

**IMPACT OF HABITAT TYPE AND FLORAL RESOURCE AVAILABILITY ON
GROUND-NESTING BEE ESTABLISHMENT IN AN AGRO-NATURAL
LANDSCAPE**

**E.M.D. Ekanayake¹, W.A.I.P. Karunaratne^{1*}, K.M.G.G. Jayasuriya², K.S.
Hemachandra³ and A.K. Karunarathna⁴**

¹Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka.

²Department of Botany, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka.

³Department of Agricultural Biology, University of Peradeniya, Peradeniya, Sri Lanka.

⁴Department of Agricultural Engineering, University of Peradeniya, Peradeniya, Sri Lanka

*inokap@sci.pdn.ac.lk

In agroecosystems, ground-nesting bees are crucial for efficient pollination. Ground-nesting bees are susceptible to habitat degradation and resource loss. Habitat destruction has a negative impact on the bee pollination. The effect of changes in habitat and resource availability on ground-nesting bee species composition remains poorly understood. The present study investigates how changing habitat and floral resources affect the species composition of ground-nesting bees. The research was conducted at Meewathura Farm in Peradeniya, where three distinct habitats were established: peripheral weedy, crop, and ornamental habitats. The ground nests of bees and their species, along with floral resources (number of open flowers), were recorded weekly during three developmental stages of the crop in two consecutive years (2021-2023) during the Yala and Maha seasons. Six ground-nesting bee species: *Lasioglossum serenum*, *Leuconomia* sp., *Lipotriches exagens*, *L. edirisinghei*, *L. pulchriventris*, and *Patellapis kaluterae*, (F: Halictidae) were identified. Ground-nesting bee species composition significantly differed among habitats ($p = 0.0001$). Results revealed that ground-nesting bees were more likely to nest within crop habitats (328 nests) than in peripheral weedy and ornamental habitats (269 and 244 nests, respectively). A weak but significant positive correlation existed between ground nests and their species richness with open flower abundance ($R^2 = 0.230$, $R^2 = 0.197$, respectively). Significant variations in ground nests and ground-nesting bee species richness were observed across seasons and years ($p = 0.0001$). Ground-nesting bee species composition varied with floral resources, habitats, seasons, and years, but these factors interacted negatively. A high proportion of bare grounds in crop habitats serve as dwellings for ground-nesting bee establishments. This study highlights the importance of habitat types and resource availability to promote the coexistence and composition of ground-nesting bees, thus maintaining their vital role as pollinators in agroecosystems.

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