

## Seasonal Abundance of *Diachlorus ferrugatus* (Diptera: Tabanidae) in North Florida

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### ABSTRACT

*Diachlorus ferrugatus* (Fabricius) is a tabanid that readily attacks man in north Florida. CDC miniature light traps baited with dry ice were used to collect *D. ferrugatus* adults in Bay County during 1992 and 1993 and Flagler County during 1993. Peak abundance of this species occurred from May 25 through June 8 in Bay County for 1992 and for 1993 from June 4 through June 18. In Flagler County, the peak populations of *D. ferrugatus* occurred from June 4 through June 18.

### INTRODUCTION

*Diachlorus ferrugatus* (Fabricius) is a pestiferous tabanid that readily attacks man in Florida (Fairchild and Weems 1973). The bite of this fly is often painful and in some cases can produce severe reactions in some individuals (Williams 1971). Jones and Anthony (1964) stated that outdoor recreational activities can often be curtailed in localized areas during April through June, when this species is most abundant. Seasonally, this species has been reported to occur as early as March in south Florida (Dade County) and to remain present through the middle of November in west-central Florida (Pinellas County) (Jones and Anthony 1964).

While *D. ferrugatus* is considered to be a serious nuisance in north Florida, during late spring and early summer, data on the seasonal distribution are lacking. Therefore, existing collection data from 1992 and 1993 of this pest were reviewed from selected sites in north Florida. Such information should help identify when peak populations are expected so that mosquito control districts may anticipate or plan control strategies before being overwhelmed with reports of annoyance from the public. Additionally, knowledge of seasonal distribution and

abundance may help persons sensitive to *D. ferrugatus* bites avoid outdoor work or recreation activity when localized peak populations may be present.

### MATERIALS AND METHODS

CDC miniature light traps (Johnston et al. 1973) baited with dry ice were used to collect *D. ferrugatus*. Traps were set in Bay County during 1992 and 1993 and in Flagler County during 1993 from March 1 to October 30. Bay County is located on the Gulf coast of Florida in the faunal zone designated as Louisianian, while Flagler County (approximately 435 km [272 mi] to the southeast) is located on the Atlantic coast in the north Floridian zone (Morris et al. 1992) (Figure 1). Each CDC trap was baited with about 0.5 kg (1 lb.) of dry ice wrapped in a single layer of newspaper and placed either in a 15 × 15 × 30 cm styrofoam box or a 3.8 liter (1 gal) paint can (Floore 1982) above the suction fan. Each container was equipped with a 6 mm (ID) plastic tube that allowed CO<sub>2</sub> to be released from the container above the trap's suction fan. Ten traps were operated weekly in Bay County and 14 traps in Flagler County, and they were placed in the field no later than 1700 h (EST). Trap contents were collected the next day between 0700 and 1000 h. Previous work by Cilek (unpubl.) in north Florida showed that the peak host-seeking activity of *D. ferrugatus* occurred from about 1800 to 2100 h with no activity after this time until

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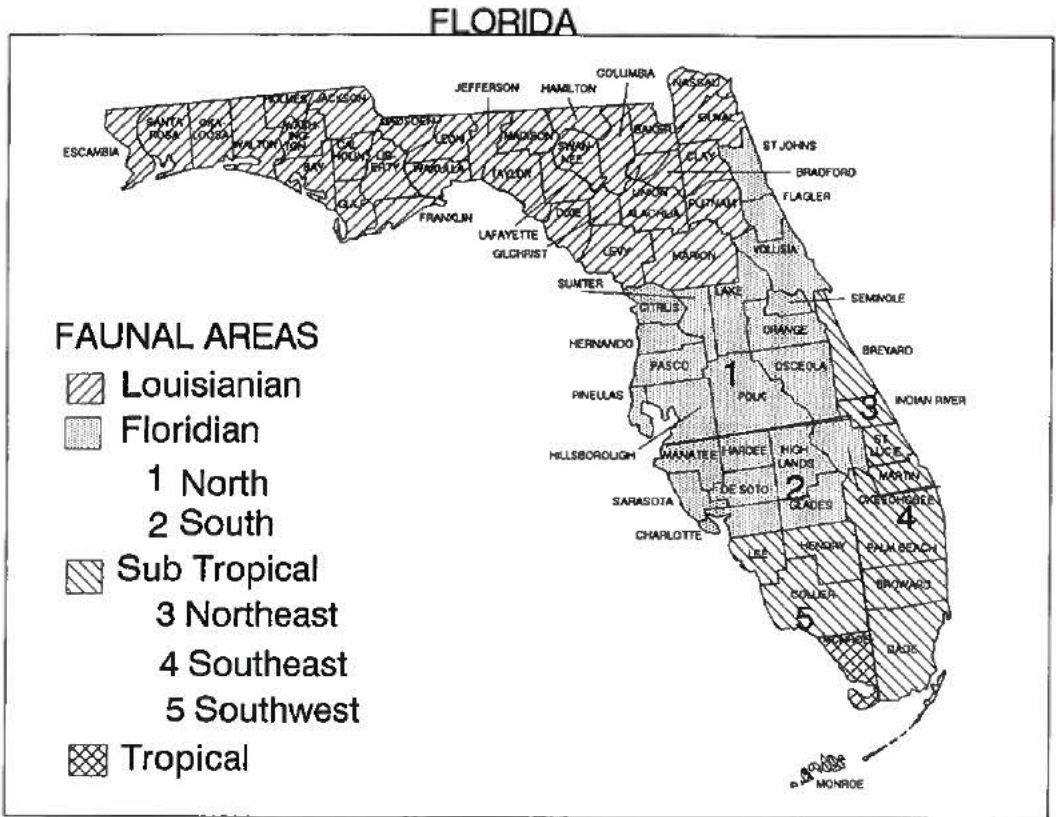


Figure 1. Faunal areas of Florida.

about 0700 h. Maximum and minimum temperatures for each collection date were recorded for each county.

## RESULTS AND DISCUSSION

During 1992, *D. ferrugatus* first appeared in CDC traps in Bay County on Julian date 115 (April 24) and peak seasonal abundance occurred from Julian dates 149-162 (May 29 through June 12) (Figure 2). In 1993, the first specimen was collected on Julian date 127 (May 7) and peak seasonal abundance occurred from Julian dates 155-169 (June 4 through June 18). Generally, a shift of about one week occurred in peak abundance between these two years. The last individuals of this species were collected in August for both years.

In 1993, the first fly collected in CDC traps from Flagler County occurred on Julian date 132 (May 12) while seasonal peak abundance extended through Julian

dates 145-159 (May 25 through June 8) during 1993 (Figure 2). The last individuals of *D. ferrugatus* were collected on September 21 (Julian date 262).

Peak abundance of *D. ferrugatus* occurred slightly later and for a longer period of time in northwest Florida compared with populations further south. Comparison of 1993 monthly maximum and minimum temperatures for Bay (latitude 30° 09') and Flagler (latitude 29° 27') counties indicated as much as a 3 and 5°C difference, respectively, with Flagler County being consistently warmer. In 1993, the first appearance of *D. ferrugatus* was 5 days earlier in northwest Florida (Bay Co.) than Flagler County, although the first collections would be expected earlier in the latter. Generally, differences in seasonal pattern between years and counties where *D. ferrugatus* was collected probably reflected a variety of localized biotic and abiotic factors. However, precipitation patterns and subsequent dry periods prior to adult emergence have

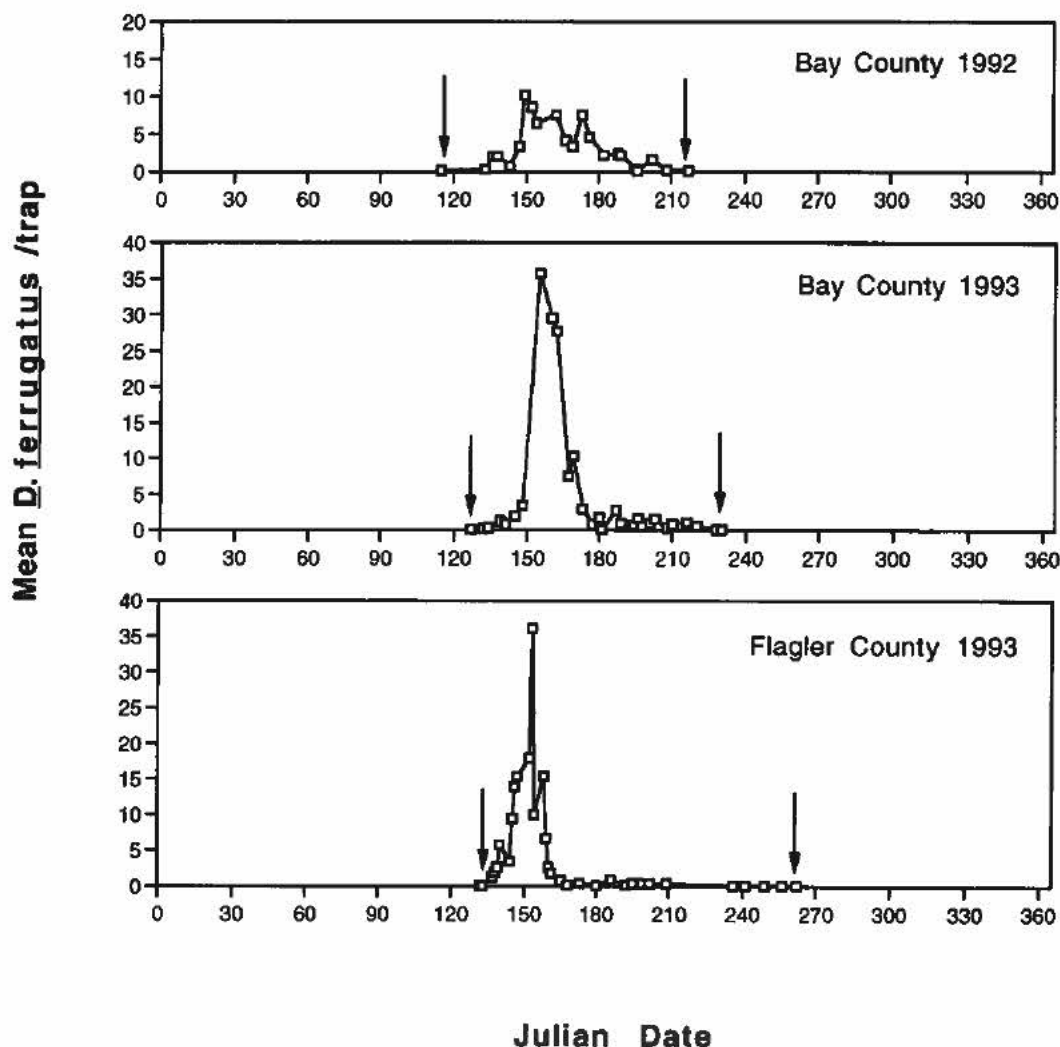


Figure 2. Mean number of *Diachlorus ferrugatus* collected per CDC light trap in Bay County (1992-1993) and Flagler County (1993), Florida. Arrows on each graph depict the first and last appearance in collections.

been believed to influence the magnitude of local abundance.

In this study, seasonal collections of *D. ferrugatus* from north Florida were shorter in duration (i.e., April-August) compared with March-November for south Florida as reported by Jones and Anthony (1964). These differences are probably the result of differential temperature clines as they relate to flora and faunal zones of Florida. Bay and Flagler Counties are in the Louisianian and North Florida Zone, respectively, whereas Dade County is in the Subtropical zone with Pinellas County at the southern edge of the

North Florida Zone. Temperatures between Louisianian and Subtropical zones can differ as much as 11°C (NOAA 1992).

In conclusion, peak populations of host-seeking *D. ferrugatus* adults in north Florida and the panhandle appeared to occur during late May into mid-June. Control measures, such as insecticide space sprays or possible residual insecticide applications on vegetation may be useful in temporarily reducing nuisance levels of this pest (Anderson 1985, Cilek 1993). It is also during this period that persons allergic to *D. ferrugatus* bites may want to avoid outdoor activities.

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