

Subfamily Diaperinae: Keys (modified in large part from Triplehorn 1965a)

(underlined terms are defined to the right) (Note: *Ceropria induta* (p. 56) has not been included in the keys)

Key E

Key to the Florida species of *Phaleria* Latreille (modified from Triplehorn and Watrous 1979)

1. Prosternal process deflexed behind coxae, apex obtuse; prosternum with conspicuous setae scattered from anterior margin to base of prosternal process.....*punctipes* LeConte (**Fig. 1**)
- 1'. Prosternal process horizontal, apex acute and prominent; prosternal setae inconspicuous or confined to patch or tuft along anterior margin.....2
- 2 (1'). Pygidium notched along posterior margin; eyes separated ventrally by at least ventral diameter of one eye or distinctly separate from submentum.....*testacea* Say (**Fig. 3**)
- 2'. Pygidium broadly rounded posteriorly; eyes separated ventrally by less than ventral diameter of one eye.....*picipes* Say (**Fig. 2**)

Key H

Key to the Florida genera [including species] of Diaperini

1. Antennae with terminal five to eight segments distinctly enlarged as club.....2
- 1'. Antennae gradually enlarged to apex, or subfiliform.....4
- 2 (1). Ventral distance between eyes greater than width of oral fossa; epipleuron usually narrowed abruptly near anterior margin of fifth sternite.....3
- 2'. Ventral distance between eyes less than width of oral fossa; epipleuron narrowing gradually to elytral apex.....*Ulomoides* Blackburn [*ocularis* (Casey)] (**Fig. 32**)
- 3 (2). Body broadly oval, strongly convex; without frontal horns; body length greater than 4 mm..*Diaperis* Müller (**see Key I**)
- 3'. Body elongate oval, subcylindrical; males with frontal horns, females with tubercles; body length less than 5 mm.....*Neomida* Latreille (**see Key J**)
- 4 (1'). Mesocoxal cavities closed by meso- and metasterna.....6
- 4'. Mesocoxal cavities bordered laterally by mesepimeron.....5
- 5 (4'). Mesosternum concave between middle coxae.....*Platydema* LaPorte and Brulle (**see Key K**)

Acute-pointed; terminating in or forming less than a right angle

Anterad-toward the front

Concave-hollowed out

Convex-curved or rounded outward

Deflexed-abruptly bent downward

Epipleuron-deflexed or inflexed portion of the elytra, laterally when the elytra are closed

Fossa-a pit

Mesepimeron-epimeron (lateral portion) on second thoracic segment

Obtuse-blunt or dull; at an angle greater than a right angle

Prosternal process-posterior prolongation of prosternum behind forecoxae

Pygidium-the tergum (upper or dorsal surface of body segment) of the last visible segment of the abdomen

Subfiliform-not quite threadlike

Submentum-proximal division of the postmentum (basal part of labium), by which the labium (lower lip) is attached to the head

Subfamily Diaperinae: Keys

5'. Mesosternum projecting anterad as prominent, horizontal lobe.....*Liodema* Horn [*laeve* (Haldeman) (Fig. 14)

6 (4). Elytra with 8th interval simply convex or nearly flat; antennae with segments eight-ten at least as wide as long...7

6'. Elytra with 8th interval sharply angulate, usually weakly carinate; antennae with segments eight to ten longer than wide.....*Adelina* Dejean (see Key L)

7 (6). Posterior pronotal border evenly convex; mandibles of males bearing dorsal horns.....

.....*Gnathocerus* Thunberg (see Key M)

7'. Posterior pronotal border bisinate; mandibular horns absent in both sexes.....
...*Sitophagus* Mulsant [*hololeptooides* (LaPorte)] (Figs. 30,31)

Key I

Key to the Florida species of *Diaperis* Müller

1. Elytral pattern consisting of continuous transverse black band on posterior half of elytra and a transverse series of five black spots across basal half, the middle one involving both elytra.....*nigronotata* Pic (Fig. 8)

1'. Elytral pattern with large black blotches on posterior half of each elytron which may or may not form a continuous transverse band; at most, two black spots on basal half of each elytron.....*maculata* Olivier (Fig. 7)

Key J

Key to the Florida species of *Neomida* Latreille

1. Entire dorsal surface reddish-brown; head of male with deep, smooth postocular pits, frontal horns flattened and curved posteriorly.....*ferruginea* (LeConte) (Fig. 16)

1'. Usually entire dorsal surface, but at least the elytra, green, blue, or with bronze green reflections; head of male without postocular pits, frontal horns cylindrical and porrect.....
.....*bicornis* (Fabricius) (Fig. 15)

Key K

Key to the Florida species of *Platydema* LaPorte and Brulle

1. Frons with two well developed horns (males) or small tubercles (females).....2

1'. Frons with neither horns or tubercles.....4

2 (1). Dorsal surface dull, lusterless; horns and tubercles thick and blunt.....*erythrocerum* Laporte and Brulle (Fig. 20)

2'. Dorsal surface shining blue or black; horns slender and pointed, tubercles sharply pointed.....3

Angulate-forming an angle

Bisinate-with two incisions

Carinate-keeled or having raised lines

Convex-curved or rounded outward

Elytra-the forewings of beetles

Frons-the upper anterior portion of the head capsule, usually a distinct sclerite (any plate on the body wall) between the epicranium (upper part of the head) and clypeus (part of head below the frons)

Porrect-extending forward horizontally

Tubercles-a small knoblike or rounded protuberance

Subfamily Diaperinae: Keys

- 3 (2'). Dorsal surface blue.....
.....*cyanescens* Laporte and Brulle (Figs. 17,18)
3'. Dorsal surface black.....*excavatum* (Say) (Fig. 21)
4. Dorsal surface entirely dull and lusterless.....5
4'. Dorsal surface glossy to strongly shining.....8
- 5 (4). Dorsal surface bicolored; black with oblique red band on
each elytron.....*ellipticum* (Fabricius) (Fig. 19)
5'. Dorsal surface unicolorous, dark brown or black.....6
- 6 (5'). Antennae unicolorous from base to apex.....
.....*ruficorne* (Stürm) (Fig. 28)
6'. Antennae with at least basal three segments distinctly
lighter in color than remaining segments.....7
- 7 (6'). Entire antennal club dark; average size smaller, 3.6-5.4
mm in length.....*flavipes* (Fabricius) (Fig. 22)
7'. Apical antennal segment entirely lighter than remaining
segments; average size larger, 4.6-7.8 mm in length.....
.....*nigratum* (Motschulsky) (Fig. 25)
- 8 (4'). Each elytron with eight complete discal striae plus at
least a trace of a short basal one which more or less parallels
scutellum.....9
8'. Each elytron with eight complete discal striae; short basal
one completely absent.....11
- 9 (8). Punctures of interstrial elytral intervals extremely
minute and sparse; body brownish, feebly shining.....
.....*laevipes* Haldeman (Fig. 23)
9'. Punctures of interstrial elytral intervals large and fairly
dense; body black, shining.....10
- 10 (9'). Ventral surface or pronotum smooth to feebly rugose;
average size larger (5.0-6.0 mm), robust, shining black.....
.....*subcostatum* Laporte and Brulle (Fig. 29)
10'. Ventral surface of pronotum coarsely and longitudinally
wrinkled; size smaller (4.5-5.5 mm), elongate, narrow, black
with brassy or greenish reflections, shining.....
.....*picilabrum* Melsheimer (Fig. 26)
- 11 (8'). Outermost elytral striae approaching adjacent striae at
base, leaving unusually large humeral intervals; head densely,
almost confluently, punctured...*micans* Zimmerman (Fig. 24)
11'. Outermost elytral striae normally placed; head finely and
sparsely punctulate.....*ruficolle* Laporte and Brulle (Fig. 27)

Confluently-running together

Humeral-relating to the shoulder;
located in the anterior portion of the
wing

Pronotum-the upper and dorsal part of
the prothorax

Punctulate-with numerous minute and
closely set punctures

Rugose-wrinkled

Striae-longitudinal depressed lines or
furrows, frequently punctured

Scutellum-triangular piece at base
between the elytra

Key L

Key to Florida species of *Adelina* Dejean

1. Color light brown.....*bidens* (Schaeffer) (Fig. 4)

Subfamily Diaperinae: Keys

1'. Color dark brown to reddish brown.....2

- 2 (1'). Male with pronotum obcordate, narrowed behind middle, apex broadly, deeply emarginated, front angles rounded, hind angles rectangular, disk flat, finely, sparsely punctate, with two short, deep lines each side near base.....*pallida* (Say) (Fig. 5)
2'. Male with pronotum more or less quadrate, basal lines of pronotum longer, shallower.....*plana* (Fabricius) (Fig. 6)

Maculate-spotted

Obcordate-inversely heart-shaped

Pronotum-upper dorsal plate of the first thoracic segment

Key M

Key to Florida species of *Gnathocerus* Thunberg

1. Color light brown to testaceous.....
.....*curvicornis* (Champion) (Fig. 11)

1'. Color dark brown.....2

2 (1'). Sides of pronotum rounded, strongly divergent from base, especially in males; length 4.0-4.2 mm.....
.....*cornutus* (Fabricius) (Figs. 9,10)

2'. Sides of pronotum almost straight, parallel or feebly divergent from base; length 4.0 mm or less.....3

3 (2'). Males with mandibular horns broad at base, toothed near middle on inner margin, divergent, truncate at apex; females with two feebly rounded tubercles on front between eyes.....*guatamalensis* (Champion) (Fig. 12)

3'. Males with mandibular horns short, without tooth on inner margin, slender, strongly convergent, pointed at apex; females with front devoid of tubercles.....
.....*maxillosus* (Fabricius) (Fig. 13)

Key N

Key to the Florida genera [including species] of Crypticini

1. Body elongate oval in dorsal view, more than twice as wide as long; dorsum brightly colored, with pronotum orange and elytra yellow and black.....
.....*Poecilocrypticus* Gebien [*formicophilus* Gebien] (Fig. 34)

1'. Body broadly oval in dorsal view, not more than twice as long as wide; dorsum usually dark and uniformly colored; if elytra maculate, then pronotum brown or black, not orange
.....*Gondwanocrypticus* Español [*obsoletus* (Say)] (Fig. 33)

Subfamily Diaperinae: Species Profiles



Fig. 1: *Phaleria picipes* (Say)

Length: 3.8-6.9 mm

Habitat: On coastal sand beaches

Comments: Adults have been collected under beach drift, dead shark, porpoise



Fig. 2: *Phaleria punctipes* (LeConte)

Length: 5.8-7.2 mm

Habitat: On coastal sand beaches

Comments: Adults occur year around



Fig. 3: *Phaleria testacea* Say

Length: 6.5-7.6 mm

Habitat: On coastal sand beaches

Comments: Adults are extremely variable in size and coloration



Fig. 4: *Adelina bidens* (Schaeffer)

Length: 4.0-5.0 mm

Habitat: Under bark

Comments: Adults are dorsoventrally flattened in this genus; resemble flat bark beetles (Cucujidae)



Fig. 5: *Adelina pallida* (Say)

Length: 4.5-5.2 mm

Habitat: Under bark

Comments: Males have small triangular horn each side in front of eyes



Fig. 6: *Adelina plana* (Olivier)

Length: 3.7-4.2 mm

Habitat: Under bark

Comments: All 3 spp. in this genus occur in FL



Fig. 7: *Diaperis maculata* Olivier

Length: 4.7-7.2 mm

Habitat: In fleshy fungi (*Polyporus* spp.); under bark

Comments: Occasionally congregate in large numbers under bark



Fig. 8: *Diaperis nigronotata* Pic

Length: 5.0-6.4 mm

Habitat: In fungi; under bark

Comments: Type locality for this species is FL (Pic 1926)



Fig. 9: *Gnathocerus cornutus* (Fabricius) (male)

Length: 4.0-4.2 mm

Habitat: Often stored products

Comments: Pests in cereal grains; cosmopolitan distribution; 'broad-horned flour beetle'



Fig. 10: *Gnathocerus cornutus* (Fabricius) (female)

Length: 4.0-4.2 mm

Habitat: Often stored products

Comments: Pests in cereal grains; cosmopolitan distribution; 'broad-horned flour beetle'



Fig. 11: *Gnathocerus curvicornis* (Champion) (male)

Length: ~3.5 mm

Habitat: Stored products

Comments: All 4 species in this genus occur in FL



Fig. 12: *Gnathocerus guatemalensis* (Champion) (male)

Length: ~3.0 mm

Habitat: Stored products

Comments: May have originated in the New World (Triplehorn 1952)



Fig. 13: *Gnathocerus maxillosus* (Fabricius) (male)

Length: ~3.5 mm

Habitat: Often stored products

Comments: Pests in cereal grains; cosmopolitan distribution?; 'slender-horned flour beetle'



Fig. 14: *Liodema laeve* (Haldeman)

Length: 3.7-4.4 mm

Habitat: Probably fungi

Comments: Known to occur from FL to TX; north to NC



Fig. 15 *Neomida bicornis* (Fabricius) (male) (orange pronotum morph)

Length: 2.7-4.8 mm

Habitat: On fungi covered logs

Comments: The occurrence of individuals with an orange pronotum decreases significantly in states north of FL (Triplehorn 1965a)



Fig. 16 *Neomida ferruginea* (LeConte)

Length: 3.5-5.3 mm

Habitat: In fungi

Comments: Known only in southern states



Fig. 17 *Platydema cyanescens* Laporte and Brulle (male)

Length: 3.4-4.6 mm

Habitat: Fungi?

Comments: Known primarily in southern states



Fig. 18: *Platydema cyanescens* Laporte and Brulle (female)

Length: 3.4-4.6 mm

Habitat: Fungi?

Comments: Known primarily in southern states



Fig. 19: *Platydema ellipticum* (Fabricius)

Length: 4.4-7.7 mm

Habitat: In shelf fungi; under bark

Comments: Widespread in the eastern U.S.



Fig. 20: *Platydema erythrocerum*
Laporte and Brulle (male)

Length: 3.2-4.4 mm

Habitat: Fungi?

Comments: Only N. A. *Platydema*
spp. with blunt horns/tubercles and
dull appearance



Fig. 21: *Platydema excavatum*
(Say) (male)

Length: 3.4-5.8 mm

Habitat: Under bark, decaying
stumps

Comments: Widespread



Fig. 22: *Platydema flavipes* (Fabricius)

Length: 3.6-5.4 mm

Habitat: Fungi?

Comments: ---



Fig. 23: *Platydema laevipes* Haldeman

Length: 4.4-6.3 mm

Habitat: Fungi?

Comments: ---



Fig. 24: *Platydema micans* Horn

Length: 3.4-4.4 mm

Habitat: Under pine bark in FL;
fungi

Comments: ---



Fig. 25: *Platydema nigratum* (Motschulsky)

Length: 4.6-7.8 mm

Habitat: Fungi?

Comments: ---



Fig. 26: *Platydema picilabrum* Melsheimer

Length: 4.5-5.5 mm

Habitat: Under bark

Comments: Uncommon?



Fig. 27: *Platydema ruficolle* Laporte and Brulle

Length: 3.3-4.4 mm

Habitat: Leaf litter

Comments: Uncommon?



Fig. 28: *Platydema ruficorne* (Stürm)

Length: 3.5-5.8 mm

Habitat: Damp moldy grain; under bark; on fungi

Comments: 'Red-horned flour/grain beetle'



Fig. 29: *Platydema subcostatum* Laporte and Brulle

Length: 5.0-6.0 mm

Habitat: On fungi; under bark

Comments: One of largest *Platydema* ssp. in the eastern U.S.



Fig. 30: *Sitophagus hololeptoides* (Laporte) (male)

Length: ~5.0 mm

Habitat: In stored products

Comments: Cosmopolitan?



Fig. 31: *Sitophagus hololeptoides* (Laporte) (female)

Length: ~5.0 mm

Habitat: In stored products

Comments: Cosmopolitan?



Fig. 32: *Ulomoides ocularis* (Casey)

Length: ~4.0 mm

Habitat: Tamarind pods (leguminous tree)

Comments: Known only in southern FL, Keys; Immigrant from Australian region



Fig. 33: *Gondwanocrypticus obsoletus* (Say)

Length: ~3.5 mm

Habitat: In leaf litter

Comments: There may be additional species representing this genus in FL



Fig. 34: *Poecilocrypticus formicophilus* Gebien

Length: ~2.0 mm

Habitat: ---

Comments: Introduced into FL (Steiner 1982)



Fig. 35: *Trachyscelis aphodiodes* Latreille

Length: ~3.0 mm

Habitat: Along beaches/coastlines

Comments: Introduced (Steiner 2004)



Fig. 36: *Ceropria induta* Wiedemann

Length: ~9.0 mm

Habitat: Only data is from dead log at night

Comments: Immigrant from Asia; only known from Dade Co., FL (Steiner *et al.* in prep)