

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.*

**For office use only.**

DD MM YY



Designation date Site Reference Number

1. Date this sheet was completed/updated: 04.12.2001
2. Country: INDIA
3. Name of wetland: Ropar
4. Geographical coordinates: 30<sup>0</sup>57'-31<sup>0</sup>06' N Latitude  
76<sup>0</sup>25'-76<sup>0</sup>36' East Longitude
5. Elevation: (average and/or max. & min.) 275 m above mean sea level
6. Area: 1365 Hactares

7. **Overview:** (general summary, in two or three sentences, of the wetland's principal characteristics)

The manmade wetland at Ropar came into formation with the construction of a barrage in 1952 for diversion of Sutlej River water for drinking and irrigation supplies in parts of Punjab. The area serve as an important habitat for some threatened species in Shivalik Foothills like scaly aunt eater, python etc.. It is also an important staging ground for migratory waterfawl.

8. **Wetland Type** (please circle the applicable codes for wetland types; in the present document, the “Ramsar Classification System for Wetland Type” is found on page 9)

marine-coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

inland: L • **M** • N • **O** • P • Q • R • Sp • Ss • Tp  
Ts • U • Va • Vt • W • Xf • Xp • Y • Zg • Zk(b)

human-made: 1 • 2 • 3 • 4 • 5 • **6** • 7 • 8 • 9 • Zk(c)

Please now rank these wetland types by listing them from the most to the least dominant:

It is permanent freshwater manmade lake (reservoir) over a permanent river. To the best of our understanding it seems to rank in the order of **6 - O - M.**

9. **Ramsar Criteria:** (please circle the applicable Criteria; the *Criteria for Identifying Wetlands of International Importance* are reprinted beginning on page 11 of this document.)

1 • **2** • **3** • 4 • 5 • 6 • 7 • 8

Please specify the most significant criterion applicable to the site: 1

10. Map of site included? Please tick *yes*  -or- *no*

★❁☐ ❁❁▲ ☉❁❁■ ❁■❁●◆❁❁❁☞

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

11. Name and address of the compiler of this form:

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*Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):*

12. **Justification of the criteria selected under point 9, on previous page.** (Please refer to the *Criteria for Identifying Wetlands of International Importance* appended to this document)

**Criterion 2:**

- Ropar Wetland is an extremely important ecological zone located in the lap of Shivalik Foothills.
- The area serve as an important breeding place for Smooth Indian Otter, Hog Deer, Sambar and certain reptiles which need to be recorded immediately. Sambar and Hog Deer are included in the Schedule-I\* of the Wildlife (Protection) Act, 1972. Indian Pangolin (*Manis crassicaudata*) an endangered animal is considered to be inhabiting this area.

**Criterion 3:**

- 35 species of fish have been reported in this wetland which play important role in food chain (Randhawa, 1990).
- It serves as an important staging ground for a number of migratory birds and also provide habitat for innumerable species of native flora and fauna (lists attached). Diverse kind of food chains and food webs are being supported.

- This wetland regularly supports a substantial proportion of a variety of both local and migratory birds and serves as breeding ground for many species. Coots (*Fulica atra*), are found in large numbers in this wetland area followed by Common Pochard (*Athya ferina*), Red Crested Pochard (*Netta rufina*), and Tufted Pochard (*Athya fuligula*). These are predominantly diving species and tend to form mixed flocks at deeper waters. Among the non-divers are Wigeon (*Anas penelope*) followed by Gadwall (*Anas strepera*) and Shovellar (*Anas clypeata*). Local bird watchers and wildlife department have reported about 154 bird species (Randhawa 1990, Deptt. of Wildlife, Punjab 1993) of which Goldenbacked woodpecker, Green barbet and Crimsonbreasted barbet are claimed to be rare. However, as regards bird count data it may be mentioned that no authentic information is available and study needs to be carried out.
- Although no endemic species have been reported so far but detailed studies need to be conducted in this regard. There is every possibility that some endangered species exist in this wetland or inmigrate during winter season.

**Note:** Please refer the appendix for relevant data

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**\* Schedule I : Please see page 23**

- Since a variety of plants, animals, birds etc. have been reported in the area, this wetland serve a great role in supporting and maintaining genetic and ecological diversity. It may not be ruled out that the Pangolin that inhabits the Shivalik foothill ranges - the endangered habitat - may find areas surrounding Ropar Wetland as suitable habitat once protective and conservation measures are taken up.

**13. General location:** (include the nearest large town and its administrative region)

Ropar Wetland located at about 45 Kms. in the North-West of Chandigarh is the impounded part of river Sutlej near Ropar. It is situated at 30°57'N-31°06' latitude and 76°25'-76°36' E longitude (Verma *et al* 1994) at an elevation of 275 m above mean sea level.

**14. Physical features:** (e.g., geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

This reservoir at Ropar was formed due to the construction of Ropar head regulator in 1952. Before that, small headwork was constructed during the year 1882, on the right side of river Sutlej near Ropar Town so as to supply water to Sirhind Canal. With the construction of main barrage during the year 1952 water was also diverted into another canal - Bist Doab Canal. The reservoir level is maintained at Reduced Level (RL) 873.50 feet above Main Sea Level (MSL) compared to the bed level at RL 857.00 feet above MSL. Depth of water varies from half meters to 6 meters in the Reservoir area. Shallow water features exist along both the sides of the river located within the wetland area. The annual average inflow during 2000 has been reported to be 3677400 cusecs. Per day incoming water at Ropar Wetland from River Sutlej is 10215 cusecs out of which 2460 cusecs flows into the rivers downstream of Ropar Reservoir. 7346 cusecs water is released into Sirhind Canal and 490 cusecs is released into Bist Doab Canal per day. Upstream of Ropar Wetland 850 cusecs is diverted through Bhakra Main Line.

The Ropar Wetland may be classified as manmade fresh water riverine and lacustrine wetland. Climatically this area falls under semi-arid zone of Punjab with mean annual rainfall of 1518 mm.

**15. Hydrological values:** (groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.)

This wetland plays a substantial hydrological role in charging the aquifers since the strata is sandy which permits water seepage into the ground. This is also a source of water for irrigation, industry and domestic use in the far-off places by way of Sirhind Canal and Bist Doab Canal. The water level, in this reservoir is being continuously maintained at R.L 873.50 feet above MSL with reference to the bed at R.L 857.00 feet above MSL. Sirhind and Bist Doab Canals are responsible for irrigation of major part of the agricultural areas in the State.

**16. Ecological features:** (main habitats and vegetation types)

Ropar Wetland strategically located in the lap of Shivalik Foothills is extremely important from Ecological, Economical and Social Heritage point of view. This wetland ecological zone spread over 1365 ha. area

covering a vast patch of water and a forest patch along the marshy zone is an important and vital habitat for migratory birds. Diversity of floral and faunal components available in this strategic ecosystem are of immense value for the region.

This fresh water wetland falls on the migratory route of various birds and is regarded as an important stop over. As regards the migration of critically endangered species in this area, information needs to be collected.

The major floral species associations include timber species of *Acacia*, *Dalbergia* and *Melia* in the forest area. Considerable occurrence of *Morus* and *Mangifera* have also been reported. Plantations of *Salix* species also predominantly dot some of the areas. Adjoining hilly areas support scrub type vegetation as given in Annexure-I. Seasonal variations in floral associations do occur. Both deciduous and evergreen species are prominent. *Lantana camara* an invasive species has considerably covered the forest area and hilly tracts. *Parthenium* sp. is also a cause of concern. Water hyacinth is not that of a problem in this wetland.

Food Chain :

Ropar Wetland has both deep water and shallow water features. The food chain is basically of grazing type and the ecosystem is almost self-sufficient and self-regulating (Dhillon and Kaur 1996).

The abiotic components of the ecosystems at Ropar are chiefly sun light, pH, inorganic salts, nutrients and dissolved gases. The organic matter accumulates at the bottom and mainly comes from the death and decay of animals and plants.

The producers are eutrophic green plants and some photosynthetic bacteria. These are mainly the rooted submerged, floating and emergent hydrophytes like *Typha* sp., *Eleocharis* sp., *Sagittaria* sp., *Nymphaea* sp., *Potamogeton* sp., *Vallisnaria* sp., *Eichhornia* sp., *Lemna* sp. etc. and minute, floating or suspended lower plants like filamentous algae, diatoms, chlorococcales and flagellates.

The primary consumers at Ropar are herbivores, feeding directly on plants. These include molluscs, caustaceans, rotifers and some insects. Others, known as detritivores, feed upon plant remains and organic matter. These include some insect larvae (eg. *Chironomus* sp.) molluscs, mites, some crustaceans and small fishes. Besides, some mammals such as buffaloes, cows etc. also visit the lake and feed on marginal rooted macrophytes. Some birds also feed on some hydrophytes.

The secondary consumers are carnivores, feeding on insects, molluscs, rotifers and crustaceans. To this level belong some insects (eg. Predator

beetles and bugs, dragonflies) and several carnivorous fishes feeding on crustaceans, rotifers and molluscs.

The tertiary consumers at Ropar are large carnivorous fishes and birds which feed on small fishes and insects. The upper most consumer level is occupied by man and fish eating birds. They feed mainly on fishes.

The organic matter which accumulates at the bottom of the lake is decomposed by a variety of heterotrophic microbes such as bacteria, actinomycetes and fungi. The chief species are *Aspergillus sp.*, *Rhizopus sp.*, *Curvularia sp.*, *Paccilomyces sp.*, *Saprolegnia sp.* etc.

**Please see page 25 for Food Web at Ropar Reservoir**

As regards cultivation, it may be mentioned that most of the areas surrounding Ropar Wetland excepting fragile shivalik foothills, are under private cultivation. Major crops include wheat, rice, sugarcane, sorghum, etc.

**17. Noteworthy flora:** (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)

Tentative list of floral species at this wetland shows that the area supports about 19 species of trees, 13 species of shrubs and grasses and about 15 species aquatic plants. Important taxa are *Acacia*, *Dalbergia*, *Delonix*, *Salix*, *Syzygium*, *Zizyphus*, *Utricularia*, *Ipomoea*, *Cyprus*, *Typha*, *Phragmites* etc. Detailed list is at [Annexure-I](#). Most of the plant species excepting *Lantana*, *Parthenium*, *Eichhornia*, *Encalyptus* are native and are locally useful for a variety of reasons.

**18. Noteworthy fauna:** (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

Ropar wetland is an important habitat for a number of threatened and endangered species. At least 9 tax of mammals, 154 species of birds, 35 species of fishes, 9 tax of Arthropods, 11 Rotifers, 9 Crustaceans and 10 Protozoans have been reported. Some important species of snakes and Amphibians also inhabit this wetland. Smooth Indian Otter, Sambar and Hog Deer which have been included in the Schedule-I of the Wildlife (Protection) Act, 1972 are available in this area. Tentative list of species is at [Annexure II](#). Detailed studies are required to be carried out on total biodiversity of the area, population sizes of various species and count data, etc. A project on Biodiversity of Shivalik hills have been started. It is hoped the results of this project will give useful information.

**19. Social and cultural values:** (e.g., fisheries production, forestry, religious importance, archaeological site, etc.)

Ropar area has its distinct place in the District since Anglo Sikh relations and territories were defined by an agreement between Maharaja Ranjit Singh and Lord William Bentick in October, 1831 under the shade of an old Ficus Tree which existed on the bank of River Sutlej. The area is deeply associated with the socio-economic development of the State and adjoining regions. The strategic location of Ropar Headworks and its link with important towns attract innumerable visitors daily. Having tremendous recreational values a number of birds watchers and nature lover visit the area. A Tourist Banglow named Pinccasia Tourist Complex located inside the wetland offers necessary cuisine facilities. Since this wetland is an important source of fisheries, it is significant from economic point of view for the State.

**20. Land tenure/ownership of: (a) site (b) surrounding area**

**(a) Site :** Out of 1365 ha area of Ropar Wetland about 800 ha area is under river and reservoir area. About 30 ha area is under woodland. This forest is locally named as "Sadavarat Forest". This land belongs to the Govt. of Punjab. Site details are shown on the enclosed map.

**(b) Surrounding area :** The area surrounding Ropar Wetland is hilly in the North West and plains in the South and South East. Mostly the area is under private occupation.

**21. Current land use: (a) site (b) surroundings/catchment**

**(a) Site :** 800 ha area is under reservoir and Sutlej River, 30 ha area is under forest and roughly as much area is under marshy plants. Landuse details are shown in the enclosed map.

**(b) Surrounding area :** The surrounding area is under cultivation. Agricultural crops like wheat, rice, sugarcane, sorgum etc. are grown in the farm lands. The adjoining hills are scarcely covered with plants. The hills are exposed to intensive grazing.

**22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects: (a) at the site (b) around the site**

This ecosystem is hard pressed under a diversity of threats calling

immediate measures. Some of the threats looming over Ropar Wetland (PSCST 1992, Ladhar and Handa 1992, Ladhar, 1995) are as under:

- Ropar Wetland is facing severe problems of siltation from the adjoining nude and soft hills, which need immediate treatment and greening. The hills being prone to continuous and extensive erosion will lead to shrinkage of wetland area.
- The outside interference with the resident and migratory birds, illegal fishing and poaching of wildlife may put many species in danger. This needs protection by way of fencing etc.
- Increasing industrialisation is posing a big problem to the ecological status of Ropar Wetland. Fertilizer plant at Nangal, Thermal Power Plant at Ropar, etc. are responsible for water quality degradation of this eco-system. Inflow of chemical pollutants like agrochem-residues run off, industrial effluents and sewage from some towns in the upper reaches like Nangal, Naya Nangal, Anandpur Sahib, Kiratpur Sahib etc. need to be immediately assessed and rectification initiated.
- Invasion and growth of weeds like *Parthenium* and *Lantana* into the wetland zone is also a cause of concern.

It is, therefore, recommended that the conservation measures need to be initiated without any delay since the measures at Ropar will not only restrict at this place but also will provide results downstream thus helping the improvement in the ecological character of Harike Wetland too.

**23. Conservation measures taken:** (national category and legal status of protected areas - including any boundary changes which have been made; management practices; whether an officially approved management plan exists and whether it has been implemented)

Described at [Annexure-III](#) (PSCST 1998, PSCST 2000)

**24. Conservation measures proposed but not yet implemented:** (e.g., management plan in preparation; officially proposed as a protected area, etc.)

Described at [Annexure-IV](#).

**25. Current scientific research and facilities:** (e.g., details of current projects; existence of field station, etc.)

There are three Universities in the State namely Punjab Agriculture University, Ludhiana, Punjabi University, Patiala and Guru Nanak Dev University, Amritsar where necessary infrastructural and scientific facilities are available for undertaking studies on this wetlands. Sludge and Water

Quality Monitoring is being carried out by the Punjab Pollution Control Board, Patiala.

Ropar Wetland, supporting a large number of biotic components is an important open ecosystem for undertaking in-depth studies relating to food chain parameters, energy flow cycling, hydrological parameters, biotic status etc.

**26. Current conservation education:** (e.g., visitors centre, hides, info booklet, facilities for school visits, etc.)

Since this area is on the Chandigarh-Nawanshehar National Highway, transportation facilities for visitors are available all the time. Being located in the Shivalik Foothills, it finds a good place in the minds of researchers and nature lovers. General Public, school, college and university students stop over at Ropar to visit this area. This helps in spreading the importance of aquatic ecosystems. To sensitise public further the district administration has already constructed an observation tower and information gallery in the area.

**27. Current recreation and tourism:** (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

This wetland contributes to the tourism activities to a substantial extent. Nature lovers, bird watchers, swimmers and environmentalists visit the area regularly and enjoy the nature. A tourism complex 'Pincasia' within the wetland boundary opened in 1975 is also an important attraction for the visitors. A Boat Club is also functioning in the area and the boating lovers visit the area from time to time. Tourism facilities, at present, at Ropar are being provided by the Punjab Tourism Development Corporation. Tourism potential has further enhanced with declaration of Ropar Wetland Region as a National Wetland.

**28. Jurisdiction:** (territorial, e.g. state/region, and functional, e.g. Dept of Agriculture/Dept. of Environment, etc.)

Punjab,  
Department of Science, Technology & Environment,  
Government of Punjab  
and  
District Administration,  
District Ropar.

**29. Management authority:** (name and address of local body directly responsible for managing the wetland)

Principal Secretary,  
Department of Science, Technology &  
Environment, Government of Punjab , Through

Punjab State Council for Science & Technology,  
MGSIPA Complex, Near Sacred Heart School, Sector 26,  
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**30. Bibliographical references:** (scientific/technical only)

- Deptt. of Wildlife, Govt. of Punjab (1993) : A Checklist of Birds of Punjab.
- Dhillon, SS and Kaur H. (1996) : Analytical Studies on Aquatic Ecosystems of Punjab. Deptt. of Zoology, Punjabi University Patiala.
- Ladhar S.S. (1995) Inventory and Ecological Status of Wetlands and Lake Ecosystems of Punjab:
- Ladhar S.S. and Handa, S.M. (1992). Status Paper on Wetlands of Punjab.
- Punjab Pollution Control Board (PPCB) (2000) : A Report on Ropar Wetland.
- Punjab State Council for Science & Technology (1992): Ropar Headworks Region - A Wetland of National Importance.
- Punjab State Council for Science & Technology (PSCST) (1998): Comprehensive Conservation and Management Plan (for Ninth Five Year Plan) for Ropar Wetland.
- Punjab State Council for Science & Technology (PSCST) (2000): Integrated Plan for Conservation and Management of Ropar Wetland.
- Randhawa, A.S. (1990); Ropar Wetland – A Serene and Scenic Environment.
- Sharma, BR (1987) : Punjab District Gazetteers, Rupnagar. Deptt. of Revenue, Govt. of Punjab.

- Verma, V.K.; Chopra, R.; Sharma, P.K.; Singh, C. (1994): Ropar Wetland Ecosystem – Its conservation and management (Technical Report of Punjab Remote Sensing, Ludhiana).

## NOTEWORTHY FLORA

## Check List of Plant Species in Ropar Wetland Area

(Based on Randhawa (1990), PSCST (1992), Verma *et al* (1994) and Sharma (1987))

<u>Botanical Name</u>	<u>Common Name</u>
<b>Trees :</b>	
Acacia nilotica	Babul (Kikar)
Acacia modesta	Phulai
Albizzia lebbek	Siris
Azadirachta indica	Neem
Bombax ciba	Semul
Cassia fistula	Amaltas
Dalbergia sissoo	Shisham
Eucalyptus tereticornis	Eucalyptus
Mangifera indica	Mango
Melia azadirachta	Dek
Morus indica	Mulberry
Moringa oleifera	Suhanjana
Zizyphus jujuba	Ber
Prosopis juliflora	Mesquite
Syzygium cuminii	Jaman
Acacia catechu	Khair
Ficus Bengalensis	Banyan
Ficus religiosa	Pipal
Salix willow	Willow

**Bushes and Grasses :**

Zyzyphus mauritiana	Malha
Carissa spinarum	Garuna
Lantana camara	Phul buti
Cannabis sativa	Bhang
Eulaliopsis binnata	Bhabar grass
Erianthus munja	Kana
Saccharum spontaneum	Kahi
Arundo doanx	Nara
Cymbopogon maritini	Khavi
Chrysopogon fulvus	Dhsula
Heteropogon contortus	Saeala
Typha elephantina	Elephant grass
Dodonaea viscosa	Hedge plant
Adhatoda vasica	Basuta

**NOTEWORTHY FAUNA**

(Based on Randhawa (1990), PSCST (1992) Deptt. of Wildlife, Govt. of Punjab (1993) and Verma *et al* (1994))

**List of Fish Fauna of Ropar Wetland**

Zoological Name	Local Name	Commercial Wild/ Ornamental Value
Labeo rohita	Rohu	Commercial
Labeo gonius	Seerha	Commercial
Labeo calbasu	Kalbans or Dhai	Commercial
Labeo dero	Gid	Commercial
Labeo dyocheilus	Kunni	Commercial
Catla catla	Thal	Commercial
Cirrhinus mrigala	Mori	Commercial
Puntius sarana	Puthi	Commercial
Puntius ticto	Ticher	Wild
Cyprinus carpio communis	Common Carp	Commercial
Cyprinus carpio spacularis	Mirror Carp	Commercial
Ceenopharyngodon idelle	Grass Carp	Commercial
Wallago attu	Mali	Commercial
Aorichthys seenghala	Sangarha	Commercial
Mastacembelus armatus	Sam	Commercial
Colisa fasciata	Kanghi	Ornamental Value
Ambasis ranga	Shisha Machi	Commercial Value
Ambasis nama	Shisha Machi	Ornamental Value
Channa punctatus	Dolla	Commercial
Channa striatus	Curd	Commercial

**Check List of Birds found in Ropar Wetland**

<u>Common Name</u>	<u>Zoological Name</u>
<b>Local Birds</b>	
Common Pochard	Aythya ferina
Little Cormorant	Podiceps niger
Pond heron	Ardeola gravii
Cattle egret	Bubulcus ibis
Large egret	Ardea alba
Purple moorthen	Porphyrio porphyrio
Moorhen	Gallinula chloropus
Coot	Fulica atra

River tern  
Pied kingfisher  
Small blue kingfisher  
Whitebreasted kingfisher  
Redwattled lapwing  
Yellow wattled lapwing  
Little ringed plover  
Common sandpiper  
Little stint  
Blackwinged stilt  
Brahminy kite  
Blackwinged kite  
Shikra  
Sparrow hawk  
Osprey  
Barnowl  
Great hornedowl  
Spotted owl  
Jungle nightjar  
Peafowl  
Black partridge  
Grey partridge  
Jungle bush quail  
Blue rock pigeon  
Ring dove  
Spotted dove  
Common myna  
Bank myna  
Pied myna  
Grey hornbill  
Indian roller  
Hoopoe  
Green Large parakeet  
Roseringed parakeet  
Pitta  
King crow or Drongo  
Golden oriole  
Red vented bulbul  
Grey shrike  
Rufousbacked shrike  
Brown shrike

*Sterna auranlia*  
*Ceryle rudis*  
*Alcedo atthis*  
*Haleyon smyrnensis*  
*Vanellus indicus*  
*V. malabaricus*  
*Charadrius dubius*  
*T. hypoleuces*  
*Calidris minutus*  
*Himantopus himantopus*  
*Haliastu indus*  
*Elanus caeruleus*  
*Accipiter badius*  
*A. nisus*  
*Pandion hakaiaetus*  
*Tyto alba*  
*Bubu bubo bengalensis*  
*Athene brama indica*  
*Caprimulgus indicus*  
*Gullus gallus*  
*Francolinus francolinus*  
*F. pondicerianus*  
*Perdicula asiatica*  
*Treron phoenicoptera*  
*Streptopelia decaocto*  
*S. chinensis*  
*Aeriodotherco tristis*  
*A. giniginianus*  
*Sturnus contra*  
*Tockus birostris*  
*Coracia benghalensis*  
*Upupa epops*  
*Psittacula eupatria*  
*P. krameri*  
*Pitta brachqura*  
*Dierurus adbimilis*  
*Oriolus oriolus*  
*Pycononotus cafer*  
*Lanius excubiter*  
*L. schash*  
*L. cristatus*

### **Migratory Birds**

Ruddy shelduck  
Mallard  
Pintail  
Spotbill duck

*Tadorna ferruginea*  
*Anas platyrhynchos*  
*A. acta*  
*A. poccilorhyacha*

Gadwall  
Shoveller  
Wigeon  
Red Crested pochard  
Common pochard  
Pheasant tailed jacana  
Marsh harrier

*A. steopera*  
*A. clypeata*  
*A. penelope*  
*Netta rufina*  
*Aythya ferina*  
*Hydrophobus chirurgus*  
*Circus aeruginosus*

### Rare Birds

Goldenbacked woodpecker  
Green barbet  
Crimsonbreasted barbet

*Dinopium benghalense*  
*Megalaima zeylanica*  
*M. heemacephala*

### Other Birds

Wood shrike  
Small minivet  
Common babbler  
Jungle babbler  
Grey babbler  
Striated babbler  
Verditer flycatcher  
Tailor bird  
Plain wren warbler  
Ashy wren warbler  
Ashy grey warbler  
Tree pie  
Striated marsh warbler  
Streaked fantail warbler  
Blackthroated thrush  
Black bird  
Mag-pie robin  
Indian robin  
Black red start  
River pied chat  
White tailed stone chat  
Stone chat  
Pied bush chat  
House swift  
Palm swift  
Swallow  
Wire-tailed swallow  
Redrumped swallow  
Tree pipit  
Rock pipit  
White wagtail  
Yellow wagtail

*Tophrodornis pondicarianus*  
*Pericrocotus crinnamomeus*  
*Turdoides caudatus*  
*T. striatus*  
*T. malcolmi*  
*T. earlei*  
*Muscicapa thalassina*  
*Orthotomus sutorius*  
*Prinia subglara*  
*P. sociatis*  
*Acrocephalus stentoreus*  
*Dendrocilla yagabunda*  
*Megalurus palustris*  
*Cisticola juncidis*  
*Turdus ruficollis*  
*T. merula*  
*Copsyclusa ssularis*  
*Sanocoloides fulvicata*  
*Phonicurus ochruros*  
*Oenantide fenschi*  
*Saxicola leucura*  
*S. torquata*  
*S. atrata*  
*Apus affinis*  
*Cypsiurus parvus*  
*Hirundo ruslica*  
*H. smithii*  
*H. daurica*  
*A. trivalis*  
*A. similis*  
*Motacilla alba dukhunensis*  
*M. flava*

Grey wagtail  
 Yellow head wagtail  
 Crested Lark  
 Rufoustailed finch-lark  
 Skylark  
 Red-winged bush lark  
 House sparrow  
 Jungle sparrow  
 Weaver bird  
 Streaked weaver bird  
 Red munia  
 Koel  
 Blackheaded bunting  
 Crested bunting  
 Grey tit  
 Wall creeper  
 Tree creeper  
 Thickbilled flower pecker  
 Purple sunbird  
 Pied crested cuckoo  
 Common hawk-cuckoo  
 House Crow

M. caspica  
 M. citreola  
 Galerida cristata  
 Ammomanes phoenicurus  
 Alanda gulgula  
 M. erythroptera  
 Paseer domesticus  
 P. pyrrhorstus  
 Ploceus phillipinus  
 P. manyar  
 Estrida amandara  
 Eudynamys scolophacca  
 Embemza melangcephala  
 Meolphus lathami  
 Parus major  
 Tichodroma muraris  
 Certhia himalayana  
 Dicaeum agile  
 Meetarinia asiatica  
 Clamator jacobinus  
 C. varius  
 C. macroryhynchos

### Other Animals reported in Ropar Wetland Area

<u>Sr.No.</u>	<u>Zoological Name</u>	<u>Common Name</u>
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#### Amphibia (Frogs)

1.	Rana tigrina	Indian tiger frog
2.	Rana limnocharis	Indian rice frog
3.	Rana breviceps	Indian burrowing frog
4.	Bufo melanostictus	Common toad

#### Reptilia

##### Tortoises

1.	Geoclamys hamilton
2.	Chitra indica

##### Lizards

1.	Calotes versicolor	girgit (blood sucker)
2.	Uromastix hardwicki	Sanda
3.	Mabuya macularia	
4.	Ophiodactylus tridactylus	
5.	Varanus monitor	

## Snakes

- |     |                                 |                        |
|-----|---------------------------------|------------------------|
| 1.  | <i>Fungarus caeruleus</i>       | Common Indian Krait    |
| 2.  | <i>Vipera russelli</i>          | Russel's viper         |
| 3.  | <i>Echis carinatus</i>          | Phoorsa                |
| 4.  | <i>Naja naja</i>                | Cobra                  |
| 5.  | <i>Typhlops porrectus</i>       | blind snake            |
| 6.  | <i>Leptotyphlops blandfordi</i> |                        |
| 7.  | <i>Python molurus</i>           | Indian python or aagar |
| 8.  | <i>Eryx johnii johnii</i>       | Johns sand boa         |
| 9.  | <i>Lycodon striatus</i>         | wolf snake             |
| 10. | <i>Ptyas mucosus</i>            | rat snake              |
| 11. | <i>Psammophis leithi</i>        | sand snake             |

**CONSERVATION MEASURES TAKEN**

Ever since the recognition of Ropar Wetland as a Wetland of National Importance by the Ministry of Environment & Forests, Govt. of India (MEF, GOI), the Punjab State Council for Science & Technology has initiated efforts to take up conservation programmes involving the state executing departments. Proposals for this purpose are formulated and submitted to the MEF, GOI on annual basis. The Ministry has so far provided Rs. 12.70 lac to the State Government for various activities. Activities undertaken include plantation in 10 ha area, water quality monitoring, fencing in strategic locations and public awareness. A TV & VCR has been provided to the district administration for generating public awareness through local Environment Protection Society. The district administration has constructed an Information Centre-cum-Watch Tower for generating mass awareness and promote public participation in the wetland conservation programmes. This information centre comprises of a porch (14'x15'), Hall (32'x15'), Room (16'x10'), Toilet (6'x9') and high rise watch tower. One public awareness programme was also organised at wetland site to infuse grass root level gatherings in our conservation measures.

## **CONSERVATION MEASURES PROPOSED BUT NOT YET IMPLEMENTED**

Ropar Wetland essentially has tremendous ecological values. But the ecosystem is threatened on many counts, which include excessive siltation as a result of the erosion from the adjoining nude hills. Interference to the avifauna is also a matter of concern. Immediate steps, particularly, afforestation and soil conservation in the highly erosion prone catchment areas in the vicinity of this wetland, fencing of strategic areas and awareness of general public are required to be initiated. The State Govt. has already constructed an Information Centre and Watch Tower for stimulating and sensitising public to understand environment in general and wetlands in particular. This Centre, however, requires to be strengthened with basic facilities like books, blow-ups, binoculars, small telescope, video films etc. Details of the conservation & management and awareness steps alongwith the financial requirements are given hereunder:-

### **1. Survey and Mapping**

A preliminary survey of Ropar Wetland Ecological Zone has been done by the Deptt. of Town and Country Planning, Punjab. However, to undertake long term conservation and management programmes and to protect this wetland it is desirable to conduct detailed survey, including remote sensing survey, and prepare comprehensive maps. Subsequently the steps for its notification may be taken up. A sum of Rs. 11.34 lac is required for undertaking plane table and contour surveys. Work has been started to survey the area.

### **2. Afforestation and Soil Conservation :**

Since this wetland is located right in the lap of badly damaged and absolutely nude erosion prone Shivalik Foothills, thousands of tonnes of silt gets transported into this wetland and further down every year. This excessive siltation is not only reducing the extent of lake but also is transforming the functioning of this ecological system. It has been planned to check silt loading in a phased manner by undertaking plantation and soil conservation work. This work will be initiated first in the vicinity of the wetland. The Deptt. of Forests & Wildlife, Punjab shall take up plantation of indigenous species in 50 ha area. Funds to the tune of Rs. 40.00 lac are required for this purpose. Council is also proposing to take up concrete grid support plantation at strategic locations and arial seeding on inaccessible hills.

### **3. Fencing and Wildlife Development :**

The Deptt. of Wildlife, Govt. of Punjab has proposed to erect chain-link fence to protect certain strategic areas of the wetland. This will help in checking the excessive exploitation of vital wetland resources and prevent encroachments

of the wetland area. Funds to the tune of Rs. 30.00 lac are required for raising fence during the ninth five year plan. Wildlife Deptt. also proposes to provide wooden nests of different shapes.

Recent experiments in some western countries shows that landing of some important birds in wetlands also depends upon the clues and signatures supporting the occurrence of some related birds in that habitat. Since the birds are important ecological components of any ecosystem the results of such experiments may help in artificially encouraging the landing of birds. Punjab State Council for Science & Technology proposes to install suitable number of plastic birds initially at Ropar and Kanjli Wetland marshes. For this purpose Rs. 50,000/- will be required during first two years of the 9th Five Years Plan.

#### **4. Monitoring of Water Quality :**

Quality of water determines the ecosystem health of wetlands. Preliminary studies undertaken by Punjab Pollution Control Board (PPCB) under MINARS programme of the Ministry of Environment & Forests, Govt. of India has found that water quality is of 'A' category at Nangal, when the river makes its turn into Punjab and deteriorates to 'D' downstream of Ropar reservoir. The deterioration of water quality is mainly due to the industrial effluents from Nangal Fertilizer Limited, Punjab National Fertilizer Corporation, Naya Nangal; Ropar Thermal Plant, United Paper Mills, Zenith Paper Mills etc. Without the immediate curative and preventive measures, water quality of this wetland, particularly the areas located downstream of Ropar Barrage, may deteriorate still further. Such measures can be better planned and executed if detailed base line data regarding pollution levels and their sources is available. For this purpose, it is essential to undertake extensive pollution monitoring studies of point and non-point sources along the river. PPCB undertook studies during 1998-99 and had reported that water quality in the reservoir and its upper areas mainly fall in Class 'A' to 'C' but it deteriorates to Class 'D' in the downstream area where industrial effluents join the river (PPCB, 2000). The PPCB would continue to undertake such studies at five river monitoring stations. Besides physico-chemical analysis of important parameters, biological estimations as well as pesticide residue analysis will be undertaken. An amount of Rs. 9.25 lac is required for five years for undertaking the above said studies.

#### **5. Restoration of Storage Capacity of Reservoir :**

The Irrigation Department, Punjab has observed that lot of silt deposition is taking place in the lake thereby reducing the lake storage capacity considerably. The Irrigation Deptt. plans to undertake operations to remove silt from the reservoir at an approximate cost of Rs. 98.00 lac for five years.

#### **6. Conservation and Development of Fisheries :**

This wetland had been a major source of fisheries ever since. However, the contractors have over exploited this resource although some regulation

measures are being implemented by the Department of Fisheries, GOP. Since the fisheries form an important and integral part of food web and human food chain, it is essential to sustainably maintain this fragile relationship between the Fish level and the other biotic resources like birds and primary producers. Regular release of fish species is highly essential for this purpose. To upkeep the fish level it may also be essential to set up some fish seed farms nearby and renovate the existing ponds. Besides, some other infrastructure associated with the project is required to be developed. An amount to the tune of Rs. 25.00 lac is required in this regard.

## **7. Research Studies :**

To analyse the biotic components, foodchain sequence in our wetlands and potential threats to these places and their components, and to make long-term conservation strategies, the research studies on aquatic ecosystems of Punjab are being promoted by the State Science & Technology Department. Certain future programmes for wetland conservation will definitely depend upon the research database. Punjabi University Patiala undertook studies on aquatic ecosystems of Punjab particularly for evaluating the food chain structure. Studies on biodiversity of this wetland and limnological parameters besides habitat characteristics and economic valuation of Ropar Wetland resources are priority areas of research as are described hereunder : -

- a) Hydrology & productivity: wetland quality depends closely on water quantity & quality. However, decisions regarding dam construction & river embankments are made with little thought on their impact upon the productivity of rivers and flood plains. The effects of degradation or improvement of wetland may not be felt instantaneously or in immediately surroundings. It may be felt at later dates and in far away areas. Detailed studies, therefore, need to be carried out to study the impact of the wetland on hydrogeology of the area.
- b) Fisheries & sustainable use of wild life Population: Due to heavy pressure on the wetland areas on account of various factors like encroachment for agriculture, pollution, etc. the impact on faunal populations is catastrophic. It is clear that unless solid argument based on hard scientific data is presented for maintenance of these sites, this pressure is likely to continue. Hence the need of investigation in this area.
- c) Traditional human use : Human beings are an important component of any ecosystem and are in reciprocal relationship with it. It is important to understand how breakdown of traditional controls of land use has increased the rate of habitat loss and how it can be checked. Wetland conservation practices can be successful only if its social impact is conducive to its use by the people inhabiting that ecosystem. It is, therefore, important that social impact analysis of developmental versus conservation projects be carried out alongwith environmental impact analysis of various human activities initiated in the wetland area.

- d) Land use planning : A thorough understanding of the hydrology, pedology and agricultural potential of the site is required in taking decisions regarding demarcation of the wetland area.
- e) Economic assessment : Wetlands have been playing crucial role in human development by providing functional and ecological values. It is essential to undertake economic assessment of Ropar Wetland. Such an assessment would definitely act as a motivating tool to convince the public to protect and conserve it.
- f) Flora & Fauna : Detailed taxonomic studies of plant and animal species of this wetland need to be carried out. This will also help to identify the endemic species, if any, of this region, which will invite particular attention for conservation.

A corpus amount of Rs. 25.00 lac for five years will be required for conducting these studies. The research projects can be initiated depending upon the availability of funds.

#### **8. Environmental Awareness and Infrastructural Support to the Environment Centre :**

Environment conservation can best be ensured if the public participation can be achieved in the management of eco-systems. For this purpose, it is essential to make the public aware about the importance of such eco-systems. This objective can be better achieved if the awareness programmes could be organised right at the site where the public voluntarily gathers to get information. With this view, the State Govt. has constructed an Information Centre-cum-Watch Tower at Ropar Wetland site. TV and VCR have already been provided to the district administration by the Council for this Centre. However, basic infrastructural facilities and information material like books, posters, pamphlets, blow ups, video films, journals, binoculars, small telescope, etc. are required to be provided for use of general public. Besides, it is desirable to expand the existing interpretation centre, construct bird watching hideouts, organising education camps and putting up of hoardings at various places at an approximate cost of Rs. 30.50 lac.

**\* Schedule – I :**

Wildlife (Protection) Act 1972 has included six schedules pertaining to the animals species. As per Act “no person shall hunt any wild animals specified in Schedule I, II, III and IV except as provided under section 11 and 12”. It may be mentioned that animals mentioned in Schedule I and part II of Schedule II have more sanctity. Under Section 51 it is mentioned “that where the offence committed is in relation to any animal specified in Schedule I or Part II of Schedule II or meat of any such animal or animal article, trophy or incurred trophy derived from such animal or where the offence (relates to hunting in, or altering the boundaries of) a sanctuary or a National Park, such offence shall be punishable with imprisonment for a term which shall not be less than (one year) but may extend to six years and also with fine which shall not be less than five thousand rupees.

Provided further than in the case of a second or subsequent offence of the nature mentioned in this sub-section, the term of imprisonment may extend to six years and shall not be less than two years and the amount of fine shall not be less than ten thousand ruppess.



# FOOD WEB AT ROPAR RESERVOIR





