This list is a compilation of the species of insects that may be expected to occur in maritime environments of South Carolina. Very few records of insect collections from the seacoast of South Carolina are available, but a considerable number of published studies have been made in North Carolina and Georgia. Therefore, this list is based mainly upon records from the two states whose coastlines adjoin the South Carolina coastline, the assumption being made that insect species that occur in North Carolina and/or Georgia will also be present in South Carolina. My own informal observations indicate that the coastal insect fauna of South Carolina is indeed very similar to that of North Carolina.

This list includes insects collected from the following environments:
1. Sea water, estuaries, tidal pools, and brackish streams and ponds.
2. Salt marshes of all types including particularly: (a) the intertidal *Spartina alterniflora* marsh, which is inundated at every high tide; (b) *Salicornia-Spartina alterniflora* marsh, which frequently appears as a zone in the vicinity of the high tide mark, where daily inundation is of brief duration; (c) *Juncus roemerianus* and *Distichlis spicata* marshes which are reached only by spring tides and storm tides; (d) *Spartina patens*, which is flooded only rarely (during storms or extraordinarily high tides); and (e) *Panicum virgatum*, which often appears in dense stands on the landward side of *Juncus* marsh, where freshwater drainage produces soil water of reduced salinity. Some other types of plants occupy special habitats, or are sometimes scattered among the dominant species of the salt marshes; for instance: *Borrichia frutescens* often grows plentifully along the high tide mark; *Scirpus americanus* and *Mariscus jamaicense* may form stands on the landward side of *Juncus* marsh; *Iva frutescens* may grow among *S. patens* and *Juncus* marshes; and *Baccharis halimifolia* often appears at the edge of the *S. patens* and *Juncus* marshes. For additional information on these and other species of salt marsh-inhabiting plants of the Carolinas, see Radford, Ahles, and Bell (1968).
3. Tidal flats, mud beaches, and intertidal rocks.
4. Sea beaches and coastal dunes, including the sometimes moist depressions between dunes.
5. The driftline, or band of jetsam, that may be more or less continuous along the high tide mark. The principal constituent of the driftline is usually straw (the dead stems of *Spartina alterniflora* and other species of salt marsh plants), but there are always very large solid objects, especially sticks, timbers, dead animals, and various plastic and metal objects that have washed ashore. Stranded seaweeds are sometimes plentiful after storms.
6. Maritime forest. (Little information is available on insects from this environment.)

The insects of typical non-maritime coastal plains environments, such as swamps, pine forests, rivers, and cultivated fields, are not included here. Virtually all of the usual kinds of coastal plains habitats may occur near the ocean, within the coastal zone of the state. However, a list that included all the insect species that have been collected in non-maritime coastal environments would reach formidable length, and its compilation would be a major undertaking.

**Notations and Abbreviations**

To conserve space, the several major types of salt marshes are indicated by the initials of the dominant species of plants, thus:

- **SA** = *Spartina alterniflora*
- **SP** = *Spartina patens*
- **SAL-SA** = *Salicornia-Spartina alterniflora*
- **JR** = *Juncus roemerianus*
- **DS** = *Distichlis spicata*
- **PV** = *Panicum virgatum*

When available, data on the seasonal presence of each species are given by inclusion of the months or range of months during which it has been collected. The months are designated by Roman numerals. Unless otherwise stated, the Roman numerals refer to months in which the imago stage of the species has been collected.

Specimens of many of the species in this list have been identified by specialists. Whenever this is the case, and the name of the authority is known, it is given, and follows the abbreviation "Det." which means "determined by".

Many of the species included here are hitherto unpublished records from my own research. Whenever this is the case, the reference will be (Davis Unp.).

---

1 Biology Department, Winthrop College, Rock Hill, S.C. 29733.
Subclass Apterogota
Order Collembola
Family Poduridae

Family Isotomidae
Isotoma viridis Bourlet. Det. D. L. Wray. Abundant; collected on sticky plates, ground surface of salt marshes (SA, SP, JR, DS), Bogue Banks and Core Creek, Carteret County, N. C., VI to VIII (Davis, Unp.).

Family Entomobryidae
Tomocerus flavescens Tullberg. Det. D. L. Wray. Collected on sticky plates, ground surface of revegetated spoilbank, Bogue Banks, Carteret County, N. C., VI to VIII (Davis, Unp.).
Orchesella ainsliei Folsom. Det. D. L. Wray. Collected on sticky plates, ground surface of salt marshes (SA, SP, DS), Bogue Banks and Core Creek, Carteret County, N. C., VI to VIII (Davis, Unp.).

Family Sminthuridae
Sminthurides aquatica var. levanderi (Reuter). Det. D. L. Wray. Abundant; vacuumed from surface of salt marshes (SA), Calico Creek and Mill Creek, Carteret County, N. C. VI through VIII (McMahan, 1972).
Sminthurus sp. Det. D. L. Wray. Abundant; collected on sticky plates, ground surface of salt marshes (SA, SP, JR, DS), Bogue Banks and Core Creek, Carteret County, N. C., VI to VIII (Davis, Unp.).

Subclass Exopterygota
Order Ephemeraida
Family Baetidae

Order Odonata
Suborder Anisoptera
Family Aeshnidae
Anax junius Drury. Det. P. P. Calvert. Collected at Mullet Pond, Shackleford Banks, Carteret County, N. C., VII. (Pearse, 1936). Imagoes occasionally observed over or near salt marshes in summer months, Carteret County, N. C. (Davis, Unp.).

Family Libellulidae
Erythrodiplax benenica Drury. Det. P. P. Calvert. Collected at Mullet Pond, Morton's Mill Pond, and other brackish water habitats, Carteret County, N. C., VI and VII (Pearse, 1936). Imagines are very common in salt marshes, especially JR, during summer months, Carteret County, N. C. (Davis and Gray, 1966). This species is restricted to coastal habitats, and has been collected in every Atlantic and Gulf coast state (Needham and Westfall, 1955).

Erythmecina simplicicollis Say. Det. P. P. Calvert. Collected at Mullet Pond and Carteret Lodge Pond, Carteret County, N. C., IV and VI (Pearse, 1936). Imagines are fairly common in salt marshes, especially JR, during summer months, Carteret County, N. C. (Davis, Unp.).

Pachydiplax longipennis Burmeister. Det. P. P. Calvert. Collected at Core Creek Canal, Mullet Pond, and other brackish to mesohaline habitats, Carteret County, N. C., IV through VII (Pearse, 1936). Imagines are of common occurrence in salt marshes, especially JR, during summer months, Carteret County, N. C. (Davis, Unp.).

Tramea carolina Linnaeus. Imagines occur occasionally in or near JR salt marshes, summer months, Carteret County, N. C. (Davis, Unp.).

Suborder Zygoptera

Family Calopterygidae


Family Agrionidae (Coenagrionidae)


Enallagma durum Hagen. Imagines occasionally collected by sweep-net from salt marsh vegetation (SA, SP), summer months, Carteret County, N. C. (Davis, Unp.).

Enallagma sp. collected at Mullet Pond and Carteret Lodge Pond, VI and VII; det. P. P. Calvert (Pearse, 1936).


Ischnura verticalis (Hagen). Det. P. P. Calvert. Collected at Open Grounds, brackish ditch, Carteret County, N. C., VI (Pearse, 1936).

Anomalagrion hastatum Say. Det. P. P. Calvert. Collected at brackish stream, ditch, and pond, Carteret County, N. C., VI, VII (Pearse, 1936). Imagines occasionally collected by sweep-net from salt marsh grasses (SA, SP), summer months, Carteret County, N. C. (Davis, Unp.).

Order Dermaptera

Family Forficulidae

Anisolabis maritima (Géné). "Occurring...along the coast from Maine to Texas, and is seldom found far from salt water" (Blatchley, 1920). Found along the Atlantic coast under seashore debris (Helfer, 1963).

Euborellia annulipes (Lucas) (= Anisolabis annulipes). Commonly occurs in coastal areas, N. C. to Fl.; mostly found under litter and debris (Helfer, 1963).


Order Orthoptera

Family Mantidae

Stagmomantis carolina (Johannson). Specimens collected by sweep-net from salt marsh vegetation, Carteret County, N. C., as follows: North River, JR, VIII; Core Creek, JR, VII; Harlowe Creek, DS, VIII; Lunnxville Point, SP, VII and VIII; and Bogue Banks, PV, VII (Davis, Unp.).

Brunneria borealis Scudder. Single specimens (adults and nymphs) frequently present in sweep-net collections from salt marsh vegetation, especially SA and SP but also DS and JR, VII to X, Carteret County, N. C. (Davis, Unp.).

Family Blattidae

Ischnoptera johnsoni Rehn. Collected by Rehn and Hebard (1916) from among dead leaves under live oak trees, St. Simon's Island, Ga.; also reported from Va.

Ischnoptera uhleriana fulvescens Saussure and Zehntner. Collected from under beach refuse, Fl., and from among dead leaves in liveoak forest, St. Simon's Island, Ga., by Rehn and Hebard (1916); this species was also collected by them in S. C.

Family Phasmatidae

Manomera tenuescens (Scudder). Piver's Island, Carteret County, N. C. (Pearse, 1936).
Family Crylidae

*Cycloptilum antillarum* (Redtenbacher). Det. A. B. Gurney. Fairly common in sweep-net collections from salt marsh vegetation, especially SP and JR, VI to X, Carteret County, N. C. (Davis and Gray, 1966). "In the main, a subarctic species;" occurs along the Atlantic coast from N. C. southwards (Blatchley, 1920).

*Cycloptilum squamatum* Scudder. Found along the Atlantic coast from Long Island southwards; often found under driftline material (jetsam, especially boards and straw) (Blatchley, 1920). Occurs in salt marsh grasses (Hefler, 1963). Collected from salt marsh, Carolina Beach, N. C. by B. B. Fulton (Brimley, 1938).

*Anaxipha litorana* Fulton. Det. A. B. Gurney. Collected occasionally by sweep-net from vegetation, JR and DS salt marshes, summer months, Carteret County, N. C. (Davis, Unp.).

*Anaxipha acia* Hebard. Det. A. B. Gurney. Collected frequently and often in substantial numbers by sweep-net from vegetation, JR salt marsh, VI to XI, Carteret County, N. C. Both nymphs and adults are common (Davis and Gray, 1966). Adults and nymphs frequently caught on sticky plates, ground surface, JR and DS salt marsh, Core Creek, Carteret County (Davis, Unp.).

*Anaxipha exigua* (Say). Occurs from New England to northern Fl. Found to be common on Iva frutescens on Staten Island, and collected from among Scirpus americanus in tidal marsh, Va.; lives in or near salt marshes, New England (Blatchley, 1920). Although not yet reported from Carolina salt marshes, it may be expected to occur in them.

*Anaxipha pulicaria* (Burmeister). Range is from N. C. southwards. Occurs "on the edges of the salt marshes" (Blatchley, 1920).


*Crylulus firmus* Scudder. Det. A. B. Gurney. Rare; collected by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

*Nemobius sparsalis* Fulton. Det. A. B. Gurney. Collected frequently from vegetation, DS salt marshes, VI to X, Carteret County, N. C. This is the most conspicuous insect inhabitant of DS; individuals often hop along on the surface of the short dense grass. In its distribution, it seems almost limited to stands of DS (Davis and Gray, 1966).

*Nemobius cubensis* Saussure. Range is from N. Y. to Fl. "The general distribution is southern and subarctic...the natural home of this species is probably in or among the tall grasses of marshes and tidal flats" (Blatchley, 1920). Collected at Carolina Beach, N. C. by B. B. Fulton (Brimley, 1938).

Family Tettigidae

*Neotettix femoratus* (Scudder). Det. A. B. Gurney. Collected occasionally by sweep-net from vegetation, SP salt marshes, Carteret County, N. C. Collected fairly often on sticky plates, ground surface, SP marsh on Bogue Banks, Carteret County, summer months (Davis, Unp.).

*Neotettix bolteri* Hancock. Collected by Rehn and Hebard (1916) from "undergrowth on dunes and in bare spots on barrier beaches", Sullivan's Island, S. C.

Family Acrididae


*Merimia bivittata* (Serville). Det. A. B. Gurney. Occasionally collected in SP, PV, and other types of high marsh vegetation, summer and early fall, Carteret County, N. C. Less common than *M. intertexta* (Davis, Unp.).

*Orphulella olivacea* (Morse). Det. A. B. Gurney. Quite common in SAL-SA and DS salt marshes, Carteret County, N. C., V to IX. This is one of the most characteristic insect species of these two types of salt marsh. Nymphs are not readily distinguishable from nymphs of *Climocephalus elegans* (entry below), in the early instars (Davis and Gray, 1966). "A subarctic species...ranging along the ocean border of the coastwise states from Fl. to Corpus Christi, Tx." (Blatchley, 1920). Marples (1964) reports "Orphulella sp." to be a "rare visitor" to SA salt marsh, Sapelo Island, Ga. Collected from Isle of Palms, S. C. (Rehn and Hebard, 1916).

*Orphulella pelidna* (Burmeister). Found on Isle of Palms, S. C. "In the dry hollows of dunes among vegetation composed of bayberry, Myrica cerifera, scrubby oak, briars and cabbage palmetto..." (Rehn and Hebard, 1916).
Clinecephalus elegans Morse. Det. A. B. Gurney. Quite common in DS, V to VIII; present, but less common in SP; Carteret County, N. C. This is one of the most characteristic insects occurring in DS salt marsh (Davis and Gray, 1966). "A sub-maritime species...ranging from Long Island, N. Y. to Dickinson, Tx." (Blatchley, 1920). Blatchley quotes Henry Fox as stating that C. elegans prefers DS as a habitat, but also occurs in "extensive areas of Scirpus americanus and Spartina patens and much less frequently in the tall reed, Spartina cynosuroides." Collected by Rehn and Hebard (1916) in S. C. and Ga.

Scirtetica marmorata (Harris). According to Blatchley (1920), this species occurs on sandy stretches just behind sea beaches, Atlantic and Gulf coast states. It has been reported from Southport and Wrightsville Beach, N. C. (Brimley, 1938).

Fainidia fenestralis (Serville). Collected by Rehn and Hebard (1916) on Isle of Palms and Sullivan's Island, S. C., in "sandy situations".

Trimerotropis maritima (Harris). Inhabit the beaches and higher sand dunes of the North Carolina seacoast (Metcalf, 1920). According to Rehn and Hebard (1916), this species occurs on the beaches and sand dunes of coastwise states from Va. to Fl. Blatchley (1920) says that it is a characteristic inhabitant of the seabeaches and dunes of the South Atlantic coast.

Leptysma marginicollis (Serville). Det. A. N. Caudell. Collected in the vicinity of Mullet Pond, Shackleford Banks, Carteret County, N. C. (Pears, 1936). Mullet Pond is a brackish body of water surrounded by sand dunes; it has a small marginal area of marsh (cattails, Scirpus, etc.).

Schistocerca obscura (fabr.) Det. A. B. Gurney. Occasionally collected or seen in PV and SP salt marshes, Carteret County, N. C., summer months (Davis, Unp.). Blatchley (1920) quotes Henry Fox as having found it in "the reedy areas of tidal marshes in Virginia." It occurs in all of the coastwise states from Delaware southwards.

Schistocerca alutacea (Harris). Collected by Rehn and Hebard (1916) from "dune vegetation, i.e. bayberry, oak, oaks and palmetto," Isle of Palms, S. C.

Paroxya clavuliger (Serville). Det. A. B. Gurney. Occurs commonly in JR salt marshes, Carteret County, N. C., VI to X. This is probably the most conspicuous insect inhabitant of JR marshes, and one of the most characteristic species of that habitat (Davis and Gray, 1966). According to Blatchley (1920), Henry Fox found P. clavuliger in Va. tidal marshes, often inhabiting dense growths of Scirpus americanus and Spartina cynosuroides. Occurs along Atlantic coast from New England to Fl.

Melanoplus femur-rubrum (DeGeer). Det. A. B. Gurney. Collected and observed in SP and neighboring habitats of mixed shrubs and herbaceous plants, where adults are sometimes fairly common in late fall and winter (during mild spells of weather). It is sometimes seen in salt marshes in summer (Davis, Unp.).

Family Tettigonioidea

Scudderia texensis Saussure-Pictet. Occasionally collected by sweep-net from higher salt marsh habitats (PV, SP), Carteret County, N. C., summer months (Davis, Unp.). According to Blatchley (1920), it occurs in a wide range of habitats throughout the eastern United States, and has been reported from "the taller vegetation near the border of the salt marshes" in N. J.

Belocephalus subapterus Scudder. Nymphs collected by sweep-net from higher salt marsh habitats (PV, SP) on a few occasions (Davis, Unp.). According to Blatchley (1920), it is commonest in Ga., and has been collected at Yemassee, S. C.

Homorocoryphus malivolans (Scudder). Collected on Piver's Island, Carteret County, N. C. Det. A. N. Caudell (Pears, 1936). Blatchley (1920) quotes Henry Fox as saying that H. malivolans at Tappahannock, Virginia was found mostly in dense stands of the tall marsh grass, Spartina cynosuroides (L.), in tidal marshes... Observed ovipositing in the Spartina." Its coastwise range is from Va. to Fl.

Neonococcephalus exiliscricans (Davis). Collected by sweep-net, PV, Jarrett Bay, Carteret County, IV (Davis, Unp.). According to Blatchley (1920), Fox found it "in tidal marshes occurring most commonly in tall reeds, Spartina cynosuroides (L.)," at Tappahannock, Va.

Orchelimum agile (DeGeer). Det. A. B. Gurney. Collected by sweep-net, SA, Bogue Banks, and DS, Harlou Creek, VIII, Carteret County, N. C. Evidently it occurs only occasionally in North Carolina salt marshes (Davis, Unp.). Fox found it in Scirpus americanus tidal marsh in Va.; coastwise range is from N. J. to Fl. (Blatchley, 1920).

Orchelimum concinnum Scudder. Det. A. B. Gurney. Collected rather frequently by sweep-net from vegetation of JR marshes, less frequently from SP, DS and PV, Carteret County, N. C., VII to IX (Davis, Unp.). Common in tidal marshes in Va.; ranges along the Atlantic coast from Cape Cod to Fl. (Blatchley, 1920).
Orchelimum fidiucium Rehn and Hebard. Det. A. E. Gurney. Extremely common in sweep-net collections from SA, IV to IX, Carteret County, N. C. This is the most conspicuous insect species in SA salt marsh; O. fidiucium is highly characteristic of SA, and is only occasionally collected in other types of salt marsh, and then usually in stands bordering SA (Davis and Gray, 1966). Occurs abundantly in SA salt marshes, Sapelo Island, Ga. (Smallie, 1960). An important herbivore in SA salt marshes, Sapelo Island, V to IX (Marples, 1964). Found by the long-billed marsh wren to nestlings, Sapelo Island, Ga. (Kale, 1964). Has been found at numerous places along the Atlantic coast from L. I. to south Ga. (Blatchley, 1920).

Orchelimum superbum Rehn and Hebard. Det. A. Gurney. Collected by sweep-net from PV, Beaufort Banks, Carteret County, N. C., VI and VII. Evidently restricted to the most highly elevated salt marsh habitats (Davis, Unp.). Found in tidal marshes dominated by Scirpus americanus, Tappahannock, Va. (Blatchley, 1920).

Conocephalus sticticus Rehn and Hebard. Det. A. B. Gurney. Collected by sweep-net from PV, Jarrett Bay, Carteret County, N. C., VII and VIII (Davis, Unp.). It was originally collected by Hebard from PV in New Jersey, and has been collected by Fox in Va. from Spartina cynosuroides. It may be nocturnal (Blatchley, 1920).

Conocephalus nigropleurodes (Fox). Det. A. B. Gurney. Often quite abundant in sweep-net collections from SA vegetation, Carteret County, N. C., VII and VIII. It is only occasionally collected in other types of salt marsh, and seems to be a characteristic species of the SA habitat (Davis, Unp.). Fox found it to be "almost entirely restricted to the tidal Spartina grasses" of salt marsh tidal flats; ranges from N. J. to southern Ga. (Blatchley, 1920).

Conocephalus palaearctica (Fox). Det. A. B. Gurney. Very common in sweep-net collections from JR and DS, less common in SA and SP but sometimes quite abundant in the former, and also occasionally collected in SAL-SA; VII to IX, Carteret County, N. C. This is one of the most widely distributed species of insects in salt marsh vegetation (Davis, Unp.). "Occurs mostly among the salt marsh grasses of the genus Spartina...a coastal species ranging from Maine...to Cape Sable, Florida" (Blatchley, 1920).

Conocephalus ignitus Rehn and Hebard. Det. A. B. Gurney. Collected rather frequently by sweep-net from SA, SP, DS, and JR, Carteret County, N. C., VII to IX. Like C. palaearctica (entry above), shows little preference for any particular type of marsh vegetation as a habitat. It is generally less abundant than C. palaearctica (Davis, Unp.). Inhabit salt marshes from Cape Henry, Va. to Pueblo Beach, Fl. (Blatchley, 1920).

Order Hemiptera

Family Scutellaridae

Acanthochitonius dubius (Pallisot de Beauvois). Det. D. M. Weisman. Collected by sweep-net from salt marsh vegetation, Carteret County, N. C., twice; SP, Nelson Bay, IV; Core Creek, JR, V (Davis, Unp.).

Family Corimicaeidae

Corimicaea pallidaria (Germar). Det. D. M. Weisman. Two specimens collected by sweep-net from SP, Beaufort Channel, Carteret County, N. C., VI (Davis, Unp.).

Family Cydnidae

Geococcus subpunctatus Blatchley. Found under "vegetable debris" (drift) on sea beaches; reported from FL, Wilmington, N. C., and FL. (Blatchley, 1926).

Family Pentatomidae

Rhytidoloma secundaria (Say). Det. D. M. Weisman. Frequently collected by sweep-net from DS, IV to IX, Carteret County, N. C. (Davis and Gray, 1966). This insect is a very characteristic inhabitant of DS, and has seldom been collected in any other habitat. Blatchley (1926) referred to it as "a submaritime species," and gives its range as extending from New England to FL.


Solobea pugnax (Fabricius). Det. D. M. Weisman. Sometimes abundant in sweep-net collections from PV, and occasionally found in JR and SP, Carteret County, N. C., V to XI (Davis, Unp.).


Pediasma procerus Olsen. "Originally described from specimens taken along the Atlantic coast from Massachusetts to Wilmington, N. C. The types in part were beaten from oak and pine and others were taken from washup along the ocean beaches" (Blatchley, 1926).

Family Coreidae

Leptoglossus phyllopus (Linnaeus). Det. D. M. Weisman. Collected twice from SP, Bogue Banks and Beaufort Channel, Carteret County, N. C., XI, sweep-net. Often noted in flight in salt marshes, fall months (Davis, Unp.).


Alydus philogenus Herrich-Schaeffer. Det. D. M. Weisman. Three collections by sweep-net from SP, Carteret County, N. C. (Beaufort Channel, VII; Piver's Island, VI and VII) (Davis, Unp.).

Family Aradidae

Aradus uniformis Heidenmann. "Occurs especially along the ocean in beach drift." Coastal range is from Mass. to Fl. (Blatchley, 1926).

Family Nezidae

Jaxyus spinosus (Say). A single collection by sweep-net from DS, Karolova Creek, Carteret County, N. C., VIII (Davis, Unp.).

Family Lygaeidae

Ortholomus scolopax (Say). Det. D. M. Weisman. A single collection by sweep-net from salt marsh vegetation, date and place not recorded, Carteret County, N. C. (Davis, Unp.).

Nyssius californicus Stal. Det. D. M. Weisman. Four collections, all by sweep-net, from SP, Carteret County, N. C. (North River, VIII; Lennocksville Point, VI, VII, VIII) (Davis, Unp.).

Nyssius ericae Schilling. A single collection by sweep-net from SP, Beaufort Channel, VII, Carteret County, N. C. (Davis, Unp.).

Cymus brevicinctus Stal. Det. D. M. Weisman. Frequently collected by sweep-net, in abundance, from all types of salt marsh vegetation, spring months, Carteret County, N. C. In summer, populations evidently decline rapidly, although a few may be collected as late as VIII (Davis and Gray, 1966).

Ischnodema badius Van Duzee. Det. D. M. Weisman. Very common in sweep-net collections from SA, reaching peak abundance in VIII and IX, but present the year around, Carteret County, N. C. (Davis and Gray, 1966). Abundant in vacuum collections from SA, Morehead City, Carteret County, N. C. (McMahan, Knight, and Camp, 1972). An important "grazer" in SA salt marsh, Sapelo Island, Ga. (Marple, 1966). Adults and nymphs of all sizes are "seen throughout the spring and summer, while only adults and penultimate nymphs are noticed in winter." Eaten by the long-billed marsh wren (Kale, 1964).


Gedanella creagiana (Fabricius). Det. D. M. Weisman. Numerous collections by sweep-net from DS, VIII through X, when it is sometimes quite abundant. Also, a few specimens collected from PV, V and VII, Carteret County, N. C. (Davis, Unp.).


Pachybrachis bilocularis (Say). Det. D. M. Weisman. A single collection by sweep-net from SA-SP, Bogue Banks, Carteret County, N. C., X (Davis, Unp.).

Peritrichus paludicollis Barber. "A subterranean species, usually inhabiting the edges of the salt marshes from Massachusetts...to Florida" (Blatchley, 1926).

Cryptus paralleloleptus Stal. Det. D. M. Weisman. Two collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Core Creek, DS, IX; Core Creek, JR, X) (Davis, Unp.).

Family Reduvidae


Zelus cervicollis Stal. Det. D. M. Weisman. Collected fairly often by sweep-net from SA salt marsh, and once from PV, TV to XI, Carteret County, N. C. (Davis, Unp.).

Olfinga interjungens Bergroth. Det. D. M. Weisman. Collected occasionally by sweep-net from all types of salt marsh vegetation (except PV), VII to I, Carteret County, N. C. (Davis, Unp.).
Sinea diadema (Fabricius). A single collection by sweep-net, VIII, from DS, Harlowe Creek, Carteret County, N. C. (Davis, Unp.).

Family Nabidae


Family Miridae

Trigonotylus americanus Carvalho. Det. R. C. Froeschner. Present in sweep-net collections from DS, Carteret County, N. C., IV to X; extremely abundant from V to VIII. This mirid is a highly characteristic inhabitant of DS salt marsh, in which it was always present in spring and summer collections, and is rarely found in other habitats (Davis and Gray, 1966).

Trigonotylus uhléri (Reuter). Det. R. C. Froeschner. Extremely common in sweep-net collections from SA and DS, IV to XI, Carteret County, N. C. This species is much less common in DS than T. americanus, and is often very abundant in SA (Davis and Gray, 1966). Abundant in vacuum collections from SA, Morehead City, Carteret County, N. C. (McManus, Knight, and Camp, 1972). Trigonotylus sp. (presumably uhléri) is an important herbivorous species in SA marshes, Sapelo Island, Ga. (Marple, 1966).

Teratocoris discolor Uhler. Two collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Core Creek, DS, VIII; Lennonville Point, SP, VIII) (Davis, Unp.).


Poromorphus curtulus (Reuter). Det. R. C. Froeschner. Collected four times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Jarrett Bay, PF, VII; Lennonville Point, SP, VII) (Davis, Unp.).

Lopidea sp. Det. R. C. Froeschner. Collected once by sweep-net (from JB, Bogue Banks, VI), Carteret County, N. C. (Davis, Unp.).

Melanathena uhléri (Signoret). Det. R. C. Froeschner. A single collection by sweep-net from salt marsh vegetation (SP, Lennonville Point, V), Carteret County, N. C. (Davis, Unp.).


Tytthus parviceps (Reuter). Det. R. C. Froeschner. Collected occasionally by sweep-net from SA salt marsh, Carteret County, N. C., VII to XII (Davis, Unp.).


Family Hydrometridae


Family Mesoevidae


Family Cerridae


Family Saltidae

Pentacora signoretii (Geerin). "It lives on the pale sands not remote from the (sea) beach...often swarming on the moist places." Distributed along the Atlantic coast from Mass. to Fl. (Blatchley, 1926).

Pentacora sphacelata (Uhler). "A submaritime species occurring along the beaches of the Atlantic and Gulf coasts from Massachusetts to Texas." Often extremely abundant on banks of mixed sand and mud (Blatchley, 1926).

Pentacora hirta (Say). Det. R. C. Froeschner. Collected occasionally by sweep-net from DS; obtained more frequently on sticky plates, ground surface of DS and SA salt marshes (Davis, Unp.). Reported to occur on muddy tidal flats and beaches, Atlantic coast from Conn. to Fl. (Blatchley, 1926).
Saldula interstitalis (Say). Almost any collection of Saldidae made in the eastern states...among the edges of the salt marshes will number hosts of this common little species. "Bueno, as quoted by Batchley (1926).


Micracarla pumila Batchley. Det. R. C. Froeschmer. Collected twice by sweep-net from salt marsh vegetation (SA, Beaufort Channel, I and DS, Nelson Bay, VII), and once on a sticky plate, SA marsh, Bogue Banks, all in Carteret County, N. C. (Davis, Unp.).

Family Belostomidae

Benacus griseus (Say). Det. C. S. Brimley. Collected from brackish water (Open Grounds, Carteret Lodge Pond), Carteret County, N. C., VI (Pearse, 1936).

Family Notonectidae


Family Corixidae

Trichocorixa verticalis (Fieber). Very common in brackish pools, and even in pools in which the salinity is very high (70 ppt or more) due to evaporation, Carteret County, N. C. (Davis, Unp.). Collected from brackish water (Morton's Mill Pond, Mullet Pond, Open Grounds), VI and VII, Carteret County, N. C. Det. H. B. Hungerford (Pearse, 1936).

Order Homoptera

Family Cicadidae

Tibicen chloromera Walker. Collected near Harlows Creek and Eastman's Creek, Carteret County, N. C., VI and VII (Pearse, 1936).

Tibicen viridifasciata Walker. Adults are reported to occur among the grasses of tidal flats at Wrightsville Beach, N. C. The exuviae of nymphs were found clinging to marsh grass-stems (Metcalf and Osborn, 1920). Nymphal exuviae and adults were collected from sea oats, Uniola paniculata, on dunes at Wrightsville Beach (Osborn and Metcalf, 1920).

Family Membracidae

Spissistilus festinus (Say). Det. L. M. Russell. A few specimens collected by sweep-net in SP salt marsh, VII to XI, Carteret County, N. C. (Davis, Unp.).

Family Cercopidae

Eustenopoda ischnocara Germain. Det. L. M. Russell. A few specimens collected by sweep-net in Carteret County, N. C. salt marshes: DS, Core Creek, VI and Harlows Creek, VI; SP, Piver's Island, VII and North River, IV (Davis, Unp.).

Prosapia bicincta (Say). Det. L. M. Russell. A few specimens collected by sweep-net in Carteret County, N. C. salt marshes: SP, North River, IX; DS, Core Creek, VII; DS, North River, X (Davis, Unp.).

Family Cicadellidae


Deltococcus flavocostatus Van Duzee. Det. J. P. Kramer. A few specimens collected by sweep-net from SP and DS salt marsh, North River, IX, and NS salt marsh, Goose Bay, X, Carteret County, N. C. (Davis, Unp.).

Deltococcus marinus Metcalf and Osborn. Found on "fine leaved grass" in intertidal zone, Wrightsville Beach, N. C. (Metcalf and Osborn, 1920).

Amphicoccus littoralis (Ball) (= Deltococcus littoralis). Det. J. P. Kramer. Extremely abundant in sweep-net collections from DS salt marshes, Carteret County, N. C., IV to IX. This species is evidently restricted to DS, and is one of the most characteristic inhabitants of this type of salt marsh (Davis and Gray, 1966). Collected on intertidal grasses at Wrightsville Beach, N. C. (Metcalf and Osborn, 1920).


Chlorotettix sp. Det. J. P. Kramer. A few specimens collected by sweep-net from DS salt marsh, Core Creek, VIII, and from SP salt marsh, North River, VIII, and Beaufort Channel, IX, Carteret County, N. C. (Davis, Unp.).
Sanctanus sanctus (Say). Det. J. P. Kramer. Fairly common in sweep-net collections from SAL-S of salt marsh, V to XI, Carteret County, N. C. The absence of this species from SA salt marsh indicates that it probably utilizes Salicornia spp. as its food source (Davis and Gray, 1966).


Timobregmus vittatus Van Duzee. Det. J. P. Kramer. This species is distributed along South Atlantic and Gulf coasts; utilizes Iva frutescens as its food source (Lawson, 1932). Frequently obtained in sweep-net collected from salt marshes in which Iva frutescens is interspersed among dominant plant species; observed to occur on Iva frutescens plants, Carteret County, N. C. (Davis, Unp.).

Balclutha hebe (Kirkaldy). Det. J. P. Kramer. A few specimens collected by sweep-net from SAL-SA salt marsh, Bogue Banks, XI, Beaufort Channel, XII, Carteret County, N. C. (Davis, Unp.).

Fieberiella florii (Stal). Det. J. P. Kramer. A few specimens collected by sweep-net from DS salt marsh, Core Creek, Carteret County, N. C., IX and X (Davis, Unp.).

Polymia cenerata (Ball). Det. J. P. Kramer. Occasional specimens collected on sticky plates, ground surface of DS salt marsh, Core Creek, VI, and SP salt marsh, Bogue Banks, VI and VII, and by sweep-net from SR, North River, IX, all in Carteret County, N. C. (Davis, Unp.).

Family Cixiidae

Bothriocera sp. Det. J. P. Kramer. Collected occasionally in small numbers by sweep-net from DS, SP, and PV marshes, Carteret County, N. C., VII to IX. A few specimens caught on sticky plates, ground surface, DS and SP, VI through VIII (Davis, Unp.).


Family Derbiidae

Cedusa pedusa McAtee. Det. J. P. Kramer. Collected by sweep-net in small numbers from CSR, VIII and IX, Carteret County, N. C. (Davis, Unp.).

Family Acadaulidae

Acadiana pumilla (Van Duzee). Det. J. P. Kramer. Frequently obtained in sweep-net collections from salt marshes in which Borrichia frutescens is interspersed among dominant plant species; observed to occur on Borrichia frutescens plants, VII to IX, Carteret County, N. C. (Davis, Unp.). Collected from intertidal plants, Wrightsville Beach, N. C. (Metcalfe and Osborne, 1920).

Family Dictyopharidae


Family Isidae

Apheleonema simplex Uhler. Det. J. P. Kramer. Collected by sweep-net from SR the year around (in all but the coldest weather); often collected by sweep-net from DS; trapped on sticky plates, ground surface of SP and DS marshes; Carteret County, N. C. (Davis and Gray, 1966; Davis, Unp.).

Family Delphacidae

Pentagramma virgatitrons (Uhler). Det. J. P. Kramer. Collected by sweep-net from SP, Bogue Banks, Carteret County, N. C. Infrequently found in summer and early fall collections, 1959, becoming common in December and January, 1960, and disappearing in late winter and spring (Davis and Gray, 1966).

Liburniella ornata (Stal). Det. J. P. Kramer. A single specimen collected by sweep-net, SP, Beaufort Channel, Carteret County, N. C. VIII (Davis, Unp.).

Tomidagena terminalis (Metcalfe). Det. J. P. Kramer. Common in sweep-net collections from DS, V to X, but not obtained in other months; fairly common in sweep-net collections from SP throughout the year; occasionally caught on sticky plates, ground surface, SP and DS marshes, summer months; Carteret County, N. C. (Davis and Gray, 1966; Davis, Unp.).

Neomacleanus doralis (Metcalfe). Det. J. P. Kramer. Common in sweep-net collections from DS, IV to IX, but not obtained in other months; present and sometimes fairly abundant in sweep-net collections from SP throughout the year (except in coldest weather); occasionally caught on sticky plates, ground surface, SP and DS marshes, summer months; Carteret County, N. C. (Davis and Gray, 1966; Davis, Unp.).
Delphacodes detecta (Van Duzee) (= Lirinia detecta). Det. J. P. Kramer. Occurring in sweep-net collections from SA, SAL-SA, and SP, except in early spring, becoming extremely abundant in late fall and early winter; found in sweep-net collections from DS in all months except VI, very abundant VI to IX; fairly commonly caught on sticky plates, ground surface of SP, SA, and DS, summer months; Carteret County, N.C. (Davis and Gray, 1966; Davis, Unp.). Found to occur in “great abundance on a grass that grew luxuriantly near the level of low tide,” Wrightsville Beach, N.C. (Metcalfe and Osborn, 1920). Occurs in SA salt marsh, Sapelo Island, Ga. (Teal, 1962; Marples, 1966). Specimens found in the digestive tract of the long-billed marsh wren, Talmatodies palustris griseus, Sapelo Island, Ga. (Kale, 1964).

Delphacodes puella (Van Duzee). Det. J. P. Kramer. Collected frequently, but in small numbers, by sweep-net from SA, SP, DS, and PV; Carteret County, N.C. All specimens obtained in V, VIII, and IX (Davis, Unp.).


Sogata furcula (Horvath). Det. J. P. Kramer. Collected in small numbers by sweep-net from SA, SP, and DS, VII to XI, Carteret County, N.C. (Davis, Unp.).


Megalomarca lobata (Osborn). Det. J. P. Kramer. Collected by sweep-net from DS, IV to XII, usually in small numbers but becoming abundant in the fall; Carteret County, N.C. Caught in large numbers by sticky plates, ground surface, DS, summer months, Core Creek, Carteret County (Davis and Gray, 1966; Davis, Unp.).

Bacterella bullata (Osborn). Det. J. P. Kramer. Collected in small numbers by sweep-net, and by sticky plates on ground surface, from DS and SP salt marshes, VI to X, Carteret County, N.C. (Davis, Unp.).

Pisamonius albovenosus Osborn. Det. J. P. Kramer. Fairly common in sweep-net collections from DS, V to X, and from JR, year around except in coldest weather; fairly common, sometimes abundant, on sticky plates, ground surface of DS and JR salt marshes, summer months; Carteret County, N.C. (Davis and Gray, 1966; Davis, Unp.).

Keyfla h Artsch (Osborn). Det. J. P. Kramer. Often abundant in sweep-net collections from JR, V to I, reaching highest population level as nymphal stages, VI and VII; frequently collected in small numbers on sticky plates, ground surface, JR marshes, summer months, Carteret County, N.C. (Davis and Gray, 1966).

Family Aphiidae

Bulachmus tityi (Williamson). Det. L. M. Russell. A few specimens collected by sweep-net from SP and SAL-SA, Bogue Banks, and from SP and DS, North River, winter months (I and II), Carteret County, N.C. (Davis, Unp.).

Family Pyyllidae

Dioecia triplinata (Fitch). Det. L. M. Russell. A few specimens collected by sweep-net, DS and JR marshes, X and XII, Core Creek, Carteret County, N.C. (Davis, Unp.).

Aphalara furcata Caldwell. Det. L. M. Russell. A few specimens collected by sweep-net from SP and JR, North River, VIII to X, Carteret County, N.C. (Davis, Unp.).

Family Pseudococcidae

Sycococcus spinipuncta (Lobell). Collected from Juncus spp., Cumberland Island, Ga., V; also collected on sedges, Cumberland Island, VIII and XI (Tippins and Basheer, 1972).

Family Diaspididae

Aspidius naticus Tippins and Basheer. Occurs on saw grass, Mariscus junipennis, Cumberland Island, Ga. (Tippins and Basheer, 1971a).

Cirrhaphis fruticulosa Ferris. Reported to occur on Spartina sp. Cumberland Island, Ga., XIII and IX (Tippins and Basheer, 1968).
Haliaspina spartinae (Comstock). Occurs on SA, intertidal zone, Cumberland Island, Ga., T, III, TX (Tippins and Beshear, 1972). "Colonies of reproducing H. spartinae from Cumberland Island, Ga., USA, were found on SA at (same height on plants) as reproducing barnacles...H. spartinae survives in the intertidal zone with submersion for one hour every high tide. This species over-winters in the egg on dead host material" (Tippins and Beshear, 1975).


Odonaspis sp. close to Nitrosa ferris. Collected from Panicum, Cumberland Island, Ga., TX (Tippins and Beshear, 1970).

Odonaspis sp. close to saccharicinae Zehnt. Collected from Spartina sp., Cumberland Island, Ga., TX (Tippins and Beshear, 1972).

Order Thyasinae

All of the species included in this section were collected by beating SP and SA on Cumberland Island, Ga. (Beshear, 1971). Identifications were made by T. B. Wilson, T. C. Vance, and C. J. Stannard.

Suborder Terebrantia

Family Thripidae

Chirothrips praecoculisis Andre. Collected from both SP and SA, III and IX. Abundant in one collection from each.

Frankliniella critica (Fitch). One specimen collected from SA, IX; five specimens collected from SP, III, IV, and IX.

Pseudothrips inaequalis (Beach). One specimen collected from SP, TV.

Sericothrips desmodiunis Stannard. One specimen collected from SP, IX.

Suborder Tubulifera

Family Phloeothripidae

Adromothrips bellus (Hood and Williams). Abundant on SP in all collections (III, IV, VI, IX). None were collected on SA.

Adromothrips exiguum Hood. One specimen collected from SP, IV.

Adromothrips taczinowskii (Franklin). One specimen collected from SP, VI.

Amphithrips watsoni Hood. Four specimens collected from SP, TX.

Diceratothrips hartii Hood. One specimen collected from SP, III.

Haplothrips tenuis Hood. One specimen collected from SA, IX; seven specimens collected from SP, III, IV, and IX.

Haplothrips hartii Hood. One specimen collected from SP, IV.

Haplothrips maritimus (Fitch). Two specimens collected from SP, III and IX.

Haplothrips majalacus (Bagnall). Fairly common in SP collections, III and IX.

Neothrips near bicolor (Hagen). Abundant in SP, IX, and also collected III, IV, and VI.

Pedaleothrips hookeri Hood. One specimen collected from SP, IX.

Order Mallophaga

Brimley (1938, 1942) and Wray (1950) provide a list of Mallophaga collected in N. C., together with their bird hosts.

Subclass Endopterygota

Order Neoptera

Family Mantispidae

Mantispia brunnea Say. Frequently observed in salt marshes (especially SP) and neighboring habitats, Bogue Banks, Carteret County, N. C., summer months (Davis, Unp.). According to Brimley (1938), Z. P. Metcalf and T. B. Mitchell have reported it to be common at Carolina Beach, N. C. in the summer months.

Family Myrmecoleidae

Myrmecole cruedelis Walker. Imagoes occasionally collected in PV and JR marshes, Bogue Banks, Carteret County, N. C., VIII (Davis, Unp.).

Order Coleoptera

The following list does not include records of beetles from maritime habitats of South Carolina given in Kirk (1969, 1970).

Family Cicindellidae

Cicindela dorsalis media Lee. "Very common along the (coastal) strand, and wanders up into the higher dunes...Frequently taken in the tidal zone," Wrightsville Beach, N. C. (Metcalf, 1920). "A common hunter on all sandy beaches," Beaufort, N. C. area (Pearse, Hurn, and Wharton, 1942).

Cicindela marginata Fabricius. According to Dillon and Dillon (1961), this is a common species on muddy beaches along the Atlantic seacoast of the United States. Brimley (1938) states that it occurs along the N.C. seacoast from Beaufort southwards.
Cicindela hirtocolia Say. Found on "tidal flats that do not border the ocean near Fort Macon," Carteret County, N. C. (Pearse, Humm, and Wharton, 1942). Pearse (1936) collected it on Shackleford Banks near Mullet Pond, VI. According to Brumley (1938), it occurs along the entire coast of North Carolina.

Cicindela hamaica lacera Chandoir. Collected near Mullet Pond, Shackleford Banks, Carteret County, N. C., VI (Pearse, 1936).

Cicindela tortuosa ascendens LeConte. Collected in the Mullet Pond area of Shackleford Banks, Carteret County, N. C., VII (Pearse, 1936).

Family Dytiscidae

Hydraticus bimarginatus Say. Obtained by Pearse (1936) twice from brackish water habitats in Carteret County, N. C. (Mullet Pond Swamp, IV; Eastman's Creek, VII).

Khatius calidus Fabricius. Collected at Open Grounds, Carteret County, N. C., VI (Pearse, 1936).

Hydoporus carolinus Fall. Collected by Pearse (1936) from a ditch at Open Grounds, Carteret County, N. C., VI.

Hydoporus clypeatus Sharp. Collected from two brackish habitats, a ditch at Open Grounds, and Harlow Creek, Carteret County, N. C., VI (Pearse, 1936).

Copelatus phylliticus Say. Collected from ditch. Open Grounds, Carteret County, N. C., VI (Pearse, 1936).

Family Noteridae

Hydrocanthus bicolor (Say). Collected by Pearse from Carteret Lodge Pond, Carteret County, N. C., VI (Pearse, 1936).

Family Cyprinidae

Dineutes carolinus LeConte. Collected by Pearse (1936) from Morton's Mill Pond and Carteret Lodge Pond, Carteret County, N. C., VI and VII.

Dineutes emarginatus Say. Two collections by Pearse (1936) from brackish habitats (Carteret Lodge Pond, VI; stream above Morton's Mill Pond, VII).

Dineutes serratus LeConte. Collected by Pearse (1936) at Open Grounds, Carteret County, N. C., VI.

Cyprinus analis Say. Obtained from brackish ditch, Open Grounds, Carteret County, N. C., VI and VII (Pearse, 1936).

Family Hydrophilidae

Barosus infusciatus LeConte. Collected by Pearse (1936) from Mullet Pond, Shackleford Banks, Carteret County, N. C., VII.

Barosus peregrinus (Herbst). Collected from Carteret Lodge Pond, Carteret County, N. C., VI (Pearse, 1936).

Tropisternus glaber (Herbst). Larva collected from Mullet Pond, Shackleford Banks, Carteret County, N. C., VII; imago collected at Open Grounds, VI (Pearse, 1936).

Tropisternus quadripartitus (Horn). Collected by Pearse (1936) from brackish water of Mullet Pond, Shackleford Banks, Carteret County, N. C., III, IV, and VII, and from a pond at Open Grounds, III.

Enochrus sublongus Fall. Collected from Mullet Pond, IV, and Open Grounds, III and VI, both in Carteret County, N. C. (Pearse, 1936).

Enochrus perplexus (LeConte). Collected by Pearse (1936) from Mullet Pond, Shackleford Banks, Carteret County, N. C., IV, VI, and VII.

Family Staphyliniidae


Family Scarabaeidae

Papilio japonica Newman. Sometimes very abundant on foliage of Baccharis halimifolia bushes at periphery of salt marshes, summer months, Carteret County, N. C. (Davis, Unp.).

Cotinis nitida (Linnæus). Collected occasionally by Wagner (1964) on sea oats, Uniola paniculata, where it probably feeds on pollen, Carteret County, N. C., summer months.

Family Buprestidae

Pecinutes strigatus LeConte. Det. J. M. Kingsolver. Collected in abundance on a sticky plate, ground surface, below a Baccharis halimifolia bush, Bogue Banks, Carteret County, N. C., VI to VIII (Davis, Unp.).

Family Taphroceroides Crotch. Det. D. M. Weismann. Collected three times by sweep-net from vegetation, DS salt marshes, Carteret County, N. C., Core Creek, VII and VIII; Nelson Bay, V (Davis, Unp.).
Family Esteridae
Conoderus versicolor (Fabricius). Det. T. J. Spilman. Collected twice by sweep-net from SP, VI and VII, Beaufort Channel, Carteret County, N. C. (Davis, Unp.).
Glycyphox sp. Det. T. J. Spilman. Common, sometimes fairly abundant, in sweep-net collections from SP, Carteret County, N. C., VI to VIII. This species is one of the most characteristic insects of the SP salt marshes (Davis and Gray, 1966).

Family Cautahiridae
Chauliognathus marginatus (Fabricius). Collected by Pearson (1936) at Morton's Mill Pond, Carteret County, N. C., VI.
Podagra sp. Det. T. J. Spilman. Several specimens collected by sweep-net from salt marsh vegetation on three occasions, Carteret County, N. C. at Nelson Bay (PV two collections, IV), and North River (SP, V). (Davis, Unp.).

Family Lampyridae
Phosphorus frontalis LeConte. Det. T. J. Spilman. Collected twice by sweep-net from PV, Bogue Banks, Carteret County, N. C., V (Davis, Unp.).

Family Cleridae
Ischnocnora aegra (Newman). Det. D. M. Weisman. Collected frequently, in moderate numbers, by sweep-net from SP salt marshes, Carteret County, N. C., IV to VII. Although not abundant, this species is fairly characteristic of SP; it was also collected twice each from DS and PV (Davis and Gray, 1966).
Ischnocnora tabida (LeConte). Det. D. M. Weisman. A common and fairly abundant species in sweep-net collections from SA, Carteret County, N. C., V to X. This species was not collected in any other type of salt marsh (Davis and Gray, 1966). In SA, Sapelo Island, Ga. (Marples, 1964).

Family Melyridae
Collops nigriceps Say. Det. D. M. Weisman. Sporadic in occurrence, but sometimes fairly common in sweep-net collections from SA vegetation, Carteret County, N. C., V to VII (Davis and Gray, 1966). According to Wagner (1964), C. nigriceps is often very common (50 or more individuals per panicle) on sea oats, Uniola paniculata, where it appears to feed on pollen and flower parts.
Collops halloween LeConte. Det. D. M. Weisman. Two specimens collected by sweep-net from SA, North River, Carteret County, N. C., IX (Davis, Unp.).
Attalus sp. Det. D. M. Weisman. Five specimens collected on each of two occasions by sweep-net from PV, Bogue Banks, Carteret County, N. C., V (Davis, Unp.).

Family Mordellidae
Mordellistena nigricans (Melsheimer). Commonly collected in SA, Sapelo Island, Ga. (Marples, 1964). At least two species of Mordellistena, possibly M. nigricans and M. splendens (see entry below), are sporadic in occurrence, but sometimes abundant, in sweep-net collections from SA, Carteret County, N. C., IV to IX (Davis and Gray, 1966).

Family Cecidomyiidae
Oxyopsis allata (Horn). Det. R. H. Arnott. Collected three times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Harllee DS, VI; Bogue Banks, PV, VI and VII) (Davis, Unp.).

Family Anthicidae
Isomera sp. Found by Wagner (1964) to be common (often 50 or more per panicle) on Uniola paniculata, sand dunes of Bogue Banks, Carteret County, N. C. Isomera appears to feed mainly on pollen and tissues of flower parts of Uniola.

Family Languridae
Languria sp. Two large species of beetles that inhabit the SA salt marsh at Sapelo Island, Ga.; found in the stomachs of Least-billed marsh wrens (Kale, 1964).

Family Coccinellidae
Cycloneda sanguinea (Linnaeus). Det. E. A. Chapin. Collected twice by sweep-net from salt marshes at Lennoxville Point, Carteret County, N. C. (SA, VIII and SP, VII) (Davis, Unp.).
Coccinella novemnotata Herbst. Det. E. A. Chapin. Collected twice by sweep-net from salt marsh vegetation, Carteret County, N. C. (Nelson Bay, PV, V, and Beaufort Channel, SP, VI) (Davis, Unp.).
Epilachna varivestis Mulsant. Det. E. A. Chapin. Collected once by sweep-net from SA, Beaufort Channel, Carteret County, N. C., XI (Davis, Unp.).
Hippodamia convergens Guerin. Collected by Wagner (1964) from panicles of sea oats, sand dunes along outer beaches, Carteret County, N. C.

Naemis serrata (Melsheimer). Det. E. A. Chapin. Sporadic in occurrence, but often very abundant in DS and less frequently in SA, sweep-net collections, salt marshes of Carteret County, N. C. N. serrata was also occasionally collected from SP and PV; imagos collected from DS, IV to XII and larvae collected from V to XI. This is the commonest and most widely spread species of beetle in the salt marshes (Davis and Gray, 1966). Wagner (1964) collected it from panicles of sea oats, U. paniculata, in Carteret County.

Family Orthoperidae

Orthoperis spp. According to Kale (1964), these "very small (up to 1 mm) round, brown or black beetles...live in the leaf crevices of Spartina." Sapelo Island, Ga.

Family Chrysomelidae


Chaetocnema sp. Det. D. M. Weisman. Sporadic, but occasionally common in sweep-net collections from SP, VI to XII; also collected twice from SA and once each from DS and JR, Carteret County, N. C. (Davis, 1964).


Galericella semivittata (LeConte). Det. D. M. Weisman. Collected six times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Bogue Banks, twice from JR and once each from SA and SP, all in VI; Bell Creek, JR, VII; Lenoxxville Point, SA, V) (Davis, 1964).


Family Phalacridae


Family Anthribidae
Trigonomus sp.  Det. R. E. Warner. Several specimens collected by sweep-net, DS, Core Creek, Carteret County, N. C., IX (Davis, Unp.).

Family Curculionidae
Agronopus bellus (Say).  Det. R. E. Warner. Collected once by sweep-net, from SP, Piver's Island, Carteret County, N. C., VI (Davis, Unp.).
Anthonomus sp.  Det. R. E. Warner. Five specimens collected by sweep-net, SP, Carteret County, N. C., X; one specimen collected from DS, same location, XI (Davis, Unp.).
Apion sp.  Det. R. E. Warner. Collected twice by sweep-net from salt marsh vegetation (North River, SP, VII; Goose Bay, SA, IV), Carteret County, N. C. (Davis, Unp.).
Pyrausta postica (Cyclamen).  Det. R. E. Warner. Collected once by sweep-net (SA, Beaufort Channel, XII), Carteret County, N. C. (Davis, Unp.).
Lissoryctus sp.  Det. R. E. Warner. Nine specimens obtained in a single sweep-net collection from SA, Piver's Island, Carteret County, N. C., IV (Davis, Unp.).
Lixus marginatus Say. Collected by Pease (1936) from a ditch, Open Grounds, Carteret County, N. C., VI.
Nicentrus grossulus Casey.  Det. R. E. Warner. Fairly common in one stand of DS, Core Creek, Carteret County, N. C., VII to IX; also, collected twice from SP, Bogue Banks, VI and VII (Davis, Unp.).
Siptophila sp.  Det. R. E. Warner. Collected once by sweep-net (Core Creek, DS, V), Carteret County, N. C. (Davis, Unp.).
Sphenophorus sp.  Det. R. E. Warner. Collected once by sweep-net (Core Creek, DS, III), Carteret County, N. C. (Davis, Unp.).

Order Diptera
Family Tipulidae
Limonia brevipes (Osten Sacken).  Det. A. Stone. Occasionally collected in small numbers by sweep-net from various types of salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).
Limonia domestica (Osten Sacken).  Det. A. Stone. Occasionally collected in small numbers by sweep-net from various types of salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

Family Culicidae
Aedes bradleyi King (= Aedes crucians bradleyi).  "Occurs along the Atlantic and Gulf Coasts from Massachusetts south to Texas and Mexico. A. bradleyi larvae have been found principally in brackish water near the coast, and water with a low concentration of salt (about 1.5% or less) appears to be preferred" (King, et. al., 1960).
Taeniorhynchus rutilus (Coquillett). Reported from Myrtle Beach, S. C.  "The larvae are found in tree holes and artificial water containers" (King, et. al., 1960). Presumably, this species would breed in tree holes in maritime forest.
Aedes sollicitans (Walker).  Det. A. Stone. Extremely common in poorly drained salt marshes, and in salt marshes disturbed by the activities of cattle and horses, Carteret County, N. C. The larvae were often observed in water-filled hoof tracks, as well as in shallow pools. Seldom collected by sweep-net in SA or JR, but may be very common in DS and SP, especially in the fall. Collected from IV through XII (Davis and Gray, 1966).  "It occurs in all types of salt marshes along the Atlantic and Gulf Coasts and... is usually by far the most important of the salt marsh species. The larvae are found on the parts of the marsh not reached by high tides, usually in potholes or depressions of various sizes, but often over extensive areas of nearly level marsh. The eggs are laid on almost any moist place in such marshes and also in low grassy lands immediately adjacent. Hatching occurs when the land is covered with rainfall or with monthly or seasonal high tides (spring tides), and enormous numbers may be produced in a single brood" (King, et. al., 1960).
Aedes taeniorhynchus (Wiedemann). Seldom obtained in sweep-net collections from salt marsh vegetation, Carteret County, N. C. Occasionally observed in damp sandy areas above the high tide level (Davis, Unp.). "While (A.) taeniorhynchus usually is not the predominant (salt marsh) species north of Florida, there are a few records of collections in which they outnumber (A.) sollicitans." Reports from Charleston and Parris Island, S. C. are cited in which A. taeniorhynchus was the most abundant mosquito species (King, et. al., 1960).
Culex salinarius Coquillett. "No information is available as to its salt tolerance, but (the larva) is known to occur at least in brackish water in salt marshes... C. salinarius occurs in all the southeastern states. It is common along the Gulf and Atlantic Coasts and less abundant inland" (King, et. al., 1960).

Family Ceratopogonidae

Leptoconops bequaerti (Kieffer). Collected frequently, but in small numbers, on sticky traps, ground surface of DS marsh, Core Creek, Carteret County, N. C., VI through VIII. Occasionally abundant in sweep-net collections from DS (Davis, Unp.). A species that occurs only along the Atlantic coast of the United States, and coastlines of islands and mainland of Caribbean area (Wirth, 1965a).

Atrichopogon sp. Det. W. W. Wirth. Collected occasionally on sticky plates, ground surface of SP and other salt marsh types, VI and VII, Carteret County, N. C. Sometimes collected in fairly large numbers in sweep-net samples from salt marsh vegetation (Davis, Unp.).

Dasyeleia luteogrisea Wirth and Williams. Often trapped in large numbers on sticky plates, ground surface, SP marsh, Bogue Banks, Carteret County, N. C., VI through VIII. Occasionally caught in smaller numbers on sticky plates, ground surface of DS and JR. Collected frequently, but mostly in small numbers, in sweep-net collections, salt marsh vegetation (Davis, Unp.). Distributed along the Atlantic and Gulf Coasts of the United States, N. to FL. (Wirth, 1965a).

Culicoïdes furesis (Poe). (= Culicoïdes dovel). Larvae occur in salt marshes, ditches, and other bodies of water, Charleston, S. C. (Hull, Doove, and Prince, 1934). Adults collected at Charleston by placing a cage over the ground in salt marshes, to trap them as they emerge from pupae in soil. Larvae were collected from salt marsh mud, and from water in fiddler crab holes. However, larvae were never collected from the mud of marshes that are flooded daily. Larvae are particularly abundant in the soil of marshes where shade is provided by overhanging tree limbs (Dove, Hall and Hull, 1932). This biting midge is a common pest of the salt marshes of Atlantic coastal states (Wirth, 1965a).

Culicoïdes melleus Coquillett. A biting midge pest ("noseeum") that is common on sandy beaches, Maine to FL. (Wirth, 1965a).


Culicoïdes hollensis (Melander and Brues). Det. W. W. Wirth. Occasionally collected in small numbers on sticky plates, ground surface of salt marshes (SP, DS), Bogue Banks and Core Creek, Carteret County, N. C., VI and VII (Davis, Unp.). A biting midge pest of salt marshes, Nova Scotia to FL. (Wirth, 1965a).

Ceratopogon sp. Det. W. W. Wirth. Occasionally collected in small numbers, sticky plates, ground surface of SP and DS salt marshes, Bogue Banks and Core Creek, Carteret County, N. C., VI and VII (Davis, Unp.).

Mallacoleus atripes Wirth. Distributed along the east coast of the United States from N. J. to FL. (Wirth, 1965a).

Bezzia setulosa (Loew). Det. W. W. Wirth. Three collections by sweep-net from salt marsh vegetation, Carteret County, N. C.: Core Creek, DS, IV, 23 specimens; Goose Bay, JR, IV, 5 specimens; North River, JR, V, 1 specimen (Davis, Unp.).

Family Chironomidae

Anatopynia decolorata (Malloch) (= Tanypus decoloratus). Collected from three localities (Open Grounds, Carteret Lodge Pond, Mullet Pond on Shackleford Banks), Carteret County, N. C., VI and VII (Pearse, 1936).

Orthocladius sp. (= Hydrobaenus sp.). Det. W. W. Wirth. Present in nearly all sweep-net collections from salt marsh vegetation, Carteret County, N. C., II and III, and often extremely abundant; collected by sweep-net from salt marshes, I through V (Davis and Gray, 1966). Collected in large numbers by vacuum, SA, Morehead City, Carteret County, N. C., spring months (McMahan, Knight, and Camp, 1972).

Chironomus sp. Det. W. W. Wirth. Occasionally collected in small numbers on sticky plates, ground surface of SP marsh, VI and VII, Bogue Banks, Carteret County, N. C. (Davis, Unp.).

Glyptotendipes lobiferus (Say). (= Chironomus lobiferus). Collected from three localities (Morton's Mill Pond, Calico Creek, Open Grounds), Carteret County, N. C., V through VII (Pearse, 1936).
Microtendipes antius (Walker). A species whose distribution is coastal, from Va. to Tx. (Sublette and Sublette, 1965).

Polypedilum convictum (Walker) (= Chironomus flavus). Collected at Carteret Lodge Pond, Carteret County, N. C., VI (Pearse, 1936).

Family Sciaridae

Bradyisia coprophila (Lintner). Det. R. J. Gagne. Collected in fair abundance on a single sticky plate, spoilbank area beneath a bush of Baccharis halimifolia, Bogue Banks, Carteret County, N. C., VI and VII (Davis, Unp.).

Epidipus sp. Det. R. J. Gagne. Collected fairly often in small numbers, sticky plates, ground surface of DS salt marsh, Core Creek, Carteret County, N. C., VI and VII (Davis, Unp.).

Family Stratiomyidae

Psecticus sickenii Williston. Collected at Open Grounds, Carteret County, N. C., VI (Pearse, 1936).

Family Tabanidae

Chrysops atlanticus Pechuman. Collected by Ezell, et. al. (1974) at several localities along the coast of S. C., IV to X, using plastic canopy traps. According to Ezell (personal communication), it is common in all types of salt marshes, on dunes and seabeaches, and in maritime forest. Davis (Unp.) found it to be a severe pest at the upland borders of salt marshes and in maritime forests, Carteret County, N. C., summer months. Dukes, Edwards, and Axtell (1974) collected some C. atlanticus larvae from soil, "mostly in open marsh slightly below mean high tide and dominated by dense growth of short SA" Carteret County, N. C. In N. J., Rockal and Hansens (1970b) found the larvae to occur mainly in the soil of SA below mean high water level. The same authors (1970a) report that C. atlanticus adults leave the marsh for higher grounds, to feed, soon after emergence, which occurred in N. J. from June 26 to July 12.

Chrysops brimleyi Hine. Collected in coastal localities of S. C., IV to VI (Ezell, et. al., 1974). It is commonly collected in maritime forest (Ezell, personal communication).

Chrysops callidus Osten Sacken. Collected by Ezell, et. al. (1974) at Charleston and Georgetown, S. C., IV to IX. It is commonly collected in maritime forest (Ezell, personal communication).

Chrysops fuliginosus Wiedemann. Collected by Ezell, et. al. (1974) at Charleston, S. C. from III to VI; also obtained at other coastal localities in S. C. It is common in maritime forest, in salt marshes, and in dune and beach areas; the larvae occur in the soil of Spartina marshes (Ezell, personal communication). In Carteret County, N. C., "larvae were recovered from all dominant (salt marsh) vegetative types, but greater densities were found in areas flooded twice daily by high tides and dominated by SA" (Dukes, Edwards, and Axtell, 1974). According to Rockal and Hansens (1970a), the adults leave the salt marsh for higher ground soon after emergence.

Chrysops obsoletus Wiedemann. Collected by Ezell, et. al. (1974) at Charleston and Georgetown, S. C., V to VIII. It occurs commonly in maritime forest and in areas of seabeach and dune (Ezell, personal communication).


Leucotobanus annulatus (Say). Collected by Ezell, et. al. (1974) at Charleston, S. C., VI to VIII. It occurs commonly in maritime forest (Ezell, personal communication).

Tabanus atratus var. fulvopilosus Johnson. Collected by Ezell, et. al. (1974) at Charleston, S. C., V to X. Ezell (personal communication) states that it is common in all types of salt marsh, in maritime forest, and in dune and beach areas, and that another variety of T. atratus occurs rarely in maritime forest and dune-beach areas. According to Freeman and Hansens (1972), the larvae occur in the soil of N. J. salt marshes.

Tabanus lineola Fabricius. Found by Ezell, et. al. (1974) to occur at Charleston and Georgetown, S. C., summer months to X. It is common in all types of salt marshes, in maritime forest, and in dune and seabeach areas; the larvae occur in the soil of Spartina marshes (Ezell, personal communication). Dukes, Edwards, and Axtell (1974) obtained the larvae from salt marsh soil, Carteret County, N. C., mainly in areas dominated by short SA. Rockal and Hansens (1970b) state that "unlike T. nigrovittatus (entry below), T. lineola breeds primarily near the upland," in N. J.
Family Mydidae

*Mydas clavatus* (Drury). Collected at Harlowe Creek, Carteret County, N. C., VI (Pearse, 1936).

Family Asilidae


Family Bombyliidae

*Villa sinuosa* (Wiedemann) (= *Anthrax sinuosa*). Collected in vicinity of Morton's Mill Pond, Carteret County, N. C., VI (Pearse, 1936).

Family Empididae

*Hybos* sp. Det. R. H. Foote. Collected frequently, sometimes in abundance, in stand of SP, Bogue Banks, Carteret County, N. C., V through XI (Davis, Unp.).

*Chersodromia inusitata* (Melandr). "*Chersodromia* adults occur on the wet or dry beaches of both fresh and salt water. Range is from Massachusetts to Florida." (Melandr, 1965).

Family Dolichopodidae

*Condylomystylus caudatus* (Wiedemann). Det. H. Robinson. Occasionally collected by sweep-net, PV and SP, Bogue Banks, Carteret County, N. C., summer months (Davis, Unp.).

*Dolichopus marginatus* Aldrich. Det. H. Robinson. Specimens occasionally collected by sweep-net and sticky plate, salt marshes, Carteret County, N. C. (Davis, Unp.).

*Cymopterus amabilis* Van Duzea. Det. G. C. Steyskal. Very common in sticky plate collections, ground surface, DS salt marsh at Core Creek, Carteret County, N. C. Collected in smaller numbers by sweep-net at North River, various types of vegetation, and by sticky plate at JR, Core Creek (Davis, Unp.).


*Paracrcetus filifer* Aldrich. Det. G. C. Steyskal. Common, sometimes abundant, in sticky plate collections, ground surface of SA; sometimes collected on sticky plates from other types of salt marshes; VI through VIII, Carteret County, N. C. (Davis, Unp.).


*Pelastoneurus abbreviatius* Loew. Det. G. C. Steyskal. Caught in abundance on sticky traps, ground surface, SA and DS salt marshes; less commonly caught on traps in other kinds of salt marsh; VI through VIII, Carteret County, N. C. (Davis, Unp.).

*Thinophilus bicromatuitus* Johnson. Det. H. Robinson. A single collection of nine specimens from mixed marshy vegetation (SP, *Fimbripalystis mancana*), Beaufort-Morehead City causeway, Carteret County, N. C., V (Davis, Unp.).


*Thinophilus ocrifacies* Van Duzea. Det. G. C. Steyskal and H. Robinson. Present in sweep-net collections, IV through XII, from both DS and SP salt marsh vegetation, but more abundant in DS; very common on sticky plates, ground surface of SA marsh, less common in DS, VI through VIII; Carteret County, N. C. (Davis, Unp.).


*Hypacharus gladiator* Mik. "*Hypacharus* larvae are intertidal and form cocoons of sand in which the insect pupates. Adults are occasionally found in immense numbers on floating seaweed" (Foote, Coulson, and Robinson, 1965). Pearse, Humm, and Wharton (1942) report collections of larvae of either *H. gladiator* or *H. prunosus* (entry below) from Bird Shoal, Carteret County, N. C., VI.

*Hypacharus prunosus* (Wheeler). Det. H. Robinson. Range is coastal, from New England to Fl. (Foote, Coulson, and Robinson, 1965). Adults collected in intertidal zones, protected areas (sounds, estuaries), Carteret County, N. C., summer months. (Davis, Unp.).
Medetera aberrans Wheeler (= Medetera lobatus). Det. H. Robinson. Collected occasionally by sweep-net, spring months, SA, Carteret County, N. C. (Davis, Unp.).


Syntormon cinereiventre (Loew). Det. G. C. Steyskal. One specimen collected on a sticky plate, ground surface of DS marsh, Core Creek, Carteret County, N. C., VII (Davis, Unp.).

Diaphorus contiguus Aldrich. Det. G. C. Steyskal. Collected occasionally on sticky plates, ground surface, SP marsh, Bogue Banks, Carteret County, N. C., VI through VIII (Davis, Unp.).

Diaphorus leucostoma Loew. Det. H. Robinson. Twenty-one specimens obtained in two sweep-net collections, mixed marshy vegetation (SP, Fimbristylis castanea), Beaufort-Morehead City causeway, Carteret County, N. C., IV and VI (Davis, Unp.).

Chrysotus discolor Loew. Det. H. Robinson. Collected both by sweep-net and sticky plate, SP and DS salt marshes, Carteret County, N. C. The species of Chrysotus are quite difficult to distinguish apart, but all three species listed (C. discolor, C. picticornis, C. simus) appear to be fairly abundant in SP and DS in the summer months (Davis, Unp.).


Aesynatus syntormoides Wheeler. Det. H. Robinson. Occasionally present in sweep-net samples from salt marsh vegetation, Carteret County, N. C., summer months (Davis, Unp.).

Family Floridae

Megassellia spp. Det. W. W. Wirth. Three species were frequently obtained by sticky plates, ground surface of SA, DS and JK salt marshes, especially SA, summer months, Carteret County, N. C. These species were never found in sweep-net samples (Davis, Unp.).

Family Pipunculidae

Pipunculus (Endorylas) sp. (probably P. cinctus cinctus Banks). Collected occasionally by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.). Range is coastwise, from Va. to Fl. (Hardy, 1965).

Pipunculus bicaynei Cresson (= Dorila bicaynei). Collected occasionally by sweep-net from DS salt marsh, Carteret County, N. C. (Davis, Unp.).

Tomasvarrella appendipes (Cresson). Collected occasionally by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

Tomosvarrella cuquilethi (Kertesz). Fairly common in sweep-net collections from DS, Carteret County, N. C. (Davis and Gray, 1966).

Family Conopidae

Stylogaster biannulata (Say). Collected a few times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

Family Syrphidae

Mesograpta polita (Say) (= Mesogramma polita). Collected at Calico Creek, Carteret County, N. C., VI (Pearse, 1936).

Family Otitidae


Chaetopsis fulvifrons (Mackquart). Det. R. H. Foote. Collected by sweep-net from SA, less frequently from other kinds of salt marsh vegetation, IV through XII, Carteret County, N. C. C. fulvifrons is even more abundant in the Carteret County marshes than C. apicalis (entry above), and was present in 100% of the sweep-net samples taken from SA (Davis and Gray, 1966). This species is also reported by Pearse (1936), presumably occurring on the vegetation adjacent to the brackish bodies of water that he names as collection sites.
Chaetopterus aeneus (Wiedemann). Reported by Pearse (1936) from Calico Creek and Eastman's Creek (presumably collected from the adjacent vegetation), Carteret County, N. C., VI and VII. Davis and Gray (1966) did not find it in their extensive collections of salt marsh insects. According to Marples (1966) it is a common insect in SA marshes at Sapelo Island, Ga. Kale (1964) states that it is less abundant at Sapelo Island than C. apiculus (entry above). Neither Marples nor Kale indicate if their identification was verified by an expert. Steyskal (1965a) has stated that "most of the published locality records of aeneus (and fulvipennis...are unreliable."

Exoesta notata (Wiedemann). Det. R. H. Foote. Collected occasionally by sweep-net, salt marsh vegetation (SP, JR, DS, SA), Carteret County, N. C., IV through VIII (Davis, Unp.).

Family Platystomatidae

Rivellia quadrifasciata (Mackay). Det. R. H. Foote. Collected occasionally by sweep-net from salt marsh vegetation (usually SP), Carteret County, N. C., V through VIII (Davis, Unp.).

Rivellia succinata (Wiedemann). Det. R. H. Foote. Collected three times by sweep-net from salt marsh vegetation (SA, VI and VIII; JR, VI), Goose Bay, Carteret County, N. C. (Davis, Unp.).

Family Tephritidae

Tephritis argyrotoma (Cockerell). Det. R. H. Foote. Collected three times by sweep-net from SP, XI through III, and occasionally from other types of salt marsh vegetation, XI through VI, Carteret County, N. C. This species was found to be much more abundant in winter than at other seasons (Davis, Unp.).

Family Sciomyzidae

Dictya oxybeles Steyskal. Det. G. C. Steyskal. Fairly common in sweep-net collections from SA, all months of the year; collected occasionally from other types of salt marsh vegetation; Carteret County, N. C. The larvae are probably parasites of a marine snail, such as the salt marsh periwinkle (Littorina irrorata) or the mud snail (Nassarius obtusatus) (Davis and Gray, 1966).


Hoplodictya spinicornis (Loew). Det. G. C. Steyskal. Not common; collected occasionally by sweep-net from SA and SAL-SA, Carteret County, N. C., V through IX (Davis, Unp.).

Family Canacidae

Canacae spec. (Cockerell). "Canacids are almost all intertidal. The larvae feed on algae on wave-splashed rocks or sandy beaches..." This species occurs from Prince Edward Island to Fl., along the Atlantic coast of North America (Wirth, 1965b).

Family Ephyridae

Polytrichophora agens Cresson. Apparently limited to marine and/or estuarine habitats; coastwise range extends from Ma. to Fl. (Wirth, 1965c).

Polytrichophora conciliata Cresson. Det. W. W. Wirth. Sporadically abundant in sweep-net collections from DS and SA salt marsh vegetation; sometimes collected in small numbers from SP and SAL-SA; IV through XI, Carteret County, N. C. (Davis, Unp.).

Clononeurum americanum Cresson. Range includes "Atlantic and Gulf States in saline habitats" (Wirth, 1965c).


Psilopa flavida Cockerell. Det. W. W. Wirth. Collected fairly often by sweep-net from SA and DS vegetation, IV through II, Carteret County, N. C. This species is occasionally abundant in SA marsh (Davis and Gray, 1966). Wirth (1965c) gives its range as "coastal, Maine to Texas."

Ceropsilopa costalis Wirth. Det. W. W. Wirth. Frequently collected by sweep-net from vegetation, DS salt marshes, and occasionally from SA, IV through IX, Carteret County, N. C. In DS, this species is sometimes abundant (Davis and Gray, 1966).


Ceropsilopa mellipes (Cockerell). Det. W. W. Wirth. Collected occasionally on sticky plates, ground surface, JR salt marsh, Bogue Banks, Carteret County, N. C., VI through VIII (Davis, Unp.).

Cressonomymia hinei (Cresson). Wirth (1965c) calls this a "coastal" species, and gives its range as being from N. Y. to Tx.

Nomitima quinquenotata Cresson. Det. W. W. Wirth. Three collections by sweep-net from salt marsh vegetation (North River, SP IX; Beaufort Channel, SA, XII; Nelson Bay, DS, VIII); Carteret County, N. C. (Davis, Unp.).

Notiphila bispinosa Cresson. Det. W. W. Wirth. Frequently collected by sweep-net from SA vegetation, less frequently from DS, Carteret County, N. C., IV through XI. This species is often abundant in SA marshes near their upper elevations (Davis and Gray, 1966). Kale (1964) notes that it is "fairly abundant" in SA marsh at Sapelo Island, Ga.

Parydria imitans Loew. Present in SA salt marshes, especially from I through III, Sapelo Island, Ga. (Marbles, 1964). Kale (1964) notes that this species is "relatively common" at Sapelo Island and is occasionally eaten by the long-billed marsh wren. It is referred to as a "coastal" species by Wirth (1965c), and its range along the Atlantic coast is from Nova Scotia to Ga.

Parydria unithuberculata Loew. Det. W. W. Wirth. Four collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Goose Bay, JR, III; Beaufort Channel, SA, II and X; Lenoxville Point, SA, V) (Davis, Unp.).

Lipochaeta slossonae Coquillett. Wirth (1965c) gives the habitat of this species as "coasts and saline habitats," and indicates that it has been reported from Mass., Md., and Fl.

Dimecoenia austriana (Coquillett). Det. W. W. Wirth. Collected by sweep-net from SAL-SA, year around, Carteret County, N. C. This species is quite common, and was collected occasionally in SA and DS as well; it seems to frequent the area around the high tide mark (Davis and Gray, 1966; Davis, Unp.). Wirth (1965c) gives its coastwise distribution as including the area from Tx. to Va.

Dimecoenia spinosa (Loew). Wirth (1965c) calls this a coastal species and gives its coastwise range as being from New Brunswick to Fl.

Neoscaletella obscuriceps (Cresson). Det. W. W. Wirth. Extremely common in sweep-net collections from various types of salt marsh vegetation grazed by cattle, North River, Carteret County, N. C. Only occasionally collected elsewhere. Period of peak abundance is late winter and spring (Davis, Unp.).

Scatella picea (Walker). Det. W. W. Wirth. Collected occasionally by sweep-net from various types of salt marsh vegetation, Carteret County, N. C., VII through XII (Davis, Unp.).

Family Chamaemyiidae

Leucopsis sp. Reported from the stomach of the long-billed marsh wren by Kale (1964).

Family Lauxaniidae

Lauxaniella trivittata (Loew) (= Lauxania facialis). Collected at Mullet Pond, Carteret County, N. C., IV (Pearse, 1936).

Family Chloropidae

Hippeletes bicolor Coquillett. Four collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Lenoxville Point, DS, VIII and SP, VI; Harlow Creek, DS, VI and VIII) (Davis, Unp.). Restricted to coastal habitats from N. Y. to Tx. (Sабrosky, 1965).

Hippeletes bishopii Sabrosky. One specimen collected by sweep-net, Beaufort-Morhead City Causeway, Carteret County, N. C., SP, V (Davis, Unp.).


Hippeletes nobilis Loew. Collected twice by sweep-net from salt marsh vegetation, Carteret County, N. C. (Nelson Bay, PV, V, and DS VIII) (Davis, Unp.).


Hippeletes plebejus Loew. Collected twice by sweep-net from salt marsh vegetation, Carteret County, N. C. (Nelson Bay, DS, and Piver's Island, SP, Both VIII) (Davis, Unp.).

Hippeletes pusio Loew. Three collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Bogue Banks, SAL-SA, VIII; Beaufort Channel, SA, VII; Piver's Island, SP, VII) (Davis, Unp.).

Elachiptera angustifrons Sabrosky. Collected three times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Beaufort Channel, SA, XI; Lennoxville Point, SA, VIII; North River, SA, VIII) (Davis, Unp.). A coastal species (Sabrosky, 1965).

Elachiptera sp. near penita (Adams). Det. C. W. Sabrosky. Nineteen collections by sweep-net from SA vegetation, Carteret County, N. C., VI to II (Davis, Unp.). According to Kale (1964) and Marples (1964), a species of Elachiptera is found rather commonly in sweep-net samples from SA at Sapelo Island, Ga.

Eristalis longulus (Loew). A single sweep-net collection from salt marsh vegetation, Carteret County, N. C. (Lennoxville Point, SA, VII) (Davis, Unp.).

Monochaetoscinella nigricornis (Loew). Det. C. W. Sabrosky. Collected occasionally by sweep-net from salt marsh vegetation (SA, DS, SP, JR), Carteret County, N. C., V to XII. This species was never present in large numbers (Davis, Unp.).

Oscinella carbonaria (Loew). Det. C. W. Sabrosky. Distribution sporadic, but sometimes quite abundant in sweep-net collections, SA salt marshes, Carteret County, IV to IX (Davis and Gray, 1966). Also occasionally collected by sweep-net from PV, DS, and SP, and on sticky plates, ground surface of salt marshes (Davis, Unp.).

Oscinella coxendix (Fitch). Collected five times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Lennoxville Point, SA and DS, both VIII; Nelson Bay, DS, VIII; North River, DS, V; Goose Bay, SA, VI) (Davis, Unp.).

Oscinella infesta Becker (= Conioscinella infesta). Det. C. W. Sabrosky. Authoritative determinations of this species and Oscinella insularis (entry below) seem inconsistent; either they are conspecific or quite difficult to distinguish apart. O. infesta has been reported by Davis and Gray (1966) to be extremely abundant in sweep-net collections from SA vegetation, and much less abundant but common in other types of salt marshes, III to XII, Carteret County, N. C. If only one species is represented in the count, O. infesta is by far the commonest species in the salt marshes of Carteret County at most times of the year. According to Sabrosky (1965), O. infesta is strictly coastal in distribution, and occurs from Ma. to Tx.

Oscinella insularis Malloch. Det. C. W. Sabrosky. Common on sticky plates, ground surface of salt marshes (SA, DS, SP, JR, Core Creek and Bogue Banks), VI to VIII. Carteret County, N. C. C. W. Sabrosky identifies these as O. insularis although they appear to me to be identical to specimens swept from vegetation that were determined by him to be O. infesta (see entry for O. infesta, above) (Davis, Unp.). According to Marples (1964), O. insularis is very abundant at Sapelo Island, Ga., in SA marshes; he also mentions this species in his paper of 1966. According to Sabrosky (1965), O. insularis has been reported from Mass., Va., and Ga.

Oscinella neocoxendix Sabrosky. Det. C. W. Sabrosky. Seven collections by sweep-net from salt marsh vegetation, Carteret County, N. C. (Bell Creek, JR, VIII; Lennoxville Point, DS, VII; Nelson Bay, DS, VI; Piver's Island, SP, VII; Beaufort Channel, SP, IX; North River, SAL-SA, IX; Lennoxville Point, DS, VII; Bogue Banks, SA, VII) (Davis, Unp.).


Conioscinella nuda (Adams) (= Oscinella nuda). Det. C. W. Sabrosky. Sporadic, but sometimes abundant in sweep-net collections from SA salt marshes; more common, but never as abundant, SP and DS vegetation; Carteret County, N. C., V to X (Davis and Gray, 1966).


Oscinella trigramma (Loew) (= Madiza trigramma). Common in sweep-net collections from SA salt marshes, occasional in PV, SP, and DS, Carteret County, N. C., V to XI (Davis and Gray, 1966).

Family Anthomyiidae

Hylemya sp. Det. R. H. Poote. Five collections by sweep-net from SA (North River and Goose Bay) and single collections from JR, SP, and SAL-SA, Carteret County, N. C., IX to III. This species seems to occur only in fall and winter months. (Davis, Unp.). Found in digestive tract of long-billed marsh wren at Sapelo Island, Ga. (Kale, 1964).

Family Muscidae

Coenosis spp. Det. R. H. Poote. Occasional specimens in sweep-net collections from JR, SA, SP, and DS vegetation, Carteret County, N. C., all months of the year. At least two, and probably more, species of Coenosis occur in the N. C. salt marshes (Davis, Unp.).
Family Callophoridae

*Cochlopoa macellaria* (Fabricius) (= *Callitroga macellaria*). Det. C. W. Sabrosky.

Collected twice by sweep-net from SA (North River and Bogue Banks), Carteret County, N. C., IX and XI. Actually this large callophorid is rather common in salt marshes, and can often be seen on the tips of SA leaves, but it is a strong flyer and usually eludes the net (Davis, Unp.).

Family Sarcophagidae

*Sarcophaga johnsoni* Aldrich. Range is from Mass. to Tx.; found only along the seacoast (Downes, 1965).

*Sarcophaga sarraceneoides* Aldrich. Collected at Open Grounds, Carteret County, N. C., VI (Pearse, 1936).


*Tricharina simplex* (Aldrich). Restricted to littoral habitats; occurs coastwise from S. C. to Tx.; has been reared from dead snails (Downes, 1965).

Order Hymenoptera

Family Braconidae

*Apatelodes margariniventris* Ashmead. Det. C. F. W. Muesebeck. Collected four times (Bogue Banks, SAL-SA, VIII and IX; North River, Jr, V; Beaufort Channel, SP, IV) by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

*Brachon gelechioides* Ashmead. Det. C. F. W. Muesebeck. Collected twice (Bogue Banks, V, and North River IX) by sweep-net from SP salt marsh, Carteret County, N. C. (Davis, Unp.).


*Orgus gelachlaevus* Cushman. Det. C. F. W. Muesebeck. Collected once by sweep-net, from SP, Beaufort Channel, V; Carteret County, N. C. (Davis, Unp.).

Family Ichneumonidae

*Clistoptera alutaria* Townes. Det. L. M. Walkley. One female collected by sweep-net from SA, Bogue Banks, Carteret County, N. C., VIII (Davis, Unp.).

*Gelas sp. nr. perniciosus* (Viereck). Det. L. M. Walkley. Two specimens, both females, collected by sweep-net from SP, Bogue Banks, Carteret County, N. C., XII (Davis, Unp.).

*Nelioptus* sp. Det. L. M. Walkley. Several specimens, all males, collected by sweep-net from SP, Beaufort Channel, Carteret County, N. C., IV and IX (Davis, Unp.).

*Pseudopimpla radiolatus* (Provancher). Det. L. M. Walkley. Two collections by sweep-net from SA, Beaufort Channel, Carteret County, N. C., X and XI (Davis, Unp.).

*Hypocroter* sp. Det. L. M. Walkley. Two specimens collected by sweep-net from SA, Beaufort Channel and Bogue Banks, Carteret County, N. C., VIII and IX (Davis, Unp.).

*Temelucha* sp. nr. brevipetiolatus. Det. L. M. Walkley. Eight specimens collected from SA and *Fimbriatylis castanea*, Morehead City-Beaufort Causeway, Carteret County, N. C., VI (Davis, Unp.).

*Tricholabrus* sp. Det. L. M. Walkley. Collected three times by sweep-net from salt marsh vegetation, Bogue Banks (SA, VII and VIII and SP, VII), Carteret County, N. C. (Davis, Unp.).

*Tromatobia zonata* (Davis). Det. L. M. Walkley. A single specimen collected by sweep-net (SAL-SA, Bogue Banks, IX), Carteret County, N. C. (Davis, Unp.).


Family Eulophidae

*Horimenus texanus* (Girault). Det. B. D. Burks. One specimen collected by sweep-net, SP, North River, Carteret County, N. C., VIII (Davis, Unp.).

*Tetrastichus necanthivorus* conifer Gahan. Det. B. D. Burks. Collected twice by sweep-net from SP, North River, Carteret County, N. C., VIII (Davis, Unp.).

*Tetrastichus polyneuma* Ashmead. Det. B. D. Burks. Collected four times by sweep-net from SA, North River, Carteret County, N. C., IX to XII (Davis, Unp.).

Family Encyrtidae

*Merogyphus sp.* Det. B. D. Burks. Collected by sweep-net from SA, Carteret County, N. C. This species appears to be fairly common in SA during the winter months, being collected only from XI through IV (Davis, Unp.).
Family Pteromalidae

Calitulula illinoensis. (Ashmead). Det. B. D. Burks. Collected four times by sweep-net from salt marsh vegetation (Core Creek, DS; III; North River, SA; XII; Beaufort Channel, SA, III and IX), Carteret County, N. C. (Davis, Unp.).

Eupteromalus americanus Gahan. Det. B. D. Burks. Collected twice by sweep-net from SA, Bogue Banks, Carteret County, N. C., VIII (Davis, Unp.).

Eupteromalus subapterus (Riley). Det. B. D. Burks. A single collection by sweep-net from SA, North River, Carteret County, N. C., IX (Davis, Unp.).

Norbanus perplexus (Ashmead). Det. B. D. Burks. Collected twice by sweep-net from SP (River's Island and Beaufort Channel), Carteret County, N. C., IV and VII (Davis, Unp.).

Family Eurytomidae

Eurytoma sp. Det. B. D. Burks. Collected twice by sweep-net from salt marshes, Beaufort Channel, Carteret County, N. C., VI and IX (Davis, Unp.). Reported to occur in SA salt marshes, Sapelo Island, Ga. by Kale (1964) and Marples (1964).

Rileya cecidomyiae Ashmead. Det. B. D. Burks. Collected twice by sweep-net (North River, DS; XI; Beaufort Channel, SP, IX), salt marshes, Carteret, N. C. (Davis, Unp.).

Temulipetolus sp. Collected five times by sweep-net from SA (Bogue Banks, VIII, and Beaufort Channel, VIII and IX), Carteret County, N. C. (Davis, Unp.). According to Kale (1964), it occurs in SA salt marsh at Sapelo Island, Ga.

Family Chalcididae

Haltichella xanticles (Walker). Det. B. D. Burks. Collected once by sweep-net from DS, Core Creek, Carteret County, N. C., VIII (Davis, Unp.).

Family Eucharitidae

Eucharites marylandicus Girault. Det. B. D. Burks. Collected twice by sweep-net from SP (Bogue Banks and North River, Carteret County, N. C., VIII (Davis, Unp.).

Family Cynipidae

Diaphoromyia viridans (Ashmead). Det. L. H. Weld. Collected once by sweep-net from SP, Bogue Banks, Carteret County, N. C., XII (Davis, Unp.).

Family Scelionidae

Ceratothalamus marlattii Ashmead. Det. C. F. W. Muesebeck. Collected once by sweep-net from SP, Bogue Banks, Carteret County, N. C., VIII (Davis, Unp.).

Stichoteleia sp. Det. C. F. W. Muesebeck. Collected frequently, usually in small numbers, by sweep-net from DS, SP, and SA salt marshes, Carteret County, N. C., VI to XI (Davis, Unp.).

Stichoteleia virginiana (Ashmead). Det. C. F. W. Muesebeck. Collected three times by sweep-net from salt marshes (Core Creek, DS; Goose Bay, JR), Carteret County, N. C., VIII and X (Davis, Unp.).

Telonomus podisi Ashmead. Det. C. F. W. Muesebeck. Collected three times by sweep-net from salt marshes (Bogue Banks, SAL-SA; North River, DS and SP), Carteret County, N. C., IV, X and XI (Davis, Unp.). Very common in SA salt marsh, Sapelo Island, Ga., and often found in stomach of long-billed marsh wren (Kale, 1964).

Family Formicidae

Pseudomyrmex pallida F. Smith. Found in grassy salt marshes, Carteret County, N. C.

"Nests were located in grass stems" (Carter, 1962). Fairly common in sweep-net collections, SP salt marsh, V through XII, Carteret County, N. C. Det. M. R. Smith (Davis and Gray, 1966).

Pogonomyrmex rugosus (Latreille). Collected from grassy depressions between sand dunes, Bogue Banks, Carteret County, N. C. "All colonies observed were located in dry sand at unshaded sites. The nest entrance was marked by characteristic large domed mounds...Activity was observed from V to IX" (Carter, 1962).

Aphaenogaster flemingi M. R. Smith. Collected from two grassy depressions between dunes, Bogue Banks, Carteret County, N. C. "A distinct preference for open, grassy sites of dry, sandy soil was indicated...Activity was noted from V to IX" (Carter, 1962). A few specimens were collected by sweep-net from SP salt marsh, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Aphaenogaster floridana M. R. Smith. "Occurs in depressions between sand dunes on Bogue Banks (Carteret County, N. C.). All nests were found in sandy, dry soil. Activity was noted from V to IX" (Carter, 1962).

Pheidole dentata Mayr. Collected from grassy areas of sand dunes and open maritime forests, Bogue Banks, Carteret County, N. C. "Soil nests were located in well-drained areas, often under stones or other cover. Colonies also occur in decayed stumps and logs." Collected from IV through XII (Carter, 1962).
Pheidole morrisi Forel. Collected in maritime forests, Bogue Banks, Carteret County, N. C. "Nests may be constructed in unprotected areas or at the base of grass clumps ...or under stones." Collected from IV through XII (Carter, 1962). A few individuals collected by sweep-net from salt marsh vegetation, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Crematogaster atkinsoni W. M. Wheeler. This species occurs in SP marsh, Carteret County, N. C. "The hanging nests of plant detritus (are) either attached to, and supported by, a number of grass stalks, or built up into the grass from the dense base of the clumps" (Carter, 1962). A few specimens were collected by sweep-net from SA and SP marsh vegetation, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Crematogaster clara Mayr. Collected from among stands of Uniola paniculata (sea oats), SP, grassy areas on or between dunes, and maritime forest, Carteret County, N. C., IV through XII (Carter, 1962). Collected frequently, but in fairly small numbers, from all types of salt marsh vegetation, Carteret County, IV through I. Colonies nest in the hollow stems of dead SA. Det. M. R. Smith (Davis and Gray, 1966; Davis, Unp.). Found in SA marsh, Sapelo Island, Ga. (Marples, 1964). Colonies found nesting in standing stalks of dead SA, Sapelo Island, Ga. This species is an important food item of the long-billed marsh wren (Kale, 1964).

Crematogaster lineolata (Say). Collected in maritime forest, Bogue Banks, Carteret County, N. C. "Nests are found in stumps, logs, and standing dead trees and in the soil under stones or other cover. Collections were made from IV to XI" (Carter, 1962).

Monomorium minimum (Buckley). Collected in live-oak stands on Bogue Banks, Carteret County, N. C. "Nests are constructed in the soil, and may be observed under stones, logs, litter, or other cover" (Carter, 1962). Fairly common in sweep-net collections from SP marshes, Carteret County, N. C., V through X. Det. M. R. Smith (Davis and Gray, 1966).

Myrmecina americana (Emery). Collected in live oak forest, coastal counties of N. C. "Nests are found in the soil under stones or other cover...Collections were recorded for the months of IV to XI" (Carter, 1962).

Leptothorax pergandei Emery. Collected from live-oak forest, coastal counties of N. C., III to XI. Nests in the soil or in rotten wood (Carter, 1962). Occasionally collected by sweep-net from SP, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).


Dolichoderus mariae Forel. Collected in moist grassy areas in depressions between dunes, Bogue Banks, Carteret County, N. C. Prefers to nest in sandy soil. Active above ground, VI through IX (Carter, 1962).


Iridomyrmex pruinosus (Roger). "Colonies were...discovered on the sand dunes of Bogue Banks (Carteret County, N. C.) in grassy areas of sea oats, broomseed, and SP, and in grassy dune depressions...Nests are constructed in the soil, and the entrance often marked by craters...Collections were recorded for the months of III to XII" (Carter, 1962). Frequently collected in small numbers by sweep-net from SP, and occasionally from DS, IV through IX, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.; Davis and Gray, 1966).

Dorymyrmex pyramidalis (Roger). "It is an abundant and characteristic ant of the sand dunes of Bogue Banks (Carteret County, N. C.)...Nests are constructed in the soil with entrances marked by craters. Activity was noted from V to IX" (Carter, 1962). Frequently collected in small numbers by sweep-net from SP, Carteret County, N. C., IV through IX. Det. M. R. Smith (Davis, Unp.; Davis and Gray, 1966).


Camponotus pennsylvanicus (DeGeer). Collected in maritime forest, Bogue Banks, Carteret County, N. C. "Colonies were found in decayed stumps and logs, especially hardwood. Nests are also established in standing dead trees or in living trees with hollow portions and extensively decayed areas. Collections were recorded for the months of IV to XI" (Carter, 1962).
Camponotus castaneus (Latreille). Collected from live-oak forests, coastal counties of N. C. "Colonies are found in decayed stumps and logs...Stump nests may extend into the roots below the soil surface. Collections were made from V to IX" (Carter, 1962).


Paratrechina (Nylanderia) spp. Occasionally obtained in sweep-net collections from all types of salt marsh vegetation, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Prenolepis imparis (Say). Collected from live-oak forests, coastal counties, N. C. "All nests were located in the soil." Most common V through IX (Carter, 1962). A few specimens obtained by sweep-net from various kinds of salt marsh vegetation, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Lasius alienus (Foerster). Collected in live-oak forests, coastal counties, N. C. "Colonies are found in the soil under stones and in stumps and logs. Collections were taken from IV to X" (Carter, 1962).

Lasius neoniger Emery. Collected in coastal counties, N. C., mainly from abandoned fields. "Nests were subterranean, with entrances marked by craters. Some colonies were found under stones. Activity was noted from IV to XI" (Carter, 1962). Occasionally collected by sweep-net from SP salt marshes, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Formica (Neoformica) spp. Occasionally collected by sweep-net from SP and other salt marsh vegetation, Carteret County, N. C. Det. M. R. Smith (Davis, Unp.).

Unless otherwise noted, the species for the following families were collected at Kill Devil Hills, N. C.

Family Chrysididae

Hedychrum violaceum Brulle. Occurs on sand barrens and in maritime forests, V to VII (Krombein, 1958).

Chrysis equidens Viereck. Collected on sand barrens, V to VII (Krombein, 1958).

Chrysis conica Brulle. A single specimen collected on sand barrens, VIII (Krombein, 1958).

Chrysis stenodyneri Krombein. Collected on sand barrens, V to VII (Krombein, 1958).

Chrysis derivata Buyssson. Two collections from sand barrens, VI and VII (Krombein, 1958).

Chrysis fabricii Mocsary. Collected on sand barrens and in maritime forest, VI to IX (Krombein, 1958).

Chrysis smaragdula Fabricius. A single specimen collected on sand barrens, VIII (Krombein, 1958).

Chrysis verticalis Patten. Det. K. V. Krombein. A single collection by sweep-net from SA, Beaufort Channel, Carteret County, N. C., IX (Davis, Unp.).

Panorpes westcottii atlanticus Krombein. Occurs on sand barrens, VI to IX (Krombein, 1958). It has also been collected at Southport and Wrightsville Beach, N. C. Its host is probably Microbembex.

Family Tiphilidae

Tiphia convexa Allen. Maritime forest, V and VI (Krombein, 1949; Krombein, 1953).

Tiphia conformis Malloch. Sandy barrens and maritime forest, mainly the former, VII and VIII (Krombein, 1953).

Tiphia dryophila Krombein. Sandy barrens, V to VIII (Krombein, 1953).

Tiphia egregia Viereck. Sandy barrens, V, and maritime forest, VIII (Krombein, 1952; Krombein, 1953).

Tiphia floridana Robertson. Sandy barrens and maritime forest, mainly the former, VI to VII (Krombein, 1952; Krombein, 1953).

Tiphia hollowayi Allen. Sandy barrens, VI (Krombein, 1949).

Tiphia infossata Allen. One specimen, maritime forest, VII (Krombein, 1952).

Tiphia intermedia Malloch. Det. K. V. Krombein. A single collection from SP, Lennoxville Point, Carteret County, N. C. (Davis, Unp.). Collected by Krombein (1953) on sandy barrens at Kill Devil Hills, VIII.


Tiphia subcarinata Malloch. Maritime forest, VI and VII (Krombein, 1952).

Tiphia transversa Say. Sandy barrens, VI to VIII (Krombein, 1952; Krombein, 1953).

Tiphia waldeni Viereck. One specimen, VII, maritime forest (Krombein, 1952).

Paratiphia algonquina Viereck. Sandy barrens and maritime forest, VI and VII (Krombein, 1952).
Myzimum carolinianum carolinianum (Panzer). Sandy barrens, VI and VII (Krombein, 1952).
Myzimum dubiosum Cresson. Sandy barrens, VI to VIII (Krombein, 1952; Krombein, 1953).
Myzimum maculatum (Fabricius) (= Myzimum interrupta). Det. K. V. Krombein. Four specimens collected by sweep-net from SP, Piver's Island, Carteret County, N. C. VI and VII (Davis, Unp.). Maritime forest and sandy barrens, Kill Devil Hills, VII and VIII (Krombein, 1952; Krombein, 1953).
Methocha stygia Say. Maritime forest and sandy barrens, VI and VIII (Krombein, 1952).
Myrsina unicolor Say. Maritime forest, VI and VII (Krombein, 1952).

Family Mutillidae
Pseudomethocha frigida (Smith) (= Pseudomethocha canadensis). Maritime forest, V and VII (Krombein, 1952; Krombein, 1953).
Pseudomethocha sanbornii aeitis (Fox). Sandy barrens and maritime forest, V to VIII (Krombein, 1952; Krombein, 1953).
Pseudomethocha similina (Smith). Sandy barrens and maritime forest, V to VII (Krombein, 1949; Krombein, 1952).
Pseudomethocha vanduszei Bradley. Maritime forest, VI and VII (Krombein, 1952).
Dasymutilla asopus bexar (Blake). Sandy barrens and maritime forest, VI and VII (Krombein, 1952).
Dasymutilla interrupta Banks. Sandy barrens and maritime forest, VI to VIII (Krombein, 1952; Krombein, 1953).
Dasymutilla lepelaertii (Fox). Sandy barrens and maritime forest, VI to VIII (Krombein, 1952; Krombein, 1953).
Dasymutilla mutata (Blake) (= Dasymutilla allardi). Maritime forest, VI to VIII (Krombein, 1952; Krombein, 1953).
Dasymutilla nigripes (Fabricius) (= Dasymutilla sparsa). Maritime forest, VI to VIII (Krombein, 1952; Krombein, 1953).
Dasymutilla occidentalis (Linnaeus). Sandy barrens and maritime forest, VI and VII (Krombein, 1952).
Dasymutilla vesta (Cresson). Maritime forest and sandy barrens, VI to VIII (Krombein, 1952; Krombein, 1953).
Timulla dubitata (Smith). Sandy barrens and maritime forest, V to VIII (Krombein, 1952; Krombein, 1953).
Timulla euterpe (Blake). One specimen, maritime forest, VII (Krombein, 1952).
Timulla ornatipennis (Bradley). Sandy barrens and maritime forest, V to VII (Krombein, 1949; Krombein, 1952).
Timulla rufosignata (Bradley) (= Timulla dubitatiformis). Sandy barrens, V to VIII (Krombein, 1952; Krombein, 1953).
Ephuta scruposa (Say). Maritime forest, VI and VII (Krombein, 1952).
Ephuta bartlei Bradley. Sandy barrens, VIII (Krombein, 1953).
Ephuta spinifera Schuster. Sandy barrens and maritime forest, V and VII (Krombein, 1952).

Family Rhopalosomatidae
Olixon banksii (Brues). Numerous males collected on sandy barrens, V and VI (Krombein, 1952).

Family Scollidae
Campsomeris plumipes fossulana (Fabricius). Common on sandy barrens, less common in maritime forest, V to VII (Krombein, 1952; Krombein, 1953).
Campsomeris quadrinotata (Fabricius). One specimen collected at edge of maritime forest, V (Krombein, 1953).
Scolia bicincta Fabricius. One specimen collected on sandy barrens, VII (Krombein, 1953).
Scolia nobilitata Fabricius. One specimen collected at the edge of maritime forest, VII (Krombein, 1952).

Family Vespidae
Zethus spinipes variegatus Saussure. Sandy barrens and maritime forest, V to VIII (Krombein, 1952; Krombein, 1953).
Pseudodynerus quadrisectus Say. One specimen collected in maritime forest, VII (Krombein, 1952).
Monobia quadridentata (Linnaeus). Collected in maritime forest and on sandy barrens, V to VIII (Krombein, 1952; Krombein, 1953).
Rhygchium foraminatum (Saussure). Two specimens collected on edge of maritime forest, V (Krombein, 1952).
Rhygchium hidalgo boreoorientalis (Becquaert). Sandy barrens, VIII (Krombein, 1959).
Rhychchium megaera (Lepeletier). Sandy barrens and maritime forest, V to VIII (Krombein, 1953).

Rhychchium molestum (Saussure) (= Rhychchium manifestum). Sandy barrens and maritime forest, V to VII (Krombein, 1953).

Ancistrocerus campestris (Saussure). Three specimens collected on sandy barrens and in maritime forest, V to VII (Krombein, 1952; Krombein, 1953).

Ancistrocerus spinolae (Saussure). Maritime forest, V and VII (Krombein, 1959).

Stenodynerus ammonia (Saussure). Sandy barrens, V to VIII (Krombein, 1952; Krombein, 1953).

Stenodynerus fulvipes (Saussure). Collected on sandy barrens and in maritime forest, V to VII (Krombein, 1953).

Stenodynerus histrio (Lepeletier). Collected on sandy barrens and in maritime forest, V to VIII (Krombein, 1953).

Stenodynerus lineatifrons Bohart. Sandy barrens, V to VIII (Krombein, 1952).

Stenodynerus oculus illinoensis (Robertson) (= Odynerus oculatus). Sandy barrens, VII (Krombein, 1959).

Stenodynerus pedestris (Saussure). Common in maritime forest, occasional on sandy barrens, VI to VIII (Krombein, 1952; Krombein, 1953).

Stenodynerus perennis (Saussure). Maritime forest, V and VII (Krombein, 1953).

Stenodynerus pulvinatus Bohart. One specimen collected on sandy barrens, VII (Krombein, 1959).

Stenodynerus saecularis (Saussure). Occasionally collected on sandy barrens and in maritime forest, VII (Krombein, 1952).

Leptochilus clypeolophus monocyclus (Bohart). Usually collected in maritime forest, occasionally on sandy barrens, VI and VII (Krombein, 1952).

Vespula maculata (Linnaeus). One specimen collected in maritime forest, VII (Krombein, 1953).

Vespula maculifrons (Baysson). Maritime forest, V (Krombein, 1953).

Vespula aquamass (Drury). Three specimens collected at edge of maritime forest and on sandy barrens, V to VII (Krombein, 1952; Krombein, 1953).

Polistes bellicosus Cresson. Det. K. V. Krombein. Collected five times by sweep-net from salt marsh vegetation (Harlowe Creek, SA; Bogue Banks, PV and SP), Carteret County, N. C., IV to VII (Davis, Unp.).

Polistes exclamans Viereck. One specimen collected on sandy barrens, V (Krombein, 1953).

Polistes fuscatus (Fabricius). Det. K. V. Krombein. Collected three times by sweep-net from salt marsh vegetation (Bogue Banks, SA twice and SP once), Carteret County, N. C., VII and VIII (Davis, Unp.). Common on sandy barrens at Kill Devil Hills (Krombein, 1949).

Polistes hunteri Bequaert. Det. K. V. Krombein. Collected four times by sweep-net from salt marsh vegetation (Core Creek, DS; Lennoxville Point, SP; Goose Bay, JR; Harlowe Creek, SP), Carteret County, N. C., VII and VIII (Davis, Unp.). Common on sandy barrens and at edge of maritime forest, Kill Devil Hills (Krombein, 1949).

Polistes metricus Say. Common on sandy barrens and at edge of maritime forest (Krombein, 1949).

Eumenus fraternalis Say. Five specimens collected in maritime forest, VI (Krombein, 1955).

Symmorphe walshianus (Saussure). One specimen collected in maritime forest, VI (Krombein, 1955).

Family Pompilidae

Ageniella faceta (Cresson). Mostly in maritime forest, occasionally on sandy barrens, VI and VII (Krombein, 1952).

Ageniella partita Banks. One specimen collected in maritime forest, V (Krombein, 1953).

Agenicideus birmanii (Banks). Two specimens collected in maritime forest, VI (Krombein, 1955).

Anoplus americanus trifasciatus (Beauvois). Sandy beaches, V and VII (Krombein, 1952; Krombein, 1953).

Anoplus amethystinus stramentarius (Dahlbom). Sandy barrens, V to VIII (Krombein, 1952; Krombein, 1953).

Anoplus apiculatus pretiosus (Banks). Common on sandy barrens, V to VII (Krombein, 1952).

Anoplus atrox (Dahlbom). Occasionally collected on sandy barrens and in maritime forest, VI to VII (Krombein, 1952; Krombein, 1953).
Anoplius bellicosus (Banks). Sandy barrens and maritime forest, V to VII (Krombein, 1949; Krombein, 1952).
Anoplius bengtsoni (Regan). Sandy barrens and maritime forest, V to VII (Krombein, 1949; Krombein, 1952).
Anoplius cleora (Banks). Occasionally collected on sandy barrens, VI and VII (Krombein, 1952).
Anoplius cylindricus (Cresson). Sandy barrens, V to VII (Krombein, 1952).
Anoplius krombeini Evans. Rather common on sandy barrens, V to VII (Krombein, 1952).
Anoplius marginalis (Banks). Occasionally collected on sandy barrens, VI and VII (Krombein, 1952).
Anoplius marginatus (Say). Fairly common in maritime forest, VI and VII (Krombein, 1952).
Anoplius pretiosus (Banks). Sandy barrens, V and VI (Krombein, 1949).
Anoplius rectangulatus gillassy Evans. Fairly common in maritime forest, V to VII (Krombein, 1952).
Anoplius relativus (Fox). Fairly common on sandy barrens, V and VI (Krombein, 1952).
Anoplius semirufus (Cresson). Fairly common in maritime forest, VI and VII (Krombein, 1952).
Anoplius splendens (Driesbach). Fairly common in maritime forest, uncommon on sandy barrens, VI and VII (Krombein, 1952).
Anoplius subcylindricus (Banks). Collected on sandy barrens, V to VII, but not common (Krombein, 1952).
Anoplius ventralis (Banks). Not common; collected in maritime forest and on sandy barrens, VI and VII (Krombein, 1949).
Aporinellus apicatus Banks. One specimen collected on sandy barrens, VII (Krombein, 1959).
Aporinellus fasciatus (Smith). Rather common on sandy barrens, V to VII (Krombein, 1952).
Aporinellus taeniatus (Kohl). A few specimens collected on sandy barrens, V (Krombein, 1949).
Auplopous mellea (Say). One specimen collected in maritime forest, VII (Krombein, 1952).
Ceropales bipunctata Say. A few specimens collected on sandy barrens, V and VI (Krombein, 1952).
Dipogon pulchripennis (Cresson). One specimen collected on sandy barrens, V (Krombein, 1952).
Episyron biguttatus (Fabricius). Occasionally collected on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).
Episyron posterus (Fox). Quite common on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).
Episyron snowi (Viereck). Fairly common on sandy barrens, less common in maritime forest, V to VII (Krombein, 1952).
Evagetes mohave (Banks). Fairly common on sandy barrens and at edge of maritime forest, V to VII (Krombein, 1952).
Evagetes padrusinus minutus (Banks). Fairly common on sandy barrens, V to VII (Krombein, 1952).
Evagetea parvus (Cresson). One specimen collected in maritime forest, VI (Krombein, 1955).
Paracyphonoxyn funereus (Lepeletier). Fairly common in maritime forest, VI, VII (Krombein, 1952).
Phanagenia bombycina (Cresson). One specimen collected in maritime forest, VII (Krombein, 1952).
Poecilopomphius algidus (Smith). Occasionally collected on sandy barrens, VI and VII (Krombein, 1952).
Poecilopomphius interrupta (Say). Fairly common in maritime forest and on sandy barrens, VI and VII (Krombein, 1952).
Pomphilus similarius (Banks). Two specimens collected in maritime forest, VI (Krombein, 1955).
Pseudothrips legata (Cresson). A few specimens collected in maritime forest, VI and VII (Krombein, 1952).
Psorthaspis mariae (Cresson). Two specimens collected in maritime forest, VI and VII (Krombein, 1955).

Psorthaspis sanguinea (Smith). Two specimens collected in maritime forest, VII (Krombein, 1952).

Sericoptopompius apicalis (Say). Very common on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).

Sericoptopomiis neotropicalis (Cameron). Two specimens collected on sandy barrens, VII and VIII (Krombein, 1953).

Sophropompius hyacinthinus (Cresson). Fairly common on sandy barrens, V and VI (Krombein, 1949).

Sophropompius minusculus (Banks). Fairly common on sandy barrens, V (Krombein, 1949).

Tachypompius ferrugineus (Say). One specimen collected in maritime forest, VII (Krombein, 1952).

Family Sphecidae

Alysson melleus Say. Det. K. V. Krombein. One specimen collected by sweep-net from SA, Lennoxville Point, Carteret County, N. C., VI (Davis, Unp.). Three specimens collected on sandy barrens, V (Krombein, 1952).

Ammatomus monedulaeis (Packard). One specimen collected at edge of maritime forest, VII (Krombein, 1952).

Bembex carolina (Fabricius). Common on sandy barrens, VI and VII (Krombein, 1952).

Bicyrteia quadrifasciata (Say). Fairly common on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).

Cerceris bicornuta Guerin. Six specimens collected on sandy barrens, VI and VII (Krombein, 1952).

Cerceris blakei Cresson. Fairly common on sandy barrens, VI and VII (Krombein, 1952).

Cerceris compacta Cresson. Four specimens collected in maritime forest and on sandy barrens, VI and VII (Krombein, 1959).

Cerceris flavofasciata H. S. Smith. Occasionally collected in maritime forest, VII and VIII (Krombein, 1953).

Cerceris robertsoni Fox. Fairly common in maritime forest, VI and VII (Krombein, 1952).

Chalybion californicum (Saussure). One specimen collected on sandy barrens, VII (Krombein, 1952).

Chlorion arararium Patton. Nine specimens collected on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).

Chlorion auripes Fernald. One specimen collected at edge of maritime forest, VI (Krombein, 1952).

Chlorion aztecum (Saussure). One specimen collected in maritime forest, VI (Krombein, 1952).

Chlorion cinereum (Fernald). Three specimens collected in maritime forest, VI and VII (Krombein, 1952).

Chlorion daggyi (Murray). Collected occasionally in maritime forest and on sandy barrens, VI and VII (Krombein, 1952).

Chlorion pennsylvanicum (Linnaeus). Three specimens collected on sandy barrens, VII (Krombein, 1952).


Crabro aequalis Fox. Two specimens collected in maritime forest, VII (Krombein, 1952).

Crabro argus Packard. Fairly common on sandy barrens, VI and VII (Krombein, 1952).

Crososcerus nitidiventris (Fox). One specimen collected at edge of maritime forest, VI (Krombein, 1952).

Crososcerus similis (Fox). Nine specimens collected in maritime forest VII (Krombein, 1952).

Ectemnius deccmaculatus (Say). Fairly common on sandy barrens, V to VII (Krombein, 1952).

Ectemnius scaber (Lepeletier and Brullé). Three specimens collected on sandy barrens and in maritime forest, V and VI (Krombein, 1952).

Epihembex pruinosa (Fox). Fairly common on sandy barrens, VII (Krombein, 1952).

Epihembex spinolaë (Lepeletier). One specimen collected on sandy barrens, VII (Krombein, 1952).

Epihembex texana (Cresson). Two specimens collected in maritime forest, VII (Krombein, 1952).

Euplistes rubigaster (Packard). Seven specimens collected in maritime forest, VII (Krombein, 1952).
**Gorytes asperatus** Fox. One specimen collected at edge of maritime forest, VII (Krombein, 1952).

**Gorytes dorotheae** Krombein. Fairly common in maritime forest, V to VII (Krombein, 1952).

**Gorytes phaleratus** Say. One specimen collected in maritime forest, VI (Krombein, 1955).

**Lestica producticollis** (Packard). One specimen collected in maritime forest, VII (Krombein, 1952).

**Lyroa subita** Say. Two specimens collected, one each in maritime forest and on sandy barrens, VI (Krombein, 1952).

**Microbembex monodonta** (Say). "An extremely abundant species, both on (sandy) barrens and in (maritime) forest, though more common in the former habitat," V to VII (Krombein, 1952).

**Nemesis longicornis** Fox. Det. K. V. Krombein. Collected twice by sweep-net from PV, Bogue Banks, Carteret County, N. C., VI (Davis, Unp.).

**Nycophagus americanus** Fox. Eight specimens collected in maritime forest and on sandy barrens, VII (Krombein, 1952).

**Notus aequalis** Fox. Three specimens collected in maritime forest, VII (Krombein, 1952).

**Notus argentea** Beauvais. Collected occasionally in maritime forest and on sandy barrens, V to VII (Krombein, 1952).

**Nysson aequalis** Patton. Collected occasionally in maritime forest and on sandy barrens, VI and VII (Krombein, 1952).

**Nysson melleipes** Cresson. Collected fairly often in maritime forest, VI and VII (Krombein, 1952).

**Nysson opulentus** Gerstäcker. Fairly common both on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).

**Oxybelus emarginatus** Say. Occasionally collected in maritime forest and on sandy barrens, VI and VII (Krombein, 1952).

**Philanthus gibbosus** (Fabricius). One specimen collected on sandy barrens, VIII (Krombein, 1953).

**Philanthus ventilabris** (Fabricius). Seven specimens collected on sandy barrens, VIII (Krombein, 1953).

**Plenoculus davisi atlanticus** Viereck. Five specimens collected on very barren sand, VI and VII; "this subspecies has been taken in coastal areas from Connecticut to North Carolina and in Texas." (Krombein, 1955).

**Pluto arenivagus** Krombein. Seven specimens collected on sandy barrens, V to VII (Krombein, 1952).

**Pluto littoralis** (Malloch). Det. K. V. Krombein. Collected by sweep-net five times from SP and once each from DS and SAL-SA, VI to IX, Carteret County, N. C. (Davis, Unp.).

**Podalonia violaceipennis** (Lepeletier). Seven specimens collected on more sparsely vegetated portion of sandy barrens, VI (Krombein, 1955).

**Podium carolina** Rohwer. One specimen collected in maritime forest, VII (Krombein, 1952).

**Psammactia costalis** Cresson. One specimen collected in maritime forest, VII (Krombein, 1952).

**Psammactia denticulatus** (Packard). Four specimens collected on sandy barrens, VI and VII (Krombein, 1952).

**Psammactia nebulosa** (Packard). Fairly common in maritime forest, V to VII (Krombein, 1952).

**Psammactia pechumani** Pate. One specimen collected in maritime forest, VII (Krombein, 1952).

**Sceliphron caementarium** (Drury). One specimen collected on sandy barrens, V (Krombein, 1952).

**Soterella inermis** (Cresson). One specimen collected on sandy barrens, VII (Krombein, 1959).

**Sphex speciosus** (Drury). "Quite common on (sandy) barrens," VI and VII (Krombein, 1952).

**Sphex aureonotatus** (Cameron). Four specimens collected in maritime forest and on sandy barrens, VII (Krombein, 1952).

**Sphex procerus** (Dahlbom). Occasionally collected on sandy barrens and in maritime forest, V to VII (Krombein, 1952).

**Tachysphex sepulcralis** Williams. Four specimens collected on sandy barrens, VI and VII (Krombein, 1952).
Tachysphex similis Rohwer. Occasionally collected on sandy barrens and in maritime forest, V to VII (Krombein, 1952).
*Tachysphex tarsatus* Say. Fairly common on sandy barrens, V and VI (Krombein, 1952).
*Tachysphex terminatus* Smith. Quite common on sandy barrens and in maritime forest, V to VII (Krombein, 1952).
*Tachytes aurulentes* Fabricius. Nine specimens collected on sandy barrens, late VII and VIII (Krombein, 1953).
*Tachytes distinctus* Smith. Seven specimens collected on sandy barrens and in maritime forest, VI and VII (Krombein, 1952).
*Tachytes elongatus* Cresson. Fairly common on sandy barrens, VI and VII (Krombein, 1952).
*Tachytes mandibularis* Patton. Four specimens collected on sandy barrens VI and VII (Krombein, 1952).
*Tachytes mergus* Fox. Common on sandy barrens, VI and VII (Krombein, 1952).
*Tachytes obductus* Fox. Six specimens collected on sandy barrens, VI and VII (Krombein, 1952).
*Tachytes parvus* Fox. One specimen collected on sandy barrens, VI (Krombein, 1952).
*Tachytes pattoni* Banks. Five specimens collected on sandy barrens, VI (Krombein, 1952).
*Tachytes pepsicus* (Say). Fairly common on sandy barrens, VI and VII (Krombein, 1952).
*Tropoxyylon clavatum* Say. One specimen collected at edge of maritime forest, VII (Krombein, 1952).
*Tropoxyylon johnstoni* Fox. One specimen collected in maritime forest, VIII (Krombein, 1959).
*Tropoxyylon rubrocinctum* Packard. Eleven specimens collected in maritime forest, VI and VII (Krombein, 1952).
*Zanyssus fuscipes* (Cresson). Four specimens collected on sandy barrens, VI and VII (Krombein, 1952).

**Family Halictidae**

*Lasioglossum halophilum* (Graenicher). Det. K. V. Krombein. Collected by sweep-net on sixteen occasions from salt marsh vegetation (SA five times, DS three times, SP nine times). Carteret County, N. C. (Davis, Unp.). Collections were made from V to IX.

**Family Apidae**

*Apis mellifera* Linnaeus. Det. K. V. Krombein. Collected three times by sweep-net from salt marsh vegetation, Carteret County, N. C. (Davis, Unp.).

**Order Lepidoptera**

See contribution by Dr. R. Dominick.

**References**


Davis, L. V. Unpublished data and observations.


