

Project Updates: November 2021

This update concerns the Project entitled 'Ecological Assessment of a little-known wetland, a Ramsar site in Punjab, India', funded by the Rufford Foundation since January 2021. The brief objectives of the project were:

- To prepare the flora of the wetland including the terrestrial and aquatic plant species.
- To document the avian diversity of the wetland.
- To identify the ecological and anthropogenic drivers influencing the vegetation of the wetland.
- To create awareness among the local population and student communities about the importance of wetland as a biodiversity hotspot and introducing the concept of native vegetation through nature walks and other activities

This report is divided three main sections, summarising project updates by main activities/meetings conducted with key stakeholder groups, conducted field work, and lastly an update on conducted awareness programmes.

As a main summary, this unique study has found a total of 158 species of plants belonging to 132 genera and 58 families including one species of lichen. More than a 100 species of birds are documented. Indian roofed turtle, a freshwater turtle species listed as vulnerable in IUCN Red List, was also observed in the study site. Since this research is the first of its kind in the region, it will act as a preliminary database of biodiversity along with the identification of factors which may have detrimental effects on native vegetation and suggest measures for ecological maintenance and conservation of the wetland.

1.) Stakeholder Meetings

The purpose of the stakeholder meetings was to understand the different stakeholder's perspective towards Kanjli wetland and the contribution of different stakeholders in the ecology of this wetland. Different stakeholders include the district administration, Department of Forests and Wildlife, local institutions, Public Works Department, local communities and villages. During the study period, several meetings were conducted with different stakeholders from time to time during the period of study.

In February 2021, a meeting was conducted with the Deputy Commissioner of Kapurthala, Ms Deepti Uppal, and she was briefed about the objectives of the project. During the discussion, I learnt that the administration in collaboration with Public Works Department is already working for the developmental works at the wetland. In continuation to this, a meeting was conducted with the executive engineer at PWD. The department is currently working on the development of Kanjli wetland as a recreational area and picnic spot to promote tourism. The plan of development of the wetland was discussed along with the steps to be taken to minimise the effect of construction and landscaping to the ecology of the wetland.

The forest along the wetland is owned and managed by Department of Forests and Wildlife, Government of Punjab. It is under the Kapurthala range of Jalandhar Forest division. As the department is one of the key stakeholders, in the meeting with the range officer and forest guards, the project's aims and objectives were discussed,

along with the department's role in managing the wetland. The forest range officer is regularly updated on the progress of the research work. The tree plantation event was also organised in collaboration with the department to mark their 70th Vanmahotsav celebrations which was observed throughout the state of Punjab.

During the field work, I came across local people from different communities such as fishermen, tourists, farmers, and gujjars (a nomadic tribe). There is no formal network of fishermen, people from nearby villages visit the wetland for occasional fishing, mostly for self-consumption. Due to water hyacinth and irregularity in water flow, the fish population is also limited. The gujjars frequent the forest for their cattle grazing, and a few local people for fuelwood collection. A section of tourists often visits the wetland because of its religious significance with the purpose of carrying out their rituals and worship. Since some of the rituals also include throwing the offerings into water which are wrapped in plastic, thus polluting the water. While interacting with them, I tried to convince them to remove the plastic packaging before throwing the offerings (flowers, ashes, etc.) into the water. These meetings were frequent, informal and often done during the field work.



Figure 1: Forest Nursery at Range Office, Kapurthala

2.) Field work

Following the reconnaissance and the literature review, the whole study area was divided into different habitats, namely roadside, lake banks, forest, scrub and forest margins. Regular field visits were made during the study period to observe the vegetation, exclusively photographing and collecting the specimens covering all the micro-habitats. Field notes included the habit, habitat, phenological stage, and any other unique observation. The plant habits included in the list are tree, shrub, herb, climber, grass, sedge, fern and aquatic (floating).

A total of 157 species of plants, belonging to 131 genera and 57 families were recorded from the study area during the vegetation surveys between January and

August 2021, of which two species each were recorded of bryophytes, pteridophytes, and lichens. The invasive alien species were dominant in both terrestrial and aquatic habitat. *Eichhornia crassipes* (water hyacinth) formed the dominant feature of floating aquatic vegetation, with its maximum spread in the post-monsoon (between August-October). *Prosopis juliflora* is one of the main tree species on the roadside vegetation.

Point count and line transect methods were used for observation of birds. More than 100 species of birds were recorded, including migrant waterfowl and IUCN Red List species such as common pochard, woolly necked stork, bar headed geese, northern pintail and garganey. The birds were photographed along with the notes on habitat, and observation date.

During the field work, observations regarding the other taxa were also noted. Sambar deer, Indian golden jackal, Indian gray mongoose, wild boar were the mammals. Indian roofed turtle (*Pangshura tecta*), a freshwater turtle species, was also observed.

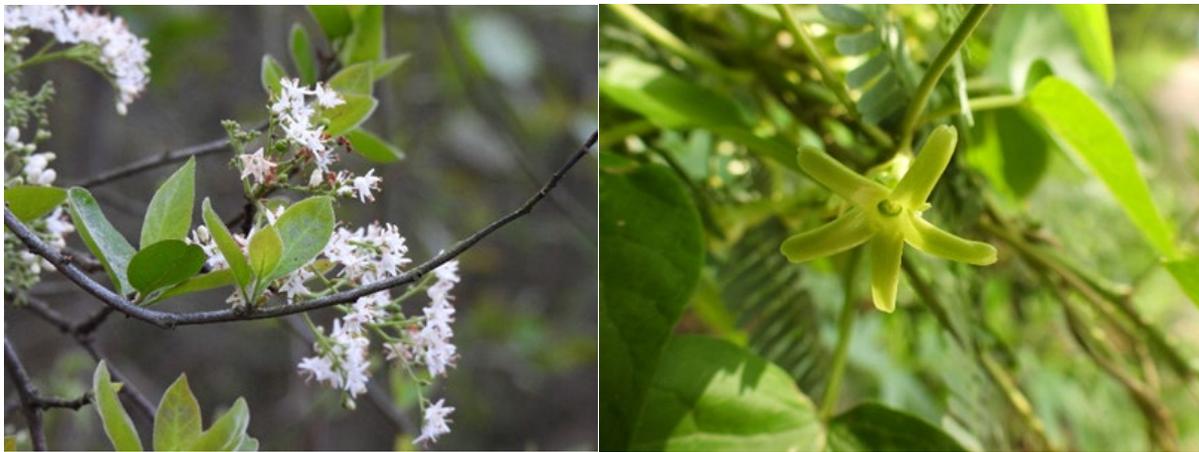


Figure 2: *Telosma pallida*. Figure 3: *Ehretia laevis*.



Figure 4: *Potamogeton nodosus*. Figure 5: *Acacia nilotica*.



Figure 6: Knob-billed Duck. Figure 7: Spotted Owlets.



Figure 8: Indian Spot-billed Duck. Figure 9: Little Egret and Great Egret.



Figure 10: Indian Roofed Turtle



Figure 11: Project leader during the Field Work

3.) Awareness programmes

One of the primary objects of the project is awareness creation among the local people with the aim to create an environment of acknowledgement and appreciation for the native biodiversity of the region. With this objective, volunteers

and interns working with PAHAL also joined in some of the field work. Apart from that, activities such as tree plantation and nature walk were also conducted. An interview with the project leader, Bageshwer Singh, was also featured in All India Radio, Jalandhar which in which the work of The Rufford Foundation in conservation, PAHAL and the aims of this project were discussed.

3.1) Tree Plantation

As a part of Vanmahotsav celebrations of Forest Department, Punjab, a tree plantation programme was organised at Government Senior Secondary School, Kanjli by PAHAL. An awareness session was conducted with the school students, highlighting the importance of native flora and ethnobotany, and how the students can understand the ecology and importance of the wetland, which is in the vicinity of the school. Saplings of the trees such as *Lagerstroemia indica* (Jharul), *Lawsonia inermis* (Mehndi), *Dalbergia sissoo* (Tahli), *Holoptelia integrifolia* (Rajain). The headmaster, teachers, and the forest guards also participated in the plantation. In the meeting with the headmaster, it was discussed that school will identify few students from the eco club who can learn basic identification skills for local birds and plants during our field visits, and eventually be able to be the nature guide as forerunners for local nature conservation.

3.2) Nature Walk

To acquaint the children with the biodiversity around them, a nature walk with the students of Nirmaan School for Holistic Education, Jalandhar was also conducted. The walk started from the Kanjli barrage, moving upstream along the lake, through roadside, scrub and forest, observing the transition in habitat and vegetation. The students of classes 8th, 9th and 10th participated. A naturalist and volunteer in this project, Dr Tanvir Bakshi, also joined and introduced students to dragonflies, damselflies, moths and bats. Ecological interactions of fig and wasp, lichens, frugivore seed dispersal, regeneration, concept of invasive species etc. were discussed along with the examples from the field.



Figure 13: During the nature walk with students of Nirmaan School.



Figure 12: Awareness session and Tree Plantation at Government School, Kanjli.

4.) Upcoming activities

The surveys for avian diversity and botanical inventurisation will be continued. Vegetation sampling will be conducted in the identified habitats following standard methods for vegetation quantification, and collection of plants for herbarium.

More nature walks would be conducted with the involvement of local educational institutions. There is a plan to involve middle and high school science students from local schools, and train them as 'friends of the Kanjli wetland', an initiative to create a sense of belonging with an idea of conservation among the students. Once the data from the field is collected, our team will work on the publication of a digital and print version of posters/leaflets featuring the common birds and plants at Kanjli Wetland. This will be distributed to the stakeholders and also to the school students who were involved in activities during the project work. This will also be highlighted in media through local newspapers and radio.

The district administration Kapurthala has formed the 'Kanjli Wetland Development and Maintenance Society' with the Deputy Commissioner as the chairperson. The society is responsible for all the administrative activities done in context of Kanjli wetland. Since it is an administrative body, there is no involvement of ecologists in its executive committee due to which few developments in the past couple of months were unfavourable for the local ecology. I will join the society as one of the executive members to ensure the scientific and ecologically sensitive methods are followed for the developmental activities. Currently water hyacinth (*Eichhornia crassipes*) is covering the water body to the extent that water is barely visible. The strategic removal of water hyacinth will be planned with the irrigation and drainage department. Involvement of local communities would be made sure to ensure its periodical removal and to stop the untreated sewage inflow from villages which is leading to nutrient enrichment encouraging its growth.