

# TICKS COLLECTED FROM INDIAN RIVER COUNTY, FLORIDA (ACARI: METASTIGMATA: IXODIDAE)

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## ABSTRACT

Ten species of ticks (Ixodidae) were collected in Indian River County, Florida: *Amblyomma dissimile* Koch, *A. maculatum* Koch, *A. tuberculatum* Marx, *Dermacentor variabilis* (Say), *Haemaphysalis chordeilis* (Packard), *H. leporispalustris* (Packard), *Ixodes brunneus* Koch, *I. cookei* Packard, *I. minor* Neumann, and *I. scapularis* Say. New tick-host associations recorded were: *A. dissimile* from *Pituophis melanoleucus* (Daudin), *H. chordeilis* from *Toxostoma rufum* (Linnaeus), *I. minor* from *Neotoma floridana* (Ord) and *Oryzomys palustris* (Harlan), and *I. scapularis* from *Cryptotis parva* (Say).

The following ticks were collected by members of the Entomological Research Center, Division of Health, Florida Department of Health and Rehabilitative Services. The 107 collections (1,408 specimens) included most of the species of Ixodidae expected to occur in Indian River County, Florida, and a majority of those considered to occur in the state. Only *Amblyomma dissimile* was specifically recorded from Indian River County previously, although several species may be indicated from this county on the distribution maps in Bishopp and Trembley (1945).

Ticks were collected incidental to other research activities as time permitted. The majority of records from Oslo refer to material collected at the Entomological Research Center. Some of the records from Vero Beach may be as far west as 5 km (Rangeline Grove) and 13 km (Schwey Hammock). When there are 2 collections with identical data the specimens for each collection are separated by a semicolon and the data are listed once; N and L stand for nymph and larva, respectively. The collector is listed only when someone other than Kale. Most of the specimens are deposited in the Florida State Collection of Arthropods, Gainesville.

## LIST OF SPECIES

### *Amblyomma dissimile* Koch

Records. Oslo: 2 ♂♂, 1 ♀, 5 NN, *Drymarchon corais* (Boie) (Indigo snake), 20.XII.1966; 16 ♂♂, 6 ♀♀, several *Iguana iguana* (Linnaeus) (Iguana), 18.III.1969, A. Buckman; 15 ♂♂, 1 ♀, several *I. iguana*, 25.III.1969, AB; 1 ♂, 1 ♀, *Elaphe obsoleta quadrivittata* (Holbrook) (Yellow rat snake), 2.IV.1969, AB; 2 ♀♀, 1 N, *D. corais*, 3.IV.1969, AB; 5 NN, *D. corais*, 15.IV.1969; 3 ♂♂, 1 ♀, *D. corais*, 8.X.1969, HWK & AB; 1 ♀,

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*D. corais*, 10.X.1969, AB; 2 ♂♂, 1 ♀, *D. corais*, 29.VI.1970; 8 ♂♂, 1 ♀, *D. corais*, 21.XI.1970; 1 ♂, 2 ♀♀, *D. corais*, 26.I.1971, L. A. Webber & E. Sherwood; 1 ♂, *D. corais*, 12.VII.1971. Vero Beach: 5 ♂♂, *Lampropeltis getulus* (Linnaeus) (Kingsnake), 25.VII.1965, J. D. Edman; 8 ♂♂, *Pituophis melanoleucus* (Daudin) (Pine snake), 14.X.1966; 1 ♂, *P. melanoleucus*, V.1967; 2 ♂♂, *P. melanoleucus*, 4.VI.1969, AB & LAW; 1 ♂, 1 ♀, *D. corais*, 22.X.1969; 2 ♂♂, 1 ♀, 3 NN, *E. obsoleta quadrivittata*, 2.II.1970.

*A. dissimile* is a common tick of reptiles and amphibians in Central and South America. In the United States specimens from 6 native hosts were reported from 6 localities in Florida and 1 locality in Georgia (Bequaert 1932, 1945; Carpenter et al. 1946; Taylor 1951). It is not rare on snakes in Indian River County as we list 16 collections and 3 of those previously published are from this county. Adult ticks were collected from hosts every month except March, August, and September, and males outnumbered females 3 to 1. *Pituophis melanoleucus* is the sixth native snake from which it has been recorded in the United States.

In the above records we list 2 collections made from iguanas received from Colombia by way of Miami. This tick is imported into the United States on exotic reptiles much more frequently than indicated in the literature. We have seen material from Richmond, Indiana, and Ames and Des Moines, Iowa, from *Epicrates cenchria* (Linnaeus) (Rainbow boa), *Boa constrictor* Linnaeus (Boa constrictor), and *Iguana iguana*, respectively. Snetsinger (1968) lists 8 records from Pennsylvania from exotic snakes and lizards. It is doubtful if this species can exist in nature outside of southern Florida or a similar climate, and we consider the 1 record from southeastern Georgia by Carpenter et al. (1946) questionable, if from a wild caught tortoise.

#### *Amblyomma maculatum* Koch

Record. Vero Beach: 1 ♂, *Urocyon cinereoargenteus* (Schreber) (Gray fox), 1.IX.1967.

The Gulf Coast tick occurs throughout Florida and in coastal areas of other Gulf and South Atlantic Coast states. Adults are found on many types of large mammals and immature stages on birds and small mammals. Many suitable hosts for all stages were examined in Indian River County, but only 1 specimen was collected.

#### *Amblyomma tuberculatum* Marx

Records. Oslo: 2 ♂♂, 1 ♀, *Gopherus polyphemus* (Daudin) (Gopher tortoise), 15.VIII.1967, A. Buckman; 5 ♂♂, 2 ♀♀, *G. polyphemus*, 30.VIII.1967, AB & R. Chauncey. Vero Beach: 2 ♂♂, 12 NN, *G. polyphemus*, 9.VI.1965, J. D. Edman; 1 ♂, *G. polyphemus*, 4.V.1968, AB; 1 L, *Turdus migratorius* Linnaeus (Robin), 7.I.1969; 2 ♂♂, *G. polyphemus*, 8.IX.1970.

The gopher tortoise tick is restricted to the range of that reptile. Adults and nymphs are found on the gopher tortoise while larvae occur on mammals and birds.

#### *Dermacentor variabilis* (Say)

Records. Indian River Shores: 22 NN, 56 LL, several *Peromyscus gos-*

*sypinus* (Le Conte) (Cotton mouse), 20.I.1969; 6 NN, 11 LL, *Sigmodon hispidus* Say & Ord (Hispid cotton rat), 20.I.1969; 6 NN, 44 LL, several *P. gossypinus*, 21.I.1969; 7 NN, 12 LL, several *P. gossypinus*, 22.I.1969; 6 NN, 18 LL, several *P. gossypinus*, 24.I.1969; 4 NN, 9 LL, several *P. gossypinus*, 2.II.1969; 1 ♂, on clothing, 16.V.1969, A. Buckman; 1 N, *Spilogale putorius* (Linnaeus) (Spotted skunk), 30.I.1970; 2 NN, 31 LL, *P. gossypinus*, 5.II.1970. Oslo: 14 NN, 5 LL, pooled *P. gossypinus* and *S. hispidus*, 16.III.1967; 2 NN, *Oryzomys palustris* (Harlan) (Marsh rice rat), 13.IV.1967; 1 N, *P. gossypinus*, 13.IV.1967; 1 N, *Neotoma floridana* (Ord) (Eastern wood rat), 13.IV.1967; 4 NN, 68 LL, several *S. hispidus*, 24.X.1967; 2 NN, 3 LL, *N. floridana*, 20-26.II.1968; 2 NN, *N. floridana*, 1.III.1968, W. L. Bidlingmayer; 2 ♂♂, 1 ♀, *Didelphis marsupialis* (Linnaeus) (Opossum), 25.IX.1970, WLB; 3 ♂♂, 5 ♀♀, *D. marsupialis*, 14.X.1970, D. Rocque. Vero Beach: 4 NN, 19 LL, *P. gossypinus*, 13.XII.1966; 3 NN, 9 LL, pooled *S. hispidus* and *N. floridana*, 13.XII.1966; 8 NN, 10 LL, several *P. gossypinus*, 15-16.XII.1966; 16 NN, 2 LL, several *S. hispidus*, 15-16.XII.1966; 1 ♂, 8.III.1967; 5 ♂♂, 2 ♀♀, *Urocyon cinereoargenteus*, 1.IX.1967; 2 NN, 1 L, *P. gossypinus*, 4.XII.1969; 13 NN, 44 LL, several *P. gossypinus*, 2.III.1970; 7 NN, 9 LL, several *P. gossypinus*, 17.III.1970; 1 ♀, *D. marsupialis*, 16.XI.1970; 1 N, *P. gossypinus*, 17.XI.1970; 3 LL, *P. gossypinus*, 19.XI.1970; 1 N, *P. gossypinus*, 20.XI.1970; 2 ♂♂, 1 ♀, *Procyon lotor* (Linnaeus) (Raccoon), 20.XI.1970; 2 ♀♀, *D. marsupialis*, 2.IV.1971; 4 ♂♂, 1 ♀, *D. marsupialis*, 27.IV.1971; 14 ♂♂, 5 ♀♀, *D. marsupialis*, 14.V.1971; 6 ♂♂, 1 ♀, *D. marsupialis*, 15.V.1971; 18 ♂♂, 7 ♀♀, *D. marsupialis*, 16.V.1971; 1 N; 1 N, 5 LL, *P. gossypinus*, 17.V.1971; 1 N, *P. gossypinus*, 19.V.1971; 8 ♂♂, 5 ♀♀; 1 ♂, *D. marsupialis*, 20.V.1971; 2 ♂♂, 1 ♀, *D. marsupialis*, 21.V.1971. Winter Beach: 3 ♂♂, *U. cinereoargenteus*, 4.VII.1967, AB.

The American dog tick was the most frequently collected tick in Indian River County and is probably the commonest tick occurring on wild mammals throughout Florida.

Adults have been collected from hosts every month of the year in Florida (Bishopp and Smith 1938). We have records from Indian River County for every month except December-February, June, and August for adults, and June-September and November for immature stages.

#### *Haemaphysalis chordeilis* (Packard)

Records. Vero Beach: 1 N, *Toxostoma rufum* (Linnaeus) (Brown thrasher), 31.V.1969. Winter Beach: 43 LL, 97 *Agelaius phoeniceus* (Linnaeus) (Redwinged blackbird), 15.XI.1968.

This is a widespread North American tick of birds which should occur throughout Florida. In general it does not occur as frequently on birds as does *Haemaphysalis leporispalustris*. This is the first record from *Toxostoma rufum*.

#### *Haemaphysalis leporispalustris* (Packard)

Records. Vero Beach: 12 NN, 233 LL, 13 *Colinus virginianus* (Linnaeus) (Bobwhite), 26.IX.1967; 5 NN, 39 LL, *C. virginianus*, 27.IX.1967; 5 NN, 173 LL, 17 *C. virginianus*, 29.IX.1967; 3 ♀♀, *Sylvilagus palustris* (Bachman) (Marsh rabbit), 31.III.1971; 1 ♀, *Sylvilagus floridanus* (Allen) (Eastern cottontail), 2.IV.1971; 2 ♀♀, *S. palustris*, 14.IV.1971; 1 ♀, *S. palustris*, 27.IV.1971. Winter Beach: 5 NN, 58 LL, 97 *Agelaius phoeniceus*, 15.XI.1968.

The rabbit tick ranges throughout the New World and occurs throughout Florida. On birds only immature stages are found, sometimes in large numbers.

Figures before the birds indicate the number examined and not necessarily the number infested. The infestation from 97 *Agelaius phoeniceus* was mixed with *Haemaphysalis chordeilis*.

*Ixodes brunneus* Koch

Record. Oslo: 1 ♀, *Turdus migratorius*, 12.I.1970.

This is a widely scattered, but not abundant, New World tick of birds, in all stages. It should occur throughout Florida.

*Ixodes cookei* Packard

Records. All from *Spilogale putorius*. Indian River Shores: 6 NN, 2.II.1969; 7 NN; 20 NN, 5 LL, 30.I.1970.

This species occurs throughout the eastern and central United States, largely on carnivores and *Marmota monax* (Linnaeus) (Woodchuck). In the southern United States a great many of the records are from mustelids but this is not so in other areas of its range. It should occur sparingly throughout Florida.

*Ixodes minor* Neumann

Records. Indian River Shores: 1 L, several *Peromyscus gossypinus*, 20.I.1969. Oslo: 2 NN, pooled *P. gossypinus* and *Sigmodon hispidus*, 16.III.1967; 1 N, *Oryzomys palustris*, 13.IV.1967; 6 ♂♂, 7 ♀♀ (5 pairs in copulo), *Neotoma floridana*, 18.VII.1967; 1 L, several *S. hispidus*, 24.X.1967; 3 NN, 1 L, *N. floridana*, 1.III.1968, W. L. Bidlingmayer. Vero Beach: 1 N, *P. gossypinus*, 13.XII.1966; 1 N, 1 L, *P. gossypinus*, 15-16.XII.1966; 2 NN, *P. gossypinus*, 14-16.III.1968; 2 LL, several *P. gossypinus*, 2.III.1970. Wabasso: 2 ♀♀, *S. hispidus*, 22.VI.1968, A. Buckman.

This is a Neotropical species, mainly of rodents, which reaches the northern extent of its range in southern Georgia. Previous records for Florida are from Levy and Palm Beach Counties, as *Ixodes bishoppi* Smith and Gouck (Rogers 1953). It should occur throughout Florida. *Neotoma floridana* and *Oryzomys palustris* are new hosts.

*Ixodes scapularis* Say

Records. Indian River Shores: 1 L, several *Peromyscus gossypinus*, 22.I.1969; 1 L, *Cryptotis parva* (Say) (Least shrew), 1.IV.1970, R. Chauncey. Oslo: 1 ♂, 4 ♀♀; 2 ♀♀, *Didelphis marsupialis*, 21.X.1969; 3 ♀♀, *D. marsupialis*, 2.II.1970; 4 LL, *C. parva*, 10.II.1970; 1 ♂, on clothing, 13.II.1970; 2 ♀♀, *D. marsupialis*, 14.X.1970, D. Rocque; 1 ♂, 1 ♀, on clothing, 18.XI.1970, S. Sherwood. Vero Beach: 2 ♂♂, 1 ♀; 2 ♀♀, *D. marsupialis*, 17.XI.1970; 1 ♀, *D. marsupialis*, 18.XI.1970; 1 ♀, *Procyon lotor*, 20.XI.1970.

The black-legged tick is common throughout the southeastern and south central United States with scattered records farther north. Adults gen-

erally occur on large mammals; the immature stages on lizards, birds, and small mammals.

*Didelphis marsupialis* seemed to be infested more than other suitable hosts which is contrary to findings in Georgia (Morlan 1952; Wilson and Baker 1972). Females outnumbered males 3.4 to 1, a ratio similar to those Rogers (1953) recorded for this species in Florida. *Cryptotis parva* is recorded as a host for the first time.

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