

LITTLE KNOWN MIDGE GALLS OF  
CERTAIN COMPOSITES.

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The writer published in 1911\* a tabulation of American Midge Galls and since then a number of new ones have been discovered on plants which are likely hosts of additional species. It is the purpose of these notes to call attention to some interesting analogies and to point out promising lines of investigation.

The occurrence on the gum plant or tarweed, *Grindelia*, and on *Gutierrezia*, of the typical blackened, carbonaceous tissue so conspicuous in the oval black blister galls of the narrow-leaved goldenrod, is most interesting, especially as all three are produced by midges belonging to the genus *Asteromyia*. The first is the work of *Asteromyia grindeliae* Felt, the second of *A. gutierreziae* Ckll., and the third of the much better known *A. carbonifera* Felt. The gall of *A. gutierreziae* Felt differs from those of the other two species, in that it consists of slight enlargements of the slender stems instead of a development upon the leaf. Both *Grindelia* and *Gutierrezia* are known to support bud or flower-inhabiting species of *Rhopalomyia*. *Ericameria* also has its bud inhabitant, *Rhopalomyia ericameriae* Felt, which produces a small rosette bud gall, really aborted branchlets. It is very probable that the related and rather common *Sideranthus* supports one or more gall midges.

The various wormwoods or sage-brush of the western plains, *Artemisias*, support an interesting and presumably only partly known fauna. Two genera, *Diarthronomyia* and *Rhopalomyia* find very acceptable conditions on these plants, particularly the former, a genus which appears to confine itself largely to *Artemisia* and the related *Chrysanthemum*. In order to facilitate the discovery of new species on *Artemisia*, a tabulation of the known galls, including those of associated forms, is given below.

## INSECT GALLS ON WORMWOOD OR SAGE-BRUSH ARTEMISIA.

## ARTEMISIA CALIFORNICA.

Irregular, lobulate, woolly masses, apparently arising from lateral buds and frequently confluent, the individual galls with a diameter of about 4 mm. ----- *Diarthronomyia floccosa* Felt

Subconical, thin-walled, obliquely-set, brownish or reddish leaf galls with a length of 1.5 mm., and a diameter of .5 mm.

*Diarthronomyia californica* Felt

\*Econon. En. Journ. 4:451-75.