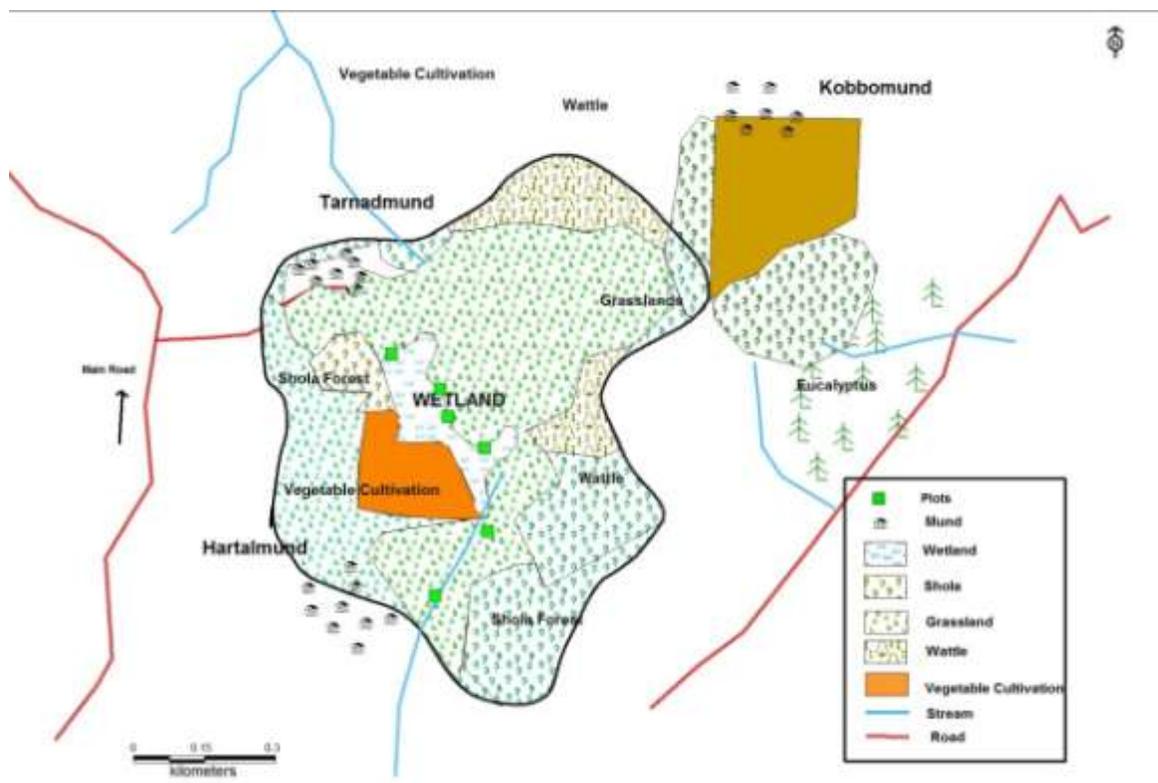


## Conservation Action Plan and Report of Activities undertaken by Hill Wetland Conservation Group in Tarnad Mand

### Status and Issues for Conservation

The wetland in Tarnad Mand is located amidst a shola-grassland complex. Lying to the west of Udhagamandalam, the landscape on either side of the Ooty-gudalur Road is dotted with many Toda mands or settlements. Tarnad Mand is one of the few mands to have a vibrant wetland still remaining. TarnadMand itself is composed of 4 habitations viz. Tarnad Mand, Hartal Mand, Pudu Mand and Kobbu Mand.

A schematic representation of the wetland and its adjoining areas is depicted below:



In the upper reaches of the catchment of the wetland, there are shola forests surrounded by plantations of wattle. Village elders estimate that the shola-grassland complex spread to over 200 acres and has since been invaded upon by the wattle plantation. The Elders opine that when a fire occurs inside a shola destroying the forest, correspondingly the wetland also dries up. They blame the artificially planted Eucalyptus and Acacia trees by the forest department for the drying up of numerous wetlands in the region, as they maintain that Eucalyptus trees tend to drain out water from the surroundings.

The wetland originates from a spring and is spread over a large plain area, wherein it is joined periodically by other inflows from the nearby Shola. The total drainage area of the wetland .

Travelling for about 500 m it becomes a water rich wetland. Near the lower end of its course, the water is diverted for agriculture by members of Pudu Mand.

As part of the project activities, the following activities were undertaken in association with the Hill Wetland Conservation Group in Tarnad Mand.

1. Biodiversity assessment transects
2. Sample collection to ascertain pesticide residues
3. Socioeconomic survey

### **Biodiversity Assessment**

Plots were laid along the margins of the wetlands and also in the centre of the wetlands. Five plots (50\*20) were laid in the wetlands. The wetland is dominated by *Juncus* sp and *Poa* sp. 17 species of birds, 4 species of butterfly, 2 species of mammals and odonates, 3 species of amphibian, 1 species reptile and was observed. A proposal for inclusion of the site as an Important Bird area has been forwarded.



The grassland surrounding the wetlands is grazed by semi-wild buffaloes owned by the indigenous Toda community. This grassland is dominated by *Eulalia phaenothrix*, *Ischaemum indicum* and introduced grass kikuyu, *Pennisetum clandestinum* which run wild. *Cerpris acaulis*, *Gentiana pedicellata* are found in the grassland.

Swampy vegetation. A total of 75 species belonging to 52 genera and 30 families were recorded. The families with the largest number of species were Asteraceae, Cyperaceae and Poaceae. Tree specie, i.e. *Rhododendron arboreum* was recorded from on the edges of the swamps. Endemicity was relatively high, 9 endemic species were recorded. Among the 13 Poaceae species, 2 were endemic to the Nilgiris and 1 Western Ghats - Sri Lanka hotspot. One species each of Eriocaulonaceae , Rosaceae Rubiaceae , Berberidaceae and Ericaceae were endemic to Western Ghats. 1 species each of Haloragiaceae and Poaceae were endemic to Nilgiris The dominant species were *Juncus glaucus*, *Pycreus sanguinolentus* and *Ischane globosa*.

## Pesticide Residue Assessment

Given the large scale use of inorganic pesticides and fertilizers for vegetable cultivation, researchers from SACON were invited to monitor the residue levels of organochlorine, organophosphate and synthetic pyrethroid pesticide residue levels in sediments and fish. 6 sediment samples and 1 sample of fish (*Danio* sp) were collected.



*Danio* sp. fingerlings collected from Tarnadmund had low levels of organochlorines (2.25-2.76ng/g). *Danio* sp. fingerlings were not found to be contaminated with either organophosphate or synthetic pyrethroids. The levels were only below detectable limits. The Study concludes that even if the fishes were expected to have higher pesticide concentrations than the sediment samples, many factors might have been responsible for the present condition. Size and age of the fish, route of entry and concentration available for intake are very important factors for bioaccumulation.

## Socioeconomic Survey

The socioeconomic survey of use of wetland by the surrounding community shows the dependence of vegetable cultivation to the extent of about 34 ac. On the wetland. Almost 85% of all the households benefit from this agriculture and through the cattle rearing (about 50 head of cattle). There is a large scale use of inorganic pesticides and fertilizers that might be contaminating the water of the wetland.



## Conservation Action Plan

Based on the results of the assessments of the wetland system, the HWCG in Tarnad Mand decided on a two pronged course of action in the short term.

- **Submission of Claim under Forest Rights Act :** The first course of action was to submit a community forest resource claim under the Scheduled Tribes and Other Traditional Forest Dwellers' (Recognition of Forest Rights) Act, 2006. This claim is to the extent of about 7 Ha of wetland area has been submitted on behalf of Pudu Mand to secure the existing land use around the wetland. This action was in response to the threat of conversion of part of the wetland catchment to vegetable cultivation by the neighboring village of Sholur Kokkal. Similar claims are being planned on behalf of the other habitations of Tarnad Mand.

- **School Session:** The HWCG has also started hosting the children from the Glenmorgan government school on outdoor sessions to observe the wetland habitat. This activity started during the project is expected to continue. The children are encouraged to observe wetland flora, birds and animal movements.



- **Village Elder leads Village Children :** In addition to the above school sessions, the HWCG has nominated Sri Kondilli, a village elder to accompany village children on a transect of the wetland area and catchment to share traditional knowledge about the habitat, the uses of various grasses and trees and the need to conserve the habitat.



- **Research on Toxicity :** Given that the study on pesticide residues has returned inconclusive results on the extent of residue found in fish and soil samples, the HWCG has welcomed further research on the same while accepting the need to be vigilant about the excessive use of inorganic inputs.

- Need for cooperation with neighbouring villages on wetland conservation : The village realizes the need for dialogue with the neighbouring village especially, Sholur to arrive at a joint strategy for conservation.