



EntGuide



...A publication of Florida A & M University

EG#1

The Yellow-Biting Flies of Florida

James E. Cilek, Ph.D.

Medical Entomologist and Research Leader

Biting Fly and Tick Control Section

John A. Mulrennan, Sr. Arthropod Research Laboratory

Florida A&M University

ADULT IDENTIFICATION AND SEASONAL ABUNDANCE

In Florida, the name "yellow fly" is commonly used to describe a group of about a dozen different yellow-bodied biting flies in the family known as Tabanidae. However, Florida tabanid experts recognize only one species, *Diachlorus ferrugatus*, as the "true" yellow fly. Generally, "yellow flies" possess a black-striped, yellow-colored abdomen with wings having a tan-colored patch along the front to the tip (Fig. 1 & 2). In many species, this patch may also extend downward across the middle producing a picture-wing appearance (Fig. 2 - top). The abdomen of *D. ferrugatus* is also yellow; however, it is black-haired along the sides with a broad, yellow stripe down the middle.

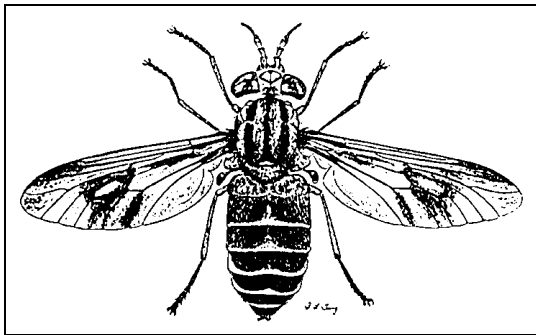


Figure. 1 Illustration of a typical "yellow fly".

"Yellow flies" readily attack man and are usually present in Florida from March

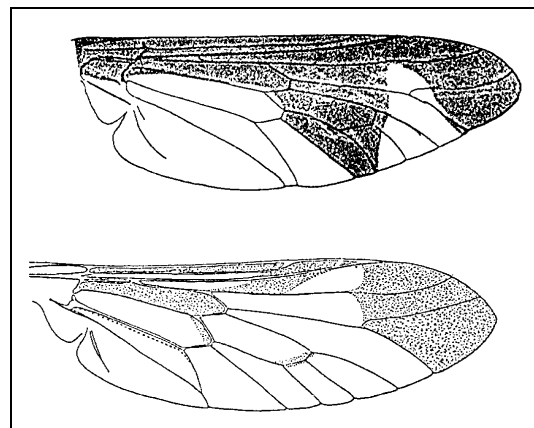


Figure 2. "Yellow-fly" wings: general wing pattern for most species (top); the "true" yellow fly, *D. ferrugatus* (bottom).

through November although peak numbers generally occur for most species from May through June. A much smaller second population peak for some species occurs from August through September.

BIOLOGY

All tabanids go through an egg, larva, pupa and adult stage. Female flies typically lay their eggs in masses containing 50 to several hundred eggs. The eggs are very small (about 1/16" long) and creamy white when first deposited, but turn dark after several hours. These egg masses sometimes resemble tar specks. Most species deposit their eggs around ponds, streams, swamps, etc. on overhanging

vegetation such as grasses or cattails. After 5-12 days the eggs hatch and the young larvae drop into the water or mud where they feed on organic debris or prey on other small aquatic organisms. Larvae have been collected from salt marshes, swamps, bogs and along the margins of heavily wooded ponds, lakes and streams. The larvae are creamy white in color with pale to brown markings. By comparison, these larvae appear similar to house fly maggots. The winter is generally passed in the larval stage. The mature larva will grow to a size of about 1/2", after which it will migrate to drier soil and develop into a pupa. The pupa is a nonfeeding, resting stage that develops into the adult fly. Generally, the life cycle from egg to adult is about one year. However, specific developmental times vary with species and environmental conditions. Adult females are ready to seek a blood meal within hours after emergence. Males do not feed on blood and are thought to be nectar feeders.

ADULT BEHAVIOR

"Yellow flies" tend to congregate where it is shaded and fairly humid especially around the edges of forests, along rivers and creeks. They tend to avoid large open sunny areas. They can be most bothersome when they are at peak numbers during May through June. Generally, some species of "yellow flies" are abundant in the early morning while others, including the "true" yellow fly, are more numerous in late afternoon. Depending upon conditions (such as heavy tree canopy density, cloudy days, or when an animal is moving through the area) flies may be encountered throughout the day.

Unlike other so-called "yellow flies", the "true" yellow fly, *D. ferrugatus*, will readily enter buildings and bite man. Although any exposed part of a person's body may be attacked, many "yellow fly" species prefer to attack man about the head, neck and shoulder regions, while the *D. ferrugatus* prefers the lower extremities, i.e. arms, legs and lower trunk of the body. Many "yellow flies" including the "true" yellow fly can be persistent in obtaining a blood meal once they have found a host. In

addition to humans, they may feed on wild and domestic animals, reptiles and amphibians.

CONTROL

Chemical:

Insecticidal control of "yellow flies" at their developmental sites is not recommended because the immature stages occur in wetlands

that may harbor sensitive beneficial aquatic animals. To reduce adult flies resting on vegetation around the home, insect-

icides may be applied as a **residual surface spray** to the lower limbs of shade trees, shrubs and other vegetation. Products containing **permethrin** (Permanone®), **carbaryl** (Sevin®) or **malathion** (Cythion®) have proven effective. These products can be purchased from local farm and garden stores. Outdoor **aerosol sprays** may also offer temporary relief; however, repeated applications are often required. Pressurized cans of permethrin-containing products are recommended. **Resmethrin, pyrethrin, malathion, or naled** (Dibrom®) as applied via motorized hand-held, truck-mounted or aerial Ultra-Low-Volume (ULV) equipment may also be used. Insecticidal control is often short-lived because of the continual influx of flies from neighboring untreated areas. Some species of tabanids can travel 1-2 miles or more from their developmental sites.

Nonchemical:

Trapping methods that homeowners can use for reducing localized adult biting fly populations are available. One such method uses 20" diameter beach balls painted glossy black and treated with a synthetic pyrethroid insecticide (such as Permanone®) or sticky tack trap substances [available under the product names, Tanglefoot Pest Barrier® from Bozeman BioTech, Bozeman, MT (800) 289-6656 or Sticky Stuff® from Olson Products, Inc., Medina, OH (216)-723-3210]. Treated balls are suspended from a metal rod, wooden rack or tree limb about 4 feet above ground so that they can move with the wind. The movement of a black object of this size has been reported to be highly

Always follow label directions whenever using insecticides, repellents or medications. Consult your physician should you have any concerns about potential health effects.

attractive to many tabanids but not all species. Therefore, species recognition is important.

Vegetation management can also be employed. Removing underbrush around one's home eliminates fly resting sites and increases light levels making the area less attractive to flies.

Personal Protection:

Persons particularly sensitive to "yellow-fly" bites should consider the following **fly avoidance recommendations**.

- Major outdoor events should be planned to avoid the "yellow fly" season (especially May and June).
- Plan outings to avoid primary fly activity periods during the early morning and late afternoon/early evening hours.
- Avoid occupying shaded areas along forest canopies where flies occur in abundance during the day.

If you must work in areas where "yellow flies" occur in large numbers, it may be advisable to **wear physical barriers** such as a head net (obtained from Bug Out Outdoor Wear, P.O. Box 13451, Wauwatosa, WI 53213) and/or long sleeve shirts and long pants as a means of protection.

Commercial **DEET** (diethyl meta-toluamide) **containing repellents**, sold at most

hardware and grocery stores under trade names such as Backwoods Cutter®, Off®, Ultrathon®, Skintastic® may deter biting flies. Although repellents are helpful, they may sometimes appear to have limited usefulness especially when several flies are attacking at the same time. **Permethrin-containing products** labelled for application only to clothing may be effective in repelling and killing "yellow flies". Coulston's Duranon Tick Repellent® and Permanone® Tick Repellent are examples of such products. These containerized aerosol sprays can be found at specialty outdoor supply shops.

First Aid for Fly Bites

"Yellow-fly" bites are painful and may produce severe allergic reactions in some individuals. To lessen the itching associated with bites, a topical anesthetic such as benzocaine or lidocaine may be applied to the area. An antihistamine (for example, Benedryl® or Caladryl®) or hydrocortisone (such as Calecort® or Cortaid®) can also be used to reduce the inflammation. These materials are available over-the-counter, without a prescription, at most grocery and discount stores.

References for More Information

1. Anderson, John F. 1985. The control of horse flies and deer flies (Diptera: Tabanidae). *Myia* 3:547-598.
2. Fairchild, G.B. and H.V. Weems 1973. Diachlorus ferrugatus (Fabricius), a fierce biting fly (Diptera: Tabanidae). Florida Dept. Agric. Consum. Serv. Ent. Circ. 139. 2 pp.
3. Jones, C.M. and D. W. Anthony. 1964. The Tabanidae (Diptera) of Florida. USDA ARS Tech. Bull. 1295. 85 pp.

EntGuide publications are a series of 2-4 page leaflets on the biology and recommended control of Florida's medically important arthropods and related topics. They are produced as a service to governmental agencies and the public. Mention of a proprietary product does not constitute an endorsement nor recommendation by Florida A&M University. Trade names are used only to simplify information for the reader. **EntGuide** publications can be reproduced and distributed without permission. Copies can be obtained from the JAMSARL home page at: <http://www.famu.edu/jamsarl>, by calling (904) 872-4184 or by mailing or faxing a letter of request indicating the publication number or title to: **John A. Mulrennan, Sr. Arthropod Research Laboratory, Florida A&M University, 4000 Frankford Avenue, Panama City, Florida 32405-1933; Fax: (904) 872-4733**. The concept and layout for **EntGuide** was developed by **Dr. John P. Smith**. All **EntGuide** publications have been peer reviewed by Florida A&M entomologists prior to publication.

