

NOTE

Food Plant, Life History Notes, and Distribution of *Nematus atriceps* (Marlatt)
(Hymenoptera: Tenthredinidae)

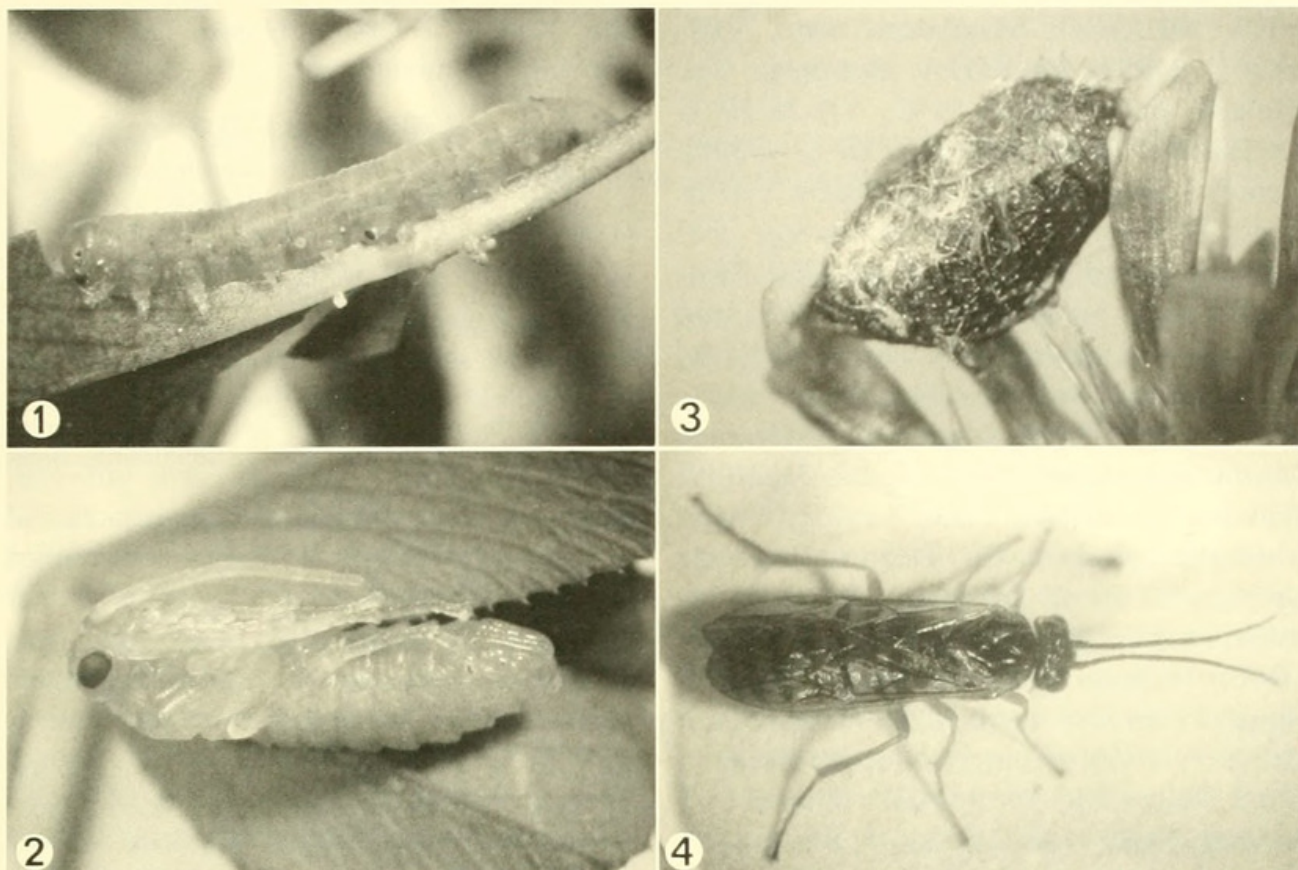
Sawfly larvae were discovered feeding on *Trifolium wormskjolkii* Lenm. (Leguminosae) by GP at Seal Rock, Lincoln Co., Oregon, in the summer and fall of 2002. The reared adults were *Nematus atriceps* (Marlatt) (Nematinae) which occurs in the western United States and Canada. This is the first food plant record for this sawfly and the first record for any of the species placed in the *Nematus atriceps* group by Smith (1979). The food plant is unusual for *Nematus* in that most species feed on Salicaceae, Betulaceae, or other woody trees or shrubs. One Palearctic species, *Nematus myosotidis* (F.), is known to feed on *Trifolium* sp. (Taeger et al. 1998). *Nematus myosotidis* is very similar to *N. atriceps*, and could be placed in the same species group.

At Seal Rock, the clover plants were growing in a seepage area about 12 feet from the high tide level. *Nematus* larvae (Fig. 1) were first seen and collected while feeding on the flowers on July 12, 2002. Some lepidopteran larvae were found in other flower heads at the same site. On returning to the site on August 14, 2002, no insects were found on the same clover plants. However, on September 6, a number of small *Nematus* larvae were found eating clover leaves but leaving the midrib and larger veins. Three sawfly larvae were collected on September 23, 2002, from the leaves, and, on October 7, 2002, three additional small larvae were found on the leaves. After September, flowering drops off considerably, so the leaves are the major source of nourishment. Young larvae were reared in the laboratory on flowers and leaves of the same clover species. They would not eat white clover, *Trifolium repens* L. In rearing, they readily spun a tough, papery cocoon on the flowers (Fig.

3), or, if no flowers were present, under the filter pad in the petri dish. If the mature larvae are continually moved, they often did not form a cocoon and pupated naked (Fig. 2). Adults (Fig. 4) emerged in about 7 to 10 days. In the field, pupae were found only on flowers; however, they could have been in the duff even though it was quite wet under the plants.

The food plant is a native species commonly called marsh or spring bank clover. It is distributed from British Columbia to Mexico along the coast and also has inland populations in Idaho, New Mexico, and Colorado. It is a weak-stemmed perennial with large red, pink, or purple flowers. There is a mountain meadow race found along streams, as well as a coastal race found on beaches or edges of salt marshes. The coastal race is a rhizomed, matted form (Hickman 1996). Populations of the coastal race were examined by GP all along Oregon and into northern California (Lake Earl). The only locality where *Nematus* was found was at Seal Rock. The sawfly may have been missed at the other sites, although other insects were found in the flowers, such as larvae of *Hypera punctata* (F.), an Old World weevil.

Though *Nematus atriceps* feeds both on the leaves and inflorescence of *Trifolium wormskjoldii*, few other sawflies have been recorded feeding on inflorescences and *N. atriceps* provides one of the few examples. Other North American species include *Tenthredo* sp. on the flowers of *Ranunculus californicus* Benth. (Ranunculaceae) in California (Linsley and MacSwain 1959), and *Rhadinoceraea zigadenusae* Smith (Smith and McDearman 1990) and *R. sodesensis* Smith and Barrows (1995) on species of *Zigadenus* (Liliaceae) in southeastern U.S. and West Virginia.



Figs. 1–4. *Nematus atriceps*. 1, Mature larva feeding on a leaflet of *Trifolium*; length, 13 mm. 2, Pupa, without cocoon; length 8 mm. 3, Cocoon attached to florets of the clover flower; the larva developed on the petals; length, 11 mm. 4, Recently emerged adult, length, 12 mm.

The distribution of *Nematus atriceps* has not been recorded. It is found throughout western United States and in western Canada from the Rockies westward with several records east to Wisconsin and Manitoba. It generally overlaps the distribution of the food plant, but it is also possible *N. atriceps* feeds on other species of clover. Material examined by DRS is as follows: ALASKA: Nazan Bay, Atka, Aleutian Is., VII-27-1907, VIII-1-1907. ALBERTA: Beaverlodge, VI-7-1931; Wabamum, VII-31-1929. BRITISH COLUMBIA: "Vanc." CALIFORNIA: Smith River, VII-17; Rattlesnake Mdw., Siskiyou Co., 5800', VIII-9-1970; Twin Lake, Siskiyou Co., VII-27-1971; Young's Valley, Siskiyou Co., 4600', VII-4-1971; Swift Cr., Trinity Co., 5700', VII-31-1973; Black Bsn, Trinity Co., 7100', VII-29-1972; Humboldt Co.; Mumford Bsn, Trinity Co., 6400', VII-31-1972; 7 mi S Yellowjacket Camp, El Dorado Co., VI-

29-1980; Cracker Mdws., Siskiyou Co., 5000', VIII-16-1971; Cazadero, IV-12-1918; Oakland, Alameda Co., III-22-1952; Strawberry, Tuolumne Co., VI-21-1951; Tahquitz Mdw, San Jacinto Mts., VI-3-1940; Buck's Lake, Plumas Co., VII-1-1949; Muir Woods, V-19-1915; Cona Cr., Napa Co., IV-23-1949; 3 mi E. Mt. Lassen, VII-19-1953; Trinity Co., V-25-1934; Sagehen nr. Hobart Mills, VII-9-1954, VII-25-1954; Woodacre, III-28-1955; Pine Crest, Tuolumne Co., VII-1-1951; Kings Crk. Mdw., Shasta Co., VII-2-1947. COLORADO: "Colo."; 15 mi N Jct R. 14 & 40, VII-2-1962; Pitkin Co., Weller, 9360', 8 rd. mi SE Aspen, VII-26-1977; Big Spring Ranch, Florissant, VII-18-1962. IDAHO: Lenore, V-7-1938; Weippe, 3006', VII-5-1935; Vollmer, V-1930. MANITOBA: Aweme, VI-10-1928. MONTANA: Fairy Lakes, VIII-10-1968. NEVADA: "Nev." (holotype of *atriceps*); "Ormsby Co.," VII-

NEW MEXICO: Magdalena Mts., VIII-1894. NORTH DAKOTA: Bottineau Co., Malaise trap, VII-17-1972, VII-28-1974. OREGON: Seal Rock, Lincoln Co., 2002 (reared specimens); Cannon Beach, VIII-9-1940; Wheeler Co., road to Grant Spg., 500 yds SW Guard Station, VII-20-1962; Wal-lowa Co., 8 mi N Flora, VI-7-1963; Iron Mtn., 8 mi E Upper Soda, Linn Co., 5000', VIII-11-1962; Kelsey Valley, Douglas Co., VI-26-1962; Horse Lake, High Cascade Mountains, Lane Co., VII-25-31-1909; Jackson Co., Squaw Lake, 7 mi E Copper, V-19-1962; Jackson Co., Dead Indian Soda Springs, 12 mi SE Lakecreek, 2500', V-21-1964; Jackson Co., Pinehurst, 3375', V-19-1960; Jackson Co., Buckhorn Mineral Spgs., 11 mi ESE Ashland, 2800', Emigrant Cr., V-19-1960; Benton Co., Rock Creek, 4 mi S Philomath, IV-28-1963; Wasco Co., Bear Springs, 3180', 25 mi W. Maupin, V-21-1959. WASHINGTON: Mt. Adams, VI-26-1931; Westport, VII-17-1949; Seattle, IX-17-1891. WISCONSIN: Polk Co., VII. UTAH: Bear R., n. sl. Uinta Mts., 8000', VI-2-1919.

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