

A New Revision of the Nearctic *Edaphus* — Species and Remarks on Other North American Euaesthetinae (Coleoptera, Staphylinidae)

by

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With 17 figures

Through the kindness of various institutions I got a considerable number of nearctic Euaesthetinae which are the subject of this paper.

My best thanks are due to Drs. Cl. Besuchet (Muséum d'Histoire naturelle, Genève), J. M. Campbell (Entomology Research Institute, Ottawa), H. Dybas (Field Museum of Natural History, Chicago), S. I. Kelejnikova (Museum Moscow), J. F. Lawrence (Museum of Comparative Zoology, Harvard University, Cambridge, Mass.), and P. J. Spangler (U.S. National Museum, Washington).

CNC = Museum Ottawa

FMCh = Field Museum of Natural History, Chicago

MCZH = Museum of Comparative Zoology, Cambridge, Mass.

MG = Museum Geneva

USNM = U.S. National Museum, Washington

Edaphus Motschulsky, 1857

Edaphus Motschulsky, 1857, *Etud. ent.* 5: 7

Edaphus; LeCONTE, 1861, *Smithson misc. Collns.* 3: 67

Edaphus; LeCONTE, 1863, *l.c.* 6: 50

Edaphus; BLACKWELDER, 1952, *Bull. U.S. Natn. Mus.* 200: 144

Edaphus; KISTNER, 1962, *Ann. Ent. Soc. Am.* 55: 619 f.

Tetrameres Schaufuss, 1877, *Nunqu. Otios.* 2: 460

Tetratarsus Schaufuss, 1877, *Pselaphiden Siam's*: 24 (*nom. nov.*)

Edaphe'llus Fauvel, 1878, *Annali Mus. civ. Stor. nat. Giacomo Doria* 12: 52 *nov. syn.*

Edaphellus; SZEKESY, 1939, *Nova Guinea N. S. Zool.* 3: 98 *nota*
Microphthartus Blattny, 1925, *Sb. ent. Odd. nár. Mus. Praze* 3: 185 *nov. syn.*
Rhenanus Wüsthoff, 1935, *Ent. Bl. Biol. Syst. Käfer* 31: 48 ff.

Genotype: *Edaphus nitidus* Motschulsky, 1857, fixed here by subsequent designation.

In Blackwelder (1952:144) there can be read:

Genotype: *Edaphus nitidus* Motschulsky.

Fixed by: LUCAS, 1920, p. 256, by subsequent designation, as "*E. nitidus* J. Lec. 1883."

Discussion: This genus was validated by Motschulsky in remarks on his collecting at Mobile, Alabama. Two species were validated at the same time. It is practically certain that Le Conte's subsequent use of the genus and one specific name was in the same sense. His action does not appear to constitute type designation, but the same species was designated by Lucas.

This is an error of Blackwelder. LUCAS (1920:V) says:

Die Anordnung des Stoffes ist folgende. Hinter dem Gattungsnamen folgt der Autor und die älteste (also Typen-) Literatur. Dann schließt sich zumeist [mostly] die Type, event. auch alte oder bekannte Arten.

This statement does not fit article 67 (concerning general orders on types of taxa of the genus-group) of the International Rules for the Zoological Nomenclature (XV. Int. Cgr. Zool.), 67 c:

Festlegung. — Im Zusammenhang mit der Fixierung einer Art muß der Terminus „Festlegung“ im strengen Sinne aufgefaßt werden; eine Festlegung in doppelsinniger oder eingeschränkter Weise ist ungültig. [Spacing by me].

Other statements on a genotype (f.e. KISTNER, 1962) of *Edaphus* are also invalid.

It has been claimed that any statement about a prior genotype designation itself constitutes a designation. This leads to several absurdities. . . (BLACKWELDER, 1952: 19),

which I do not want to discuss in detail (see BLACKWELDER). Anyway, BLACKWELDER's and KISTNER's statements on *Edaphus* do not constitute a valid genotype designation. A valid fixation of a genotype for *Edaphus* Motschulsky is given here for the first time.

Edaphellus Fauvel has been previously synonymized by SZEKESY (1939: 98 *nota*):

Edaphellus Novae-Guineae Fauv. gehört zur Gattung *Edaphus* Lec. [sic], da die von Fauvel [] angeführten Gattungsmerkmale des Genus *Edaphellus* nicht ausreichend erscheinen, das von ihm beschriebene Tier von den übrigen, heute bekannten *Edaphus*-Arten abzutrennen.

Obviously this statement has been overlooked by other authors. Therefore I publish here the synonymy again, based on the examination of the geno-holotype. Mr. R. Poggi (Genova) was so kind to study for me the holotype of *Edaphellus novaeguineae* Fauvel. The specimen is a female, characters given by Fauvel to separate his genus from *Edaphus* Motschulsky are very slight and of no generic value but belong to the intrageneric diversity: with more than 100 species *Edaphus* is the largest genus of Euaesthetinae.

Concerning the genus *Microphthartus* Blattny, which has been described as a Pselaphid-genus, Dr. Claude Besuchet was so kind to send me the following remarks for publication [see also supplementary note no. 2]:

Le genre *Microphthartus* Blattny a été décrit pour l'espèce nouvelle *luridus* Blattny de Birmanie. Ce Coléoptère n'est pas un Pselaphide mais un Staphylinide appartenant aux « *Edaphus* sensu lato ».

THE NEARCTIC SPECIES OF *Edaphus*

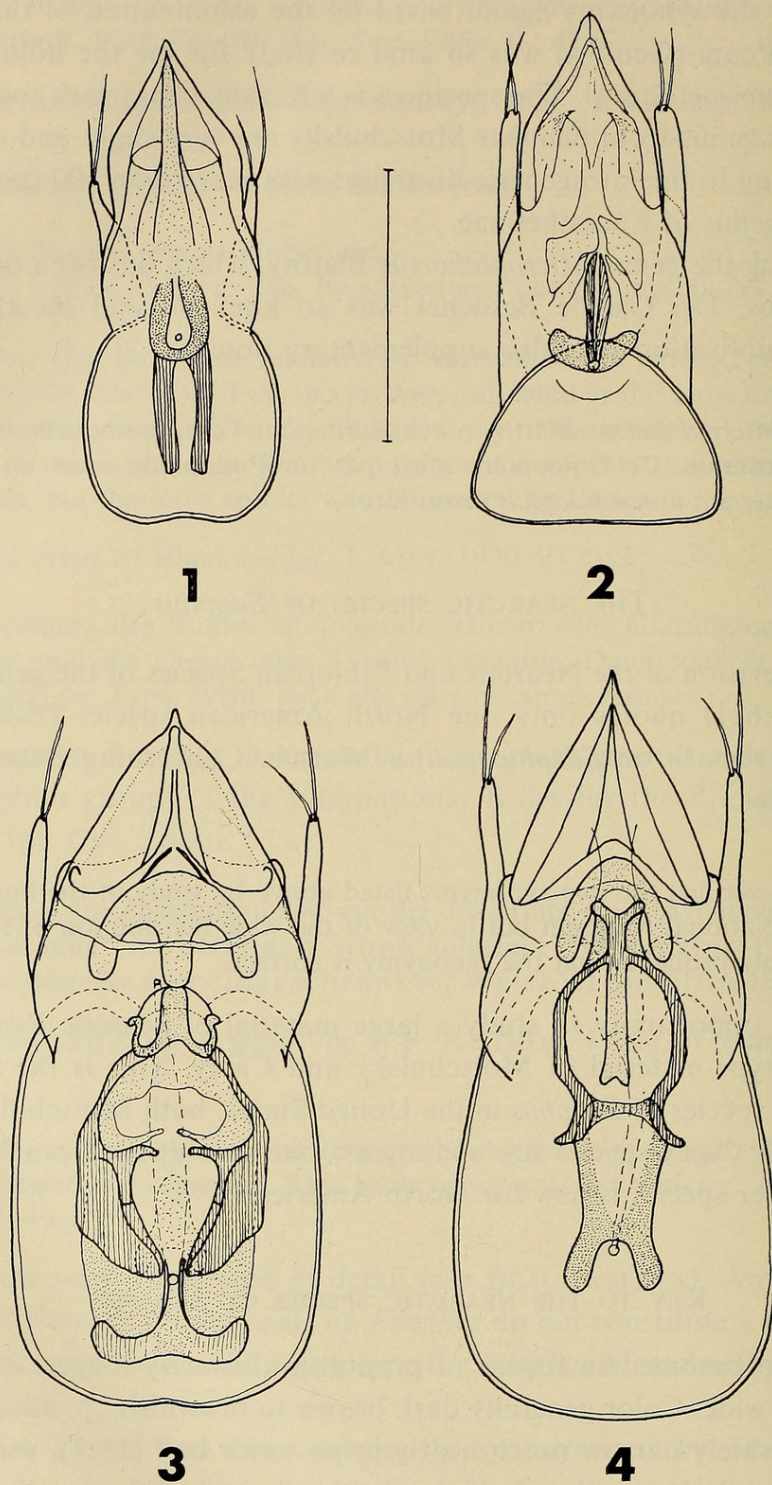
In his "Revision of the Nearctic and Ethiopian Species of the genus *Edaphus*" Kistner (1962:621) quotes only one North American species (*Edaphus nitidus* Motsch.). No remark on *Edaphus politus* Motsch. Concerning Casey's *Edaphus*-species he writes:

I have not verified the two synonyms listed above by study of the holotypes in the U.S. National Museum but in view of the wide distribution of this species, it is highly probable that the synonymy is correct.

I had the opportunity to study a large material of nearctic *Edaphus* and to revise all the type-material of Motschulsky and Casey. This is the result: there are (at least) 4 species of *Edaphus* in the United States, both Motschulsky's species are valid, both Casey-species are synonyms, one new species can be described below, one other species is new for North America.

KEY TO THE NEARCTIC SPECIES OF *Edaphus*

- 1 (2) The two basomedian foveae of pronotum distinctly longer, about $3 \times$ as long as wide. Color generally dark brown to brownish. ♂: 8th sternite with a moderately narrow notch nearly in posterior half (15:7), width of notch only slightly larger than half the depth of notch. Edeagus (fig. 1). Longitudinal furrows of front distinct. Punctuation of pronotum and elytra nearly invisible, but pubescence moderately long, dense, and distinct, recumbent 1.0-1.2 mm *beszedesi* Reitter
Illinois, Kansas; Europe



FIGS. 1-4

Eedeagus of *Edaphus beszedesi* Reitter (Illinois) (1)
E. politus Motschulsky (Kentucky) (2)—*E. nitidus* Motschulsky (Kentucky) (3)—
E. americanus n. sp. (holotype) (4). Scale = 0.1 mm.

2 (1) The two basomedian foveae of pronotum distinctly shorter, as long as wide or—at most—twice as long as wide. Color variable, generally light-brownish to reddish-brown (or lighter).

3 (4) Robust species. ♂: Notch of sternite 8 slightly less deep than half the sternite's length (9:19), narrow, less than half as wide as deep. Edeagus (fig. 2).

Longitudinal furrows of front anteriorly shallow, indistinct. Pronotum distinctly broader than long (37:31). Elytra much broader than head and pronotum. Punctuation nearly invisible, pubescence moderately distinct and moderately long, semierect.

1.2-1.3 mm *politus* Motschulsky
Kentucky, Louisiana, Texas

4 (3) Narrower species, less robust. ♂: Notch of sternite 8 broader, nearly as wide as deep.

Two variable species, which, in some cases (♀♀) nearly impossible, mostly can be separated only by dissecting the ♂♂.

5 (6) Elytral punctuation sparse, shallow, and extremely fine (can be more distinct to distinct near the suture), elytra uniformly colored. Longitudinal furrows of front anteriorly shallowed, indistinct. ♂: Notch of sternite 8 half as deep or deeper than half the length of sternite. Edeagus (fig. 3).

1.1-1.4 mm *americanus* nov. spec.
Pennsylvania, Ohio, Indiana, ? Illinois, Missouri, Virginia, ? Michigan, North Carolina, South Carolina, Georgia, Florida, Kentucky, Alabama, Louisiana.

6 (5) Elytra distinctly, moderately strongly punctate (strong, irregular, and moderately sparse on disc), mostly bicolored: shoulders and posterior margin lighter (yellowish) than rest of surface. Longitudinal furrows of front also anteriorly distinct. ♂: Notch of sternite 8 slightly less deep than half the length of sternite. Edeagus (fig. 4).

1.2-1.5 mm *nitidus* Motschulsky
Pennsylvania, Indiana, Illinois, Iowa, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Louisiana, Texas.

(KISTNER's records from Louisiana and Mississippi (1962:621) have to be revised).

***Edaphus nitidus* Motschulsky, 1857**

Edaphus nitidus Motschulsky, 1857, *Etud. ent.* 5: 7

Edaphus nitidus; LE CONTE, 1861, *Smithson Misc. Collns.* 3: 67

Edaphus nitidus; LE CONTE, 1863, *l.c.* 6: 50

- Edaphus nitidus*; CASEY, 1884, *Contr. Col. N. Am.* 1: 29 f.
Edaphus nitidus; HORN, 1885, *Bull. Brookl. ent. Soc.* 7: 121 f.
Edaphus nitidus; HORN, 1885, *Entomologia Am.* 1: 109
Edaphus nitidus; KISTNER, 1962, *Ann. Ent. Soc. Am.* 55: 621 figs. p.p.
Edaphus carinatus Casey, 1884, *Contr. Col. N. Am.* 1: 30 f.
Edaphus luculentus Casey, 1884, *l.c.*: 31

Through the kindness of Dr. I. S. Kelejnukova (Zoological Museum Moscow) I got the types of this species and of *Edaphus politus* Motschulsky for study. Motschulsky described his *Edaphus nitidus* as a species of the family Pselaphidae, the types have been found in Motschulsky's collection amongst material of that family: two specimens (♂, ♀; syntypes) mounted on a dirty card, pin with the following labels: 1: small, red, quadratic piece of paper; 2: green circle with three numbers (125 ?) and a cross; 3: green label with Motschulsky's handwriting "*Edaphus nitidus* m. Am. bor.". Both syntypes have been mounted anew, the edeagus of the male (internal sac everted) embedded in Euparal (soluble in alc. abs.) on a strip of celluloid. These are now the labels of the types: 1 : = 1 & 2 (see above) mounted on a card; 2 = 3 (see above); 3: ♂.LEKTOTYPUS, oben/PUTHZ 1973; 4: ♀—Paralektotypus, unten/PUTHZ 1973; 5: *Edaphus nitidus* MOTSCHULSKY vid. V. Puthz 1973 [see also supplementary note no. 1].

In collection Casey (USNM) there is one ♂-(holotype T 48269) of *E. carinatus* Casey which has been described from Washington, D.C. The specimen has been dissected by me and mounted anew, genitalia embedded as above. *E. carinatus* is a synonym of *E. nitidus*!

In the same box of collection Casey there is a label "Original type of *luculentus* is 2nd, 3rd or 5th ex. of *carinatus*" (see below). As "type" (neotype # 48270) of *E. luculentus* there was found 1 ♀ from "Detroit/Mich.": this specimen cannot be the type, because *luculentus* has been described from "District of Columbia (Ulke)". In another small box under the name "*carinatus*" there are 1 ♂, 2 ♀♀ (1 ♀ without head and pronotum) from "D.C." (grey, printed label) and 1 ♀ from "Crescent City, Fla." and the following label "The D.C. labels # 2, # 3. & # 5 are the kind used by Ulke, & one of these is doubtless the original type of *luculentus*". This surely is right, and therefore I designated ♂ # 3 (edeagus as in fig. 3) as lectotype: ♂-lectotype (mounted anew, genitalia in Euparal): 1: D.C. (grey Ulke-label); 2: CASEY bequest 1925; 3: CASEY determ. *carinatus*-3; 4: ♂-LECTOTYPE/PUTHZ 1972; 5: *Edaphus luculentus* CASEY vid. V. Puthz 1972; 6: = *Edaphus nitidus* Motsch. det. V. Puthz 1973.

The ♀ from Detroit, Mich. got the following labels from me: *Edaphus americanus* Puthz det. V. Puthz 1973; cannot by type of *luculentus*, Puthz 1973. The ♀ from Crescent City probably also belongs to *E. americanus*.

Specimens from D.C. (Ulke), which may be considered as syntypes of *luculentus* have been found also in MCZH (2 ♂♂) and in CNC (1 ♀).

Edaphus nitidus is a variable species and sometimes very difficult (in ♀♀ nearly impossible) to identify by exoskeletal characters. The longitudinal furrows of front are sharp and also distinct anteriorly (exception: 2 of 24 examined ♂♂), elytra are bicolourous (shoulders and posterior margin lighter, yellowish, than rest of surface) (exception: 4 of 24 ♂♂). The proportions of the elytra seem to be variable in both species, *E. americanus* and *nitidus*, but mostly the elytra are shorter and narrower in *nitidus* than in *americanus*.

Material: Pennsylvania: 1 ♀: Westmoreland Co., Chestnut Ridge, Youngstown, maple tree hole, 11.VII.1961, CNHM (HD) # 61-194, J. Wagner (FMCh); ♂♂, ♀♀: ibidem, floor litter, 11.VII.1961, CNHM (HD) # 61-43, J. Wagner and W. Suter (FMCh, coll. m.); ♂♂, ♀♀: ibidem, floor duff + V log mold, 16.XI.1961, (HD) # 61-145, J. Wagner (FMCh, coll. m.); Indiana: 1 ♂: Marshall Co., T(urkey) R(un) State Park, 2.IV.1939, Ph. Van Cleave (FMCh); 2 ♂♂, 1 ♀: Carrol Co., Delphi (Pittsburgh), Berlese, Sycamore-Oak Hickory Gully, FM (HD) # 72-10, 30.V.1972, W. Suter (FMCh); 1 ♂, 2 ♀♀: Carrol Co., Delphi (SE), Deer Creek Bluff, Beech-Oak-Hickory Hillside above flood plain, Berlese: stump holes, FM (HD) # 72-13, 30.V.1972, W. Suter (FMCh); Illinois: 1 ♂, 4 ♀♀: Union Co., Cobden, forest floor litter, log mold, 23.VIII.1960, J. Wagner and H. Dybas (FMCh, coll. m.); 1 ♀ (cf.): Union Co., Wolf Lake (Pine Hills), *Poria ambigua* host, field # 105, ex *Polyporus* # 105 (on beech), 26.VI.1958, H. Dybas (FMCh); 1 ♂, 1 ♀: Peoria, 1.X.1933, O. Park (MCZH, FMCh); 1 ♂: Oakwood, 7.X.1953, O. Park (CNC); 1 ♂: Champaign Co., Urbana, 10.IV.1939, O. Park (FMCh); 1 ♀: ibidem, 25.VII.1933, O. Park (FMCh); 1 ♀: Jackson Co., Grand Tower, 3.II.1934, O. Park (FMCh); Iowa: 1 ♂: Iowa City, 15.IV.1898, Wickham (USNM); District of Columbia: 3 ♂♂, 4 ♀♀, Schwarz, Ulke (USNM, MCZH, CNC); Virginia: 1 ♂: Fairfax Co., 22.VII.1940, A. Nicolay (USNM); West Virginia: 1 ♀: Pendleton Co., Spruce Knob 3500', litter, Berlese # 58, 8.VI.1967, FM (HD) # 67-115, S. Peck and A. Fiske (coll. m.); North Carolina: 1 ♂: Wake Co., Raleigh, Berlese from litter, deciduous forest, 27.IX.1964 (CNC); South Carolina: 2 ♀♀: Yemassee, Berlese from trash logs in Palmetto-Cypress swamp, 28.XII.1963, J. F. Cornell (CNC, coll. Moore); Georgia: 1 ♂: Terrell Co., Dawson, live oak tree fork hole, 18.VI.1959, W. Suter (FMCh); Florida: 1 ♂, 3 ♀♀: Leon Co., Chaires Ls, saw dust pile 20+ years old on edge of Cypress swamp on L.S.27, 17.VII.1965, W. Suter, # 65-64, combined residues, FM (HD) # 67-457 (FMCh); 2 ♂♂, 6 ♀♀: Jackson Co., Caverns State Park, log litter 131 lbs, 111 liters, Berlese # 157, 3.IV.1969, S. Peck (FMCh); 20 ♂♂, 19 ♀♀: ibidem, log-leaf litter 228 lbs, 220 liters, Berlese # 160, 7.IV.1969, FM (HD) # 69-4, S. Peck (FMCh, coll. m.); 1 ♂: ibidem, log-leaf litter, 131 lbs, 130 liters, Berlese # 159, 6.IV.1969, FM (HD) # 69-3, S. Peck (FMCh); 5 ♂♂: Highlands Co., Highlands Hammock State Park, debris along cypress swamp + hammock, 27.III.1967, FM (HD) # 67-88, W. Suter (FMCh, coll. m.); 1 ♂, 3 ♀♀: Seminole

Co., Longwood (3 mi. N) Oak-Palmetto-Pine Swamp on road to county club, 23.VIII.1965, CNHM (HD) # 65-388, W. Suter (FMCh); Kentucky: 2 ♂♂, 4 ♀♀: Pulaski Co., Berlese: old stump debris on ground (beech etc. forest), 21.XII.1964, CNHM (HD) # 64-203, H. Dybas (FMCh); 4 ♂♂, 1 ♀: Hart Co., 4 mi. N of Munfordville, floor litter, wood lot, 31.VIII.1961, CNHM (HD) # 61-278, J. Wagner and W. Suter (FMCh); ♂♂, ♀♀: Edmonson Co., Mammoth Cave Nat. Pk., Bruce Hollow, log, stump litter, Berlese # 101, 24.-27.VIII.1967, FM (HD) # 67-145, S. Peck and A. Fiske (FMCh, coll. m., MG); Texas: 1 ♂: Hardin Co., Kountze (5 mi. SW) Saratoga Triangle, Berlese: *Magnolia* tree hole, 11.VI.1972, FM (HD) # 72-61, W. Suter 72-51 c (FMCh).

***Edaphus politus* Motschulsky, 1857**

Edaphus politus Motschulsky, 1857, *Etud. ent.* 5: 7

Of this species, which has been nearly forgotten, the holotype was also found amongst the Pselaphidae of collection Motschulsky in the Moscow museum. The specimen is a female and has been mounted anew, it has the following labels: 1: small, green, quadratic piece of paper; 2: Nvl. Orl.; 3: green label with Motschulsky's handwriting "*Edaphus politus* m. Am. bor."; 4: ♀-Holotypus/PUTHZ 1973; 5: *Edaphus politus* MOTSCHULSKY vid. V. Puthz 1973.

Concerning his stop in New Orleans and the following travel MOTSCHULSKY writes (1857: 5 ff.).

M. Stubenrauch possède un grand nombre de petites espèces, très bien soignées et parmi lesquelles il y en a beaucoup de nouvelles [] Je suis fort reconnaissant envers M. Stubenrauch et Finck [] pour les insectes intéressants, dont ces Messieurs ont bien voulu me gratifier . . .

Enfin, le 12 Mai je m'embarquai sur un bateau à vapeur, pour Mobile dans l'Alabama où j'arrivai le lendemain. [] mes excursions entomologiques furent elles plus productives qu'à la Nouvelle-Orléans; je pris [] ainsi qu'un bon nombre d'espèces de Psélaphiens [] Comme espèces nouvelles, je citerai: [] *Edaphus politus* m., nouveau genre voisin des *Euplectus*, mais à corselet plus large, glabre et sans la sculpture propre à ces dernières. La taille de l'espèce est celle de l'*Eupl. ambiguus* mais du double plus large. Une seconde espèce du même genre, et deux fois plus petite, que j'ai nommée *Ed. nitidus*;

Also from these remarks it is clear, that the specimen of *politus* in collection Motschulsky is that specimen, described by him, because its general appearance is distinctly more robust than that of the *nitidus*-specimens.

Because the *politus*-type bears a small green piece of paper and the locality "New Orleans" and *nitidus* has a small red piece of paper (and the circle with possibly "125" = ? May 12th) I suppose that both insects have been collected at

different stations, *nitidus* near Mobile, Alabama. By the way: the locality New Orleans (Louisiana) has also been mentioned by LeConte (1863) and is represented by a ♀ (cf. *americanus*) in his collection. LeConte also should have seen Motschulsky's material (and possibly he got a specimen from Motschulsky for his collection):

De retour à Philadelphie, chez M. Le Conte, nous déterminâmes une partie des Coléoptères que j'avais récoltés pendant mon voyage dans la Louisiane . . . cette récolte fut riche en petites espèces. ce qui me mit à même d'enrichir sa [Le Conte's] collection . . . (Motschulsky, 1857: 17).

At that time the four *Edaphus*-species of North America could not have been separable.

I give a redescription of *E. politus* from the type and other material at hand:

A comparatively robust species, light-brownish to reddish-brown, shiny, fore parts extremely finely and shallowly punctate, abdomen distinctly but also very finely punctate, finely pubescent. Antennae, palpi, and legs yellowish brown.

Length: 1.2-1.3 mm.

♀-holotype: Louisiana: New Orleans (coll. Motschulsky, Museum Moscow); 2 ♂♂, 1 ♀: Kentucky: Christian Co., Hopkinsville, Berlese of deciduous duff, 22.IX.1967, J. M. Campbell (CNC, MG); 1 ♀: Texas: Columbus (coll. Casey, USNM); 1 ♀: Texas: Hardin Co., Kountze (5 mi. SW) Saratoga Triangle, 11.VI.1972, Palmetto Axilo, FM (HD) # 72-65, W. Suter (FMCh).

Head distinctly narrower than pronotum (32:37), eyes large, front with two distinct longitudinal and convergent furrows near inner eye-margins, furrows become shallower towards the anterior portion of front, medio-anterior portion nearly flat, middle of front with a broad and shallow transverse impression, no distinct punctation. Antennae with a distinctly 2-segmented club, penultimate segment somewhat broader than long, last segment distinctly but slightly longer than broad. Pronotum distinctly narrower than elytra (37:52), distinctly broader than long (37:31), widest slightly before middle, posteriorly distinctly restricted. Basally there is a distinct, very narrow median carina, the two lateral carinae are also narrow, prominent, and distinct. In each half of the base there are three very small, indistinctly separated foveae, one near the lateral carina, two (more or less separated) near the median carina. Punctation of pronotum extremely fine and shallow, nearly invisible.

Elytra distinctly wider than long (52:45), punctation and pubescence much as on pronotum. Abdomen very finely and densely punctate and pubescent.

Male: 7th sternite simple. 8th sternite with a narrow notch in about posterior half (19:9), width of notch slightly less large than half the depth of the notch. Edeagus (fig. 2).

***Edaphus americanus* nov. spec.**

Edaphus nitidus; KISTNER, 1962, *Ann. ent. Soc. Am.* 55: 621 pp.

Brownish or reddish-brown, shiny, extremely finely and sparsely punctate, finely pubescent. Antennae, palpi, and legs yellowish-brown.

Length: 1.1-1.4 mm.

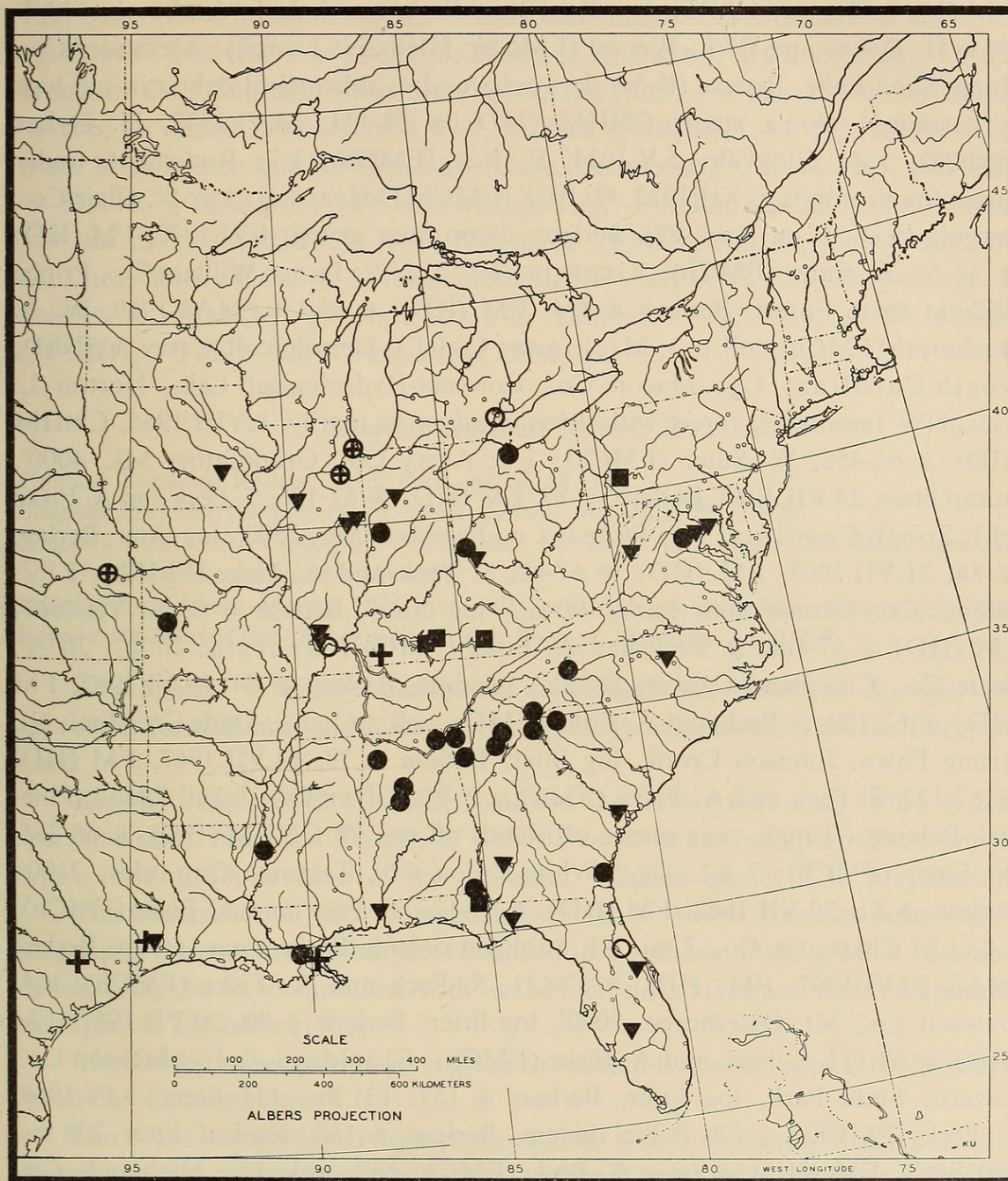
♂-holotype and 2 ♂♂-paratypes: Kentucky: Edmonson Co., Mammoth Cave Nt. Pk., Bruce Hollow, log stump litter, Berlese # 101, 24.-27.VIII.1967, FM (HD) # 67-145, S. Peck and A. Fiske, (other material, see below) (FMCh, MG, coll. m.).

Genitalia and study of other material at hand prove that this *Edaphus* is a new species which is widely distributed in the Southern and Eastern States (see map, fig. 5).

Edaphus americanus n. sp. is well distinguished also by its exoskeletal characters from *E. beszedesi* Rtt. and *E. politus* Motsch. (see key above), but is close to *E. nitidus* Motsch.: both species have been repeatedly collected together (black squares in map). Beside of distinct edeagal structures, other characters observed are variable, sometimes slight, and difficult to see, so that in some cases single females cannot be specifically identified.

In *E. americanus* the longitudinal furrows of front mostly become shallow and indistinct towards the anterior portion (exception: 10 of 67 examined males), the elytra are unicolorous (exception: 1 of 67 males), the punctation of the elytral disc is extremely fine, shallow, and sparse (exception 2 of 67 males).

Except the holotype and paratypes the following material of *E. americanus* (which I first supposed to be *nitidus*, early 1973) is known to me: 2 old specimens from collection LeConte (MCZH) with dirty orange circles, these refer to "Southern States" or "Gulf States" which may be the Carolinas, Alabama, Georgia, Florida, Mississippi, or Louisiana (J. F. Lawrence in litt.). One of the specimens (♀) has the label "*Edaphus* Motch *nitidus* Motch New Orl." (LeConte's handwriting), the other (♂) bears the label "26" (no information on those numbers in MCZH); Pennsylvania: 4 ♂♂, 2 ♀♀: Westmoreland Co., Chestnut Ridge E. of Youngstown, 22.VI.1962, forest floor litter, CNHM (HD) # 62-36, J. Berry and W. Suter (FMCh, coll. m.); 18 ♂♂, 15 ♀♀: Westmoreland Co., Chestnut Ridge + US 20, duff from floor under *Rhododendron* on slope, CNHM (HD) # 61-125, 16.IX.1961, J. Wagner (FMCh, coll. m.); ♂♂, ♀♀: ibidem, floor litter, 11.VII.1961, CNHM (HD) # 61-43, J. Wagner and W. Suter (FMCh); ♂♂, ♀♀: ibidem, floor duff + V log mold, (HD) # 61-145 (FMCh); 2 ♂♂, 1 ♀: St. Vincent, 13.X.1897 (MCZH); 1 ♂: ibidem, Black Cherry Tree Crotch Hole, 26.VII.1959, W. Suter (FMCh); Ohio: 4 ♀♀: Cin(cinatti) (FMCh, MCZH); 1 ♀: Burnet Woods TH, Cincinnati, 22.VI.1961, CNHM (HD) # 61-161, D. Reichle (cf.)



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FIG. 5

Distribution of the 4 *Edaphus*-species in North America:

- full circles (●): *Edaphus americanus* n. sp.;
- open circles (○): cf. *E. americanus* (♀♀);
- encircled cross (⊕): *E. beszedesi* Reitter;
- cross (+): *E. politus* Motschulsky;
- full triangles (▼): *E. nitidus* Motschulsky;
- open triangles (▽): cf. *E. nitidus* Motschulsky (♀♀);
- full squares (■): *E. nitidus* & *E. americanus*.

(FMCh); Indiana: 1 ♂: Turkey Run State Park, tree hole in dead stub, 14.VI.1951, H. Dybas and R. L. Wenzel (FMCh); Illinois: 1 ♀ (cf.): Alexander Co., Horse Shoe Lake, Berlese (B-54) decayed wood + subcortical debris in old logs in pessalia + uloma stage, CNHM (MD) # 58-111, 23.VI.1958, H. Dybas (FMCh); 1 ♂: Eddyville, 5.V.1934, E. Ray (FMCh); 1 ♀: Rudement, under rotten log in woods, 6.XII.1933, O. Park (FMCh); Missouri: 1 ♀: St. Clair Co., Osceola (5 mi. E on Hwy. 82), Berlese: damp litter at log, 4.VI.1972, FM (HD) # 72-24, W. Suter (FMCh); Virginia: 4e ♂♂, 2 ♀♀: Prince William Co., Prince William State Forest, Berlese # 494, FM (HD) # 69-130, 24.VI.1969, W. B. Huchmore (FMCh, coll. m.); Michigan: 1 ♀ (cf.): Detroit (coll. Casey, USNM); North Carolina: 1 ♂: Macon Co., Coweeta-Hydrological Lab., Norton L. 3 mi. NW Imontaine, forest with *Rhododendron* or marily, 8.VIII.1965, CNHM (HD) # 65-456, W. Suter (FMCh); 1 ♀: Avery Co., Grandfather Mt., 4000', stump litter, 23.VII.1967, Berlese # 89, FM (HD) # 67-126, S. Peck and A. Fiske (cf.); South Carolina: 1 ♂: Pickens Co., Sassafras Mt., 2500', log litter, Berlese # 84, 21.VII.1967, FM (HD) # 67-68, S. Peck and A. Fiske (FMCh); 2 ♀♀: Oconee Co., Oconee State Park, 100 ft., "log litter", Berlese # 83, 21.VII.1967, FM (HD) # 67-108, S. Peck and A. Fiske (FMCh); Georgia: 20 ♂♂, 26 ♀♀: Dade Co., Cloudland Canyon St. Pk., sawdust, Berlese # 64, 19.VI.1967, FM (HD) # 67-109, S. Peck and A. Fiske (FMCh, coll. m.); 1 ♀: Dade Co., 2 mi. NE Rising Fawn, Johnson Crook, log litter, Berlese # 78, 14.VII.1967, FM (HD) # 67-122, S. Peck and A. Fiske (FMCh); 2 ♂♂: Glynn Co., Jekyll Island, Pine-Oak-Palmetto Tangle near center of island, off ca. 50, CNHM (HD) # 65-365, W. Suter (FMCh); 7 ♂♂, 4 ♀♀: White-Union Co., Tesnatee Gap, elev. 3100', Berlese # 81, 20.VII.1967, FM (HD) # 67-123, S. Peck and A. Fiske (FMCh); 1 ♂, 1 ♀: Chattooga Co., 2 mi. NE Subligna outside Parke Cave, forest, Berlese # 67, 20.VI.1967, FM (HD) # 67-121, S. Peck and A. Fiske (FMCh); 1 ♂: Dawson Co., Mt. Oglethorpe, 2000', log litter, Berlese # 80, 20.VII.1967, FM (HD) # 67-111, S. Peck and A. Fiske (FMCh); Florida: 1 ♂, 1 ♀: Jackson Co., Caverns State Park, log litter, Berlese # 157, 131 lbs, 111 liters, 3.IV.1969, S. Peck (FMCh); 5 ♂♂, 8 ♀♀: ibidem, Berlese # 160, log-leaf litter 228 lbs, 220 liters, FM (HD) # 69-4, S. Peck (FMCh, coll. m.); 1 ♀: Highlands Co., Highlands Hammock State Park, debris along cypress swamp + hammock, 27.III.1967, FM (HD) # 67-88, W. Suter (FMCh); Kentucky: 1 ♂: Pulaski Co., Pulaski, Berlese: stump debris on ground (Beech etc. forest), 21.XII.1964, CNHM (HD) # 64-203, H. Dybas (FMCh); 2 ♂♂, 3 ♀♀: Hart Co., 4 mi. N of Munfordville, floor litter, wood lot, 31.VIII.1961, CNHM (HD) # 61-278, J. Wagner and W. Suter (FMCh); 2 ♀♀: Edmonson Co., Mammoth Cave National Park, basal basswood tree hole, 19.VI.1961, CNHM (HD) # 61-234, D. and E. Reichl (FMCh); ♂♂, ♀♀ (as types) (149 ♂♂, 161 ♀♀ of *americanus* and *nitidus*, not separated specimen for specimen) (FMCh, coll. m.); Alabama: 3 ♂♂, 2 ♀♀: St. Claire

Co., 3 mi. NE Whitney, Junction outside McGlendon Cave, Berlese # 60, forest, 15.VI.1967, FM (HD) # 67-112, S. Peck and A. Fiske (FMCh, coll. m.); 1 ♀ (cf.) Houston Co., Chattahoochee State Park, log litter, 139 lbs, 150 liters, Berlese # 156, 2.IV.1969, FM (HD) # 69-1, S. Peck (FMCh); 3 ♂♂, 1 ♀: Jackson Co., 6 mi. N Princeton outside Horseshoe Cave, Berlese # 73, 30.VI.1967, FM (HD) # 67-110, S. Peck and A. Fiske (FMCh); 3 ♂♂: Franklin Co. (B.), The Dismals, wet leaf mold, 19.VII.1959, H. R. Steeves Jr. (FMCh, coll. m.); 2 ♂♂: Jefferson Co., near Purdy Cave # 2, forest floor debris rock crevice, 13.IX.1968, H. R. Steeves Jr. (FMCh); Louisiana: 1 ♀: Tallulah, 31.XI.1933, J. W. Folsom (MCZH); 1 ♀ (cf.): New Orleans (MCZH).

Edaphus beszedesi Reitter, 1913

Edaphus Beszedesi Reitter, 1913, *Berl. ent. Z.* 58: 189

Edaphus Beszedesi; SCHEERPELTZ, 1936, *Koleopt. Rundsch.* 22: 219 ff.

Edaphus rosskotheni (Wüsthoff 1935), *Ent. Bl. Biol. Syst. Käfer* 31: 48 ff. *nov. syn.* (= *Rhenanus Rosskotheni* Wüsth.)

Edaphus rosskotheni; PUTHZ, 1971, *Ent. Mitt. zool. St. Inst. zool. Mus. Hamburg* 4: 202 f.

Edaphus Blühweissi (sic) Scheerpeltz, 1936, *Koleopt. Rundsch.* 22: 215 ff.

This species is widely distributed in Central and Southern Europe. The specimens from Illinois and Kansas are absolutely inseparable from the European ones.

Edaphus rosskotheni, of which I studied the holotype (Puthz, 1971), is conspecific with *E. beszedesi* Reitter, of which I know numerous specimens from the type's locality. [A revision of the palearctic *Edaphus*-species is in preparation.]

The occurrence of this "European" species in North America seems to be surprising. I do not know whether it is introduced with leaf litter or other vegetable debris (may be in connection with wood) or not. I cannot find comparable examples in Lindroth (1957).

The following redescription is given to make this species known to the North American Coleopterists.

Dark brown or slightly lighter, brownish, shiny, extremely finely punctate, densely set with recumbent pubescence. Antennal base, palpi, and legs yellowish-brown, antennal club mostly dark.

Length: 1.0-1.2 mm.

Material known to me from North America: Illinois: 9 ♂♂, 5 ♀♀: Will Co., Grundy Co. Prairie near Lorenzo, corn cob pile, 1.VI.1962, L. Lowery and W. Suter (FMCh, MG, coll. m.); 1 ♀: Chicago, 8.IX.1942, H. Dybas (FMCh); Kansas: 1 ♂: Shawnee Co., Topeka, decaying vegetation, 2.IX.1942, C. H. Seevers (FMCh).

Head distinctly narrower than pronotum (27:31), eyes moderately large, front with two distinct and sharp longitudinal furrows which divide the front

into 3 portions nearly equal in width, posterior front has a transverse impression, which is laterally larger than medially. Lateral portions of front extremely finely punctate, median portion smooth. Antennae with a distinctly 2-segmented club, penultimate segment nearly twice as wide as long. Pronotum much narrower than elytra (31:44), slightly broader than long (31-28), widest in anterior half, posteriorly distinctly restricted. Three basal foveae on each side, the two median foveae prolonged, about $3 \times$ as long as wide. Punctuation of pronotum invisible (at $60 \times$), pubescence distinct and dense. Elytra a little wider than long (44:39), punctuation and pubescence as on pronotum. Abdomen extremely finely and densely punctate, distinctly pubescent, first tergites in basal two thirds dark brown, posteriorly lighter.

Male: 7th sternite simple. 8th sternite with a moderately narrow notch in about posterior half (15:7), width of notch only slightly larger than half the depth of notch. A round portion before apex of notch less sclerotized than rest of sternite 8. Edeagus (fig. 1).

Edaphus beszedesi Reitter can be distinguished from all other North American *Edaphus* by its long basomedian foveae of the pronotum, the comparatively (mostly) dark color, and the edeagus.

Fenderia Hatch, 1957 IS A GENUS OF THE SUBFAMILY EUAESTHETINAE

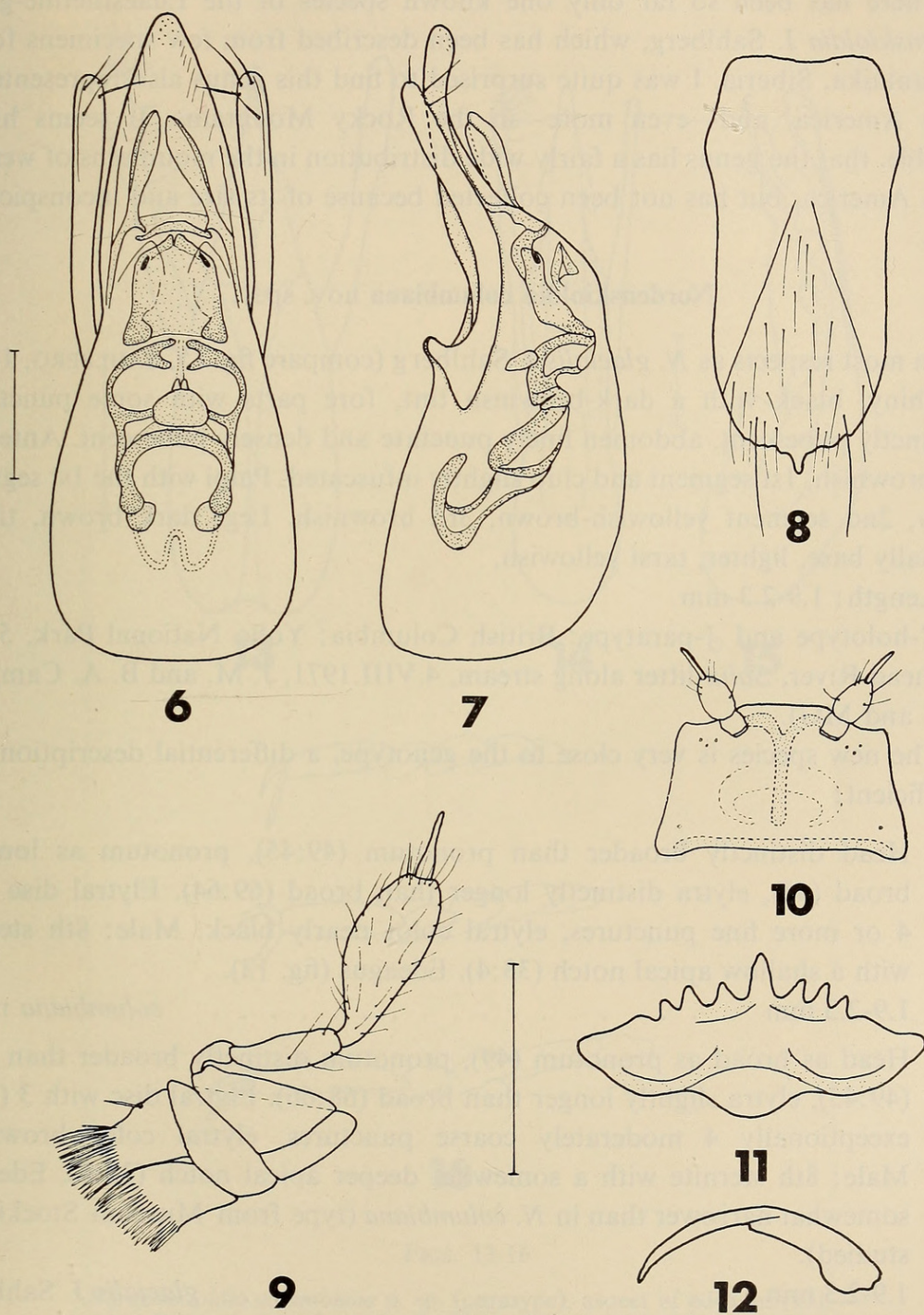
***Fenderia capizzii* Hatch, 1957**

Fenderia capizzii Hatch, 1957, *Beetles Pacif. Northwest* II: 245 f. plate XXXI: fig. 7 (sic)!
Fenderia capizzii; ARNETT,³ 1971, *Beetles of the U.S.*: 263

The monotypic genus *Fenderia* has been described from some Oregon and Northern Californian specimens. Amongst unidentified material from the Field Museum of Natural History, Chicago, I found 4 ♂♂: California: Humboldt Co., Prairie Creek State Park near Orick, 24.VIII.1962 and 1.VI.1967, John Pinto (FMCh, coll. m.).

Hatch assigned his genus to the subfamily Osoriinae (followed by Arnett), but detailed study proves, that it really belongs to the Euaesthetinae, tribe Nordenskioldiini, because of its 5,5,5 tarsal formula (which is also found in the genera *Stictocranius* LeConte, *Nordenskioldia* J. Sahlberg, and *Alzadesthetus* Kistner). In his key of the subfamilies of Staphylinidae (Hatch *l.c.*, 47 f.) the only difference quoted between Osoriinae and Euaesthetinae is the lateral margination of abdomen. In numerous subfamilies (f.e. in the Steninae) this character is of no subfamilial, sometimes of no generic value, especially in the Euaesthetinae, of which nearly half the genera have the abdomen immarginate. A sufficient definition of the Osoriinae has been given by Fagel 1955. From this clearly can be seen, that *Fenderia* cannot be a member of Osoriinae (compare especially characters of mouthparts, legs, and genitalia) but has to be placed into the Euaesthetinae.

Figures 6-12 illustrate mouthparts and genitalia of *Fenderia capizzii* Hatch, 8th sternite of male is very shallowly emarginated.



FIGS. 6-12

Fenderia capizzii Hatch (Cala: Humboldt Co.): dorsal (6) and lateral (7) aspect of edeagus—9th sternite of male (8)—maxilla (9)—labium (10)—labrum (11)—mandible (12).

Scale = 0.1 mm.

Nordenskioldia J. Sahlberg, 1880 NEW TO THE NEARCTIC REGION

There has been so far only one known species of the Euaesthetine-genus *Nordenskioldia* J. Sahlberg, which has been described from few specimens found at Chantaika, Siberia. I was quite surprised to find this genus also represented in North America, and—even more—in the Rocky Mountains. It seems highly probable, that the genus has a fairly wide distribution in the mountains of western North America, but has not been collected because of its size and inconspicuous habits.

***Nordenskioldia columbiana* nov. spec.**

In most respects as *N. glacialis* J. Sahlberg (compare fig. 15, SAHLBERG, 1880).

Shiny, black with a dark-brownish tint, fore parts with some punctures, indistinctly pubescent, abdomen finely punctate and densely pubescent. Antennae light brownish, 1st segment and club slightly infuscated. Palpi with the 1st segment yellow, 2nd segment yellowish-brown, 3rd brownish. Legs dark brown, tibiae, especially base, lighter, tarsi yellowish.

Length: 1.9-2.3 mm.

♂-holotype and ♂-paratype: British Columbia: Yoho National Park, 5500', Otterhead River, *Salix*-litter along stream, 4.VIII.1971, J. M. and B. A. Campbell (CNC and MG).

The new species is very close to the genotype, a differential description will be sufficient:

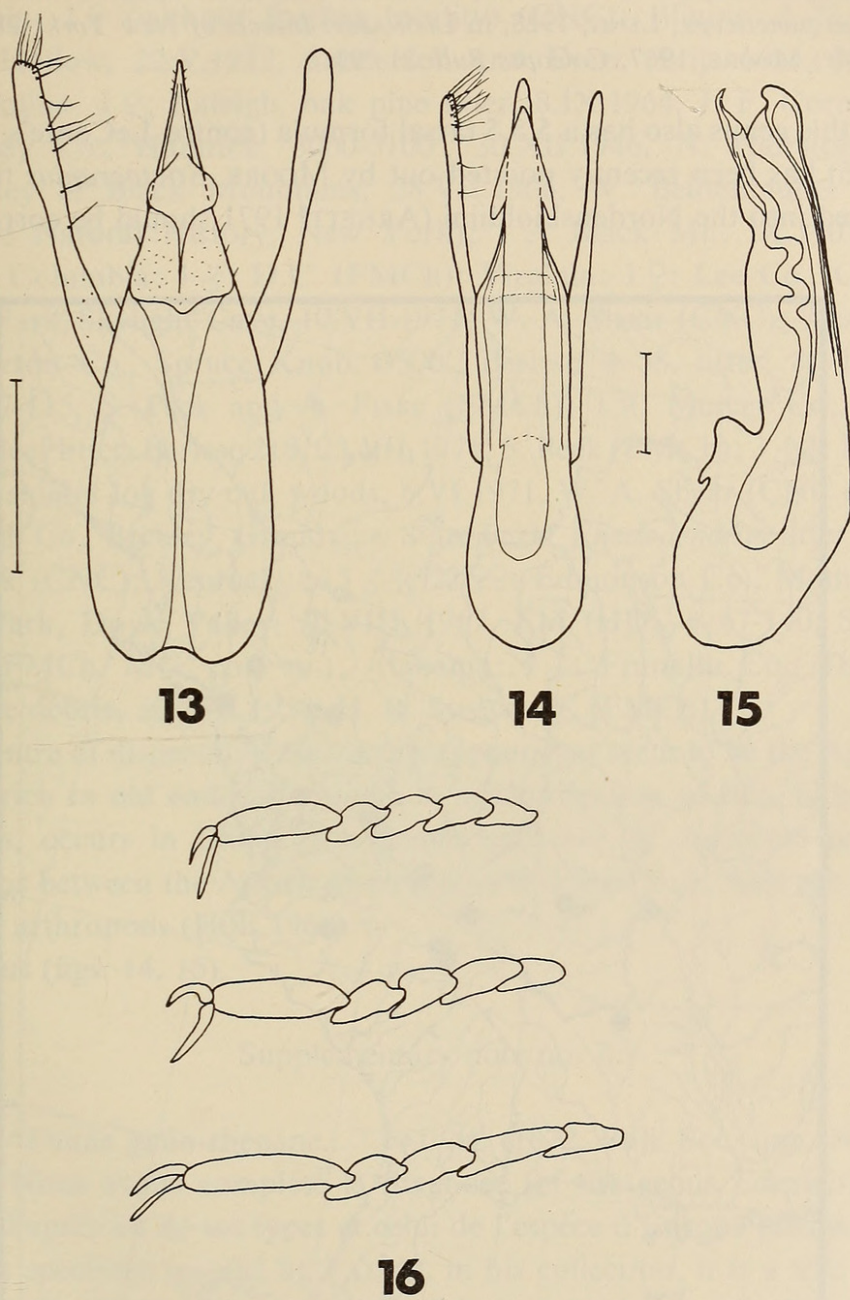
- 1 (2) Head distinctly broader than pronotum (49:45), pronotum as long as broad (45), elytra distinctly longer than broad (69:64). Elytral disc with 4 or more fine punctures, elytral color nearly black. Male: 8th sternite with a shallow apical notch (33:4). Edeagus (fig. 13).

1.9-2.3 mm *columbiana* n. sp.

- 2 (1) Head as broad as pronotum (49), pronotum distinctly broader than long (49:45), elytra slightly longer than broad (68:66). Elytral disc with 3 (!) or exceptionally 4 moderately coarse punctures, elytral color brownish. Male: 8th sternite with a somewhat deeper apical notch (30:6). Edeagus somewhat narrower than in *N. columbiana* (type from Museum Stockholm studied).

1.9-2.3 mm *glacialis* J. Sahlberg
Siberia: Chantaika.

From the Nearctic Euaesthetinae with the tarsal formula 5,5,5 *Nordenskioldia* can be easily distinguished as follows: from both genera (*Stictocranius* and *Fenderia*) by the distinct lateral margination of abdomen.



FIGS. 13-16

Nordenskiöldia columbiana n. sp. (paratype), aspect of edeagus (13)—
Stictocranius puncticeps LeConte (Kentucky): dorsal (14)
 and lateral (15) aspect of edeagus—pro-, meso-, and metatarsi (16).
 Scale = 0.1 mm.

***Stictocranius puncticeps* LeConte, 1866**

Stictocranius puncticeps LeConte, 1866, *Proc. Ac. Nat. Sci. Philad.*: 374 f.

Stictocranius puncticeps; LENG, 1928, in LEONARD: *Insects of New York*: 284

Stictocranius; MOORE, 1967, *Coleopts Bull.* 21: 93

That this genus also has a 5,5,5 tarsal formula (contra LeConte's description) (see fig. 16) has been recently pointed out by MOORE. *Stictocranius* therefore has to be placed into the Nordenskiöldiini (ARNETT³ 1971 should be corrected).

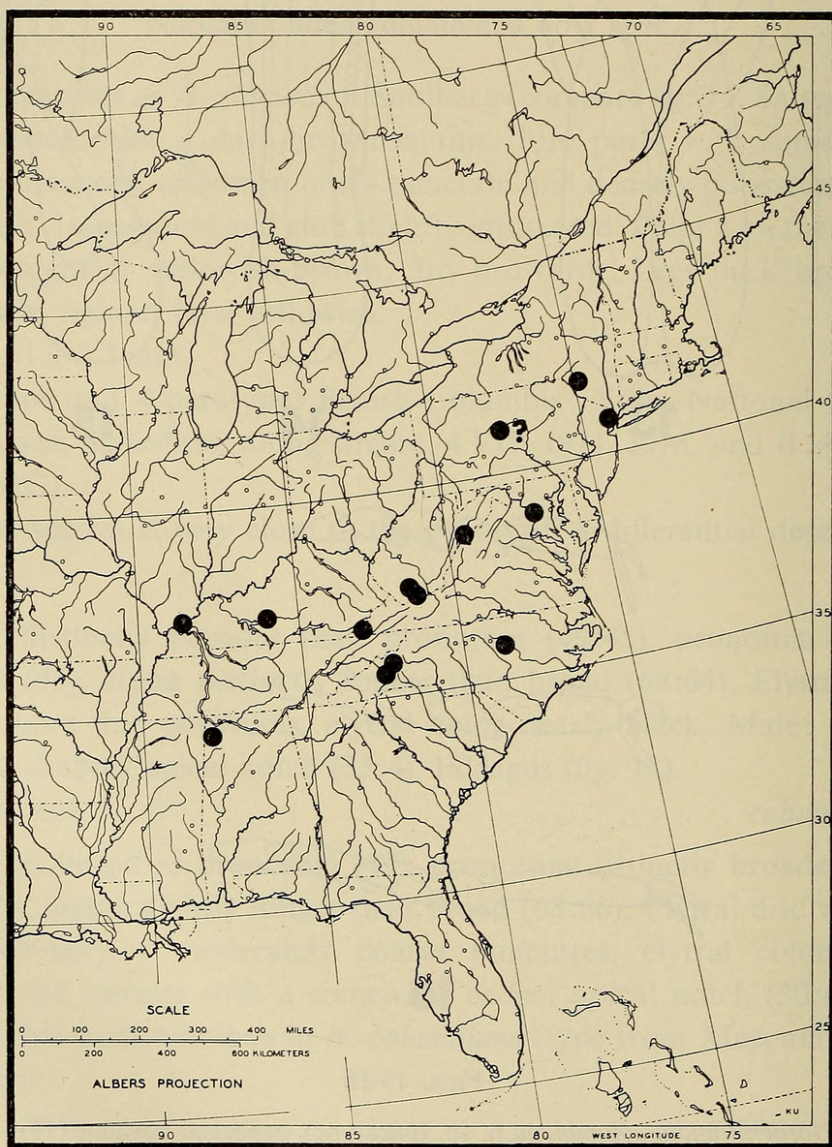
**17**

FIG. 17

Distribution of *Stictocranius puncticeps* LeConte

As I know this species has only been recorded from D.C. and N.Y., but it is widely distributed in the Eastern States (fig. 17). I know the following material (including 8 new State records!): New Jersey: 1 ♂: Avenel (coll. Bierig, FMCh); Pennsylvania: 1 ♀ (without further locality) (CNC); Illinois: 1 ♂: Pope Co., Jackson's Hollow, 22.V.1952, Sanderson and Evers (Brit. Mus. Nat. Hist.); North Carolina: 1 ♀: Raleigh, oak pine litter, 8.IX.1964, J. F. Cornell (CNC); 1 ♂: Yancey Co., Hamrick, 3000-3100', 30.XII.1946, N. Hairston (FMCh); 2 ♂♂: Valley of Black Mountains, 28.VII.1906, W. Beutenmuller (American Museum of Natural History, New York); 1 ♀: Black Mt., IX.1901 (ibidem); District of Columbia: 1 ♂: D.C. (FMCh); Virginia: 1 ♀: Lee Co., Cumberland Gap Nat. Park, Skylight Cave, 10.VII.1971, W. A. Shear (CNC); West Virginia: 1 ♀: Pendleton Co., Spruce Knob, 3500', Berlese # 58, litter, 8.VI.1967, FM (HD) # 67-115, S. Peck and A. Fiske (FMCh); 1 ♀: Mercer Co., Camp Cr. St. Forest, leaf litter, Berlese 218, 23.VII.1971, S. Peck (FMCh); 3 ♂♂: Mercer Co., Athens, ex side of log dry oak woods, 6.VI.1971, W. A. Shear (CNC et coll. m.); 1 ♂: Raleigh Co., Beckley, Grandview State Park, *Rhododendron* litter, 8.VI.1971, W. Platnick (CNC); Kentucky: 13 ♂♂, 22 ♀♀: Edmonson Co., Mammoth Cave National Park, Doyle Valley, 30.VIII. 1967, FM (HD) # 67-140, S. Peck and A. Fiske (FMCh, MG, coll. m.); Alabama: 1 ♂: Franklin Co., The Dismals, rock crevice debris, 30.VIII.1958, H. R. Steeves Jr. (FMCh).

The centre of dispersal of *Stictocranius punticeps* seem to be the Appalachians which are rich in old endemic species. A second species of this, hitherto monotypic genus, occurs in China (Sze-chuan) and will be described next. Faunal relationships between the Appalachian region and Southeast Asia are known also from other arthropods (Holt 1969).

Edeagus (figs. 14, 15).

Supplementary note no. 1:

In his "Faune gallo-rhénane..." FAUVEL (1872, Bull. Soc. linn. Norm. (2) 6: 61) says: "Nous avons complété la diagnose [of the genus *Edaphus*] du savant américain d'après un de ses types et celui de l'espèce d'Europe [*dissimilis* Aubé]". I found the specimen quoted by FAUVEL in his collection, it is a true *nitidus* and has the labels "Etats-Unis LeConte; *Edaphus nitidus* Lec." (FAUVEL's handwriting).

Supplementary note no. 2

After having sent this manuscript to the editor I got the ♀-holotype (!) of (*Microphthartus*) *luridus* Blattny, 1925 for study. This *Edaphus*-species, described from Tenasserim, was found to be a synonym of *Edaphus dilutus* Schaufuss, 1887:

Edaphus dilutus Schaufuss, 1887

Edaphus dilutus Schaufuss, 1887, *Trudy russk. ent. Obshch.* 21: 109 f.

Edaphus dilutus; PUTHZ, 1974, *Philippia* (Kassel) 2: 87 figs.

Microphthartus luridus Blattny, 1925, *Sb. ent. Odd. nár. Mus. Praze* 3: 185 figs. nov. syn.

The holotype is *no* male as quoted and figured (?) in the description of BLATTNY and the only specimen which can be located in the collection of the Prague museum.

SUMMARY

A valid subsequent designation of a genotype of the genus *Edaphus* Motschulsky, 1857 is given (genotype: *Edaphus nitidus* Motschulsky, 1857), two new generic synonyms are included (*Edaphellus* Fauvel, 1878 and *Microphthartus* Blattny, 1925 (described as a Pselaphid beetle) nov. synn.). A key to the 4 *Edaphus*-species at present known from North America is presented, one species is described as new (*Edaphus americanus* n. sp.), one other, *Edaphus beszedesi* Reitter (including *E. rosskotheni* (Wüsthoff) n. syn.), is recorded for the first time from North America; all types of hitherto known taxa from the nearctic region are revised (Motschulsky- and Casey-types). *Fenderia capizzii* Hatch is placed into the Euaesthetinae. The genus *Nordenskioldia* J. Sahlberg is new for the nearctic region (*Nordenskioldia columbiana* n. sp.). Remarks on the morphology and distribution of *Stictocranius puncticeps* LeConte are given.

Edaphus luridus Blattny, 1925 is a synonym of *E. dilutus* Schaufuss, 1887.

ZUSAMMENFASSUNG

Eine valide spätere Genotypusfestlegung für die Gattung *Edaphus* Motschulsky, 1857 wird gegeben (Genotypus: *Edaphus nitidus* Motschulsky, 1857), zwei Gattungen werden zu *Edaphus* synonym gestellt (*Edaphellus* Fauvel, 1878 und *Microphthartus* Blattny, 1925 (als Pselaphide beschrieben) nov. syn.). Ein Bestimmungsschlüssel der 4 zur Zeit aus Nordamerika bekannten *Edaphus*-Arten wird vorgelegt, eine davon wird erstmalig beschrieben (*Edaphus americanus* n. sp.), eine andere, *Edaphus beszedesi* Reitter (inklusive *Edaphus rosskotheni* (Wüsthoff) n. syn.), erstmalig aus Nordamerika nachgewiesen; alle Typen der bisher aus der nearktischen Region beschriebenen Taxa (Motschulsky- und Casey-Typen) werden revidiert. *Fenderia capizzii* Hatch wird von den Osoriinen in die Euaesthetinen versetzt. Die Gattung *Nordenskioldia* J. Sahlberg ist neu für die nearktische Region (*Nordenskioldia columbiana* n. sp.). Bemerkungen über Morphologie und Verbreitung von *Stictocranius puncticeps* LeConte werden gegeben.

Edaphus luridus Blattny, 1925 ist ein Synonym zu *E. dilutus* Schaufuss, 1887.

RÉSUMÉ

L'auteur donne une désignation subséquente valable du génotype du genre *Edaphus* Motschulsky 1857 (génotype: *Edaphus nitidus* Motschulsky, 1857); il ajoute deux nouveaux synonymes (*Edaphellus* Fauvel, 1878 et *Microphthartus* Blattny, 1925, ce dernier décrit comme Pselaphidae) et présente un tableau des 4 espèces d'*Edaphus* connues jusqu'à présent d'Amérique du Nord et en décrit une nouvelle (*Edaphus americanus* n. sp.); une autre, *Edaphus beszedesi* Reitter (= *E. rosskotheni* (Wüsthoff) n. syn.) est mentionnée pour la première fois d'Amérique du Nord. Tous les types des taxons décrits jusqu'à ce jour de la région néarctique sont révisés (types de Motschulsky et Casey). *Fenderia capizzii* Hatch est placé dans les Euaesthetinae. Le genre *Nordenskioldia* J. Sahlberg est nouveau pour la région néarctique (*Nordenskioldia columbiana* n. sp.). L'auteur fait des remarques sur la morphologie et la répartition de *Stictocranius puncticeps* LeConte. *Edaphus luridus* Blattny, 1925 est un nouveau synonyme de l'*E. dilutus* Schaufuss, 1887.

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