

NESTS OF THE ANT, *FORMICA SUBPOLITA* MAYR, IN THE WESTERN UNITED STATES.

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Formica subpolita has a wide distributional range. The writer has collected it from Minnesota, South Dakota, Wyoming, Idaho, Utah, Nevada, Arizona, Oregon, and California, while Wheeler¹ has further listed it from Colorado and Washington. The nests are found in a variety of habitats, ranging from the hot, dry desert sands to the cooler and more moist plains. They are especially common in southern Idaho and northern Nevada. The altitude range of the insect seems to lie between 2,000 and 6,000 feet. Numerous specimens have been taken by the writer at Cloud Cap Inn, on Mount Hood, Oregon, at an altitude of approximately 6,000 feet, on the rocky, almost vegetationless slopes. There the colonies consisted of only a few individuals, while under more favorable conditions they are generally a great deal more populous.

The nests of *subpolita* are commonly under rocks and only the superficial galleries and chambers are exposed to view when the rocks are removed. Nests have been found, however, in different situations. The writer discovered one nest under dry cow dung, while Wheeler² states that *subpolita* occasionally constructs large crater-mounds.

The nest openings are usually regularly circular in outline but vary in size and numbers, as do the galleries and chambers. Generally speaking, there are from one to four openings to each nest. The writer has never observed a nest with more than four openings. Perhaps the average is about three. I have repeatedly noticed that nests in the desert and semi-desert regions contain a greater number of openings than those in less arid environments. This may be due in part to the number of individuals composing the colonies or to the temperature and moisture conditions of the habitat, or both.

The nest chambers were usually found about 18 inches below the surface of the ground and apparently varied in

¹Wheeler, W. M., *Ants, their structure, development and behavior*, Columbia Univ. Press, New York, 1926.

²*Ibid.*, p. 201.

number with the numerical strength of the colony. They harbored the brood, all stages being mixed regardless of age. In some of the chambers various seeds were stored with the brood. Even the superficial chambers at the surface occasionally contained mixed seeds. It would seem from this that *subpolita* might possess granivorous as well as carnivorous and secretivorous³ habits. However, no ants were found carrying seeds into the nests, a process which must be observed before a granivorous habit can be correctly assigned to the species. One or more of the superficial chambers usually contained parts of dead insects which had apparently been rejected by the ants. The superficial chambers sometimes contained brood of various ages, and even winged adults in some cases. In the vicinity of Twin Falls, Idaho, "desert pearls," or "earth pearls," an undertemined species of coccid, were in the surface chambers.⁴ This is apparently the first record of their appearance in ant nests of the United States and certainly in those of *F. subpolita*.

The queens, which, in the vicinity of Twin Falls, migrate during early July, dig small surface chambers under rocks and there deposit eggs. Only when workers have emerged is the size of the formicary increased. The nest, has, at first, only one entrance but later may contain three or four, as mentioned above. Thus the incipient nest is nothing more than a small chamber under a rock. This chamber apparently remains, and in its original condition, even after the formicary is fully developed.

Cockerell⁵ reports that *Elasmosoma vigilans* is a parasite of *Formica subpolita*, in Colorado, and *F. subpolita* has been taken as a slave of *F. pergandei*, *subintegra*, and *puberula*.⁶

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³I suggest the term "secretivorous" for those ants which feed upon the secretions of aphids, coccids, membracids, etc.

⁴These have been reported from ant nests in St. Vincent and South Africa by Guilding, B. A., "An account of *Margarodes*, a new genus of insects found in the neighborhood of ants'-nests," *Trans. Linn. Soc. London*, XVI, (1829), 115-119; and by Trimen, R., "Notes on insects apparently of the genus *Margarodes*, Landsd.-Guild., stated to occur abundantly in the nests of white ants and also of true ants in certain western districts of the Cape Colony," *Trans. Ent. Soc. London*, (1886), 471.

⁵Cockerell, T. D. A., "A new Braconid of the genus *Elasmosoma*," *Proc. Ent. Soc. Wash.*, X, (1908), 168-169.

⁶Wheeler, W. M., *op cit.*, p. 460.