

A New Station for *Orobanche Ludoviciana*

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The dried remains of an Angiosperm, parasitic on the roots of the giant ragweed, *Ambrosia trifida* L. were found in a field bordering the Wabash River about one-half mile south of West Lafayette in late November, 1939. Specimens of the parasites were collected and identified as *Orobanche ludoviciana* Nutt. The ragweed was growing in sand which had been washed over the field during a flood. The sand supported a very luxuriant growth of ragweed and, indirectly, of the *Orobanche*.

Intérest was aroused in the various problems concerning the parasitism of one flowering plant upon another. Several attempts were



made to culture the parasite on its host in the greenhouse. Seed of the parasite were mixed with the soil in which the ragweed seed were planted. The ragweeds grew, but no development of the *Orobanche* was observed. No attempts were made, however, to grow the *Orobanche* seed by use of aqueous extracts of the host roots.

In tracing the host-parasite connections in the field it was found that the parasite often developed on roots five or six feet from the main axis of the host. In some instances several plants were found on one host. The host roots were never found to extend beyond the region of contact with the parasite (Fig. 1).

The contact of one plant with its host plant was found to take place under about ten inches of sand and two inches of underlying clay. Evidently the seed from which this plant developed had lain dormant several years before the proximity of a host root had stimulated it to germinate.

In the spring of 1940 plants of *O. ludoviciana* were observed growing in an area free of ragweeds. In this instance the host was found to be a species of *Xanthium*. At this same time the parasite was also found growing in association with plants of *Aselepias* and *Chenopodium*, but attempts to determine definitely the connections between the parasite and either of these plants were unsuccessful.

During the following year a tobacco plant and a South American species of tomato, *Lycopersicon peruvianum* (L) Mill., growing in the greenhouse were parasitized by the *Orobanche*. Both of these plants were growing in the same soil which had been used for the ragweeds the previous year. The seed of the parasite thus evidently remained viable more than a year.

Recently the parasite has been found growing on *Ambrosia elatior* L. in the field. This brings the host range of *O. ludoviciana* to include *Ambrosia trifida*, *Nicotiana tabacum*, *Lycopersicon peruvianum*, *Ambrosia elatior* and *Xanthium* sp. So far as the authors have been able to determine the last three of these have not been previously reported as hosts.