

Ants (Hymenoptera: Formicidae) of the Davis Arboretum, Yolo Co., California

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This list of ants from the Davis Arboretum, Yolo County, California (approximately 38°33'N 121°45'W) is based on observations made by PSW over a twenty-year period. During this time there has been a steady decline in populations of native ants and an increasing dominance by the introduced Argentine ant, *Linepithema humile*. When this water-loving species invades an area it is well known to eliminate most species of native ants (Ward, 1987; Holway, 1995).

Subfamily, species	Nesting habits (A = arboreal) (G = ground)	Feeding habits (O = omnivore/scavenger) (P = predator) (S = seed-harvester)
Ponerinae		
<i>Hypoponera opacior</i>	G	P
<i>Hypoponera punctatissima</i>	G	P
Myrmicinae		
<i>Pheidole californica</i>	G	S (O)
<i>Pogonomyrmex subdentatus</i>	G	S (O)
<i>Solenopsis molesta</i>	G	O
<i>Solenopsis xyloni</i>	G	S (O)
<i>Stenamma diecki</i>	G	P
<i>Tetramorium caespitum</i>	G	O
Formicinae		
<i>Brachymyrmex depilis</i>	G	O
<i>Camponotus essigi</i>	A	O
<i>Formica moki</i>	G	O
<i>Paratrechina vividula</i>	G	O
<i>Prenolepis imparis</i>	G	O
Dolichoderinae		
<i>Dorymyrmex bicolor</i>	G	O
<i>Dorymyrmex insanus</i>	G	O
<i>Liometopum occidentale</i>	A	O
<i>Linepithema humile</i>	A/G	O
<i>Tapinoma sessile</i>	G	O

Of the preceding 18 species, 14 are native and 4 are introduced taxa (*Hypoponera punctatissima*, *Tetramorium caespitum*, *Paratrechina vividula*, and *Linepithema humile*).

Descriptions of some ant species from the Davis Arboretum

Descriptions of some of the more conspicuous or interesting ant species of the Davis Arboretum are given below. Note that the body of a worker ant is composed of three major parts: (1) the **head**, (2) a middle section called the **mesosoma**, which corresponds roughly to the thorax, and (3) a posterior part called the **gaster** (roughly corresponding to the abdomen). At the constriction or “waist” between the mesosoma and the gaster is a node-like or scale-like structure called the **petiole**. In some species a second node, called the **postpetiole**, is interpolated between the petiole and the gaster. All descriptions below apply to the worker caste; the winged males and queens are often different in appearance.

1. *Liometopum occidentale* (velvety tree ant)

Small-medium, variable in size (3-6 mm long), orange-brown, with gray gaster. Mesosoma convex in lateral profile. Petiole scale-like, postpetiole absent.

Liometopum occidentale is an arboreal species that nests in cavities in the boles of large trees such as valley oak, walnut, and cottonwood. The ants are generalist predators and scavengers, and they frequently form large foraging columns, on tree trunks and on the ground. The workers have an unpleasant but distinctive (vinegary) odor. Various other native arthropods have co-evolved with this native ant: there are parasitic phorid flies that are host-specific and attack only the workers of *Liometopum*; there are mirid bugs that mimic the workers and often co-occur with them on tree trunks; and there are specialist staphylinid beetles live in the ant nest. Thus, when *Liometopum occidentale* goes extinct as a result of invasion by the Argentine ant, we lose an entire community of associated arthropods.

2. *Pogonomyrmex subdentatus*

Medium-large (6-8 mm long), reddish-brown; postpetiole present. Sting present.

This is a large, red seed-harvesting ant that nests in the ground. The nest entrances are usually decorated with small pebbles. Formerly more common on campus, this species survives along dry roadside verges, but does not tolerate the transformation to irrigated greenescapes.

3. *Formica moki*

Medium-sized (6 mm long), with a dark head, orange-brown mesosoma and silvery-gray gaster. Mesosoma saddle-shaped in profile. Petiole scale-like, postpetiole absent.

This species was previously more widespread in the Arboretum. It nests under stones, in rotten wood, and directly in the soil. Workers are active foragers, and their movements are fast and skittish. They look superficially like workers of *Liometopum occidentale* but they are more uniform in size and less inclined to forage in large groups.

4. *Prenolepis imparis*

Small (3-4 mm long), brown, with shiny gaster. Mesosoma saddle-shaped in profile. Petiole scale-like; postpetiole lacking.

This is a common species, whose nests are located deep in the ground. The workers are quite cold-tolerant: they forage on the ground and on vegetation throughout the winter and spring months, and then cease above-ground activity during the summer drought. During this period of aestivation, the colony apparently subsists on accumulated food-stores, including honey stored in the swollen gasters of certain workers (called “repletes”). This is one of the very few native ants that can survive in areas invaded by the Argentine ant, probably because it is underground when the Argentine ants are most active.

5. *Linepithema humile* (the Argentine ant)

Small (2.5 mm long), grayish-brown, with a thin (scale-like) petiole; postpetiole absent.

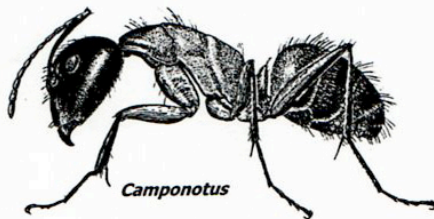
This introduced species is especially common in disturbed and irrigated areas; forages in large files; and aggressively attacks and eliminates most native species of ants. Unlike most ant species, nests of Argentine ants generally exhibit no intraspecific aggression. In fact, there are not sharp colony boundaries—all the ants in a given geographical area behave as if members of one large supercolony.

Literature Cited

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