

Classification and Bionomics

Ants belong to the order Hymenoptera, which also includes the wasps and bees. The ants comprise the family Formicidae, and are distinguished from their nearest relatives by two important characters: One of these is the differentiation of the abdomen into two well-marked regions—a slender, one- or two-segmented, freely moving pedicel, and a larger, more compact terminal portion, the gaster; the other separating character is the elbowed antenna, in which the first segment, or scape, is greatly elongated in both the female and the worker. In the male, the antenna frequently does not appear to be elbowed, since the scape is not always noticeably lengthened.

Ants can be distinguished from termites, with which they are commonly confused, by the strong constriction or "waist" between the thorax and the abdomen, and the two pairs of wings of which the anterior pair is much larger than the posterior pair, both having few veins. Termites, on the other hand, have two pairs of wings, approximately equal in size with numerous veins. They have a tendency to lose their wings more readily than the ants. Termites also differ from the winged ants in that the abdomen is broadly joined to the thorax.

There are normally three distinct castes of ants: Workers, females, and males. The male is generally winged, and retains its wings until death. Its size is usually intermediate between that of the worker and the female, and the male is characterized by its protruding genital appendages, the presence of ocelli, poorly developed or vestigial mandibles, and extraordinarily large eyes, which are out of proportion to the remainder of the head. Apparently, the sole function of the male is to mate with the unfertilized female; when mating has been accomplished, the male perishes. Mating may take place in the nest, on the ground, or in the air. Males are produced in old or very large colonies only, where there is an abundance of food, since much nourishment is required to bring males to maturity. After attaining maturity, the male usually does not remain long in the parental nest. After leaving it, he may even succumb to predators and the elements without having mated.

The female, generally the largest of the three castes, normally possesses wings but loses them after mating. She usually possesses three ocelli in addition to the pair of large compound eyes, a large thorax to accommodate the two pairs of wings, and a large abdomen for the production of numerous eggs. The primary function of the female or queen is reproduction, but in many of the more highly specialized ants, the queen also cares for and feeds the first brood of workers on her salivary secretions. She may live for many years; upon her death she is commonly replaced by a daughter queen. However, ants may have one or more queens, according to the species.

The worker, which is also a female, is never winged except as a rare abnormality. The workers of most species lack ocelli. The thorax is simple, apparently composed of three segments, but in reality there are four. Workers are not always of the same size or morphological structure in a given species. When workers are of approximately the same size and structure within a species, we say the species is