THE THATCHING ANT, *FORMICA OBSCURIPES* FOREL

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Formica obscuripes is apparently one of the most successful ants present in semi-arid regions of the West. Its mounds, composed of dried plant material, are successfully able to resist the strong, westerly winds common to that section of the United States.

Wheeler[1] records this species from Wyoming, Montana, Colorado, Arizona and British Columbia. In addition to these localities I have found it in Idaho, Oregon and South Dakota. Wheeler[1] states that colonies of *obscuripes* are most abundant at higher altitudes, from 5,000 to 8,000 feet. Furthermore, the mounds are apparently most abundant in semi-arid localities, especially where sagebrush and its allied flora are growing.

The mounds consistently are composed of twigs and other dry plant material and are more or less dome-shaped (fig. 1). Almost invariably they are centered around a dead sagebrush plant. Parallel with the stem of the sagebrush one or more galleries extend into the interior of the mound. At least one of these external orifices opens at the apical juncture of the mound with the sagebrush stem. Other entrances perforate the mound in widespread places. I have counted as many as 44 and as few as 3 entrances on a single mound.

From observations it is certain that the sagebrush is alive when the ants begin building the mound. When the colony possesses a suitable number of workers the bark is chewed from the base of the plant and formic acid is ejected on the tender cambium layer. Whether this formic

acid is required for the destruction of the plant is questionable but it is doubtful whether elimination could be completely accomplished without it. After the plant has been killed it dries and the branches are broken off and disseminated by the wind. This operation takes place very slowly, it requiring sometimes as long as three months for the plant to be entirely eliminated. One can often observe mounds in which the stems have been broken off flush with the apex of the mound. In such cases the operation of destruction is incomplete for eventually the entire

Fig. 1. Typical mound of *Formica obscuripes* composed of wheat straw. Twin Falls, Idaho.

stem is removed. When the operation is complete the center of the mound will be found to possess a large longitudinal gallery, apparently the main entrance to the interior of the mound.

The main brood chambers are located approximately three feet lower than the base of the mound proper, but auxilliary chambers are scattered throughout the remainder of the nest where the brood may be moved upon

the occurrence of temperature fluctuations. (fig. 2). In most cases the brood is isolated in separate chambers according to age but often it is intermingled in the same chambers.

The twigs and grasses which comprise the external architecture also extend into the ground for a distance of from several inches to a foot and rest on a crateriform base. Perhaps this provides anchorage for the mound or even aeration of the brood. The slight precipitation occurring

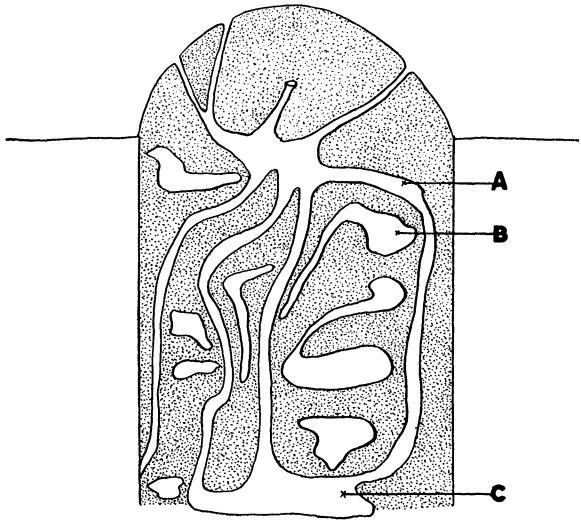

Fig. 2. Diagrammatic longitudinal section of a mound of *F. obscuripes*. Twin Falls, Idaho. A, a main gallery; B, auxilliary chamber; C, main brood chamber.

in the West has little effect on the mounds and there is no great danger of the crateriform base filling up with water.

Colonies of *obscuripes* are always quite populous and include both major and minor workers. Both of these aid in the protection of the colony, ejecting formic acid at the slightest unnatural disturbance. The macrogynous queens in a single colony vary in number, there always being two

or more present. Winged males and females appear in large numbers during June and July.

These ants feed chiefly on dead insects and related forms which they usually place in the brood chambers. Occasionally, however, they carry seeds into the mounds. Whether these seeds are used for food is evidently unknown. In a few mounds I observed them intermingled with the brood as is the case with the above food.

Wheeler states[2] that he has observed whole colonies of *obscuripes* attending droves of young Membracids in Colorado. I, too, have observed this association in Idaho and have also seen the ants attending two species of undetermined aphids on sagebrush. Wheeler[2] lists *Euphoria inda* and *hirtipes* as among the synœketes of *obscuripes*.

LITERATURE CITED

[1] Wheeler, W. M. A revision of the ants of the genus Formica (Linne) Mayr. Bull. Am. Mus. Nat. Hist., Vol. 53, No. 10. (1913)

[2] Wheeler, W. M. Ants; their structure, development and behavior. Columbia Univ. Press. (1926).