

moderate hair, the anterior bifid at apex. Penis unsegmented, apically enlarged and inflated, the ventralia slightly developed.

Holotype male: "BRASILIA, Coll. Winthem" and "*calceata*, det. B.B.," returned to Vienna. One paratype, San Bartotoma, Lima, Peru, 15-III-28, in U. S. National Museum.

**The Genus *Oligotrophus* Latreille (Diptera:
Cecidomyiidae) in North America and a
New Species Injurious to *Betula*
papyrifera Marsh**

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The genus *Oligotrophus* may be distinguished from all other genera of North American Oligotrophini by the following combination of characters: palpus three-segmented, claws simple, R_5 reaching costa beyond the apex of the wing, and the ovipositor long or short but not cultriform. Following is a key to the six species of *Oligotrophus* known to occur in North America.

Key to species of *Oligotrophus* in North America

1. Third palpal segment at least 1.5 times as long as second...2
Third palpal segment shorter than or equal to second.....5
2. Third palpal segment 2.5 times as long as second; ovi-
positor protrusible, long, without lateral lamellae;
female only; host unknown.....*vernalis* Felt
- Third palpal segment less than twice the length of second...3

3. First palpal segment at least 1.5 times the length of second; male, distimere without medial projections; female, tip of ovipositor with long, numerous, distally recurved setae; reared from apical branchlet galls on *Juniperus mexicana* Streng.....**pattersoni** White
First palpal segment slightly longer to shorter than second; genitalia different from above.....4
4. Male, flagellomeres with stems about 0.5 length of node, nodes globular; female, ovipositor simple, rounded, without lateral lamellae; reared from seed galls on *Betula* spp.....**betulae** (Winnertz)
Male, flagellomeres parallel-sided with stems shorter than 0.2 length of node; female, ovipositor with lateral lamellae; causes damage to buds of *Betula papyrifera* Marsh.....**papyriferae** n. sp.
5. Palpus without spiniform setae, second segment no wider than third; causes leaf galls on *Salix humilis* Marsh.....**salicifolius** Felt
Palpus with spiniform setae, second segment wider than third; reared from apical branchlet galls on *Juniper utahensis* (Englem.) Lemmon, *J. ashei* Buckz. (*Sabina sabinoides*), and several varieties of *J. virginiana* L.....**betheli** Felt

Felt (1918) erected the genus *Alassomyia* on the basis of one female specimen with supposedly toothed claws but otherwise with the characters of *Oligotrophus*. Upon examination of the type-species, I find the claws to be simple and therefore consider *Alassomyia* a synonym of *Oligotrophus*. *A. juniperi* Felt, the only included species, is a new junior synonym of *O. betheli* Felt.

I consider *Semudobia* Kieffer another subjective synonym of *Oligotrophus* which Kieffer (1913) erected for *O. betulae* (Winnertz) because of the median projection of the basimeres of the males. *Oligotrophus* is a fairly diverse genus and, if one could justify splitting it on the basis of differences in the genitalia alone, one could erect a new genus for each of the five other North American species. At present, *Oligotrophus* is a convenient, subjective grouping. When more species are known, it may aid in identification and in demonstrating relationships to erect new genera.

Mayetiola inquilinus (Felt), new combination, is herein transferred from *Oligotrophus* because it possesses a four-segmented palpus, though reported by Felt (1915) as three-segmented. *O. vernalis* Felt may also belong to *Mayetiola*. Only one whole palpus remains on the one specimen, and its long third segment may be a fusion of a normally four-segmented palpus. For the time being, however, it is retained in *Oligotrophus*.

O. apicis Appleby & Neiswander and *Mayetiola sabinae* (Felt), as well as *Alassomyia juniperi* Felt discussed above, are new junior synonyms of *O. betheli* Felt. The interparameral organs, "structure A" of Appleby and Neiswander (1965), thought to be absent from the male genitalia of *O. betheli* are not, and any difference in the structure of the distimeres of the two species is the result of their position on the slide mount. The holotype and only specimen of *M. sabinae* was mounted in such a way that the number of palpal segments was not visible. After remounting the type, it was obvious that this species is the same as *O. betheli*.

Lectotypes are here designated for the following Felt species: *O. salicifolius*. Lectotype: ♂; Karner, N. Y.; April, 1910; a2017. Paralectotypes: (all from Karner, N. Y.; a2017) 1 ♂, Mar. 31, 1910; 1 ♀, 2 pupal exuviae, 2 larvae, April 1, 1910; 1 ♀, April 2, 1910; 1 ♀, April 6, 1910.

O. betheli. Lectotype: ♀; McCoy, Colo.; Bethel; July 1, 1912; a2303. Paralectotypes: 2 ♀♀, 2 pupae (1 ♂, 1 ♀) and 2 pupal exuviae, all with same information as lectotype; 1 ♀, same locality and type number; June 25, 1912; *Juniperus utahensis*.

The above lectotypes and paralectotypes are on temporary loan to the U. S. National Museum from the N. Y. State Museum in Albany.

Dr. Louis F. Wilson of the North Central Forest Experiment Station and Mr. Murray Hanna of the Michigan Department of Agriculture in Lansing, Mich., collected and reared specimens of the new species described below and kindly submitted them to me for description. This species is of some economic importance because the larvae bore within and kill the affected buds of paper birch, *Betula papyrifera*. In the fall

the larva makes an exit hole, usually near the base of the bud, and drops to the duff where it forms a cocoon in which it apparently overwinters before pupating in the spring.

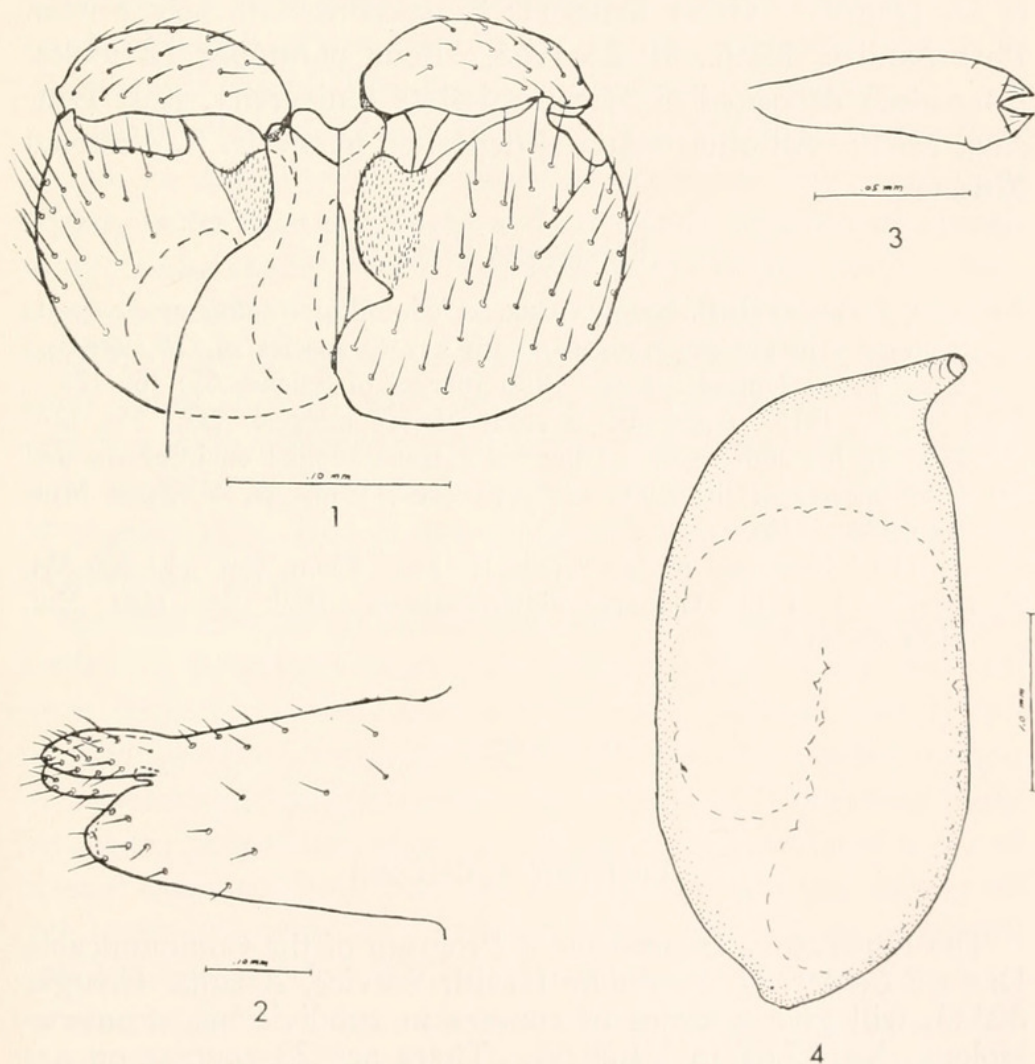
***Oligotrophus papyriferae*, n. sp.**

Adults. Wing length: male, 2.63–2.73 mm; female, 2.42–2.94 mm. Flagellomeres: 12; parallel-sided with short, distal stems except terminal one which is tapered distally; one circumfilum on proximal third of nodes and two on distal half, though they may be variously interconnected vertically, especially the distal pair; roughly two whorls of setae, one proximad to basal circumfilum, the other between the two distal circumfila. Third flagellomere of male: total length, 0.100–0.105 mm; width, 0.038–0.045 (figures may be high due to slight compression under cover slip on slide mount); length of distal stem, 0.010–0.015. Third flagellomere of female: total length, 0.070–0.085; width, 0.040–0.043; length of distal stem, 0.035–0.055. Palpus: length first segment, 0.035–0.060 mm; second, 0.035–0.055; third, 0.085–0.100; proportions about 1:1:2. Frontoclypeal setae, 3–8 (avg. of 9 observations, 6); subalar sclerite setae, 7–17 (avg. 9); scutellar setae 4–16 (avg. 8). Length of tarsal segments: I, 0.100–0.120 mm. (avg. of 9 observations, 0.108); II, 0.335–0.425 (0.377); III 0.165–0.235 (0.193); IV, 0.105–0.140 (0.126); V, 0.085–1.115 (0.102). Claws evenly curved. Empodium discoid, about 0.028 in diameter, 0.008 in thickness, approximately as long as claws. Pulvilli about 0.015 mm long. Male terminalia (Fig. 1): basimeres stout with medial projections clothed with thick, short hair; tenth tergum bifid; tenth sternum bifid with projections rounded; aedeagus short. Female terminalia (Fig. 2): short, 0.225–0.265 mm in length, approximately one-eighth length of abdomen; lateral lamellae present.

Last-instar larvae. Length 2.1–3.0 mm. All papillae apparently without setae and for that reason difficult to detect. Visible are four lateral groups each with three papillae, on the ventral surface of the three thoracic segments, four fore ventral

papillae on the abdominal segments and four terminal papillae slightly raised on short humps. Rounded, smooth verrucae cover the integument except on the smooth intersegmental membranes and on the midventer of all segments where verrucae are slightly pointed. Sternal spatula (Fig. 3) bifid, weakly developed, the two points turning in slightly toward each other.

Cocoons (Fig. 4), 2.75–3.35 mm in length. Formed in duff after larva has escaped from bud. Hyaline, brittle, cylindrical, posterior end broadly rounded, anetrior end tapered and open



O. papyriferae n. sp. FIG. 1. Male terminalia: left half, dorsal view; right half, ventral. FIG. 2. Female terminalia. FIG. 3. Sternal spatula of larva. FIG. 4. Cocoon with larva curled up within (diagrammatic).

at the end to form a small chimney. Position of the larva sometimes straight with head toward chimney but more often in a bent-double position, ventral side out.

Pupae. Unknown.

Material examined. Holotype: "♂; 66 12230; from buds of *Betula papyrifera*, Sanilac Co., MICH.; M. Hanna Coll.; reared in lab, 4-20-1966; U.S.N.M. Type No. 69070." Paratypes: 5 males, 10 females, all with same data as holotype; 3 larvae: "ex cocoons, nr Port Sanilac, Mich., 10-25-1965"; 5 larvae: "ex birch buds, Fort Sanilac, Mich., 10-8-1965; L. W. Wilson & M. Hanna." Other material: 27 cocoons with larvae from Port Sanilac, Mich., 10-25-1965. Four paratypes (2 males, 2 females) deposited in Michigan State University, East Lansing, Mich. All other material deposited in the U. S. National Museum.

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