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NOTE

First provincial records of the whirligig beetle genus *Dineutus* (Coleoptera: Gyrinidae) and water scorpions (Hemiptera: Nepidae) for Newfoundland and Labrador

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The Island of Newfoundland is ca. 111,000 km² in area (Government of Newfoundland and Labrador 2024), and fresh water covers about 7.7% of the provincial area (WorldAtlas 2024). The wide variety of aquatic habitats are occupied by many species of invertebrates of which insects are likely the most diverse. Insect orders in Newfoundland that contain exclusively aquatic species are Ephemeroptera (mayflies), Odonata (dragonflies and damselflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). As well, a subset of families in several other orders contain aquatic species, including Coleoptera (beetles), Hemiptera (true bugs), and Diptera (flies). Although the insect fauna of Newfoundland is relatively depauperate compared to that of the closest Atlantic province (Nova Scotia), the aquatic groups tend to be relatively more diverse than are terrestrial groups. For example, for the Coleoptera, Newfoundland has only 48% of the number of species in Nova Scotia, whereas for the largest aquatic beetle family Dytiscidae, the proportion is 91% (Bousquet et al 2013).

Dineutus nigrior

Among aquatic beetle families the Gyrinidae (whirligig beetles) is moderately diverse. Bousquet et al. (2013) recorded 13 species from Newfoundland and Labrador (NL), all in the genus *Gyrinus*, 43% of the 30 species found in Canada. The only other whirligig beetle genus in Canada is *Dineutus*, with four species; no species have previously been recorded from NL, although all four species occur in the Maritime Provinces.

While sampling beetles in a bog near the town of Tompkins in the Codroy Valley of NL in 2012, the senior author (DWL) encountered a relatively large whirligig beetle that was common on the surface of several bog pools. Several specimens were captured and identified as *Dineutus nigrior* Roberts, 1895 using the key of Gustafson and Miller (2015). In Canada, this species is known to inhabit semi-boggy lakes (Morrissette 1979). To delimit the distribution of this species on the island of Newfoundland, in August 2022 and August 2023, bog pools and ponds between J.T. Cheeseman Provincial Park (47.6302°N, 59.2615°W) and Stephenville (48.5814°N, 58.5475°W), accessible along the Trans Canada Highway and connected adjacent secondary roads, were examined for the presence of *D. nigrior*. Easily accessible bogs with pools, as determined by examination of Google Maps, were checked between 10 am and 4 pm on days when there was no rain and temperatures were between 15-25 °C. The presence of this species was easily ascertained, even from up to ca. 15 m away, as the relatively large size of these beetles and their rapid movement and unique

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meandering swimming pattern on the pond surface was easily discriminated from whirligig beetles in the genus *Gyrinus* and surface-dwelling water striders (Hemiptera: Gerridae). We captured 1-2 individuals from each bog to confirm identity. Voucher specimens are deposited in the insect collections at the Northern Forestry Centre (NFRC: Edmonton, AB), The Rooms Provincial Museum (NFM: St. John's, NL), and the Canadian National Collection of Insects, Arachnids and Nematodes (CNCI: Ottawa, ON).

The species was found at seven of eight bogs surveyed in the Codroy Valley, but not at three bogs south of the Codroy Valley (Cape Ray, Wreckhouse, Barachois Falls Trail) (Table 1). North of the Codroy Valley, all four bogs surveyed around Stephenville had *D. nigrior*, as did a bog near St. George's (Table 1). However, two other bogs surveyed between St. George's and the Codroy Valley did not have adults. Also, no beetles were seen on bogs along the Burgeo Highway (Route 480) or between Stephenville and Corner Brook along Route 1. In general, the species has a moderately wide distribution along the west coast of Newfoundland, and several pools in most bogs were inhabited. It is possible the distribution is wider than this limited survey indicates.

The highest number of adults observed in a single bog was over 100. It was not possible to census immature life stages (eggs, larvae, pupae). Not all pools examined were inhabited by adults. Adults were found mainly on pools with the smallest lateral dimension being >2.5m, water at least 50 cm deep, and low to no emergent vegetation. It was observed that many bog pools had dried up, or nearly so, rendering them unsuitable for this beetle. Continued drying under climate change may pose a risk to peatlands and the species that inhabit them. Many bogs showed evidence of low to moderate ATV use, but there is no indication this adversely affects the number of pools and pool suitability. *Dineutus nigrior* is sufficiently widely distributed and populations are sufficiently high that the species currently seems to be at no or low risk in Newfoundland.

Species records: Newfoundland and Labrador: Upper Ferry, 47.824°N, 59.208°W, 37m a.s.l., 24 June 2010, bog pools, Col. David Langor [4; NFM]; 2 km north of Doyles on TCH, 47.8433°N, 59.1640°W, 10 August 2022, bog pools, Col. David Langor [9; NFM 6, NFRC 3]; Cold Brook. North of Stephenville, 48.5848°N, 58.5378°W, 12 August 2023, bog pools, Col. David Langor [4; NFM]; Route 490 near Stephenville, 48.5471°N, 55.5133°W, 12 August 2023, bog pools, Col. David Langor [2; CNCI]; Route 90 near Stephenville Crossing, 48.5471°N, 58.5133°W, 12 August 2023, bog pools, Col. David Langor [2; NFM] north of Stephenville, 48.5848°N, 58.5378°W, 12 August 2023, bog pools, Col. David Langor [6; NFM 4, CNCI 2]; near St. George's, Steel Mountain Road, 48.4134°N, 58.4588°W, 14 August 2023, surface of bog pools, Col. David Langor [1; NFM].

Ranatra fusca

Water scorpions (Hemiptera: Nepidae) are recorded across southern Canada from British Columbia to the Maritime Provinces, but there is no known record from NL (Maw et al. 2000). On 12 August 2023, while sampling for *Dineutus* near Stephenville NL, one mature individual of the water scorpion, *Ranatra fusca* Palisot de Beauvois (Hemiptera: Nepidae), was incidentally captured in a pond (ca. 0.6 ha in area) on a bog. It is believed to have been attached to a leaf of the water lily *Nuphar variegata* Engelm. ex Durand (Nymphaeaceae). Subsequent sampling on the same pond and nearby pools yielded no further specimens. On 22 July 2024, one pond and seven pools with lily pads were sampled with an aquatic net on three bogs in the vicinity of Stephenville and Stephenville Crossing. One to four water bodies were sampled per bog with sampling ceasing after the species was detected. A pond (ca. 0.15 ha) east of Stephenville yielded three immature and one mature individuals after about 10 minutes of sampling leaves of *N. variegata*. Immature individuals were about two-thirds the length of the mature individual. Bog pools sampled at two other nearby sites failed to yield individuals. These represent the first records of water scorpions from the province. Undoubtedly the species is more widely distributed than the two known records indicate. This species is the most widespread and common species of water scorpion in North America where it typically inhabits ponds and rarely flowing water (Sites and Polhemus 1994).

Species records: Newfoundland and Labrador: near Stephenville airport, 48.5471N 58.5133W, 12 August 2023, on leaf of *Nuphar variegata*, Col. David Langor [1; CNCI]; E. of Stephenville on Route 460, 48.5335N 58.4419W, 22 July 2024, on leaf of *Nuphar variegata,* Col. D. Langor & J. Humber [1; NFM].

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Table 1. Location of bogs surveyed for *Dineutus nigrior* in 2022-23, habitat suitability and number of adults observed and sampled.

Locality	Latitude/Longitude	Year	No. pools surveyed	No. pools suitable	No. suitable pools with adults	No. adults seen (taken)
Tompkins	47.8238N 59.2101W	2022	12	10	9	80+ (5)
Barachois Falls trail	47.6077N 58.7736W	2022	5	2	0	0
Cape Ray	47.6214N 59.3040W	2022	25	10	0	0
Wreckhouse	47.7091N 59.3073W	2022	6	3	0	0
Route 1, 2 km NE Doyles	47.8433N 59.1640W	2022	8	6	6	100+ (3)
North of Doyles	47.8347N 59.1889W	2022	8	6	6	50+ (1)
South of Doyles	47.8255N 59.1872W	2022	15	6	5	20+ (2)
Cape Anguille	47.8991N 59.4107W	2022	1	0	0	0
Near South Branch, E side of Route 1	47.8580N 59.1338W	2022	8	6	4	20+ (0)
St. Andrews	47.7977N 59.3010W	2022	5	3	2	20+ (0)
Codroy Valley, "The Block"	47.7942N 59.3202W	2022	3	3	2	? (0)
Stephenville Crossing Route 490	48.4573N 58.4046W	2023	13	2	1	2 (0)
Stephenville Crossing Route 490	48.5421N 58.5157W	2023	20	2	2	6 (0)
Stephenville Crossing, Route 490	48.5471N 58.5133W	2023	30+	6	3	13 (4)
Stephenville area, Cold Brook	48.5848N 58.5378W	2023	12	6	6	50+ (8)
Flat Bay	48.3885N 58.6357W	2023	5	0	0	0
St. Teresa	48.3696N 58.6497W	2023	11	1	0	0
St. Georges	48.4134N 58.4588W	2023	18	9	5	50+ (1)
Route 480, S of Lloyd's R.	48.2759N 57.7267W	2023	7	0	0	0
Route 480, 32 km N of Burgeo	47.8676N 57.6557W	2023	10	5	0	0
Route 1, near Georges Lake	48.6646N 58.1967W	2023	2	1	0	0

REFERENCES

Bousquet, Y., Bouchard, P., Davies, A.E., and Sikes, D.S. 2013. Checklist of beetles (Coleoptera) of Canada and Alaska, 2nd ed. Series Faunistica No. 109, Pensoft Publishers, Sofia, Bulgaria.

Government of Newfoundland and Labrador. 2024. About Newfoundland and Labrador – Land Area [online]. Available from https://www.gov.nl.ca/aboutnl/area.html [accessed 23 July 2024].

Gustafson, G.T., and Miller, K.B. 2015. The New World whirligig beetles of the genus *Dineutus* Macleay, 1825 (Coleoptera, Gyrinidae, Gyrininae, Dineutini). ZooKeys **476**: 1-135.

Maw, H.E.L., Foottit, R.G., Hamilton, K.G.A, and Scudder, G.G.E. 2000. Checklist of the Hemiptera of Canada and Alaska. NRC Research Press, Ottawa, Canada.

Morrissette, R. 1979. Les Gyrinidae (Coleoptera) du Québec. Fabreries **5**: 51-58.

Sites, R.W., and Polhemus, J.T. 1994. Nepidae (Hemiptera) of the United States and Canada. Annals of the Entomological Society of America **87**: 27-42.

WorldAtlas. 2024. Canadian provinces and territories by land and freshwater area [online]. Available from at https://www.worldatlas.com/articles/canadian-provinces-and-territories-by-land-and-freshwater-area.html [accessed 23 July 2024].