

# The Sandhills Longhorn Bee, *Epimelissodes aegis* (LaBerge, 1956) (Insecta: Hymenoptera: Apidae: Apinae)<sup>1</sup>

Manisha Yadav, Katherine A. Parys, and Isaac L. Esquivel<sup>2</sup>

The *Featured Creatures* collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

## Introduction

The sandhills longhorn bee, *Epimelissodes aegis* (LaBerge) (formerly placed in the genus *Svastra*), is a solitary species known to pollinate sunflowers (*Helianthus*) and other related plants in the family Asteraceae. Members of the genus *Epimelissodes* are distributed throughout North and Central America, typically occupying sandy or well-drained soils (LaBerge 1956). The genus currently includes 20 species across four subgenera, but nesting biology has been described for only five species, including *Epimelissodes aegis* (Malfa et al. 2025). All known species in the genus are hosts to kleptoparasitic bees in the genus *Triepeolus*, which lay their eggs in the nests of other bees and rely on stolen pollen and nectar provisions to rear their offspring.

## Distribution

The sandhills longhorn bee is found throughout the southeastern United States, particularly in grasslands and other habitats rich in wildflowers. It prefers areas with sandy soils, which are suitable for nesting. This species is commonly observed in eastern Texas, Arkansas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina, and North Carolina (GBIF.org 2025) (Figure 1).

## Description

Bees in the genus *Epimelissodes*, including the sandhills longhorn bee, are large, strong-bodied bees with thick hair, which helps females gather pollen. The males and females look different from each other, a trait known as sexual dimorphism.

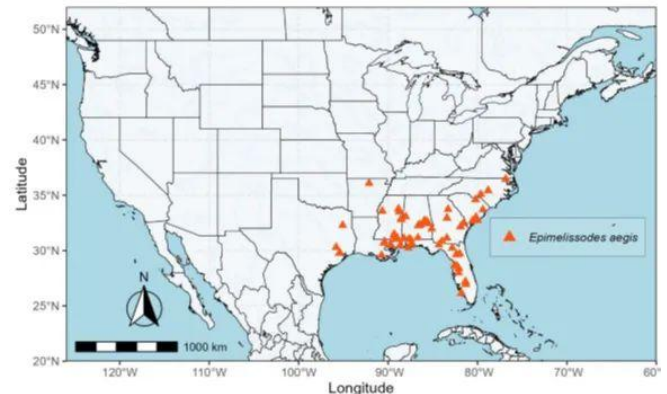


Figure 1. Distribution of *Epimelissodes aegis*.

Credit: Map created by Isaac L. Esquivel, University of Florida from GBIF.org (16 June 2025) GBIF Occurrence data: <https://doi.org/10.15468/dl.ynjtjz>

Females are slightly larger than males, measuring 14–18 mm (0.55–0.71 in) long and 5.0–6.5 mm (0.20–0.26 in) wide. Their wings are pale brown with darker veins, and their bodies are covered in soft yellowish hair, especially noticeable on the face, thorax, and legs. They also have a dense band of pale hairs at the end of the abdomen (Figure 2). The top of the thorax has a dull, textured surface, while the rear edges are smooth with very fine dots or “punctures.” Their eyes are nearly straight along the sides of the head (Mitchell 1962).

Males are just a bit smaller in size, around 14–17 mm (0.55–0.67 in) long. They also have pale wings with dark veins but are easy to recognize by the bright yellow markings on their faces. Unlike the females, their eyes angle slightly inward at the bottom. The middle of the male bee’s body and the sides are more roughly textured than they are in the female, and the back segments of the abdomen have a more coarse and bumpy surface. The male’s body hair is also pale yellowish but turns darker brownish-gray on parts of the back (Mitchell 1962). In both males and females, the hairs wear with age and can make some individuals harder to identify.

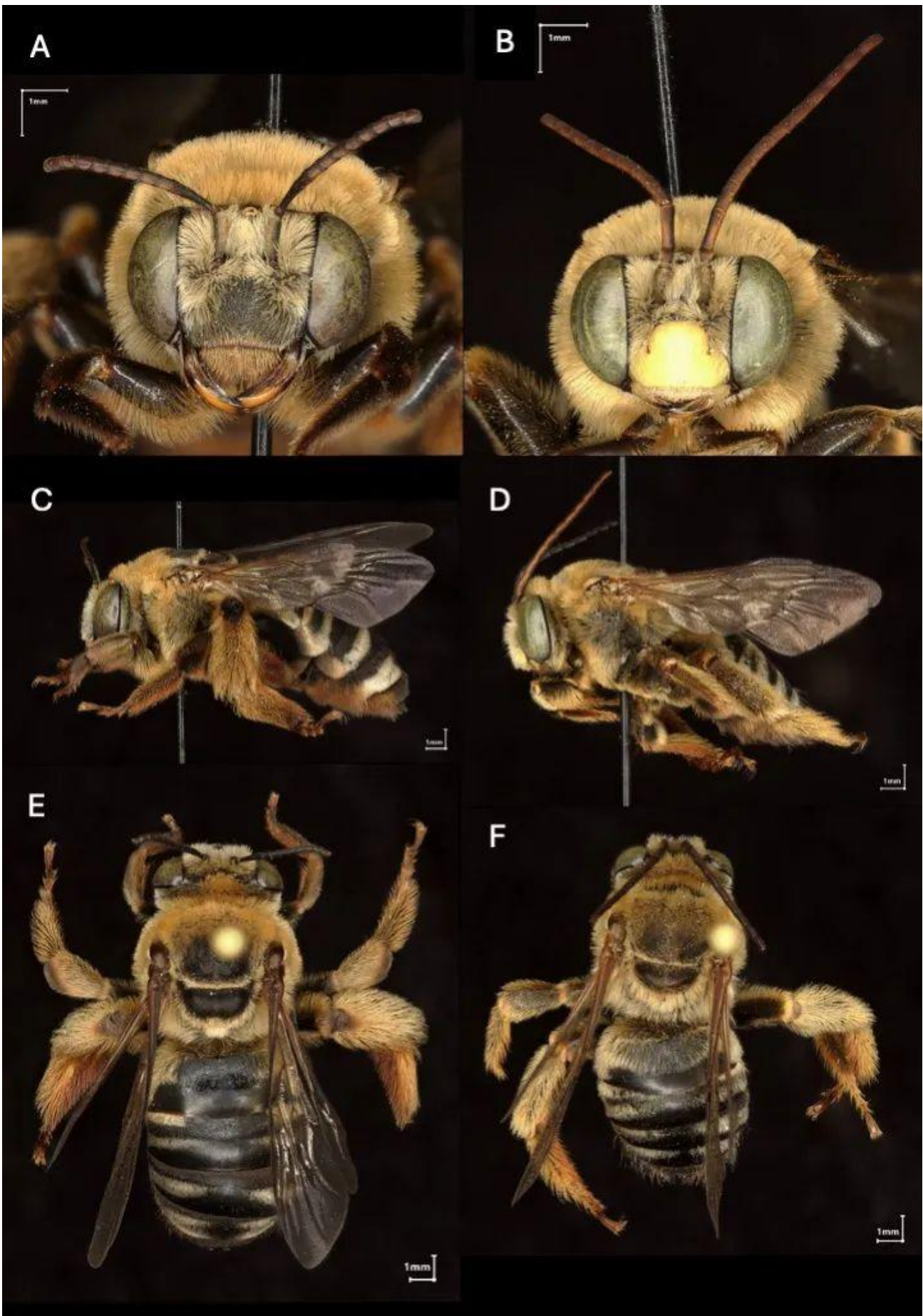


Figure 2. *Epimelissodes aegis* photographs A) female face, B) male face, C) female lateral view, D) male lateral view, E) female dorsal view, and F) male dorsal view.

Credit: Photographs by K. Parys, USDA ARS.

## Biology

Like many other wild bees and other members of the genus *Epimelissodes*, the sandhills longhorn bee (*Epimelissodes aegis*) is a ground-nesting species. Although it is widely distributed across the Gulf and Atlantic coastal plains of the southeastern United States, its overall biology remains poorly documented. As with many solitary bees, available descriptions of nesting habits are often limited to a few isolated reports. Some species within the genus, such as *Epimelissodes sabiensis* (Cockerell), are known to nest communally, while others, like *Epimelissodes atripes* (Cresson), are solitary nesters. *Epimelissodes aegis* does not form colonies per se, but has been observed nesting in an aggregation, where multiple individuals establish nests near each other (Figure 3). One recent study recorded 20 active nests within a 27 m<sup>2</sup> (290.6 ft<sup>2</sup>) area, with entrance diameters ranging from 7.61 to 9.35 mm (0.30 to 0.37 in), averaging 8.54 mm (0.34 in) (Malfa et al. 2025).

Although the full life cycle of *Epimelissodes aegis* has not been described in detail, it follows the typical developmental stages of bees: egg, larva, pupa, and adult. Females dig into sandy or loose soil to construct nests, each containing multiple brood cells. After mating, the female lays one egg per cell, which she provisions with a mixture of nectar and pollen to nourish the developing larva. While specific information on *Epimelissodes aegis* eggs is lacking, eggs of a related species, *Epimelissodes obliqua* (Say), have been described as cream-colored and opaque, blunt at both ends, and measuring approximately 4.2 mm (0.17 in) in length and 0.95 mm (0.037 in) in diameter (Custer 1928).

The kleptoparasitic bee *Triepeolus concavus* (Cresson) (Apidae: Epeolini) has been recorded from nests of *Epimelissodes obliqua* (Rightmyer 2008); and recent observations have documented its presence in nests of *Epimelissodes aegis* as well, representing a new host association (Malfa et al. 2025). Male *Epimelissodes aegis* have been observed to be active in and around nesting aggregations, often seen patrolling the area for females. Males were seen attempting to mate by pouncing on females, sometimes engaging in brief struggles with other males or with the female herself. In some cases, males were observed entering a nest entrance behind a female, only to be quickly ejected (Malfa et al. 2025).

## Host Plants

While other bees in the genus *Epimelissodes* are generally considered polylectic, collecting pollen from a wide variety of plant families, *Epimelissodes aegis* appears to potentially be oligolectic, exhibiting a strong foraging preference for plants in the Asteraceae family. Documented floral hosts include a broad range of plant species within the family.

- *Balduina angustifolia*
- *Bidens alba*
- *Carphephorus* spp.
- *Chrysopsis* spp.

- *Coreopsis tripteris*
- *Gaillardia* spp., including *Gaillardia aestivalis*
- *Helenium* spp., including *H. amarum* and *H. tenuifolium*
- *Helianthus* spp., including *H. annuus*, *H. floridanus*, *H. angustifolius*, and *H. simulans*
- *Palafoxia integrifolia*
- *Ratibida pinnata*
- *Rudbeckia hirta*
- *Silphium* spp., including *S. asteriscus*, *S. laciniatum*, and *S. terebinthinaceum*
- *Symphyotrichum* spp.
- *Vernonia* spp., including *V. gigantea* and *V. texana*

These associations have been recorded in multiple floristic and faunal surveys and other references therein (GBIF.org 2025; LaBerge 1956; Malfa et al. 2025; Mitchell 1962).

## Economic Importance

Native non-managed bees, including *Epimelissodes*, are commonly found in agricultural landscapes throughout the southeastern United States, where they provide vital pollination services. These bees contribute directly to increased crop yields—pollination by *Epimelissodes* and other wild bee species has been shown to boost sunflower yields by up to 45%, resulting in more than \$40 million in added regional economic value (Mallinger et al. 2019).

In addition to supporting row crops, native pollinators like *Epimelissodes* are increasingly important for the floriculture sector, especially in states like Florida. Florida's florist industry is projected to reach \$518.3 million in 2025 and supports over 2,500 businesses and 5,000 jobs (IBISWorld 2025). Cut flower sales, in particular, have shown strong growth with Florida reporting the largest increase in the United States in 2023, with over \$5 million in additional cut flower sales, a 111% rise from the previous year (Herrera 2024).

This growth is part of a national trend: while large-scale floral growers with sales over \$100,000 saw slight declines, smaller floriculture operations increased by 27% between 2022 and 2023, highlighting a shift toward more localized and diverse production systems (Herrera 2024). These smaller operations often rely on wild pollinators for sustainable flower production. As interest in local farm-to-vase flowers rises, the role of native bees in supporting the cut flower industry becomes even more critical; not only for sustaining biodiversity but also for bolstering an economically important agricultural sector.

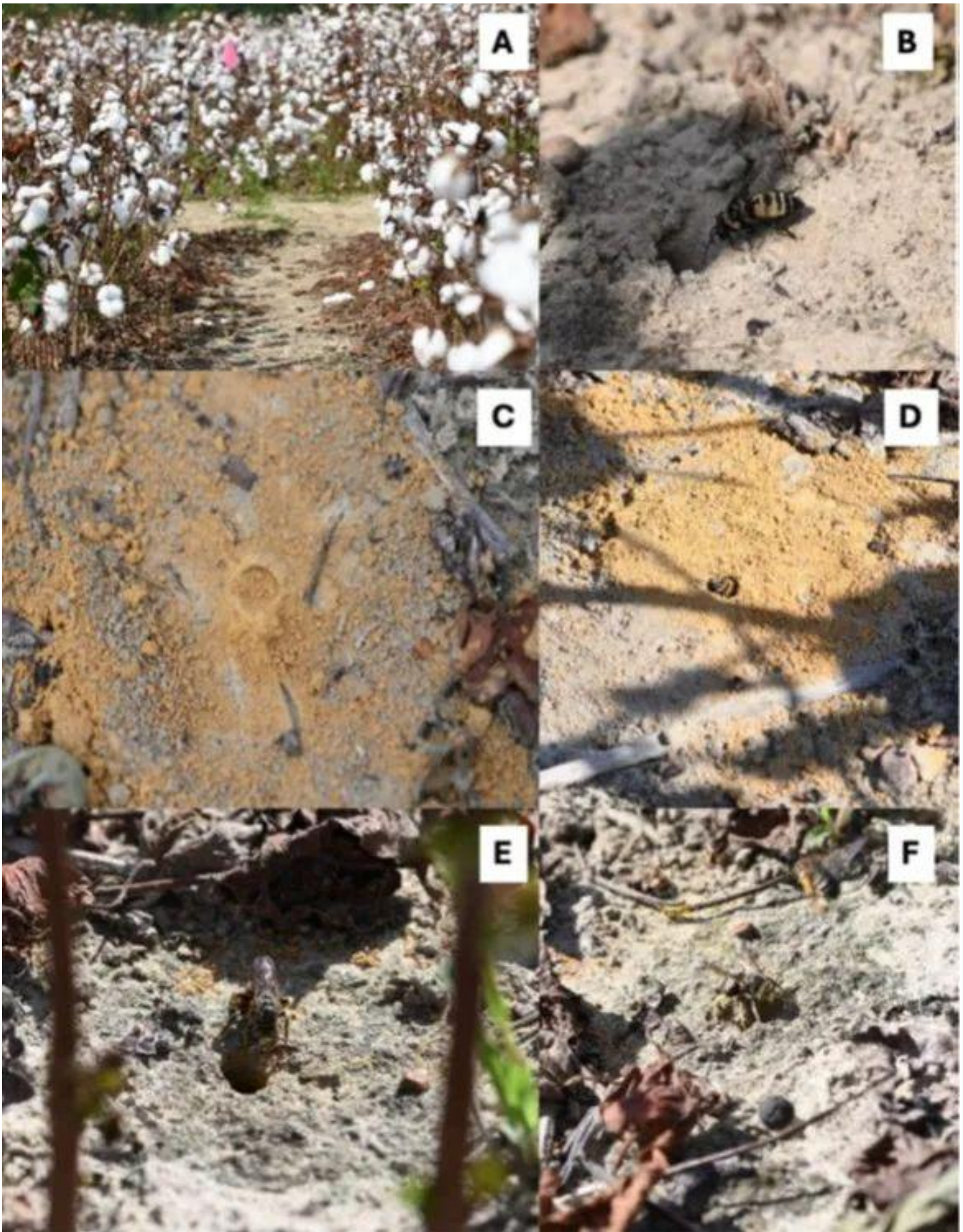


Figure 3. Images from a nesting aggregation of *Epimelissodes aegis*. A) Cotton plot where nesting aggregation was observed, post defoliation, B) *Triepeolus concavus* female about to enter nest, C) sealed nest, D) unsealed nest, E) female *Epimelissodes aegis*, and F) male *Epimelissodes aegis*.  
Credit: Images by I. L. Esquivel, UF/IFAS from [Malfa et al. 2025](#).

## Selected References

Custer CP (1928). On the nesting habits of *Melissodes* Latr. (Hymenop.). *The Canadian Entomologist* 60: 28–31.  
<https://doi.org/10.4039/Ent6028-2>

GBIF.org (2025). GBIF Occurrence Download for *Svastra aegis* (16 June 2025). <https://doi.org/10.15468/dl.ynjtjz>

Herrera L (2024). Sales of U.S.-Grown Cut Flowers Increase. *Floral Industry News*.  
<https://safnow.org/2024/05/29/sales-of-u-s-grown-cut-flowers-grow/>

IBISWorld (2025). Florists in Florida—Market Research Report, April 2025. <https://www.ibisworld.com/united-states/industry/florida/florists/20198/>

LaBerge WE (1956). A Revision of the Bees of the Genus *Melissodes* in North and Central America. Part I. (Hymenoptera, Apidae). *The University of Kansas Science Bulletin* 37: 911–1194.  
<https://doi.org/10.5962/bhl.part.24549>

Malfa K, Mackowiak C, O'Brien K, Iboyi J, Parys KA, Esquivel IL (2025). Note on the nesting biology of *Epimelissodes aegis* LaBerge (Hymenoptera: Apidae). *Florida Entomologist* 108. <https://doi.org/10.1515/flaent-2024-0056>

Mallinger RE, Bradshaw J, Varenhorst AJ, Prasifka JR (2019). Native Solitary Bees Provide Economically Significant Pollination Services to Confection Sunflowers (*Helianthus annuus* L.) (Asterales: Asteraceae) Grown Across the Northern Great Plains. *Journal of Economic Entomology* 112: 40–48.  
<https://doi.org/10.1093/jee/toy322>

Mitchell TB (1962). Bees of the Eastern United States (II). *North Carolina Agricultural Experiment Station Technical Bulletin* 152: 1–557.

Rightmyer MG (2008). A review of the cleptoparasitic bee genus *Triepeolus* (Hymenoptera: Apidae) —Part 1. *Zootaxa* 1710: 1–170 pp.  
<https://doi.org/10.11646/zootaxa.1710.1.1>

<sup>1</sup> This document is EENY-832, one of a series of the Department of Entomology and Nematology, UF/IFAS Extension. Original publication date May 2026. Visit the Ask IFAS website at <https://ask.ifas.ufl.edu> for the currently supported version of this publication. © 2026 UF/IFAS. This publication is licensed under [CC BY-NC-ND 4.0](#).

<sup>2</sup> Manisha Yadav, graduate student, Department of Entomology and Nematology, North Florida Research and Education Center, Quincy, Florida 32351; Katherine A. Parys, research Entomologist, Pollinator Health in Southern Crop Ecosystems Research Unit, USDA Agricultural Research Service, Stoneville, MS 38776; Isaac L. Esquivel, assistant professor, agroecosystems/agronomic and forage crops, Department of Entomology and Nematology, UF/IFAS North Florida Research and Education Center; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Andra Johnson, dean for UF/IFAS Extension.