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Nest abundance of Asian weaver ant (*Oecophylla smaragdina*) around NPKL 7th Block Lake, Bheemanakuppe, Southern Bengaluru

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Ants are fine architects of the animal world, millions of years before mankind started to build cities, they started to build complicated infrastructures. India has over 828 species and subspecies of ants listed, representing 100 genera grouped in 10 subfamilies (Bharti *et al.*, 2016). The Asian weaver ant (*Oecophylla smaragdina*) (Formicidae: Hymenoptera) is obligate arboreal and eusocial (Fig. 1), widely distributed through the humid tropics and subtropics of Africa, Asia, Australia, and the Western Pacific (Wetterer, 2017). They are known for their remarkable nest-weaving skills with very large colonies and highly polydomous. The queen weaver ant starts laying eggs under the leaves, guarding them until it hatches into worker ants. Worker ants exhibit polyphenism and are classified into 'major' (8-10 mm) and 'minor' (4-5 mm), the major forage, defend, and expand the colony whereas the minor ants stay in the nest caring for the young (Jackson 2016). The workers of these cooperative nest builder start to build a nest by selecting a suitable location, generally flexible trees and shrubs, using their larvae silk

as a binding agent to bind the leaves into a nest (Holldobler and Wilson, 1977). They have become an important ant in the tree canopies that can serve as an indicator of habitat quality and health. They are aggressive predators of insects and an excellent pest control agent (Jessa *et al.*, 2019) and their foraging activity was optimum at 25°C with an ambient humidity of 80% as noted by Marcela *et al.* (2019). The present observations were made around NPKL (Nada Prabhu Kempegowda Layout) 7th block lake (12.917910727824513 N, 77.44730356695479 E) in Bheemanakuppe, Southern Bengaluru (Fig. 2).



Fig. 1. Weaver Ant nest in the study site

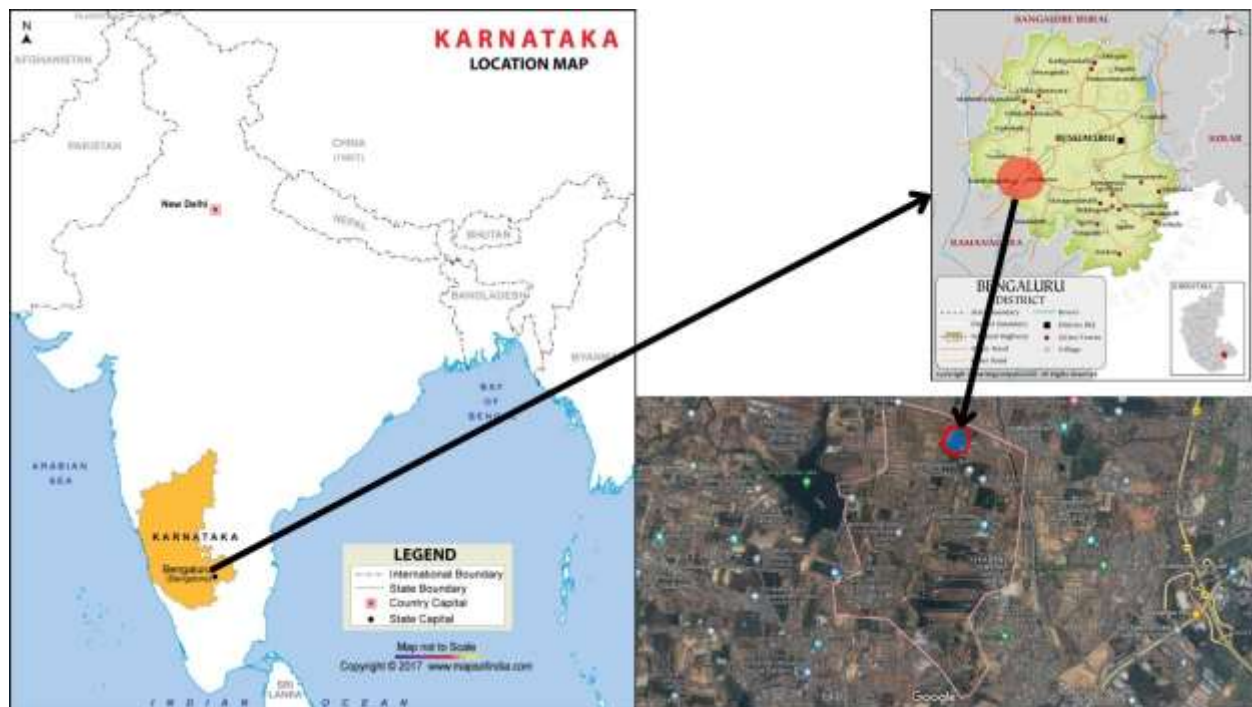


Fig. 2. Study Area (NPKL Lake in Bheemanakuppe Bengaluru)



Fig 3. Satellite view of NPKL 7th Block Lake with nest count sites

All out-search method (to locate and count all the nests in the trees around the lake) was used to observe and count weaver ant nests during May 2023. Trees with nests were found only in the western and southern margins, such trees were clustered into six spots each ranging from 1- 4 trees, flora in between the spots did not harbor any nest (Fig. 3 and 4). Spots 1-5 in the Western margin, Spot 6 in Eastern Margin

consist of tree(s) with nests. The distance between Spot 1 and 2 was 81.85m, Spot 2 and 3 was 53.59m, Spot 3 and 4 was 40m, Spot 4 and 5 was 29.7m, and Spot 5 and 6 was 184.64m. The iPhone's "Measure" app was used to record the distance between selected study points. I map was used to find the GPS of the location, and Google Maps was used to get a satellite view of the location.

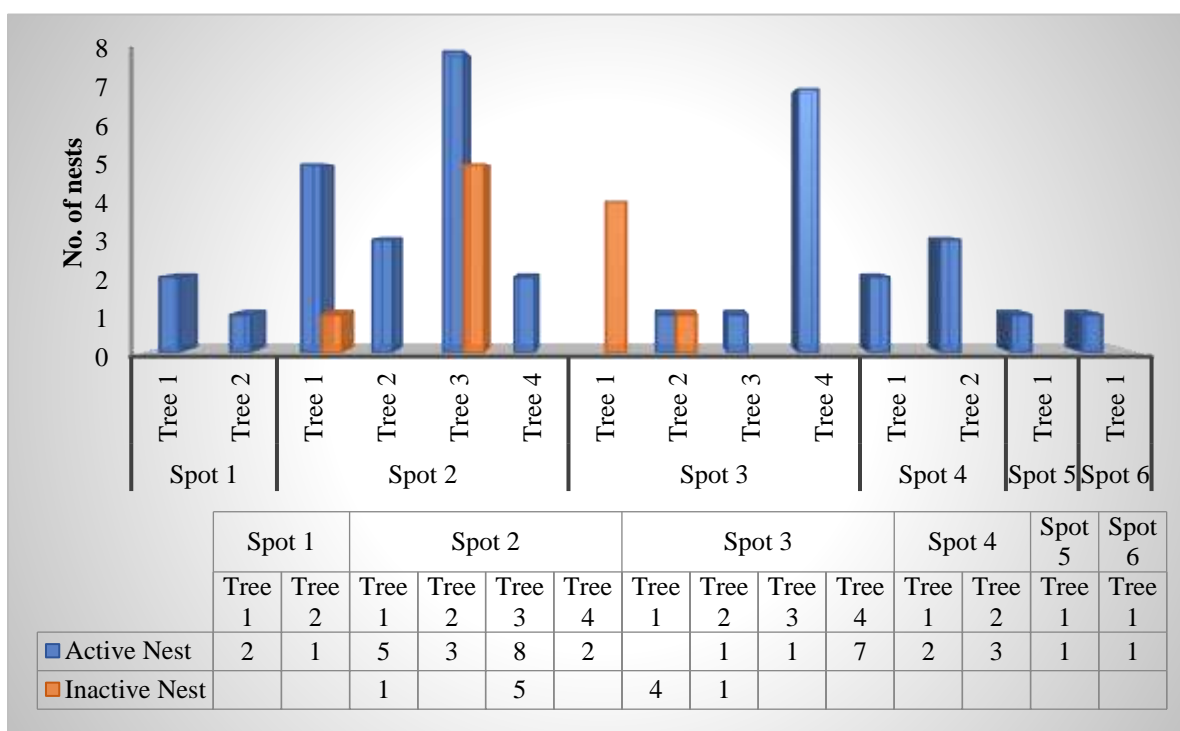


Fig. 4. Abundance of active and inactive nests in each spot

A total of 51 nests were found during the study, 37 nests (73%) were found to be active with weaver ants and 14 nests (27%) inactive nests with dried nest material and absence of weaver ants. In Spot 1 three active nests were found, in Spot 2 eighteen active nests and nine inactive, in Spot 3 nine active and five inactive nests, in Spot 4 five active nests, in Spots 5 and 6 only one active nest

each was observed (Fig. 4). All the weaver ant nests were on *Pongamia pinnata*, around the lake. Prospective studies on host preference needs to be undertaken. *Oecophylla smaragdina* was an efficient bio-control agent against pentatomid bug infesting on *Pongamia* (Hosetti and Rudresh, 2012). Most of the nests observed were in the western margin (13 trees) of the lake, and one in southern margin of the

lake. This could be due to the presence of construction works in progress on the southern margin and a granite industry on the eastern margin of the lake. The northern margin was not accessible. The weaver ants have an impressive sense of place that helps them to secure new territory (Holldobler and Wilson, 1977). Therefore, the dynamics of anthropogenic land use and its impacts on the ecosystem, also the adaptability of biota including the weaver ant needs to be monitored in such rapidly developing peri-urban zones.

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