

## 1 NATURAL HISTORY AND OBSERVATIONS

2  
3 *Archilestes californicus* McLachlan: a new damselfly for coastal British Columbia  
4 (Odonata: Lestidae) with notes on the species' expansion in the Pacific Northwest5  
6  
7 STEVEN K. ESAU<sup>1</sup>, PAUL W. SIMONIN<sup>1</sup> and ROBERT A. CANNINGS<sup>2</sup>  
8  
910 <sup>1</sup>A Rocha Canada, 1620 192 St., Surrey, BC, Canada V3Z 9V2. Email: [steven.esau@arocha.ca](mailto:steven.esau@arocha.ca)  
1112 <sup>2</sup>Entomology, Royal BC Museum, 675 Belleville Street, Victoria, BC, Canada V8W 9W2. Email:  
13 [rcannings@royalbcmuseum.bc.ca](mailto:rcannings@royalbcmuseum.bc.ca)  
14  
1516 *Archilestes californicus* McLachlan, the California Spreadwing, is a damselfly in the  
17 family Lestidae. It is native to western North America, ranging from British Columbia (BC,  
18 Canada) south to New Mexico, Arizona, California (United States) and, in Mexico, to Sonora  
19 and Baja California Sur (Paulson 2009, Cannings and Pym 2017). Cannings and Pym (2017)  
20 recorded the species in Canada for the first time in British Columbia's southern Okanagan Valley.  
21 The present study reports the first observation of *A. californicus* in the south coastal region of the  
22 province. It also documents the general increase in records in the Pacific Northwest, which  
23 suggest a northward movement of the species.24 A male *A. californicus* was photographed by one of us (SE) on 16 September 2025  
25 (iNaturalist 314897047, 314897048) (Fig. 1) at a small pond at the A Rocha Canada Brooksdale  
26 Environmental Centre in the Tatalu (Little Campbell River) watershed in Surrey, BC  
27 (49.03235N, 122.68599W). It perched on cattail (*Typha latifolia* L.) growing at the margins of  
28 the pond for a few minutes at a time before moving. It, or perhaps others, was sighted three times  
29 between about 13:50 and 14:15 PDT, within a 5 m radius of where the observer was standing on  
30 a dock. The *Archilestes* was conspicuous because of its large size relative to the abundant *Lestes*  
31 *congener* Hagen (Spotted Spreadwing) damselflies flying with it. *Sympetrum vicinum* (Hagen)  
32 (Autumn Meadowhawk) was also common with many pairs flying in tandem. SE visited the  
33 pond several times a week throughout summer 2025, until early November. There were no  
34 further sightings of *A. californicus*. The same pond had also been surveyed for odonates between  
35 2010 and 2015 by A Rocha Canada volunteer Stan Olson.36 Before the 2016 Okanagan Valley observation, Lestidae were represented in BC by only  
37 one genus, *Lestes*. Both *Lestes* and *Archilestes* tend to perch with wings held open at about a 45-  
38 degree angle and are mostly dark dorsally apart from (in males) blue eyes and light-coloured  
39 pruinosity on the abdomen tip. This pale pruinosity can develop with age on various parts of the  
40 body. *Archilestes californicus* is the largest damselfly in BC (length 42–60 mm, Paulson 2009).  
41 The pterostigmas are white or tan: this can be a helpful field mark when observing at a distance,  
42 as *Lestes* species in the province have dark pterostigmas. Laterally the thorax is white with a  
43 thick brown stripe covering the metapleural suture, and so looks strongly white and dark striped,  
44 a pattern that is unique among BC Lestidae. Mature males have abdominal segments 9 and 10  
45 pruinose white, and the paraprocts are short. Adults fly between July and November in

46 Washington (Paulson 2009); currently records in BC range from August 8 to October 2. Females  
 47 usually oviposit into willow and alder branches (Paulson 2009, Cannings and Pym 2017).

48 To investigate how the range of this species has expanded over time, we downloaded  
 49 Lestidae occurrence data for BC, Washington, Idaho, and Oregon from the Global Biodiversity  
 50 Information Facility, including digitized museum records as well as iNaturalist  
 51 (<https://www.inaturalist.org/>) and Odonata Central (<https://www.odonatacentral.org/>)  
 52 observations (GBIF.org 2025). Additional occurrences from BugGuide.ca (VanDyk 2023),  
 53 Cannings and Pym (2017), Johnson (2005), Logan (1967), Schuh (1936) and Calvert (1899)  
 54 were then added to the dataset. Dennis Paulson provided further data from his own collection of  
 55 *A. californicus*, now housed at the Florida State Collection of Arthropods in Gainesville, Florida.  
 56 Jim Johnson shared occurrence data that had been compiled by Eric Coombs for the Oregon  
 57 Dragonfly Database. Data were processed in R Statistical Software (v4.5.1; R Core Team 2025)  
 58 using the sf package (Pebesma 2018) to identify the earliest record of *A. californicus* within each  
 59 regional district or county. This information was mapped using QGIS (QGIS.org 2025) (Fig. 2).

60 The oldest known record of *A. californicus* in the Pacific Northwest was collected in the  
 61 Yakima Valley, Washington, in 1894<sup>1</sup> (Calvert 1899). Kennedy (1915) found the species to be  
 62 abundant in parts of Yakima. There are also early specimens from the Willamette Valley in  
 63 Oregon, the oldest taken in 1905 (Schuh 1936). The full range of the species was not well  
 64 documented until 2005, by which point there had been substantial collection efforts for Odonata  
 65 in both Washington (Paulson 1997) and Oregon (Johnson 2005). The known range north of  
 66 California in those publications included almost all of Oregon, as well as a broad corridor of  
 67 counties reaching north and east into Washington up the Columbia basin. The northernmost  
 68 specimen at that time, collected by Jim Johnson in 2002 in Okanogan County, was taken about  
 69 100 km south of the Canada/USA border (Odonata Central 369780). In Washington, the only  
 70 occurrences west of the Cascade Range were in Clark and Skamania Counties, and these had  
 71 been found relatively recently (1997 and 1998 respectively). These counties are in the extreme  
 72 south of the state, adjacent to the Columbia River.

73 Over the last twenty years, *A. californicus* has progressively spread northward on both  
 74 sides of the Cascade Range. It had never been recorded in or around Puget Sound until 2009–  
 75 2011, when the first observations were made in Thurston, Pierce, and King Counties. Since then,  
 76 it has become widespread in the Seattle metropolitan area and continues to move farther north.  
 77 *Archilestes californicus* was observed for the first time in Snohomish County in 2018 and in  
 78 Whatcom County in 2024, just 25 km south of the International Boundary (iNaturalist 17500721,  
 79 247247681). This paper documents its appearance in Metro Vancouver and, since it has been  
 80 observed repeatedly in Whatcom County, we predict it will likely be found here again. On the  
 81 Olympic Peninsula, a single specimen was taken in Jefferson County in 2017 (Odonata Central  
 82 472536) but, based on the lack of Lestidae data in that area, the species may be much more  
 83 widespread. It is unrecorded from the San Juan Islands, Gulf Islands, or Vancouver Island.

84 *Archilestes californicus* was first found in Canada by Russell Pym in 2016, east of the  
 85 mountains (Cannings and Pym 2017). It is now known from five different localities in the

---

<sup>1</sup> Calvert (1908) later listed this specimen as *Archilestes grandis* (Rambur) (Great Spreadwing), but the relationship between that species and *A. californicus* was obscure at the time. His description of the 1894 specimen includes several features now considered typical of *A. californicus*, including light-colored pterostigmas and a smaller size than *A. grandis* (Calvert, 1899). Kennedy (1915) collected more Yakima specimens and found all to be *A. californicus*. Paulson (1970) concluded that this early record should in fact be considered *A. californicus* and, subsequently, *A. grandis* has not been recorded in Washington.

86 Okanagan-Similkameen region, including as far north as Penticton on the Okanagan River  
87 (49.49200N, 119.61554W), 29 August 2025 (iNaturalist 310823585). This is 19 km beyond the  
88 most northerly record reported by Cannings and Pym (2017). Syd Cannings collected the first  
89 and currently only Canadian specimens in Osoyoos on 30 August 2024 (iNaturalist 238903149).

90 *Archilestes californicus* may also be expanding its range eastward into southwestern  
91 Idaho. Since 2020, it has been recorded in several counties surrounding Boise, where it was  
92 previously unknown (Simms 2014). There are relatively little recent Lestidae data from many  
93 nearby counties, so the species could have a broader range in the state than is currently realized.

94 The causes and consequences of the range expansion of *A. californicus* are largely  
95 unknown. Paulson (2013) remarked upon the rather sudden appearance of the species into the  
96 Puget Sound region and suggested that it may have been transported there inadvertently by  
97 humans from Oregon via willow stems used in wetland restoration. However, the Puget Sound  
98 records can alternatively be interpreted as part of a gradual range expansion northward starting  
99 from Clark and Skamania Counties and continuing to the present day. This spread may have  
100 gone undetected in the less populous Cowlitz and Lewis Counties, south of Puget Sound.  
101 Therefore, with the full history of the species west of the Cascades in view, the anthropogenic  
102 explanation may not be necessary (Paulson, pers. comm.). *Archilestes californicus* seems capable  
103 of spreading to suitable sites on its own and is expected to do so on the mainland South Coast of  
104 BC. If there is a concern about inadvertently transporting the species (especially to the islands),  
105 restoration practitioners and nursery workers could inspect willow and alder twigs for  
106 oviposition scars (Figure 3). These scars can still be seen several seasons after oviposition and  
107 may even girdle and kill twigs (Kennedy 1915). In the coming years, the work of naturalist  
108 groups and citizen scientists could play a central role in documenting the spread of *A.*  
109 *californicus* and understanding its ecology in BC.

110

111

112 **Figures**



113

114

115 Figure 1. *Archilestes californicus* male, Surrey, BC (Brooksdale Environmental Centre), 16

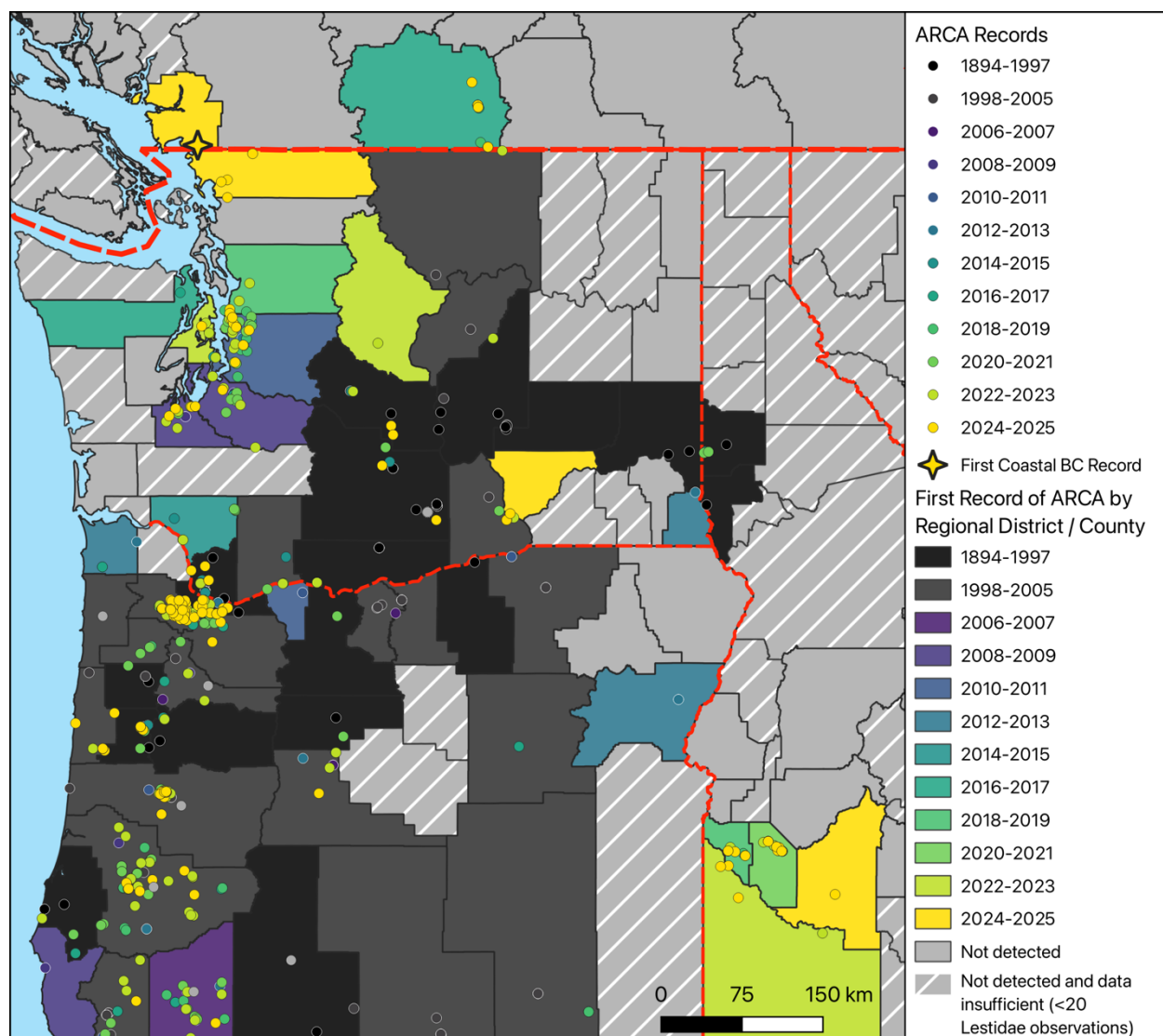
116 September 2025 (iNaturalist 314897047). Photo: Steven Esau.

117

118

119

120



121  
122

123 Figure 2: Map showing records of *Archilestes californicus* (ARCA) in the Pacific Northwest.  
124 Each county (USA) or regional district (Canada) is coloured according to when the species was  
125 first observed there; black and dark gray together represent the species range in the region as  
126 known by 2005. Hatched areas are data deficient (have fewer than 20 total Lestidae  
127 observations).

128

129



130

131 Figure 3: Twig showing numerous oviposition scars made by *Archilestes californicus*. Seattle,  
 132 WA (Magnuson Park), 15 September 2014. Photo: Dennis Paulson.

### 133 **Acknowledgements**

134

135 We thank Dennis Paulson and Jim Johnson for providing comments on the manuscript, as well as  
 136 several invaluable documents pertaining to the history of *A. californicus* in the Pacific  
 137 Northwest.

138

139

### 140 **References**

141

142 Calvert, P. P. 1899. Odonata from Tepic, Mexico with supplementary notes on those of Baja  
 143 California. Proceedings of the California Academy of Sciences (3) Zoology Volume 1:  
 144 371-418. Available from <https://www.biodiversitylibrary.org/item/120248> [Accessed Jan  
 145 19 2026].

146

147 Calvert, P.P. 1901-1908. Odonata. *In* Biologia Centrali-Americana Volume 50 (Neuroptera).  
 148 Edited by F.D. Godman. Porter and Dulau, London, England. Pp. 17-342. Available from  
 149 <https://www.biodiversitylibrary.org/item/14635> [Accessed Jan 19 2026].

150

- 151 Cannings, R.A. and R.V. Pym. 2017. *Archilestes californicus* McLachlan (Odonata: Zygoptera:  
152 Lestidae): a damselfly new to Canada. Journal of the Entomological Society of British  
153 Columbia 114: 77–82. Available from [https://staff.royalbcmuseum.bc.ca/wp-](https://staff.royalbcmuseum.bc.ca/wp-content/uploads/2018/02/Cannings_JESBC_2017.pdf)  
154 [content/uploads/2018/02/Cannings\\_JESBC\\_2017.pdf](https://staff.royalbcmuseum.bc.ca/wp-content/uploads/2018/02/Cannings_JESBC_2017.pdf) [Accessed Nov 13 2025].  
155
- 156 GBIF.org (19 Jan 2026) GBIF Occurrence Download <https://doi.org/10.15468/dl.ub5acm>  
157
- 158 Johnson, J. T. and S. A. Valley. 2005. The dragonflies of Oregon. Bulletin of American  
159 Odonatology 8(4):101-122. Available from  
160 [https://www.researchgate.net/publication/308779374\\_The\\_Odonata\\_of\\_Oregon](https://www.researchgate.net/publication/308779374_The_Odonata_of_Oregon) [Accessed  
161 Nov 13 2025].  
162
- 163 Kennedy, C. H. 1915. Notes on the life history and ecology of the dragonflies of Washington and  
164 Oregon. Proceedings of the United States National Museum 49:259–345. Available from  
165 [https://repository.si.edu/server/api/core/bitstreams/d792f518-ae8a-41a8-98ca-](https://repository.si.edu/server/api/core/bitstreams/d792f518-ae8a-41a8-98ca-aeb6f92a2963/content)  
166 [aeb6f92a2963/content](https://repository.si.edu/server/api/core/bitstreams/d792f518-ae8a-41a8-98ca-aeb6f92a2963/content) [Accessed Nov 13 2025].  
167
- 168 Logan, E. R. 1967. The Odonata of Idaho. M. Sc. thesis, University of Idaho.  
169
- 170 Paulson, D. R. 1970. A list of the Odonata of Washington with additions to and deletions from  
171 the state list. The Pan-Pacific Entomologist 46:194–198. Available from  
172 <https://www.biodiversitylibrary.org/item/254683> [Accessed Jan 19 2026].  
173
- 174 Paulson, D.R. 1997. The dragonflies of Washington. Bulletin of American Odonatology 4(4):75-  
175 90. Available from  
176 [https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73d5782b15923ffad](https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73d5782b15923ffad34832a/1567872393409/BAO_1997_4_4.pdf)  
177 [d7a9b/1567872393409/BAO\\_1997\\_4\\_4.pdf](https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73d5782b15923ffad34832a/1567872393409/BAO_1997_4_4.pdf) [Accessed Nov 13 2025].  
178
- 179 Paulson, D.R. 2009. Dragonflies and damselflies of the West. Princeton University Press,  
180 Princeton, New Jersey, United States of America.  
181
- 182 Paulson, D. R. 2013. An apparently introduced population of California Spreadwings  
183 (*Archilestes californicus*). Argia 25(3):14–15. Available from  
184 [https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73058378bc271b50](https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73058378bc271b5034832a/1567819189455/Argia_2013_25_3.pdf)  
185 [34832a/1567819189455/Argia\\_2013\\_25\\_3.pdf](https://static1.squarespace.com/static/5bf443d3f8370a0c796d6447/t/5d73058378bc271b5034832a/1567819189455/Argia_2013_25_3.pdf) [Accessed Nov 13 2025].  
186
- 187 Pebesma, E. 2018. Simple features for R: standardized support for spatial vector data. The  
188 R Journal 10(1), 439-446.  
189
- 190 R Core Team 2025. R: A language and environment for statistical computing. R Foundation for  
191 Statistical Computing.  
192
- 193 Schuh, J. 1936. A contribution to the knowledge of the Odonata of Oregon. M. Sc. thesis, Oregon  
194 State Agricultural College.  
195

- 196 Sims, G.G. 2014. The known distribution of dragonflies and damselflies in the state of Idaho.  
197 Journal of the Idaho Academy of Science. 50(1).  
198
- 199 VanDyk, John, ed. 2023. BugGuide.Net: identification, images, & information for insects,  
200 spiders & their kin for the United States & Canada. Iowa State University.  
201
- 202 QGIS.org, 2025. QGIS geographic information system. QGIS Association. <http://www.qgis.org>