

Linzer biol. Beitr.	51/2	821-829	20.12.2019
---------------------	------	---------	------------

## Aradidae (Heteroptera) new to North America and Canada, with some additional provincial and state records for Canada and the USA

Ernst HEISS & Geoffrey G.E. SCUDDER

**A b s t r a c t :** *Aradus depressus* (FABRICIUS, 1794), *A. laeviusculus* REUTER, 1875 and *A. pictellus* KERZHNER, 1972 are recorded new to North America, while *A. apicalis* VAN DUZEE, 1920 and *A. brevicornis* KORMILEV, 1980 are newly reported from Canada. New provincial records are reported for Canada, and *A. brevicornis* is reported new to Alaska. *Aradus obtectus* VASARHELYI, 1988 is recognized as a synonym of *Aradus pictellus* KERZHNER, 1972 the latter having priority.

**K e y w o r d s :** Heteroptera, Aradidae, new records, new synonymy, North America, Canada, Alaska.

### Introduction

The first comprehensive treatment of the Aradidae fauna of North America (USA and Canada) was published by PARSHLEY (1921). Later additions e.g. by PARSHLEY (1929), STRICKLAND (1953), the important "Classification of the Aradidae" by USINGER & MATSUDA (1959) documented the increasing interest and knowledge of this family. A keystone publication was "The Aradidae of Canada" by MATSUDA (1977), who listed and keyed 2 genera and 49 species belonging to 2 subfamilies (Aneurinae 2sp., Aradinae 47sp. and ssp.) Further records were reported by PICCHI (1977) and SCUDDER (1978), although SCUDDER (1979) reports only 47 spp. known from Canada (46 Aradinae, 1 Mezirinae). Taxonomic changes proposed by KORMILEV & FROESCHNER (1987) were then included and listed in the "Catalog of the Heteroptera or True Bugs, of Canada and the Continental United States" by FROESCHNER (1988). The most recent compilation of records of Aradidae species and their distribution in geographic units of Canada (provinces and territories) in the form of a "Checklist of the Hemiptera of Canada and Alaska" was presented by MAW et al. (2000). They report 54 species and subspecies of 3 subfamilies (Aneurinae 3 sp.; Aradinae 48 sp., 2 ssp.; Mezirinae 1 sp.). Only one additional national record (*Neuroctenus simplex* (UHLER, 1876)) was published since by PAIERO et al. (2004). Distribution of East-Palaearctic Aradid taxa occurring in the Russian territory, Korea and Japan opposite Alaska is cataloged by HEISS (2001).

Over the years, the junior author (Scudder) accumulated specimens of Aradidae for identification. These were from various collections, but he was unsure of the identification in many cases. Specimens were sent to the senior author (Heiss) for identification. As a result, three species are reported as new to North America, and two species new to Canada.

In addition, several species were noted as new to the recorded distribution of species in the provinces of Canada, and one was noted new to Alaska.

### Material and methods

Museum and collection abbreviations are as follows:

AUM.....Alaska University Museum, Fairbanks, Alaska  
 CNC.....Canadian National Collection, Agriculture and Agri-Food Canada,  
 Carling Avenue, Ottawa, Ontario  
 EHCL.....Ernst Heiss Collection, Innsbruck, Austria  
 NFRC.....Northern Forest Research Centre, Edmonton, Alberta  
 RBCM .....Royal British Columbia Museum, Victoria, British Columbia  
 SMNH .....Royal Saskatchewan Museum, Regina, Saskatchewan  
 UBCZ .....Spencer Entomological Collection, Beaty Biodiversity Museum,  
 (formerly Spencer Entomological Museum, Department of  
 Zoology), University of British Columbia, Vancouver, British  
 Columbia.

### Results

#### Species new to North America

##### *Aradus depressus* (FABRICIUS, 1794) (Figs 1, 4-7)

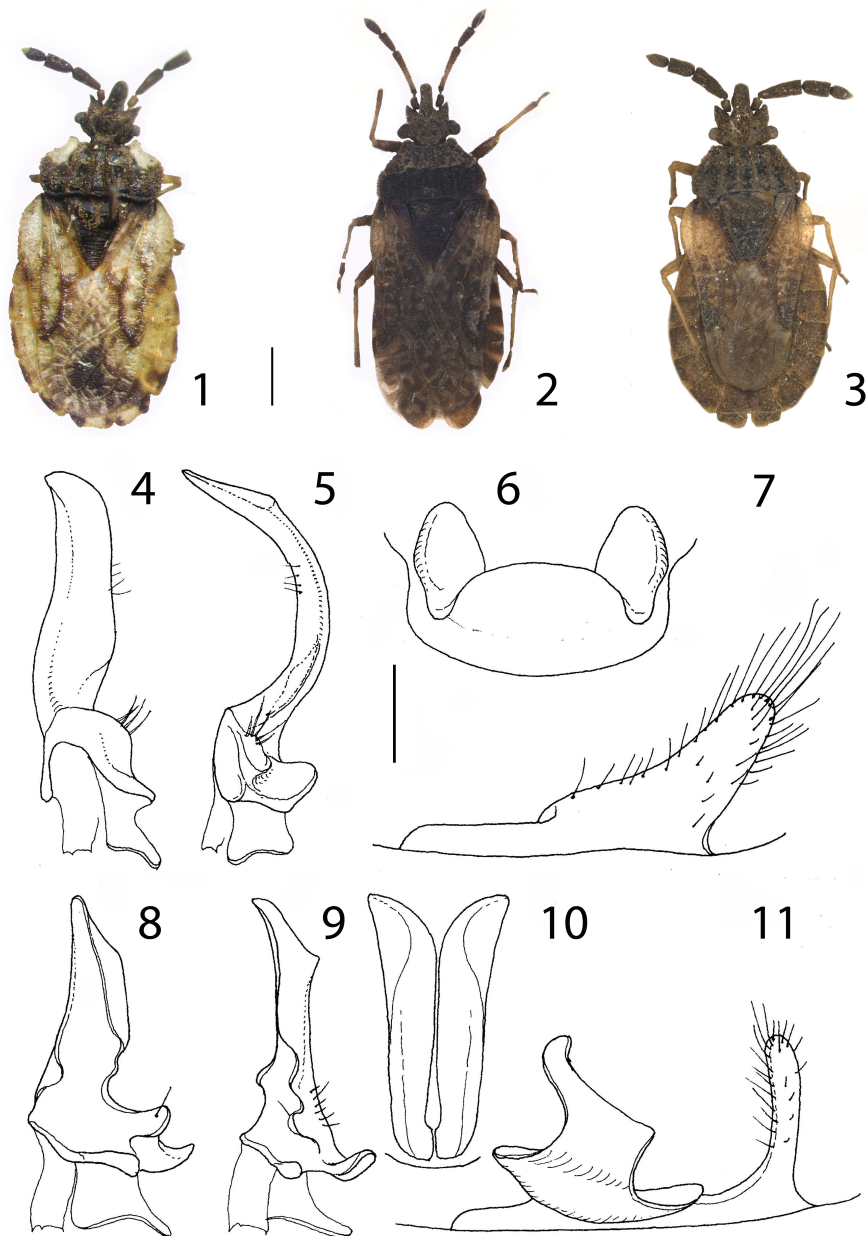
**Material examined:** BRITISH COLUMBIA: 1♀, Port Coquitlam, backyard MV, 49.2441620°N 122.778125°W, 850m, 5.v.2014 (Dave G. Holden) [UBCZ].

A Palaearctic species, most probably introduced. The species is keyed and illustrated by HEISS & PERICART (2007) and is the most widespread flatbug in Europe reaching the Russian Far East territories, but is not yet recorded from Japan (HEISS 2001). *A. depressus* is easily recognizable by its small size, anterolateral angles of the pronotum that are pale, and the stout rather short antennae.

##### *Aradus laeviusculus* REUTER, 1875 (Figs 2, 8-11)

**Material examined:** BRITISH COLUMBIA: 1♂, Garibaldi, on glacier, 15.ix.1961 (J.B. Foster) [UBCZ].

This North-East-Palaearctic species is also keyed and illustrated by HEISS & PERICART (2007) and the very characteristic male genitalic structures of the Canadian specimen were compared and considered identical to those of reference specimens from Russia, thus confirming the first record in the New World. According to HEISS (2001) *A. laeviusculus* is distributed from Scandinavia across Russia to the Far East.



**Figs 1-11.** (1) *Aradus depressus*, female (BC); (2) *Aradus laeviusculus*, male (BC); (3) *Aradus apicalis*, female (BC); (4-7) *Aradus depressus* male genitalic structures; 4-5 left paramere; 6 tergite IX, 7 left parandrium; (8-11) *Aradus laeviusculus*, male genitalic structures; (8-9) left paramere, (10) tergite IX, (11) left parandrium. Scales: 1mm (1-3); 0.1mm (4-11).

***Aradus pictellus* KERZHNER, 1972 (Figs 12-18)**

**Material examined:** BRITISH COLUMBIA: 1♂ 4♀♀. Goldstream, 12.viii.1923 (K.F. Auden) [UBCZ]; 1♂, id., 15.viii.1923 (K.F. Auden) [UBCZ]; 2♂♂, Victoria, 25.ix.1923 (K.F. Auden) [UBCZ], 1♂[EHCI].

Described from Russian Primorsk Territory, however only few records are reported to date from Russia and Korea (HEISS 2001). The series from Canada was compared with paratypes from Siberia and the habitually very similar *Aradus obtectus* VASARHELYI, 1988, which was described from Romania in Europe and later reported as transpalaeartic, reaching even Japan (HEISS 2001, NAGASHIMA & SHONO 2012).

Detailed comparison of the male genitalic structures of Siberian, Canadian and European specimens by senior author did not show any differences, an overlooked fact which confirms now the suspicion, that they all belong to the same widely distributed taxon. As *pictellus* KERZHNER, 1972 has priority, the following synonymy is proposed:

*Aradus pictellus* KERZHNER, 1972 = *Aradus obtectus* VASARHELYI, 1988, **nov. syn.**

**Species new to Canada*****Aradus apicalis* VAN DUZEE, 1920 (Fig. 3)**

**Material examined:** BRITISH COLUMBIA: 1♀♀, Prince George, 12 Rd., 13-130-CN, 18.vii.1997 (B.S. Lindgren) [RBCM-ENT016-000727].

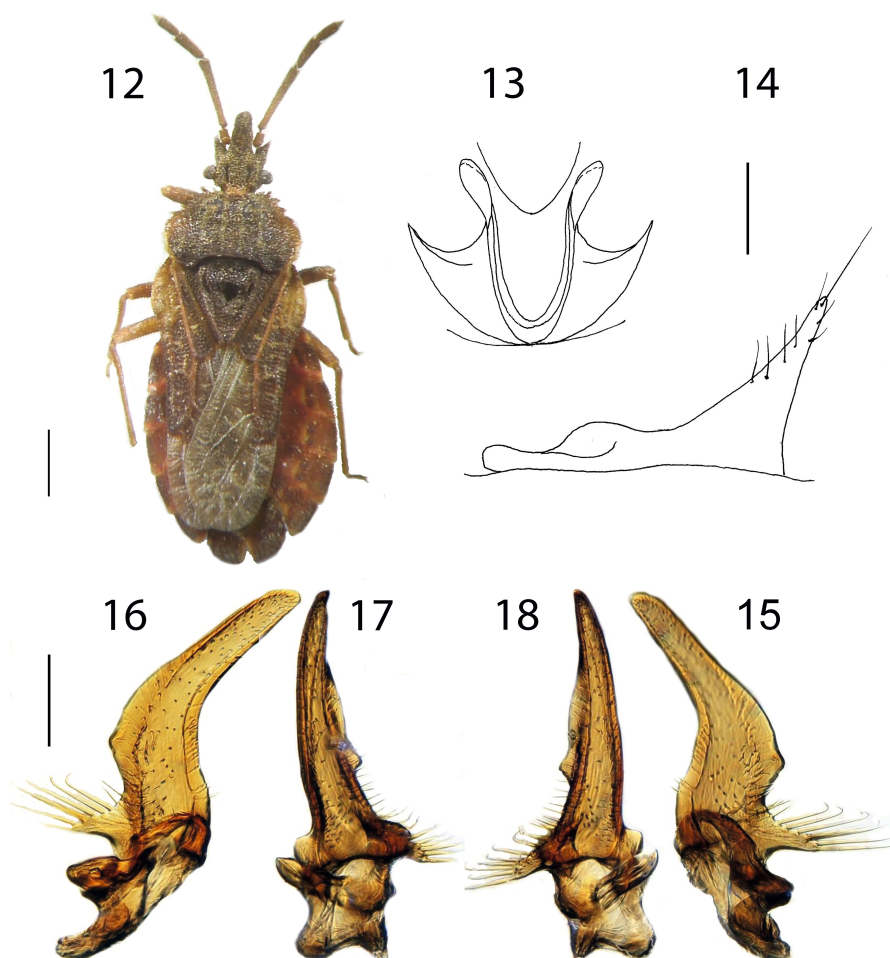
Described from California and recorded only from that state in HENRY & FROESCHNER (1988). The species is keyed by PARSHLEY (1921) who notes that it is similar to *A. duzei* BERGROTH, 1892, but differs in the shape of the pronotum and in the genital structure. The pronotum is widest in the basal third, the rostrum reaches the mesosternum, and the genital lobes are short and truncate posteriorly.

***Aradus brevicornis* KORMILEV, 1980 (Figs 19-28)**

**Material examined:** ALBERTA: 1♀, Peace River, 18.vi.1961 (A.&R. Brooks) [CNC]. ONTARIO: 1♀, Alfred, bog edge, sifting litter around rasp.-blackberry cane, 16.iv.1985 (A. Davies) [CNC]. QUEBEC: 4♂♂, Montreal, 7.ix.1981 (E.J. Kiteley) [CNC], 1♂ [EHCI].

Described from California and recorded only from that state in HENRY & FROESCHNER (1988). The senior author compared the specimens with photographs of the male holotype which is in the California Academy of Sciences in San Francisco. KORMILEV (1980) stated that *A. brevicornis* runs to *A. borealis* HEIDEMANN, 1909 in Parshley's key, but differs in that the antennae are shorter, with the second antennae segment half as long as the distance between the eyes, and the labium is much shorter, reaching half of prosternum. Females are brachypterous. The species also has a different coloration. The unreported male genitalic structures are figured for the first time.





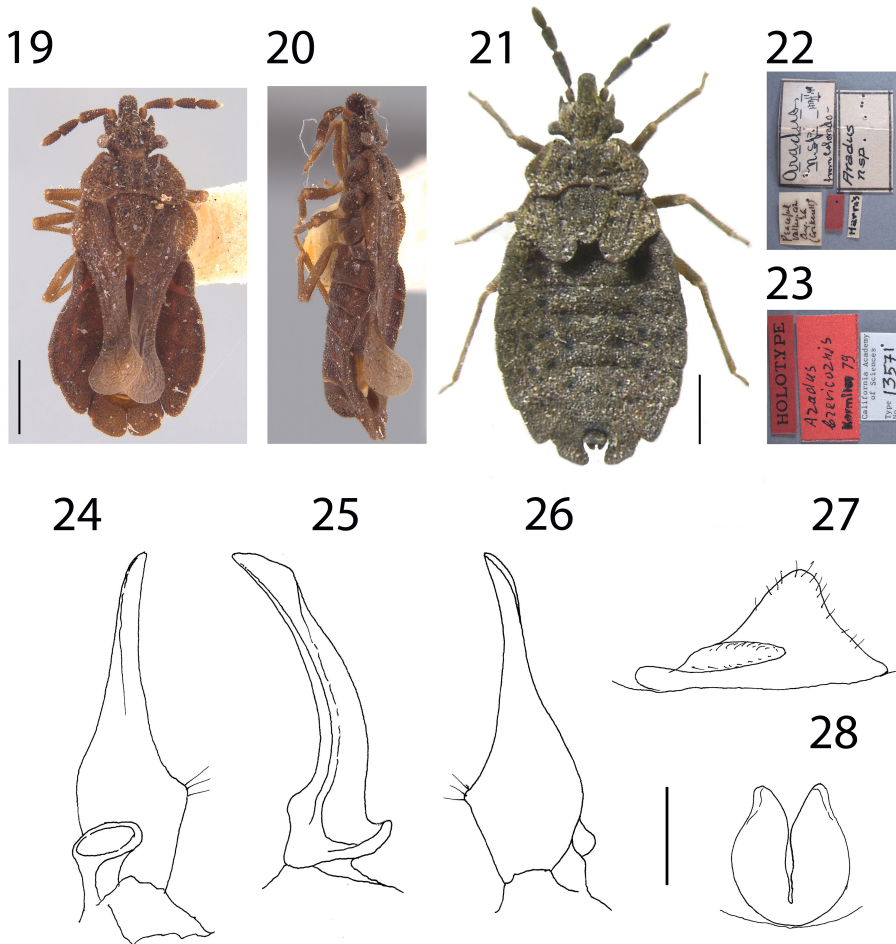
**Figs 12-18.** *Aradus pictellus*. (12) male, dorsal view (BC); (13-18) male genitalic structures; (13) tergite IX, (14) left parandrium, (15-18) left paramere (from paratype). Photos 15-18: V. Vinokurov. Scales: 1mm (12); 0.1mm (13-18).

#### Species new to the provinces of Canada

##### *Aradus acutus* SAY, 1832

**Material examined:** BRITISH COLUMBIA: 1♀, Aspen Grove, 14.v.1934 (Hugh B. Leech) [UBCZ]; 1♂, Jaffray, 17.vii.1974 (L.A. Kelton) [CNC]. ONTARIO: 1♀, Merivale, 5.v.1934 (G.S. Walley) [CNC]; 1♀, Pr. Edw. Co., 30.v.1923 (Brimley) [CNC]. QUEBEC: 1♂, Wright, 26.v.1933 (G.S. Walley) [CNC].

New records for British Columbia, Ontario and Quebec.



**Figs 19-28.** *Aradus brevicornis*. (19) holotype male, dorsal view; (20) lateral view; (21) brachypterous female (AK); (22-23) labels attached to holotype; (24-28) male genitalic structures; (24-26) left paramere, (27) left parandrium, (28) tergite IX. Scales: 1mm (19-21); 0.1mm (24-28).

***Aradus basalis* PARSHLEY, 1921**

**Material examined:** ONTARIO: 1♀, Pr. Edw. Co., 20.iv.1923 (Brimley) [CNC, det G.S. Walley 1931]. SASKATCHEWAN: 1♀, Waskesau, 13.vi.1931 (Kenneth M. King) [UBCZ].

Apparently this species. New to Ontario and Saskatchewan.

***Aradus borealis* HEIDEMANN, 1909**

**Material examined:** LABRADOR: 1♀, Bowater, *Picea glauca*, 29.v.1944 (F.I.S. 44-2331) [CNC].

New record for Labrador.

***Aradus insolitus* VAN DUZEE, 1916**

**M a t e r i a l   e x a m i n e d :** SASKATCHEWAN: 1♀, Punnichy, 20.v.1964 (R. Hooper) [SMNH].

New record for Saskatchewan.

***Aradus intectus* PARSHLEY, 1921**

**M a t e r i a l   e x a m i n e d :** ONTARIO: 1♀, Wentworth Co., near Ancaster 45°15'N 80°00'W, bush/prairie, MT., 2-9.vi.1995 (B. DeJonge) [CNC].

Apparently this species. New to Ontario.

***Aradus montanus* BERGROTH, 1913**

**M a t e r i a l   e x a m i n e d :** ALBERTA: 1♀, WLNP [Waterton Lake National Park], North shore, Driftwood Lakes, 49.0656°N 113.8953°W, rocky beach & on driftwood, 11.vii.2008 (D. Langor) [NFRC].

New record for Alberta.

***Aradus persimilis* VAN DUZEE, 1916**

**M a t e r i a l   e x a m i n e d :** MANITOBA: 1♀, Sandilands, 3.vi.1938 (F.I.S.W.) [CNC].  
ONTARIO: 1♀, Marmora, 25.v.1952 (J.R. McGillis) [CNC]. QUEBEC: 1♀, Kazubazua, 18.viii.1931 (G.S. Walley) [CNC].

New record for Manitoba, Ontario and Quebec.

***Aradus shermani* HEIDEMANN, 1907**

**M a t e r i a l   e x a m i n e d :** BRITISH COLUMBIA: 1♀, Beaconsfield Mt., 6700', 29.vi.1980 (S.G. Cannings) [UBCZ].

New record for British Columbia.

***Aradus uniformis* HEIDEMANN, 1904**

**M a t e r i a l   e x a m i n e d :** ALBERTA: 1♂ 1♀, WLNP [Waterton Lakes National Park], Driftwood Beach, Middle Lake, 49.0656°N 113.8953°W, in wash-up on beach, 2.vii.2013 (D. Langor) [NFRC].

New record for Alberta.

**Species new to Alaska*****Aradus brevicornis* KORMILEV, 1980**

**M a t e r i a l   e x a m i n e d :** ALASKA: 2♂♂ 1♀, Fairbanks, Chena Ridge Rd., 197m, 64.894152°N 143.894891°W, ±20m, *Populus*, *Betula*, Berlese, 20.viii.2009 (D.S. Sikes) [UAM100045431, UAM100017865], 2♂♂, 1♀ [UAM100035060, UAM100035061, UAM100035063].

**Acknowledgements**

We thank the curators of the various collections for the loan of specimens D.S. Sikes (UAM); R.G.

Footitt and E. Maw (CNC); D. Langor (NFRC); C. Copley (RBCM); R. Hooper (SMNH); K. Needham (UBCZ). We also thank Rachel Diaz-Bastin, Californian Academy of Sciences for providing images of the holotype specimen from CAS collection enabling confirmation of the new Canadian records.

Don Griffiths (UBC) took the photographs of Canadian Aradids, and Launi Lucas (UBC) typed an early draft of the MS and arranged the photographs, Tomas Toth (Innsbruck) assembled the figures into plates. We thank the editorial team of LBB (Fritz Gusenleitner, Karin Traxler and Esther Ockermüller) for their interest and efforts to publish this journal.

### Zusammenfassung

Die Aradidenfauna von Nordamerika (USA und Kanada) wurde erstmals von PARSHLEY (1921) zusammenfassend publiziert. Seither erfolgten mehrere Nachweise für die kanadische Fauna, welche in der "Checklist of Hemiptera of Canada and Alaska" von MAW et al. (2000) angeführt sind. Diese umfasst nun 54 Spezies und Subspezies aus 3 Unterfamilien (Aneurinae 3 sp., Aradinae 48 sp, 2 ssp.; Mezirinae 1 sp.). Die Bearbeitung unbestimmter Aradidenbelege aus der Sammlung des Coauthors und aus kanadischen Museen brachten als Ergebnis den Nachweis von 3 neuen Arten für Nordamerika (*A. depressus* FABRICIUS; *A. laeviusculus* REUTER und *A. pictellus* KERZHNER, zu dem *A. obtectus* VASARHELYI als Synonym erkannt wurde), 2 neue Arten für Kanada, eine neue Art für Alaska sowie mehrere Neumeldungen für kanadische Provinzen.

### References

- FROESCHNER R.C. (1988): Family Aradidae SPINOLA, 1837. In: HENRY T.J. & R.C. FROESCHNER (eds). — Catalog of the Heteroptera, or True Bugs, of Canada and the Continental United States, E.J. Brill, Leiden, New York, København, Köln: 29-46.
- HEISS E. (2001): Superfamily Aradoidea BRULLÉ 1836. In: AUKEMA B. & Ch. RIEGER (eds) — Catalogue of the Heteroptera of the Palaearctic Region, Netherlands Entomological Society, Wageningen, Vol. 4: 3-34.
- HEISS E. & J. PÉRICART (2007): Hemiptères Aradidae Piesmatidae et Dipsocoromorphes Euro-méditerranéens. — Faune de France 91: 509 pp., 9 plates.
- HENRY T.J. & R.C. FROESCHNER (1988): (eds) Catalog of the Heteroptera, or True Bugs, of Canada and the Continental United States. — E.J. Brill, Leiden, New York, København, Köln, 958 pp.
- KORMILEV N.A. (1980): Notes of American Aradinae (Hemiptera: Aradidae). — Proceedings of the Entomological Society of Washington 82: 99-107.
- KORMILEV N.A. & R.C. FROESCHNER (1987): Flat bugs of the world. A synonymic list (Heteroptera: Aradidae). — Entomography 5: 1-246.
- MATSUDA R. (1977): The Aradidae of Canada. Hemiptera: Aradidae. In: The Insects of Canada Part 3. — Biosystematic Research Institute, Ottawa, Ontario. Publication 1634: 1-116.
- MAW H.E.L., FOOTITT R.G., HAMILTON K.G.A. & G.G.E. SCUDDER (2000): Checklist of the Hemiptera of Canada and Alaska. — NCR research Press, Ottawa, Ontario, Canada. 220 pp.
- NAGASHIMA S. & Y. SHONO (2012): Family Aradidae BRULLÉ, 1836. In: ISHIKAWA T., TAKAI M. & T. YASUNAGA (eds), A field guide to Japanese bugs – Terrestrial Heteropterans. Vol 3: 281-314, 25 plates. — Zenkoku Noson Kyoiku, Publishing Co. Ltd. Tokyo.
- PAIERO S.M., MARSHALL S.A. & K.G.A. HAMILTON (2004): New records of Hemiptera from Canada and Ontario. — Journal of the Entomological Society of Ontario 134 (2003): 115-129.

- PARSHLEY H.M. (1921): Essay on the American species of *Aradus* (Hemiptera). — Transactions of the American Entomological Society: 1-106 + 7 plates.
- PARSHLEY H.M. (1929): New species and new records of *Aradus*. — Canadian Entomology **61**: 243-246.
- PICCHI V.D. (1977): A systematic review of the genus *Aneurus* of North and Middle America and the West Indies (Hemiptera: Aradidae). — Quaestiones Entomologicae **13**: 255-308.
- SCUDDER G.G.E. (1978): Book Review R. MATSUDA (1977): The Aradidae of Canada. — Bulletin of the Entomological Society of Canada **10** (3): 80-82.
- SCUDDER G.G.E. (1979): Hemiptera. In: DANKS H.V. (ed.). Canada and its Insect Fauna. — Memoirs of The Entomological Society of Canada No. **108**: 329-348.
- STRICKLAND E.H. (1953): An annotated list of Hemiptera (s.l.) of Alberta. — The Canadian Entomologist. **85**: 193-214.
- USINGER R.L. & R. MATSUDA (1959): Classification of the Aradidae (Hemiptera-Heteroptera). — British Museum Monographs, 410 pp.
- VAN DUZEE E.P. (1920): New Hemipterous insects of the genera *Aradus*, *Phytocoris* and *Campitobrochys*. — Proceedings of the California Academy of Sciences (**4**) 9: 331-356.

## Authors' addresses:

DI Dr. Ernst HEISS  
 Tiroler Landesmuseum  
 Josef-Schraffl-Strasse 2a  
 A-6020 Innsbruck, Austria  
 E-mail: aradus@aon.at

Dr. Geoffrey G.E. SCUDDER  
 Department of Zoology, and Centre for Biodiversity Research  
 University of British Columbia  
 6270 University Boulevard  
 Vancouver, B.C., Canada, V6T 1Z4  
 E-mail: scudder@zoology.ubc.ca

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Linzer biologische Beiträge](#)

Jahr/Year: 2019

Band/Volume: [0051\\_2](#)

Autor(en)/Author(s): Heiss Ernst, Scudder Geoffrey G.E.

Artikel/Article: [Aradidae \(Heteroptera\) new to North America and Canada, with some additional provincial and state records for Canada and the USA 821-829](#)