

- 3(2'). No erect hairs on upper surface of alitrunk (Fig. 1a); the concave declivous face of propodeum sculptured with fine vertical striations; body bicolored *mariae*
- 3'. Several erect hairs occur over the length of the alitrunk; the concave, declivous face of propodeum smooth or granulate; body concolored or bicolored 4
- 4(3'). No erect hairs on scapes; mature adults bicolored or concolored in dark brown or orange *pustulatus*
- 4'. Erect hairs on scapes; mature adults concolored in black Species A

Nest Sites

Wheeler (1905a) noted a basic behavioral difference between the temperate zone *Dolichoderus* species in North America and the single European form *D. quadripunctatus*. The North American species were ground-nesting ants while *D. quadripunctatus* was arboreal. Wheeler (1905a, b) described nests of *D. mariae*, *D. plagiatus* and *D. taschenbergi* in Connecticut and New Jersey. Those nests were all below ground or adjacent to the ground surface in woodlands, and the ants often covered the mounds with pine needles and leaves. His information did not include observations on *D. pustulatus*, considered a subspecies of *D. plagiatus*. Smith (1930) reported on ants in Florida including information received from the coleopterist, W.S. Blatchley. For *D. pustulatus*, he quotes Blatchley's notes on the nests as "... beneath loose bark of pine logs on Long Pine Key" and "... beneath boards on the ground." Wilson (1964) and Deyrup et al. (1988) surveyed the ant fauna of the Florida Keys, the latter study associated with extensive collecting. A *Dolichoderus* species was not found in either survey and the authors do not include the species in the Keys fauna. In fact, the species is not known in the southern part of the Florida peninsula. It is possible Smith never saw the specimens and a misdetermination was most likely involved. Certainly, no other observations of North American *Dolichoderus* nests are comparable. Thirty-five years after Wheeler's early work, a more serious documentation of *Dolichoderus* natural history began. Cole (1940) described ground nests of *D. mariae*, *D. plagiatus* and *D. taschenbergi* in the Great Smoky Mountains of Tennessee. Wesson and Wesson (1940) described

nests of *D. plagiatus*, *D. taschenbergi* and the form we now know as *D. pustulatus* in Ohio. The nests of *D. mariae*, *D. plagiatus* and *D. taschenbergi* described by these authors were basically similar to Wheeler's observations. The latter study appears to be the first acceptable description for the nest of *D. pustulatus*. Those nests were at the bases of "grass clumps" made in part from carton, chewed plant tissue, and while resting on the substrate, were somewhat above-ground. A number of tropical *Dolichoderus* species build nests of carton. Gregg (1944) reported the nests of *D. mariae* in a tamarack bog near Chicago. Those structures were in the leaf bases of *Typha* sp. (cattails), presumably at or just above ground-level. Kanno (1959), working about a bog in Michigan, observed the emergence of alates for all four described species. Unfortunately, he did not describe the nests nor indicate their location within the bog; however, the alates were described as ascending vegetation from ground level and the nests must have been similarly located. Carter (1962a, b) found the nests of all four described species in North Carolina as below-ground structures. He gave the following observations for *D. pustulatus*, "This ant prefers to nest in grassy abandoned fields, sunny fields or open dry woodlands". He notes the soil where one colony occurred as "... loose clay loam". These conditions are very different from the nests described below for the southern colonies. Wheeler and Wheeler (1963) provide the most recent observations for *D. plagiatus* and *D. taschenbergi* from North Dakota sites. The nests of *D. plagiatus* were in leaf mold, the brood of one colony being found in an acorn and another colony was directly adjacent to a nest of *Polygerus rufescens* Emery (= *P. breviceps* Emery) and *Formica fusca* Linnaeus, both ant species and a slave-maker and slave respectively. The nests of *D. taschenbergi* were described as mounds of fine thatch 22.9 to 30.5 cm. (9 to 12 inches) in diameter and 5.0 to 6.3 cm. (2 to 2.5 inches) high. Brood were found from ground level to 28 cm. (11 inches) in depth. The nests of *D. species A* was a loosely organized structure under pine litter overlying the ground surface in a Massachusetts pine barren.

Colony size varies between species. The colonies of *D. plagiatus* and *D. species A* appear to have low densities and secreted nests. Colonies of *D. mariae*, *D. pustulatus* and particularly *D. taschenbergi* have much larger numbers. In fact, *D. taschenbergi* is effective in controlling injurious larvae of various forest pests. Bradley (1972) reports success in relocating their nests in Manitoba for purposes of biological control.