

## Zigadenus Sawfly

*Rhadinoceraea zigadenusae*

Contributor (2005): David R. Smith (Smithsonian Institution)

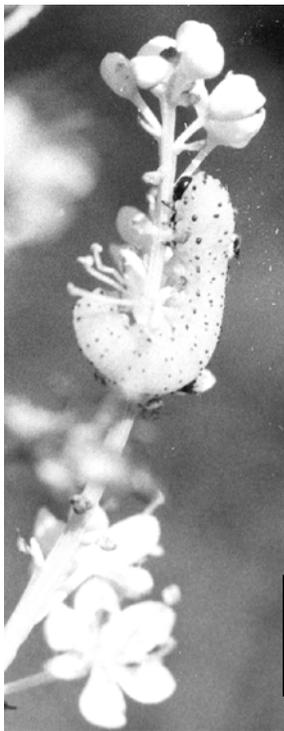
Reviewed and Edited (2012): David R. Smith (Smithsonian Institution)

### DESCRIPTION

#### Taxonomy and Basic Description

Sawflies, sometimes called “broad-waisted” wasps, belong to the Order Hymenoptera along with wasps, bees and ants. The Zigadenus Sawfly is in the family Tenthredinidae, one of 4 families in the superfamily Tenthredinoidea, which is contained in the suborder Symphyta, the sawtails and horntails.

Sawflies are distinguished from other Hymenoptera by the abdomen being broadly joined to the thorax, not with a wasp-like constriction in the middle. Most are fly-like in appearance, but have four wings, compared to two wings in flies. The female’s ovipositor cuts into plant tissue for insertion of eggs and is saw-like; thus, the common name “sawflies.”



All sawflies are phytophagous in the larval stage, with the larvae being caterpillar-like in appearance, but are differentiated from caterpillars (Lepidoptera larvae) by the presence of only one ocellus (light sensing organ) and usually more prolegs on the abdomen. Over 1,000 species are known in North America and over 8,000 species are known worldwide (Smith 1979). Hosts include a wide variety of plants including ferns, grasses, pines and other conifers, oaks, hickories, poplars, elms, willows, roses, cherries, pears and blackberry. Many species are significant economic pests in gardens, agricultural crops, and forests.

A sawfly feeding on star lilies (*Zigadenus*; Liliaceae) was not discovered until 1990 and was named *R. zigadenusae* after the food plant (Smith and McDearman 1990). A second species also feeding on *Zigadenus* was discovered later in the mountains of West Virginia and named *Rhadinoceraea sodesensis* (Smith and Barrows 1995). Other species of *Rhadinoceraea* also feed on Liliaceae, primarily *Veratrum* spp.

Larval sawfly, *Rhadinoceraea zigadenusae*, feeding on *Zigadenus* flowers. Photo by D.R. Smith.

Adults of the Zigadenus Sawfly are about 7 to 8 mm (0.27 to 0.3 in.) in

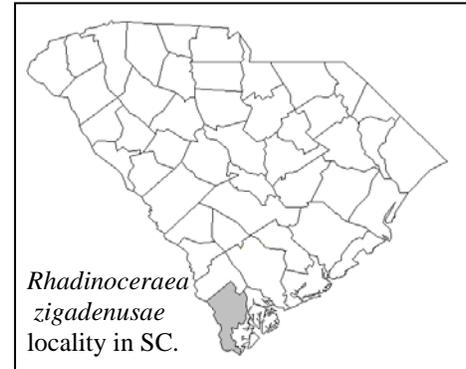
length, entirely black, and have uniformly black wings. Larvae are pale green with a black head and black tubercles on the body. Larvae feed on the inflorescence (floral cluster on an axis) of the food plant, which is unusual for sawflies. Most sawfly larvae feed on foliage; inflorescence feeding is known in only a few other sawflies.

## Status

Currently, this species has no state- or federally-listed status.

## POPULATION SIZE AND DISTRIBUTION

The Zigadenus Sawfly was described from adults reared from larvae feeding on *Zigadenus densus* in Mississippi. Populations of larvae also have been found in Alabama, North Carolina and South Carolina, and it is believed that it occurs wherever the host plant is found from Mississippi to Florida and north along the coast to Virginia. One population has been recorded from South Carolina in Jasper County at Switzerland on May 17, 1987. The larvae were discovered on *Z. densus* in a recently burned longleaf pine savanna (Smith and McDearman 1990).



Since the Zigadenus Sawfly probably occurs in pine savannas and flatwoods, as well as bogs in many localities in the Mid-Atlantic Coastal Plain and Southeastern Plain regions of South Carolina, the sawfly also may occur there. It's occurrence at only one locality is undoubtedly a reflection of lack of collecting.

## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Larvae of the Zigadenus Sawfly feed on the inflorescence of *Zigadenus densus*. Adults fly in the spring, usually from late April to May, which coincides with the time the plant is beginning to flower. They are very short-lived, probably a week or less. Females insert eggs into the primary inflorescence stalk where they apparently lay one egg per plant. Larvae hatch in about a week and bore a small exit hole in the stalk. Young larvae typically go to and enter a flower bud where they feed on the developing stamens and pistils. Older larvae consume open flowers and secondarily feed on fruits. When mature in late May, larvae burrow shallowly into the soil to pupate. There is one generation a year, with their emergence and feeding coinciding with the flowering of the host plant, *Zigadenus densus*.

Survival of the Zigadenus Sawfly is entirely dependent on the survival of the host plant. Preservation of the natural community requirements of *Zigadenus densus* is thus the most important factor in the continued survival of the sawfly.

## CHALLENGES

Destruction of habitats of the only known host plant, *Zigadenus*, would result in adverse impacts to the survival of the Zigadenus Sawfly. Urban development, logging, or other disturbance of the plant communities that destroy pine savannas, flatwoods and bogs are a challenge to both the plant and this sawfly species.

## CONSERVATION ACCOMPLISHMENTS

There are no known conservation accomplishments specifically for the *Zigadenus* Sawfly at this time.

## CONSERVATION RECOMMENDATIONS

- Maintain and conserve natural savannas and bogs to ensure the continued survival of *Zigadenus*.

## MEASURES OF SUCCESS

As research and management needs are identified, projects will be initiated to address those needs.

## LITERATURE CITED

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