Aculeata Hymenoptera of Sand Mountain and Blow Sand Mountains, Nevada

R. W. Rust  
*University of Nevada, Reno*

L. M. Hanks  
*University of Nevada, Reno*

R. C. Bechtel  
*Nevada State Departments of Agriculture, Reno, Nevada*

Follow this and additional works at: https://scholarsarchive.byu.edu/gbn

Recommended Citation  
Available at: https://scholarsarchive.byu.edu/gbn/vol43/iss3/4

This Article is brought to you for free and open access by the Western North American Naturalist Publications at BYU ScholarsArchive. It has been accepted for inclusion in Great Basin Naturalist by an authorized editor of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.
ACULEATA HYMENOPTERA OF SAND MOUNTAIN AND BLOW SAND MOUNTAINS, NEVADA

R. W. Rust¹, L. M. Hanks,²,³ and R. C. Bechtel³

ABSTRACT.—There were 198 species of aculeate Hymenoptera in 15 families collected from Sand Mountain and Blow Sand Mountains, Nevada. Four species are considered new to science and none are considered endemic to either dune area.

Sand Mountain and Blow Sand Mountains were visited 19 times in a 13-month period for the purpose of surveying selected groups of arthropods. Here we report on the aculeate Hymenoptera collected during the study. Over 2,000 specimens were obtained, representing 198 species in 15 families. Four species are considered new to science and 21 species were identified as "species" in unstudied genera. Most of the unknown species were bees (Apoidea) in the genera Perdita, Dialictus, Sphecodes, and Hesperapis. None of the species is considered sand obligate or endemic to either dune.

Previous studies on Hymenoptera in Nevada include the faunistic inventory of the Nevada Test Site conducted by Brigham Young University from 1958 to 1966 that produced almost 8,000 adults and 1,100 immatures (Beck and Allred 1968). Of these, the ants (Cole 1966), mutillid wasps (Ferguson 1967, Allred 1973), tiphiid wasps (Wasbauer 1973), and bees (G. E. Bohart, pers. comm.) have been identified. Wheeler and Wheeler (1978) studied the mountain ants of Nevada and they have produced a manuscript on the ants of Nevada (to be published by Los Angeles County Museum). Prétrusza (1980) obtained almost 2,000 specimens, identified to family, from Fairview Valley, Nevada, from pitfall and malaise trapping.

STUDY SITES

Sand Mountain (SM) dunes and Blow Sand Mountains (BSM) dunes were sampled from June 1979 through July 1980. Sand Mountain is approximately 46 km ESE of Fallon, Churchill County, Nevada (39°20’N–118°20’W) and is about 1,250 m in elevation. Blow Sand Mountains are approximately 52 km SE of Fallon, Nevada (39°10’N–118°35’W) and are about 1,400 m in elevation. The dunes are separated by 25 km air distance. Sand Mountain is a star dune of approximately 3.2 km² and Blow Sand Mountains are complex star and linear dunes of approximately 9.2 km². However, both dunes result from the same elian sand deposited during the Turupah and Fallon formations of about 4,000 years B.P. (Morrison and Frye 1965).

The floras of the two dunes were similar. The dominant vegetation was Atriplex confertifolia (Torr. & Frem.), Tetradymia tetrameris (Blake), Chrysothamnus viscidiflorus (Hookl), Astragalus lentiginousus Doug. and Psoralea lanceolata (PURSH.), and at Sand Mountain only Eriogonum kearneyi Tidestr. and Psorothamnus polyadenitus (Torr.). The common grass was Oryzopsis hymenoides (R. & S.).

METHODS

Several collecting techniques were used to obtain specimens (see Bechtel et al. 1981). Permanent pitfall traps were 0.95 L plastic cartons. They were operative for 30-day periods. Temporary pitfall traps were 15 cm diameter cereal bowls placed level with the sand surface. Temporary pitfall traps were

¹Biology Department, University of Nevada, Reno, Nevada 89557.
²Present address: Department of Entomology, University of Maryland, College Park, Maryland 20742.
³Nevada State Department of Agriculture, 350 Capitol Hill Avenue, Reno, Nevada 89502.
used for 12-18 hr during a survey period. Two UV light traps were operated from dusk
to dawn. Hand-held UV lamps were used in
searching the dunes for fluorescing arthropods. Sand was sifted through two screens
12 × 12 cm and 1.5 × 1.5 cm mesh to recov-
er subsurface arthropods. General collecting
involved the use of aerial nets, plant in-
spection, and walking the dunes at night with
lamps to obtain specimens. During a survey
period, four or five different sites on the dune
were visited and the sites were varied each
survey period.

Data are presented in the following man-
ner: For each species its known geographic
distribution, present location, numbers ob-
tained, dates of occurrence, and, for the bees,
their flower visitation as determined from
pollen-load analysis (Hanks and Rust 1983).
Once a genus and species of plant is given as
a pollen source, subsequent references to it is
by use of the first two letters of the genus
and species, e.g. *Astragalus lentiginosus* is
Asle. Geographic distributions were obtained from
the Hymenoptera Catalog (Krombein and Hurd 1979) and are presented as North
America (NA), western United States (WUS),
southwestern United States (SWUS), Great
Basin (GB), or by individual state. For the
ants, Formicidae, the number given repres-
ents collections and not individual ants.

The following taxonomists identified the
material being presented: R. C. Bechtel (Mu-
tillidae), G. E. Bohart (Apoidea), R. M. Bo-
hart (Chrysidae, Vespidae, Sphecidae), A.
A. Grigarick (Megachilidae), L. Kimsey
(Chrysidae), W. E. LaBerge (Apoidea), A.
S. Menke (Sphecidae), F. D. Parker (Phe-
cidae), J. G. Rosen (Andrenidae), R. W. Rust
(Apoidea), R. R. Snelling (Apoidea, Formi-
cidae), R. W. Thorp (Andrenidae), M. S.
Wasbauer (Tiphiidae, Scoliidae, Pompilidae),
and G. C. and J. Wheeler (Formicidae). All
specimens, except new specimens, are in
the collection of the University of Nevada, Reno.

**Results**

The most numerous species obtained was
the California harvester ant, *Pogonomymnex
californiae* (Buckley), with 26 collections
containing hundreds of specimens. One per-
manent pitfall trap contained over 500 indi-
viduals. It was present at both dunes from
May through October. Two other ants were
common at SM *Veromessor laricen* M. R.
Smith and *Conomyrma insana* (Buckley).
*Glyptaceros* new species and *Xeroglypta egr-
egia* Mickel and Krombein were perhaps the
most interesting wasps collected. They both
have wingless females and were collected by
sifting sand. Other wingless females obtained,
mutilills, were found active on the surface or
attracted to UV light traps. Next to the ants,
the most numerous species were *Parnopes
fulvicornis* Cameron (Chrysidae), *Para-
nistrocerus toxotus* (Saussure) (Vespidae),
*Acanthetropis aequalis* (Fox) (Tiphiidae),
*Sphaerophthalma* sp. (Mutillidae), *Micro-
bemex argyropleura* Bohart and *Eucerceris
nevadensis* (Dalla Torre) (Sphecidae), and
*Agapostemon melliventris* Cresson and *Dia-
lictus* sp. (Halictidae).

**Chrysidae**

*Elampus nitidus* Aaron (WUS) SM 3 Aug.
Oct.

*Holopyga hora* Aaron (WUS) SM 1 May.

*Hedychridium amabile* Cockerell (WUS) SM
5 Aug. Sept.

*Hedychridium arietinum* Bohart (CA) SM 1
Sept., BSM 1 Sept.

*Hedychridium manicopae* Bohart (CA) SM 2
April May.

*Hedychridium mirum* Bohart (CA) SM 14
June July, BSM 1 June.

*Hedychridium species (?)* BSM 1 June.

*Chrysis inflata* Aaron (WUS) SM 1 Sept.

*Spinharosoma trochilus* (duBuysson) (WUS)
SM 1 April.

*Parnopes fulvicornis fulvicornis* Cameron

**Tiphiidae**

*Brachysistis lacustris lacustris* Malloch (Mo-
jae desert) SM 3 July Aug. Sept., BSM
9 July Aug.

*Brachysistis triangularis* Fox (SWUS) SM 4
June, BSM 10 June July.

*Brachysistis agama* (Dalla Torre) (NA) SM 12

*Brachysistis species (?)* BSM 9 June.

*Colocistis crassa* (Bradley) (SWUS) BSM 3
June.
Acanthotropis noctivaga (Bradley) (SWUS) SM 16 July Aug., BSM 6 July Aug.  
Xerogypta egregia Mickel and Krombein (SoCA) SM 1 Aug.

Mutillidae

Sphaerophalma species (?) SM 57 June July Aug., BSM 26 June July Aug.  
Dasynutila gloriosa (Saussure) (SWUS) BSM 1 Aug.  
Dasynutila satanas Mickel (SWUS) SM 2 June July.

Scoliidae

Crioscolia alcione (Banks) (SWUS) SM 3 July Aug.

Formicidae

Pogonomyrmex californicus (Buckley) (SWUS) SM 26 May to Oct. BSM 14.  
Crematogaster species (?) SM 1 Sept., BSM 1 Aug.  
Myrmecocystus new species (?) SM 4 April May.

Vespidae

Pterocheilus laticeps Cresson (WUS) BSM 1 June.  
Pterocheilus tricoloratus Bohart (SWUS) BSM 1 June.  
Leptochilus species (?) BSM 1 Aug.  
Maricopodynerus maricoporum (Viereck) (SWUS) SM 4 April July.  
Paracricotopus toltecs (Sauvage) (WUS) BSM 95 June July Aug. Sept.  
Eoodynerus annulatus sulphureus (Sauvage) (WUS) SM 1 June.  
Ancistrocerus acactus halophila Viereck (WUS) SM 2 Oct.

Pompilidae

Pepsis pallidolimbata pallidolimbata Lucas (WUS) SM 2 Sept., BSM 1 Aug.  
Hemipepsis ustulata ochroptera Stal. (SWUS) SM 1 June.  
Aporus hirsutus (Banks) (WUS) BSM 2 June Aug.  
Agenioideus biedermann (Banks) (SWUS) SM 1 Aug.  
Episyron oregon Evans (WNA) SM 1 May, BSM 1 Aug.  
Anoplius tenebrosus (Cresson) (NA) SM 1 Sept.  
Pompilus orophilus Evans (NA) SM 3 May, BSM 3 Aug.  
Pompilus phoenix Evans (WUS) BSM 3 June.  
Aporinellus borregoensis Evans (SWUS) SM 1 June.  
Aporinellus fasciatus (Smith) (NA) SM 1 June, BSM 1 June.  
Aporinellus taeniatus taeniatus (Kohl) (NA) SM 1 Sept.  
Aporinellus yucatanensis (Cameron) (NA) SM 1 Sept., BSM 1 June.

Sphecidae

Prionyx canadensis (provancher) (NA) SM 1 June, BSM 6 June July Aug.
Prionyx subratratus Bohart (WUS) SM 1 Aug.
Podalonia communis (Cresson) (WUS) SM 12
June July, BSM 6 July.
Ammophila aberti Haldeman (WUS) SM 2
May June.
Ammophila polita Cresson (WUS) BSM 4
June.
Ammophila pruinosa Cresson (WUS) SM 2
May Sept.
Ammophila wrightii (Cresson) (WUS) BSM 1
June.
Mimesa coquilletti (Rohwer) (CA NV) SM 13
May Sept., BSM 2 June.
Astata bechtlei Parker (SWUS) SM 3 June
July Aug.
Astata occidentalis Cresson (WUS) BSM 9
June July Aug.
Larropsis washoensis Bohart and Bohart (NV)
SM 3 May June, BSM 11 June July Aug.
Ancistromma granulosa (Bohart and Bohart)
(WUS) SM 1 Aug., BSM 1 Aug.
Tachytes ermineus Banks (SWUS) SM 2 June.
Tachytes nevadensis Bohart (WUS) SM 3
Tachytes new species SM 7 June.
Tachysphex apicalis fusiis Fox (NA) BSM 3
June.
Tachysphex ashmeadii Fox (WUS) SM 7 Aug.
Tachysphex spinosus Fox (WUS) SM 1 June.
Tachysphex species (?) BSM 14 June.
Plenoculus boregensis Williams (SoCA) SM 1
June.
Pisonopsis species (?) SM 3 May June.
Miscophus species (?) SM 2 May June.
Oxybelus abdominalis Baker (WUS) SM 10
Oxybelus pitanta Pate (SWUS) SM 12 Aug.
Sept., BSM 2 June.
Crabro opalenscens Bohart (WUS) SM 2 May.
Bicyrtes centralis (Say) (NA) SM 3 Aug.
Bicyrtes capnopteris (Handlirsch) (NA) SM 3
Aug.
Microbembex argyropleura Bohart (SWUS)
SM 39 June July Aug. Sept., BSM 15
July Aug.
Microbembex californica Bohart (SWUS) SM 1
June, BSM 1 July.
Bembix rugosa Parker (AZ) SM 18 Aug.
Bembix stenosoma Parker (AZ) SM 1 July.
Bembix occidentalis Fox (SWUS) SM 2 June.
Bembix americana comata Parker (SWUS)
Stictiella corniculata Mickel (WUS) SM 3
Sept.
Stictiella nubilosa Gillaspy (SoCA) SM 2 June
July.
Stictiella species (Cresson) (WNA) SM 1
Sept.
Glenostictia argentata (Fox) (SoCA) SM 12
Aug.
Glenostictia megaceris (Parker) (WUS) SM 1
Aug.
Glenostictia tenuicornis (Fox) (SWUS) SM 2
Aug.
Philanthus crotoniphilus Viereck and Cock-
Philanthus multifaculatus Cameron (WNA)
Philanthus pacificus pacificus Cresson (NA)
SM 11 July Aug. Sept., BSM 1 June.
Philanthus pulcher Dall Torre (SWUS) SM 1
May.
Philanthus centralis (Mickel) (PCS) SM 17
Sept.
Philanthus zebratus Cresson (WUS) SM 1
Sept.
Clypeadon evansi Bohart (SWUS) SM 4 July
Aug.
Clypeadon laticinctus (Cresson) (WUS) SM 8
Aug.
Clypeadon utahensis (Baker) (SWUS) SM 7
Clypeadon species (?) SM 1 July.
Cerceris bridwelli Scullen (SoCA AZ) SM 8
Aug.
Cerceris californica Cresson (WUS) SM 5 July
Aug.
Cerceris conifrons Mickel (WNA) SM 4 Aug.
Sept.
Cerceris crotonella Viereck and Cockerell
(WUS) SM 5 June July Aug., BSM 1
June.
Cerceris echo echo Mickel (WUS) SM 3 July
Cerceris species (?) SM 1 Aug.
Eucerceris arenaria Scullen (SWUS) SM 9
Eucerceris nevadensis (Dalla Torre) (WUS)

Colletidae

Colletes mandibularis Smith (EUS) SM 3
Sept., Chrysothamnus viscidiflorus.
Colletes slevini Cockerell (WUS) SM 4 June
July Sept., Chvi, Psorothamnus polydendus.
Colletes stephani Timberlake (SoCA) SM 1
June.
Colletes species (?) SM 30 June Aug. Sept.,
BSM 4 June Sept., Chvi, Eriogonum kearneyi, Pspo, Tetradyinia comosa.

Andrenidae

Andrena (Diandrena) malacotheicidis Thorp
(SoCA) BSM 2 May, Malacothrix sonchoideus.
Andrena (Onagrandrena) chylismiae Linsley
and MacSwain (ECA) SM 15 April, BSM 2 May.
Andrena (Onagrandrena) linsleyi Timberlake
(SWUS) SM 5 April.
Andrena (Thysandrena) vierecki Cockerell
(GB) BSM 2 June, Mentzelia albicaulis.
Nomadopsis (Nomadopsis) puellae (Cockerell)
(WUS) SM 7 May June, SM 32 May June, Maso.
Nomadopsis (Micronomadopsis) phaceliae
Timberlake (ECA) SM 2 May, BSM 1 June, Phacelia sp.
Nomadopsis new species (?) BSM 35 June
July, Psorothamnus kingii.
Perdita (Cockerellia) utahensis Cockerell
(SWUS) SM 16 July Aug., Helianthus deserticolora.
Perdita (Perdita) lepidosparti Timberlake (GB)
Perdita (Perdita) hirticeps Timberlake (SWUS)
SM 16 June July Aug., Chvi, BSM 5 July.
Perdita (Perdita) phymatae Cockerell (SWUS)
SM 2 Sept., Chvi.
Perdita (Prococcherellia) albonotata Tim-
berlake (SoCA) SM 1 July.
Perdita species 1 (?) SM 84 Aug. Sept., Chvi.
Perdita species 2 (?) SM 1 Aug., Pspo.
Perdita species 3 (?) SM 51 July, Tiguilia
mutallii.
Perdita species 4 (?) SM 15 July Aug., Pspo.

Halictidae

Nomia (Acnominia) howardi Crawford
(SWUS) SM 2 Aug., Erke.
Agapostemon femoratus Crawford (WNA)
BSM 1 June, Clsp, Sphaeralcea ambiguia.
Agapostemon melliventris Cresson (WUS) SM
73 June July Aug., BSM 2 Aug. Sept.,
Atriplex sp, Amaranthus sp, Camissonia
clavaeformis, Chvi, Clsp, Hede, Erke,
Psoralea lanceolata Pspo.
Lasioglossum sisymbrii (Cockerell) (WUS)
SM 16 April June July Aug. Sept.,
Astagalus lentiginosus, Chvi.
Euxylaes aberrans (Crawford) (WUS) SM 9
May June July, BSM 2 May June.
Dialictus species 1 (?) BSM 5 April.
Dialictus species 2 (?) SM 78 April May June
Chvi, Erke, Hede, Psle, Stephanomeria exigua, Tetradyinia
tetrameris.
Dialictus species 3 (?) SM 9 Aug. Sept.,
Abronia turbinata, Asle, Chvi, Erke, Pen-
stemon acuminatus, Phacelia sp.
Sphecodes species (?) SM 1 Sept.

Melittidae

Hesperapis species (?) SM 22 May, Phacelia
sp, Oenothera deltoides.

Megachilidae

Anthidium rodecki Schwartz (CO NV) SM 15
May June July Aug., BSM 44 July Aug.,
Psle, Pski, Psso.
Dianthidium subparvum Swenk (WNA) SM
4, Chaenactis xantiana, Chvi.
Anthidiellum notatum robertsoni (Cockerell)
(WNA) SM 2 Aug., Psle.
Stelis species (?) BSM 1 June.
Proteriades (Holplittina) bullifacies (Michener)
(ECA) SM 3 April May, BSM 5 May June,
(Aisle) Phacelia.
Anthocopa (Eremosmia) robustula (Cockerell)
(SWUS) SM 4 April May, BSM 5 June,
Phacelia sp.
Anthocopa (Eremosmia) timberlakei (Cock-
erell) (SoCA) SM 28 May June, BSM 15
May June, Asle, Cacl, Meal, Peac, Pha-
celia sp, Pski, Psso.
Ashmeadiella (Ashmeadiella) aridula Cock-
erell (WUS) SM 5 Aug., BSM 3 Aug,
Clsp, Phacelia sp, Psle, Pski, Psso.
Ashmeadiella (Ashmeadiella) buconis denticulata (Cresson) (WUS) SM 1 June, Psopo.

Osmia (Nothosmia) titusi Cockerell (SoCA) SM 2 April June, Asle, Phacella sp, Psopo.

Megachile (Derotropis) xerophila Cockerell (SoCA AZ) SM 6 May, BSM 3 June, Chxa, Maso.

Coelioxys (Coelioxys) mitchelli Baker (SUS) SM 2 May.

Anthophoridae

Diadasia australis (Cresson) (WUS) BSM 12 June, Opuntia pulchella, Mentzelia albicaulis, Hede.

Diadasia vallicola Timberlake (AZ CA) SM 16 May.

Synhalonia albescens Timberlake (SWUS) SM 3 May.

Synhalonia primaceris Timberlake (SWUS) SM 30 April May, BSM 4 May June, Asle, Meal, Peac, Phacelia.

Synhalonia speciosa (Cresson) (WUS) SM 1 May.

Melissodes (Eumelissodes) binatris LaBerge (WNA) BSM 2 Sept.

Melissodes (Eumelissodes) lutulenta LaBerge (WNA) SM 14 June, BSM 2 June July, Chaetadelpha wheeleri, Hede, Psopo, Spam, Teco.

Melissodes (Eumelissodes) montana Cresson (WUS) SM 39 Sept, BSM 1 Sept, Chvi, Erke.

Anthophora (Anthophora) affabilis Cresson (WUS) SM 31 April May, BSM 3 May, Asle, Cacl, Peac, Phacelia.

Anthophora (Anthophora) porterae Cockerell (WUS) SM 39 April May, BSB 9 May June, Asle, Peac.


Anthophora (Micranthophora) hololeuca Cockerell (SWUS) SM 18 June July Aug, BSM 38 June July Aug, Pski, Psopo.


Centris (Xeroceptris) californica Timberlake (CA AZ) SM 34 Aug Sept., Clsp.

Ceratina (Zadontomerus) neomexicana Cockerell (SWUS) SM 10 May June July Aug., BSM 3 June July, Erke, Hede, Maso, Psopo, Stex, Teco.

Apidae

Apis mellifera Linnaeus (world wide) SM 7 April, Asle.

Acknowledgments


Literature Cited


