

**THE ANT-LIKE LITTER BEETLES OF THE QUEEN CHARLOTTE ISLANDS, CANADA
(COLEOPTERA: STAPHYLINIDAE: PSELAPHINAE)**

DONALD S. CHANDLER

Department of Zoology, University of New Hampshire, Durham, NH 03824 USA
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Abstract

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Eleven species of ant-like litter beetles are known from the Queen Charlotte Islands: *Megarafonus ventralis* Casey, *Sonoma margemina* Park and Wagner, *Sonoma parviceps* (Mäklin), *Foveoscapa terracola* Park and Wagner, *Actium retractum* Casey, *Actiastes foveicollis* (LeConte), *Cupila clavicornis* (Mäklin), *Batrisodes albionicus* (Aubé), *Reichenbachia binodifer* Casey, *Lucifotychus cognatus* (LeConte), and *Pselaphus bellax* Casey. Three other species, *Oropus striatus* (LeConte), *Actium barri* Park and Wagner, and *Rybaxis transversa* Fall are known from the mainland of Canada near the islands, and probably occur there based on their shared distributional patterns with the other species. These species exhibit two patterns: eleven occur from west-central Oregon to northwestern British Columbia or southern Alaska, and the other three occur from northeastern North America to northwestern British Columbia or southern Alaska.

Only one species, *Actium retractum*, has a slightly unusual form in the population found on the islands. Based on the habitat requirements and the widespread distribution of the species found on the islands, it is unlikely that any were present in a refugium on the Queen Charlotte Islands during the Wisconsinan glaciation, and their presence is best explained as postglacial dispersal to the islands.

Introduction

The Queen Charlotte Islands form a little-known archipelago of 150 islands off the northwestern coast of British Columbia. This triangular island group is 260 km long, 90 km wide at the northern end, and distance to the nearest inshore islands or the mainland varies from 50–80 km across the Hecate Strait (Kavanaugh 1992). The islands have been of interest through the hypothesis that they served as a biotic refugium during the last glacial period, the Wisconsinan. While the Cordilleran ice sheet covered the adjacent mainland and inshore islands during this period, island-based glaciers also covered the archipelago with the exception of the Queen Charlotte lowlands at the northeastern tip of Graham Island. Probably there were unglaciated exposed mountaintops (nunatoks) as well (Clage 1989). Pollen analyses of the unglaciated Queen Charlotte lowlands indicated that the flora was characteristic of a herb-tundra mix (Mathewes 1989), and was characterized by Heusser (1989) as a tundra with occasional strands of subalpine trees.

These areas could have served as refugia, though admittedly for a restricted group of organisms that could tolerate a harsh climatic regime (Scudder 1979). Several plant and animal groups have been examined to document the coverage of this proposed refugium. Small numbers of species and subspecies of liverworts and mosses (Schofield 1989), vascular plants (Taylor 1989), ground beetles (Kavanaugh 1989, 1992), fishes (Northcote et al. 1989), and birds and mammals (Cowan 1989) have been identified as being unique to the islands (Lindsey 1989). Two competing hypotheses have been generated to explain the presence of the unique plants and animals on the

islands: 1) Holocene postglacial dispersal, followed by rapid morphological development in populations isolated on the islands; 2) differentiation in a refugium on the islands during the period of Wisconsinan glaciation (Currie and Adler 1986; Marshall and Wheeler 1991).

Summaries of the known biotic information were first presented as a series of papers at a meeting in 1984, and were later published in a book, "The Outer Shores" (Scudder and Gessler 1989). This book serves as an excellent introduction to the preceding literature dealing with the Queen Charlotte Islands as a refugium. The 1984 meeting precipitated the interest of other scientists, and the insects were identified as a species-rich group that could potentially add to resolution between the above two hypotheses. Subsequent papers treated the blackflies (Currie and Adler 1986), weevils (Anderson 1988), sphaerocerid flies (Marshall and Wheeler 1991), and a further extensive treatment of the ground beetles (Kavanaugh 1992), which also summarizes much of the earlier information presented in "The Outer Shores".

Milton Campbell (Agriculture Canada, Ottawa, now retired) intended to utilize the staphylinid beetles to test these hypotheses, as the staphylinids are a species-rich group that are found in a wide array of the available habitats on the Queen Charlotte Islands. He requested that I treat one of the subfamilies, the Pselaphinae or ant-like litter beetles. The distribution of Pselaphinae in western Canada and in Alaska was particularly poorly known, and I took this as an opportunity to search for all specimens from this region to make a more definitive statement on ranges of species that occur in this area, and to look for evidence of a unique fauna from the Queen Charlotte Islands.

History

Pselaphines are small staphylinid beetles that are typically found in leaf litter or rotten wood in forests, but some species may be encountered in grasslands and deserts, under debris on beaches, in caves, or with ants and termites. Over 700 species in 106 genera occur in America north of Mexico (Chandler 1997). Reverend J.H. Keen, an Anglican missionary, provided the first records (1895) of this group on the Queen Charlotte Islands when he listed three species from Massett on Graham Island: *Batrissus frontalis* LeConte, *Bryaxis albionica* Motschulsky, and *Faronus parviceps* Mäklin. Two of these names are misidentifications (specimens in USNM): the *Batrissus frontalis* record is based on females of *Batrissodes albionicus* (Aubé), and *Bryaxis albionica* is a misidentification of *Reichenbachia binodifer* Casey; the third species, *Faronus parviceps*, is now placed in *Sonoma* Casey. A fourth species was added by Casey (1908), when he described *Actium retractum* from Massett.

The next cycle of activity on the Pselaphinae of the Pacific Northwest began 50 years later with the listing of *Megarafonus ventralis* Casey from Massett (Schuster and Marsh 1958). Park and Wagner (1962) treated the fauna of the Pacific Northwest, and added *Actium bifoveatum* Casey. They were not certain of this identification (the type locality of *bifoveatum* is Siskiyou County, California), and speculated that this species might be conspecific with *Actiastes foveicollis* (LeConte) from eastern North America. In this paper they incorrectly cited the type locality of *S. parviceps* as the Queen Charlotte Islands, rather than Sitka Island (Mäklin 1852). *Sonoma margemina* Park and Wagner was added by Marsh and Schuster (1962), and the presence of *Actiastes foveicollis* (LeConte) was documented by Grigarick and Schuster (1971), for a total of seven species. Four more species are now known, to bring the total for the islands to eleven species.

Materials and Methods

The most recently collected material of this group resides primarily in the Canadian National Collection, Ottawa, and the California Academy of Sciences, San Francisco. All of this material

has been examined. The material taken by Reverend Keen was located at the United States National Museum, Washington, D.C., and specimens collected by Mrs. Hippisley-Clark from north-western British Columbia and the Queen Charlotte Islands were found in several institutions. Holotypes or syntypes of all the species have been examined. For convenience the Pacific Northwest is treated as the area encompassed by Oregon, Washington, Idaho, British Columbia, and southern Alaska, though I recognize that this fauna does extend deep into northern California and to extreme western Alberta (see Kavanaugh (1988), for the maximum distribution of this fauna). The organization of taxa is based on the classification in the most recent catalog of North American species (Chandler 1997).

Results

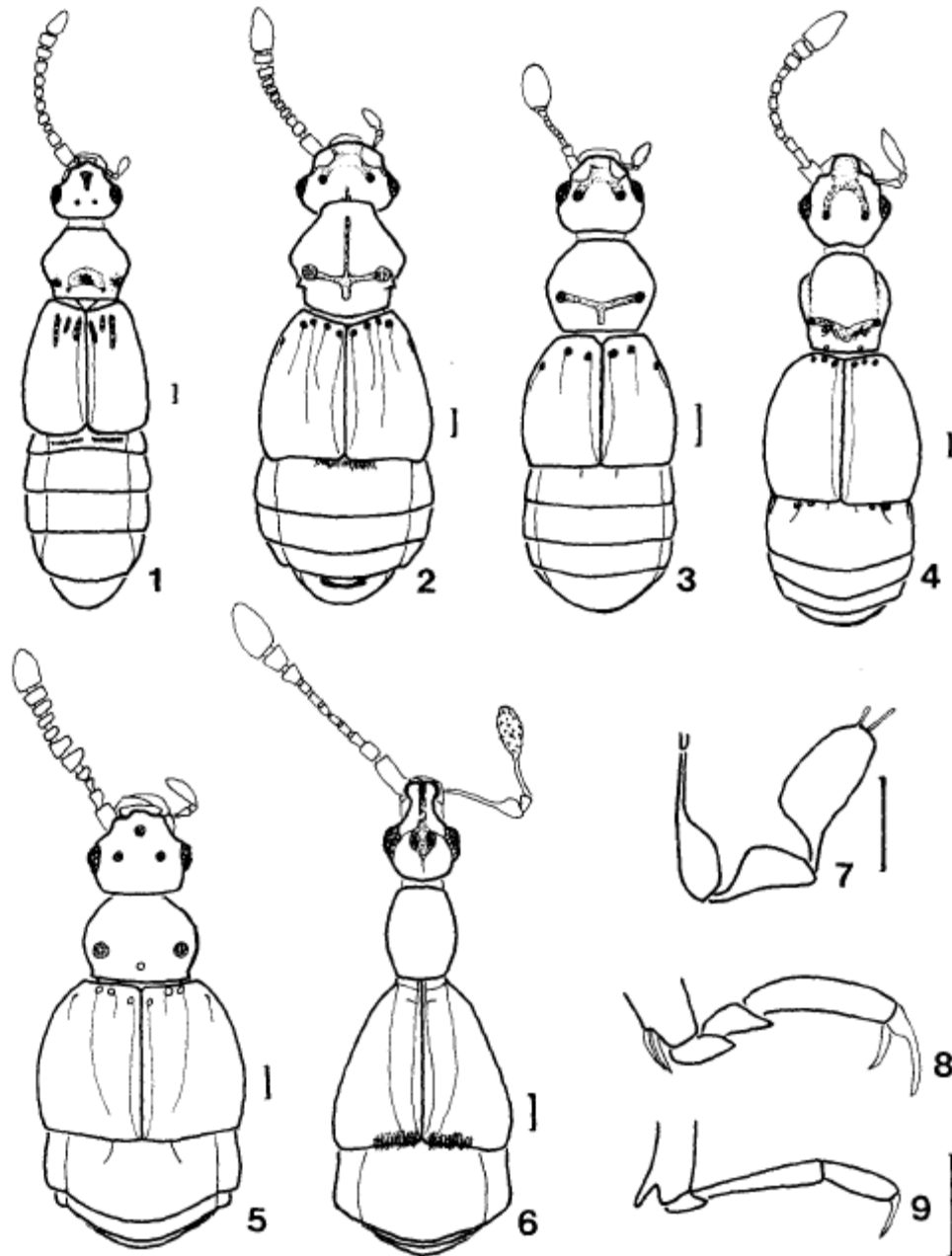
Eleven species are now known from the Queen Charlotte Islands: previously known are *Megarafonus ventralis* Casey, *Sonoma marginina* Park and Wagner, *Sonoma parviceps* (Mäklin), *Actium retractum* Casey, *Actiastes foveicollis* (LeConte), *Batrisodes albionicus* (Aubé), *Reichenbachia binodifer* Casey; new records are *Foveoscapha terracola* Park and Wagner, *Cupila clavicornis* (Mäklin), *Lucifotychus cognatus* (LeConte), and *Pselaphus bellax* Casey. "*Actium bifoveatum*" of Park and Wagner (1962) was found to be based on unusual individuals of *A. retractum*. All of these species are known from the mainland of British Columbia, and all are found as least as far south as west-central Oregon. Two additional species, *Oropus striatus* (LeConte) and *Actium barri* Park and Wagner, have been collected at the coast in northwestern British Columbia, and a third species, *Rybaxis transversa* Fall, was collected in Alaska. These three species are covered in the key and species treatments, since they probably occur on the islands based on their shared habitats and distributional patterns with the other species.

Several other species have been recorded from northern British Columbia. *Pselaphus ulkei* Bowman was listed from Terrace by Park and Wagner (1962), but this name was recently placed as a junior synonym of *P. bellax* by Chandler (1999). Casey (1908) described *Oropus keeni* and *Oropus brevipennis* from Metlakatla, but both names were also recently placed as junior synonyms of *O. striatus* (LeConte) by Chandler (1999). Keen (1905) mentions *Actium testaceum* Casey, and Clark (1949) lists *Sonoma corticina* Casey, *Actium pacificum* Casey, *Tychus tenellus* LeConte, and "two undescribed *Reichenbachia*," as all occurring in northern British Columbia. The named species are all restricted to California as defined by recent revisions, and all material I have seen collected by Mrs. Hippisley-Clark has been placed in species covered here. A key to the species is presented, the specimens examined are listed, and data on their biology and ranges are given.

Key to Species

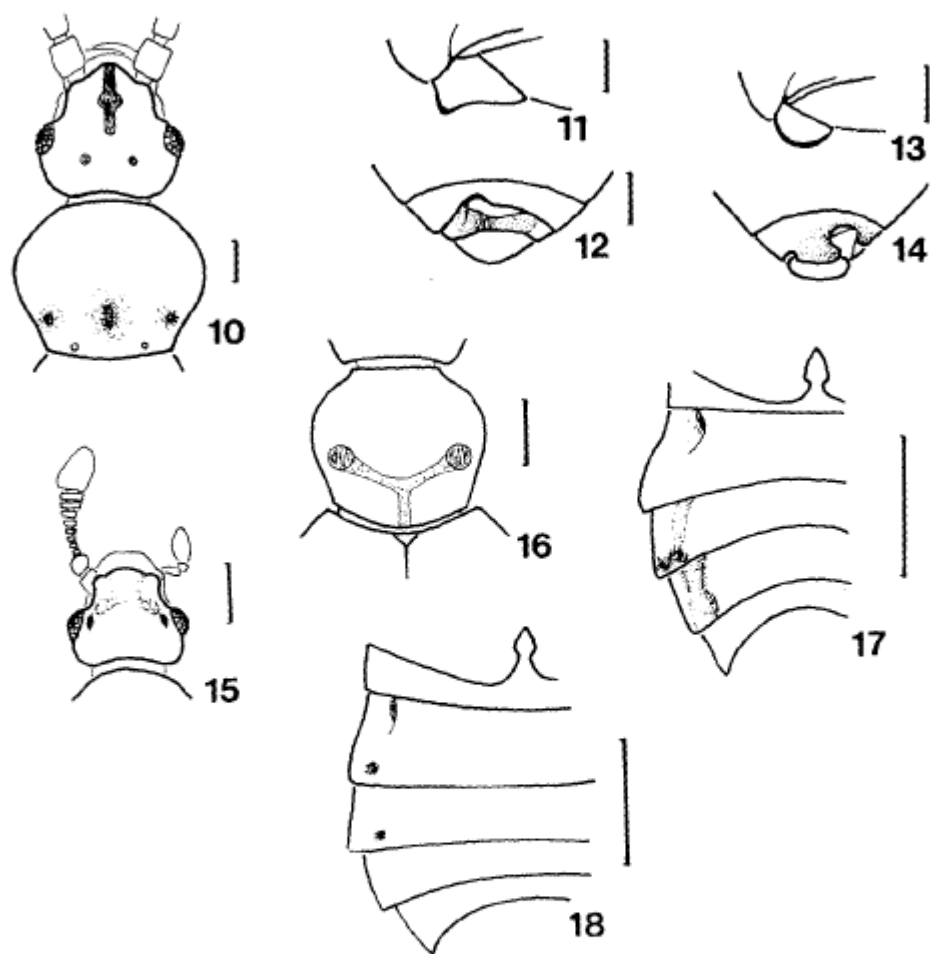
Species not yet collected from, but possibly occurring on the Queen Charlotte Islands are indicated by an asterisk.

- 1 Abdomen completely rounded laterally, lacking lateral margins on second and third visible tergites (Fig. 4) 10. *Batrisodes albionicus*
- Abdomen with carinate lateral margins on visible tergites 1-4 (Figs. 1, 5) 2
- 2 (1) Last segment of maxillary palpi almost as long as head (Fig. 6) 14. *Pselaphus bellax*
- Last segment of maxillary palpi no more than half as long as head 3
- 3 (2) Third segment of maxillary palpi enlarged, two-thirds length of fourth segment (Fig. 7) 13. *Lucifotychus cognatus*



FIGURES 1-9. Line to right of figures is equal to 0.1 mm. 1. Dorsal view *Sonoma margemina*. 2. Dorsal view male *Oropus striatus*. 3. Dorsal view *Actium retractum*. 4. Dorsal view *Batrisodes albionicus*. 5. Dorsal view male *Reichenbachia binodifer*. 6. Dorsal view *Pselaphus bellax*. 7. Dorsal view right maxillary palpus *Lucifotychus cognatus*. 8. Lateral view right metatarsomere *Sonoma margemina*. 9. Lateral view right metatarsomere *Reichenbachia binodifer*.

-	Third segment of maxillary palpi no more than one-fourth the length of fourth segment (Fig. 5)	4
4 (3)	Pronotum with thin median sulcus extending from near apex to transverse antebasal sulcus, large tooth on margin near lateral foveae (Fig. 2)	4. * <i>Oropus striatus</i>
-	Pronotal disc convex, or at most with vague medial longitudinal impression, lacking tooth on margin near lateral foveae	5
5 (4)	First and second tarsomeres short, equal in length (Fig. 8)	6
-	Second tarsomere much longer than first, about same length or longer than third (Fig. 9)	8
6 (5)	Longitudinal frontal sulcus dividing frontal rostrum (Fig. 10); elytra short, as long as visible tergites 1-2 together	1. <i>Megarafonus ventralis</i>
-	Longitudinal frontal sulcus short, not extending anteriorly to divide frontal rostrum (Fig. 1); elytra long, at least as long as visible tergites 1-4 together	7
7 (6)	Males with metatrochanters broadly rounded, carinate on posterior margin (Fig. 13); females with visible sternite 6 prolonged posteromedially to left (Fig. 14)	3. <i>Sonoma parviceps</i>
-	Males with metatrochanters angulate near base (Fig. 11); females with visible sternite 6 notched on right side (Fig. 12)	2. <i>Sonoma margemina</i>
8 (5)	Pronotal foveae free, not connected by sulcus (Fig. 5)	12. <i>Reichenbachia binodifer</i>
-	Antebasal pronotal foveae connected by gently arcuate transverse sulcus (Fig. 3)	9
9 (8)	Metacoxae widely separated, distance between metacoxae nearly equal to metasternal length at middle; body compact, similar to <i>Reichenbachia</i> (Fig. 5)	11. * <i>Rybaxis transversa</i>
-	Metacoxae touching or barely separated, distance apart much less than medial metasternal length; body elongate (Fig. 3)	10
10 (9)	Elytra with four basal foveae; body more than 1.5 mm long	5. <i>Foveoscapa terricola</i>
-	Elytra with 2-3 basal foveae; body less than 1.3 mm long	11
11 (10)	Vertexal foveae situated laterally, much closer to eyes than to each other (Fig. 15)	8. <i>Actiastes foveicollis</i>
-	Vertexal foveae dorsal and more medial, only slightly closer to eyes than to each other (Fig. 3)	12
12 (11)	Pronotum with median longitudinal sulcus extending from antebasal transverse sulcus to base (Fig. 16)	9. <i>Cupila clavicornis</i>
-	Pronotum with median longitudinal sulcus extending at most only two-thirds distance from transverse antebasal sulcus towards base (Fig. 3)	13
13 (12)	Elytra with 2-3 basal foveae; body length 0.9-1.1 mm; male visible sternites 2-3 lacking obvious modifications, small setose areas laterally (Fig. 18)	7. <i>Actium retractum</i>
-	Elytra with 2 basal foveae; body length 1.2-1.3 mm; male visible sternites 3-4 longitudinally impressed laterally, with adjoining setose ridges (Fig. 17)	6. * <i>Actium barri</i>



FIGURES 10- 18. Line to right of figures is equal to 0.1 mm. 10. Dorsal view head *Megarafonus ventralis*. 11. Ventral view male left metatrochanter *Sonoma margemina*. 12. Ventral view female apical sternites *Sonoma margemina*. 13. Ventral view male left metatrochanter *Sonoma parviceps*. 14. Ventral view female apical sternites *Sonoma parviceps*. 15. Dorsal view head *Actiastes foveicollis*. 16. Dorsal view pronotum *Cupila clavicornis*. 17. Ventral view male abdomen *Actium barri*. 18. Ventral view male abdomen *Actium retractum*.

Biology: Collected from a wide variety of leaf litters on the mainland.

Distribution: From west-central Oregon to northwestern British Columbia.

Comments: Casey (1908) described two species of *Oropus* from Metlakatla, *O. keeni* Casey and *O. brevipennis* Casey. Both names were recently placed as junior synonyms of *Oropus striatus* (LeConte) (Chandler 1999).

5. *Foveoscapa terracola* Park and Wagner

Specimens examined, 8: 7.3 km NW Rennell Sound Road, Ghost Main Road, 800', VII-16-1983, J.M. Campbell, berlese of moss at edge of small stream (CNCI); Ghost Creek Drainage, Ghost Main Road, 7.3 km NW Rennell Sound, VIII-21-1983, J.M. Campbell, berlese of moss ex under deciduous shrubs around base of cedar (CNCI); Kiusta, Graham Island, VIII-18-1983, J.M. Campbell, berlese of litter at base of large trees (CNCI); Graham Island, 0.2 km E Kiusta Village site, 8 m, VIII-17-1983, D.H. & M.D. Kavanaugh, stop #83-109 (CASC); Graham Island, 5 mi E Rennell Sound, VII-1-1984, R.S. Anderson, sitka spruce/hemlock/cedar forest litter (CNCI).

Biology: Collected in moss and leaf litter on the islands, and from a variety of coniferous leaf litters and moss on the mainland.

Distribution: Graham Island. The known distribution is from west-central Oregon to southern Alaska.

6. **Actium barri* Park and Wagner (Fig. 17)

Specimens examined: None from the islands. This species has been collected at Terrace, as well as several sites in central and southern British Columbia.

Biology: Collected in fir, pine, hemlock, and alder leaf litters, and in mosses on the mainland.

Distribution: The known distribution is from west-central Oregon to northwestern British Columbia.

Comments: This species shares a common distribution pattern with the majority of species collected on the Queen Charlotte Islands, and is probably present on the islands. It has been seldom encountered by collectors, but can be common at snow line in coniferous leaf litters in Oregon.

7. *Actium retractum* Casey (Fig. 3, 18)

Specimens examined, 6: "Q.C.I.," (probably from Massett), holotype male and female paratype *Actium retractum* Casey (USNM); Massett, Graham Island, III-1946, Mrs. Clark, sifting moss etc. (MCZC, USNM); Massett, Graham Island, 1948, Mrs. Clark (UBCZ); Graham Island, 1 mi NW Tlell, VI-27/VII-8-1984, R.S. Anderson, sitka spruce/hemlock forest (CNCI).

Biology: Collected in moss on the islands. Mainland records are primarily from coniferous leaf litters, and also from mosses.

Distribution: Graham Island. The known distribution is from west-central Oregon to southeastern Alaska.

Comments: Park and Wagner (1962) figured the genitalia and other features of a species that they believed to be *Actium bifoveatum* Casey. While attempting to place a male specimen of *Actium* from the islands, I noticed that the genitalia appeared to be identical with that figured as *A. bifoveatum* by Park and Wagner, but clearly was not that species when consulting the revision of *Actium* by Grigarick and Schuster (1971). However, the genitalia and sternal features matched exactly those of *A. retractum*, while the specimens differed in the critical feature of the number of elytral foveae, used by Grigarick and Schuster to separate species groups. One male specimen (USNM) has two elytral foveae on the left elytron, and three on the right, while a female (MCZC)

has two foveae on each elytron. All *A. retractum* that I have seen from sites in Oregon and Washington have three elytral foveae. This is the first example of intraspecific variation in *Actium* for this critical feature, but it has been seen in other genera, such as *Texamaurops reddelli* Barr and Steeves from Texas (Chandler 1992).

8. *Actiastes foveicollis* (LeConte) (Fig. 15)

Specimens examined, 2 males: Massett, Graham Island, Mrs. Clark (BCPM, MCZC).

Biology: Collected in a variety of hardwood and coniferous leaf litters along bog and swamp margins in northeastern North America.

Distribution: Graham Island. The known distribution is from the northeastern North America to northwestern British Columbia.

9. *Cupila clavicornis* (Mäklin) (Fig. 16)

Specimens examined, 23: 7.9 km Queen Charlotte City, VII-29/VIII-4-1983, J.M. Campbell, ex: rotting pile of mushrooms (CNCI); 7.9 km NW Queen Charlotte City, 500', VIII-4-1983, J.M. Campbell, berlese of Labrador tea (CNCI); NW corner Graham Island, Lepas Bay, VIII-17-1983, J.M. Campbell, sifting moss on forest floor (CNCI); Kiusta, Graham Island, VIII-18-1983, J.M. Campbell, berlese litter at base of large trees (CNCI); Ghost Creek drainage, Ghost Main Road, 7.3 km NW Rennell Sound, VIII-21-1983, J.M. Campbell, berlese of moss ex under deciduous shrubs around base of cedar (CNCI); Massett, Graham Island, XII-3-1945, Mrs. Clark (BCPM); Graham Island, 1 mi NW Tlell, VI-27/VII-8-1984, R.S. Anderson, sitka spruce/hemlock forest (CNCI).

Biology: On the islands collected in rotting mushrooms, moss, Labrador tea leaf litter, and leaf litter. Records from the mainland are from coniferous leaf litters.

Distribution: Graham Island. The known distribution is from northwestern Oregon to southern Alaska.

10. *Batrisodes albionicus* (Aubé) (Fig. 4)

Specimens examined, 5: Moresby Island, Cumshewa, VIII-14-1983, J.M. Campbell, sift squirrel midden beside totem poles (CNCI); Louise Island, Skedans Village area, 6-30 m, VIII-6-1983, D.M. & M.D. Kavanaugh, stop #83-76 (CASC); Massett, Rev. Keen (USNM).

Biology: Collected in a squirrel midden, and Keen (1895) found some specimens in ant nests. On the mainland this species is found in a wide variety of leaf and log litters, and with ants.

Distribution: Graham, Moresby, and Louise Islands. The full range extends from extreme northwestern California to the islands of southern Alaska.

Comments: Two female specimens of *B. albionicus* identified as *Batrisodes frontalis* were found (USNM), and probably are the specimens cited by Keen (1895).

11. **Rybaxis transversa* Fall

Specimens examined: None from the islands. A male and female specimen from Anchorage, Alaska are in the H.C. Fall Collection (MCZC), and other specimens have been seen from southern British Columbia and the Northwest Territories.

Biology: Collected in northeastern North America from leaf litters and moss in bogs and swamps.

Distribution: Known from the Canadian maritime provinces to Alaska.

Comments: Other transboreal species of *Rybaxis* (*R. conjuncta* (LeConte) and *R. mystica* Casey) are also known from southern British Columbia.

12. *Reichenbachia binodifer* Casey (Figs. 5, 9)

Specimens examined, 16: 8.8 km SW Tow Hill, VIII-22-1983, J.M. Campbell, treading *Sphagnum* & *Carex* at edge of marsh (CNCI); 19 km NW Queen Charlotte City, MacMillan-Bloedel main line road, 500', VII-16-1983, J.M. Campbell, treading edge of bog (CNCI); 7.9 km NW Queen Charlotte City, 500', VIII-4-1983, berlese of Labrador tea (CNCI); 8 km NW Moresby Camp, VIII-20-1983, J.M. Campbell, treading edge of bog (CNCI).

Biology: On the islands collected primarily along the margins of bogs, but also in Labrador tea leaf litter. Keen's (1895) specimens were collected in moss at tree roots. I have collected this species in California from boxelder and grass leaf litters in and along the margins of springs and sloughs.

Distribution: Graham Island. Known from northern California to the southern islands of Alaska.

Comments: Mrs. Clark's record (1949) of "two undescribed *Reichenbachia*" from northern British Columbia must be this species, as this is the only species of *Reichenbachia* present in her material. *Reichenbachia albionica* (Motschulsky) is recorded from Alaska (Chandler 1997), but I have not seen any specimens of this species north of Washington, and this record may be based on a specimen of *R. binodifer*.

13. *Lucifotychus cognatus* (LeConte) (Fig. 7)

Specimens examined, 13: Ghost Creek drainage, Ghost Main Road, 7.3 km NW Rennell Sound, VIII-21-1983, J.M. Campbell, berlese of moss ex. under deciduous shrubs around base of cedar (CNCI); 7.9 km NW Queen Charlotte City, 500', VIII-4-1983, J.M. Campbell, berlese of Labrador tea (CNCI); 19 km NW Queen Charlotte City, MacMillan-Bloedel main line road, 500', VII-16-1983, J.M. Campbell, treading edge of bog (CNCI); Massett (USNM); "Q.C.I." on yellow circle (probably Massett) (CNCI); 1.4 km S Massett, VII-13-1983, J.M. Campbell, sifting *Alnus* litter (CNCI); Graham Island, 4 mi S Port Clements, VII-8-1984, R.S. Anderson, sitka spruce/hemlock/cedar forest (CNCI); Lyell Island, at mouth of Gate Creek, 3-10 m, VIII-10-1983, D. H. & M. D. Kavanaugh, stop #83-89B (CASC); Moresby Island, 3.6 mi W Sandspit, VII-5-1984, R. S. Anderson, sitka spruce/hemlock forest (CNCI).

Biology: Collected in moss, Labrador tea litter, on bog edge, and in alder litter on the islands. Primarily collected in *Alnus/Acer* and several coniferous leaf litters on the mainland, and most often in these leaf litters on the margins of wet areas.

Distribution: Lyell, Moresby, and Graham Islands. Known from west-central Oregon to the Kenai Peninsula of Alaska.

14. *Pselaphus bellax* Casey (Fig. 6)

Specimens examined, 2: 7.9 km NW Queen Charlotte City, 500', VIII-4-1983, J.M. Campbell, berlese of Labrador tea (CNCI); 19 km NW Queen Charlotte City, MacMillan-Bloedel main line road, 500', VIII-16-1983, J.M. Campbell, berlese sample of Labrador tea (CNCI).

Biology: On the islands collected in Labrador tea leaf litter. In eastern North America collected in moss, and in grass, alder, willow, and other leaf litters found in marshy areas.

Distribution: Graham Island. The full range is from the Canadian maritime provinces through the northeastern United States to northwestern British Columbia.

Comments: Park and Wagner (1962) recorded *Pselaphus ulkei* Bowman from Terrace, British Columbia, but this name was placed recently as a synonym of *Pselaphus bellax* Casey (Chandler 1999).

Discussion

The Pselaphinae are most diverse in tropical areas (Wolda and Chandler 1996), with species richness attenuating as temperate regions are reached, and this group disappears as tundra or alpine areas are approached. Species richness of local communities in temperate northern forests typically range from 10–13 species (Reichle 1969; Tanokuchi and Harada 1983; Tanokuchi and Itoh 1983; Chandler 1987; Tanokuchi 1988; Wolda and Chandler 1996), and eleven species are now known from the Queen Charlotte Islands, though whether or not they all may be found in a single local community hasn't been determined.

When Park and Wagner (1962) monographed the beetles of the Pacific Northwest, 56 species of Pselaphinae were treated, while today 102 species are known (Chandler 1997). Most of this increase has taken place through descriptions of new species from Oregon and Washington, and to a lesser extent through documentation of range extensions of species from eastern North America. Thirty-one species are now known from southern British Columbia; fourteen of these have been found in northern British Columbia, and eleven of these have been recorded from southern Alaska (Chandler 1997, unpublished records). No species are unique to Canada, and the fauna of northern British Columbia appears to be identical to that of southern Alaska. All of these species have fully developed wings and the eyes are normal in size for their respective genera.

The eleven species recorded from the islands exhibit two distributional patterns. Two species, *A. foveicollis* and *P. bellax*, range from northeastern North America to northwestern British Columbia in a transboreal distribution (the "Transamerican Pattern" of Kavanaugh 1988, 1992), with *R. transversa* also sharing this pattern. The remaining nine species range from at least west-central Oregon to northwestern British Columbia, with eight of these recorded from southern Alaska (the "West Coastal Pattern" of Kavanaugh 1992). *Oropus striatus*, collected at Metlakatla, and *A. barri*, recorded from Terrace, share this latter distributional pattern. The transboreal species are all found in leaf litters or mosses along the margins of bogs or in swamps in northeastern North America, while the species exhibiting a "west coastal pattern" are typically found in conifer leaf litter, but also in alder litter and mosses in wet areas.

The Pselaphines of the Pacific Northwest are found in cold temperate forests, bogs, and swamps, and no species are known that would be found in the tundra-like habitats that are presumed to be present on the unglaciated portions of Graham Island during the Wisconsinan glaciation (Clage 1989; Heusser 1989; Mathewes 1989). The ranges of all species extend to unglaciated areas in the Pacific Northwest, or unglaciated areas of the Midwest and Northeast of the United States. Adults all have well-developed wings and normal (large) eyes, indicating that they should be able to disperse readily through the forests when conditions are favorable. There are no unusual forms exhibited by the pselaphine populations on the Queen Charlotte Islands, with the possible exception of the reduced number of elytral foveae found on a few of the specimens of *Actium retractum* collected on the islands. I have seen this pattern occasionally in a number of pselaphine species, but an occurrence of particular note is a similar loss of foveae in *Texamaurops reddelli* Barr and Steeves (Chandler 1992), a species found in low numbers in an isolated group of small caves near Austin, Texas. However, *Actium retractum* is found in moss and conifer leaf litters today, and would not have survived in the floral assemblages present during the Wisconsinan glaciation on the islands. The present distributions of the Pselaphinae known from the Queen Charlotte Islands, and lack of any precinctive distinctive forms best support the hypothesis of subsequent dispersal to the islands following the end of the Wisconsinan glaciation.

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