

Weevils of the Yukon



FRONTISPIECE. Some characteristic weevils from the Yukon: Upper left, *Connatichela artemisiae* Anderson, a brachypterous weevil found on river banks and dry south-facing slopes only in the Yukon and in Alaska; Upper right, *Vitavitus thulius* Kissinger, a rare brachypterous weevil of dry tundra and steppe, recorded only from the Yukon and adjacent areas; Lower left, *Dorytomus hirtus* LeConte, a Nearctic species associated especially with *Populus* in boreal and boreomontane forest; Lower right, *Tychius tectus* LeConte, a widely distributed Holarctic species found in the Yukon on dry south-facing slopes. Length of these species is 5 mm (species on left) and 3–3.5 mm (species on right).

Weevils (Coleoptera: Curculionoidea, Excluding Scolytinae and Platypodinae) of the Yukon

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Abstract. The fauna of Curculionoidea (excluding Scolytinae and Platypodinae and species in the curculionid genus *Lepyrus*) in the Yukon Territory consists of 64 species in 37 genera. Anthribidae are represented by 2 widespread species in 2 genera. Brentidae are represented by 3 species of the genus *Apion*, one widespread northern transcontinental and 2 widespread in western North America. Within Curculionidae there are 59 species in 34 genera. No Rhynchophorinae are known from the Yukon. Brachycerinae are represented by 10 species in 9 genera, and Cossoninae are represented by one species in one genus. There are 48 species in 24 genera of Curculioninae, with *Dorytomus* (9 species), *Ceutorhynchus* (9 species) and *Magdalis* (4 species) the best-represented genera. These totals do not include species of the genus *Lepyrus* which currently are being revised. For Curculionidae, 19 species (33%) occur in both Nearctic and Palaearctic regions (4 species introduced into North America). Of these species, 12 are widespread in Nearctic and Palaearctic regions, 4 are widespread in the northern Palaearctic but restricted in North America to eastern Beringia or marginally beyond (Palaearctic-East Beringian), and 2 are found in only western and eastern Beringia (East-West Beringian). Among Nearctic species, 11 species (19%) are found in northern transcontinental and western montane North America; 7 species (12%) are found throughout northern transcontinental North America; 9 species (15%) are widespread North American. Four species (6%) are widespread western North American (Western Nearctic); 2 species are widespread western montane North American (3%) (Cordilleran); and 5 species (9%) are restricted in distribution to eastern Beringia or marginally beyond (East Beringian). Distributions of 2 species (5%) are incompletely known.

Ten species (17%) are associated with treeless habitats; 24 species (41%) with boreomontane forest; 12 species (20%) with wetlands; and 13 species (22%) with a variety of habitats. Thirteen species (22%) and 10 species (17%) of Yukon weevils use Salicaceae and Pinaceae respectively as hosts. Species of Fabaceae and Cruciferae are predominant among the other hostplants used by remaining weevil species.

Four distinct assemblages are distinguished in the curculionoid fauna. Widespread: an assemblage consisting of 47 widespread species found in boreal and/or boreomontane forest, wetlands, or a variety of habitats and generally characteristic of northern transcontinental North America (and for some species also Eurasia). Western Nearctic: an assemblage consisting of 3 species occurring in prairie habitats in the western United States and western Canada and southern steppe in the Yukon. Palaearctic-East Beringian: an assemblage composed of 5 species widespread in the northern Palaearctic Region but likely recent dispersals to North America and, with one exception (which is widespread in western North America), restricted there to eastern Beringia. Lastly, Beringian: an assemblage composed of 7 species, more or less restricted in their distributions to the Beringian (including eastern Siberia) area. Five of these species are found in treeless habitats, one in boreomontane forest and one in various habitats. Five of these 7 endemic species are in relatively widespread speciose northern genera and are likely late Pleistocene Beringian isolates. Two of the endemic species are in monobasic genera of uncertain phylogenetic affinity and appear to have existed in the region since perhaps the Pliocene. Distributions of 2 species are incompletely known and these species are not included in the analysis of the faunal relationships. *Ceutorhynchus barkalovi* Korotyaev is recorded from North America for the first time.

Résumé. Les charançons (Coleoptera: Curculionoidea, à l'exclusion des Scolytinae et des Platypodinae) du Yukon. La faune des Curculionoidea (à l'exclusion des Scolytinae et des Platypodinae et des espèces de curculionides du genre *Lepyrus*) compte 64 espèces appartenant à 37 genres. Les Anthribidae sont représentés par 2 espèces répandues appartenant à 2 genres. Les Brentidae sont représentés par 3 espèces du genre *Apion*, 1 répandue dans le nord sur tout le continent et 2 répandues dans tout l'ouest de l'Amérique du Nord. Chez les Curculionidae, il y a 59 espèces appartenant à 34 genres. Il n'y a pas de Rhynchophorinae au Yukon. Les Brachycerinae comptent 10 espèces de 9 genres et les Cossoninae, un genre et une seule espèce. Chez les Curculioninae, il y a 48 espèces appartenant à 24 genres, dont *Dorytomus* (9 espèces), *Ceutorhynchus* (9 espèces) et *Magdalis* (4 espèces) sont les mieux représentés. Ces chiffres ne tiennent pas compte des espèces du genre *Lepyrus* qui font actuellement l'objet d'une révision. Chez les Curculionidae, 19 espèces (33%) se trouvent à la fois dans la région néarctique et la région paléarctique (4 espèces ont été introduites en Amérique du Nord). De ces espèces, 12 sont répandues dans les deux régions, 4 sont répandues dans le nord paléarctique mais, en Amérique du Nord, sont confinées à la Béringie orientale ou vivent un peu au-delà (zone paléarctique-Béringie orientale) et 2 sont strictement béringiennes (Béringie

orientale et occidentale). Parmi les espèces néarctiques, 11 (19%) ont une répartition nord-américaine transcontinentale nordique et vivent aussi dans les montagnes de l'ouest, 7 (12%) ont une répartition transcontinentale nordique et 9 (15%) sont répandues partout en Amérique du Nord. Quatre espèces (6%) sont répandues dans l'ouest nord-américain (néarctiques de l'ouest), 2 (3%) sont strictement dans les montagnes de l'ouest nord-américain (cordillériennes) et 5 (9%) sont confinées à la Béringie orientale ou un peu au-delà (Béringie orientale). La répartition de 2 des espèces (5%) est encore mal connue.

Dix espèces (17%) sont associées à des habitats sans arbres, 24 (41%) à la forêt boréo-alpine, 12 (20%) aux zones humides et 13 (22%) à une série d'habitats. Treize espèces (22%) du Yukon sont associées aux saules et 10 (17%) aux pins. Diverses espèces de fabacées et de crucifères comptent parmi les plantes-hôtes dominantes des autres espèces de charançons.

Quatre éléments principaux constituent la faune des curculionides du Yukon: les espèces répandues, un groupe formé de 47 espèces qui habitent la forêt boréale et (ou) la forêt boréo-alpine, les zones humides, ou des habitats variés et généralement caractéristiques de la zone transcontinentale nordique de l'Amérique du Nord (et dans quelques cas de l'Eurasie), un élément de l'ouest néarctique, groupe de 3 espèces vivant en prairie dans l'ouest des États-Unis et du Canada et dans la steppe du sud du Yukon, un élément de la zone paléarctique et de la Béringie orientale, constitué de 5 espèces répandues dans le nord de la région paléarctique, mais probablement apparues récemment en Amérique du Nord et, sauf dans un cas (espèce répandue dans l'ouest de l'Amérique du Nord), confinées à la Béringie orientale, enfin, un élément béringien, groupe formé de 7 espèces à répartition à peu près restreinte à la zone béringienne (y compris la Sibérie orientale). Cinq de ces espèces se trouvent dans des habitats sans arbres, 1 dans la forêt boréo-alpine et 1 dans divers habitats. Cinq de ces 7 espèces endémiques appartiennent à des genres nordiques relativement répandus et riches en espèces et sont probablement restées isolées dans la zone béringienne à la fin du Pléistocène. Deux des espèces endémiques appartiennent à des genres monospécifiques à affinités phylogéniques incertaines et étaient peut-être déjà dans la région au Pliocène. La répartition de 2 espèces reste mal connue et ces espèces n'ont pas été incluses dans l'analyse des relations faunistiques. *Ceutorhynchus barkalovi* Korotyaev est mentionné pour la première fois en Amérique du Nord.

Introduction

This paper deals with the Curculionoidea (excluding Scolytinae and Platypodinae) of the Yukon. The classification followed herein is that of Kuschel (1995). This classification recognizes 6 families of Curculionoidea: Anthribidae, Nemonychidae, Belidae, Attelabidae, Brentidae and Curculionidae. Six subfamilies of Curculionidae are recognized: Brachycerinae, Curculioninae, Rhynchophorinae, Cossoninae, Scolytinae and Platypodinae. Not considered herein are the Scolytinae and Platypodinae, traditionally regarded as distinct families but now included by Kuschel (1995) and Lawrence (1982) as Curculionidae.

Within the superfamily Curculionoidea, diversity is greatest in the family Curculionidae (Anderson 1995). The remaining 5 primitive families tend to be much less speciose particularly at high northern latitudes and the distributions and habits of some are best considered relictual. Anthribidae are the "fungus weevils". As this name implies most species are fungivores although a few species feed on pollen of Asteraceae, some are predators, and some species from New Zealand are associated with lichens. Anthribids tend to be most diverse in tropical regions of the world and only a few widespread species have distributions which extend into the far northern temperate region. Nemonychidae are a small family the members of which are associated almost exclusively with male flowers of various conifers. The group exhibits a bipolar distribution with few species known from tropical or subtropical regions, except at very high elevations. Although a number of species of Nemonychidae are known from western Canada, none has been recorded yet from the Yukon (Kuschel 1989). Belidae are another small family with many species found in the Southern Hemisphere where they are associated with ferns, various gymnosperms and, in Australia, species of *Acacia* (Fabaceae). Other species in this family, especially those in the genus *Proterhinus*, are found on the islands of the Pacific Ocean. The only North American belids are species of the genus *Rhopalotria* associated with cycads in Florida. Rhynchitidae are comprised of 2 subfamilies, Rhynchitinae and Attelabinae. Species of Rhynchitinae are generally associated with dead reproductive and other structures of a variety of plants.

Attelabinae are the leaf-rolling weevils; the larvae feed inside a dead leaf roll prepared by the adult female. Some species of Rhynchitinae are found in western Canada and although none has been recorded, a couple of species may prove to be present in the Yukon. Brentidae are a group of diverse habits, with species in the Brentinae associated with dead wood; Cyladinae associated with sweet potatoes and other Convolvulaceae; and Apioninae associated with a variety of plants and plant parts. Brentinae and Cyladinae tend to be tropical and subtropical in distribution but the genus *Apion* of the Apioninae is one of the largest and most widespread genera of beetles in the world and has many species in the northern temperate region. Collectively, these families are very poorly represented at far northern latitudes and most of this paper deals with the species of Curculionidae.

The family Curculionidae is the largest family of organisms known today. More than 47 930 species in 4300 genera are currently recognized (Kuschel 1995). The vast majority of weevil species are strictly phytophagous as adults and larvae although a few are saprophytic. Even those taxa that are hypogean in habits appear to feed primarily on roots (Osella 1979) although further study may prove them to be saprophagous. The only taxa known to deviate radically from these habits are *Ludovix fasciatus* (Gyllenhal) (Otidoccephalini), a predator of the eggs of an acridid grasshopper in Brazil (Zwölfer and Bennett 1969), and *Tentegia* spp. (Cryptorhynchini), which feed on dung pellets of wallabies and kangaroos in Australia (Wassell 1966).

Virtually all higher plant taxa in both terrestrial and freshwater habitats, and all plant parts, are fed upon by weevils. Weevils make up an important component of the insects known to feed on ferns (Hendrix 1980) as well as other pteridophytes such as the Equisetophyta. Although most Curculionidae are associated with angiosperms, members of a few groups are associated with gymnosperms such as Cycadaceae (Oberprieler 1989; Crowson 1991), Gnetaceae (Crowson 1981), and various Pinidae, particularly Pinaceae, Podocarpaceae, and Araucariaceae (Lawrence 1982). Adult and larval feeding habits of weevils may vary extensively, but species of Curculionidae are loosely classified into 2 groups. In one group, adults and larvae tend to be polyphagous. The larvae of most species feed externally upon roots in the soil although a few are leaf miners or feed externally on foliage. In the second group, both adults and larvae have a more restricted taxonomic range of hostplants. Larvae of most species are internal feeders on other parts of the plant such as the stem, leaves, or reproductive structures. Larvae of few species are external feeders on plant foliage.

Weevils are particularly well represented in tropical and subtropical regions of the world. O'Brien and Wibmer (1978) note that although 28.9% of the world fauna are known from the Neotropical Region, only 5.3% are known from the Nearctic Region. This trend also continues into the higher latitudes and is especially notable in most phytophagous taxa of Coleoptera such as Curculionidae. Only some 14–16 species of Curculionidae, some likely marginally so, have been recorded from arctic regions of North America (Danks 1981). In a very general sense, this may in part be because the number of available species of foodplants for herbivores decreases markedly towards the north (Danks 1981); however, as noted by Danks (1986), this cannot be the sole reason, as herbivores tend to drop out at a faster rate than do the hostplants. The reduction in diversity could also be affected by the restricted diversity or lack of trees, which, because of their higher architectural complexity, harbour a much more diverse assemblage of phytophages than do non-woody plants (Lawton 1983).

The Curculionidae are a very important group economically. Not only are some species serious pests of various agricultural crops or of the forestry industry, but others are proving extremely valuable as biological control agents of pest or noxious weeds (O'Brien

1995) and as pollinators (Anonymous 1981, 1982). Various groups of weevils are particularly common as fossils in Quaternary deposits in the Yukon and Alaska and are an integral component of our understanding of the late Cenozoic history of northern habitats (e.g. Matthews 1982).

Only those taxa for which I have examined representatives are included in the analysis. Literature records (unsubstantiated by personal examination of specimens, unless included in a comprehensive taxonomic revision, e.g. O'Brien 1970) are noted but not considered further. Species determinations have been made by me or by acknowledged curculionid experts. In one genus, determination to species was not possible. This was due to patterns of structural variation necessitating a comprehensive taxonomic revision (17. *Lepyryus* spp.). An attempt also has been made to assemble a list of species from geographic localities bordering the Yukon, particularly the Northwest Territories and Alaska, which may occur within the Yukon.

Specimens of Yukon Curculionoidea were examined from the following collections: Canadian National Insect Collection, Ottawa (CNCI); Spencer Entomological Museum, University of British Columbia, Vancouver (SMDV); Royal Ontario Museum, Toronto (ROME); Strickland Collection, University of Alberta, Edmonton (UASM); J.L. and B.F. Carr Collection, Calgary (JLCC); J.V. Matthews Jr. Collection, Geological Survey of Canada, Ottawa (JVMJ); A. and A. Morgan Collection, Waterloo (AAMC); and the collection of the Canadian Museum of Nature, Ottawa (CMNC). A list of all examined specimens and literature records (substantiated and unsubstantiated) is included as Appendix 1. Collection abbreviations are also given in Arnett et al. (1993).

A checklist of the Curculionoidea known from the Yukon is given, followed by a section dealing with each species in detail. Presented for each species are: known world distribution, taken largely from O'Brien and Wibmer (1982) and Bousquet (1991) but supplemented where appropriate (especially as concerns the Palaearctic Region); distribution in the Yukon (by ecogeographic region only; detailed locality information is available in Appendix 1); habitat associations (habitat concepts following Lafontaine and Wood 1988) characterized by specific specimen collection records or inferred from general locality data; natural history information, taken from publications and from label data associated with specimens from throughout the species range including the Yukon; taxonomic notes concerning phylogenetic relationships, problems in identification and synonymy, problems in patterns of variation, etc.; and notes on fossil specimens. Classification of taxa included follows Kuschel (1995), Valentine (1960), O'Brien and Wibmer (1982, 1984), Wibmer and O'Brien (1986, 1989), and Bousquet (1991).

Geographic terms and distributional summaries, as used in Tables 1–2 and in the "Analysis of the fauna", are explained here. "Widespread North American" species are found throughout most of North America (Fig. 12). Some of these species may extend south into Mexico. "Northern transcontinental" species are found or expected to be found more or less from coast to coast in Canada, extending marginally into any or all of the northern United States (Fig. 11). These species can occur at high or low latitudes in Canada and can thus occur in arctic through boreal life zones. There may be disjunct populations at higher elevations in mountains of the southeastern United States. "Western montane" species are found in the western mountains of Canada and the United States (Fig. 8). They may extend south as far as California and even Mexico in the far west and New Mexico and Colorado to the east. "Widespread western North American" species are those found in that region from 95°W longitude west to the Pacific Ocean (Fig. 9). "Beringian" species are restricted to that area of Alaska, the Yukon and the Northwest Territories in northwestern North

America (delimited to the east by the Mackenzie Mountains) and eastern Siberia in north-eastern Asia (delimited to the west by the Lena River), that remained unglaciated during the last glacial advance (Figs. 2–7). A species found only in the Nearctic portion of Beringia is considered as found in “East Beringia” (Figs. 3–7); a species found only in Palaearctic Beringia is considered as found in “West Beringia”. The distribution of some of these species in North America may extend marginally beyond the unglaciated region into British Columbia, the Northwest Territories and even Alberta (Figs. 2, 4, 5).

Checklist of the Curculionoidea of the Yukon

(+, flight wings long, functional; –, flight wings reduced, not functional)

Family Anthribidae

Subfamily Anthribinae

Tribe Allandrini

1. *Allandrus populi* Pierce (+)

Tribe Tropiderini

2. *Tropideres dorsalis* (Thunberg) (+)

Family Brentidae

Subfamily Apioninae

Tribe Apionini

3. *Apion alaskanum* Fall (+)
4. *Apion antennatum* Smith (+)
5. *Apion cyanitinctum* Fall (+)

Family Curculionidae

Subfamily Brachycerinae

Tribe Polydrosini

Sitonina

6. *Sitona aquilonius* Bright (–)
7. *Sitona lineelus* (Bonsdorff) (–)

Otiorhynchina

8. *Otiorhynchus ovatus* (Linnaeus) (–)

Tribe Entimini

Leptopiina

9. *Connatichela artemisiae* Anderson (–)
10. *Lepidophorus lineaticollis* Kirby (–)
11. *Trichalophus alternatus* (Say) (–)
12. *Vitavitus thulius* Kissinger (–)

Tribe Rhytirrhini

Listroderina

13. *Listronotus maculicollis* (Kirby) (+)
14. *Lixellus filiformis* LeConte (+)

Tribe Hyperini

Hyperina

15. *Hypera seriata* (Mannerheim) (–)

Subfamily Curculioninae

Tribe Lixini

Cleonina

16. *Stephanocleonus zherichini* (Ter-Minassian and Korotyaev) (+)

Tribe Molytini

Lepyrina

17. *Lepyru* spp.

Hylobiina

18. *Hylobius congener* Dalla Torre, Schenkling and Marshall (+)
19. *Hylobius pinicola* (Couper) (+)

Pissodina

20. *Pissodes fiskei* Hopkins (+)
21. *Pissodes rotundatus* LeConte (+)
22. *Pissodes schwarzi* Hopkins (+)

Tribe Eriirhinini

Eriirhinina

23. *Dorytomus frostii* Blatchley (+)
24. *Dorytomus hirtus* LeConte (+)
25. *Dorytomus imbecillus* Faust (+)
26. *Dorytomus lecontei* O'Brien (+)
27. *Dorytomus leucophyllus* (Motschulsky) (+)
28. *Dorytomus luridus* (Mannerheim) (+)
29. *Dorytomus marmoreus* Casey (+)
30. *Dorytomus rufulus* (Mannerheim) (+)
31. *Dorytomus vagenotatus* Casey (+)
32. *Eriirhinus aethiops* (Fabricius) (+)
33. *Grypus equiseti* (Fabricius) (+)
34. *Notaris bimaculatus* (Fabricius) (+)
35. *Procas lecontei* Bedel (+)

Derelomina

36. *Acalyptus carpini* (Herbst) (+)

Tribe Magdalidini

Magdalidina

37. *Magdalis alutacea* LeConte (+)
38. *Magdalis gentilis* LeConte (+)
39. *Magdalis hispoides* (LeConte) (+)
40. *Magdalis* prob. *piceae* Buchanan (+)

Tribe Anthonomini

Bradybatina

41. *Pseudanthonomus validus* Dietz (+)

Tribe Rhynchaenini

42. *Isochnus flagellum* (Ericson) (+)
43. *Tachyerges niger* (Horn) (+)

- Tribe Tychiini
 Elleschina
 44. *Elleschus* prob. *ephippiatus* (Say) (+)
 45. *Procturus decipiens* (LeConte) (+)
 Tychiina
 46. *Tychius tectus* LeConte (+)
- Tribe Ceutorhynchini
 Cnemogonina
 47. *Auleutes epilobii* (Paykull) (+)
 48. *Cnemogonus lecontei* Dietz (+)
 49. *Perigaster liturata* (Dietz) (+)
 Ceutorhynchina
 50. *Ceutorhynchus americanus* Buchanan (+)
 51. *Ceutorhynchus barkalovi* Korotyaev (–)
 52. *Ceutorhynchus neglectus* Blatchley (+)
 53. *Ceutorhynchus oregonensis* Dietz (+)
 54. *Ceutorhynchus punctiger* Gyllenhal (+)
55. *Ceutorhynchus pusio* Mannerheim (+)
 56. *Ceutorhynchus rapae* Gyllenhal (+)
 57. *Ceutorhynchus subpubescens* LeConte (+)
 58. *Ceutorhynchus* n. sp. near *mutabilis* Dietz (+)
- Scleropterina
 59. *Rutidosoma decipiens* (LeConte) (–)
- Phytobiina
 60. *Euhrychiopsis lecontei* (Dietz) (+)
 61. *Pelenomus asperulus* Dietz (+)
 62. *Pelenomus squamosus* LeConte (+)
 63. *Pelenomus ventralis* (Sleeper) (+)
 64. *Phytobius leucogaster* (Marsham) (+)
- Subfamily Cossoninae
 Tribe Rhyncolini
 65. *Rhyncolus brunneus* Mannerheim (+)

Annotated List of Species

Family Anthribidae

Subfamily Anthribinae

Tribe Allandrini

1. *Allandrus populi* Pierce

Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Eastern Plateaus.

Biological information: This species is found in boreal and boreomontane forest. Adults have been associated with *Populus tremuloides* Michx. (Salicaceae) in Idaho and Arizona (Pierce 1930).

Tribe Tropiderini

2. *Tropideres dorsalis* (Thunberg)

Holarctic

Distribution: Northern transcontinental North America, native; widespread Palearctic.

Yukon records: Unknown; record from Bousquet (1991).

Biological information: This species is found in boreal forest. No information is available on the natural history of this species in North America. In Europe, this species is found on dry branches of *Quercus* and *Betula* in May (Pierce 1930).

Family Brentidae

Subfamily Apioninae

Tribe Apionini

3. *Apion alaskanum* Fall

Cordilleran

Distribution: Northern western montane North America.

Yukon records: Porcupine Plain.

Biological information: This species is found in various habitats. Adults have been collected in July on *Hedysarum alpinum americanum* (Michx.) Fedtsch. (Fabaceae) at Reindeer Depot, Northwest Territories, and on *H. mackenzii* Rich. (Fabaceae) at an unstated locality (Kissinger 1968).

4. *Apion antennatum* Smith

Cordilleran

Distribution: Western montane North America.

Yukon records: Porcupine Plain, St. Elias/Coast Mountains.

Biological information: This species is found in boreomontane forest. Adults from unstated localities have been collected on *Franseria* (Asteraceae) and have been swept from alfalfa, *Medicago sativa* (Fabaceae) (Kissinger 1968). One specimen from the Yukon was associated with *Arctostaphylos* sp. (Ericaceae) (CMNC).

5. *Apion cyanitinctum* Fall

Nearctic

Distribution: Northern transcontinental North America.*Yukon records:* Arctic Coastal Plain, Shakwak Trench.*Biological information:* This species is found in boreal forest. Adults have been collected on *Astragalus* sp. (Fabaceae) (Kissinger 1968).**Family Curculionidae**

Subfamily Brachycerinae

Tribe Polydrosini

Sitonina

6. *Sitona aquilonius* Bright

East Beringian

Distribution: Yukon and extreme western mainland Northwest Territories (Fig. 4).*Yukon records:* Porcupine Plain, Yukon/Tintina, Eastern Plateaus, St. Elias/Coast Mountains.*Biological information:* This species is found in various habitats. Adults have been collected on *Hedysarum alpinum* L. var. *americanum* Michx. and *H. boreale* Nutt. var. *mackenzii* (Richardson) C.L. Hitchc. (Fabaceae) in the Northwest Territories (CNCI). All specimens of this species from the Yukon examined by me for wing length are brachypterous. Additional information on the natural history of this species is not available. Adults of the very closely related *Sitona cylindricollis* appear to be found in a variety of habitats. Adults of *S. cylindricollis* feed primarily on foliage of sweet clover (*Melilotus alba* Desr.; Fabaceae) in spring and fall; larvae feed on the root system (nodules and root hairs) during the summer (Bird 1947). Alfalfa (*Medicago sativa* L.; Fabaceae) is also eaten by this species (Bird 1947). According to Bird (1947) in studies conducted at Brandon, Manitoba, adults of *S. cylindricollis* overwinter in soil and ground trash. They emerge from April through July, mate and oviposit, dropping eggs indiscriminately among soil particles. Single females have been known to lay up to 1000 eggs. There are 4 larval instars, the first 3 found in the soil from 2 to 5 inches below the surface. Fourth instars move to the upper inch of soil and pupate there. Adult emergence takes place from July through August.*Taxonomic notes:* Bright (1994) was the first to recognize this species as distinct from *S. cylindricollis*.**7. *Sitona lineelus* (Bonsdorff)**

Holarctic

Distribution: Widespread in North America, native; widespread Palearctic.*Yukon records:* Widespread.*Biological information:* This species is found in various habitats. It appears to be found in association with a variety of Fabaceae (Bright 1994). Loan (1963) recorded adults and larvae of this species (as *Sitona scissifrons* Say) on *Vicia cracca* L. (vetch) in Ontario but elsewhere chiefly on alfalfa (*Medicago sativa* L.). Other plants on which the species has been found are *Caragana* sp., *Melilotus* spp., and *Trifolium hybridum* L. (Fabaceae) (Loan 1963). Details of the natural history in Ontario are given by Loan (1963). Eggs are laid at random on the ground early in the spring by overwintered adults. There are 4 larval instars with the first 2 instars developing in nodules of the hostplant (*Vicia cracca*). Third and fourth instars, however, feed externally on the nodules and root system. Pupation and emergence of adults takes place from June through July. As with *S. cylindricollis*, adults feed on foliage of the hostplant. Length of flying wings varies from long to short in *S. lineelus* in Ontario with the brachypterous form predominating (Loan 1963). Such variation in wing length appears to be widespread in species of *Sitona* and under genetic control. All specimens of *S. lineelus* from the Yukon examined by me for wing length are brachypterous. Hatch (1971) suggested this species (as *S. scissifrons* Say) might be introduced but the widespread distribution and description of the junior synonym *S. scissifrons* by Say as early as 1831 leads me to conclude it is native in North America. In Europe, adults are associated with a variety of Fabaceae (Hoffmann 1950).*Taxonomic notes:* Traditionally this species has been called *S. scissifrons* Say but Bright (1994) places *S. scissifrons* as a junior synonym of *S. lineelus*. This synonymy was first suggested by LeConte (1876).

Otiiorhynchina

8. *Otiiorhynchus ovatus* (Linnaeus)

Holarctic

Distribution: Widespread in North America, introduced; widespread Palearctic.*Yukon records:* Southern Lakes.*Biological information:* This species is found in various habitats. Commonly called the strawberry root weevil, this species is parthenogenetic and is found in a variety of habitats in North America.

Adults are general foliage feeders; larvae are root feeders on a wide variety of hosts (Warner and Negley 1976). Emenegger and Berry (1978) give details of the biology of this species on peppermint in western Oregon. Adults emerge from the soil from late May to mid June. Oviposition takes place from May through August. After hatching, larvae immediately burrow to a depth of 10 to 15 cm in the soil whereupon they begin to feed on small roots. There are 5 larval instars, and, as larvae are active on warm days throughout the winter, the fourth instar is completed by mid winter and the fifth in the spring. Larvae construct earthen cells and pupate in mid April in the top 10 cm of soil. This species is introduced in North America (Warner and Negley 1976). Adults are all brachypterous.

Tribe Entimini
Leptopiina

9. *Connatichela artemisiae* Anderson (Frontispiece) East Beringian

Distribution: Yukon and extreme eastern Alaska (Fig. 6).

Yukon records: Porcupine Plain, Yukon/Tintina, Shakwak Trench, Southern Lakes.

Biological information: This species is found in southern steppe (including river shorelines). Adults of *C. artemisiae* have been collected along dry river banks and on dry south-facing slopes from plants of a small species of *Artemisia* (Asteraceae), probably *A. frigida* Willd. Presence of copulating adults on the *Artemisia* suggests that larvae feed on the roots of this plant (Anderson 1984). Adults are all brachypterous.

Taxonomic notes: The genus *Connatichela* Anderson is of uncertain phylogenetic placement (Anderson 1984); *C. artemisiae* is the only species in the genus.

Fossil material: Fossil specimens, mostly of mid Wisconsinan age, are known from the extreme western Northwest Territories, Alaska and the Yukon (Anderson 1984). They are generally associated with sites representative of dry steppe-tundra habitats dominated by grasses, Chenopodiaceae, and *Artemisia* (Asteraceae). Specimens are frequently found in deposits containing numerous *Lepidophorus lineaticollis* and *Morychus* sp. (Byrrhidae), species that are currently found in dry tundra habitats, along river shorelines, or on xeric south-facing slopes (Matthews 1982).

10. *Lepidophorus lineaticollis* Kirby East-West Beringian

Distribution: Alaska, Yukon, western mainland Northwest Territories, and extreme northern British Columbia, native; Chukotka (Fig. 2).

Yukon records: Widespread.

Biological information: This species is found in wet to dry tundra (including fell-field) and southern steppe (including river shorelines). Adults have been commonly collected in alder leaf litter in Alaska and in various other treeless habitats throughout the species range. This species is likely parthenogenetic as no males have yet been found. Larvae are not known but are likely general root feeders. Adults are all brachypterous.

Fossil material: Fragments of adults are very common as late Pleistocene fossils at numerous sites in Alaska and the Yukon; however, they are not known from Siberia (Matthews 1974, 1975, 1982; Morlan and Matthews 1983). In fossil deposits, this species is a common associate of *Amara alpina* (Paykull) and various *Cryobius* species (Coleoptera: Carabidae), taxa that are generally regarded as indicative of wet to dry tundra habitats (Matthews 1982). The absence of fossils from Siberia would seem to indicate that the species is a recent arrival in that area. The sex of individuals represented by fossil fragments is not known.

11. *Trichalophus alternatus* (Say) Cordilleran

Distribution: Western montane North America.

Yukon records: Southern Lakes.

Biological information: This species is found in boreomontane forest. No information is available on its natural history. Larvae likely feed on roots of some understory deciduous plants. Adults are all brachypterous.

12. *Vitavitus thulius* Kissinger (Frontispiece) East Beringian

Distribution: Yukon and northwestern mainland Northwest Territories (Fig. 5).

Yukon records: British Mountains, Shakwak Trench.

Biological information: This species is found in dry tundra and southern steppe. Until recently only a single living specimen of this species was known (Kissinger 1973). Adults have now been collected in an upland dolomitic fell-field area in association with *Morychus* (Coleoptera: Byrrhidae) and

Lepidophorus lineaticollis, and on a south-facing gravel *Artemisia* slope with *Lepidophorus lineaticollis* and *Hypera seriata*. It is apparently a rare dry-habitat associate of *L. lineaticollis*. No males of this species have yet been collected and it may prove to be parthenogenetic. Larvae are not known but likely feed on roots. Adults are all brachypterous.

Taxonomic notes: The genus *Vitavitus* Kissinger is of uncertain phylogenetic placement. It is likely most closely related to the genus *Lepidophorus*; however, it is uncertain if *V. thulius* is a highly derived species whose sister-group is a lineage within *Lepidophorus* or a primitive taxon whose sister group is *Lepidophorus* itself. *Vitavitus thulius* is the only species in the genus.

Fossil material: *Vitavitus thulius* is relatively abundant in early Pleistocene deposits of the Kolyma Basin (eastern Siberia) and Cape Deceit, Alaska (Matthews 1974; Morgan et al. 1983). It has also been found in Pliocene samples from Lava Camp, Alaska (Matthews 1977), mid Wisconsinan samples from the Bell and Old Crow Basins, northern Yukon (Matthews 1975; Morlan and Matthews 1983), early Wisconsinan? samples from Minnesota (Ashworth 1980), and Holocene samples from Columbia Bridge, Vermont and Brampton, Ontario (Morgan et al. 1983). Matthews (1977) also records a "*Vitavitus c.f. V. thulius*" of Miocene age from Meighen Island, Canadian Arctic Archipelago. The sex of individuals represented by fossil fragments is not known.

Tribe Rhytirrhinini

Listroderina

13. *Listronotus maculicollis* (Kirby) Nearctic

Distribution: Widespread in North America.

Yukon records: Porcupine Plain, Eagle Plain.

Biological information: Adults have been collected in various wetland habitats such as marshes and lake margins. Other information on the natural history is lacking. However, O'Brien (1981) and Henderson (1940) note that other species of this genus breed in various emergent aquatic plants.

14. *Lixellus filiformis* LeConte Western Nearctic

Distribution: Widespread in western North America.

Yukon records: Yukon/Tintina.

Biological information: Adults are commonly collected in various wetland habitats. Hatch (1971) notes that adults of this species occur on such aquatic plants as *Scirpus* (Cyperaceae), *Ptilimnium* (Umbelliferae), and *Lepidium* (Cruciferae). Specimens from the Yukon were collected on *Carex* sp. and I have seen numerous adults collected on *Carex* and *Eleocharis* (Cyperaceae) in Alberta and Saskatchewan (CMNC). Details of the natural history are not known but it is likely that larvae are stem miners in plants of one or more genera of Cyperaceae. Adults of another species of *Lixellus*, *L. haldemani* Burke, were collected in Texas at night on *Juncus nodatus* Coville (Juncaceae) and a single larva was also found in a tunnel in a stem of this same species of plant (Burke 1963).

Tribe Hyperini

Hyperina

15. *Hypera seriata* (Mannerheim) East Beringian

Distribution: Alaska, extreme western mainland Northwest Territories and Yukon (Fig. 7).

Yukon records: Arctic Coastal Plain, British Mountains, Richardson Mountains, Shakwak Trench.

Biological information: This species has been found in dry tundra and southern steppe. Adults have been collected in pitfall traps in dry tundra habitat and on south-facing gravel, *Artemisia*-dominated slopes. Adults are all brachypterous. Larvae of other species of *Hypera* feed externally on a variety of parts of a variety of plant taxa, chiefly Polygonaceae and Fabaceae (Titus 1911).

Fossil material: Matthews (1974) records fossils of this species from Holocene deposits at Cape Deceit, Alaska.

Subfamily Curculioninae

Tribe Lixini

Cleonina

16. *Stephanocleonus zherichini* Palaeartic-East Beringian (Ter-Minassian and Korotyaev)

Distribution: Yukon, native; north-central and northeastern Palaeartic Region (Polar Ural Mountains, Taimyr, northern Kamchatka and Chukotka) (Fig. 1).

Yukon records: Porcupine Plain.

Biological information: This species has been found in dry tundra (including fell-field). A large number of adults (recorded as *S. stenothorax* Anderson, see Anderson 1989b) were collected in pitfall traps in a partly forested limestone upland and fell-field in association with *Lepidophorus lineaticollis*, *Vitavitus thulius* and a number of dry-tundra-site Carabidae (Anderson 1988). Larvae of *S. parshus* Anderson have been recorded feeding on roots of strawberry in Tennessee (Marcovitch 1923). Larvae of *S. zherichini* likely also feed on roots but hosts are unknown.

Tribe Molytini

Lepyrina

17. *Lepyrus* spp.

This genus requires revision and, although there are at least 3 distinct forms present according to Van Dyke (1928), I have not been able to determine how many species of *Lepyrus* are represented in the Yukon. Members of the genus are northern or alpine in their distributions. They are largely found associated with *Salix* species (Salicaceae), although further details of natural history are not known. Adults of some of the forms are brachypterous. Hoffmann (1954) notes that larvae of *L. palustris* (Scopoli) in Europe feed on the primary roots of *Rumex obtusifolius* D.C. (Polygonaceae) even though adults are found frequently on various species of Salicaceae. Fossil specimens of a variety of species are recorded from Quaternary deposits at Cape Deceit, Alaska (Matthews 1974).

Hylobiina

18. *Hylobius congener* Dalla Torre, Schenkling and Marshall Nearctic

Distribution: Northern transcontinental North America and Appalachia.

Yukon records: Liard Plain.

Biological information: This species is found in boreal forest. According to Martin (1964), adults lay eggs in shallow cavities excavated in the bark of logs and stumps. Oviposition begins in late May and continues into June. Larvae feed in the phloem and reach maturity in about 65 to 70 days. They form pupal cells several millimetres below the surface of the wood and remain in a prepupal stage throughout the winter. They emerge during late July and August of the next year and feed on the inner bark of logs and slash. These adults overwinter in duff and mate and oviposit during the following spring. Warner (1966), following Martin (1964), gives hosts as *Pinus resinosa* Ait., *P. strobus* L. and *P. sylvestris* L. (Pinaceae).

19. *Hylobius pinicola* (Couper)

Nearctic

Distribution: Northern transcontinental North America and Appalachia (Fig. 11).

Yukon records: Yukon/Tintina, Peel Plateau, Eastern Plateaus.

Biological information: This species is found in boreal forest. Larvae attack the root systems of various Pinaceae (*Pinus* spp., *Abies* spp., *Larix* spp. especially *L. laricina* (Du Roi) Koch, and *Picea glauca* (Moench) Voss) (Warren 1960; Grant 1966; Warner 1966). Adults feed on terminal shoots and needles but cause little damage (Grant 1966).

Pissodina

20. *Pissodes fiskei* Hopkins

Nearctic

Distribution: Northern transcontinental North America.

Yukon records: Eastern Plateaus.

Biological information: This species is found in boreal forest. Hopkins (1911) lists hosts as *Picea rubens* Sarg. and *Picea mariana* (Mill.) BSP (Pinaceae). Adults were found associated with thick bark on logs, stumps and trunks of small standing trees (Hopkins 1911).

21. *Pissodes rotundatus* LeConte

Nearctic

Distribution: Northern transcontinental North America.

Yukon records: Porcupine Plain, Eastern Plateaus, Yukon/Tintina.

Biological information: This species is found in boreal forest. Hopkins (1911) lists *Picea mariana* as a host and notes probable hosts as *Picea rubens* Sarg. and *Picea glauca* (Moench) Voss (= *Picea canadensis* of authors) (Pinaceae). Doidge (1967) presents notes on the biology of *P. rotundatus* in

British Columbia and confirms that species of *Picea* are hosts. Larvae mine the inner bark of dead trees.

22. *Pissodes schwarzi* Hopkins

Cordilleran

Distribution: Western montane North America (Fig. 8).

Yukon records: Porcupine Plain.

Biological information: This species is found in boreomontane forest. Hopkins (1911) notes that the species has been associated with *Pinus ponderosa* Dougl. (Pinaceae), where larvae feed in thick bark on trunks, in bases of saplings and possibly in tops and terminals.

Tribe Eirirhinini

Eirirhinina

23. *Dorytomus frostii* Blatchley

Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Porcupine Plain, Southern Lakes, Liard Plain.

Biological information: This species is found in boreal and boreomontane forest. Adults have been collected on *Salix* sp., *Populus tremuloides* Michx. and *Populus* sp. (Salicaceae) (O'Brien 1970). O'Brien (1970) notes that larvae of Japanese species of *Dorytomus* feed in catkins and penetrate the ovaries or pollen masses. Pupation takes place in the soil. Eggs are laid twice a year, in fall and spring, in cavities excavated by the female in buds and catkins of *Populus* and *Salix* species. Morris (1969) notes a similar, but univoltine, life history for *D. hirtipennis* Bedel in England.

24. *Dorytomus hirtus* LeConte (Frontispiece)

Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Shakwak Trench.

Biological information: This species is found in boreal and boreomontane forest. Adults have been collected rarely on *Salix* sp., but much more frequently on *Populus fremontii* and *P. trichocarpa* T. and G. (O'Brien 1970). (See also Biological information for *D. frostii*.)

25. *Dorytomus imbecillus* Faust

Holarctic

Distribution: Northern transcontinental North America and Greenland, native; northeastern Palaearctic Region (within the Arctic Circle from Vorkuta to eastern Chukotka, Mongolia, Yakutia, Maritime Territory, Magadan Province and Kamchatka).

Yukon records: British Mountains, Porcupine Plain, Ogilvie Mountains, Eastern Plateaus.

Biological information: This species is found in various habitats. Adults in the Yukon have been collected in litter under dwarf *Populus* and under *Salix* (Salicaceae) in shrub tundra habitat. Adults also have been collected from *Salix* sp. in North America (O'Brien 1970, as *D. alaskanus*) and the Palaearctic Region (Korotyaev 1976a) and on *S. glauca* L. in Greenland (Böcher 1988). (See also Biological information for *D. frostii*.)

26. *Dorytomus lecontei* O'Brien

East Beringian

Distribution: Alaska and Yukon (Fig. 3).

Yukon records: Shakwak Trench.

Biological information: This species is found in boreomontane forest. No information on the natural history of this species is available but as all other *Dorytomus* species are associated with Salicaceae this species is likely similarly associated with these plants. (See also Biological information for *D. frostii*.)

27. *Dorytomus leucophyllus* (Motschulsky)

Holarctic

Distribution: Alaska, Yukon, northern British Columbia and western mainland Northwest Territories, native; northeastern Palaearctic Region (northern Archangel Province, Yakutia, Maritime Territory, Sakhalin, Kuril Islands, Magadan Province and Kamchatka).

Yukon records: Porcupine Plain, Richardson Mountains, Eagle Plain, Yukon/Tintina, Shakwak Trench.

Biological information: This species is found in boreal and boreomontane forest. Adults from the Yukon have been collected on *Salix glauca* L. and *Salix alaxensis* Cov. (Salicaceae). Adults also have been recorded from *Salix* sp. in North America (O'Brien 1970, as *D. subsignatus*) and the eastern Palaearctic Region (Korotyaev 1976a). (See also Biological information for *D. frostii*.)

28. ***Dorytomus luridus* (Mannerheim)** Nearctic
Distribution: Northern transcontinental and western montane North America.
Yukon records: Porcupine Plain, Ogilvie Mountains.
Biological information: This species is found in boreal and boreomontane forest. Adults have been collected on *Salix* sp., *S. lasiolepis* Benth. in California, and *S. scouleriana* Barr. (Salicaceae) in British Columbia (O'Brien 1970). (See also Biological information for *D. frostii*.)
29. ***Dorytomus marmoreus* Casey** Nearctic
Distribution: Northern transcontinental and western montane North America.
Yukon records: Shakwak Trench.
Biological information: This species is found in boreal and boreomontane forest. No information is available on the natural history of this species but as all other *Dorytomus* species are associated with Salicaceae this species is likely similarly associated with these plants. (See also Biological information for *D. frostii*.)
30. ***Dorytomus rufulus* (Mannerheim)** Holarctic
Distribution: Northern transcontinental and western montane North America, native; north-central and northeastern Palaearctic Region (southeastern Altay and Polar Ural Mountains east to the Maritime Territory and central Chukotka).
Yukon records: British Mountains, Ogilvie Mountains, Yukon/Tintina, Eastern Plateaus, Southern Lakes.
Biological information: This species is found in boreal and boreomontane forest. Adults in the Yukon have been collected in litter under *Salix* (Salicaceae). Adults have been collected on *Salix* sp. in North America (O'Brien 1970) and the eastern Palaearctic Region (Korotyayev 1976a). (See also Biological information for *D. frostii*.)
31. ***Dorytomus vagenotatus* Casey** Nearctic
Distribution: Northern transcontinental and western montane North America (Fig. 10).
Yukon records: Ogilvie Mountains, Yukon/Tintina.
Biological information: This species has been found in boreal and boreomontane forest. Adults have been recorded on *Populus grandidentata* Michx. (Ohio) and *P. tremuloides* Michx. (Michigan) (Salicaceae) (O'Brien 1970). (See also Biological information for *D. frostii*.)
32. ***Eriirhinus aethiops* (Fabricius)** Holarctic
Distribution: Northern transcontinental North America, native; widespread Palaearctic.
Yukon records: Porcupine Plain, Ogilvie Mountains, Yukon/Tintina, Eastern Plateaus, Shakwak Trench.
Biological information: This species is found in wetlands. Adults have been collected in association with *Typha* species (Typhaceae) in wetlands in Ontario (CMNC). Lohse (1983) notes that in Europe this species is associated with *Sparganium ramosum* Curt. (Sparganiaceae). This species is indigenous in North America (Lindroth 1957; cf. Hatch 1971).
Fossil material: A questionable fossil specimen of this species was recorded from Quaternary deposits at Cape Deceit, Alaska (Matthews 1974).
33. ***Grypus equiseti* (Fabricius)** Holarctic
Distribution: Northern transcontinental North America, native; widespread Palaearctic.
Yukon records: Porcupine Plain, Yukon/Tintina, Eastern Plateaus, Shakwak Trench.
Biological information: In North America, adults are found on *Equisetum* (Equisetaceae) (Hatch 1971) in various wetland habitats. Hofmann (1958) states that in Europe, larvae mine and pupate in the collars and at the base of stems of *Equisetum palustre* L. Adults are the overwintering stage. Hatch (1971) incorrectly notes that this species is introduced (cf. Lindroth 1957).
34. ***Notaris bimaculatus* (Fabricius)** Holarctic
Distribution: Northern transcontinental North America, native; widespread Palaearctic.
Yukon records: Porcupine Plain, Southern Lakes.
Biological information: This species is found in wetlands. No additional information is available on the natural history of this species in North America. Hoffmann (1958) notes that in Europe, larvae of this species mine and pupate in the stems of *Typha latifolia* L. (Typhaceae). This species is indigenous in North America (Lindroth 1957; cf. Hatch 1971).

35. *Procas lecontei* Bedel

Nearctic

Distribution: Northern transcontinental North America.*Yukon records:* Yukon/Tintina.*Biological information:* This species is found in boreal forest. No additional information is available on the natural history of this species.

Derelomina

36. *Acalyptus carpini* (Herbst)

Holarctic

Distribution: Northern transcontinental North America, introduced; widespread Palearctic.*Yukon records:* Porcupine Plain, Eagle Plain, Ogilvie Mountains, Yukon/Tintina, Eastern Plateaus.*Biological information:* This species is found in boreal forest. Adults have been collected on *Salix* species (Salicaceae) in the Yukon. Hoffmann (1954) notes that larvae of *A. carpini* in Europe are found in the axis of female catkins of *Salix incans* Schrank. Pupation takes place in the soil. Blatchley and Leng (1916) and Lindroth (1957) consider this species introduced into North America from Europe.

Tribe Magdalidini

Magdalidina

37. *Magdalis alutacea* LeConte

Nearctic

Distribution: Northern transcontinental and western montane North America.*Yukon records:* Porcupine Plain, Yukon/Tintina, Eastern Plateaus, Shakwak Trench, Southern Lakes.*Biological information:* This species has been found in boreal and boreomontane forest. Fall (1913) notes that the species has been reared from *Picea engelmanni* Parry (Colorado) (Pinaceae). Furniss and Carolin (1977) and Hatch (1971) note the species from *Picea* spp.38. *Magdalis gentilis* LeConte

Nearctic

Distribution: Northern transcontinental and western montane North America.*Yukon records:* Porcupine Plain, Yukon/Tintina, Eastern Plateaus, Shakwak Trench.*Biological information:* This species has been found in boreal and boreomontane forest. Fall (1913), based on questionable identifications, reports the species from *Pinus jeffreyi* (California), *Picea glauca* (Moench) Voss (= *Picea canadensis* of authors) (Maine), and *Picea* sp. (Maine) (Pinaceae). Hatch (1971) reports it from *Pinus jeffreyi*.39. *Magdalis hispoides* (LeConte)

Nearctic

Distribution: Northern transcontinental and western montane North America.*Yukon records:* Yukon/Tintina, Southern Lakes.*Biological information:* This species has been found in boreal and boreomontane forest. Hatch (1971) and Furniss and Carolin (1977) record this species from *Pinus contorta* Dougl. and various other *Pinus* species (Pinaceae).40. *Magdalis prob. piceae* Buchanan

Nearctic (disjunct)

Distribution: Eastern North America and southwestern Yukon.*Yukon records:* Southern Lakes.*Biological information:* This species has been found in boreal forest. The type series was reared from Colorado blue spruce (*Picea pungens* Engelmann var. *glauca*) (Pinaceae) in Massachusetts (Buchanan 1934).*Taxonomic notes:* This species has so far only been recorded from eastern North America (Buchanan 1934; Bousquet 1991); therefore the identification of the Yukon specimen must be regarded as uncertain.

Tribe Anthonomini

Bradybatina

41. *Pseudanthonomus validus* Dietz

Nearctic

Distribution: Widespread in North America.*Yukon records:* Yukon/Tintina.*Biological information:* This species is found in various habitats. Adults have been associated with a number of plant families: Betulaceae, Ericaceae, Rosaceae, and Saxifragaceae (Clark 1987). The

common name of this species is the “currant fruit weevil”. Adults lay eggs in cavities in young fruit and larvae develop therein (Clark 1987).

Tribe Rhynchaenini

42. *Isochnus flagellum* (Ericson)

Palaeartic-East Beringian

Distribution: Alaska, Yukon and western mainland Northwest Territories, native; widespread northern Palaeartic Region.

Yukon records: Porcupine Plain, Yukon/Tintina, Eastern Plateaus.

Biological information: This species is found in various habitats. Adults are associated with willows (Anderson 1989a). In the Palaeartic Region, adults have been recorded from a number of *Salix* species (*S. lapponum* L., *S. aurita* L., *S. cinerea* L., and *S. lanata* L.) (Palmen 1944). On Spitsbergen, adults have been collected on *Betula nana* L., and *S. polaris*; adults have been reared from mines in leaves of *S. reticulata* (Kangas 1967). It is likely that adults and larvae are associated with a number of *Salix* species.

43. *Tachyerges niger* (Horn)

Nearctic

Distribution: Widespread in North America (Fig. 12).

Yukon records: Porcupine Plain, Ogilvie Mountains, Yukon/Tintina, Eastern Plateaus, Southern Lakes.

Biological information: This species is found in various habitats. Adults are associated with a variety of *Salix* species (Salicaceae) as follows (Anderson 1989a): *S. atplanifolia* Pursh. (Alberta), *S. barklayi* Anderss. (Alberta), *S. bebbiana* Sarg. (South Dakota), *S. exigua* Nutt. (North Dakota, Utah), *S. lasian-dra* Benth. (California), *S. lasiolepis* Benth. (California), *S. lasiolepis* var. *bigelovii* (Torr.) Bebb. (California), *S. lemmonii* Bebb. (California), *S. nigra* Marsh. (Florida), *S. petiolaris* J.E. Sm. (Alberta), and *S. scouleriana* Barratt (Idaho, California). Larvae are likely leaf miners on these same plants (Anderson 1989a). There are no records of adults of this species on *Populus*.

Tribe Tychiini

Elleschina

44. *Elleschus* prob. *ephippiatus* (Say)

Nearctic

Distribution: Widespread in North America.

Yukon records: Yukon/Tintina, Eastern Plateaus, Shakwak Trench, Southern Lakes.

Biological information: This species is found in various habitats. Adults are associated with *Salix* species (Salicaceae) in North America. Hoffmann (1954) notes that larvae of European *Elleschus* species mine the central axis of female catkins of *Salix* and *Populus* species.

Taxonomic notes: The systematics of this genus are in an inadequate state; hence this identification should be considered uncertain. The records of *Elleschus borealis* Carr of Fall (1926) are considered here as *E. prob. ephippiatus*.

45. *Procturus decipiens* (LeConte)

Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Eagle Plain, Ogilvie Mountains.

Biological information: This species is found in boreal and boreomontane forest. Adults are associated with *Salix* species (Salicaceae) (Hatch 1971). Further details of the life history are not known.

Tychiina

46. *Tychius tectus* LeConte (Frontispiece)

Holarctic

Distribution: Western and central North America, Alaska and Yukon (Fig. 9); widespread central and northeastern Palaeartic Region (Russia, Mongolia, Siberia, China: Caldara 1990).

Yukon records: Yukon/Tintina, Eastern Plateaus, Shakwak Trench, Southern Lakes.

Biological information: This species is found in prairie habitats in northern-central and western North America (Clark 1971). Adult specimens in the Yukon have been collected on xeric south-facing slopes. Adults from Ross River (Yukon Territory) were collected on *Hedysarum* sp. (Fabaceae). Other hosts in other parts of the species range are various species of *Astragalus* and *Oxytropis* (Fabaceae) (Clark 1971). Clark (1971) notes that larvae of other Nearctic *Tychius* species feed on seeds in developing pods. Pupation takes place on the ground.

Taxonomic notes: This species was first noted as Holarctic by Caldara (1985, 1990). Adult specimens from Alaska and the Yukon differ from individuals in the remainder of the North American range as

they have lighter yellowish to grayish vestiture and the individual scales are narrow leaving the integument exposed (Clark 1971). Information on degree of structural difference between Alaskan and Yukon specimens and specimens from the Palearctic Region is not available.

Tribe Ceutorhynchini

Cnemogonina

47. *Auleutes epilobii* (Paykull)

Holarctic

Distribution: Widespread in North America, native; widespread Palearctic.

Yukon records: Porcupine Plain, Yukon/Tintina.

Biological information: This species is found in wetlands. Adults have been associated with *Ludwigia octovalvis* (Jacq.) Raven (Onagraceae) in southern Florida (Anderson 1992). Hoffmann (1954) notes this species is associated with *Epilobium spicatum* Lam. (Onagraceae) in Europe. Scherf (1964) further notes that larvae are found in galls on stems of *Epilobium angustifolium* L. This species is regarded by Lindroth (1957) as indigenous in North America.

Taxonomic notes: *Auleutes cruralis* (LeConte), generally regarded as a junior synonym of *A. epilobii*, is considered the valid name of this species by Blatchley and Leng (1916). According to Blatchley and Leng (1916), North American and Palearctic specimens considered as *A. epilobii* are different species; true *A. epilobii* does not occur in North America.

48. *Cnemogonus lecontei* Dietz

Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Ogilvie Mountains, Yukon/Tintina.

Biological information: This species is found in boreal and boreomontane forest. No additional information is available on the natural history of this species.

49. *Perigaster liturata* (Dietz)

Nearctic

Distribution: Northern transcontinental North America.

Yukon records: Shakwak Trench.

Biological information: This species is likely associated with Onagraceae in wetlands. Larvae of the related *Perigaster cretura* (Herbst) feed externally on the leaves of various species of *Ludwigia* and *Jussiaea* (Onagraceae) in Texas (Clark 1976).

Ceutorhynchina

50. *Ceutorhynchus americanus* Buchanan

Nearctic

Distribution: Widespread in North America.

Yukon records: Yukon/Tintina.

Biological information: This species is found in various habitats. Buchanan (1937) gives a list of plants, all Cruciferae, on which adults have been collected. These are as follows: radish, horse-radish, *Lepidium* sp., cultivated mustard, mustard, and chinese cabbage. Adults have also been reared from *Lepidium virginicum* L. (Buchanan 1937).

Taxonomic notes: In older literature (e.g. Dietz 1896; Blatchley and Leng 1916) this species was called *C. cyanipennis* Germar.

51. *Ceutorhynchus barkalovi* Korotyaev

East-West Beringian

Distribution: Yukon, native; Wrangel Island (Fig. 3).

Yukon records: Ogilvie Mountains.

Biological information: This species is found in dry tundra (including fell-field). In the Yukon 2 adults were collected in pan traps set in a dry, dolomitic fell-field slope. The type series of 6 specimens from Wrangel Island represents the only other known specimens of this species (Korotyaev 1976b); 4 living and 2 dead specimens were found in a tundra-steppe community of a floodplain and 2 of the living specimens were collected under *Parrya nudicaulis* (L.) Regel. (Cruciferae). Adults are brachypterous, an uncommon occurrence in species of this genus.

Taxonomic notes: This is the first and only North American record of this species.

52. *Ceutorhynchus neglectus* Blatchley

Nearctic

Distribution: Western, central and northern transcontinental North America and Appalachia.

Yukon records: Yukon/Tintina, Eastern Plateaus, Southern Lakes.

Biological information: This species is found in a variety of habitats throughout its range. Blatchley and Leng (1916) state that the foodplant is probably *Polygonum* (Polygonaceae). However, others and I have collected numerous specimens from mustard (Cruciferae), and I have seen specimens collected from *Descurainia sophis* (L.) Webb. in Saskatchewan (CMNC) and *Rorippa islandica* (Oeder) Borbas in the Northwest Territories and Ontario (CNCI) (both Cruciferae). A variety of Cruciferae probably are suitable as larval hosts.

Taxonomic notes: There has been much confusion over the identities of *C. pusio*, *C. fulvotertius* Fall, *C. neglectus* Blatchley, *C. hamiltoni* Dietz and, most recently, *C. querceti* (Gyllenhal). *Ceutorhynchus neglectus* Blatchley is a species which is widespread in North America on various crucifers. *Ceutorhynchus fulvotertius* Fall and *C. pusio* Mannerheim are considered here as junior synonyms of *C. querceti* (Gyllenhal), a Palaearctic species whose name was recently suggested by Dieckmann (1972) as a senior synonym of *C. pusio*. *Ceutorhynchus hamiltoni* Dietz is not considered conspecific with *C. querceti*, contrary to Wibmer and O'Brien (1989) and Bousquet (1991), but a distinct species which occurs along the Atlantic Coast on *Cakile edentula* Bigel (Cruciferae). The widespread distributions of *C. querceti* given by O'Brien and Wibmer (1982; following changes in Wibmer and O'Brien 1989) and Bousquet (1991) are considered here as based on misidentifications of *C. neglectus* (and inclusion of *C. hamiltoni*) and *C. querceti* in North America apparently is restricted to Alaska, the Yukon and British Columbia. The *C. pusio* Mannerheim records of Fall (1926) are *C. neglectus*.

53. *Ceutorhynchus oregonensis* Dietz Nearctic

Distribution: Western and central North America.

Yukon records: Porcupine Plain, Richardson Mountains, Yukon/Tintina, Eastern Plateaus, Shakwak Trench.

Biological information: This species is found in prairie habitats in northern-central and western North America and southern steppe (including river shorelines) in the Yukon. I have seen a number of adults of this species collected from *Rorippa islandica* (Oeder) Borbas (Cruciferae) in Utah (CMNC).

54. *Ceutorhynchus punctiger* Gyllenhal Holarctic

Distribution: Widespread in North America, introduced; widespread Palaearctic.

Yukon records: Southern Lakes.

Biological information: This species is found in a variety of habitats in North America where it is associated largely with dandelion, *Taraxacum officinale* Weber (Asteraceae); larvae feed on the seeds in flower heads (McAvoy et al. 1983). Pupation takes place in the soil. *Ceutorhynchus punctiger* is considered introduced in North America from Europe (Blatchley and Leng 1916).

Taxonomic notes: In older literature (e.g. Blatchley and Leng 1916) this species is incorrectly called *C. marginatus* Paykull.

55. *Ceutorhynchus querceti* (Gyllenhal) Palaearctic-East Beringian

Distribution: Alaska, Yukon and British Columbia, native; widespread northern Palaearctic Region.

Yukon records: Porcupine Plain.

Biological information: This species is found in various habitats. No additional information is available on the natural history of this species in North America. In Europe, this species is associated with Cruciferae. Adults have been collected in large numbers in England on *Nasturtium amphibium* R. Br. and *N. palustre* D.C. and larvae mine stems of *N. palustre* (Hoffmann 1954); Tempère and Péricart (1989) record the species from *Rorippa nasturtioides* Spach in France; and Lohse (1983) notes the species as monophagous on *Rorippa islandica*.

Taxonomic notes: There has been much confusion over the identity of this species (see discussion under *C. neglectus* Blatchley, above). I have seen records of *C. querceti* in North America only from Alaska, the Yukon and a single specimen from British Columbia (Copper Mountain, 12.vi.1928, G. Stace-Smith [1, CNCI]). I suspect the more widespread distributions of this species given by O'Brien and Wibmer (1982; following changes in Wibmer and O'Brien 1989) and Bousquet (1991) are based on misidentification of *C. neglectus* and on inclusion of *C. hamiltoni* Dietz as a junior synonym. The *C. pusio* Mannerheim records of Fall (1926) are *C. neglectus*.

56. *Ceutorhynchus rapae* Gyllenhal Holarctic

Distribution: Widespread in North America, introduced; widespread Palaearctic.

Yukon records: Arctic Coastal Plain, Porcupine Plain, Yukon/Tintina, Eastern Plateaus, Southern Lakes.

Biological information: This species is cosmopolitan and is found in most habitats where suitable hostplants occur. It is associated with numerous Cruciferae in North America (Blatchley and Leng 1916; Hatch 1971). Hoffmann (1954) notes that in Europe, larvae of this species are found in the extreme base of stems and in roots of various Cruciferae. It was introduced into North America from Europe (Blatchley and Leng 1916; Lindroth 1957; Hatch 1971).

57. *Ceutorhynchus subpubescens* **LeConte** Western Nearctic

Distribution: Western and central North America.

Yukon records: Shakwak Trench.

Biological information: This species is found in southern-steppe habitat in the Yukon. Adults of *C. subpubescens* have been collected on *Descurainia sophia* (L.) Prantl. (Cruciferae) and *Salix* sp. (Salicaceae) in the Northwest Territories (CMNC, CNCI); the *Salix* records are likely incidental.

58. *Ceutorhynchus* n. sp. near *mutabilis* **Dietz** Western Nearctic

Distribution: Western and central North America.

Yukon records: Shakwak Trench.

Biological information: This species has been collected in prairie habitat in Montana and on xeric slopes (southern steppe) in the Yukon. Other aspects of the natural history are not known.

Scleropterina

59. *Rutidosoma decipiens* (**LeConte**) Nearctic

Distribution: Western, central and northern transcontinental North America and Appalachia.

Yukon records: Yukon/Tintina, Southern Lakes.

Biological information: This species is found in boreal and boreomontane forest. Adults have been collected in northern Ontario on *Populus alba* L. (Salicaceae) (CMNC). Fall (1926) records *R. decipiens* from Dawson, Yukon (as *Ceutorhynchus decipiens*). Adults are all brachypterous. In Europe, adults of *R. globulus* Herbst also have been recorded from *Populus tremulus* (Böcher 1988) and *Populus* spp. (Hoffmann 1955); the suspected hostplant in Greenland of *R. globulus* is *Salix glauca* (Böcher 1988).

Phytobiina

60. *Euhrychiopsis lecontei* (**Dietz**) Nearctic

Distribution: Northern transcontinental North America.

Yukon records: Southern Lakes.

Biological information: This species is found in wetlands. Adults have been collected on *Potamogeton* (Potamogetonaceae) and *Myriophyllum* (Haloragaceae) (Hatch 1971).

61. *Pelenomus asperulus* **Dietz** Nearctic

Distribution: Widespread in North America.

Yukon records: Record from Bousquet (1991).

Biological information: This species is found in wetlands. Additional information is not available on the natural history of this species. Hoffmann (1954) and Scherf (1964) note that a number of Palaearctic species of *Pelenomus* (as *Phytobius* species) are associated with various species of *Polygonum* (Polygonaceae).

62. *Pelenomus squamosus* **LeConte** Nearctic

Distribution: Widespread in North America.

Yukon records: Eastern Plateaus.

Biological information: This species is found in wetlands. No additional information is available on the natural history of this species. (See also Biological information for *P. asperulus*.)

63. *Pelenomus ventralis* (**Sleeper**) Cordilleran?

Distribution: Alberta, British Columbia and Yukon.

Yukon records: Eagle Plain, Yukon/Tintina, Eastern Plateaus.

Biological information: This species is found in wetlands. No additional information is available on the natural history of this species. (See also Biological information for *P. asperulus*.)

64. *Phytobius leucogaster* (**Marshall**) Holarctic

Distribution: Widespread in North America, native; widespread Palaearctic.

Yukon records: Yukon/Tintina.

Biological information: This species is found in a variety of wetland habitats where it breeds on *Myriophyllum* species (Haloragaceae) (Hatch 1971; Buckingham and Bennett 1981). Details of the natural history based on laboratory studies are presented by Buckingham and Bennett (1981). Eggs are most commonly laid in the sides of an ovary, but also among or in flower buds, among anthers of open male flowers, in excavations in the stems of the flower spike and in submerged flower and stem buds. First-instar larvae feed inside the ovaries but subsequent instars feed externally on the flowers. Pupation takes place in an excavation in a submerged stem. This species also has been recorded from *Myriophyllum* species in Europe (Hoffmann 1954; Scherf 1964).

Subfamily Cossoninae

Tribe Rhyncolini

65. *Rhyncolus brunneus* Mannerheim Nearctic

Distribution: Northern transcontinental and western montane North America.

Yukon records: Porcupine Plain, Yukon/Tintina, Eastern Plateaus, Southern Lakes.

Biological information: This species is found in boreal and boreomontane forest. Hatch (1971) reports adults found under bark of dead *Pinus*, *Picea* and *Abies*. Furniss and Carolin (1977) add *Pseudotsuga*, *Thuja* and *Tsuga* to this list of conifers. Details of the natural history are not known but it appears likely that larvae develop indiscriminately in dead wood of Pinaceae. Blatchley and Leng (1916), likely in error, record specimens from under bark of wild cherry (*Prunus serotina* Ehrh.) (Rosaceae) in New Jersey.

Additional Fossil Material

Aside from specimens of species mentioned previously, individuals of various other genera have also been found as fossils in the Beringian area in deposits of various ages (Matthews 1968, 1974, 1975; Morlan and Matthews 1983). None of these specimens has been positively identified to species. Genera represented are *Sitona*, *Hypera*, *Stephanocleonus*, *Lixellus*, *Hylobius*, *Pissodes*, *Dorytomus*, *Grypus*, *Notaris*, *Isochnus*, and *Ceutorhynchus*. All fossil specimens recorded from the Yukon are assignable to genera that are currently found in the Territory.

Additional Taxa Potentially Occurring in the Yukon

Family Anthribidae

66. *Trigonorhinus sticticus* (Boheman). This species is widespread from Quebec west to British Columbia and the Northwest Territories. Its range may extend into the Yukon.

Family Rhynchitidae

67. *Pselaphorhynchites cyanellus* (LeConte). This species is widespread throughout Canada including the Northwest Territories and may occur in the southern Yukon.

68. *Merhynchites bicolor* (Fabricius). This species is found from Quebec west to British Columbia and the Northwest Territories. Its range may extend into the southern Yukon.

69. *Merhynchites wickhami* (Cockerell). This species is found from Manitoba west to British Columbia and the Northwest Territories. Its range may extend into the southern Yukon.

Family Brentidae

70. *Nanophyes canadensis* Brown. This species is known from the Northwest Territories, Alberta, Saskatchewan and Manitoba; its range may extend into the Yukon.

Family Curculionidae

Subfamily Brachycerinae

71. *Pachyrhinus elegans* (Couper). This is a western boreomontane and boreal species associated with pines, the range of which may extend into the Yukon.

72. *Sitona hispidulus* (Fabricius). This an Holarctic species widespread in North America. It is known from Alaska and very likely occurs in the Yukon.
73. *Sitona tibialis* (Herbst). This an Holarctic species widespread in North America. It is known from Alaska and very likely occurs in the Yukon.
74. *Tanymecus confusus* Say. This species is known from the Prairie provinces and the Northwest Territories. It may be found in the Yukon.
75. *Otiorynchus sulcatus* (Fabricius). This is an Holarctic species introduced into North America. It is known from Alaska and very likely occurs in the Yukon.
76. *Evotus naso* (LeConte). This species is known from Saskatchewan, Alberta, British Columbia and the Northwest Territories. It may be found in the Yukon.
77. *Trichalophus brunneus* Van Dyke. This species is found in British Columbia and Alaska and likely occurs in the Yukon.
78. *Trichalophus didymus* (LeConte). This species is found in western North America north into Alaska. It may occur in the Yukon.
79. *Trichalophus seriatus* (Mannerheim). This species is known only from Alaska and may also occur in the Yukon.
80. *Trichalophus simplex* LeConte. This species is known from the Prairie provinces and the Northwest Territories. It may be found in the Yukon.
81. *Listronotus humilis* (Gyllenhal). In northwestern North America, this species has been recorded from Alaska and British Columbia and may occur in the Yukon.
82. *Listronotus sparsus* (Say). This species is known from Quebec west to Alberta and the Northwest Territories and may occur in the Yukon.
83. *Hypera diversipunctata* (Schrank). This species is known from Ontario, Saskatchewan, Alberta and Alaska and likely occurs in the Yukon.
84. *Hypera trivittata* (Say). This species is known from Manitoba, Alberta, British Columbia and the Northwest Territories and may occur in the Yukon.

Subfamily Curculioninae

85. *Stephanocleonus confusus* Anderson. This species is known from Alberta, Saskatchewan and the Northwest Territories. It may occur in the Yukon.
86. *Stephanocleonus immaculatus* Anderson. This species is widespread in boreal North America. It has been recorded from the Northwest Territories and likely occurs in the Yukon.
87. *Stephanocleonus parshus* Anderson. This species is widespread in boreal and western montane North America. It has been recorded from the extreme southwestern Northwest Territories and likely occurs in the Yukon.
88. *Lixus rubellus* Randall. This species is widespread in Canada from Quebec west to British Columbia and the Northwest Territories. It may occur in the Yukon.
89. *Pissodes* spp. Species in this genus are associated with various conifers. The genus is in need of taxonomic revision. Some additional boreal or western boreomontane species may occur in the Yukon.
90. *Dorytomus* spp. *Dorytomus laticollis* LeConte and *D. mannerheimi* (Gemmingen) are widespread boreal species which occur as far west as Alaska and likely also occur in the Yukon.
91. *Notaris flavipilosus* Chittenden. This species was described from Alaska and may occur in the Yukon. It may prove to be conspecific with *N. bimaculatus* (F.).
92. *Bagous* n. sp. This species has been collected in the extreme northwestern Northwest Territories (CMNC) and likely occurs in the Yukon. It is an undescribed species in a species group known from Japan (O'Brien, pers. comm.).
93. *Magdalis* spp. Most species in this genus are associated with various conifers. The genus needs revision; some additional boreal or western boreomontane species may occur in the Yukon.
94. *Chelonychus longipes* Dietz. This species is known from extreme northern British Columbia and may occur in the southern Yukon.
95. *Anthonomus* spp. Some species in this genus, for example, *Anthonomus nigrinus* Boheman, recorded from the Northwest Territories may occur in the Yukon. Distributions are very incom-

pletely known for most of the species and some of the many species recorded from British Columbia may occur in the Yukon.

96. *Rhynchaenus testaceus* (Müller). This Holarctic species is widespread in boreal North America. Larvae mine leaves of birch and alder. It is known from Alaska and likely occurs in the Yukon.
97. *Isochnus arcticus* Korotyaev. This species is known from northern coastal Alaska and the Canadian Arctic Archipelago and may occur on the northern arctic coast of the Yukon.
98. *Cryptorhynchus lapathi* (L.). This Holarctic species is widespread in North America and may occur in the Yukon.
99. *Auleutes nebulosus* (LeConte). This species is widespread in wetland habitats in North America and may occur in the Yukon.
100. *Ceutorhynchus* spp. Distributions are very incompletely known for most of the species and some far northern species are known only from the type localities. Two of these species in particular, *C. hearnei* Brown and *C. munki* Brown, may occur in the Yukon. A number of unidentified *Ceutorhynchus* species are known from the extreme western Northwest Territories.
101. *Amalus scortillum* (Herbst). This Holarctic species is widespread in boreal North America and may occur in the Yukon. Adults have been associated with *Polygonum* spp.
102. *Rhinoncus pyrrhopus* Boheman. This species is widespread in Canada including the Northwest Territories and may occur in the Yukon. It is associated with *Polygonum* spp.

Subfamily Cossoninae

103. *Cossonus* spp. Species of this genus which occur in western coastal and montane North America north to British Columbia may occur as far north as the Yukon.
104. *Carphonotus testaceus* Casey. This species is known from across Canada into Alaska; it likely also occurs in the Yukon.

Analysis of the Fauna

Taxonomic Diversity. Among primitive families of Curculionoidea, 2 species of Anthribidae in 2 genera, and, in Brentidae, 3 species of *Apion*, occur in the Yukon.

Fifty-nine species of Curculionidae (not including *Lepyryus* spp.) are known from the Yukon. This appears to be a remarkably low diversity given the world diversity of Curculionidae. Even considering species that potentially occur in the Yukon, the diversity of weevils there would just exceed 100 species or about 4% of Nearctic weevil diversity.

In Curculionidae there are 34 genera (not including *Lepyryus* spp.) representing 3 subfamilies. Aside from Scolytinae and Platypodinae, which are not treated herein, the only subfamily of Curculionidae not represented is the Rhynchophorinae. Brachycerinae are represented by 10 species in 9 genera and Cossoninae by one species in one genus. There are 48 species in 24 genera of Curculioninae (not including *Lepyryus* spp.). Within Curculioninae, especially well represented are the tribes Eriirhinini (6 genera, 14 species) and Ceutorhynchini (8 genera, 18 species), and the genera *Dorytomus* (9 species; 23–31), *Ceutorhynchus* (9 species; 50–58) and *Magdalis* (4 species; 37–40).

Distributions. All 5 species of Anthribidae and Brentidae known from the Yukon are widespread geographically. One species (2) is widespread Holarctic, and the remaining 4 species (1, 3–5) are widespread in various of northern transcontinental and/or western montane North America.

Curculionidae found in the Yukon exhibit a variety of extralimital distribution patterns (Tables 1 and 2; Figs. 1–12). Nineteen species (33%) occur in both Nearctic and Palaearctic regions. Of these species, 17 are variously widespread in the northern Palaearctic region, 4 of them are northern transcontinental and western montane in North America, 6 are widespread North American, 2 are northern transcontinental in North America, and one,

Tychius tectus (46), is widespread in western North America (although southern and northern specimens are structurally distinct). Four species, *Stephanocleonus zherichini* (16; Fig. 1), *Dorytomus leucophyllus* (27), *Isochnus flagellum* (42) and *Ceutorhynchus querceti* (55), are widespread in the northern Palaearctic but restricted in North America to only various portions of Alaska, Yukon, British Columbia and extreme west Northwest Territories (Palaearctic-East Beringian). Two species, *Lepidophorus lineaticollis* (10; Fig. 2) and *Ceutorhynchus barkalovi* (51; Fig. 3), have distributions restricted to extreme northeastern Asia and extreme northwestern North America (East-West Beringian). Four of the widespread species (8, 36, 54, 56) are considered introduced.

Forty species are Nearctic. Of these, 9 species (15%) are widespread in North America; 7 species (12%) are northern transcontinental in North America; 2 species (3%) are found throughout western montane North America; 11 species (19%) are found in northern transcontinental and western montane regions of North America; 4 species (6%) are widespread in western North America; and 5 species (7%) are found in East Beringia only. Two species (3%) have distributions which differ from any of these general distribution patterns and which likely are incompletely known.

Not surprisingly, all but 7 of the 59 species (excluding *Lepyrus* spp.) are relatively widespread in their distributions. This is a general expectation because of the glaciated history and rather uniform vegetation of most northern areas including parts of the Yukon. Of the 7 species with restricted distributions (12%): 2, *Lepidophorus lineaticollis* (10; Fig. 2) and *Ceutorhynchus barkalovi* (51; Fig. 3), exhibit an East-West Beringian distribution; 4, (*Sitona aquilonius* (6; Fig. 4)), *Connatichela artemisiae* (9; Fig. 6), *Hypera seriata* (15; Fig. 7) and *Dorytomus lecontei* (26; Fig. 3), are found only in East Beringia; and one, *Vitavitus thulius* (12; Fig. 5), is found in East Beringia east into the eastern mainland Northwest Territories (central Keewatin). No species are known only from the Yukon. *Connatichela artemisiae* (9), although described from specimens collected in the Yukon (Anderson 1984), is now also known from extreme eastern Alaska.

Habitat Associations. The 2 species of Anthribidae known from the Yukon and the 3 species of Brentidae are found in various habitats, including boreal and montane coniferous forest (including associated parkland).

Ten species of Curculionidae are associated with various treeless habitats (Tables 1 and 3). These species include: 5—*Lepidophorus lineaticollis* (10), *Vitavitus thulius* (12), *Connatichela artemisiae* (9), *Hypera seriata* (15), and *Ceutorhynchus barkalovi* (51)—of the 7 species noted above as restricted in their distributions; one species, *Stephanocleonus zherichini* (16), widespread in the northern Palaearctic Region but restricted in North America to East Beringia; one species, *Tychius tectus* (46), widespread in the eastern Palaearctic Region and western North America; and 3 species, *Ceutorhynchus oregonensis* (53), *C. subpubescens* (57) and *C. n. sp. near mutabilis* (58), widespread in western North America. In the Yukon these last 3 species, and *Tychius tectus* (46) and *Connatichela artemisiae* (9), appear restricted to southern steppe, but do not appear to be found in tundra. *Stephanocleonus zherichini* (16) and *Ceutorhynchus barkalovi* (51) appear restricted to dry tundra whereas *Lepidophorus lineaticollis* (10), *Vitavitus thulius* (12) and *Hypera seriata* (15) are found in various of the wet and dry tundra and southern-steppe habitats.

Of the 7 species with restricted distributions, only *Dorytomus lecontei* (26) is found in boreomontane forest; *Sitona aquilonius* (6) is found in a variety of habitats.

Remaining Yukon species, which are all widespread in their distributions, are otherwise associated with different habitat types, most notably boreal and boreomontane forest

TABLE 1. Habitat and distribution of Yukon Curculionidae; numbers refer to species number as given in text.

Range	Habitat									
	Wet tundra	Dry tundra	Southern steppe	Wet and dry tundra and southern steppe	Dry tundra and southern steppe	Boreo-montane forest	Boreal forest	Boreal and boreo-montane forest	Wetlands	Various
Palearctic and Nearctic										
Widespread Palearctic;	-	-	-	-	-	-	-	-	47, 64	7, 8, 54, 56
Widespread North America										
Widespread Palearctic;	-	-	-	-	-	-	-	30	32-34	-
Northern transcontinental and western montane North America										
Widespread Palearctic;	-	-	-	-	-	-	36	-	-	25
Northern transcontinental North America										
Widespread Palearctic;	-	16	-	-	-	-	-	27	-	42, 55
East Beringia										
Eastern Palearctic;	-	-	46	-	-	-	-	-	-	-
Widespread western North America										
West Beringia;	-	51	-	10	-	-	-	-	-	-
East Beringia										
Nearctic										
Widespread North America	-	-	-	-	-	-	-	59	13, 61, 62	41, 43, 44, 50, 52
Northern transcontinental and western montane North America										
Northern transcontinental North America	-	-	-	-	-	-	18-21, 35	-	49, 60	-
Western montane North America										
Widespread western North America	-	-	53, 57, 58	-	-	-	11, 22	-	-	-
East Beringia (including marginal extensions)	-	-	9	-	12, 15	26	-	-	-	6
Others	-	-	-	-	-	-	40 ¹	-	63 ²	-

¹Eastern North America, Yukon. ²British Columbia, Yukon.

TABLE 2. Length of wings and distribution of Yukon Curculionidae; numbers refer to species number as given in text.

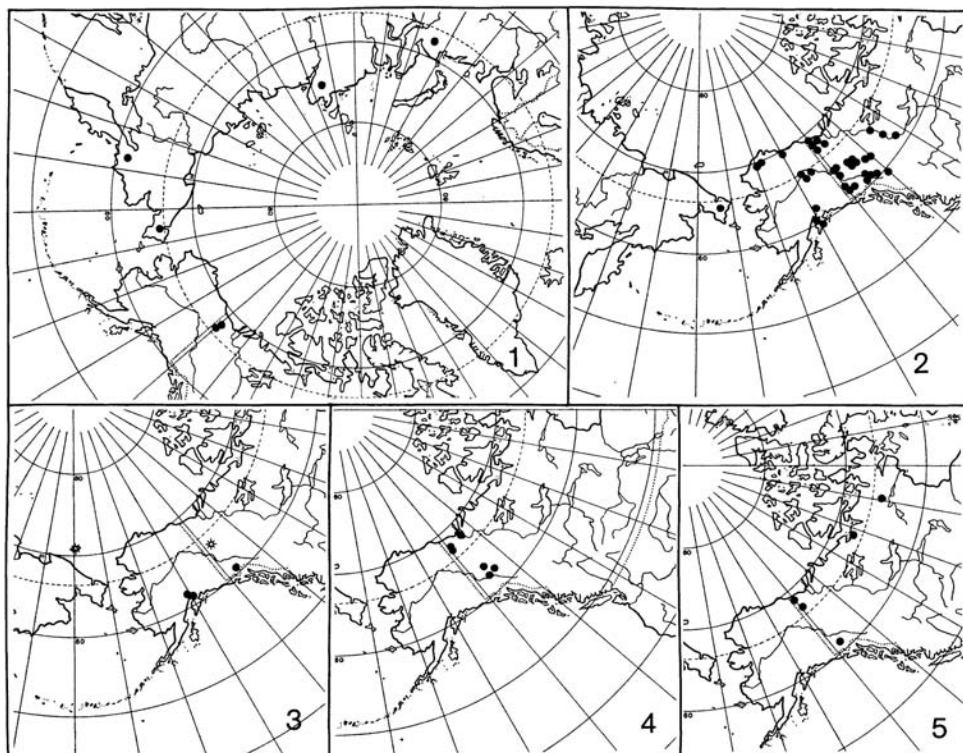
Range	Brachypterous	Macropterous	Total
Palearctic and Nearctic			
Widespread Palearctic; Widespread North America	7, 8	47, 54, 56, 64	6
Widespread Palearctic; Northern transcontinental and western montane North America	-	30, 32-34	4
Widespread Palearctic; Northern transcontinental North America	-	25, 36	2
Widespread Palearctic; East Beringia	-	16, 27, 42, 55	4
Eastern Palearctic; Widespread western North America	-	46	1
West Beringia; East Beringia	10, 51	-	2
Nearctic			
Widespread North America	59	13, 41, 43, 44, 50, 52, 61, 62	9
Northern transcontinental and western montane North America	-	23, 24, 28, 29, 31, 37-39, 45, 48, 65	11
Northern transcontinental North America	-	18-21, 35, 49, 60	7
Western montane North America	11	22	2
Widespread western North America	-	14, 53, 57, 58	4
East Beringia (including marginal extensions)	6, 9, 12, 15	26	5
Others	-	40, 63	2

(24 species, 41%) and wetland habitats (12 species, 20%). Thirteen species (22%) appear to be associated with a variety of habitats.

Plant Associations. Larvae of Anthribidae are generally associated with fungi and the 2 Yukon species likely have similar habits. All 3 species of *Apion* (Brentidae) have been associated with Fabaceae as adults, and larvae likely develop in reproductive structures of various plants in this family.

Larvae of species of Curculionidae in the Yukon are associated with relatively few families of plants (Table 4). Associations with Pinaceae and Salicaceae dominate. Larvae of 10 weevil species (17%) are associated with the former and 13 species (22%) are associated with the latter. A further 2 species and *Lepyryrus* species are associated with Salicaceae as adults but the larval habits are unknown. Aside from association with these 2 families, the number of weevil species associated with any other family is very low. Larvae of 3 species are associated with Fabaceae. Seven species have been associated with Cruciferae but 5 of these only as adults (larval habits are unknown but presumed to be with Cruciferae). A number of plant families are fed upon by only a single species of weevil. Plant taxonomic associations are not known or cannot be inferred reliably for 7 of the 59 species. For 11 species, larval host associations are inferred based on plant associations of adults or of congeneric species.

Larvae of species of Yukon weevils feed on a variety of plant structures. Associations of weevils with most structures are rather uniform with larvae of 10 species (18%) feeding, or reliably being inferred to feed, on roots; 16 species (29%) in stems; and 15 (25%) in reproductive parts. Leaves, on the other hand, are fed upon by larvae of only 3 species. Larvae



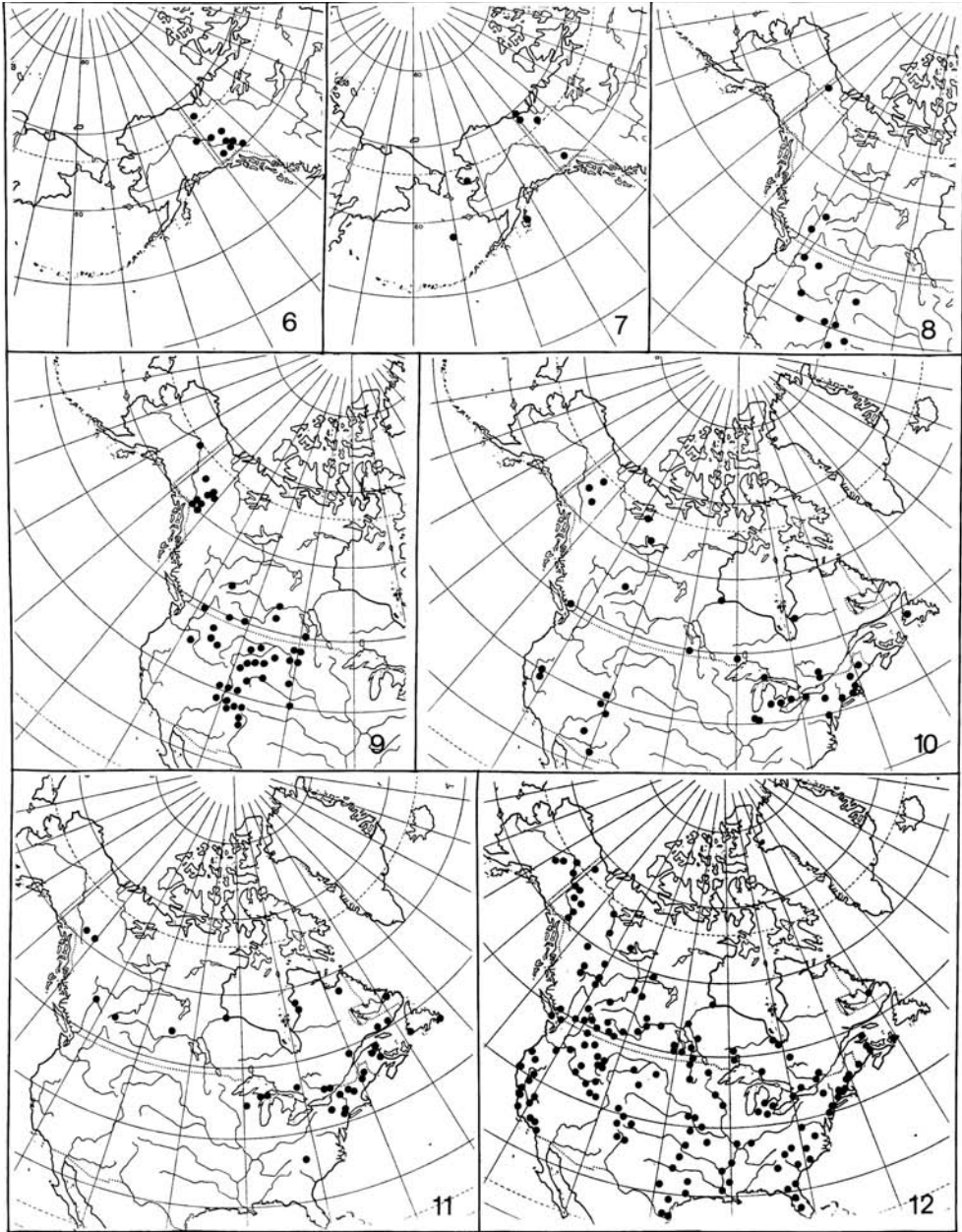
FIGS. 1–5. Distribution of selected Curculionidae (Palearctic localities are approximate): 1, *Stephanocleonus zherichini* (Ter-Minassian and Korotyaev) (16); 2, *Lepidophorus lineaticollis* Kirby (10); 3, *Ceutorhynchus barkalovi* Korotyaev (51) (stars) and *Dorytomus lecontei* O'Brien (26) (dots); 4, *Sitona aquilonius* Bright (6); 5, *Vitavitus thulius* Kissinger (12).

of 2 species feed internally in the leaves as miners; larvae of *Hypera seriata* (15) are likely external feeders as this is the habit of known larvae of other *Hypera* species. Association with a plant structure is not known or cannot be inferred reliably for larvae of 16 of the 59 species.

Species in the fauna tend to be specialists rather than generalists. Only 2 species for which plant associations are known, *Otiorhynchus ovatus* (8) and *Pseudanthonomus validus* (41), have larvae which feed on members of a variety of plant families. Three other species are likely also general feeders as larvae.

Parthenogenesis. Only 3 species of Curculionidae in the Yukon are known only from females. These are the introduced and virtually cosmopolitan *Otiorhynchus ovatus* (8), and the native *Lepidophorus lineaticollis* (10) and *Vitavitus thulius* (12). Both *L. lineaticollis* and *V. thulius* are restricted in their distributions to Beringia (or marginally beyond), *L. lineaticollis* in both East and West Beringia and *V. thulius* in East Beringia west into the Northwest Territories. Males of *O. ovatus* are known in Europe (Warner and Negley 1976) but only females have been recorded in North America.

Length of Flight Wings. Ten species (6, 7, 8, 9, 10, 11, 12, 15, 51, 59) of Curculionidae in the Yukon possess flight wings which are variously reduced and non-functional. Of these 10 species, 6—*Sitona aquilonius* (6), *Lepidophorus lineaticollis* (10), *Vitavitus thulius* (12), *Connatichela artemisiae* (9), *Hypera seriata* (15), and *Ceutorhynchus barkalovi* (51)—are



FIGS. 6–12. Distribution of selected Curculionidae: 6, *Connatichela artemisiae* Anderson (9); 7, *Hypera seriata* (Mannerheim) (15); 8, *Pissodes schwarzi* Hopkins (22) (after Hopkins 1911); 9, *Tychius tectus* LeConte (46) (after Clark 1971; Palearctic localities not illustrated, see Caldara 1990); 10, *Dorytomus vagenotatus* Casey (31) (after O'Brien 1970); 11, *Hylobius pinicola* (Couper) (19) (after Warner 1966); 12, *Tachyerges niger* (Horn) (43) (after Anderson 1989).

restricted in their distribution to the Beringian area (or marginally beyond). Of the remaining 4 species, one, *Otiorynchus ovatus* (8), is an introduced, almost cosmopolitan species, one, *Sitona lineelus* (7), is widespread Holarctic, one, *Rutidosoma decipiens* (59), is widespread

TABLE 3. Length of wings and habitat of Yukon Curculionidae; numbers refer to species number as given in text.

Habitat	Brachypterous	Macropterous	Total
Wet tundra	-	-	-
Dry tundra	51	16	2
Southern steppe	9	46, 53, 57, 58	5
Wet and dry tundra and southern steppe	10	-	1
Dry tundra and southern steppe	12, 15	-	2
Boreomontane forest	11	22, 26	3
Boreal forest	-	18–21, 35, 36, 40	7
Boreomontane and boreal forest	59	23, 24, 27–31, 37–39, 45, 48, 65	14
Wetlands	-	13, 14, 32–34, 47, 49, 60–64	12
Various	6–8	25, 41–44, 50, 52, 54– 56	13

TABLE 4. Hostplant family and plant part for larvae of Yukon Curculionidae; numbers refer to species number as given in text.

Plant family	Larval habits					
	Roots	Stems ¹	Leaves	Reproductive parts	No. of species	Unknown ²
General	8, 10?, 11?, 12?	-	-	-	4	-
Equisetaceae	-	33	-	-	1	-
Pinaceae	19	18, 20–22, 37–40, 65	-	-	10	-
Typhaceae	-	32, 34	-	-	2	-
Potamogetonaceae	-	-	-	-	-	60
Cyperaceae	-	14?	-	-	1	-
Salicaceae	-	-	42, 43	23–31, 36, 44	13	17, 45, 59
Betulaceae	-	-	-	41?	1	-
Polygonaceae	-	-	-	-	-	61–63
Cruciferae	56	55, 56	-	-	2	50–53, 57
Saxifragaceae	-	-	-	41	1	-
Rosaceae	-	-	-	41	1	-
Fabaceae	6, 7	-	-	46	3	-
Onagraceae	-	47	49	-	2	-
Haloragaceae	-	-	-	64	1	60
Ericaceae	-	-	-	41	1	-
Asteraceae	9?	-	-	54	2	-
Unknown ⁵	16	-	15	-	2	13, 35, 48, 58
No. of species	10 (1) ³	16 (1) ³	4	15	-	17 ⁴

¹Includes trunks and branches of woody plants.²Plant family association based on occurrence of adults or larval habits of congeneric species.³Species 56 on both roots and stems.⁴Note that species 17 (*Lepyrus* spp.) is included here.⁵Larval habits inferred from knowledge of larval habits of related taxa.

? Association inferred from adult occurrence and/or knowledge of larval habits of related taxa.

in North America, and one, *Trichalophus alternatus* (11), is found in western montane North America.

Brachyptery is common in Brachycerinae. Therefore the occurrence of reduced flying-wing length in most (6–12) of these species is not surprising and likely not associated with any special history of the species in Beringia or reflective of any special adaptations of the species to existence there. Adults of all species of *Lepidophorus*, *Trichalophus*, and *Otiorynchus* known are brachypterous. Likewise, possible phylogenetic relatives of both *Vitavitus thulius* (12) and *Connatichela artemisiae* (9) are known to be (or likely to be) brachypterous. Adults of many (if not most) species of *Sitona* have flying wings which vary from long to short, with the brachypterous form often predominating as it does in *S. lineelus* (Loan 1963). Even in macropterous individuals of *S. lineelus*, flight muscles are vestigial and the weevils cannot fly (Loan 1963). Despite this tendency towards wing-length polymorphism in species of *Sitona*, all Yukon specimens of *S. aquilonius* and *S. lineelus* examined are brachypterous.

Brachyptery is rarer in Ceutorhynchini but is known for species in the genus *Rutidosoma*, other than *R. decipiens* (59), species of which are often found at high latitudes or elevations. Only for *Ceutorhynchus barkalovi* (51) is brachyptery unexpected and possibly a special adaptation to its existence in Beringia.

Relationships of the Fauna

The curculionoid (excluding Scolytinae and Platypodinae) fauna of the Yukon appears to be composed of 4 distinct faunal assemblages.

1. *Widespread*. An assemblage consisting of 47 widespread species, including Anthribidae and Brentidae (1–5), is found in northern boreal and/or boreomontane forest and associated parklands, wetlands, or a variety of habitats. With the exception of those 5 species restricted to western North America (3, 4, 11, 14, 22), this is the assemblage that is largely and uniformly characteristic of northern transcontinental North America and in part also Holarctica. Not surprisingly, many of these species which occur in terrestrial habitats are associated with Pinaceae and Salicaceae, the dominant groups of woody plants in non-riparian and riparian habitats respectively throughout northern Holarctica. Forty-four of the species comprising this assemblage of widespread species are macropterous. Specimens from the Yukon and Alaska do not show any degree of differentiation from specimens of populations living elsewhere throughout the species range.
2. *Western Nearctic*. An assemblage of 3 species (52, 53, 57) is widespread in xeric habitats in western North America. All 3 species occur in the Yukon only in southern-steppe habitat. All are macropterous. Hosts of the species appear to be xeric-habitat Cruciferae (Table 4).
3. *Palaeartic-East Beringian*. An assemblage of 5 species (16, 27, 42, 46, 55) is widespread in the northern Palaeartic Region but apparently restricted in their North American distribution to the East Beringian area or marginally beyond, or in one instance (46), to western North America but with Alaskan and Yukon specimens distinct. One species (16) is associated with dry tundra, one (46) with southern steppe, one (27) with boreal and boreomontane forest, and 2 (42, 54) with various habitats; all are macropterous.
4. *Beringian*. An assemblage of 7 species is more or less restricted in their distributions to the Beringian area including Siberia (9, 51). Five of these species (9, 10, 12, 15, 51) inhabit treeless habitats; one, *Dorytomus lecontei* (26) is found in boreomontane forest;

and one, *Sitona aquilonius* (6), is found in a variety of habitats. Four of these species (6, 15, 26, 51) are in speciose genera (*Sitona*, *Hypera*, *Dorytomus*, *Ceutorhynchus*) widespread in Holarctica and differ very little from related congeneric species. One additional species, *Lepidophorus lineaticollis* (10) is a member of a speciose genus of some 10 species, but these species are found throughout North America, especially in western montane regions, and do not otherwise occur in the Palaearctic Region. Two species, *Vitavitus thulius* (12) and *Connatichela artemisiae* (9), are in monobasic genera of uncertain phylogenetic and biogeographic relationships. Six of the species in this assemblage are brachypterous; only *Dorytomus lecontei* (26) is macropterous.

5. *Other*. Additional Yukon species, whose distributions are likely incompletely known and therefore at present do not fit one of these categories, are *Pelenomus ventralis* (63) in wetland habitats in Alberta, British Columbia and the Yukon and *Magdalis* prob. *piceae* (40) in coniferous forests in eastern North America and the Yukon.

Origins of the Fauna

The separate faunal assemblages discussed above each reflect different origins which collectively contribute to the nature of the present fauna of the Yukon.

1. *Widespread*. This assemblage is comprised of species primarily in habitats (boreal, boreomontane forest, wetlands) now occupying what were previously glaciated land areas in North America including the Yukon. These species are undifferentiated in the Beringian area and likely dispersed into the region in late Pleistocene time from southern continental refugia in North America or, for some species that also occur in the Palaearctic region, perhaps from Asia or Europe.

Fossil material of various ages found in East Beringia but not positively identified to species indicates that some of these species may have survived late Wisconsinan and perhaps earlier glacial stadia in the Beringian refugium. Fossils representative of species in the genera *Lixellus*, *Hylobius*, *Pissodes*, *Dorytomus*, *Grypus*, *Notaris*, *Isochnus* and *Ceutorhynchus* are known from the East Beringian area.

2. *Western Nearctic*. This assemblage is comprised of 3 species widespread in prairie habitat in western North America and occurring in the Yukon only in southern-steppe habitat. Species in this assemblage are undifferentiated in the Beringian area and likely dispersed northward from mid-continental refugia following late Wisconsinan glaciation.
3. *Palaearctic-East Beringian*. This assemblage is comprised of 5 species each with a relatively widespread Palaearctic distribution but with a North American distribution restricted to East Beringia or marginally beyond, or to western North America. Four of these species are undifferentiated in Beringia and likely represent recent, perhaps late Wisconsinan or even Holocene, dispersals into North America from the Palaearctic Region. Alternatively, they could have survived glaciation in Beringia but have expanded their range in North America only marginally following deglaciation. One additional species considered here, *Tychius tectus* (46), is widespread in western North America. Individuals from populations in the Yukon and Alaska, although not considered a separate species, consistently differ from southern specimens in scale form and colour (Clark 1971). This differentiation is likely a result of recent, late Pleistocene isolation in the Beringian area from more southerly North American conspecifics which likely survived glaciation in a southern continental refugium. As with the other species considered here, the differentiated Alaska and Yukon population has not expanded its range in North America since deglaciation.

4. *Beringian*. This is the most interesting assemblage of species as far as the biogeographic history of the Yukon is concerned as endemism at the species level implies an extended period of isolation. Seven species are restricted in their distributions to the Beringian area.

Supposed historical reasons likely vary for the apparent Beringian endemism of these 7 species. Structural similarity and likely close phylogenetic relationship to congeneric species, and for *L. lineaticollis* (10) lack of a fossil record exceeding late Pleistocene, suggests that 5 of the species are recent, perhaps late Pleistocene Beringian isolates of ancestral more widespread species. Three (9, 15, 51) species are found in tundra or southern-steppe habitats, one (6) in various habitats, and one (26) in boreo-montane forest. *Lepidophorus lineaticollis* (10) is the only species which appears to have dispersed from East into West Beringia, perhaps in late Wisconsinan time (Matthews 1982).

The remaining 2 species, *Vitavitus thulius* (12) and *Connatichela artemisiae* (9), do not have readily identifiable phylogenetic relatives and their ultimate origins cannot be ascertained with any degree of confidence. Both, however, appear to have existed in the region for an extended period of time. The fossil record of *Connatichela artemisiae* does not confirm an exceptionally long history in the area but the degree of structural divergence from related taxa suggests that it has been isolated for a long time. *Vitavitus thulius*, on the other hand, is known from Beringian fossils as old as Pliocene in age and thus has a much longer corroborated history in the area than does *C. artemisiae*. However, it is also known from Holocene deposits in southeastern Canada and the northeastern United States and was thus apparently much more widely distributed during late Pleistocene glacial stadia than at present and may have survived glaciation both in Beringia and in southern continental refugia.

Although food habits of members of this group with restricted distributions are largely uncertain, it can be inferred reliably that 4 (6, 9, 10, 12) of the 7 species (excluding species of *Hypera*, *Dorytomus* and *Ceutorhynchus*) have larvae which feed on roots. Three of these species (9, 10, 12) are likely to be generalists and feed on a variety of plant taxa. One species, *Sitona aquilonius* (6), is likely restricted to Fabaceae. Although hosts of *Hypera seriata* (15) are not known, this species also may be associated with Fabaceae because other related *Hypera* species are known to be associated with this plant family elsewhere in North America. One species, *Connatichela artemisiae* (9), may prove restricted to Asteraceae, likely the genus *Artemisia*. *Dorytomus lecontei* (26) is associated with Salicaceae. The remaining weevil species, *Ceutorhynchus barkalovi* (51), may prove to be associated with Cruciferae. Of the 7 species with restricted distributions, adults of 6 (6, 9, 10, 12, 15, 51) are brachypterous; only *Dorytomus lecontei* (26) is fully winged.

Past Beringian Habitats

There has been considerable debate as to what habitat conditions prevailed in Beringia during late Pleistocene time (Matthews 1982; Lafontaine and Wood 1988). Opinions vary from a large arctic-steppe biome which supported an extensive ungulate fauna to a habitat type similar to present arctic and alpine fell-field, to a mosaic of varying habitats. Habitat associations of Curculionidae currently restricted to Beringia (and which therefore likely survived glaciation there) indicate that a variety of treeless habitats predominated. On the other hand, one species, *Dorytomus lecontei* (26), appears to be found in boreomontane forest

and suggests that perhaps localized areas of this habitat type (or an analogue) may have existed within the region. Habitat associations of those species whose North American distributions do not extend significantly beyond East Beringia support these contentions. One species (16) is found in dry tundra, the other 3 in either boreomontane forest and boreal forest (27) or a variety of habitats (42, 55). Notably, 3 of the 11 species restricted to East Beringia in North America are associated with Salicaceae. Other species are associated (or likely associated) with various herbaceous taxa which could be found in a variety of treeless habitats. None of the 11 species is associated with conifers.

Concluding Remarks

Although the fauna of Curculionidae of Alaska at 61 species (Bousquet 1991) is equivalent to that known for the Yukon, much still remains to be discovered concerning the weevil fauna of East Beringia. In Curculionidae at least 28 additional species (not including species in diverse genera such as *Magdalis*, *Pissodes*, *Dorytomus*, *Anthonomus*, and *Ceutorhynchus*) very likely occur in the Yukon. As would be expected, most of these taxa are widespread or northern transcontinental species and boreal or boreomontane forest inhabitants. On the other hand, based on findings reported for other taxa (e.g. Carabidae), additional species with distributions restricted to Beringia (or marginally beyond) may be expected in the fauna of dry tundra sites, particularly those at higher elevation. Such discoveries would prove to be exceedingly interesting and informative. Hostplant associations of many species are incompletely known and this is particularly unfortunate as concerns those species with restricted distributions. Discovering host associations of these species may permit further resolution of what past Beringian habitats and even plant taxa likely existed in the refuge.

Acknowledgements

I thank Syd Cannings, John V. Matthews Jr., Alan Morgan, and John and Bert Carr for making specimens collected by them in the Yukon available for examination and inclusion in this work. Curculionidae in the Canadian National Collection, Ottawa, were examined through the courtesy of Donald E. Bright. J. Antony Downes reviewed a preliminary version of the manuscript and made a number of constructive comments. Financial support for portions of this study were made available through NSERC grant A-1399 to George E. Ball and by the Canadian Museum of Nature. Work on various aspects of the study was carried out at The University of Alberta, Texas A & M University, and the Canadian Museum of Nature.

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Appendix 1.

Localities for weevils collected in the Yukon Territory, Canada.

Family Anthribidae

1. *Allandrus populi* Pierce
Mayo, 29.vi.80 (1, CNCI).

2. *Tropideres dorsalis* (Thunberg)
Unknown; record from Bousquet (1991).

Family Brentidae

3. *Apion alaskanum* Fall
Klo-kut, 6 mi N Old Crow, 15.vi.75 (1, CMNC; 1, JVMJ), 1975 (3, JVMJ), 12.vii.77 (2, CNCI), 19.vii.77 (1, CNCI); Old Crow, 21.vi.81 (36, CNCI).

4. *Apion antennatum* Smith
Old Crow, 28.vi.81 (13, CNCI); Old Crow, 6 mi E, 67°34'N 139°40'W, 26.vi.81 (1, CMNC); Kluane, Slims R. Delta, 21.vi.82 (1, CNCI), 7.viii.86 (1, CNCI); 66°77'N 138°35'W, 2700 ft, 8.vii.82, *Arctostaphylos* (1, CNCI).

5. *Apion cyanitinctum* Fall
Duke R., Burwash Landing, 4.viii.79 (1, CNCI); Herschel Is., 27.vii.71 (2, CNCI).

Family Curculionidae

6. *Sitona aquilonius* Bright
Alaska Hwy. mi 813, 2.vii.55 (1, JLCC); Klo-kut, Old Crow area, vi.75 (1, CMNC), 11.vi.75 (6, CMNC; 6, JVMJ), 12.vi.75 (3, CMNC; 16, JVMJ), 15.vi.75 (1, JVMJ); Klondike Hwy. at Pelly Crossing, 26–27.vi.80 (1, ROME); Kluane, Sheep Mt., 12.vi.82 (1, SMDV); McQuesten, 10 km E, 28.vi.80 (1, SMDV); Old Crow, 28.vi.81 (2, CNCI); Old Crow, 6 km E, 3.vii.81 (4, SMDV), 8.vii.81 (1, SMDV), 9.vii.81 (1, CMNC; 2, SMDV), 10.vii.81 (1, CMNC; 2, SMDV); Old Crow, 6 mi E, 13.vii.81 (1, ROME), 19.vii.81 (1, ROME); Old Crow, 6 mi N, vii.77 (4, UASM); Selkirk 9.vi.28 (2, CNCI).

7. *Sitona lineelus* (Bonsdorff)
Alaska Hwy. km 1706, Sheep Creek Rd., Slims R. Delta, 10.vi.79 (2, ROME); Dawson, 30.vi.79 (1, JLCC); Dempster Hwy. mi 129, 5.vii.79 (1, JLCC); Johnson's Crossing, 24.viii.81 (1, SMDV); Klo-kut, Old Crow area, 1975 (24, JVMJ), 12.vi.75 (1, CMNC; 1, JVMJ); Klondike R., Dempster Corner, 63°59'N 138°43'W, 20.vii.82 (1, SMDV); Kluane, 16.vi.79 (1, SMDV); Kluane L., Alaska Hwy. mi 1054, 30.v.79 (3, SMDV), 4.vi.79 (1, SMDV); Kluane, Silver City, 13.vi.82 (1, SMDV); Kluane, Slims R. Delta, 5.viii.74 (2, CMNC; 5, JVMJ); Mayo, 3.vi.80 (1, SMDV); Mink Cr., 26.vi.85 (2, SMDV); Ogilvie, 23.vi.80 (1, SMDV); Ogilvie R., Dempster Hwy. km 200, 13.vi.80 (3, SMDV); Ogilvie R., Elephant Rock, 23.vi.80 (10, SMDV); Old Crow, 6 km E, 10.vii.81 (1, CMNC), 13.vii.81 (5, SMDV), 14.vii.81 (1, SMDV), various dates (39, SMDV); Old Crow, 6 mi E, 10.vii.81 (1, ROME); Old Crow, 6 mi N, 12.vii.77 (1, UASM); Pelly Crossing, 26.vii.80 (1, SMDV); Ross R., 9 km S on Campbell Hwy., 12.vi.81 (2, SMDV); Silver Cr., 27.v.80 (1, SMDV); Slims R. Delta, 21.vi.82 (2, SMDV); Stewart Crossing, 2.vi.80 (1, CMNC; 4, SMDV), 29.vi.80 (1, SMDV), 17.vii.83 (1, SMDV); Tatchun R., 62°17'N 136°17'W, 26.vi.82 (1, SMDV); Tenas Cr., 5 km E, on North Canol Rd., 11.vi.81 (1, CMNC); Whitehorse, Wolf Cr., 7.viii.81 (1, SMDV); Wolverine Cr., Finlayson R., 61°35'N 130°09'W, 12.vi.81 (1, SMDV).

8. *Otiorthynchus ovatus* (Linnaeus)
Judas Cr., 60°23'N 134°08'W, 14.vi.81 (3, SMDV).

9. *Connatichela artemisiae* Anderson

Aishinik R. 60°55'N 137°03'W, 2.viii.85 (1, SMDV); Aishinik Rd., km 11, 22.viii.85 (3, SMDV); Braeburn Lodge, 5 km N, 19.viii.85 (6, SMDV); Carmacks, 24.v.84 (1, SMDV); Carmacks, 42 km N, 30.vii.87 (2, JLCC); Carmacks, 35 km S, 19.viii.85 (4, SMDV); Kluane, Christmas Bay, 9.vii.85 (6, SMDV); Kluane, Cultus Bay, 17.vi.84 (1, SMDV), 10.vii.85 (1, CMNC; 2, SMDV), 21.viii.85 (1, SMDV); Little Salmon R., 62°15'N 135°27'W, 28.vi.85 (5, SMDV), 20.vii.85 (1, SMDV); McCabe Cr., 3 km S, 30.vi.85 (2, SMDV); Montague, 31.v.84 (3, SMDV); Pelly Crossing, 2.vii.85 (2, CMNC; 5, SMDV), 30.vii.85 (2, CMNC; 11, SMDV), 15.viii.85 (1, SMDV); Stewart Crossing, 6 km NW, 21.vii.85 (3, SMDV); Stewart Crossing, 16 km N, 21.vii.85 (1, CMNC; 5, SMDV); Tatchun L., 29.vi.85, (3, SMDV); Whitehorse, 27.vii.85 (6, CMNC; 23, SMDV), 28.vii.85 (1, CMNC), 4.viii.87 (2, JLCC); Whitehorse, Miles Canyon, 14.vii.85 (1, SMDV).

Records from Anderson (1984:1575): Aishinik R., 14 km N Canyon, 18.vii.81 (1); Dawson, 2.vii.79 (5); Stewart Crossing, 16 km N, Junction of Moose Cr., 4.vii.81 (3); Porcupine R., ca. 30 mi E Old Crow, 67°37'N 138°45'W, 11.vii.81 (1); Stewart Crossing, 18 km W, 2.vi.80 (2); Tatchun Cr., 62°17'N 136°17'W, 19.vii.82 (1); Whitehorse, 7.vii.79 (2), 8.vii.79 (26).

10. *Lepidophorus lineaticollis* Kirby

Alaska Hwy. mi 1630, Pine Cr., 30.vii.82 (1, ROME); Blow R., 68°44'N 137°24'W, 14.vii.84 (1, SMDV); Bluefish Caves, 67°08'N 140°48'W, 1–9.vii.83 (20, SMDV); Bluefish Ridge, 67°08'N 140°46'W, 1–9.vii.83 (16, SMDV); British Mts., Firth R., 250 m, 21.vi.84 (13, CNCI); British Mts., Firth R., 3 km NW, 320 m, 21.vi.84 (3, CNCI); British Mts., Fish Cr., 180 m, 1.vii.84 (3, CNCI); British Mts., Sheep Cr., 410 m, 23.vi.84 (1, CNCI); British Mts., Sunday Mt., 950 m, 17.vi.84 (5, CNCI); Canol Rd., mi 11, 22.viii.62 (1, CNCI); Carcross, 8.vii.83 (1, SMDV); Carcross, 10 km N, 5.vi.81 (1, SMDV); Carcross, 27 km S, 5.vi.81 (1, CNCI); Carmacks, Tatchun Lake Jct., 17.vi.–30.viii.84 (4, CMNC); Carmacks, 92 km N on Hwy. 2, 30.vii.87 (1, JLCC), 126 km N on Hwy. 2, 31.vii.87 (3, JLCC); Congdon Cr. at Kluane L., 21.vi.82 (1, SMDV); Dawson, 10–11.vii.68 (4, CNCI); Dawson, 29.vi.79 (4, CMNC); Dawson, 25.vi.80 (1, SMDV); Dawson, 14 mi E, 1.viii.62 (3, CNCI); Dawson, 34 mi W, 5–6.vi.62 (13, CNCI); Dawson, Midnight Dome, 3.vii.85 (1, SMDV), 12.vii.85 (1, SMDV); Dempster Hwy. km 72, 20.vi.81 (1, CNCI); Dempster Hwy. km 155, 16.vii.82 (1, CMNC); Dempster Hwy. km 155, 5500 ft., 25–27.vi.82 (1, CNCI); Dempster Hwy. km 155, Pyramid Mt., 16.vii.82 (7, CMNC); Dempster Hwy. km 270, 20.vi.81 (1, SMDV); Dempster Hwy. km 271, 2.vii.81 (4, CNCI); Dempster Hwy. km 465, 3.vii.82 (1, CNCI); Dempster Hwy. km 465, 10–22.vii.82 (6, CMNC), 25.vi.82 (7, CMNC); Dempster Hwy. mi 26, 2700 ft, 18.vii.78 (1, CNCI); Dempster Hwy. mi 29.5, 24.vii.78 (3, CNCI); Dempster Hwy. mi 78, 3300 ft, 12.vii.68 (1, CNCI); Duke R., Burwash Landing, 29.vi.82 (1, SMDV); Firth R. 69°13'N 140°05'W, 27.vi.–4.vii.84 (7, SMDV); Firth R., various dates (23, CNCI); Haines Jct., 22.vi.82 (1, SMDV); Haines Jct., 19.vii.81 (1, SMDV); Haines Jct., 1 km N, 19.vii.81 (1, ROME); Herschel Is., 69°34'N 138°52'W, 21.vii.83 (5, SMDV); Hwy. 4, 368 km N Jct. Hwy. 1, 25.vii.87 (1, JLCC); Keno, 9 mi SW, 19.vii.68 (2, CNCI); Kirkman Cr., 13.vi.28 (4, CNCI); Kluane, Silver City, 13.vi.82 (1, SMDV); Little Atlin L., 15.vii.85 (1, SMDV); McDougall Pass, 67°42'N 136°29'W, 17–20.vii.84 (3, SMDV); Firth R., Sunday Mt., 69°17'N 140°02'W, 24.vi.84 (1, SMDV); Fish Cr., 69°27'N 140°19'W, 3.vii.84 (1, SMDV); Kluane National Park, Sheep Mt., 28.v.80 (1, SMDV); Klondike Hwy. at Pelly Crossing Campground, 20.vii.79 (5, ROME); Klondike Hwy., 1 km E Jct. Dempster Hwy., 2.vii.80 (1, ROME); Klondike Hwy. km 468, 27.vii.80 (6, ROME); Klondike Hwy. km 562, Moose Cr. Campground, 18–20.vii.79 (1, ROME); Klondike Hwy. km 562–566, 28.vi.80 (1, ROME); Klondike Hwy. km 566, 22–25.vii.80 (1, ROME); La Force Lks., 62°41'N 132°20'W, 13.vii.60 (1, CNCI); Lapie R., 1 km E, Campbell Hwy., 61°59'N 132°35'W, 7.vi.81 (1, SMDV); Mason Hill, 67°19'N, 137°40'W, 4.vii.82 (1, SMDV); McQuesten, 10 km E, 2.vi.80 (1, CMNC); Mink Cr., 26.vi.85 (3, SMDV); Ogilvie Mts., North Fork Pass, 4100 ft, 10–11.vi.62 (9, CNCI); Old Crow, 28.vi.81 (1, CNCI); Old Crow, 14–15.vii.83 (4, SMDV), 4–29.vii.83 (4, SMDV); Old Crow, 5 km NW, 2600 ft, 16.vii.83 (15, SMDV); Old Crow, 6 km E, 13–14.vii.81 (1, SMDV); Old Crow, 15 km SE, 28.vi.81 (6, CNCI); Old Crow, 6 mi E, 13.vii.81 (3, ROME); Old Crow, 6 mi N, 12.vii.77 (1, UASM), 14.vii.77 (1, UASM), 24.vii.77 (4, UASM); Old Crow, 30 mi E, 11.vii.81 (5, ROME); Porcupine R., Blue Bluffs, 67°38'N 138°38'W, 11.vii.81 (1, SMDV); Rampart House, 28.v.51 (2, CNCI); Richardson Mts., 67°03'N 136°13'W, 6.vii.82 (29, SMDV); Ross R., 19–22.vi.60 (3, CNCI); Ross R., 19.vii.85 (1, SMDV); Ross R., 16.vi.–31.viii.84 (2, CMNC); Ross R., 8 km S, 26.vii.81 (1, SMDV); Ross R., 12 km SSW, 27.vii.81 (1, SMDV); Selkirk, 9.vi.28 (10, CNCI); Stewart Crossing, 17.vii.83 (1, SMDV); Stewart Crossing, 14 km NW, 18.vi.–30.viii.84 (16, CMNC); Stewart Crossing, 16 km N, 4.vii.81 (12, CNCI); Takhini Crossing, Alaska Hwy. km 1542, 5.vii.81 (1, CNCI); Trout L., 68°50'N 138°45'W, 7–10.vii.84 (4, SMDV); Upper Liard R., 21.vi.58 (1, CNCI); Whitehorse, 28.vii.85 (1, SMDV); Whitehorse, 24 mi W, 25.vi.77 (1, UASM), 26.vi.77 (1, UASM); Whitehorse, 38.4 km W, 22.vi.77 (3, UASM); Whitehorse, Wolf Cr., 17.vii.81 (1, SMDV); White R., Alaska Hwy. mi 1169, 28.vi.58 (9, UASM; 11, CNCI); 64°44'N 139°21'W, 3500 ft, 13.vii.85 (1, SMDV).

11. *Trichalophus alternatus* (Say)

Snafu Cr., 60°08'N 133°48'W, 22.vii.81 (1, SMDV); Whitehorse, 7.vii.79 (1, JLCC).

12. *Vitavitus thulius* Kissinger

Alaska Hwy. km 1713, Horseshoe Bay Campground, 61°02'N 138°31'W, 21.vi.80 (1, ROME); Firth R., 69°13'N 140°05'W, 27.vi.–4.vii.84 (6, CMNC; 24, SMDV).

13. *Listronotus maculicollis* (Kirby)

Eagle R. at Dempster Hwy., 15.vi.80 (1, CMNC; 3, SMDV); Old Crow, 21–26.vii.84 (1, SMDV); Old Crow, 4 km W, Porcupine R., 3.vii.83 (1, SMDV); Old Crow R., Johnson Cr. region, 9–11.vii.83 (5, CMNC; 10, JVMJ).

14. *Lixellus filiformis* LeConte

Carmacks, 13 km S, 27.vii.80 (2, SMDV); Stewart Crossing, 24 km S, 26.vii.80, ex. *Carex* sp. (1, CMNC; 1, SMDV).

15. *Hypera seriata* (Mannerheim)

Firth R., 69°13'N 140°05'W, 26.vi.84 (1, SMDV); Haines Jct., 22.vi.82 (1, SMDV); Herschel Is., 69°34'N 138°52'W, 21.vii.83 (3, SMDV); Richardson Mts., 67°03'N 136°13'W, 6.vii.82 (1, SMDV).

16. *Stephanocleonus zherichini* (Ter-Minassian and Korotyayev)

Old Crow region, 1983 (3, JVMJ).

Records from Anderson (1988:465) (as Stephanocleonus stenothorax): Bluefish Caves archaeological site, 67°08'N 140°47'W, 1983 (23); Bluefish Caves, 67°08'N 140°48'W, 2000 ft, 4.vii.83 (1); Dog Cr., 30.vii.77 (1).

17. *Lepyrus* species

Babbage R., mouth, vii.75 (1, JVMJ); Blackstone R., Dempster Hwy. km 141, 11.viii.80 (1, SMDV); Blackstone R., Dempster Hwy. km 141, 7.vi.80 (2, CMNC); British Mts., Sunday Mt., 950 m, 17.vi.84 (7, CNCI); Dawson, Alaska Hwy. km 690, 12.vii.85 (1, SMDV); Dempster Hwy. km 141, 22–24.vi.82 (1, CNCI); Dempster Hwy. km 155, 5500 ft+, 25–27.vi.82 (1, CNCI); Dempster Hwy. km 465, 10–23.vii.82 (1, CNCI); Dempster Hwy. mi 51, 17–21.vi.73 (1, CNCI); East Blackstone R., Dempster Hwy. km 89.5, 64°36'N 138°22'W, 28.vi.82 (1, SMDV); Firth R., 25.vii.56 (1, CNCI), 30.vii.56 (1, CNCI), 26.viii.56 (3, CNCI); Fortymile, 17.vi.28 (16, CNCI); Haines Jct., Pine Cr., 25.vi.81 (1, SMDV); Kay Point, vi–vii.75 (1, JVMJ); Klo-kut, 6 mi N Old Crow, 13.vi.75 (1, CMNC); 1, JVMJ); Kluane L., south end, 15.vi.82 (1, SMDV), 7.vii.82 (1, SMDV); McQuesten, 10 km E, 28.vi.80 (1, SMDV); Mt. Gibson, 64°44'N 139°07'W, 5500–6000 ft, 13.vii.85 (1, SMDV); Old Crow, 30.vi.83 (1, SMDV); Old Crow, 5 km NW, 2000–2600 ft, 16.vii.83 (2, SMDV); Old Crow, 6 mi N, 15.vii.77 (1, UASM); Old Crow R., Johnson Cr. region, 9–11.vii.83 (1, JVMJ); Porcupine R. at Dave Lord Cr., 67°33'N 139°08'W, 17.vii.81 (2, CMNC); 3, SMDV); Rampart House, 17.viii.51 (2, CNCI); Ross R., 16.vi.–31.viii.84 (1, CMNC); Selkirk, 9.vi.28 (1, CNCI); Von Wilczek Lks., 5.vi.80 (1, SMDV); Yukon Crossing, 8.vi.28 (3, CNCI).

18. *Hylobius congener* Dalla Torre, Schenkling and Marshall

Alaska Hwy. mi 674, 9.vii.79 (1, JLCC).

19. *Hylobius pinicola* (Couper)

62°40'N–62°50'N, 137°W (1, AAMC); Margaret L., 14.vii.76 (1, JVMJ); Swim Lks., 62°13'N 133°W, 23.vi.60 (2, CNCI).

Additional Yukon records are illustrated in Grant (1966, fig. 1) but complete locality information is not presented.

20. *Pissodes fiskei* Hopkins

Swim Lks., 62°13'N 133°W, 20.vi.60 (1, CNCI).

21. *Pissodes rotundatus* LeConte

Klo-kut, 6 mi N Old Crow, 18.vi.75 (1, JVMJ), 22.vi.75 (1, CMNC); Mayo, 29.vi.80 (1) (SMDV); Swim Lks., 62°13'N 133°W, 20.vi.60 (2) (CNCI).

22. *Pissodes schwarzi* Hopkins

Klo-kut, 6 mi N Old Crow, 12.vi.75 (1, JVMJ), 15.vi.75 (1, CMNC), 22.vi.75 (1, CMNC).

23. *Dorytomus frostii* Blatchley

Canyon Cr., 4.viii.48 (7, CNCI); Dawson, 11.vii.68 (1, CNCI); Dawson, 16.vii.68 (3, CNCI); Dempster Hwy. km 72, 21.v.81 (1, CNCI); Haines Jct., 600 m, 30.vii.88 (3, CMNC); Squanga L., 14.v.84 (1, SMDV).

Records from O'Brien (1966): Alaska Hwy. mi 996, Canyon Cr., 4.viii.48 (13); Rampart House, 13.vii.51 (1).

24. *Dorytomus hirtus* LeConte

Haines Jct., 600 m, 30.vii.88 (2, CMNC).

25. *Dorytomus imbecillus* Faust

British Mts., Firth R., 250 m, 69°13'N 140°04'W, 20.vi.84, litter on tussock tundra near R. (1, CNCI; 1, CMNC); British Mts., Fish Cr., 69°27'N 140°23'W, 1.vii.84, litter under dwarf *Populus* (1, CNCI); British Mts., Fish Cr., 200 m, 69°27'N 140°23'W, 30.vi.84 (1, CNCI); British Mts., June Cr., 320 m, 3 km NW Firth R., 69°13'N 140°05'W, 19.vi.84, litter under *Salix* (3, CNCI); British Mts., Sunday Mt., 630 m, 69°15'N 140°02'W, 17.vi.84, litter under *Salix* (1, CNCI); Dempster Hwy. mi 73, 3300 ft, 12.vii.68 (1, CNCI); Keno, 8 mi NW, 6000 ft, 17.vii.68 (5, CNCI; 2, CMNC), 19.vii.68 (3, CNCI).

Records from O'Brien (1966) (as D. alaskanus): Firth R., 2.vii.56 (1); Ogilvie Mts., North Fork Pass, 11.vi.62 (4).

26. *Dorytomus lecontei* O'Brien

Haines Jct., 600 m, 30.vii.88 (4, CMNC).

27. *Dorytomus leucophyllus* (Motschulsky)

Bluefish R., 67°08'N 140°49'W, 3.vii.83 (1, CMNC; 1, SMDV); Dawson, 11.vii.68 (1, CNCI); Dawson, 10 mi E, 11.vii.68 (21, CNCI); Dempster Hwy. mi 37, 14.vii.68 (1, CNCI); Dempster Hwy. mi 45, 14.vii.68 (3, CNCI); Dempster Hwy. mi 60, 23.vii.78 (2, CNCI); Dempster Hwy. km 72, 21.vi.81 (2, CNCI); Eagle R. at Dempster Hwy., 66°27'N 136°43'W, 1.vii.81 (1, CMNC); Kluane, 9.viii.79, *Salix glauca* (1, SMDV); Kluane, 9.viii.79, *Salix alaxensis* (5, SMDV); Kluane L., south end, 13.v.83 (1, SMDV); Lower Laberge, 4.vi.28 (4, CNCI); Ogilvie Mts., North Fork Pass, 10.vi.62 (1, CNCI), 11.vi.62 (41, CNCI), 18.vi.62 (16, CNCI); Old Crow, 35 km WSW, 67°30'N 140°43'W, 11.vii.81 (1, SMDV); Richardson Mts., Arctic Circle, 12 km N, 66°40'N 136°20'W, 6.vii.82 (1, SMDV); Richardson Mts., Dempster Hwy. km 458, 66°58'N 136°14'W, 14.viii.81 (1, CMNC); Selkirk, 9.vi.28 (1, CNCI). *Records from O'Brien (1966) (as D. subsignatus)*: Dixon L., Mt. Mye, 62°21'N 133°08'W, 14.vi.60 (1); Lower Laberge, 4.vi.28 (10); North Fork Crossing, Peel Plateau Rd. mi 42, 26.vi.62; Ogilvie Mts., North Fork Pass, 11.vi.62 (2), 11.vi.62 (14), 12.vi.62 (22); Rampart House, 6.v.51 (19), 28.v.51 (3), 20.iv.51 (1); Selkirk, 9.vi.28 (1).

28. *Dorytomus luridus* (Mannerheim)

Dempster Hwy. mi 35, 15.vii.68 (1, CNCI).

Records from O'Brien (1966): Rampart House, 6.v.51 (1).

29. *Dorytomus marmoreus* Casey
Haines Jct., 600 m, 30.vii.88 (3, CMNC).

30. *Dorytomus rufulus* (Mannerheim)
British Mts., Fish Cr., 180 m, 69°27'N 140°19'W, 1.vii.84, litter under *Salix* (6, CNCI; 1, CMNC); British Mts., Sunday Mt., 630 m, 69°15'N 140°02'W, 17.vi.84, litter under *Salix* (2, CNCI; 1, CMNC); Dawson, 10.vii.68 (1, CNCI); Dempster Hwy. mi 35, 15.vii.68 (2, CNCI); Dempster Hwy. mi 42, 18.vii.68 (1, CNCI); Dempster Hwy. mi 71, 12.vii.68 (1, CNCI); La Force L., 28.vi.60 (1, CNCI); Ogilvie Mts., North Fork Pass, 18.vi.62 (1, CNCI); Whitehorse, 19.viii.59 (1, CNCI).
Records from O'Brien (1966): Firth R., 5.viii.58 (2), 7.viii.58 (1); La Force L., 62°41'N 132°20'W, 28.vi.60 (1); Whitehorse, 19.viii.59 (1).

31. *Dorytomus vagenotatus* Casey
Dempster Hwy. mi 45, 1.vii.79 (1, CMNC); Ogilvie Mts., North Fork Pass, 3500 ft, 19.vi.62 (1, CMNC).
Records from O'Brien (1966): Swim Lks., 62°13'N 133°W, 8.vi.60 (1), 9.vi.60 (1).

32. *Erirhinus aethiops* (Fabricius)
Alaska Hwy. mi 931, 8.vii.79 (1, JLCC); Alaska Hwy. mi 946, 3.viii.74 (2, JVMJ); Alaska Hwy. mi 960, 4.viii.74 (3, JVMJ); Alaska Hwy. mi 1034, near Kloo L., 5.vii.68 (2, CNCI); Alaska Hwy. mi 1120, 6.vii.68 (28, CNCI); Alaska Hwy. mi 1147, Edith Cr., 6.vii.68 (1, CNCI); Blackstone R., Dempster Hwy. km 141, 2.vi.80 (1, SMDV); Dawson, 37 km E, 10.vi.80 (1, SMDV); Dempster Hwy. mi 147, 22.vii.78 (1, CNCI); Engineer Cr., Dempster Hwy. km 165, 30.vi.82 (1, SMDV); Evelyn Cr., 4 km S, 61°52'N 133°05'W, 1.viii.81 (1, SMDV); Kirkman Cr., 13.vi.28 (19, CNCI); Kluane L., south end, 25.vi.82 (1, SMDV); Old Crow, 6 mi N, 14–16.vii.77 (1, UASM); Rampart House, 13.vii.51 (1, CNCI); Sheldon Cr., North Canol Rd., 2.viii.80 (1, SMDV).

33. *Grypus equiseti* (Fabricius)
Alaska Hwy. mi 1147, Edith Cr., 6.vii.68 (1, CNCI); Dawson, 37 km E, 10.vi.80 (1, SMDV); Dempster Hwy. mi 123, 2.vii.79 (1, JLCC); Klo-kut, 6 mi N Old Crow, 11.vi.75 (3, JVMJ); McQuesten R. at Klondike R., 63°33'N 137°25'W, 7.vii.77 (2, JVMJ); Old Crow, 28.vi.81 (3, CNCI); Old Crow, 21–26.vii.84 (2, CMNC; 5, SMDV); Old Crow, 1.6 km N, 26.vii.77 (2, UASM); Old Crow, 6 km E, 19.vii.81 (1, SMDV); Old Crow, 6 mi N, various dates (8, UASM); Stewart Crossing, 14 km N, 18.vi.–30.viii.84 (1, CMNC).

34. *Notaris bimaculatus* (Fabricius)
Klo-kut, 6 mi N Old Crow, 11.vi.75 (1, CMNC), 13.vi.75 (1, JVMJ); Old Crow, 6 km E, 10.vii.81 (1, SMDV); Old Crow, 6 mi N, 19.vii.77 (1, UASM), 21.vii.77 (1, UASM); Whitehorse, 24 mi W, 25–26.vi.77 (1, JVMJ; 2, UASM).

35. *Procas lecontei* Bedel
Dawson, 60 mile Rd., mile 35, 10.vii.49 (1, CNCI).

36. *Acalyptus carpini* (Herbst)
Dawson, 25.vii.80 (1, CMNC); Dawson, Bear Cr., 25.vii.80 (1, SMDV); Eagle R., Dempster Hwy., 15.vi.80 (2, SMDV); Mayo, 29.vi.80 (1, SMDV); Ogilvie R., Dempster Hwy. km 200, 15.vi.80 (1, SMDV); Old Crow, 18.vii.83, *Salix* (1, CMNC; 2, SMDV).

37. *Magdalis alutacea* LeConte
Bluefish Caves, 67°08'N 140°48'W, 2000 ft, 8.vii.83 (1, SMDV); Haines Jct., Pine Cr., 25.vi.81 (1, SMDV); Kluane L., 28.vii.48 (1, CNCI); Kluane L., Alaska Hwy. mi 1054, 2.vi.79 (1, CMNC); La Force L., 62°41'N 132°20'W, 28.vi.60 (1, CNCI); Mayo, 7.vii.55 (1, JLCC); McQuesten, 29.vii.79 (1, JLCC); Moose Cr., Hwy. 3, 6.vii.79 (2, JLCC); Whitehorse, 20.vii.58 (1, CNCI).

38. *Magdalis gentilis* LeConte
Alaska Hwy. mi 1147, Edith Cr., 6.vii.68 (1, CNCI); Alaska Hwy. km 1911, Snag Jct. Campground, 27.vi.82 (1, ROME); La Force L., 62°41'N 132°20'W, 28.vi.60 (14, CNCI); Mayo, 29.vi.80 (3, SMDV); Old Crow, 6 km E, 18.vii.81 (1, CMNC); Otter L., 62°30'N 130°25'W, 28.vii.60 (1, CNCI); Ross R., 20.vi.60 (4, CNCI); Swim Lks., 62°13'N 133°W, 20.vi.60 (1, CNCI).

39. *Magdalis hispoides* (LeConte)
Canyon, 14 km N, Aishinik R., 60°59'N 137°02'W, 21.vii.81 (1, SMDV); Mayo, 3.vii.55 (1, JLCC).

40. *Magdalis* prob. *piceae* Buchanan
Canyon, 14 km N, Aishinik R., 60°59'N 137°02'W, 18.vii.81 (1, SMDV).

41. *Pseudanthonomus validus* Dietz
Stewart Crossing, 14 km N, 18.vi.–30.viii.84 (1, CMNC).

42. *Isochnus flagellum* (Ericson)
Old Crow Basin, 21.vi.75 (2, JVMJ).

Records from Anderson (1989:278): Big Salmon, 6.vi.28 (1); Dawson, 10 mi E, 11.vii.68 (3); Elsa, 11 mi W, 18.vii.68 (11).

43. *Tachyerges niger* (Horn)

Dawson, 10 km E, 16.vii.83 (1, SMDV); Dawson, 25 mi E, 30.vi.79 (1, JLCC); Dawson, 37 km E, 10.vi.80 (1, SMDV); Dawson, Klondike Hwy. km 690, 3.vii.85 (1, SMDV); Dempster Hwy. mi 190, 3.vii.79 (1, JLCC); Grand Forks, Bonanza Cr., 13.vii.85 (1, SMDV); Gravel L., Klondike Hwy. km 626, 63°48'N 137°05'W, 26.vii.82 (1, SMDV); Mayo, 9.vii.55 (1, JLCC); Ogilvie R., Dempster Hwy. km 236, 22.vi.80 (1, SMDV); Old Crow, 18.vii.83, *Salix* (1, SMDV); Pelly Crossing, 5 km S, 2.vii.80 (2, SMDV); Stewart Crossing, 14 km NW, 18.vi.–30.viii.84 (16, CNCI).

44. *Elleschus prob. ehippiatus* (Say)

Carmacks, 18 km S, 5.vi.80 (1, SMDV); Carmacks, 27 km S, 26.vi.82 (1, SMDV); Kirkman Cr., 13.vi.28 (30, CNCI); L. Labege, 31.v.81 (1, SMDV); Little Salmon L., 14.viii.80, *Salix* (2, SMDV); McQuesten, 10 km E, 1.vi.80 (1, CMNC; 1, SMDV), 2.vi.80 (2, SMDV); McQuesten, 33 km NW, 2.vii.79 (1, SMDV); Ross R., 20.vi.60 (4, CNCI); Ross R., 9 km S, Campbell Hwy., 12.vi.81 (2, CMNC; 7, SMDV); Selkirk, 9.vi.28 (1, CNCI); Snag Jct., Alaska Hwy., 23.vi.81 (4, SMDV); Stewart Crossing, 18 km W, 2.vi.80 (2, CMNC; 2, SMDV); Swim Lks., 62°13'N 133°W, 15.vi.60 (1, CNCI); Takhini Hot Springs, 31.v.81, *Salix* (2, SMDV); Von Wilczek Lks., 5.vi.80 (1, SMDV); Whitehorse, 38.4 km W, 22.vi.77 (1, UASM); Willow Cr., Klondike Hwy. km 621, 5.vi.80, *Salix* (2, CMNC; 6, SMDV).

45. *Procturus decipiens* (LeConte)

Dempster Hwy. mi 123, 2.vii.79 (2, JLCC); Eagle R., Dempster Hwy., 15.vi.80 (1, CMNC; 1, SMDV); Ogilvie R., Dempster Hwy. km 200, 13.vi.80 (1, SMDV).

46. *Tychius tectus* LeConte

Alaska Hwy. mi 1169, White R., 28.vi.58 (2, CNCI); Atlin Rd. at B.C. border, 16.vii.85 (1, SMDV); Carcross, 13.vii.82 (2, CMNC; 3, SMDV), 8.vii.83 (4, SMDV); Dempster Hwy. mi 150, 22.vi.80 (2, SMDV); Lapie R. at Glacier Cr., 18.vii.85 (1, CMNC; 7, SMDV); Lewes Cr., 60°21'N 134°46'W, 27.vi.81 (1, SMDV); Mayo, 9.vii.55 (2, JLCC); McCabe Cr., 3 km S, 30.vi.85 (1, SMDV); Ross R., 9 km S, Campbell Hwy., 12.vi.81 (1, CMNC; 4, SMDV); Tenas Cr., 5 km E, Canol Rd., 11.vi.81 (1, CMNC; 4, SMDV); Whitehorse, Miles Canyon, 14.vii.85 (3, SMDV).

Records from Clark (1971): Ross R., 20.vi.60 (45), 19.vi.60 (53).

47. *Auleutes epilobii* (Paykull)

Dawson, airport, 6.vi.80 (1, CMNC; 1, SMDV); McQuesten, 10 km E, 1.vi.80 (1, SMDV); Old Crow, 30.vi.83 (2, SMDV).

48. *Cnemogonus lecontei* Dietz

Fortymile, 17.vi.28 (1, CNCI); Ogilvie R., Dempster Hwy. km 213, 10.viii.80 (1, SMDV).

49. *Perigaster iturata* (Dietz)

Reed Cr., 27.vi.77 (1, CMNC).

50. *Ceutorhynchus americanus* Buchanan

Record from Fall (1926) (as Ceutorhynchus cyanipennis Germar): Dawson, 29.vi.24 (1, MCZC).

51. *Ceutorhynchus barkalovi* Korotyaev

Dempster Hwy. km 155, Pyramid Mt., 16.vii.82 (2, CMNC).

52. *Ceutorhynchus neglectus* Blatchley

Hwy. 2, 22 mi N of Hwy. 1, 25.vi.79 (1, JLCC); Hwy. 10, 29 km N junction Hwy. 4, 20.vii.87 (3, JLCC); Hwy. 10, 91 km N Jct. Hwy. 4, 21.vii.87 (1, JLCC); Mayo, 3.vi.80 (3, SMDV; 1, CMNC); Quiet L., 61°04'N 133°03'W, 12.vii.82 (2, SMDV; 1, CMNC); Ross R., 22.vi.60 (3, CNCI; 1, CMNC); Whitehorse, 19.viii.59 (1, CNCI).

Records from Fall (1926) (as Ceutorhynchus pusio Mannerheim): Dawson, 29.vi.24 (2, MCZC).

53. *Ceutorhynchus oregonensis* Dietz

Dawson, 10.vi.80 (1, SMDV; 1, CMNC); Dawson, 25 mi E, 30.vi.79 (1, JLCC); Dempster Hwy. mi 237, 4.vii.79 (1, JLCC); Mayo, 6–7.vii.55 (4, JLCC; 3, CMNC); Rampart House, 1.viii.57 (1, CNCI); Willow Cr., Klondike Hwy. km 621, 27.vi.80 (1, SMDV).

54. *Ceutorhynchus punctiger* Gyllenhal

Whitehorse, 27.viii.59 (1, CNCI).

55. *Ceutorhynchus querceti* (Gyllenhal)

Frog L., 67°30'N 140°15'W, 13.vii.81 (9, SMDV; 2, CMNC); Old Crow, 4.vii.83 (5, SMDV), 14.vii.83 (1, SMDV; 1, CMNC), 15.vii.83 (4, SMDV).

56. *Ceutorhynchus rapae* Gyllenhal

Canyon, 7 km N, Aishinik R., 60°55'N 137°02'W, 26.vi.81 (1, SMDV); Champagne, 24.vii.81 (1, CMNC; 1, SMDV); Herschel Is., 27.vii.71 (1, CNCI); Moose Cr., Hwy. 3, 6.vii.79 (1, JLCC); Old Crow, 4.vii.83 (2, SMDV); Pelly Crossing, 29.vi.80 (1, SMDV); Rampart House, 1.vii.51 (1, CNCI); Stewart Crossing, 29.vi.80 (3, SMDV); Stewart Crossing, 6 km NE, 29.vi.80 (1, CMNC; 3, SMDV).

57. *Ceutorhynchus subpubescens* LeConte

Alaska Hwy. km 1800, Swede Johnson Campground, 14.vii.79 (1, ROME).

58. *Ceutorhynchus* n. sp. near *mutabilis* Dietz

Haines Jct., Alaska Hwy. km 1638, 8.vii.79 (1, SMDV).

59. *Rutidosoma decipiens* (LeConte)

Whitehorse, 19.viii.59 (1, CNCI).

Record from Fall (1926) (as Ceutorhynchus decipiens): Dawson, 24.vi.24 (1, MCZC).

60. *Euhrychiopsis lecontei* (Dietz)

Canyon, 14 km N, Aishinik R., 60°59'N 137°02'W, 21.vii.82 (1, CMNC).

61. *Pelenomus asperulus* Dietz

Record from Bousquet (1991).

62. *Pelenomus squamosus* LeConte

Mayo, 9.vii.55 (1, JLCC); Stewart R., Proctor's Saw Mill, 63°33'30" 137°25'W, 3.vii.77 (1, CMNC).

63. *Pelenomus ventralis* (Sleeper)

Eagle R., Dempster Hwy., 15.vi.80 (1, CMNC; 3, SMDV); Mayo, 3.vii.55 (11, JLCC); Von Wilczek Lks., 5.vi.80 (1, CMNC).

Records from Fall (1926) (as Pelenomus gracilipes Dietz): Dawson, 29.vi.24 (1, MCZC).

64. *Phytobius leucogaster* (Marshall)

Carmacks, 13 km S, 27.vii.80 (1, SMDV).

65. *Rhyncolus brunneus* (Mannerheim)

Bluefish Caves, 67°08'N 140°48'W, 1-9.vii.83 (1, SMDV); Hwy. 4, 15 km N Jct. Hwy. 1, 30.vii.87 (1, JLCC); Hwy. 4, 529 km N Jct. Hwy. 1, 20.vii.87 (1, JLCC); La Force L., 9.vii.60, 28.vi.60 (2, CNCI); McQuesten, 10 km E, 28.vi.80 (1, SMDV); Minto, 23.vi.77 (1, JVMJ); Rampart House, 7.viii.61 (31, CNCI).