together to drive away a Shikra. They will descend to the ground to feast on emerging winged termites, hunt at dusk for small bats (such as *Cynopterus sphinx*) and in rare instances they may even resort to feed on carrion. In one instance a male was found feeding on a dead chick at the nest. Their calls are mimicked by drongos and this behaviour is thought to aid in stealing food by alarming other birds that the drongos associate with.

Conservation and Its relationship with Humans

This species is very commonly found in human settlements as well as around agricultural habitats and scrublands near human habitations. This species is given special attention as it is

included under Schedule-I of the Wildlife Protection Act-1972.The Shikra was a favourite among falconers in India and Pakistan due to the ease with it could be trained and was frequently used to procure food for the more prized falcons. They were noted for their pluck and ability to take much larger birds including partridges, crows and even young peafowl. The word *shikra* or *shikara* means hunter in the Hindi language (the male was called *chipak* or *chipka* based on call) the word Shikra is borrowed from the Urdu word which is derived from the word shikari meaning hunter. Hunting in Persian is referred to as shikar and in Arabic the hunt master in the Mameluke era was known as Ameer Shikar. The word Shikari may also be used in English in the sense of "hunter". An Indian Navyhelicopter base was named INS Shikra in 2009. The shikra is also the mascot for the 149 Squadron of the Republic of Singapore Air Force, which operates the F5S/T Tiger IIs fighter jets

Probable Threats to the species

- The Shikra was a favourite among falconers in India and Pakistan due to the ease with it could be trained and was frequently used to procure food for the more prized falcons, so sometimes the illegal trade can be happen for the species.
- Shikra often perch on electric wires and are frequent victims of electrocution.
- Their habit of swooping to pick up dead rodents or other roadkill leads to collisions with vehicles.
- Instances of mass poisoning as a result of feeding on poisoned pests in agricultural fields.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to theShikra. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.
- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.

- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of Shikra populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.
- With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

The proponent has proposed a sum of Rs. 102500/-for the "Shikra" conservation plan under the following heads:

S. No	**Work or Activity**	**Approximate Cost. Rs.**
1	Plantation-350 tree plants (5 feet heightas per the plant species-Cost of sapling will be changed per year)	52,500/-(@ 150/-per plant)
3	One awareness programme for conservation	20,000/-
4	3 cash prizes @ 10000 in a year will be awarded to the informer of poachers.	30,000/-
TOTAL		1,02,500/-

- **<u>Short Toed Snake Eagle(*Circaetus gallicus*)</u>**

Scientific classification

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Accipitriformes

Family: Accipitridae

Genus: *Circaetus*

Species: ***C. gallicus***

Binomial name

Circaetus gallicus

General Description of the species

The **short-toed snake eagle** (*Circaetus gallicus*), also known as **short-toed eagle**, is a medium-sized bird of prey in the family Accipitridae, which also includes many other diurnal raptors such as kites, buzzards and harriers. The genus name *Circaetus* is from the Ancient Greek*kirkos*, a type of hawk, and *aetos*, "eagle". The specific *gallicus* means "of Gaul".

This is an Old World species found throughout the Mediterranean basin, into Russia and the Middle East, and parts of Asia, mainly in the Indian Subcontinent and also further east in some Indonesian islands.The short-toed snake eagle is found in open cultivated plains, arid stony deciduous scrub areas and foothills and semi-desert areas. It requires trees for nesting and open habitats, such as cultivations and grasslands for foraging.

Adults are 62–67 cm (2 ft 0 in–2 ft 2 in) long with a 170–185 cm (5 ft 7 in–6 ft 1 in) wingspan and weigh 1.2–2.3 kg (2.6–5.1 lb). They can be recognised in the field by their predominantly white underside, the upper parts being greyish brown. The chin, throat and upper breast are a pale, earthy brown. The tail has 3 or 4 bars. Additional indications are an owl-like rounded head, brightly yellow eyes and lightly barred under wing.

The short-toed snake eagle spends more time on the wing than do most members of its genus. It favours soaring over hill slopes and hilltops on updraughts, and it does much of its hunting from this position at heights of up to 500 m (1,600 ft). When quartering open country it frequently hovers like a kestrel. When it soars it does so on flattish wings.

Breeding of the species

This eagle is generally very silent. On occasions, it emits a variety of musical whistling notes. When breeding, it lays only one egg. It can live up to 17 years.

The short-toed snake eagle has suffered a steep decline in numbers and range in Europe and is now rare and still decreasing in several countries due to changes in agriculture and land use. It needs protection. In the middle and far eastern part of its range, this species is not yet threatened.

Food Habits&Behaviour of the Species

Its prey is mostly reptiles, mainly snakes, but also some lizards. Sometimes they become entangled with larger snakes and battle on the ground. Occasionally, they prey on small mammals up to the size of a rabbit, and rarely birds and large insects.

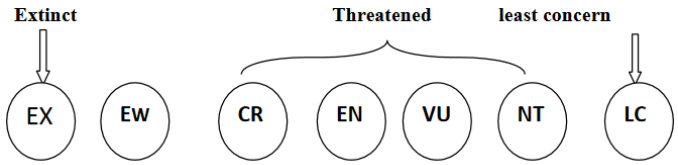
Conservation and Its relationship with Humans

In his description of the species, Buffon says that he kept one of these eagles in captivity and observed its behaviour. The captive bird ate mice and frogs, and he states that the *Jean-de-blanc* was well known by French farmers for raiding poultry. It also helps humans especially in agriculture sector by preying upon so called pests such as Rats and Mice and reduces its adverse effect on seed storage.

Probable Threats to the species

- Short toed Snake Eagle often perch on electric wires and are frequent victims of electrocution.
- Their habit of swooping to pick up dead rodents or other roadkill leads to collisions with vehicles.
- Instances of mass poisoning as a result of feeding on poisoned pests in agricultural fields.

CONSERVATION STATUS



IUCN : Least Concern
IWPA : Schedule I

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to theShort toed Snake Eagle. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.
- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through

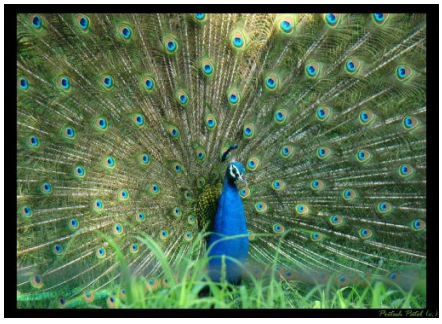
organizing competitions during “Wildlife Week” and “Van Mahotsav” celebrations by active involvement of local community.

- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during ‘Uttarayan’ – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of Short toed Snake Eagle populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.
- With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Indian Peafowl (*Pavo cristatus*)**

Classification

Kingdom	: Animalia
Phylum	: Chordata
Class	: Aves
Order	: Galliformes
Family	:Phasianidae
Genus	: Pavo
Species	: Pavo cristatus
Common Name	: Indian Peafowl
Vernacular Name	: Mor



General Description of the species

Peacock or Indian peafowl (*Pavo cristatus*) is a familiar and universally known large pheasant. It is the **National Bird of India**. The term“Peacock” is commonly used to refer to birds of both sexes. Technically, only males are Peacock, females are Peahens and together they are called Peafowl.The male has a spectacular glossy green long tail feathers that may be more than 60 percent of the bird’s total body length. These feathers have blue, golden green and copper colored ocelli (eyes). The long tail feathers are used for mating rituals like courtship displays. The feathers are arched into a magnificent fan shaped form across the back of the bird and

almost touching the found on both sides. Females do not have these graceful tail feathers. They have the fan like crest with whitish face and throat, chestnut brown crown and hind neck, metallic green upper breast and mantle, white belly and brownback rump and tail. Their primaries are dark brown.

Life Cycle of the species

Call: Kee-ow, Kee- ow, Kee-ow, Ka- an, Ka- an, Ka- an, Kok- kok, Kok- kok, cain- kok

Breeding: April – September

Nest site: On ground in undergrowth (wild) on buildings by semi- feral birds in villages, they also prefer Old Houses, Kachcha Houses

Average Body length: 180-230 cm

Average Weight: 2750-6000 gm

Habitat: Agricultural fields, Rural Settlements, Ravines, Tall trees for Roosting, Open Scrubs

Behaviour of the Species

Peacocks are gregarious by nature. In the breeding season they are usually seen in small parties of one male with three to five females whereas in the non-breeding season they remain in separate parties of adult males and females with juveniles. Peacocks roost in tall trees and emerge from the dense thickets to feed in fields and openings in forests and fields.

Food Habits

Peacocks are ground feeders and omnivores in nature. Indian peafowl's do most of their foraging early in the morning and shortly before sunset. They retreat to the shade and security of the trees for the hottest portion of the day. They make a meal of grains, berries drupes wild figs and some cultivated crops. They can also eat insects, reptiles especially snakes and small mammals.

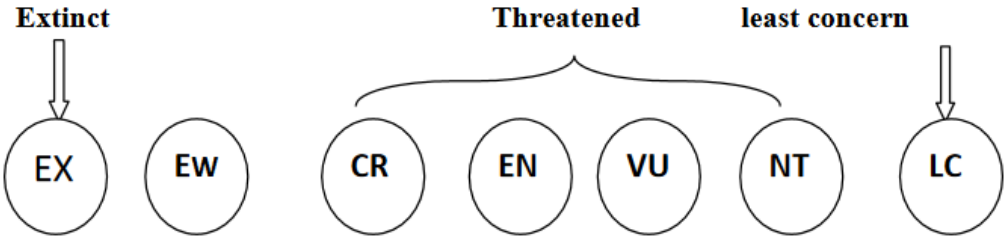
Present study area have open agriculture fields surrounded with rural settlements where peafowl can easily find the seeds such as grains, pulses etc. as well as plant parts, flower petals, seed heads, insects and other arthropods, reptiles and amphibians very easily and due to this easy availability of food they inhibits in the region and also reproduces easily.

Conservation and Its relationship with Humans

Indian peafowl is a very common and popular throughout the region due to its beautiful appearance so as its popularity and so Indian peafowl has ensured its protection through most of its native ranges. Having an importance as National Bird this species is well conserved throughout the region. The Indian peafowl is prominent in the Indian mythology and folklore of the Indian people. The majority of the people inhibiting are belongs to Hindu religion in which

the bird is considered sacred because of its association with Lord Krishna as their identical feature of appearance was from Peacock feather Crown (Mor Mokut). It is also associated with the God Kartikeya, Son of the Lord Shiva and Parvati and brother of Lord Ganesh who was having Indian Peafowl as his own vehicle (Vahan).

CONSERVATION STATUS



IUCN	:	Least Concern
IWPA	:	Schedule I

Present survey of the peafowl in the buffer zone of the project site cleared that; peafowl is using both, village adjacent habitats, agricultural habitats, scrub-forest habitats of the buffer zone as well as the study area. However, the following points can give an insight on the overall status of peafowl in the study area and thereby plan for better management strategies related to proposed project activities. People of the surveyed villages were well aware of the habits and habitats of peafowl in the study area. Moreover, local people are against to hunting and poaching of the peacocks. In the buffer zone, peafowl uses agriculture (adjacent to village) and scrubland-forest habitats as a feeding and breeding ground. Some of the peacocks are taking shelter in the inside of the village as well as adjacent habitats. It clearly indicated that, peafowl normally uses human associated and natural habitats. Form above study, it has been visualized that, the proposed project will not have any significant impact on peacock in terms of their normal movements and other activities as the species is familiar among the people in the region and the status of it is increasing eventually. However, it is necessity to take some management optionslike habitat improvement in the villages located in the vicinity of the project site. So, habitat improvement programme (plantation of local plant species) will be undertaken indifferent villages located in the close vicinity of the project area. Under this programme saplings will be distributed in the nearby villages with the consultation of the local forest department. This program will provide trees for shelter to the species in near future which will contribute for effective species conservation.

Probable Threats to the species

- Habitat loss, due to rapid growth of development in rural as well as agricultural sector results in the shortage of tall trees in and around the villages which plays essential role for roosting for the species. They also plays vital role by providing shelter during hot summer months.
- Shortage of drinking water for the birds during the hot summer days. As there are very few perennial water resources present in the study area.
- Casualties' causes by eating chemically treated as well as contaminated agricultural crop seeds.
- Illegal hunting by some communities In the study area, all the villages surveyed are against hunting or poaching of the people and not found any such activity promoted in this region.
- Peacock conservation plan has to address above listed threats.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

1. Increasing the tree cover in the study area which will provide shelter and roosting to the peacocks. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.
2. Awareness programmes (community and school level) for conservation of peacocks in the study area and also through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
3. Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
4. Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
5. Provision of veterinary care and cages for injured or sick deformed birds especially during 'Uttarayan' – A Kite flying festival where the birds are prone to thread injuries.
6. Suggest strategies to minimize negative impacts of changing environment in nearby area of peacock populations and to promote conservation of peacock habitats.
7. Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.

8. With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Black Shouldered Kite (*Elanus axillaris*)**

Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Accipitriformes
Family: Accipitridae
Genus: *Elanus*
Species: ***E. axillaris***

Binomial name

Elanus axillaris

General Description of the species

The **black-shouldered kite** (*Elanus axillaris*), also known as the **Australian black-shouldered kite**, is a small raptor found in open habitat throughout Australia. It resembles similar species found in Africa, Eurasia and North America, including the black-winged kite, a species that has in the past also been called "black-shouldered kite". Measuring around 35 cm (14 in) in length with a wingspan of 80–100 cm (31–39 in), the adult black-shouldered kite has predominantly grey-white plumage and prominent black markings above its red eyes. It gains its name from the black patches on its wings. The primary call is a clear whistle, uttered in flight and while hovering. It can be confused with the related letter-winged kite in Australia, which is distinguished by the striking black markings under its wings.

The adult black-shouldered kite is around 35 cm (14 in) in length, with a wingspan of between 80 and 100 cm (31 and 39 in). The female is slightly heavier, weighing on average around 300 g (11 oz) compared to the male's average weight of 260 g (9.2 oz). The sexes have similar plumage. The crown, neck and upperparts are pale grey, while the head and underparts are white. A black comma-shaped marking lies in front of and stretches over and behind the eye, which is deep red and surrounded by a black orbital ring. The leading edge of the outer wing is black. When perched, this gives the species its prominent black "shoulders". The central rectrices of the tail are pale grey, while the rest of the tail feathers are white. The bill is short with a sharp, hooked tip to the upper mandible. Its nostrils and the cere are bright or dull yellow and the bill is black. The legs and feet are also yellow or golden-yellow, and the feet have three toes facing forwards and one toe facing backwards.

The juvenile has a white forehead and chin and rusty brown neck, nape and breast with darker streaks. The back and wings are mottled buff or brown. There is a less distinctive dark shoulder patch, but a larger comma-shaped patch over the eyes. The eyes themselves are dark brown. The bill is black with a horn-coloured cere.

Black-shouldered kites spiral into the wind like a kestrel. They soar with v-shaped up-curved wings, the primaries slightly spread and the tail widely fanned, giving the tail a squarer appearance and visible 'fingers' on the wings. In level flight progress is rather indirect. Their flight pattern has been described as 'winnowing' with soft steady beats interspersed with long glides on angled wings. They can most often be seen hovering with wings curved and tail pointing down.

The black-shouldered kite is very similar to the related letter-winged kite (E. scriptus), but has the black mark above and behind the eye, a white rather than grey crown, and shows all-white underparts in flight except for the black markings on the shoulder, dark wingtips, and a small black patch on the underwing. It is slightly larger than the nankeen kestrel (Falco cenchroides). The latter species lacks wing markings and has pale brown plumage. It keeps its wings level when soaring, and has a faster wingbeat when hovering. The grey falcon (Falco hypoleucos) has somewhat similar coloration to the black-shouldered kite but is bulkier and heavier overall and lacks the black markings. Its wings are barred and it preys on birds. The grey goshawk (Accipiter novaehollandiae) has wider more rounded wings, underwing markings and glides with lowered wings.

Black-shouldered kites may be sedentary or nomadic, and are generally found in open grasslands or valleys where there are scattered clumps of trees, where the grass or groundcover is accessible from the air and ranges from 30 cm to 1.5 m (1–3 ft) high. As well as native grasslands they forage over pastures, cereal or vegetable crops and vineyards, often focusing on areas that have been recently harvested or ploughed and hence rendering prey more exposed. In urban areas they are encountered on the edge of towns on wasteland, irregularly mown areas, sports fields, golf courses or grassy roadside verges. They also hunt over coastal dunes and drier marshland, but avoid areas with dense cover such as forest as well as bare or rocky ground.

Breeding of the species

The breeding season is usually August to January, but is responsive to mice populations, and some pairs breed twice in a good season. Both sexes collect material for the nest but the female alone builds it. A large untidy shallow cup of sticks usually in the foliage near the top of trees, the nest takes anywhere from two to six weeks to be built. It is constructed of thin twigs and is around 28 to 38 cm (11 to 15 in) across when newly built, but growing to around 78 cm (31 in) across and 58 cm (23 in) deep after repeated use. The nest is lined with green leaves and felted fur, though linings of grass and cow dung have also been reported. It is generally located

in the canopy of an isolated or exposed tree in open country, elevated 5 to 20 m (16 to 66 ft) or more above the ground.

Females perform most of the care of eggs and nestlings, though males take a minor share of incubation and brooding. The clutch consists of three to four dull white eggs of a tapered oval shape measuring 42 mm × 31 mm (1.7 in × 1.2 in) and with red-brown blotches that are often heavier around the larger end of the egg. The eggs are laid at intervals of two to five days. The female incubates the eggs for 30 days and when the eggs hatch the chicks are helpless but have soft down covering their body. For the first two weeks or so the female broods the chicks constantly, both day and night. She does no hunting at all for the first three weeks after hatching, but calls to the male from the nest, and he generally responds by bringing food. The female feeds the chicks with the mice brought back to the nest by the male, feeding them in tiny pieces for the first week or two, at which time the chicks are capable of swallowing a mouse whole. The nestling period lasts around 36 days, and the post-fledging period at least 36 days with parental feeding for at least 22 days. When the chicks are older both parents take it in turns to feed them. Black feathers start to appear along the chicks' wings when they are about a fortnight old, and they are fully fledged and are ready to fly in five weeks. Within a week of leaving the nest the young birds are capable of hunting for mice on their own.

Food Habits&Behaviour of the Species

The black-shouldered kite has become a specialist predator of the introduced house mouse, often following outbreaks of mouse plagues in rural areas. It takes other suitably-sized creatures when available, including grasshoppers, rats, small reptiles, birds, and even (very rarely) rabbits, but mice and other mouse-sized mammals account for over 90% of its diet. Its influence on mouse populations is probably significant; adults take two or three mice a day each if they can, around a thousand mice a year. On one occasion, a male was observed bringing no less than 14 mice to a nest of well-advanced fledglings within an hour.

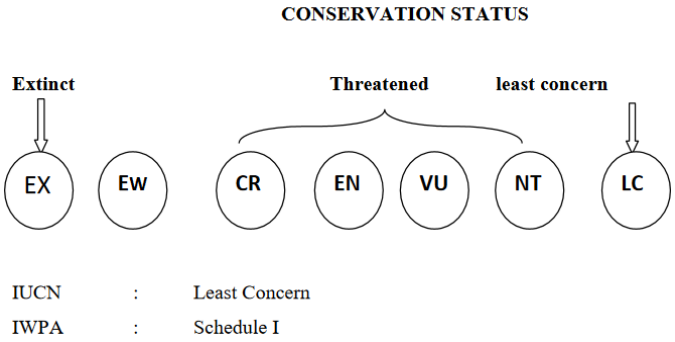
Like other elanid kites, the black-shouldered kite hunts by quartering grasslands for small creatures. This can be from a perch, but more often by hovering in mid-air. It is diurnal, preferring to hunt during the day, particularly in the early morning and mid to late afternoon, and occasionally hunt in pairs. Its hunting pattern, outside breeding periods and periods of abundant prey, has distinct crepuscular peaks, perhaps corresponding to mouse activity. When hunting, the kite hovers with its body hanging almost vertically, and its head into the wind.When a mouse or other prey is spotted, the kite drops silently onto it, feet-first with wings raised high; sometimes in one long drop to ground level, more often in two or more stages, with hovering pauses at intermediate heights. Prey is seized in the talons and about 75% of attacks are successful. Prey can either be eaten in flight or carried back to a perch. Birds will have a favoured feeding perch, beneath which accumulate piles of pellets or castings.

Conservation and Its relationship with Humans

This raptor is most commonly seen raptor mainly in agricultural and scrubland habitat of the Gujarat as well as the study area. The maximum area is covered with agricultural fields and this species of raptor consumes the field mice, rats and other such animals which are easily available in agricultural habitat as well as in rural areas. Hence it is very well associated with human habitations. People inhibiting in the study area are also very well aware as they are getting benefitted by this bird as it acts as natural pest control. In India this bird is given to special attention by including it under Schedule –I in Wildlife protection Act-1972.

Probable Threats to the species

- Black Shouldered Kiteoften perch on electric wires and are frequent victims of electrocution.
- Their habit of swooping to pick up dead rodents or other roadkill leads to collisions with vehicles.
- Instances of mass poisoning as a result of feeding on poisoned pests in agricultural fields.



Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Increasing the tree cover in the study area which will provide shelter and roosting to theBlack Shouldered Kite. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.*Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.

- Awareness programmes (community and school level) for conservation of Bird of Preys in the study area as well as negative effects of Chemical pesticide and how it is harmful to the food chain of such species is very essential and the same can be achieved through organizing competitions during “Wildlife Week” and “Van Mahotsav” celebrations by active involvement of local community.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
- Provision of veterinary care and cages for injured or sick deformed birds especially during ‘Uttarayan’ – A Kite flying festival where the birds are prone to thread injuries.
- Suggest strategies to minimize negative impacts of changing environment in nearby area ofBlack Shouldered Kite populations and to promote conservation of habitats.
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.
- With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Indian Python (*Python molurus*)**

Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Reptilia
Order: Squamata
Suborder: Serpentes
Family: Pythonidae
Genus: *Python*
Species: ***P. molurus***

Binomial name

Python molurus
(Linnaeus, 1758)

General Description of the species

The rock python's colour pattern is whitish or yellowish with the blotched patterns varying from tan to dark brown shades. This varies with terrain and habitat. Specimens from the hill forests of Western Ghats and Assam are darker, while those from the Deccan Plateau and Eastern Ghats are usually lighter.Indian pythons commonly reach a length of 2.4–3.0 m (7.9–9.8 ft.).It lives in a wide range of habitats, including grasslands, swamps, marshes, rocky foothills, woodlands, open forest, and river valleys. It needs a permanent source of water. It hides in abandoned mammal burrows, hollow trees, dense water reeds, and mangrove thickets.

Behaviour of the Species

Lethargic and slow moving even in their native habitat, they exhibit timidity and rarely try to attack even when attacked. Locomotion is usually with the body moving in a straight line, by "walking on its ribs". They are excellent swimmers and are quite at home in water. They can be wholly submerged in water for many minutes if necessary, but usually prefer to remain near the bank.

Food Habits

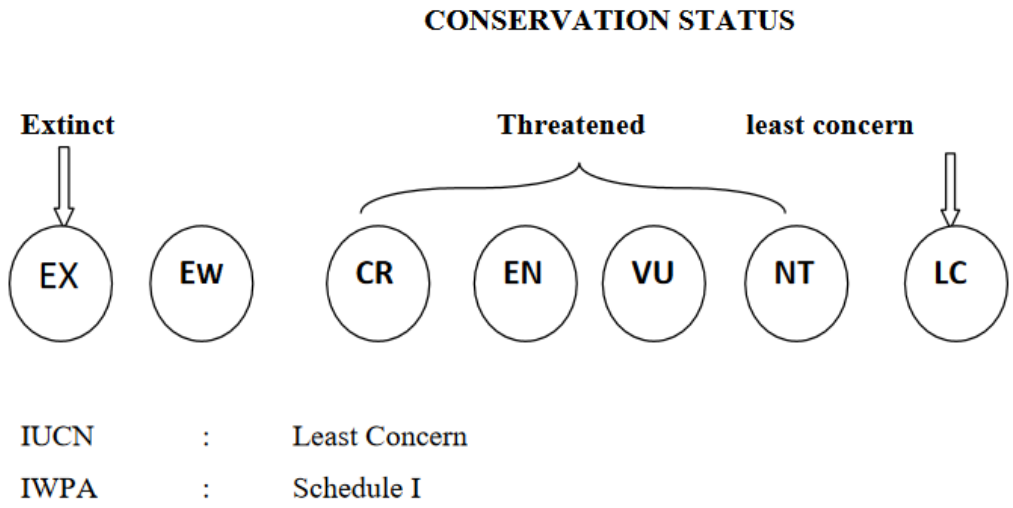
Like all snakes, Indian pythons are strict carnivores and feed on mammals, birds, and reptiles indiscriminately, but seem to prefer mammals. Roused to activity on sighting prey, the snake advances with a quivering tail and lunges with an open mouth. Live prey is constricted and killed. One or two coils are used to hold it in a tight grip. The prey, unable to breathe, succumbs and is subsequently swallowed head first. After a heavy meal, they are disinclined to move. If forced to, hard parts of the meal may tear through the body. Therefore, if disturbed, some specimens disgorge their meal to escape from potential predators. After a heavy meal, an individual may fast for weeks, the longest recorded duration being 2 years. The python can swallow prey bigger than its diameter because the jaw bones are not connected. Moreover, prey cannot escape from its mouth because of the arrangement of the teeth (which are reverse saw-like).

Reproduction

Oviparous, up to 100 eggs are laid by a female, which she protects and incubates. Towards this end, they are capable of raising their body temperature above the ambient level through muscular contractions. The hatchlings are 45–60 cm (18–24 in) in length and grow quickly. An artificial incubation method using climate-controlled environmental chambers was developed in India for successfully raising hatchlings from abandoned or unattended eggs.

Conservation and Its relationship with Humans

The Indian python is classified as lower risk – Least Concern on the IUCN Red List of Threatened Species.The Indian Python is given conservation through Wildlife Protection Act 1972 as it is under Schedule – I species of importance. As the species is Lethargic and Slow moving, people used to keep it as pet from historic times. Earlier this species was under threat as its body parts such as Bones, Skin and Testicles was illegally traded and used for traditional medicines as well as other items manufacturing such as Lather items. People in the study area are very much aware of this species and usually no one kills this species when it comes to accidental encounter with one another. People calls officials of forest department for rescue of it rather than killing by themselves.



IUCN : Least Concern

IWPA : Schedule I

Probable Threats to the species

- Habitat loss, due to rapid growth of development in rural as well as agricultural sector results in the shortage of natural habitats.
- Shortage of water sources the hot summer days as the Python prefers to live nearby a water body. As there are very few perennial water resources present in the study area.
- Casualties' causes by road accidents or by accidental encounter with community inhibiting.
- Illegal hunting by some communities In the study area, all the villages surveyed are against hunting or poaching of the people and not found any such activity promoted in this region.

Conservation Measures

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

1. Increasing the tree cover in the study area which will provide habitat and roosting to the small birds, small mammals and other reptiles which can be important part of food

chain of Indian Python. This can be achieved by planting of trees (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. By encouraging people for plantation of some local species such as Neem, Shirish, Khakhro, Haldu, Amli, Banyan, Peepal and Peeper or other *Ficus sp.* Vacant places such as edges of agricultural fields, village Gauchar, Panchayat's common land, neighbourhood of people inhibiting, road side avenue tree plantation, open scrubs, ravines, school compounds can be selected for practicing the plantation activity.

2. Awareness programmes (community and school level) for conservation of Reptiles such as Python in the study area and also through organizing Presentations, competitions during "Wildlife Week" and "Van Mahotsav" celebrations by active involvement of local community.
3. Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
4. Carrying out census and research projects to know the potential threats and population status of the species in collaboration of local schools, colleges, panchayats and forest department.
5. Provision of veterinary care and Rescue for the species when it comes with direct encounter to community inhibiting nearby.
6. Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.
7. With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

- **Danaid eggfly (*Hypolimnas misippus*)**

Scientific classification

Kingdom: Animalia
Phylum: Arthropoda
Class: Insecta
Order: Lepidoptera
Family: Nymphalidae
Genus: *Hypolimnas*
Species: ***H. misippus***

Binomial name

Hypolimnas misippus

General Description of the species

Hypolimnas misippus, the **Danaid eggfly**, **mimic**, or **diadem**, is a widespread species of nymphalidbutterfly. It is well known for polymorphism and mimicry. Males are blackish with distinctive white spots that are fringed in blue. Females are in multiple forms that include male-like forms while others closely resemble the toxic butterflies *Danaus chrysippus* and *Danaus plexippus*. They are found across Africa, Asia, and Australia. In the new world they are found in the West Indies, with strays in Central and North America.The male has the upper wings dark velvety brownish black. The forewing has a broad white oval spot between veins 3 and 7. A smaller spot near the apex is also present. These spots are crossed by the black veins and bordered in iridescent blue that is visible only at certain angles. The hind wing has a larger white spot but the veins crossing it are yellowish and not as prominent as on the forewing. There are some white specks along the tornus and the margin is edged with white and black.

Life Cycle of the species

Larva: Describes this as cylindrical, black, with a darker black dorsal line, banded transversely with pale brown transverse tuberculated small spots; beneath dark olive-brown; legs and head brick-red; head furnished with two long black thick branched spines; the rest of the segments except the anal with ten branched spines, dirty, transparent white in colour and disposed in longitudinal rows, anal segment with two similar spines.

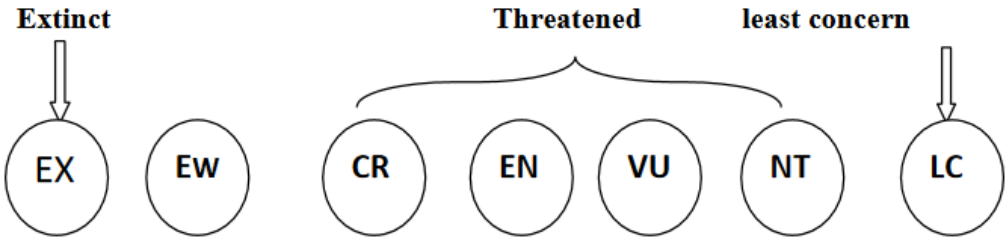
Food Habits

It is found mainly around flowering plants, herbs and shrubs.

Conservation and Its relationship with Humans

Danaid eggfly is under least concern category of IUCN but on the other hand due to decreasing the sightings or any such reason Indian authorities have kept this species under Schedule – I in the Wildlife Protection Act which gives special attention to the species for its conservation. This species along with other butterfly closely associated with humans. Human does plantation of ornamental species in which the flowering lasts throughout the year which acts as a rich source of food for butterflies. The relation is interdependent as the butterfly plays vital role in pollination of the plant species. The study area is having agriculture activity as major land use, existence of this kind of faunal species is very much beneficial as they plays very important role in fruiting of plants which in turns high annual yield.

CONSERVATION STATUS



IUCN : Least Concern

IWPA : Schedule I

Probable Threats to the species

Anthropogenic activities are main reason behind decreasing such smaller faunal species. Due to rapid growth of population the agricultural practices changes to meet such huge demand of annual yield which is the main factor for usage of Chemical pesticides and chemical fertilizer which gives indirect effect of poisoning of such important insect species. Changes in crop pattern, selection of ornamental plants also acts as habitat loss and loss of breeding ground for butterfly species. Change in climate pattern also acts as responsible factor for decline in population of such delicate species which is very much sensitive to minor changes in the climate as well as atmosphere.

Conservation Measures

1) Community inhibiting in study area should make well aware about the importance of the insects in their daily life especially butterflies and bees which acts a very vital role in pollination which results in high and successful fruiting of crops. This can be achieved by arrangements of village wise awareness campaigns. People can be approached through local gatherings and meetings such as Gram sabha in which we can address them for effective conservation of such species.
2) Community awareness for selection of indigenous crops, ornamental plants in empty spaces, home gardens, agricultural fields and open scrub areas which provide breeding and feeding ground for Danied eggfly and such other butterflies and insects.
3) Community awareness-training sessions to be arranged for usage and manufacturing local indigenous pesticides and fertilizers by traditional methods which decreases usage of chemical pesticides and fertilizer.
4) Plant saplings of Flowering and Fruiting plants can be distributed to local people to promote the plantation of butterfly and bee friendly species which gives breeding and feeding platform to the species.

- **Common Pierrot (*Castalius rosimon*)**

Scientific classification

Kingdom: Animalia
Phylum: Arthropoda
Class: Insecta
Order: Lepidoptera
Family: Lycaenidae
Genus: *Castalius*
Species: ***C. rosimon***

Binomial name

Castalius rosimon

General Description of the species

Castalius rosimon, the **Common Pierrot**, is a small butterfly found in India that belongs to the lycaenids, or blues family.

Male

The upperside of its wings is mainly white. Forewing has the costa, apex and termen edged with black, the edging much broader on apex and termen; base outwards for a short distance more or less densely overlaid. with metallic blue scales which cover and make indistinct a large basal outwardly clavate (club-shaped) black spot; a transverse black oval spot on the discocellulars touching the black edging on the costa; an oblique irregular line of four quadrate black spots beyond, the upper spot coalesced with the black on the costal border, the next spot below shifted outwards out of line, touching, as does also the lowest spot, the terminal black edging; posterior to this is a quadrate black spot in the apical half of interspace 2, and placed obliquely outwards from 1b coalescent with the terminal black border, another similar spot in interspace 1.

Hindwing: three basal black somewhat coalescent spots overlaid with metallic blue scaling; the costal margin above the subcostal vein and vein 7 black; this colour filling also the base of interspace 6, where in some specimens it is divided into a basal portion with a spot beyond; a postdiscal curved transverse black band followed by a subterminal transverse series of black spots, each spot edged inwardly and outwardly by very slender lunules of the white ground colour; on the inner side of the postdiscal band posteriorly is a broken line of four black generally coalescent spots two and two, the two upper often touching the postdiscal band.

Underside primarily white. Forewing has a long oblique black band from base outwards to the costa; below it and obliquely placed an irregular black somewhat conical mark; following these are two outwardly oblique, medially interrupted, black macular bands; the inner of the two extended from costa along the discocellulars, is then widely interrupted below its posterior

portion that is formed of two elongate coalescent spots and touches the inner subterminal transverse line of elongate spots just above the tornus; the outer, obliquely placed line is subapical and medially broken, the middle portion consisting of a quadrate spot is shifted outwards; finally, two parallel subterminal transverse series of black elongate spots, the inner series of broad, more or less rectangular spots, the outer series of more linear spots, the latter coalescent anteriorly with a slender anteciliary black line.

Hindwing: a transverse basal black band, with an elongate black spot below it on the dorsum; a transverse subbasal line of four well-separated black spots; a transverse, oval, discocellular black spot and obliquely above it three subcostal similar spots, the inner two coalescent; postdiscal and terminal markings consist, the former of four black posterior spots two and two, each pair coalescent and placed en echelon, the latter of a transverse double series of subterminal black spots and an anteciliary black line; the upper portion of the postdiscal markings touches the inner subterminal line. Cilia of both forewings and hindwings white alternated with black at the apices of the veins; filamentous short tail to the hindwing black tipped with white.Antennae, head, thorax and abdomen black, the shafts of the antennae ringed with white, the head between the eyes and behind them white; beneath: the palpi, thorax and abdomen white, the last barred broadly with white on the sides.

Female

Similar to the male but with the black markings on the upper and undersides broader.

Life Cycle of the species

Larva

"Feeds on *Zizyphus sp.* and is of a rough texture all over. It is of the usual woodlouse form, much flattened towards the anal segment which is very broad; head concealed; colour bright green with a double, dorsal, yellow line and the sides powdered with small yellow spots."

Pupa

"Of the usual *Castalius* form but narrow and slightly flattened. It is intensely glossy as if covered with gum. It varies in colour, being sometimes black, at others green with inconstant black markings."

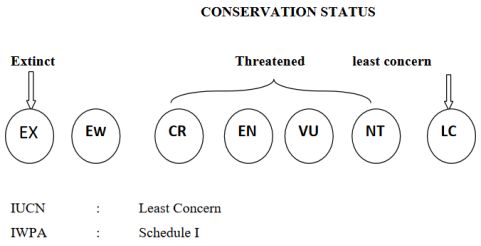
Food Habits

It is found mainly around flowering plants, herbs and shrubs.

Conservation and Its relationship with Humans

Common Pierrot is under least concern category of IUCN but on the other hand due to decreasing the sightings or any such reason Indian authorities have kept this species under

Schedule – I in the Wildlife Protection Act which gives special attention to the species for its conservation. This species along with other butterfly closely associated with humans. Human does plantation of ornamental species in which the flowering lasts throughout the year which acts as a rich source of food for butterflies. The relation is interdependent as the butterfly plays vital role in pollination of the plant species. The study area is having agriculture activity as major land use, existence of this kind of faunal species is very much beneficial as they plays very important role in fruiting of plants which in turns high annual yield.



IUCN : Least Concern
IWPA : Schedule I

Probable Threats to the species

Anthropogenic activities are main reason behind decreasing such smaller faunal species. Due to rapid growth of population the agricultural practices changes to meet such huge demand of annual yield which is the main factor for usage of Chemical pesticides and chemical fertilizer which gives indirect effect of poisoning of such important insect species. Changes in crop pattern, selection of ornamental plants also acts as habitat loss and loss of breeding ground for butterfly species. Change in climate pattern also acts as responsible factor for decline in population of such delicate species which is very much sensitive to minor changes in the climate as well as atmosphere.

Conservation Measures

1) Community inhibiting in study area should make well aware about the importance of the insects in their daily life especially butterflies and bees which acts a very vital role in pollination which results in high and successful fruiting of crops. This can be achieved by arrangements of village wise awareness campaigns. People can be approached through local gatherings and meetings such as Gram sabha in which we can address them for effective conservation of such species.
2) Community awareness for selection of indigenous crops, ornamental plants in empty spaces, home gardens, agricultural fields and open scrub areas which provide breeding and feeding ground for Common Pierrot and such other butterflies and insects.
3) Community awareness-training sessions to be arranged for usage and manufacturing local indigenous pesticides and fertilizers by traditional methods which decreases usage of chemical pesticides and fertilizer.

Plant saplings of Flowering and Fruiting plants can be distributed to local people to promote the plantation of butterfly and bee friendly species which gives breeding and feeding platform to the species.

c) Whether conservation plan for schedule-I species has been approved by competent authority?

The conservation plan for above described schedule-I species has been approved by competent authority and also the authority is focused towards conservation of such species of importance which are essential to balance the environment.

The proponent has proposed a sum of Rs. 102500/-for the "Common pierrot Butterfly" conservation plan under the following heads:

S. No	**Work or Activity**	**Approximate Cost. Rs.**
1	Plantation-350 flowering plants (as per the plant species-Cost of sapling will be changed per year)	52,500/-(@ 150/-per plant)
3	One awareness programme for conservation	20,000/-
4	3 cash prizes @ 10000 in a year will be awarded to the informer of poachers.	30,000/-
TOTAL		1,02,500/-