

## Annotated checklist of the millipeds of Florida (Arthropoda: Diplopoda)

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**Abstract.** The milliped fauna of Florida consists of 8 orders, 18 families, 34 genera, and 51 species and subspecies; it comprises six elements: widespread species occurring widely in Florida, northern species reaching their southern limits in north Florida, neotropical species occurring naturally in Florida or adventive there, oriental adventives, Florida endemics, and southeastern endemics. A complete listing of these taxa is provided, with published and new records from the state, synonyms, and type localities. *Georgiulus paynei* Hoffman, *Cleidogona alata* Causey, and *Pseudopolydesmus serratus* (Say) are newly recorded from the state, and *Eurymerodesmus serratus* Shelley is deleted; *Pseudojulus obtectus* (Bollman) is recorded from Alabama.

**Key words.** milliped, Florida

### Introduction

Because of its position at the subtropical corner of the southeastern United States, Florida has a unique milliped fauna. While lacking the diversity of states to the north, which have more physiographic regions, Florida nevertheless harbors endemic taxa and a mixture of adventive species from the Neotropical and Oriental realms. Added to this are a number of local southeastern endemics and northern species that reach their southern limit in north Florida, and one has a surprisingly diverse fauna for a state with only one physiographic province.

Florida millipeds have been recorded in a host of publications over the years, but there has never been a consolidated report on the state's fauna. Causey (1960) stated that 32 genera were known from the state, and Hoffman (1969) estimated that there were 10 families, 15 genera, and 16 species around Gainesville, and 7 families, 8 genera, and 8 species at Miami. These numbers would be higher if any representatives of the family Julidae had been recorded from the state. This adventive family, native to the Palearctic, occurs throughout North America, primarily in urban environments, and Hoffman (1999) counted four genera and nine species from the continent. However, I know of no published records from Florida and I have not searched through the wealth of julid samples in American repositories looking for samples from the state. Consequently, the family Julidae remains unknown from Florida.

With the publication of this checklist, Florida becomes the fifth state whose milliped fauna has been documented, the others being Ohio (Williams and Hefner 1928), Michigan (Johnson 1954, Snider 1991), California (Buckett 1964, Shelley in press), and North Carolina (Shelley 2000a). These regional listings supplement the two national publications (Chamberlin and Hoffman 1958, Hoffman 1999) from which faunal information can be gleaned for any state in the continental United States. This checklist records a fauna of 8 orders, 18 families, 34 genera, and 51 species and subspecies in Florida with one deletion; three species — *Georgiulus paynei* Hoffman, *Cleidogona alata* Causey, and *Pseudopolydesmus serratus* (Say) — are new records for the state. The format for the accounts includes a listing of synonyms relevant to Florida, the type locality (given as a state or country when not in Florida), occurrence in Florida including published and new records, pertinent references, and miscellaneous remarks where appropriate. For the new records, locality details are provided when there are six or fewer new counties, and counties alone are presented when there are more than six. Acronyms of sources of preserved material are as follows:

AMNH - American Museum of Natural History,  
New York, New York.

FMNH - Field Museum of Natural History,  
Chicago, Illinois.

FSC - Biology Department, Florida Southern  
College, Lakeland.

FSCA - Florida State Collection of Arthropods, Gainesville.

INHS - Illinois Natural History Survey, Champaign.

NCSM - North Carolina State Museum of Natural Sciences, Raleigh.

NMNH - National Museum of Natural History, Smithsonian Institution, Washington, DC.

UCF - Biology Department, University of Central Florida, Orlando.

UMMZ - University of Michigan Museum of Zoology, Ann Arbor.

VMNH - Virginia Museum of Natural History, Martinsville.

WAS - Private collection of W. A. Shear, Hampden-Sydney, Virginia.

#### Deletion

#### Order Polydesmida

#### Family Eurymerodesmidae

#### *Eurymerodesmus serratus* Shelley, 1990

The type locality for this species is in Pulaski County, Arkansas, and I (Shelley 1990) discussed an additional sample from, supposedly, Alachua County, Florida. Hoffman (1999) stated that this locality should be held in suspicion until confirmed with fresh material, and I would go this one better by formally deleting *E. serratus* from the state. I now believe this locality is too implausible to warrant further consideration.

#### The Millipeds of Florida

#### Subclass Penicillata

#### Order Polyxenida

#### Family Polyxenidae

#### Genus *Polyxenus* Latreille, 1802/1803

#### *Polyxenus fasciculatus* Say, 1821

**Synonyms.** None.

**Type locality.** Originally just the "Southern States"; Condé (1996) designated a neotype from Georgia.

**Occurrence in Florida. Published records:** Florida in general, Palm Beach County. **New records:** Alachua, Broward, Collier, DeSoto, Escambia, Glades, Highlands, Jackson, Jefferson, Lake, Lee, Leon, Levy, Marion, Martin, Monroe, Osceola, Sarasota, St. Lucie, and Wakulla counties (AMNH, FSCA, FMNH, WAS).

**Reference.** Condé 1996.

#### Genus *Macroxenodes* Silvestri, 1948

#### *Macroxenodes bartschi* (Chamberlin, 1923)

**Synonym.** *Polyxenus bartschi*.

**Type locality.** Tortugas Key, Monroe Co.

**Occurrence in Florida. Published records:** Tortugas and Upper Snipe Keys, Monroe Co. **New records:** None.

**References.** Chamberlin 1922, Nguyen Duy-Jacquemin and Condé 1984, Condé 1996.

#### Subclass Chilognatha

#### Infraclass Helminthomorpha

#### Subterclass Colobognatha

#### Order Polyzoniida

#### Family Siphonotidae

#### Genus *Rhinotus* Cook, 1896

#### *Rhinotus purpureus* (Pocock, 1894)

**Synonym.** *Siphonotus miamiensis*.

**Type locality.** St. Vincent.

**Occurrence in Florida. Published records:** Dade and Pinellas counties. **New records:** Monroe Co., Islamorada, Lower Matecumbe Key, and Stock Island (FSCA, NCSM). Volusia Co., DeLand (FSCA).

**References.** Causey 1953, 1965.

**Remarks.** *Rhinotus purpureus* is an adventive species that should be expected in urban environments throughout south Florida.

#### Subterclass Eugnatha

#### Superorder Juliformia

#### Order Julida

#### Family Blaniulidae

#### Genus *Virgoiulus* Enghoff, 1984

#### *Virgoiulus minutus* (Brandt, 1841)

**Synonym.** *Julus lineatus*, *Nopoiulus minutus*.

**Type locality.** Virginia.

**Occurrence in Florida. Published record:** Escambia County. **New records:** Gadsden Co. (FSCA). Jefferson Co. (FSCA). Leon Co., Tall Timbers Res. Sta. (FSCA). Liberty Co., Torrey St. Pk. (FSCA). Putnam Co., Red Water Lake (FSCA). Santa Rosa Co., Sandy (FSCA).

**References.** McNeill 1887, Bollman 1887, Enghoff and Shelley 1979.

#### Family Nemasomatidae

#### Genus *Orinisobates* Lohmander, 1932

***Orinisobates nigrrior* (Chamberlin, 1943)**

Synonyms. None.

Type locality. Tennessee.

Occurrence in Florida. Published record: Liberty County. New records: None.

Reference. Enghoff 1985.

## Family Parajulidae

Genus *Arvechambus* Causey, 1963***Arvechambus australis* Causey, 1963**

Synonyms. None.

Type locality. Gainesville, Alachua County.

Occurrence in Florida. Published record: Alachua County. New records: None.

Reference. Causey 1963.

***Arvechambus hummi* Causey, 1963**

Synonyms. None.

Type locality. Tallahassee, Leon County.

Occurrence in Florida. Published records: Baker, Leon, and Liberty counties. New records: None.

Reference. Causey 1963.

Genus *Georgiulus* Hoffman, 1992***Georgiulus paynei* Hoffman, 1992**

Synonyms. None.

Type locality. Georgia.

Occurrence in Florida. Published records: None. New records: Leon Co., Tallahassee and Tall Timbers Res. Sta. (FSCA). Nassau Co., Amelia I., public beach access area off FL hwy. A1A ca. 3 mi (4.8 km) N south end of island (NCSM).

References. None.

Remarks. *Georgiulus paynei* is a new record for Florida.Genus *Gyniulus* Loomis, 1963***Gyniulus bufonius* (Chamberlin, 1938)**Synonyms. *Ethojulus bufonius*, *Gyniulus lacustrinus*.

Type locality. Gainesville, Alachua County.

Occurrence in Florida. Published records: Alachua, Clay, Duval, Orange, and Palm Beach counties. New records: None.

References. Chamberlin 1938, Shelley 2000b.

***Gyniulus myakkensis* Loomis, 1963**Synonyms. *Gyniulus domesticus*.

Type locality. Myakka River State Park, Manatee County.

Occurrence in Florida. Published records: Dade, Highlands, Manatee, and Sarasota counties.

Reference. Loomis 1963, Shelley 2000b.

***Gyniulus occidentalis* Shelley, 2000**

Synonyms. None.

Type locality. St. Andrews State Park, Bay County.

Occurrence in Florida. Published record: Bay County. New records: None.

Reference. Shelley 2000b.

***Gyniulus orarius* Shelley, 2000**

Synonyms. None.

Type locality. Dunedin, Pinellas County.

Occurrence in Florida. Published records: Manatee, Pasco, and Pinellas counties. New records: None.

Reference. Shelley 2000b.

Genus *Pseudojulus* Bollman, 1887***Pseudojulus obtectus* (Bollman, 1887)**

Synonyms. None.

Type locality. Pensacola, Escambia County.

Occurrence in Florida. Published records: Escambia and Santa Rosa counties. New records: Okaloosa Co., Crestview and Valparaiso (FSCA). Walton Co., 8.5 mi (13.6 km) W DeFuniak Springs (FSCA).

Reference. Hoffman 1992.

Remarks. I confirm Hoffman's prediction (1992) that *P. obtectus* must occur in southern Alabama, as the FSCA contains a female from Springhill College, Mobile, Mobile County.

## Order Spirobolida

## Family Floridobolidae

Genus *Floridobolus* Causey, 1957***Floridobolus penneri* Causey, 1957**

Synonyms. None.

Type locality. Along Florida highway 70, 10 mi. W of Archbold Biological Station, Highlands County.

Occurrence in Florida. Published records: Highlands and Polk counties. New records: None.

References. Causey 1957, Keeton 1959, Deyrup and Franz 1994.

**Remarks.** According to Deyrup and Franz (1994), this diplopod, commonly known as the Florida Scrub Milliped, is endemic to the Lake Wales Ridge in these counties of Florida.

**Family Spirobolidae**  
**Genus *Chicobolus* Chamberlin, 1947**

***Chicobolus spinigerus* (Wood, 1864)**

**Synonyms.** *Spirobolus spinigerus*, *C. pilsbryi*, *C. jucundus*.

**Type locality.** Restricted to Everglades National Park, Dade/Monroe counties by Causey (1955), but no neotype was designated.

**Occurrence in Florida. Published records:** Alachua, Charlotte, Citrus, Collier, Dade, Duval, Escambia, Franklin, Hardee, Hernando, Highlands, Hillsborough, Indian River, Lee, Leon, Levy, Manatee, Marion, Monroe, Orange, Palm Beach, Pasco, Polk, and Volusia counties. **New record:** Liberty Co., Torreya St. Pk. (UMMZ).

**References.** Causey 1955, Keeton 1960.

**Genus *Narceus* Rafinesque, 1820**

***Narceus americanus* (Beauvois, 1805)**

**Synonyms.** *Narceus americanus americanus*, *Spirobolus marginatus*.

**Type locality.** South Carolina.

**Occurrence in Florida. Published records:** Alachua, Charlotte, Duval, Escambia, Hernando, Highlands, Hillsborough, Indian River, Lake, Monroe, Pinellas, and Volusia counties. **New records:** Jackson, Lee, Liberty, Orange, Putnam, Santa Rosa, and Sarasota counties (FSCA, NCSM).

**References.** Keeton 1960, Bennet and Kerr 1973.

**Remarks.** These records show that *N. americanus* should be expected throughout the state of Florida.

***Narceus gordanus* (Chamberlin, 1943)**

**Synonyms.** *Spirobolus gordanus*, *Arctobolus keysi*, *Narceus keysi*.

**Type locality.** Punta Gorda, Charlotte County.

**Occurrence in Florida. Published records:** Alachua, Broward, Collier, Hernando, Highlands, Hillsborough, Lake, Marion, Palm Beach, Polk, and St. Johns counties. **New records:** None.

**Reference.** Keeton 1960.

**Remarks.** *Narceus gordanus* is endemic to peninsular Florida, from Alachua County southward.

Records from Carter County, Tennessee, and Charleston County, South Carolina (Keeton 1960), were deleted by Shelley and Bauer (1997).

**Order Spirostreptida**  
**Family Cambalidae**  
**Genus *Cambala* Gray, 1832**

***Cambala annulata* (Say, 1821)**

**Synonyms.** *Cambala cristula*.

**Type locality.** "Southern states."

**Occurrence in Florida. Published record:** Jackson County. **New records:** Jefferson Co., Monticello (FSCA). Liberty Co., Torreya State Park (FSCA).

**References.** Loomis 1943a, Hoffman 1958, Peck 1970.

**Superorder Nematophora**  
**Order Chordeumatida**  
**Family Branneriidae**  
**Genus *Branneria* Bollman, 1893**

***Branneria carinata* (Bollman, 1888)**

**Synonyms.** None.

**Type locality.** Tennessee

**Occurrence in Florida. Published records:** Jackson and Liberty counties. **New records:** Escambia Co., 11.6 mi (18.6 km) NW Pensacola (NCSM). Gadsden Co., Quincy (NMNH). Jefferson Co., locality unknown (FSCA).

**Reference.** Shear 1972.

**Family Cleidogonidae**  
**Genus *Cleidogona* Cook, 1895**

***Cleidogona alata* Causey, 1961**

**Synonyms.** None.

**Type locality.** Georgia.

**Occurrence in Florida. Published records:** None. **New record:** Clay Co., Spring Cr. along FL hwy. 21 S jct. FL hwy. 16 (NCSM).

**References.** None.

**Remarks.** *Cleidogona alata* is a new record for Florida.

***Cleidogona australis* Loomis, 1966**

**Synonyms.** None.

**Type locality.** Highlands Hammock State Park, Highlands County.

**Occurrence in Florida. Published record:** Highlands County. **New records:** None.

**References.** Loomis 1966, Shear 1972.

**Remarks.** The types of this species were not at the Smithsonian Institution in 1972, and *C. australis* could not be treated by Shear. They are now there.

***Cleidogona hadena* Causey, 1961**

**Synonyms.** None.

**Type locality.** Juniper Springs, Marion County.

**Occurrence in Florida. Published record:** Marion County. **New record:** Columbia Co., 12 mi (19.2 km) N Lake City (AMNH).

**References.** Causey 1961, Shear 1972.

***Cleidogona* sp.**

**Occurrence in Florida:** Volusia Co., Orange City (NCSM).

**Remarks.** For completion, I list here an additional county from which unidentifiable females of *Cleidogona* have been collected.

**Order Callipodida**

**Family Caspiopetalidae**

**Genus *Abacion* Rafinesque, 1820**

***Abacion lactarium* (Say, 1821)**

**Synonyms.**

**Type locality.** Pennsylvania.

**Occurrence in Florida. Published records:** Peninsular Florida south to southernmost extremity of Everglades National Park. No specific localities have been recorded, but Shelley (1984a) published a map showing occurrence throughout Florida except for the Keys. **New records:** Alachua, Baker, Bay, Broward, Clay, Collier, Dade, DeSoto, Duval, Hamilton, Highlands, Hillsborough, Indian River, Jackson, Jefferson, Lake, Lee, Leon, Levy, Liberty, Manatee, Marion, Martin, Monroe, Orange, Palm Beach, Pasco, Polk, Putnam, Santa Rosa, Seminole, St. Johns, and Walton counties (AMNH, FMNH, FSCA, MCZ, NCSM, NMNH, VMNH).

**References.** Shelley 1984a.

***Abacion tessellatum* Rafinesque, 1820**

**Synonyms.** None.

**Type locality.** Kentucky.

**Occurrence in Florida. Published records:** Escambia, Jackson, and Liberty counties. **New records:** Escambia Co., Pensacola (FSCA). Jackson Co., Florida Caverns St. Pk. (NCSM). Liberty Co., Bristol (FSCA).

**Reference:** Shelley 1984a.

**Genus *Delophon* Chamberlin, 1943**

***Delophon serrulatum* Causey, 1954**

**Synonyms.** None.

**Type locality.** Alabama.

**Occurrence in Florida. Published record:** Liberty County. **New records:** None.

**Reference.** Shelley 1996.

**Superorder Merocheta**

**Order Polydesmida**

**Family Eurymerodesmidae**

**Genus *Eurymerodesmus* Brölemann, 1900**

***Eurymerodesmus varius varius* (McNeill, 1887).**

**Synonyms.** *Polydesmus varius*, *Leptodesmus varius*, *Eurymerodesmus minimus*.

**Type locality.** Pensacola, Escambia County.

**Occurrence in Florida. Published records:** Duval, Escambia, Gilchrist, Hernando, Jackson, Jefferson, Leon, and Okaloosa counties. **New record:** Bay Co., along FL hwy. 20 at Ecofina Cr. (NCSM).

**References.** McNeill 1887, Loomis 1943b, Shelley 1990.

**Family Euryuridae**

**Genus *Auturus* Chamberlin, 1942**

***Auturus erythropygus becki* Chamberlin, 1951**

**Synonym.** *Auturus becki*.

**Type locality.** An unspecified locality along the Suwannee River.

**Occurrence in Florida. Published records:** Columbia and Suwannee counties. **New records:** Gilchrist Co., along FL hwy. 340 at Suwannee R. (NCSM). Hamilton Co., Suwannee River St. Pk. (NCSM). Levy Co., Manatee Springs St. Pk. (NCSM).

**References.** Chamberlin 1951, Shelley 1982.

**Genus *Euryurus* C. L. Koch, 1847**

***Euryurus maculatus* C. L. Koch, 1847**

**Synonyms.** *E. falcipes*.

**Type locality.** Unknown.

**Occurrence in Florida. Published records:** Jackson and Liberty counties. **New records:** Jefferson Co., Monticello, Big Bend Hort. Lab. (FSCA). Leon Co., Tallahassee, Florida State Univ. campus (FSCA).

**Reference.** Hoffman 1978.

## Family Haplodesmidae

Genus *Prosopodesmus* Silvestri, 1910*Prosopodesmus jacobsoni* Silvestri, 1910

Synonyms. None.

Type locality. Indonesia.

Occurrence in Florida. Published records: Citrus, Dade, Pasco, and Volusia counties. New records: None.

Reference. Shelley and Glovatch 2000.

## Family Paradoxosomatidae

Genus *Asiomorpha* Verhoeff, 1939*Asiomorpha coarctata* (Saussure, 1860)Synonym. *Orthomorpha coarctata*.

Type locality. French Guyana.

Occurrence in Florida. Published records: Broward County; central and southern portions of the peninsula. New records: Monroe Co., Big Pine Key (NCSM). Palm Beach Co., Pahokee (AMNH). Polk Co., Lakeland (FSC).

References. Bennett and Kerr 1973, Weems and Loomis 1974.

Genus *Helicorthomorpha* Attems, 1914*Helicorthomorpha holstii* (Pocock, 1895)

Synonyms. None.

Type locality. Japan (Okinawa).

Occurrence in Florida. Published record: Orange County. New records: None.

Reference. Shelley and Edwards 2001.

Remarks. This milliped is known only from a nursery that is shipping plants across Florida, causing Shelley and Edwards to believe that it will eventually be found elsewhere and should be included in the state's fauna.

Genus *Oxidus* Cook, 1911*Oxidus gracilis* (C. L. Koch, 1847)Synonym. *Orthomorpha gracilis*.

Type locality. Austria (adventive population).

Occurrence in Florida. Published records: Said to be statewide. New records: Alachua, Collier, Dade, Duval, Martin, Monroe, Polk, and Volusia counties (AMNH, FSC, FSCA, INHS, NCSM, NMNH).

Reference. Bennett and Kerr 1973, Weems and Loomis 1974.

Remarks. An adventive, synanthropic diplopod, *O. gracilis*, the hothouse or greenhouse mil-

iped, unquestionably occurs in urban environments in all counties of Florida.

## Family Polydesmidae

Genus *Pseudopolydesmus* Attems, 1899*Pseudopolydesmus canadensis* (Newport, 1814)Synonyms. *Dixidesmus phanus*, *Dixidesmus branneri*.

Type locality. Ontario, Canada.

Occurrence in Florida. Published records: Alachua and Suwannee counties. New records: Clay Co., jct. FL hwy 21 & 16 (NCSM). Columbia Co., along Santa Fe R. ca. 8 mi (12.8 km) S Fort White (FSCA). Lake Co., Cassia (FSCA). Levy Co., jct. US hwy. 19 and FL hwy. 24 (NCSM).

Reference. Hoffman 1950, Chamberlin 1951.

*Pseudopolydesmus serratus* (Say, 1821)

Synonyms. None.

Type locality. Virginia.

Occurrence in Florida. Published records: None. New records: Bay Co., Ecofina Cr. at FL hwy. 388 (NCSM). Gadsden Co., landing on Apalachicola R. S of Hwy. I-10 (NCSM).

References. None.

Remarks. *Pseudopolydesmus serratus* is a new record for Florida.

## Family Pyrgodesmidae

Genus *Calyptodesmus* Schubart, 1944*Calyptodesmus sanctus* Schubart, 1944Synonym. *Calyptodesmus schubarti*

Type locality. Brazil

Occurrence in Florida. Published records: Alachua, Clay, Columbia, Duval, Hernando, Highlands, Hillsborough, Jefferson, Leon, Levy, Marion, Pasco, St. Lucie, and Taylor counties. New records: None.

References. Causey 1960, Hoffman 1993, Shelley and Golovatch 2001.

Genus *Lophodesmus* Pocock, 1894*Lophodesmus caribbeanus* (Chamberlin, 1918)

Synonyms. None.

Type locality. Haiti.

Occurrence in Florida. Published record: Dade County. New records: None.

Reference. Causey 1960.

Genus *Myrmecodesmus* Silvestri, 1910*Myrmecodesmus digitatus* (Loomis, 1959)

Synonyms. None.

Type locality. Louisiana.

Occurrence in Florida. Published record: Calhoun County. New records: None.

Reference. Hoffman 1999, Shelley and Golovatch 2001.

*Myrmecodesmus formicarius* Silvestri, 1910

Synonyms. None.

Type locality. Mexico.

Occurrence in Florida. Published record: Calhoun County. New records: None.

References. Shelley and Golovatch 2001.

Genus *Poratia* Cook and Cook, 1894*Poratia digitata* (Porat, 1889)Synonym. *Poratioides disparatus*.

Type locality. Sweden (from a greenhouse).

Occurrence in Florida. Published record: Dade County. New records: None.

References. Loomis 1973, Shelley and Golovatch 2001.

Remarks. Though described from a thelytokous population in Sweden, this species is presumably native to Central America.

Genus *Psochodesmus* Cook, 1896*Psochodesmus crescentis* Cook, 1896

Synonyms. None.

Type locality. Crescent City, Putnam County.

Occurrence in Florida. Published records: Dade, Indian River, and Putnam counties. New records: None.

References. Cook 1896, Loomis 1934, Shelley and Golovatch 2001.

## Family Xystodesmidae

Genus *Caralinda* Hoffman, 1978*Caralinda causeyae* Shelley, 1983Synonym. *Caralinda causeyi*.

Type locality. Tall Timbers Res. Sta., ca. 22 mi (35.2 km) N Tallahassee, Leon County.

Occurrence in Florida. Published records: Jefferson and Leon counties. New records: None.

Reference. Shelley 1983.

*Caralinda dactylifera* Shelley, 1983

Synonyms. None.

Type locality. Panama City, Bay County.

Occurrence in Florida. Published records: Bay, Okaloosa, and Walton counties. New records: None.

Reference. Shelley 1983.

*Caralinda pulchritecta* Shelley, 1979

Synonyms. None.

Type locality. Welcome Center on US hwy. 231, ca. 3 mi (4.8 km) N Campbellton, Jackson County.

Occurrence in Florida. Published record: Jackson County. New records: None.

References. Shelley 1979, 1983.

Genus *Dicellarius* Chamberlin, 1920*Dicellarius bimaculatus bimaculatus* (McNeill, 1887)Synonyms. *Polydesmus bimaculatus*, *Fontaria bimaculata*, *Spathoria bimaculata*, *Dicellarius bimaculatus*.

Type locality. Pensacola, Escambia County.

Occurrence in Florida. Published record: Escambia County. New records: None.

Reference. Shelley 1984b.

*Dicellarius bimaculatus fictus* (Chamberlin, 1943)

Synonyms. None.

Type locality. Georgia.

Occurrence in Florida. Published records: Bay, Calhoun, Hamilton, Jackson, Jefferson, Leon, Liberty, Walton, and Washington counties. New records: Gadsden Co., landing on Apalachicola R. S of I-10 (NCSM). Wakulla Co., Newport, campground on St. Marks R. (NCSM) and St. Marks. Nat. Wildlife Ref. (FSCA).

Reference. Shelley 1984b.

*Dicellarius okefenokensis* (Chamberlin, 1918)Synonyms. *Epeloria nannoides*.

Type locality. Georgia.

Occurrence in Florida. Published records: Alachua, Baker, Clay, Columbia, Hamilton, Hernando, Marion, Nassau, Pasco, Putnam, Seminole, and Suwannee counties. New records: Duval Co., Jacksonville (FSCA). Orange Co., Orlando (UCF).

Reference. Shelley 1984b.

Genus *Pleurolooma* Rafinesque, 1820

*Pleurolooma cala* (Chamberlin, 1939)

Synonyms. *Zinaria cala*.

Type locality. East of Deer Park, Osceola/Brevard counties.

**Occurrence in Florida. Published records:** Alachua, Brevard, Broward, Clay, Dade, Highlands, Indian River, Lake, Levy, Marion, Monroe, Osceola, Palm Beach, Polk, Putnam, and Seminole counties.

**New records:** Collier, Flagler, Hernando, Hillsborough, St. Johns, Sumter, and Volusia counties (FSC, FSCA, NCSM, NMNH).

Reference. Shelley 1980.

*Pleurolooma plana* Shelley, 1980

Synonyms. None.

Type locality. Wakulla Springs Resort, Wakulla County.

**Occurrence in Florida. Published records:** Gadsden, Hamilton, Jackson, Leon, Liberty, Taylor, Wakulla, and Walton counties. **New record:** Jefferson Co., Monticello, Big Bend Hort. Lab (FSCA).

Reference. Shelley 1980.

Genus *Sigmoria* Chamberlin, 1939

*Sigmoria (Cheiropus) australis* Shelley, 1986

Synonym. None.

Type locality. Torreya State Park, Liberty County.

**Occurrence in Florida. Published records:** Jackson and Liberty counties. **New records:** Gadsden Co., landing on Apalachicola R. S of I-10 (NCSM); and along FL hwy. 12, 12 mi (19.2 km) E Havana (NCSM). Leon Co., Tallahassee, Lake Jackson Mounds St. Pk. (NCSM). Suwannee Co., Live Oak (FSCA).

Reference. Shelley and Whitehead 1986.

*Sigmoria (Cheiropus) planca* (Loomis, 1944)

Synonym. *Cheiropus plancus*.

**Occurrence in Florida. Published records:** Alachua, Bradford, Columbia, Hamilton, Hernando, Jefferson, and Leon counties. **New records:** None.

References. Shelley 1984c, Shelley and Whitehead 1986.

*Sigmoria (Cheiropus) serrata* (Shelley, 1984)

Synonym. *Cheiropus serratus*.

Type locality. Georgia.

**Occurrence in Florida. Published record:** Duval County. **New record:** Nassau Co., Fernandina Beach (NCSM).

References. Shelley 1984c, Shelley and Whitehead 1986.

Discussion

The 51 species and subspecies in Florida comprise six elements. The panhandle and the northern part of the state are largely inhabited by species occurring in states to the north; some occur only in the adjacent states and are classified as southeastern endemics, but six occur well to the north and are truly northern species that reach their southern distributional limits here. As one moves southward into the peninsula, species that are endemic to Florida are encountered, and these are mixed with southeastern endemics and neotropical species that either occur naturally in the state or have arrived here. Most of these species have arrived in Florida, examples being *Rhinotus purpureus* and *Prosopodesmus jacobsoni*, but *Macroxenodes bartschi* appears to occur naturally in the Tortugas and Monroe County. The fauna of the southern part of the peninsula is primarily neotropical, although there are widespread species (*Narceus americanus* and *Abacion lactarium*) and one Florida endemic, *Pleurolooma cala*. The six elements of the Florida fauna and the component species are listed below:

**Widespread species occurring widely in Florida (3 species):** *Polyxenus fasciculatus*, *Narceus americanus*, *Abacion lactarium*.

**Northern species reaching their southern limit in north Florida (6 species):** *Virgoiulus minutus*, *Orinisobates nigrrior*, *Cambala annulata*, *Abacion tessellatum*, *Pseudopolydesmus canadensis*, *P. serratus*.

**Neotropical species occurring naturally in Florida or adventive there (9 species):** *Macroxenodes bartschi*, *Rhinotus purpureus*, *Prosopodesmus jacobsoni*, *Calyptodesmus sanctus*, *Lophodesmus caraibianus*, *Myrmecodesmus digitatus*, *M. formicarius*, *Poratia digitata*, *Psochodesmus crescentis*.

**Oriental adventives (3 species):** *Asiomorpha coarctata*, *Oxidus gracilis*, *Helicorthomorpha holstii*.



**Florida Endemics or species known only from this state (13 species/subspecies):** *Arvechambus australis*, *A. hummi*, *Gyniulus bufonius*, *G. myakkenensis*, *G. occidentalis*, *G. orarius*, *Floridobolus penneri*, *Narceus gordanus*, *Cleidogona australis*, *C. hadena*, *Auturus erythropygus becki* (may also occur in southern Georgia), *Caralinda dactylifera*, *Pleurolooma cala*.

**Southeastern Endemics (17 species/subspecies):** *Georgiulus paynei*, *Pseudojulus obtectus*, *Chicobolus spinigerus*, *Branneria carinata*, *Cleidogona alata*, *Delophon serrulatum*, *Eurymerodesmus v. varius*, *Euryurus maculatus*, *Caralinda causeyae*, *C. pulchritecta*, *Dicellarius b. bimaculatus*, *D. b. fictus*, *D. okefenokensis*, *Pleurolooma plana*, *Sigmoria (Cheiropus) australis*, *S. (C.) planca*, *S. (C.) serrata*.

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#### References cited

- Bennett, D. R., and S. H. Kerr.** 1973. Millipedes in and around structures in Florida. *Florida Entomologist*, 56: 43-48.
- Bollman, C. H.** 1887. Notes on North American Julidae. *Annals of the New York Academy of Science*, 4: 25-44.
- Buckett, J. S.** 1964. Annotated list of the Diplopoda of California. Simmons Publ. Co., Davis, California, 34 pp.
- Causey, N. B.** 1953. On a Florida milliped, *Siphonotus miamiensis*, n. sp. (Colobognatha: Polyzoniidae). *Florida Entomologist*, 36: 71-72.
- Causey, N. B.** 1955. Spirobolidae (Spirobolida: Diplopoda) east of the Rocky Mountains. *Journal of the Kansas Entomological Society*, 28: 69-80.
- Causey, N. B.** 1957. *Floridobolus*, a new milliped genus (Spirobolidae). *Proceedings of the Biological Society of Washington*, 70: 205-208.
- Causey, N. B.** 1960. The neotropical millipeds in Florida, including *Calypodesmus schubarti*, n. sp. (Styloidesmidae: Polydesmida). *Florida Entomologist*, 43: 147-149.
- Causey, N. B.** 1961. Three new millipeds of the genus *Cleidogona* (Cleidogonidae: Chordeumida) from the southern states. *Florida Entomologist*, 44: 35-39.
- Causey, N. B.** 1963. *Arvechambus*, a new genus from Florida and Georgia (Diplopoda: Iulida: Paraiulidae). *Proceedings of the Louisiana Academy of Sciences*, 26: 66-75.
- Causey, N. B.** 1965. Additions to the milliped genus *Siphonoconus* (Siphonotidae: Polyzoniida). *Proceedings of the Louisiana Academy of Science*, 28: 51-55.
- Chamberlin, R. V.** 1922. A new milliped of the genus *Polyxenus* from the Florida keys. *Entomological News*, 33: 165.
- Chamberlin, R. V.** 1938. New diplopods. *Proceedings of the Biological Society of Washington*, 51: 205-208.
- Chamberlin, R. V.** 1951. Records of American millipeds and centipeds collected by Dr. D. Eldon Beck in 1950. *Great Basin Naturalist*, 11: 27-35.
- Chamberlin, R. V., and R. L. Hoffman.** 1958. Checklist of the millipeds of North America. *United States National Museum Bulletin*, 212: 1-236.
- Condé, B.** 1996. Une approche des Diplopoda Pencilata de l'Amérique du Nord. In: Geoffroy, J.-J., Mauriès, J.-P., and Nguyen Duy-Jacquemin, M., eds., *Acta Myriapodologica. Mémoires du Muséum National d'Histoire Naturelle*, 169: 127-135.
- Cook, O. F.** 1896. *Cryptodesmus* and its allies. *Brandtia*, 5: 19-28.
- Deyrup, M., and R. Franz.** 1994. Rare and Endangered Invertebrates of Florida Vol. 14. Invertebrates. University Press of Florida, Gainesville, 798 pp.
- Enghoff, H.** 1985. The millipede family Nemasomatidae, with the description of a new genus, and a revision of *Orinisobates* (Diplopoda: Julida). *Entomologica Scandinavica*, 16: 27-67.
- Enghoff, H., and R. M. Shelley.** 1979. A revision of the millipede genus *Nopoiulus* (Diplopoda, Julida: Blaniulidae). *Entomologica Scandinavica*, 10: 65-72.
- Hoffman, R. L.** 1950. Notes on some Virginia millipeds of the family Polydesmidae. *Virginia Journal of Science*, 1: 219-225.