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Nesting characteristic of spotted owlet in and around Mount Abu Wildlife Sanctuary, Rajasthan

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Abstract- The nesting ecology of the spotted owlet was studied from January, 2022 to May, 2022 in various microhabitats of Mount Abu Wildlife Sanctuary and its surrounding areas. During study, a total of 29 nests and 71 fledglings were observed in different habitats; forest, agricultural lands and human habitation areas. Spotted owlet nests were observed on *Mangifera indica, Ficus religiosa, Phoenix sylvestris* and *Azadirachta indica* trees. Forest habitats had the most nests and fledglings, followed by agricultural land and human habitation areas respectively. In forest habitats, an average tree height of 10.52 metres and an average nest height of 6.36 metres were observed. In agricultural habitats, an average tree height of 11.02 metres and an average nest height of 5.95 metres were observed. While minimum average tree height (8.98 metres) and nest height (4.98 meters) were observed in human habitation areas. The nesting and breeding biology of spotted owlets has been significantly influenced by dramatic declination in holes and cavities, as well as the cutting of old and large trees.

Key words: Spotted owlet, nesting, habitat, cavity, trees

INTRODUCTION

Various avian species construct nests in tree cavities, holes and other structures like old buildings, deserted places and old temples. This strategy benefits these species by providing a suitable environment for egg incubation and proper care for young, as well as lowering the risk of nest predation.[1] The spotted owlet is a common nocturnal bird and distributed all over India, Nepal, Bhutan, Bangladesh, Iran, Lao, Myanmar, Cambodia, Pakistan, Thailand and Vietnam and found in different ecosystems including desert, shrub land and grassland.[2,3] They preferred a diverse diet, including insects, amphibians, reptiles, birds and mammals.[4,5] Spotted owlets are prone to selecting nesting sites that enhance their reproductive success. They live in various types of habitats and also adapt to natural habitats as well as human-habitation environments.[5] Spotted owls also inhabit rural and urban environments and their nestling places are old trees, old buildings and temples.[6-9] Breeding of spotted owlets ranges fromlate January to May[9] and January to April[10]. Present study was carried out on nestling ecology of spotted owlet in different microhabitat of Mount Abu Wildlife Sanctuary, Rajasthan.

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MATERIAL & METHODS

We observed numerous nesting characteristics of spotted owlet in various microhabitats like forest,

agricultural lands and human habitation areas of Mount Abu Wildlife Sanctuary and surrounding areas. The field survey and observations were taken from January, 2022 to May, 2022 in the late evening. The finding of spotted owlet nests was done on the basis of owl calling in the late evening and direct searching method in trees that have cavities or holes. Various nesting characteristics like plant species, tree height, nest height and number of fledglings present in per nest were recorded. The nest and tree heights were measured using a laser rangefinder. Observation and photographs of owlet nesting were taken from a Nikon 8x40 binocular and a Nikon P1000 camera. Observations were taken from a very safe distance from trees or nests without disturbing them.

RESULTS & DISCUSSION

The spotted owlet is widely distributed in and around Mount Abu Wildlife Sanctuary in various microhabitats, including forest, agricultural lands and human habitation areas. The breeding period of spotted owlet was observed from January to May in the study area. Similarly Gaba and Vashishat (2019)[9] observed the nesting period of spotted owlets from late January to May month in the agricultural landscape of Punjab state. The spotted owlet constructs nests in cracks and gaps of buildings, rocks and cliffs and holes in trees and is strongly connected to agricultural habitat.[9,11] We observed all nests of spotted owlet in cavities or holes of trees, including *Mangifera indica, Phoenix sylvestris, Ficus religiosa* and *Azadirachta indica*. During study, we observed a total of 29 nests and 71 fledglings of spotted owlet in various habitats and trees. Out of those, 14 nests and 35 fledglings were recorded in forest habitats, followed by 9 nests and 22 fledglings in agricultural habitat and 6 nests and 14 fledglings were observed in human habitation areas (Table 1). According to tree preference by spotted owlet, nine-nine nests were observed on *Mangifera*

Table 1- Nesting characteristic of spotted owlet in various microhabitats

Nests	Micro habitat	Scientific name	Nest height (m)	Tree height (m)	Number of fledgling
1	Forest habitat	*Mangifera indica*	3.5	8	4
2	Forest habitat	*Ficus religiosa*	6.2	14	1
3	Forest habitat	*Phoenix sylvestris*	10	10.1	3
4	Forest habitat	*Phoenix sylvestris*	6	10.1	2
5	Forest habitat	*Phoenix sylvestris*	4	10.1	3
6	Forest habitat	*Phoenix sylvestris*	7	9	3
7	Forest habitat	*Mangifera indica*	4	7.9	2
8	Forest habitat	*Ficus religiosa*	11	15.6	3
9	Forest habitat	*Phoenix sylvestris*	7.3	8	2
10	Forest habitat	*Phoenix sylvestris*	6	9.3	2
11	Forest habitat	*Mangifera indica*	5	12	3
12	Forest habitat	*Mangifera indica*	7.8	14	3
13	Forest habitat	*Phoenix sylvestris*	9	12.3	2
14	Forest habitat	*Mangifera indica*	2.3	7	2
15	Agricultural habitat	*Azadirachta indica*	6.6	13.8	3
16	Agricultural habitat	*Phoenix sylvestris*	3	7	2
17	Agricultural habitat	*Azadirachta indica*	5	11.3	3
18	Agricultural habitat	*Ficus religiosa*	5.3	11.6	2
19	Agricultural habitat	*Azadirachta indica*	4.4	9.9	2
20	Agricultural habitat	*Phoenix sylvestris*	9	9.2	3
21	Agricultural habitat	*Ficus religiosa*	6.2	12.4	2
22	Agricultural habitat	*Mangifera indica*	8.3	13	3
23	Agricultural habitat	*Mangifera indica*	5.3	7.3	2
24	Human habitation	*Azadirachta indica*	6.2	13	1
25	Human habitation	*Ficus religiosa*	5.6	8	3
26	Human habitation	*Mangifera indica*	4.3	7.5	3
27	Human habitation	*Mangifera indica*	5.2	7.3	2
28	Human habitation	*Ficus religiosa*	4.1	8.9	3
29	Human habitation	*Ficus religiosa*	4.2	9.2	2

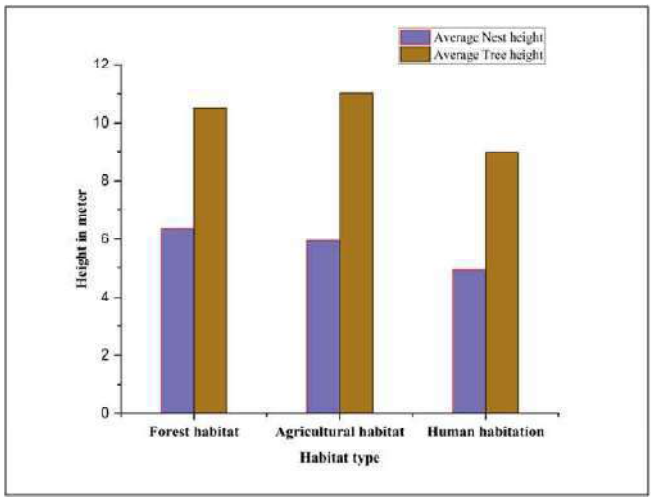

Figure 1- Average nesting parameters of spotted owlet

Figure 2- Three nests of spotted owlet at different height on *Phoenix sylvestris* tree

Figure 3- Spotted owlet breeding pair sitting inside cavity of *Mangifera indica* tree

Figure 4- Spotted owlet fledgling sitting inside tree cavity

Figure 5- Spotted owlet foraging in forest habitat

indica and *Phoenix sylvestris trees* followed by seven nests were found on *Ficus religiosa* and four nests were found on *Azadirachta indica* trees. Maximum fledgling size four were observed in only one nest in forest habitat, followed by three fledgling sizes were observed in 13 nests, two fledgling sizes in 13 nests and two nests contained only one fledgling. Fledgling numbers were observed in the late evening time when most of the young ones and fledglings came out of the cavity, foraging and sitting around nesting trees. Table 1 describes various nesting characteristics of the spotted owlet in different microhabitats. In the forest habitat, out of 14 nests, two were situated more than 10 m from ground level on *Phoenix sylvestris* and *Ficus religiosa* trees. While seven nests were located above five metres high or below 10 metres high in various trees, one nest was located at a height of five meters and the remaining four nests were situated below five metres from ground

level. Three spotted owlet nests were observed in a single *Phoenix sylvestris* tree, with a tree height of 10.1 m and nest heights of 10 m, 6 m and 4 m respectively. In an agricultural habitat; out of nine nests, six nests height was ranged above five metres, one nest was at five meters and the remaining two nests had a height below five metres from ground level. In human habitation areas; out of six nests, three were located above five metres in height and three were located below five metres in height from ground level. Figure 1 represents the average nesting parameters of spotted owlet nests. In forest habitats, an average tree height of 10.52 metres was found and the average nest height was 6.36 meters. In agricultural habitats, an 11.02 metre tree height and 5.95 nests height were observed and 8.98 metre tree height and 4.98 nests height were observed in human habituation areas.

CONCLUSION

Rapid urbanisation and development activities such as roads, highways, buildings and human settlements have decreased the density of old and cavity trees. Dry trees were also cut by farmers and people for fuel wood and other domestic purposes, which also decreased the number of cavity trees. The lack of old and cavities has an impact on the breeding biology and nesting habitat of cavity nesters, including the spotted owlet.

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