

# On the origin of nest building behaviour in digger wasps (Hymenoptera, Apoidea)

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Comparison of the behaviour of primitive apoid wasps (Ampulicidae, Sphecidae, Crabronidae: Pemphredoninae) reveals xylicolous nesting in a pre-existing cavity to be found among representatives of generalised genera, while advanced taxa are mostly terricolous. This supports the hypothesis that nesting in a pre-existing cavity is a generalised ethological character, while nesting in a female-made burrow in the soil or plant material and a free nest are advanced behaviours. The nest building behaviour could develop from 3 sources: (1) hunting, which may contain digging activities if prey is soil-living; (2) prey transfer, which may include cleansing and deepening of the nest cavity before hiding prey in it, and (3) closing the cavity, which may involve searching for and transferring material and building the nest closure. The analysis of the subsequent steps of evolution from the unicellular wasp nest with a single prey toward the multicellular nest with multiple preys per cell leads to the opinion that nest with communal cells with several larvae per cell, rarely found in digger wasps, is an inevitable intermediate step between the nesting behaviour patterns «multiple cells - one prey per cell» and «multiple prey per cell».

Key words: behaviour, wasp nesting, evolution, Hymenoptera, Apoidea.

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