

New provincial and state records for Heteroptera (Hemiptera) in Canada and the United States

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ABSTRACT

New provincial records are provided for 52 species of Heteroptera in Canada. *Dichaetocoris piceicola* (Knight) is also reported from Alaska, and *Pagasa nigripes* Harris from Washington State.

INTRODUCTION

Since the publication of the checklist of the Hemiptera of Canada and Alaska (Maw *et al.* 2000), new Heteroptera from Canada, and new provincial records have been published by Barnes *et al.* (2000), Henry *et al.* (2008), Jansson (2002), Kenner and Needham (2004), Paiero *et al.* (2003), Roch (2007), Schuh (2000a, 2000b, 2001, 2004a, 2004b), Schuh and Schwartz (2004, 2005), Schwartz and Scudder (2001, 2003), Schwartz and Stonedahl (2004), Scudder (2000, 2004, 2007), Scudder and Footitt (2006), Scudder and Schwartz (2001), Wheeler and Hoebeke (2004), and Wheeler *et al.* (2006). Wright (1989) and Kerzhner (1993) also published records not included in Maw *et al.* (2000).

Recent research has revealed additional new provincial records for 52 species. *Dichaetocoris piceicola* (Knight) has been found in Alaska, and *Pagasa nigripes* Harris in Washington State.

These are reported below, with Museum abbreviations as follows:

AAFCL: Agriculture and Agri-Food Canada, Lethbridge, AB (J.R. Byers).

CNC: Canadian National Collection of Insects, Agriculture and Agri-Food Canada,

Ottawa, ON (R.G. Footitt).

LM: Lyman Entomological Museum, Macdonald College, McGill University, Ste.-Anne-de-Bellevue, QC (T. Wheeler).

MU: Memorial University. St. John's , NF (D. Larson).

NSM: Nova Scotia Museum of Natural History, Halifax, NS (A. Hebda and C. Majka).

RBCM: Royal British Columbia Museum, Victoria, BC (R.A. Cannings).

SM: Saskatchewan Provincial Museum, Saskatoon, SK (R. Hooper).

UBC: Spencer Entomological Museum, Department of Zoology, University of British Columbia, Vancouver, BC (K.M. Needham).

UG: Department of Environmental Biology, University of Guelph, Guelph, ON (S.A. Marshall).

UM: J.B. Wallis Collection, University of Manitoba, Winnipeg, MB (R.E. Roughley).

UPEI: Department of Biology, University of Prince Edward Island, Charlottetown, PE (K.A. Campbell and D. Giberson).

NEW PROVINCIAL RECORDS

The systematic order of families and higher taxa listed below, follows Maw *et al.* (2000).

Infraorder NEPOMORPHA
Family CORIXIDAE

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Arctocoris chanceae Hungerford

A subarctic species known from Alaska and across northern Canada from Yukon to Newfoundland and Labrador (Scudder 1997; Maw *et al.* 2000). The species can be keyed using Hungerford (1948) and Brooks and Kelton (1967).

New record. **BC**: 1♂, Atlin, 10 mi S, 18.viii.1980 (R.J. Cannings) [UBC].

Sigara compressoidea (Hungerford)

An eastern Nearctic species, in Canada reported from Ontario east to Newfoundland (Maw *et al.* 2000), but not previously reported from Prince Edward Island. *Sigara compressoidea* is keyed in Hungerford (1948) and Tinerella and Gundersen (2005), and a dorsal colour photograph is given in the latter reference, showing the typically effaced membrane patterning.

New record. **PE**: 1♂ 1♀, Deroche Natural Protected Area, 46.42114°N 62.94082°W, kicknet, small wetland, 27.ix.2007 (K. Alexander Campbell) [UPEI].

Family NOTONECTIDAE

Notonecta spinosa Hungerford

A Cordilleran species, so far in Canada, recorded only from British Columbia (Scudder 1977; Maw *et al.* 2000). The species can be keyed using Hungerford (1933).

New records: **AB**: 1 specimen, Waterton Lakes Nat. Park, grassland pond with mudstone, substrate, near Buffalo Paddock, 49°07'44"N 113°51'11"W, 9.vii.2005 (R.E. Roughley & R.D. Kenner) [UBC]; 1 specimen, Waterton Lakes Nat. Park, spring-fed *Carex* marsh, near West Entrance on Hwy. 5, 49°07'12"N 113°50'53"W, 9.vii.2005 (R.E. Roughley & R.D. Kenner) [UBC].

Family PLEIDAE

Neoplea striola (Fieber)

This pygmy backswimmer, so far in Canada is recorded only from Manitoba, Ontario and Quebec (Maw *et al.* 2000). The species is keyed in Brooks and Kelton (1967).

New record. **BC**: 1 specimen, Edge-wood, F11, edge forest by beaver pond, 25.viii.-5.ix.1988 (H. Knight) [CNC].

Infraorder GERROMORPHA

Family VELIIDAE

Microvelia pulchella Westwood

This cosmopolitan species is recorded from Alaska, and in Canada from most provinces from British Columbia to Newfoundland (Maw *et al.* 2000). The species is keyed in Brooks and Kelton (1967).

New record. **SK**: 1♂ 2♀, Cowan Dam at Hwy. 55, 54°11'49"N 107°27'0"W, *Typha* pond, 22.vii.2003 (R.E. Roughley) [CNC].

Family GERRIDAE

Gerris incognitus Drake & Hottes

A species reported across Canada from British Columbia to Labrador (Maw *et al.* 2000), but not previously recorded from Prince Edward Island. The species is keyed by Drake and Harris (1934).

New record. **PE**: 1♂ 1♀, Millburn, 8.vi.1970 (Ray Wenn) [UPEI].

G. pingreensis Drake & Hottes

This species is known from Alaska and across Canada from Yukon to Labrador (Maw *et al.* 2000), but to date there are no published records for New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland. The species is keyed by Drake and Harris (1934) and Brooks and Kelton (1967).

New record. **NF**: 2♂ 1♀, Plum Point, ponds, 11.ix.1999 (T. Huxley) [CNC].

Limnporus notabilis (Drake & Hottes)

This western water strider in Canada is known from British Columbia and Alberta (Maw *et al.* 2000; Andersen and Spence 1992). The species is keyed by Andersen and Spence (1992).

New record. **SK**: 1♂, Cypress Hills, 15.vii.1977 (R. Hopper) [SM].

Family SALDIDAE

Micracanthia humilis (Say)

A Nearctic-Neotropical species, widely distributed in North America, and in Canada reported from British Columbia and Northwest Territories east to Newfoundland, but not previously recorded from Nova Scotia (Maw *et al.* 2000). The species

is keyed by Schuh (1967) and Polhemus and Chapman (1979).

New records. **NS**: 2♀, Halifax Co., Lawrencetown Beach, viii.1979 (B. Wright) [NSM]; 1♀ Halifax Co., Petpeswick Harbour, wet sandy upper shore, 29.vii.1971 (Barry Wright) [NSM].

Salda lugubris (Say)

A widely distributed Nearctic species that also occurs in Mexico, and in Canada is reported from Yukon to Newfoundland, but not previously from New Brunswick and Nova Scotia (Maw *et al.* 2000). The species is keyed by Brooks and Kelton (1967) and Schuh (1967).

New records. **NB**: 1♂, French Lake, 2.vii.1928 (W.S. Brown) [CNC]. **NS**: 1♀, CBI, Chiticamp, vi.-vii.1917 (F. Johansen) [CNC]; 2♀, Halifax Co., Port Wallis, 17.viii.1952 (D.C. Ferguson) [NSM].

Saldula ablusus Drake & Hottes

This is an eastern Nearctic species, keyed and reported from Ontario by Schuh (1967). Polhemus (1988) noted that references to *Saldula xanthochila* (Fieber) from the northeastern United States almost certainly refer to *S. ablusus* or *S. pallipes* (Fabricius). Wright (1989) reported *S. xanthochila* from Sable Is., Nova Scotia, and examination of 2♂ 1♀ specimens in the Nova Scotia Museum of Natural History, labeled "NS. Sable Is., brackish ponds east of station, 26.vii.1976 (Barry Wright)" shows these to be *S. ablusus*. As pointed out by Polhemus (1985), *S. ablusus* lacks a distinct dark distal streak on the ventral side of the hind femora, and as noted by Schuh (1967) typically has pale lateral margins to the pronotum, whereas these are never present in the *Saldula* "*pallipes* – *palustris*" group.

New record. **PE**: 7♂ 1♀, Can. Nat. Park, Dalvay House, 19.vii.1940 (G.S. Walley) [CNC].

S. bouchervillei (Provancher)

This species was previously reported from Nova Scotia as *Salda bouchervillei* (Provancher) by Wright (1989).

Material examined: **NS**: 2♀, Sable Island, brackish ponds east of station, 26.vii.1976 (Barry Wright) [NSM].

S. laticollis (Reuter)

Lindskog (1981) clarified the identity of this species, distinguishing it from the closely related *S. pallipes* (Fabricius) and *S. palustris* (Douglas) by the presence of long, curved, semi-recumbent or suberect setae on the head dorsally, and noted that *S. fernaldi* Drake is a synonym. In Old World populations of both *S. pallipes* and *S. palustris*, the pubescence on the head and dorsum generally is uniformly short and recumbent. However, as observed by Schuh (1967), the *Saldula* "*pallipes* – *palustris*" species complex has confused systematic heteropterists for some time, because of the extreme variability of the "species". Nevertheless, coastal populations from western North America and Newfoundland, previously identified as *S. palustris* have been shown to be *S. laticollis* (Lindskog 1981; Polhemus 1988), the intertidal biology of which has been described by Stock and Lattin (1976) under *S. palustris*.

Wright (1989) reported *S. palustris* from Sable Is., Nova Scotia, but examination of specimens in the Nova Scotia Museum of Natural History shows these to be *S. laticollis*. This species is also now known from New Brunswick and Prince Edward Island.

New records. **NB**: 1♂ 1♀, Kouchibouguac Nat. Park, 14.vi.1977 (S.J. Miller) [CNC]. **NS**: 2♂ 3♀, Digby Co., Sandy Cove, 4.viii.1971 (Barry Wright) [NSM]; 2♀, Guysborough Co., Liscombe, marshy area above beach, 13.viii.1971 (Barry Wright) [CNC]; 2♂ 1♀, Sable Island, West Light, 23.vii.1976 (Barry Wright) [NSM]; 1♂ 1♀, Sable Island, freshwater pond at West Light, 13.vi.1977 (Barry Wright) [NSM]. **PE**: 1♂, Brackley Beach, 5.vii.1966 (L.A. Kelton) [CNC]; 3♂, Green Gables, Cavendish Beach, 22.vii.1967 (J.E.H. Martin) [CNC].

Infraorder CIMICOMORPHA

Family ANTHOCORIDAE

Anthocoris tomentosus Péricart

This western Nearctic, and Beringian species occurs in the western United States south to Arizona (Lewis *et al.* 2005), and Alaska to Manitoba, but has not previously been reported from Saskatchewan (Maw *et al.* 2000). The species is keyed in Kelton (1978) under the name *A. melanocerus* Reuter, and characteristically has the hemelytra entirely shiny, and the pronotum and antennae completely black. Lewis *et al.* (2005) reported *A. tomentosus* being regularly collected from *Alnus*, *Populus*, *Pyrus* and *Salix* growing in and near fruit-growing regions in Washington State, as well as on *Rumex* and psyllid-infested *Shepherdia argentea* (Pursh) Nutt.

New record. **SK**: 1♀, Fort Qu'Appelle, 17.vi.1967 (R. Hooper) [SM]; 1♀, Regina, on elm, 6.x.1986 (K. Roney) [SM].

Dufouriellus ater (Dufour)

This species was described from Europe, and was first reported from America north of Mexico by Van Duzee (1916). It is now known to be widely distributed in North America, with published records in the USA for New York (Van Duzee 1917), North Carolina (Blatchley 1926), California and Kentucky (Blatchley 1928), Idaho (Harris and Shull 1944), Oregon (Lattin 2004) and Hawaii (Lattin 2005, 2007a), whereas in Canada it has previously been reported from British Columbia (Anderson 1962) and Ontario (Kelton 1978).

Dufouriellus ater is usually collected under the bark of trees, but also is often associated with stored products (Awadallah *et al.* 1984; Arbogast 1984; Lattin 1999). As a result, it is a useful predator of some economic importance (Lattin 2000).

The species is keyed by Kelton (1978), who noted that in Canada it is rare in collections, and probably introduced into British Columbia and Ontario. Although *D. ater* was not included as an alien in Canada by Scudder and Footit (2006), Lattin (2004, 2007b) considered the species to be non-indigenous to America north of Mexico.

New record. **NS**: 1♂, Halifax, Grain

Elevators, from dust and debris samples, 17.vii.1991 (J. Hulton) [NSM].

Family NABIDAE

Nabis inscriptus (Kirby)

This Holarctic species, with somewhat abbreviated wings is difficult to distinguish from shorter winged specimens of *N. americanoferus* Carayon. Reliable separation is based on the shape of the male parameres and structure of the copulatory pouch of the female, as illustrated in Vinokurov (1988) and discussed by Kerzhner (1963). *Nabis inscriptus* is recorded from Alaska and across northern Canada (Maw *et al.* 2000), but as noted by Henry and Lattin (1988), reported distribution records need to be verified.

New records. **NS**: 1♀, Antigonish Co., Pomquet Beach, 31.v.1978 (B. Wright) [NSM]; 1♂, Halifax, found on corpse, Path. Lab., 1.xi.1979 (B. Wright) [NSM].

N. roseipennis Reuter

This species is recorded from British Columbia to Nova Scotia in Canada (Maw *et al.* 2000), but has not previously been reported from Prince Edward Island. The species is keyed in Blatchley (1926) and Harris (1928) and characteristically has black spots on the hind tibiae.

New record: **PE**: 6♂ 8♀, Charlottetown, UPEI, nr. East edge, 46°15'25"N 63°08'08"W, sweeping, 20.ix.2004 (G.G.E. Scudder) [CNC, UPEI].

Pagasa nigripes Harris

Kerzhner (1993) raised *Pagasa fusca* var. *nigripes* Harris to specific rank, and recorded the species in Canada from Alberta, Quebec and Saskatchewan. He also reported *P. nigripes* from Alaska, Colorado, Massachusetts, New Hampshire, New Mexico, New York, Pennsylvania, Vermont and Wyoming. He distinguished it from *Pagasa fusca* (Stein) by differences in the male and female genitalia, and noted that the legs tend to be brown or brownish yellow in *P. nigripes*, whereas they are yellow in *P. fusca*, with the femora often orange or reddish. However, the legs in *P. fusca* can

sometimes be partly brownish or entirely black. Hence, the genitalic characters are the most reliable. The parameres in *P. fusca* are relatively large with the outer margin rounded, whereas in *P. nigripes* they are slightly smaller than in *P. fusca* and distinctly angulate on the outer margin.

Pagasa nigripes is here recorded for the first time from British Columbia, Northwest Territory and Yukon, where the species was previously reported as *P. fusca* in Maw *et al.* (2000): *P. fusca* does not occur in Alaska, Northwest Territory and Yukon. However, in British Columbia, *P. fusca* co-occurs with *P. nigripes*, the species having been collected together at Merritt (23 km E, Hamilton Commonage), Osoyoos (Mt. Kobau in Montane Spruce habitat), Vaseux Creek (Kennedy bench), and the Windermere Valley.

New records. **BC**: 1♂, Canal Flats, 10.8 km S., 31.viii.1998 (G.G.E. Scudder) [CNC]; 1♂, Fairview, White L., BGxh1, SWm, pan trap WL/P-1, 4.vii.-11.vii.1995 (J. Jarrett) [UBC]; 3♀, Merritt, 23 km E, Hamilton Commonage, Upper Fescue grassland, early seral, 1250 m, 16.ix.2000 (G.G.E. Scudder) [CNC, UBC]; 1♀, Merritt, 35 km S, 14.viii.1988 (G.G.E. Scudder) [CNC]; 1♂, Nicola, 24.vii.1932 (G.J. Spencer) [UBC]; 1♂, Osoyoos, East Bench, *Artemisia/Purshia* assoc., pitfall trap, 15.vii. 17.viii. 1990 (G.G.E. Scudder) [CNC]; 1♂, Osoyoos IRI, Inkaneep, BGxh1, AN, pitfall trap T1-1, 6.vii.-9.viii.1995 (G.G.E. Scudder) [CNC]; 1♂, *id.*, 9.viii.-9.ix.1995 [CNC]; 1♀, *id.*, 9.ix.-6.x.1995 [CNC]; 1♀, *id.*, T2-1, 9.viii.-9.ix.1995 [CNC]; 1♂, *id.*, T2-5, 4.vii.-7.ix.1994 [CNC]; 1♂, *id.*, T4-1, 9.viii.-9.ix.1995 [CNC]; 1♀, *id.*, T4-3, 6.vii.-9.viii.1995 [CNC]; 1♀, *id.*, T4-5, 4.viii.-7.ix.1994 [CNC]; 1♀, *id.*, T5-2, 9.viii.-9.ix.1995 [CNC]; 1♂, Osoyoos, Mt. Kobau, MSxh, VK, Pitfall trap K4A-5, 10.viii.-8.ix.1995 (J. Jarrett) [UBC]; 1♀, *id.*, K4A-3, 18.viii.-28.ix.1997 [UBC]; 1♂, Osoyoos, Mt. Kobau Rd., IDFdk1, pitfall trap K3B-5, 18.viii.-28.ix.1996 (J. Jarrett) [UBC]; 1♂, *id.*, IDFxh1, pitfall trap K2B-4, 18.viii.-28.ix.1996 [UBC]; 1♂, *id.*, PPxh1, pitfall

trap K1A-2, 28.vii.-18.viii.1997 [UBC]; 1♂ 1♀, Tatlayoka L., 16.vii.1978 (G.G.E. Scudder) [CNC]; 1♀, Vaseux Cr., CWS bench, BGxh1, AN, pitfall trap Y1-4, 6.ix.-4.x.1995 (G.G.E. Scudder) [CNC]; 1♀, *id.*, Y2-5 [CNC]; 1♂, *id.*, Y1-4, 8.vii.-3.viii.1994 [CNC]; 1♀, *id.*, Y2-5, 12.viii.-6.ix.1995 [CNC]; 1♀, *id.*, Y2-5, 6.ix.-4.x.1995 [CNC]; 1♀, *id.*, Y3-3, 5.vii.-12.viii.1995 [CNC]; 2♂, *id.*, Y3-3, 6.ix.-4.x.1995 [CNC]; 1♂, *id.*, Y3-5, 5.vii.-12.viii.1995 [CNC]; 1♂, *id.*, Y4-1, 12.viii.6.ix.1995 [CNC]; 1♂, *id.*, Y4-5, 3.viii.-6.ix.1994 [CNC]; 1♂, *id.*, Y4-5, 5.vii.-12.viii.1995 [CNC]; 1♂, Vaseux Cr., 'Kennedy bench', 49°16'N 119°30'W, BGxh1, AN, pitfall trap Z2-4, 3.vi.-8.vii.1994 (G.G.E. Scudder) [CNC]; 1♀, *id.*, Z2-5, 12.viii.-6.ix.1995 [CNC]; 1♂, Vaseux Cr., 'Kennedy flats', 49°15'N 119°31'W, BGxh1, AN, pitfall trap X2-1, 6.ix.-4.x.1995 (G.G.E. Scudder) [CNC]; 1♀, *id.*, X3-4 [CNC]; 1♂, X3-5, 12.vii.-6.ix.1995 [CNC]; 1♀, *id.*, X4-1 [CNC]; 1♂, Vaseux L., Wildlife Res., BGxh1, AN:F, pitfall trap VL1-2, 27.vii.-17.viii.1997 (J. Jarrett) [UBC]; 1♂, Westwick L., Cariboo, 28.vi.1961 (J. Scudder) [UBC]; 1♀, *id.*, 17.viii.1962 (G.G.E. Scudder) [CNC]; 3♂ 4♀, *id.*, 18.viii.1962 [CNC, RBCM, UBC]; 1♀, White L., BGxh1, SWm, pitfall trap WL2-3, 17.viii.-28.ix.1996 (J. Jarrett) [UBC]; 1♂ 2♀, Windermere Valley, pitfall trap No. 5, 26.vii.-17.ix.2000 (R. Sargent) [CNC, UBC]. **NT**: 1♀, Fort Smith, 27.v.1950 (W.G. Helps) [CNC]; 1♀, Fort Smith, 6.viii.1950 (J.B. Wallis) [CNC]. **YT**: 2♀, Alaska Hwy. km 1768, Duke R., 9.vii.1983 (G.G.E. Scudder) [CNC]; 1♂, Alaska Hwy. mi 1054, Kluane L., 16.vii.1962 (G.G.E. Scudder) [CNC]; 1♂, *id.*, 7.vii.1983 [CNC]; 2♂, Canyon, Aishihik R., 9.vii.1983 (G.G.E. Scudder) [CNC]; 3♂ 3♀, Carcross, 8.vii.1983 (G.G.E. Scudder) [CNC, UBC]; 1♂, Lapie R., 1 km E on Campbell Hwy., 28.vii.1981 (C.S. Guppy) [UBC]; 1♀, Pelly Crossing, 17.vii.1983 (G.G.E. Scudder) [CNC]; 1♀, Tatchun Cr., 62°17'N 136°17'W, 17.vii.1983 (G.G.E. Scudder) [CNC]; 1♀, Whitehorse, 17.vii.1959 (R. Madge) [CNC]; 1♀, White-

horse, 31.vii.1981 (C.S. Guppy) [UBC].

I have also collected *P. nigripes* in Washington State, USA, as follows: **WA**: 1♀, Oroville, E. Osoyoos L., 48°53'N 119°25'W, *Purshia* assoc., AN BGxh1, pitfall trap O2-1, 10.ix.-4.x.1995 (G.G.E. Scudder) [CNC].

Family MIRIDAE

Ceratopsus modestus (Uhler)

A widely distributed eastern Nearctic species, previously reported from Saskatchewan east to Quebec in Canada (Maw *et al.* 2000). Recorded hosts in West Virginia are *Quercus alba* L. and *Vitis* sp. (Wheeler *et al.* 1983). The species is keyed by Knight (1941), Henry (1979), Kelton (1980) and Larochelle (1984).

New records. **NS**: 1♀, Grand Pre, on *Picea*, 10.viii.1966 (L.A. Kelton) [CNC]; 1♀, Grand Pre, *Pinus sylvestris*, 10.viii.1966 (L.A. Kelton) [CNC].

Conostethus americanus Knight

To date this species in Canada has been reported only from Alberta, Northwest Territories and Saskatchewan (Maw *et al.* 2000). On the prairies *C. americanus* occurs on grasses (Kelton 1980). It is keyed and illustrated in Kelton (1980).

New record. **YT**: 4♂ 7♀, Whitehorse, Dillabough's graze lease, 8V 6754911 490889, 12.vii.2005 (G.E. Hutchings) [RBCM].

Cyrtorhinus caricis (Fallén)

A Holarctic species, reported to occur on sedge (*Carex* spp.) across Canada (Kelton 1980), and also recorded from Alaska and Minnesota, with an apparent relict population occurring in Colorado (Wheeler and Henry 1992). The species is keyed and illustrated by Kelton (1980).

New record. **NS**: 1♂, Lake Egmont, 18.vii.1991 (B. Wright) [NSM].

Deraeocoris quercicola Knight

An eastern Nearctic species, widely distributed and in Canada reported to date from Saskatchewan east to Quebec (Maw *et al.* 2000). Recorded hosts include *Carya*

sp., *Quercus alba*, *Q. ilicifolia* Wangen and *Tilia americana* L. (Wheeler *et al.* 1983), as well as *Quercus macrocarpa* Michx. where it preys on aphids (Kelton 1980). The species is keyed by Knight (1921), Kelton (1980) and Larochelle (1984).

New record. **NB**: 1♀, St. Johns, Rockwood Pk., 5.viii.1954 (J.F. Brimley) [CNC].

D. triannulipes Knight

This Nearctic species in Canada has previously been reported from British Columbia east to Quebec (Maw *et al.* 2000). *Deraeocoris triannulipes* is reported to feed on aphids on *Populus tremuloides* Michx. and *Alnus* spp. (Kelton 1980). It is keyed by Knight (1921), Kelton (1980) and Larochelle (1984).

New records. **NS**: 1♂, Exfern, on apple, 4.vii.1950 (F.T. Low) [CNC]; 1♀, Halifax, *Pyrus*, 22.vii.1976 (L.A. Kelton) [CNC]; 2♀, Kentville, on apple, 10-14.vii.1976 (L.A. Kelton) [CNC]; 1♂, Kentville, *Tilia cordata*, 15-17.vii.1976 (L.A. Kelton) [CNC].

Dichaetocoris piceicola (Knight)

A western Nearctic species, known from Colorado in the USA, and in Canada recorded from Alberta, British Columbia and Yukon (Maw *et al.* 2000). The genus is keyed by Knight (1968). The species *D. piceicola* is distinguished from the only other northern species (*D. gillespiei* Schwartz and Scudder) by Schwartz and Scudder (2003). It is recorded from *Picea engelmanni* Parry (Polhemus 1994), and in British Columbia has been collected on *Abies lasiocarpa* (Hook.) Nutt., *Picea* sp., *Pinus contorta* Dougl. and *Tsuga heterophylla* (Raf.) Sarg. (Scudder, unpublished).

New record. **AK**: 1♀, Mosquito L., 59°27'N 136°02'W, 6.vii.1983 (G.G.E. Scudder) [CNC].

Labops verae Knight

A western Nearctic and Beringian species distributed from Alaska to Manitoba and south to Washington State (Henry and

Wheeler 1988; Maw *et al.* 2000), but not previously reported from Saskatchewan. The species is keyed in Slater (1954) and Kelton (1980). The host plants are unknown (Kelton 1980).

New record. **SK**: 1♂, Stony Rapids, 30.vi.1975 (R. Hooper) [SK].

Lygidea salicis Knight

This Nearctic species in Canada is previously reported from Alberta east to Newfoundland (Maw *et al.* 2000), and in the United States from New York to Minnesota, Colorado, and California (Henry and Wheeler 1988). It has not previously been recorded from British Columbia. *Lygidea salicis* Knight is a small species with the average length in the male of 5.8 mm, and in the female 6.2 mm. The species is keyed by Kelton (1980), who notes that the pilosity on the second antennal segment is shorter than the thickness of this segment. *Lygidea salicis* is usually collected on *Salix* spp. (Kelton 1980; Wheeler *et al.* 1983).

New records. **BC**: 2♂ 3♀, Fernie, gold-enrod, 23.vii.1959 (L.A. Kelton) [CNC]; 2♂ 2♀, Mt. Revelstoke Nat. Pk., *Salix*, 17.vii.1970 (L.A. Kelton) [CNC].

Megalopsallus femoralis Kelton

This species so far has been reported from Alberta, Manitoba, Saskatchewan, Colorado, South Dakota and Wyoming (Schuh 2000b). *Megalopsallus femoralis* has been collected on *Salicornia rubra* Nels. (Kelton 1980). It is keyed by Kelton (1980) and Schuh (2000b), and is illustrated in colour in the latter reference.

New record. **BC**: 3♂ 2♀, Kamloops, Ironmask L., 10U 6804 56152, saline flats, *Salicornia/Plantago*, 730 m., 14.vi.1995 (S.G. Cannings) [RBCM].

Orthotylus alni Knight

This Nearctic species is distributed from Yukon to Newfoundland, and south to New York and Minnesota in the eastern United States (Henry and Wheeler 1988; Maw *et al.* 2000). However, it has not previously been recorded from Nova Scotia. *Orthotylus alni* is keyed by Kelton (1980), and has

been collected on *Alnus rugosa* (DuRoi) Spreng. (Kelton 1980), as well as *A. tenuifolia* Nutt., *Betula glandulosa* Michx., *Lupinus* sp. and *Salix* sp. (Scudder 1997).

New records. **NS**: 1♂, Chester, 10.vii.1969 (B. Wright) [NSM]; 1♀, Chester, 16.vii.1969 (B. Wright) [NSM].

O. nyctalis Knight

Described originally from Minnesota (Knight 1927), this species has been reported in the USA also from Iowa, Illinois, New York and Wisconsin (Henry and Wheeler 1988). It has not previously been recorded from Canada under this name.

According to Knight (1927), *O. nyctalis* can be recognized chiefly on the structure of the male genital claspers. The left clasper is slender with two short dorsal prongs, and the right clasper decurved on the apex and devoid of spines, but the dorsal margin has a prominent spine at the basal third, and two other spines just before the decurved apex.

The record of *O. candidatus* Van Duzee from Saskatchewan (Kelton 1980; Maw *et al.* 2000; Roch 2007) is evidently referable to *O. nyctalis*, as is the record of *O. candidatus* from Ontario (Maw *et al.* 2000; Roch 2007). The recorded occurrence of *O. candidatus* in Quebec (Henry and Wheeler 1988; Roch 2007) may also refer to *O. nyctalis*. Some specimens from Dawson and Moose Creek in the Yukon, listed as *Orthotylus* sp. in Scudder (1997) are actually *O. nyctalis* (see below), but it may be noted that *O. candidatus* also occurs at both these localities. *Orthotylus nyctalis* evidently occurs on *Populus tremuloides* (Kelton 1980).

New records. **AB**: 1♂, Stettler, 3.viii.1957 (A. & J. Brooks) [CNC]; 1♀, Vermilion Provincial Park, Beaverdam Loop Trail, *Populus tremuloides* Michx., 22.viii.1993 (M.D. Schwartz) [CNC]. **MB**: 1♂, Falcon L., 5.viii.-10.viii.1978 (L.A. Kelton) [CNC]; 1♀, *id.*, 6.viii.1978 (L.A. Kelton) [CNC]; 1♀, Rennie, 16.viii.1961 (F.I.S.) [CNC]. **ON**: 1♂, One Sided Lake, *Salix* sp., 1.viii.1960 (Kelton and Whitney) [CNC]; 1♀, Tillsonburg, 18.vii.1962

(Kelton and Thorpe) [CNC]. **SK**: 1♀, Cypress Hills Prov. Park., *Sheperdia canadensis*, 19.ix.1951 (L.A. Konotopetz) [CNC]. **YT**: 1♂, Dawson, 14 mi E, *Populus* sp., 29.vii.1962 (R.E. Leech) [CNC]; 1♀, Dawson, *Salix* sp., 23.vii.1983 (L.A. Kelton) [CNC]; 1♀, Moose Creek, *Salix* sp., 28.vii.1983 (L.A. Kelton) [CNC].

Phytocoris buenoi Knight

An eastern Nearctic species, in Canada previously reported from Ontario and Quebec (Maw *et al.* 2000). The species is keyed by Blatchley (1926). Knight (1920) reported it to occur on Norway spruce (*Picea abies* (L.) Karst.) in the eastern United States, and Wheeler *et al.* (1983) added *Picea glauca* (Moench) Voss and *P. rubens* Sarg.

New records. **NS**: 1♂, Chester, 29.viii.1968 (B. Wright) [NSM]; 1♀, Sandy Cove, 4.viii.1971 (B. Wright) [NSM]; 1♀, Baddeck, 28.viii.1972 (B. Wright) [NSM]; 1♂, Kemptonville, 24.viii.1982 (Agriculture Canada) [NSM].

P. procteri Knight

This species, which is a member of the *P. junceus* Knight group, was described from Maine (Knight 1974), and is reported from Quebec (Roch 2007). The frons has definite transverse red lines, the pronotum is pallid with a basal submarginal strong black band, and the propleura are brownish black. The clavus is more or less fuscous external to the claval vein, with insect length of 8.0 mm. The first antennal segment is pallid, but clothed with black, recumbent setae, and without distinct dark spots. The first antennal segment is longer than the width of the vertex, but does not exceed the width of the pronotum. The second antennal segment is without annuli or coloured bands. There are no records of a host for this species.

New records. **NS**: 1 specimen (abdomen missing), Lake Kejimikujik, 13.vii.1961 (D.C. Ferguson) [NSM]; 1♂, Chester, 24.vii.1968 (B. Wright) [NSM].

Pilophorus neoclavatus Schuh & Schwartz

This eastern Nearctic species to date in Canada has been reported from Alberta east to Quebec (Maw *et al.* 2000), and is keyed by Schuh and Schwartz (1988). Hosts include *Alnus rugosa*, *Quercus ilicifolia*, *Q. palustris*, *Q. stellata* Wangenh and *Salix longifolia* Muhl. (Schuh and Schwartz 1988).

New record. **NS**: 1♀, Kentville, 8.viii.1952 (C.R. McL.) [LM].

Rhinocapsus rubricans (Provancher)

An eastern Nearctic species, in Canada to date reported from Saskatchewan east to Quebec (Maw *et al.* 2000). The species is keyed and illustrated in Kelton (1980), who reports it collected on *Kalmia polifolia* Wang.

New record. **NS**: 1♂, Chester, 4.vii.1969 (B. Wright) [NSM].

Sixeonotus deflatus Knight

An eastern Nearctic species, in Canada previously only reported from Quebec (Larochelle 1984; Maw *et al.* 2000). The species is keyed by Larochelle (1984) as *S. insignis* Reuter, who records the host as *Symplocarpus foetidus* (L.).

New records. **NB**: 1♂, St. John, 9.viii.1954 (J. Brimley) [CNC]. **ON**: 8♂ 5♀, St. Catherines, 22.vi.1961 (Kelton and Brampton) [CNC].

Family TINGIDAE

Acalypta lillianis Torre-Bueno

This Nearctic tingid is widely distributed in North America and Beringia (Drake and Lattin 1963; Scudder 1997). It occurs in Alaska, and from Yukon to Newfoundland, but has not previously been reported from Manitoba (Maw *et al.* 2000). It is keyed by Drake and Lattin (1963), who note that host records are mosses.

New record. **MB**: 1♂, Bird Cove, 4 km NE, Churchill North Studies Centre, 58° 46'14"N 93°50'33"W, pit trap in tundra zone, 18.viii.2006 (Boreal & Arctic Entomol.) [UM].

Family ARADIDAE

Aradus uniannulatus Parshley

A Nearctic and Beringian species, distributed from Yukon to Quebec, and in the United States, south to New York and Colorado (Scudder 1997). The species is keyed by Matsuda (1977) who notes that it is reported to be associated with *Pinus contorta murrayana* (Balf.) Critchfield elsewhere.

New records. **BC**: 1♀, Fernie, 22.viii.1934 (Hugh Leech) [CNC]; 1♀, Lorna, *Picea engelmanni*, 17203 Lot 1, 29.vi.1929 (R. Hopping) [CNC]; 1♂, *id.*, 17203 Lot 2, 10.vii.1924 [CNC]; 1♀, *id.*, *Pinus contorta*, 17203 Lot 8, 12.vii.1924 [CNC]; 1♂, *id.*, *Picea engelmanni*, 17203 Lot 14, 12.vii.1924 [CNC]; ♂, *id.*, 17203 Lot 25, 25.vii.1924 [CNC]; 1♂, *id.*, 17203 Lot 26, 27.vii.1924 [CNC] 1♀, Middy Valley, Merritt, *Pinus ponderosa*, Exp. 17501 Lot 1035, 30.v.1923 (R. Hopping) [CNC]; 1♀, Pine Pass, *Picea*, 11.vii.1972 (D.E. Bright) [CNC].

Infraorder PENTATOMOMORPHA

Family COREIDAE

Leptoglossus occidentalis Heidemann

This leaf-footed bug, commonly called the western conifer seed bug, feeds on numerous conifer species (Koeber 1963; Krugman 1969; Hedlin *et al.* 1981; Schaefer and Mitchell 1983; Gall 1992; Mitchell 2000) although the apparently strong reliance on Pinaceae as a food source is not absolute (Mitchell 2000). However, it is of considerable economic importance because it can cause significant losses in conifer seed orchards (Koeber 1963; Schowalter and Sexton 1990; Blatt and Borden 1996; Mitchell 2000; Strong *et al.* 2001; Bates *et al.* 2002; Strong 2006). The species is keyed in Allen (1969) and McPherson *et al.* (1990), and illustrated by Koeber (1963) and Ruth *et al.* (1982).

Originally considered a western Nearctic species, *L. occidentalis* has naturally expanded its range eastwards in the past few decades (Schaffner 1967; McPherson *et al.* 1990; Marshall 1991; Gall 1992; Ridge-O'Connor 2001), and has invaded Europe

(Taylor *et al.* 2001; Gogala 2003; Tescari 2004; Hilpold 2005; Rabitsch and Heiss 2005; Ribes and Oleguer 2005; Foldessy 2006; Moulet 2006). It is now known to occur in Nova Scotia.

New records. **NS**: 1♀, Kings Co., Middleton, in house, 20.ix.2006 (J. Parks) [NSM]; 1♀, Halifax Co., Halifax, on house, 3.x.2006 (B. Fay) [NSM]; 2♀, Kings Co., Lakeville, 1 of 4, 12.iii.2007 (J. Morton) [NSM 36185]; 1♀, Halifax Co., Halifax, in dwelling, 15.x.2007 (John Sherwood) [NSM Cat. 36219].

Family RHOPALIDAE

Liorhyssus hyalinus (Fabricius)

This cosmopolitan species is widely distributed in North America, and in Canada has so far been reported from British Columbia, Manitoba and Ontario (Maw *et al.* 2000). It is keyed by Blatchley (1926), Slater and Baranowski (1978), and Hoebeke and Wheeler (1982), and illustrated in Slater and Baranowski (1978). Schaefer and Chopra (1982) report *Abutilon*, *Euphorbia*, *Lactuca* and *Sonchus* as host plant genera.

New record. **QC**: 1♀, Terrebonne Co., Lac Carre, Lot 31, Range 8, 19-23.viii.1968 (W. Boyle and R. La Conde) [LM].

Family LYGAEIDAE

Kleidocerys ovalis Barber

This widely distributed Nearctic species has so far in Canada only been recorded from British Columbia and Ontario (Maw *et al.* 2000), as well as Quebec (Roch 2007). It is keyed in Barber (1953) and Scudder (1962). In British Columbia, *K. ovalis* has been collected on *Abies lasiocarpa*, *Alnus* sp., *Betula occidentalis* Hook., *B. papyrifera* Marsh., *Malus* sp., and *Pinus ponderosa* Dougl. (Scudder, unpublished).

New records. **AB**: 5♂ 2♀, Drumheller, 18.vi.1957 (Brooks, MacNay) [CNC]; 7♂ 6♀, *id.*, 11.viii.1957 (A.R. & J.E. Brooks) [CNC]; 2♂ 3♀, Empress, 7.vi.1957 (Brooks, MacNay) [CNC]; 1♀, Lethbridge, 3.vii.1929 (J.H. Pepper) [CNC]; 1♂, Lundbreck, 7.viii.1930 (J.H. Pepper) [CNC]. **MB**: 1♀, Aweme, 5.vii.1920 (H.A. Robertson) [CNC]; 1♀, *id.*, 8.vii.1920 (P.N.

Vroom) [CNC]; 3♀, *id.*, *Betula*, 30.vi.1922 (N. Criddle) [CNC]; 1♀, *id.*, 3.v.1923 (N. Criddle) [CNC]; 1♂ 1♀, Carberry, 9.v.1953 (Brooks, Kelton) [CNC]; 1♂ 3♀, Ninette, *Betula glandulosa*, 21.vi.1958 (J.F. McAlpine) [CNC]; 1♂, *id.*, 14.vii.1958 (R.B. Madge) [CNC]; 1♂, *id.*, 15.vii.1958 (R.L. Hurley) [CNC]; 1♂, Onah, 10.v.1923 (R.M. White) [CNC]; 8♂ 1♀, *id.*, *Betula papyrifera*, 10.ix.1930 (R.M. White) [CNC]; 1♀, Turtle Mtn., 22.vii.1953 (Brooks, Kelton) [CNC]. **SK**: 1♀, Punnichy, 21.v.1965 (R. Hooper) [SM].

K. resedae (Panzer)

This Holarctic species is widely distributed in North America, and occurs in Alaska and from Yukon to Newfoundland and Labrador, but has not previously been recorded from Prince Edward Island. It is keyed in Barber (1953) and Scudder (1962). *Kleidocerys resedae* usually occurs on *Alnus* spp. and *Betula* spp. (Scudder 1997).

New records. **PE**: 3♂ 1♀, Blooming Point, 46°24'33"N 62°58'07"W, sweeping, 20.x.2004 (G.G.E. Scudder) [CNC, UPEI]; 2♂ 4♀, Charlottetown, UPEI, nr. NE point, 46°15'39"N 63°08'19"W, sweeping, 20.x.2004 (G.G.E. Scudder) [CNC, UPEI].

Melacoryphus lateralis (Dallas)

A widely distributed Nearctic species, so far only recorded from British Columbia and Saskatchewan in Canada (Maw *et al.* 2000). The species is keyed by Slater (1988). Specimens of *M. lateralis* collected at light in Wyoming contained cardenolides in the body (Scudder and Duffey 1972), and thus showed evidence of feeding on Asclepiadaceous host plants.

New record. **ON**: 1♂, Guelph, 3.viii.1977 (W.A. Attwater) [UG].

Family RHYPAROCHROMIDAE

Antillocoris minutus (Bergroth)

An eastern Nearctic species, in Canada previously recorded from Ontario east to Newfoundland (Maw *et al.* 2000). The genus is keyed in Blatchley (1926), Slater and Baranowski (1978), and Larochelle (1984), with key to species given by Barber (1952)

and Larochelle (1984). The biology of *A. minutus* in New England has been described by Sweet (1964), who notes the species typically occurs on the ground and usually is found in forest litter, most frequently found beneath gray birch (*Betula populifera* Marsh) and white birch (*B. papyrifera*), but also occurs under hemlock (*Tsuga canadensis* (L.) Carr.), and in sphagnum bogs.

New record. **MB**: 1♀, Winnipeg, St. Charles Rifle Rge., Block B Refuge, Pitfall trap, 6-13.x.1999 (D.A. Pollock, J.K. Diehls and R.E. Roughley) [UM].

Drymus unus (Say)

An eastern Nearctic species, in Canada so far recorded from Saskatchewan east to Nova Scotia (Maw *et al.* 2000). The species is keyed by Blatchley (1926) and Larochelle (1984), and illustrated by Slater and Baranowski (1978). Sweet (1964) described the biology *D. unus* in New England, and noted that this is a ground-dwelling species, most abundant in subclimax forests, particularly where black birch (*Betula lenta* L.) and red maple (*Acer rubrum* L.) are associated with oak (*Quercus* spp.) and hickory (*Carya* spp.).

New record. **NF**: 1♂, St. John's, Long Pond, ix.-x.2001 (Biology 4150) [MU].

Perigenes constrictus (Say)

This eastern Nearctic species is distributed throughout the northern and central United States, and in Canada so far reported from Nova Scotia, Ontario and Quebec (Maw *et al.* 2000). The species is keyed by Blatchley (1926) and Larochelle (1984), and illustrated by Blatchley (1926) and Slater and Baranowski (1978). Sweet (1964) described the biology of *P. constrictus* in New England and noted that it typically occurs in temporary habitats, such as vacant lots, roadsides and newly fallow fields.

New record. **SK**: 1♂, Big Beaver, 9.vii.1974 (R. Hooper) [SM].

Plinthisus americanus Van Duzee

In Canada previously reported from Alberta east to New Brunswick (Maw *et al.*

2000). *Plinthisus americanus* is distinguished by the hemelytra of the female being densely pilose as noted by Sweet (1964), whereas in the closely related *P. compactus* (Uhler) the hemelytra of the female are glabrous. Sweet (1964) noted that *P. americanus* is a forest species in New England, most abundant in *Tsuga* litter.

New record. **BC**: 1♀, Attachie, 32 km W of Charlie L., 5.viii.1982 (R.A. Canning) [RBCM].

Trapezonotus arenarius (Linnaeus)

A Holarctic species with a wide distribution in both the Nearctic and Palearctic, in Canada recorded from British Columbia and Yukon east to Quebec (Maw *et al.* 2000), and in the United States evidently restricted to the highlands of New England and northern New York (Sweet 1964). The species is keyed by Blatchley (1926) and Laroche (1984), and illustrated by Slater and Baranowski (1978). Sweet (1964) reported that in New England *T. arenarius* is a species of open upland habitats, particularly well-drained and rather dry sites.

New record. **NS**: 1♂, Lunenburg, 7.viii.1991 (B. Wright) [NSM].

Family CYDNIDAE

Amnestus pusillus Uhler

A widely distributed species in North America, with recorded occurrence also in Mexico and Guatemala (Froeschner 1960). In Canada, so far reported only from Ontario and Quebec (Maw *et al.* 2000). The species is keyed in Froeschner (1960), McPherson (1982), and Laroche (1984). McPherson (1982) reported that elsewhere *A. pusillus* has been collected from vegetation along streams and margins of roadsides and cultivated fields, as well as beneath rubbish in sandy places.

New record. **NB**: 1♀, Woodstock, 22.v.1966 (L.A. Kelton) [CNC].

Family PENTATOMIDAE

Acrosternum hilare (Say)

A widely distributed Nearctic species, in Canada so far recorded only from British

Columbia, Ontario and Quebec (Maw *et al.* 2000). This species has been collected from numerous plants (McPherson 1982) and can damage some crops (Panizzi *et al.* 2000). The species is keyed in Blatchley (1926), McPherson (1982), Rolston (1983), and Laroche (1984).

New record. **NS**: 1♀, Debert, 1.ix.1952 (R.L. Horsburgh) [LM].

Cosmopepla intergressus (Uhler)

A widely western Nearctic species, in Canada so far recorded only from British Columbia (Maw *et al.* 2000). *Cosmopepla intergressus* is keyed by McDonald (1986), who reported records of the species on “currants”, *Rubus parviflorus* Nutt. and *Ribes* sp.

New record. **AB**: 3♂ 3♀, Lethbridge, black current, 21.ix.2005 (J.R. Byers) [AAFCL].

Euschistus servus euschistoides (Vollenhoven)

A Nearctic species widely distributed in North America, and in Canada recorded from British Columbia to Nova Scotia, but not previously reported from New Brunswick (Maw *et al.* 2000). It has been recorded from numerous host plants (McPherson 1982), and the species has caused yield and quality losses to several crops (Panizzi *et al.* 2000). The species is keyed in McPherson (1982) and Laroche (1984).

New records. **NB**: 1♀, Jonah Mt., 3.vi.1976 (P. Kevan) [LM]; 1♀, Whittier Ridge, 30.v.1976 (P. Kevan) [LM].

Meneclis insertus (Say)

Widely distributed in North America, and in Canada previously recorded from Nova Scotia, Ontario and Quebec. *Meneclis insertus* is nocturnal, arboreal, and phytophagous, and has been collected on deciduous trees (McPherson 1982). The species is keyed in Blatchley (1926), Rolston (1973), McPherson (1982) and Laroche (1984).

New record. **SK**: 1♀, Buffalo Pound Park, 5.v.1975 [SM].

Zicrona caerulea (Linnaeus)

This Holarctic species is widely distributed in North America, Europe and Asia, and occurs in the Oriental region (De Clercq 2000). In Canada it is reported from British Columbia east to New Brunswick (Maw *et al.* 2000). This predaceous species attacks only small prey (De Clercq 2000), and is keyed by McPherson (1982), Larochelle (1984), and Thomas (1992).

New record. **NF**: 1♂, Red Indian L., Winddrift Lot 5, 25.vi.1980 (Brennan and Larson) [MU].

Family THYREOCORIDAE

Corimelaena pulicaria (Germar)

A widely distributed species in North America, also reported from Mexico and Guatemala. In Canada recorded from British Columbia to Nova Scotia, but not previously reported from New Brunswick (Maw *et al.* 2000). The species has been collected on many plants (McPherson 1982), and is keyed in Blatchley (1926), McPherson (1982), and Larochelle (1984).

New record. **NB**: 1♀, Fredericton, French Lake, 10.vi.1931 (C.W. Maxwell) [LM].

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