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2 **Ants indicate urbanization pressure in sacred groves of southwest India: a pilot study**

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8 **Running head: ants indicate urbanization pressure in sacred groves**

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11 **Abstract**

12 Sacred groves might contain the remnants of pristine and primary forests outside the state-owned
13 protected area system. Since they are small fragments and located in the neighborhood of human
14 settlements, towns and cities, they are likely to be affected by the urbanization. In this pilot
15 study, we investigated the effect of urbanization on the ecosystem health of sacred groves of
16 Kerala using litter-dwelling ants as the indicator taxa. Ants were pitfall-trapped (10-12 traps/
17 sacred grove) from three rural and two urban sacred groves, and identified to species. Overall,
18 1,119 ants of 32 species and 6 subfamilies (Aenictinae, Dolichoderinae, Ectatomminae,
19 Formicinae, Myrmicinae and Ponerinae) were collected. This is 76.54% of the estimated species
20 richness. The urbanization had little impact on the species diversity of ants. Abundance was
21 remarkably high in urban sacred groves, mainly due to higher abundance of generalist and
22 invasive species. The effect of urbanization was indicated by the different ant assemblages. Rural
23 sacred groves had nine species and three subfamilies exclusive to them, against the five
24 exclusive species of urban sacred groves. Urban sacred forests were characterized by high
25 abundance of *Anoplolepis gracilipes*, a globally-important invasive species. Sacred groves were
26 clustered based on the rural-urban gradient as hypothesized by the study.

27 Key words: biodiversity, urbanization, sacred grove, ants, *Anoplolepis gracilipes*, invasive
28 species, Western Ghats, biotic invasion

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