Project Update May 2010

The White-naped Tit (*Parus nuchalis*) is endemic bird to India and comes under the vulnerable category in IUCN Red List. The project, an outcome of a detailed biodiversity assessment undertaken by Foundation for Ecological Security in three protected areas in southern Rajasthan started in the month of April with a rapid survey in one of its distribution range in the southern Aravalli hills of Rajasthan i.e. Kumbhalgarh Wildlife Sanctuary (KWLS).

Figure 1: Tropical Thorn Forest, habitat for White-naped Tits

Kumbhalgarh WLS is part of the Aravalli Hill ranges,

which act as a barrier that stops the spread of Thar Desert from the west to the eastern fertile land of Rajasthan. This sanctuary is bestowed with semi-arid type of vegetation in the western part of the sanctuary, predominantly thorn forest which forms a good and suitable habitat for this species.

During the two months of fieldwork, we tried working on the following objectives:

a) Survey and assessing the population of the White-naped Tit in part of one of the areas within the distribution range of the species in southern Aravalli hills.
b) Making of nest boxes and installing them as planned at different locations as part of a pilot conservation measure.
c) Discussion with the local communities on the project, Tit species, its habitat and nest boxes provision as part of awareness and education.

Surveys: During this two-month of fieldwork we had surveyed some areas of interest to locate and assess the bird's population. This included the thorn forest areas of Udaipur and Pali districts of south Rajasthan.

Other members of the study team helped me in following the bird, which was mainly done to establish and mark the territories of the birds, usually a pair. This was largely to help in placement of nest boxes at appropriate sites within its territory. Simultaneously, we had started working on making the nest boxes after consulting few experts about size of the nest boxes and hole sizes for the nest boxes. This hole-nesting bird is only 13cm and faces intra-specific competition with other similar sized or slightly larger birds for the holes. Keeping this in mind two hole-size classes were finally decided so that data could be collected on competition and competitors for this bird, which would help in making provision for nest boxes with the right size hole suitable for nesting of this species as part of

conservation action. We had planned to put up 50 nest boxes at different locations to check whether this species accepts nest boxes and if yes, then which hole size class it prefers and is with less competition. All this data would later be analyzed for educating the local communities that are residing in close vicinity of this bird's habitat and the managers who have the main stake in conserving this species in the forest.

Other areas were also surveyed in southern Aravalli hills as part of mapping the distribution range of the bird, in addition to sites selected for the placement/installation of nest boxes. The nest boxes were ready by first week of May and in another weeks' time the numbering was done along with the stickers that were to be put up on the nest boxes as evident from the figure below. The 50 nest boxes had a holes size of 28 cm (Small-S) and 32 cm (Big-B) at a 50:50 ratios.



Figure 2: Installation of nest boxes. Figure 3: Installed nest box with our local field assistant. Figure 4: Nest box in the White-naped Tit habitat.

After the territories of the bird in Kumbhalgarh WLS and Udaipur were established, we have installed 30 nest boxes in Rajpura area of Kumbhalgarh WLS and five boxes in Bathera village and eight nest boxes in Banki village of Udaipur district (Figures 2, 3, & 4). Overall 43 nest boxes have been put up till date. In total we have covered the territories of six pairs. The locations and other details of the nest boxes that have been installed are given in the table (Table 1).

Table 1: Location of the Nest Boxes

S.no	Nest box #	Place	Locations	Lat/Long	Altitude	Nesting Tree species
1	S:50	Bathera	Udaipur	24^0 32' 43.0" N/ 73^0 59' 10.1 "E	481	*Acacia leucopholea*
2	B:1	Bathera	Udaipur	24^0 32' 43.2" N/ 73^0 59' 7.0 "E	472	*Acacia leucopholea*
3	S:49	Bathera	Udaipur	24^0 32' 41.2" N/ 73^0 59' 5.7 "E	467	*Acacia nilotica*
4	S:51	Bathera	Udaipur	24^0 32' 42.7" N/ 73^0 59' 4.7 "E	472	*Acacia leucopholea*
5	B:2	Bathera	Udaipur	24^0 32' 43.6" N/ 73^0 59' 3.9 "E	472	*Ziziphus mauritiana*
6	B:5	Rajpura	Kumbhalgarh WLS	25^0 09' 41.5" N/ 73^0 30' 21.8 "E	403	*Acacia leucopholea*
7	B:7	Rajpura	Kumbhalgarh WLS	25^0 09' 42.3" N/ 73^0 30' 24.4 "E	407	*Acacia tortilis*
8	B:3	Rajpura	Kumbhalgarh WLS	25^0 09' 41.6" N/ 73^0 30' 26.9 "E	404	*Acacia senegal*

9	S:21	Rajpura	Kumbhalgarh WLS	25^0 09’ 41.1” N/ 73^0 30’ 28.1 “E	415	*Acacia nilotica*
10	S:28	Rajpura	Kumbhalgarh WLS	25^0 09’ 42.3” N/ 73^0 30’ 28.0 “E	407	*Acacia leucopholea*
11	B:10	Rajpura	Kumbhalgarh WLS	25^0 09’ 44.0” N/ 73^0 30’ 28.0 “E	406	*Acacia leucopholea*
12	B:12	Rajpura	Kumbhalgarh WLS	25^0 09’ 45.6” N/ 73^0 30’ 29.7 “E	410	*Acacia leucopholea*
13	S:30	Rajpura	Kumbhalgarh WLS	25^0 09’ 45.1” N/ 73^0 30’ 32.0 “E	409	*Acacia senegal*
14	B:9	Rajpura	Kumbhalgarh WLS	25^0 09’ 42.0” N/ 73^0 30’ 30.1 “E	404	*Ziziphus mauritiana*
15	S:24	Rajpura	Kumbhalgarh WLS	25^0 09’ 41.4” N/ 73^0 30’ 28.0 “E	427	*Acacia nilotica*
16	B:11	Rajpura	Kumbhalgarh WLS	25^0 09’ 39.6” N/ 73^0 30’ 23.4 “E	411	*Acacia leucopholea*
17	B:13	Rajpura	Kumbhalgarh WLS	25^0 09’ 37.9” N/ 73^0 30’ 23.3 “E	415	*Prosopis cineraria*
18	S:23	Rajpura	Kumbhalgarh WLS	25^0 09’ 38.8” N/ 73^0 30’ 22.2 “E	413	*Prosopis cineraria*
19	B:8	Rajpura	Kumbhalgarh WLS	25^0 09’ 38.0” N/ 73^0 30’ 20.7 “E	411	*Prosopis cineraria*
20	S:19	Rajpura	Kumbhalgarh WLS	25^0 09’ 39.3” N/ 73^0 30’ 20.5 “E	409	*Bauhinia racemosa*
21	B:4	Rajpura	Kumbhalgarh WLS	25^0 09’ 31.9” N/ 73^0 30’ 26.3 “E	409	*Prosopis cineraria*
22	B:6	Rajpura	Kumbhalgarh WLS	25^0 09’ 37.5” N/ 73^0 30’ 27.4 “E	408	*Prosopis cineraria*
23	S:18	Rajpura	Kumbhalgarh WLS	25^0 09’ 36.6” N/ 73^0 30’ 25.5 “E	409	*Acacia senegal*
24	B:16	Rajpura	Kumbhalgarh WLS	25^0 09’ 36.6” N/ 73^0 30’ 23.8 “E	407	*Prosopis cineraria*
25	S:25	Rajpura	Kumbhalgarh WLS	25^0 09’ 36.3” N/ 73^0 30’ 21.6 “E	408	*Acacia catechu*
26	S:26	Rajpura	Kumbhalgarh WLS	25^0 09’ 35.7” N/ 73^0 30’ 17.7 “E	409	*Acacia senegal*
27	B:17	Rajpura	Kumbhalgarh WLS	25^0 09’ 35.1” N/ 73^0 30’ 18.8 “E	410	*Prosopis cineraria*
28	S:31	Rajpura	Kumbhalgarh WLS	25^0 09’ 34.4” N/ 73^0 30’ 19.9 “E	408	*Butea monosperma*
29	B:15	Rajpura	Kumbhalgarh WLS	25^0 09’ 35.5” N/ 73^0 30’ 21.5 “E	411	*Acacia senegal*
30	B:14	Rajpura	Kumbhalgarh WLS	25^0 09’ 37.3” N/ 73^0 30’ 17.7 “E	412	*Gmelina arborea*
31	S:27	Rajpura	Kumbhalgarh WLS	25^0 09’ 58.2” N/ 73^0 30’ 6.5 “E	410	*Acacia catechu*
32	S:22	Rajpura	Kumbhalgarh WLS	25^0 09’ 59.2” N/ 73^0 30’ 8.0 “E	409	*Prosopis cineraria*
33	S:29	Rajpura	Kumbhalgarh WLS	$25^0$10' 1.8” N/ 73^0 30’ 9.5 “E	421	*Wrightia tinctoria*
34	S:32	Rajpura	Kumbhalgarh WLS	25^0 09’ 55.5” N/ 73^0 30’ 9.1 “E	408	*Acacia leucopholea*
35	S:20	Rajpura	Kumbhalgarh WLS	25^0 09’ 50.9” N/ 73^0 30’ 7.0 “E	401	*Prosopis cineraria*
36	S:34	Banki	Udaipur	$24^0$32' 42.7” N/ 73^0 39’ 21.9 “E	642	*Acacia nilotica*
37	S:47	Banki	Udaipur	$24^0$32' 42.9” N/ 73^0 39’ 20.8 “E	651	*Acacia leucopholea*
38	S:33	Banki	Udaipur	$25^0$32’ 41.0” N/ 73^0 39’ 20.3 “E	656	*Acacia leucopholea*
39	S:39	Banki	Udaipur	24032’ 41.7” N/ 730 39’ 19.1 “E	650	*Acacia leucopholea*
40	S:43	Banki	Udaipur	25032’ 39.7” N/ 730 39’ 20.9 “E	664	*Acacia leucopholea*
41	S:44	Banki	Udaipur	25032’ 36.0” N/ 730 39’ 20.1 “E	671	*Acacia leucopholea*
42	S:48	Banki	Udaipur	25032’ 36.9” N/ 730 39’ 24.0 “E	655	*Ziziphus mauritiana*
43	S:40	Banki	Udaipur	25032’ 38.1” N/ 730 39’ 24.7 “E	650	*Acacia catechu*

Our local assistants are constantly monitoring the nest boxes to see the occupancy of the white-naped tit, so that once occupied other related data can be obtained.

i. Tree species Selected: White-naped Tit prefers tall and tree with thick trunk for nesting and breeding but due to disturbance in the area only few tree species were found in tall and thick category. Eleven species of tree species were selected to put up nest boxes, of which *Prosopis cineraria* and *Acacia leucopholea* were the dominant tree species in terms of, that selected for the placement of nest boxes (Table 2).

Table 2: Tree Species Selected to put up Nest Boxes.

S.no	Tree Species	No of nest boxes
1	*Acacia catechu*	3
2	*Acacia leucopholea*	14
3	*Acacia nilotica*	4
4	*Acacia Senegal*	5
5	*Acacia tortilis*	1
6	*Bauhinia racemosa*	1
7	*Butea monosperma*	1
8	*Prosopis cineraria*	9
9	*Wrightia tinctoria*	1
10	*Gmelina arborea*	1
11	*Ziziphus mauritiana*	3

ii. Branch Selection: White-naped Tit is a secondary hole nester and uses the holes made by Yellow-crowned Woodpecker (*Dendrocopos mahrattensis*). This is the second smallest woodpecker in the area, which is mostly found and nests in thorn forest. It uses the main trunk of the tree, to make the hole/ construction of nest that in later stages used by White-naped Tit and other secondary hole nesters like Chestnut-shouldered Petronia (*Petronia xanphocollis*) and Brahminy starling (*Sturnus pagodarum*) as their nesting site. Keeping this in mind, most of the nest boxes have been put up either on the primary branches or on the main trunk of the tall trees (Table 3).

Table 3: Branches Selected for the Placement of Nest Boxes

S.no	Branch used	No of nest boxes
1	Main Trunk	20
2	Primary Branch	21
3	Secondary Branch	2

iii. Height Classes: White-naped Tit uses different height classes and branches for foraging and feeding, but for breeding it searches holes mostly at a height above 1.5m to protect and secure its future progeny from predator. In the sites where nest boxes were placed, minimum height of the tree was 3.1m and maximum was 9.2m therefore, nest boxes have been placed at a minimum height of 1.5m and maximum of 4.1m height on the trees.

iv. Direction of the Nest boxes: Most of the nest boxes were placed with the holes facing to north direction (13 nest boxes) and rest in other major and minor directions other than east. This was

mainly to prevent overheating of nest box due to direct sunlight (Table 4). Two nest boxes were kept facing towards east, on an experimental basis, but care was taken to avoid direct sunlight falling on it. Thick canopy cover was present around and drooping over the east facing nest boxes.

Table 4: Direction of Nest Boxes

S.no	Directions	No of Nest
1	East	3
2	West	7
3	North	13
4	South	4
5	North East	7
6	North West	6
7	South East	1
8	South West	2

Awareness and Education: An Initiative



Figure 5: Discussion with local community. Figure 6: Showing nest boxes to the local community. Figure 7: Showing photographs of the bird.

A preliminary discussion with the local communities (Figure 5) was made as part of awareness programme. In this gathering, the nest box (Figure 6) and photographs (Figure 7) of the bird were shown to the people in addition to briefing and explaining the significance of this bird and its habitat in our lives and the ecosystem. This was also used to spread the message of the nest boxes being put up and that the locals need to protect it from being stolen or broken. Though this was our first step as a step towards confidence building, we got a positive response from the community residing within its habitat range.

In the coming months, the survey for the bird species and it habitat quality would be spread to other parts of the south Aravallis both in Rajasthan as well as Gujarat. All data related to the above would be collected along with creating awareness among the local people living in each area that would be surveyed.