ARTHROPODS OF FLORIDA

AND NEIGHBORING LAND AREAS

VOLUME 2

THE WIDOW SPIDERS OF FLORIDA

John D. McCrone
Karl J. Stone

FLORIDA DEPARTMENT OF AGRICULTURE

DOYLE CONNER, COMMISSIONER

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FOREWORD

Entomologists of the Division of Plant Industry, Florida Department of Agriculture, provide an identification service for the State of Florida of insects, mites, spiders, scorpions, millipedes, centipedes, and other arthropods. Spiders, particularly, seem to arouse the curiosity of many people who submit specimens for identification and request control recommendations. Like the snakes, spiders are little understood and much maligned by most people, usually with little or no justification. So far as known, with the exception of the members of two small families, all spiders have poison glands. The venom is used to kill their prey and as a means of defense. However, only a few species, such as certain tarantulas and other spiders of the tropics, produce a venom virulent enough to be harmful to man. Moreover, most species are too timid and do not attempt to bite even when handled roughly. In Florida, only the spiders belonging to the group commonly called widows are capable of inflicting a bite serious to man. The bite of the larger wolf spiders and the fearsome looking silk spider is little worse than the sting of a bee or wasp. Most other native spiders seldom bite man, and many are incapable of doing so.

While the incidence of bites by widow spiders is not high, the widow spiders are fairly common in Florida, and questions regarding them are received frequently by the entomologists of the Division of Plant Industry who curate the Florida State Collection of Arthropods. The seriousness of the bite of a mature female widow spider suggests that the general public should be correctly informed concerning this group of spiders, including their prompt recognition and the treatments recommended for bites.

The Widow Spiders of Florida is the second in an irregularly appearing series of publications relating to the insects and other arthropods of Florida and neighboring land areas—the southeastern United States, the Bahama Islands, the Greater and Lesser Antilles, and the land areas in and round the Gulf of Mexico—with emphasis on taxonomy, ecology, biology, and zoogeography. Emphasis in this series, initiated early in 1965 with the publication of *Lepidoptera of Florida* by C. P. Kimball, is on the Florida fauna.

Howard V. Weems, Jr.
Editor

Entomology Section
Division of Plant Industry
Florida Department of Agriculture
Gainesville, Florida
March 1, 1965

FEMALE WIDOW SPIDERS

Southern Black Widow,
Latrodectus mactans (Fabricius)
Note complete hourglass
(Photo by H.W. Levi)

Northern Black Widow,
Latrodectus variolus Walckenaer
Note broken hourglass
(Photo by H.K. Wallace)

Brown Widow,
Latrodectus geometricus C.L. Koch
(Photo by H.W. Levi)

Brown Widow,
Latrodectus geometricus C.L. Koch
(Photo by H.K. Wallace)

Red Widow,
Latrodectus bishopi Kaston
(Photo by H.K. Wallace)

Southern Black Widow,
Latrodectus mactans (Fabricius)
(Photo by J.D. McCrone)

THE WIDOW SPIDERS OF FLORIDA

John D. McCrone [2]
Karl J. Stone [3]

Introduction: There are four species of the black widow genus *Latrodectus* that are known to occur in Florida: the southern black widow, *Latrodectus mactans* (Fabricius); the northern black widow, *L. variolus* Walckenaer; the red widow, *L. bishopi* Kaston; and the brown widow, *L. geometricus* C. L. Koch. Since the immatures and the adult male *Latrodectus* do not pose a public health problem, descriptions in this publication are limited to the mature females. Males cannot be identified to species easily.

The Genus: The spiders in this genus are fairly large, the overall length with legs extended is about 1½ inches. They have a small cephalothorax and a large, high, smooth, subglobose abdomen. Although the whole body is densely covered with short almost microscopic hairs, the spiders have a shiny naked appearance. Some of the characters used to separate the species are difficult to see without a microscope and special techniques. When possible, specimens should be captured and placed in a vial or bottle of 70% alcohol, such as rubbing alcohol, and submitted for positive identification by a specialist. Fortunately, however, in Florida it is possible to identify most adult female specimens by means of their distinctive color patterns.

LATRODECTUS MACTANS, The Southern Black Widow

Identification: The body is glossy black to sepia. The dorsum of the abdomen is usually free of markings, although occasionally there are remnants of the immature color pattern. There is a red hourglass marking on the venter of the abdomen and a red spot on the posterior end of the abdomen just above the spinnerets.

Distribution: This is the most widespread species of the genus in Florida. It has been taken in most counties and probably occurs in all of them. The other species have more limited distributions.

Habitat and Life History: The southern black widow occupies a large variety of habitats, usually near human habitation or in newly disturbed areas. It makes an irregular web of very tough silk in such protected places as stumps, discarded pipe and building materials, under stones, in storm sewers and water meter boxes, and under park benches and tables. It is seldom found in houses in Florida. Connected to the web is a small silken retreat. In Florida, this spider has no well defined breeding cycle, and all stages of development can be found at any time. The females make several egg sacs during an extended period after mating. These egg sacs are pear-shaped to almost globular, and the tough papery outer covering ranges in color from white to tan. Each sac contains from one hundred to several hundred yellowish eggs. Often these eggs have been parasitized either by dipterous or hymenopterous egg parasites. In addition to parasites, the main factors limiting population size are extreme climatic conditions such as extremely high or low humidity and freezing.

LATRODECTUS VARIOLUS, The Northern Black Widow

Identification: This species has the same general appearance as *L. mactans*. It differs in that there is a median longitudinal row of red spots on the dorsum of the abdomen, and on the venter there are two transverse red bars instead of an hourglass.

Distribution: In Florida, *L. variolus* has been found only west of Tallahassee. It is

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particularly abundant in the vicinity of Torreya State Park.

Habitat and Life History: The northern black widow is found in mesic and xeric hammocks where the adults make webs in the branches of trees. These webs occur in a range of 3-20 feet off the ground. A dome-shaped retreat is located in the leaves at the end of a branch, and treads radiate out to one or more branches. Unlike *L. mactans, L. variolus* has a well defined breeding cycle. During March and April, immature spiders are widely scattered in forest litter, and in late spring, adults are found in the trees. Mating occurs and the males die immediately afterward. During the summer, adult females are found in the retreats with one or more egg sacs which are similar to those of *L. mactans*. By late fall all adults are gone, and very small immatures are found in the forest litter.

LATRODECTUS BISHOPI, The Red Widow

Identification: The cephalothorax and legs are reddish orange. The entire abdomen may be black, or may have dorsal median red spots or dorsal red spots surrounded by a yellow border, while the venter, lacking a complete hourglass, may have one or two red spots.

Distribution: This species has a very restricted distribution. It has been found only in sand-pine scrub associations in central and southeastern Florida.

Habitat and Life History: The red widow almost always makes its web off the gound in palmettos in sand-pine scrub. The web retreat is made by taking a palmetto frond and rolling it into a cone. The interior of the cone is lined with silk and the egg sacs are hung from the sides of the cone. The egg sacs are light gray to white in color and have a fairly soft outer covering unlike the papery covering of *L. mactans* and *L. variolus*. The threads of the web spread from frond to frond of the palmettos and form a sheet-like pattern. Adults are found all year.

LATRODECTUS GEOMETRICUS, The Brown Widow

Identification: This species varies in color from light gray to light brown or even almost black. The dorsum of the abdomen has a highly variable pattern consisting of black, white, red, and yellow markings. On the venter is an hourglass which is orange or yellowish red in color.

Distribution: L. geometricus is cosmotropical. It probably was introduced into Florida and is most abundant in coastal cities in the lower part of the peninsula, but a few have been found as far north as Daytona Beach.

Habitat and Life History: The brown widow is quite abundant in some of the coastal cities of southeastern Florida. It usually makes its web on buildings in well lighted areas. Service stations are particularly good places to find them. The webs are somewhat like those of *L. mactans* but are smaller, while the silk is not as tough and the webbing is very dirty and unkempt. The egg sacs appear very different from those of other *Latrodectus* sp. Instead of being smooth, the outside of the egg sac is covered with little papules. Adults are found all year, and there does not seem to be any definite breeding cycle.

Medical Importance

All four species have very potent venoms, but for a variety of reasons, only *L. mactans* is likely to be involved in a spider bite case in Florida. If an individual is bitten by one of the other species, the same measures recommended for *L. mactans* bites should be taken.

The bite of *L. mactans* produces a sharp pain similar to a needle puncture. Usually this pain disappears rapidly, but it may persist for hours. Local muscular cramps are felt 15 minutes to several hours after the bite. The muscles most frequently affected are those in the thigh, shoulder, and back. Later severe pain spreads to the abdomen, and there is weakness and tremor. The abdominal muscles show a boardlike rigidity.

Respiration becomes spasmodic, and the patient is restless and anxious. During this period a feeble pulse, cold clammy skin, labored breathing and speech, light stupor, and delirium may be noted. Convulsions, urinary retention, shock, cyanosis, nausea and vomiting, insomnia, and cold sweats also have been reported.

Local measures, such as those used for snakebite, do not seem to be effective because the venom spreads very rapidly. Medical treatment should be sought immediately, and the patient should be kept quiet and placed in bed as soon as possible. One vial of Lyovac antivenin should be administered to patients under 14 years of age. The acute pain of the muscle spasms may be relieved by prolonged warm baths, hydrotherapy, or the intravenous injection of 10% calcium gluconate. Recently, intravenous injection of 10 ml of methocarbamol (Robaxine) over a 5-minute period, followed by slow intravenous drip of the drug in sodium chloride, has proved to be very effective.

Death may occur from the venom, depending upon the victim's physical condition, age, and the location of the bite. Complicating factors such as syphilis, heart disease, and/or kidney disease coupled with the venom may produce a fatality. Adults are more resistant to poison than children, but individual sensitivity may enhance or depress the reaction of both age groups. The only case on record of a healthy adult being killed by the venom is one in which the victim was bitten at the base of the skull, thereby giving the brain a potent and rapid dose of venom.

Control

Spiders and egg sacs may be crushed with a broom, and any debris that harbors the spiders should be cleared away. Five to 10% DDT or 2% lindane can be used to control these spiders. BHC used in closed areas at the rate of 1/6 oz. of the product per 130 cu. yds. is the most effective insecticide. Treatment should be repeated after 30 days to destroy any broods which have emerged.

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