

AUTECOLOGY OF *Wasmannia auropunctata*

DIET AND FEEDING RATES.—*Wasmannia auropunctata* ate a wide variety of foods (table 8), primarily invertebrates, plant parts, and honeydew. Although the data in table 8 were not collected randomly, plant parts were more frequent in the hot season (46% of observations) than in the cool season (6%).

TABLE 8. Food items collected from foraging *Wasmannia auropunctata* on Santa Cruz.

ARTHROPODS	
Insects	
Coleoptera	26
Dictyoptera	28
Lepidoptera	42
Hemiptera	43
Orthoptera	5
Neuroptera	5
Psocoptera	1
Hymenoptera	39
Chilopoda	2
Arachnida	11
Crustacea (mainly isopods)	38
Unidentified arthropods	101
GASTROPODS	29
ANNELIDS	3
AVES (feather)	1
PLANT MATERIAL	
Seeds	69
Flowers, leaves, stems, unidentified	173
	616

Wasmannia has at least two common foraging patterns. In the case of large, solid objects workers cooperate; for example, during two hours of observation we observed 15 to 20 workers move an intact isopod about 50 cm. At honeydew and sugar-water baits, large groups are recruited. A common sight is two parallel lines of workers going in opposite directions, the full workers with swollen abdomens and the others with noticeably smaller abdomens.

In order to determine the relative importance of honeydew, during the 1976 hot season we observed foraging workers at a series of nests in the arid, transition, and humid zones on the southern slope. The data (table 9) show that in all zones honeydew was an order of magnitude more important (wet weight) than other items as a food source. For every worker transporting solid items, there were 60 to 110 transporting honeydew (table 9).

We do not know how these rates compare to night-time or cool-season rates; however, it is clear

TABLE 9. Daytime feeding rates of *Wasmannia auropunctata*. Data are based on 25-minute observations of each of 15 nests in each vegetation zone.

Vegetation zone	Date	Solid foods		Honeydew	
		# items/ min/nest	g x 10 ⁻⁴ wet wt./min/nest	# full workers/ min/nest	g x 10 ⁻⁴ honeydew (wet weight) / min/nest
Arid	5,12 IV 76	0.58	2.9	34.3	65.2
Transition	6,13 IV 76	0.45	3.5	39.7	75.3
Humid	8,13 IV 76	0.36	1.1	40.1	76.1

that *W. auropunctata* consumes substantial quantities of invertebrates. An assumed density of three nests of *Wasmannia* per m² and 24 hr year-round activity (see below) leads to a projected consumption of 0.55 kg of solid foods (mostly invertebrates) per m² per year in the transition zone. Some unknown portion of the invertebrates are scavenged, but many instances of active predation were observed; so *W. auropunctata* probably affects the native invertebrate fauna significantly, and may also affect higher trophic-level organisms such as birds and lizards that depend on invertebrates for food (cf. Brown and Davidson 1977).

SOCIAL STRUCTURE.—Three types of aggregations of *Wasmannia* were observed. One type consisted of only workers, and ranged from a few to more than 100; a second aggregation consisted of workers with immature stages (larvae, pupae, eggs); while the third type consisted of one to several queens with workers and immatures. Social relations between neighboring aggregations appeared to be non-exclusive. No intra-specific aggression between *Wasmannia* was ever observed. Using sugar-water baits colored with dyes, we observed workers from adjacent nests sharing baits without aggression, and we also noted a few cases of workers moving from nest to nest. *Wasmannia* workers placed in other *Wasmannia* nests, whether adjacent or far away, were not attacked. Workers of *Tetramorium guineense* (Fabricius), *C. planus* F. Smith, *C. macilentus*, *T. melanoccephalum*, and *Paratrechina longicornis* (Latreille) (but not two *M. floricola*) were attacked when placed in *Wasmannia* nests.

Hölldobler and Wilson (1977) define the social structure exhibited by *Wasmannia* as unicolonial, that is, having no colony boundaries but rather with "intercommunicating aggregations of workers, brood,