Galaxy Nest: A Study on the Nesting Behaviors of Asian Weaver Ants

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One unique feature of Asian Weaver Ants (Oecophylla smaragdina), one species of Weaver Ants, is their capability of weaving leaf bags in trees. It has long been believed that those leaf bags were the nests of the ants, and one leaf bag represented the nest for one entire colony. Therefore, the number of ant colonies was usually determined by counting the number of leaf bags. However, our observation and analysis drew a distinct conclusion from this theory. From Jan 2017 to Apr 2018, we chose 11 Asian weaver ant habitats in Hong Kong as observation points and videotaped their leaf-weaving process. We found that the leaf bags with diverse sizes served distinct functions. The big leaf bags (30-50cm) with complicated divisions inside were the main nests for ants' living and incubation. The scattered small leaf bags (5-15cm) with only one room inside were storerooms and kitchens for prey storage and segmentation. There were more small leaf bags than the big ones. Spatially, the small ones were distributed surrounding the big ones. Asian weaver ants transported and shared food resources among different leaf bags through specific "ant routes". Accordingly, we named this nest system "Galaxy Nest" such that the main nest is like a star, while the kitchen and storage nests are the surrounding planets. They are connected by specific ant routes and formed an integrated traffic network that enables efficient transportation of preys into the nearest leaf bags. Taken together, our novel discovery demonstrated that a colony of Asian Weaver ants use an elaborate "Galaxy Nest" system, rather than a single leaf bag, to support their social organization and activity.

Awards Won:
Fourth Award of $500
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