

# A NEW SPECIES OF *DACNE* LATREILLE FROM DOMINICAN AMBER, WITH A KEY AND CHECKLIST TO THE KNOWN SPECIES OF *DACNE* (EROTYLIDAE: DACNINAE)

PAUL E. SKELLEY

Florida Department of Agriculture & Consumer Services, Florida State Collection of Arthropods, 1911 SW. 34th St., P.O.Box 147100, Gainesville, FL 32614-7100, U.S.A.  
E-mail: afn07376@afn.org

**Abstract.** — *Dacne* (*Dacne*) *brodzinskyi* sp. nov. (Erotylidae: Dacninae), described here from amber, is the first member of the Dacninae recorded from the West Indies (Hispaniola). *Dacne maculata* Chûjô and *D. zonaria* Lewis are here transferred to the subgenus *Xenodacne* Boyle. A key and a checklist to all known species of *Dacne* Latreille are presented.



**Key words.** — Coleoptera, Erotylidae, *Dacne*, amber, West Indies, Greater Antillies, fossil, checklist, key.

## INTRODUCTION

Fossil erotylids have been described from the Green River (Scudder 1878) and Florissant (Wickham 1912, 1914, 1916) shales, and from Baltic amber (Spahr 1981a, 1981b). Specimens of *Dacne* Latreille have been reported from Baltic amber, but no species have been described (Poinar 1992). I have been unable to locate and study specimens of *Dacne* from Baltic amber.

Erotylids are also reported in Dominican amber (Poinar 1992, Wu 1996), but no descriptive information is presented. In fact, the specimen photographed in Wu (1996) and identified as Erotylidae is actually Colydiidae. During a study of West Indian erotylids, two specimens preserved in amber were brought to my attention. These specimens represent an undescribed species of *Dacne*, not presently known from the West Indies. For the West Indies, *Dacne brodzinskyi* sp. nov., represents the first described fossil erotylid and the first known member of the Dacninae.

Members of *Dacne* are mainly Holarctic and Ethiopian, with a few species in tropical Asia. Modern works dealing with members of this genus make it possible to identify species found in Africa (Delkeskamp 1954), Japan (Chûjô 1969), North America (Boyle 1956), and the Palearctic region (Iablokoff-Khnzorian 1975). Each reference provides keys and illustrations for the species covered. With the discovery of a fossil species of *Dacne*, it became necessary to evaluate the defining characters of the subgenera to determine its placement within the genus. The key presented here, which includes all known members of the genus, was created to bring together the various works mentioned above.

*Dacne* is considered one of the most primitive members of the Erotylidae. However, no phylogenetic analysis has

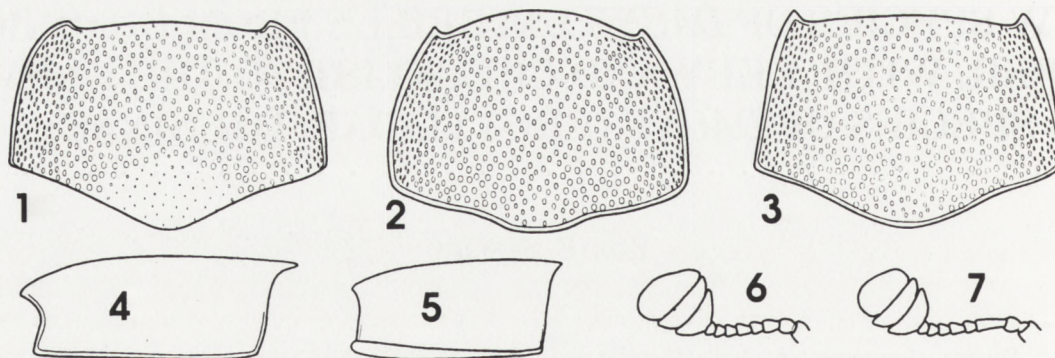
been published which would substantiate this claim. A detailed phylogenetic analysis would help illuminate the relationships among the subgenera of *Dacne* and provide a better foundation for higher classification, but it should be considered as part of a larger study. For now, the current higher classification is followed, with the following exception: *Dacne maculata* Chûjô and *D. zonaria* Lewis were found to have character states unique to the subgenus *Xenodacne* and are here transferred to that subgenus.

*Dacne* can be diagnosed as follows: body relatively cylindrical (not flattened), size small (length of largest specimen studied was 5.0 mm), distinct 3 segmented antennal club, base of pronotum sinuate, terminal segment of maxillary and labial palpi narrowed and acuminate, mentum broadly transverse, mesosternum visible (width not more than 3 length), tibiae and tarsi not elongate, tarsi tetramerous. More detailed descriptions of *Dacne* and generic keys including *Dacne* can be found in the following: Arrow 1925, Boyle 1956, Chûjô 1969, Delkeskamp 1954, Iablokoff-Khnzorian 1975, Kuhnt 1909.

*Dacne* is divided into three subgenera: *Afrodacne* Delkeskamp 1954, *Dacne* Latreille 1796, and *Xenodacne* Boyle 1956. These subgenera are diagnosed in the key, but are not discussed further. Some characters used by previous authors to distinguish the subgenera (i.e., elytral stria being confused or in lines) were found to be variable or were difficult to interpret when considering all species; these characters are not used in this key.

## KEY TO SPECIES OF *DACNE* OF THE WORLD

Parts of the following key were taken from Boyle (1956), Delkeskamp (1954), and Iablokoff-Khnzorian (1975).



Figures 1-7. Pronota and antennae of *Dacne* spp.: (1) pronotum of *Dacne aequinoctialis*, dorsal view, basal width = 1.75 mm; (2) pronotum of *D. quadrimaculata*, dorsal view, basal width = 1.42 mm; (3) pronotum of *D. pubescens*, dorsal view, basal width = 1.06 mm; (4) pronotum of *D. quadrimaculata*, left lateral view, margin length = 0.70 mm; (5) pronotum of *D. pubescens*, left lateral view, margin length = 0.51 mm; (6) antenna of *D. quadrimaculata*, antennomere X width = 0.24 mm; (7) antenna of *D. picta*, antennomere X width = 0.30 mm.

I found their characterizations adequate and recommend those works for additional characters. Habitus illustrations for most species can be found in either Chûjô (1969), Jablokoff-Khznorian (1975), or in their original description. An asterisk (\*) indicates that specimens of a species were not studied in producing this key. Species that were variable in the key characters appear more than once.

1. Pronotal disc punctures distinctly larger than punctures at base near scutellum (Fig. 1); metasternal coxal lines distinct, long; elytral base not margined; Africa  
Sg. *Afrodacne* Delkeskamp ..... 24
- Pronotal disc punctures same size as punctures at base near scutellum (Figs 2-3); metasternum lacking coxal lines; elytral base margined or not; northern hemisphere. .... 2
2. Pronotal lateral margin thin for entire length (Fig. 4); pronotum swollen anteriorly, projecting forward beyond anterior pronotal angles (Figs 2, 8); widespread, northern hemisphere  
Sg. *Dacne* Latreille ..... 7
- Pronotal lateral margin thickened, often broader anteriorly (Fig. 5); pronotal anterior margin normal, not projecting forward beyond anterior angles (Fig. 3); western North America and Japan  
Sg. *Xenodacne* Boyle ..... 3
3. Body primarily black; elytra black with distinct orange markings; Japan ..... 4
- Body primarily brown; elytra without distinct markings, or with weakly defined stripes; western North America ..... 5
4. Each elytron with one orange mark; pronotum black.  
..... *D. (X.) zonaria* Lewis
- Each elytron with two orange markings; pronotum orange ..... *D. (X.) maculata* Chûjô
5. Prosternal lines not extending in front of procoxae; epistome elliptical, separated from vertex by a distinct suture ..... *D. (X.) cyclochilus* Boyle
- Prosternal lines extending in front of procoxae; epistome not separated from vertex ..... 6
6. Elytra with fine basal margin; prosternal lines widely separated; lateral pronotal margin strongly swollen anteriorly; body dorsally glabrous ..... *D. (X.) picea* LeConte
- Elytra without basal margin; prosternal lines narrowly separated; lateral pronotal margin weakly swollen anteriorly; body dorsally pubescent  
..... *D. (X.) pubescens* Boyle
7. Pro- and mesotibiae dilated (Figs 8-10); Dominican Republic, West Indies (known only from fossils)  
..... *D. (D.) brodzinskyi* sp. nov.
- Tibiae not dilated; Europe, Asia, North America (known species extant) ..... 8
8. Antennomere IX broad, width greater than 2.5 times length; antennomere XI asymmetrical; club shape somewhat triangular (Fig. 6); each elytron with one orange band at base, approaching the base near the humerus, but usually not touching base; head and pronotum orange (pronotal disc may be darkened)  
..... 9
- Antennomere IX not broad, width usually less than than 2.5 times length; antennomere XI symmetrical or not; club shape usually oval (Fig. 7); color not as above, basal elytral mark (if present) broadly touching base, usually a simple spot; head and pronotum orange or black ..... 12
9. Head with broad, dorsal groove between eyes; Sri Lanka ..... *D. (D.) pulchella* Arrow
- Head lacking notable groove ..... 10
10. Orange elytral mark a jagged diagonal band; Japan  
..... *D. (D.) japonica* Crotch
- Orange elytral mark smoothly rounded ..... 11
11. Pronotum entirely orange; elytral apex black; Thailand, Burma ..... *D. (D.) optabilis* Gorham
- Pronotum with darkened disc; elytral apex testaceous; Japan (intercepted in USA, see Boyle 1963 and Savary 1995) ..... *D. (D.) picta* Crotch
12. Elytron unicolor, entirely reddish-brown ..... 13
- Elytron distinctly bicolored, black with orangish basal spot ..... 14

13. Procoxal lines lacking; body entirely reddish-brown; India ..... *D. (D.) indica* (Crotch)
- Procoxal lines extending forward beyond coxae; body usually darker ventrally, elytra usually with basal spot; western North America  
..... *D. (D.) californica* (Horn)
14. Elytron black with basal and apical spot ..... 15
- Elytron black with basal spot only ..... 17
15. Head and pronotum reddish-brown; antennomeres IX and XI same width ..... 16
- Head and pronotum black; antennomere XI distinctly wider than antennomere IX; eastern USA and Canada  
..... *D. (D.) quadrimaculata* (Say)
16. Pronotal disc punctures dense, separated by less than their diameter; western North America  
..... *D. (D.) californica* (Horn)
- Pronotal disc punctures sparse, separated by more than their diameter; Caucasus  
..... *D. (D.) semirufula* (Reitter)
17. Metasternum reddish, contrasting with black of elytra ..... 18
- Metasternum dark, not contrasting with elytra ... 19
18. Pronotum black; antennomeres IX to XI same length; antennomere XI circular; Japan  
..... *D. (D.) kidoi* Nakane
- Pronotum red; antennomere XI asymmetrical and longer than X, as in Fig. 6; Japan  
..... *D. (D.) japonica* Crotch
19. Head and pronotum same color, not contrasting .. 20
- Reddish head and black pronotum contrasting in color  
..... 22
20. Head and pronotum black; Europe, Siberia  
..... *D. (D.) notata* (Gmélín)
- Head and pronotum reddish-brown; Europe, western North America ..... 21
21. Basal elytral spot poorly defined, often lacking, when present large and occupying most of elytral base; western North America .. *D. (D.) californica* (Horn)
- Basal elytral spot well defined, small, occupying less than half of elytral base; Europe, Siberia  
..... *D. (D.) bipustulata* (Thunberg)
22. Elytral mark not reaching epipleural fold, broadly separated ..... 23
- Elytral mark reaching epipleural fold; Europe, western Asia ..... *D. (D.) pontica* (Bedel)
23. Each elytral spot width a third of body width; Europe, Siberia ..... *D. (D.) rufifrons* (Fabricius)
- Each elytral spot width a quarter of body width; Japan ..... *D. (D.) fungorum* Lewis
24. Antennal club strongly elongate, length = 2 width  
..... *D. (A.) clavata* Delkeskamp\*
- Antennal club not strongly elongate, length = 1.4 width  
..... 25
25. Punctures of elytral stria strong; eyes coarsely faceted; each elytron with a basal and apical mark (possibly forming a band)  
..... *D. (A.) aequinoctialis* (Thomson)
- Punctures of elytral stria fine; eyes finely faceted; markings variable ..... 26
26. Pronotum and elytra entirely reddish-brown  
..... *D. (A.) rufa* Delkeskamp\*
- Pronotum and elytra with black marks  
..... *D. (A.) nigropicta* Delkeskamp\*

*Dacne (Dacne) brodzinskyi* sp. nov.

(Figs 8–10)

**Description.** Length: 1.9–2.2 mm; width: 0.8–1.0 mm. Body elongate; color entirely black, lacking color pattern (possibly an artifact of preservation).

Head (Figs 8–9) width between eyes = 3 × eye diameter; punctation apparently coarse; epistoma rounded, apparently with complete marginal line. Antennae reach middle of pronotum; antennomere III longer than antennomere IV; antennomeres IV–VIII short, rounded; club broad and oval; antennomere IX–XI each 3 × wider and 2 × longer than antennomere VIII; antennomere XI transverse, 1.5 × longer than antennomere X.

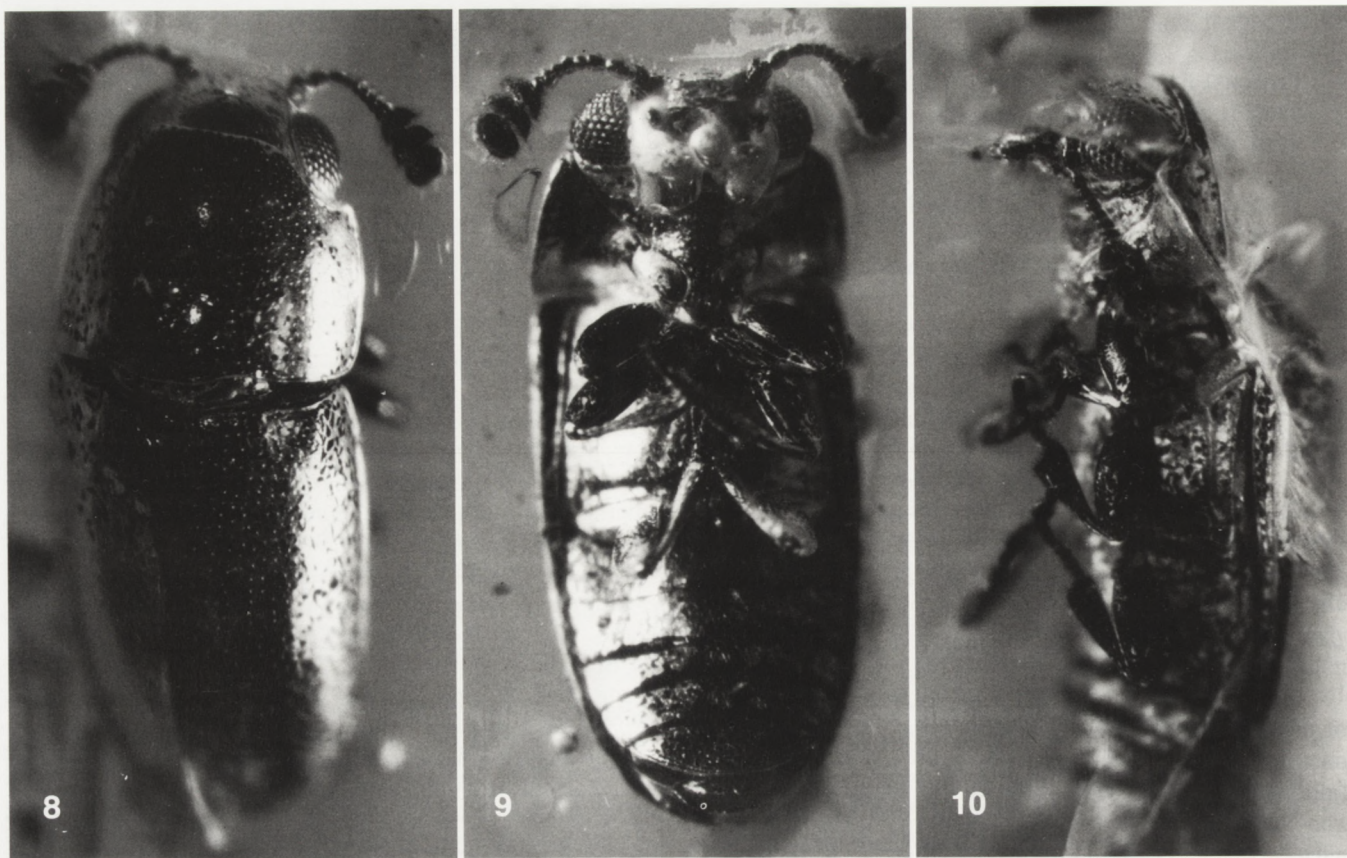
Scutellum transverse, width = 2 × length. Elytra margined basally, punctures with some rows evident. Prosternum narrow between coxae, width less than coxal width, base rounded; lines continuous around front of coxae. Tibia triangularly dilated, most notable on pro- and mesotibia (Figs 9–10).

**Types.** Holotype (FSCA, Figs 8–9) and a paratype (AMNH, No. DR-14-788, Fig. 10) from the Dominican Republic. The holotype was stated to be from “Bayaguana” (pers. comm., Jake Brodzinsky, see note below).

**Remarks.** Boyle (1956) discussed a sexual dimorphism in *Dacne quadrimaculata* and *D. californica*, where males have a more pronounced, weakly bilobed pronotal anterior margin. The two specimens of *Dacne brodzinskyi* studied have the pronotum developed in this manner. If this species displays this dimorphism, then the specimens studied are probably males.

**Etymology.** This species is named in honor of Jake Brodzinsky, Santo Domingo, DR, for his many years of service to the scientific community. His efforts to bring unusual amber-preserved insects to the attention of specialists has greatly increased our knowledge of extinct forms.

**Discussion.** The Bayaguana mines are reported (Grimaldi 1995) to yield younger resins, more correctly called copal. Resin holding the paratype had the color, hardness and grinding properties of true amber (D. A. Grimaldi, pers. comm.). Simple organic solvent tests (ethyl acetate, xylene, ethanol, propanol) on resin with the holotype indicate that it is also true amber. These observations indicate that the specimens are older than “amber” reported to come from the Bayaguana mines. Bayaguana, besides being a mining site, is a town with many dealers trading amber from much of the eastern El Valle region of the Dominican Republic (R. E. Woodruff, pers. comm.). There is a possibility that the holotype did not come from the Bayaguana mines.



Figures 8–10. Amber specimens of *Dacne (Dacne) brodzinskyi* sp. nov.: (1) dorsal view of holotype, length = 2.2 mm; (2) ventral view of holotype; (3) left lateral view of paratype, length = 1.9 mm.

## CHECKLIST OF SPECIES

### *Dacne* Latreille, 1796

Catalogs and synonymies: Chûjô and Chûjô 1988 (Old World), Delkeskamp 1981 (Ethiopian region), Boyle 1956, and Skelley 1994 (North America).

### Sg. *Afrodacne* Delkeskamp, 1954

*Dacne (Afredacne) aequinoctialis* (Thomson, 1858).  
*Dacne (Afredacne) clavata* Delkeskamp, 1954.  
*Dacne (Afredacne) nigropicta* Delkeskamp, 1954.  
*Dacne (Afredacne) rufa* Delkeskamp, 1954.

### Sg. *Dacne* Latreille, 1796

*Dacne (Dacne) bipustulata* (Thunberg, 1781).  
*Dacne (Dacne) brodzinskyi* Skelley, sp. nov.  
*Dacne (Dacne) californica* (Horn, 1870).  
*Dacne (Dacne) fungorum* Lewis, 1887.  
*Dacne (Dacne) indica* (Crotch, 1876)  
*Dacne (Dacne) japonica* Crotch 1873.  
*Dacne (Dacne) kidoi* Nakane, 1981.  
*Dacne (Dacne) notata* (Gmélin, 1788).  
*Dacne (Dacne) optabilis* Gorham, 1896.  
*Dacne (Dacne) picta* Crotch, 1873.  
*Dacne (Dacne) pontica* (Bedel, 1867).  
*Dacne (Dacne) pulchella* Arrow, 1925.  
*Dacne (Dacne) quadrimaculata* (Say, 1835).

*Dacne (Dacne) rufifrons* (Fabricius, 1775).

*Dacne (Dacne) semirufula* (Reitter, 1897).

### Sg. *Xenodacne* Boyle 1956

*Dacne (Xenodacne) cyclochilus* Boyle, 1954.  
*Dacne (Xenodacne) maculata* Chûjô, 1940, *new status*.  
*Dacne (Xenodacne) picea* LeConte, 1875.  
*Dacne (Xenodacne) pubescens* Boyle, 1956.  
*Dacne (Xenodacne) zonaria* Lewis, 1887, *new status*

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