

Study of Digger Wasp Communities Along the Snake River  
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Studies during 1961, 1964, and 1967 have revealed the presence of more than 100 species of solitary wasps occurring in restricted areas of sand or sandy gravel along the Snake River within 10 miles of the Research Station. In some small areas many species nest together, and some species are represented by great numbers of individuals. Also present are great numbers of parasites (flies and wasps), the majority of them not at all host-specific. Three questions at once present themselves: (1) how do so many species of wasps manage to co-exist in these restricted areas; (2) how do they survive in the presence of so many parasites occurring in these nesting aggregations; and (3) to what extent are the many species differences in nesting behavior a reflection of these two factors: avoidance of competition and survival in the face of an abundance of non-host-specific parasites?

An attempt to answer these questions involves close observation of these sandy areas, the marking of wasps and of their nests, study of the behavior of the wasps and their parasites, and the excavation of nests to study their structure and contents. Certain species were studied in some detail during previous summers, and attention this summer was directed primarily toward other species, especially three species of Philanthus, all predators on bees and wasps: pulcher, crabroniformis, and pacificus. Many nests of the first two species were found, and detailed studies were made; however, only two completed nests of pacificus were located. Several other species not previously studied here or elsewhere were observed in some detail: Palmodes carbo, a predator on large grasshoppers; Belomicrus forbesi, a predator on plant bugs; and Cryptocheilus terminatum and Pisonopsis (species not yet identified), both predators on spiders. In addition, some new data were gathered on species studied earlier, and much time was expended trying to find nests of other species not yet studied. Two of these species, Stictiella emarginata and Dienoplus pictifrons, are common elements in these communities, yet neither could be found nesting, and both may nest in unusual situations.

A study of this nature can never be carried to anything like full completion, but it seems safe to say that in general none of these species are full competitors: either they prey on different arthropods or they nest at different times or in different situations. It also seems a safe assumption that many of the behavioral differences between species can be explained as different devices for reducing the incidence of parasitism: different nest closures, accessory burrows, manner of provisioning the nest, and so forth. So far at least some data are available on about 30 of the more than 100 species occurring in these areas. Whether a detailed report will be written for publication at this time or an effort made to extend the studies during future summers remains at this point undecided.

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