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Haematotrephus limnodromi n. sp. (Digenea: Cyclocoelidae) from the Long-billed dowitcher, *Limnodromus scolopaceus* (Scolopacidae) from the central flyway of North America

NORMAN O. DRONEN[1], SCOTT L. GARDNER[2] & F. AGUSTÍN JIMÉNEZ[2]

[1]*Laboratory of Parasitology, Department of Wildlife and Fisheries Sciences, Texas A&M University, 2258 TAMU, College Station, Texas, 77843-2258, U.S.A. E-mail: n-dronen@tamu.edu*

[2]*H. W. Manter Laboratory of Parasitology, University of Nebraska State Museum, University of Nebraska-Lincoln, Nebraska 68588-0514, U.S.A. E-mail: slg@unl.edu & fruiz@unlserve.unl.edu*

Abstract

During a study of the endohelminths of wading birds from the Texas Gulf coast, 5 specimens of an undescribed species of *Haematotrephus* (Cyclocoelidae) were studied and described. These specimens were collected by Dr. J. Teague Self, former professor, Department of Zoology, University of Oklahoma, Norman, Oklahoma from the air sacs of a long-billed dowitcher, *Limnodromus scolopaceus*, that was collected from the Cheyenne Bottoms, Roger Mills County, Oklahoma on August 3, 1963 and deposited in the Manter Laboratory of Parasitology. *Haematotrephus limnodromi* n. sp. can be distinguished from all the other species in the genus that lack an oral sucker (*H. capellae*, *H. chengi*, *H. dollfusi*, *H. fasciatum*, *H. kossacki*, *H. lanceolatum*, *H. longisacculatum*, *H. nebularium*, *H. nigropunctatum*, and *H. phaneropsolus*) by having intertesticular uterine loops. *Corpopyrum brazilianum* (originally described as *Cyclocoelum brazilianum*) is transferred as the second species in *Selfcoelum*, *Corpopyrum dendrei* is transferred to *Neohaematotrephus*, and *Haematotrephus facioi* is transferred to *Wardianum*. This is the first report of a species of *Haematotrephus* from a species of *Limnodromus*.

Key words: Cyclocoelidae; Digenea; Haematotrephinae; *Haematotrephus limnodromi* n. sp.; *Limnodromus scolopaceus*; long-billed dowitcher; Oklahoma; *Selfcoelum*; Scolopacidae; Trematoda; U.S.A.

Introduction

The long-billed dowitcher, *Limnodromus scolopaceus* (Say, 1823) (syn. *Limosa scolopacea* Say, 1823) (Scolopacidae), is a widely distributed but relatively uncommon wading bird found in most coastal marine and estuarine habitats, and to a lesser extent, in

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many inland freshwater systems in North America. This species has a very large range having been reported from Central America, northern South America, Eurasia, northeastern Siberia and Anadyrland (American Ornithologist's Union 1983). *Selfcoelum limnodromi* Dronen, Gardner & Jiménez, 2005 is the only cyclocoelid that has previously been reported from species of *Limnodromus* Weid, 1833; however, following Yamaguti (1971) *Corpopyrum brazilianum* (Stossich, 1902) (originally described as *Cyclocoelum brazilianum* [Stossich, 1902] by Stossich [1902]; considered to be *Corpopyrum brasilianum* [Stossich, 1902] by Witenberg [1923]; and *Haematotrephus phaneropsolus* [Stossich, 1902] by Bashkirova [1950]) has been reported from a closely related bird, the bar-tailed godwit, *Limosa lapponica* (Linnaeus, 1758), from the New World apparently by Dubois (1959). Despite a thorough search of the literature, we have not been able to find a report of *C.* (*H.*) *brasilianum* from *L. lapponica*. Although *L. lapponica* is occasionally found in North America, it is not a normal resident of Central America (reported only from Panama as accidental) or South America (reported only from Venezuela as accidental) (American Ornithologist's Union 1983). It is unlikely the bird host reported by Yamaguti (1971) is correct. In his list of species of cyclocoelids by their respective hosts, Dubois (1959) listed *Cyclcoelum* (*Haematotrephus*) *brasilianum* from only the lesser yellowlegs, *Tringa flaviceps* (Gmelin, 1789), from Brazil. This species of cyclocoelid was originally described by Stossich (1902) from 4 specimens from the Berlin Museum, Berlin, Germany (No. 2429) that were labeled *Monostomum mutabile* Zeder that were collected from the abdominal and thoracic cavities of *Scolopax flaviceps* (= *Tringa flaviceps* [Gmelin, 1789]) from Brazil.

Yamaguti (1971) recognized 3 subfamilies of Cyclocoelidae Stossich, 1902: Cyclocoelinae, Stossich, 1902; Promptenovinae, Yamaguti, 1971; and Typhlocoelinae Harrah, 1922 and included *Haematotrephus* Stossich, 1902 in Cyclocolinae. Yamaguti (1971) listed 3 other genera in Cyclocoelinae that are similar to *Haematotrephus* by having a pretesticular ovary, vitelline fields that were not united posteriorly, and a postpharyngeal genital pore: *Corpopyrum* Witenberg, 1923; *Haematoprimum* Witenberg, 1923; and *Wardianum* Witenberg, 1923. Lal (1939), Macko & Feige (1960), and Kanev et al. (2002) considered *Corpopyrum*, *Haematoprimum*, and *Wardianum* to be synonymous with *Haematotrephus*. Yamaguti (1971) also included a fourth similar genus in Cyclocoelinae, *Harrahium* Witenberg, 1926, where the ovary is opposite the anterior testis as a member of Cyclocoelinae; however, other authors (e.g. Bashkirova 1950; Feizullaev 1980; and Kanev et al. 2002) considered this genus to also be a synonym of *Haematotrephus.*

In their recent key to the Cyclocoelidae, Kanev, et al. (2002) recognized 3 subfamilies: Cyclocoelinae where the ovary is intertesticular; Ophthalmophaginae Harrah, 1922 where the ovary is posttesticular; and Haematotrephinae Dollfus, 1948 where the ovary is either pretesticular or opposite to the anterior testis, and listed only 3 genera of Haematotrephinae: *Haematotrephus* Stossich, 1902 where the vitelline fields are not united posteriorly and the genital pore is postpharyngeal; *Neohaematotrephus* Kanev,

Radev & Fried, 2002 where the vitelline fields are united posteriorly and the genital pore is prepharyngeal; and *Uvitellina* Witenberg, 1923 where the vitelline fields are united posteriorly and the genital pore is postpharyngeal. Yamaguti (1971) listed 9 species of *Haematotrephus*: *H. lanceolatum* (Weld, 1858), the type species, described by Weld (1858) as *Monostomum lanceolatum* (Weld, 1858) from the abdominal cavity of *Himantopus rubropterus* from Siberia (This is not a valid species of bird. There are 2 species of *Himantopus* Brisson, 1760 world wide: the black-winged stilt, *H. himantopus* [Linnaeus, 1758] and the black-necked stilt, *H. mexicanus* [Müller, 1776], and only *H. himantopus* would likely be present in Siberia [American Ornithologist's Union 1983; Bellrose 1978; Rappole & Blacklock 1994; Walters 1980]); *H. adelphus* Johnston, 1917 described by Johnston (1917) from the body cavity of the white-headed stilt, *Himantopus leucocephalus* (= *H. himantopus*), from South Australia; *H. consimile* Nicoll, 1914 described by Nicoll (1914) as *Haematotrephus consimilis* Nicoll, 1914 from the thoracic cavity of the spur-winged plover, *Lobivanellus lobatus* Linnaeus, 1758 (= *Vanellus spinosus* [Linnaeus, 1758]), from Australia; *H. dollfusi* (Tseng, 1930) described as *Cyclocoelum* (*Uvitellina*) *dollfusi* by Tseng (1930) from specimens collected by Dr. Hsien-Wen from the body cavity of the grey-headed lapwing, *Microsarcops cinereus* Blyth, 1842 (= *Vanellus cinereus* [Blyth, 1842]), from China; *H. facioi* (Brenes & Arroyo, 1962) described by Brenes & Arroyo (1962) as *Cyclocoelum* (*Haematotrephus*) *facioi* from the air sacs of the northern jacana, *Jacana spinosa spinosa* (Linnaeus, 1758) from Costa Rica; *H. inflatocoelum* Oshmarin, 1963 described by Oshmarin (1963) from the air sacs of the common ringed plover, *Charadrius hiaticula* Linnaeus, 1758, from Russia; *H. lobivanelli* Gupta, 1958 described by Gupta (1958) from the air sacs of the red wattled lapwing, *Lobivanellus indicus* Boddaert, 1783 (= *Vanellus indicus* [Boddaert, 1783]) from India; *H. nittanyense* (Zeliff, 1946) described by Zeliff (1946) from the air sacs of the eastern solitary sandpiper, *Tringa solitaria solitaria* Wilson, 1813, from the U.S.A.; and *H. simile* Stossich, 1902 described by Stossich (1902) from the abdominal cavity of *Himantopus atropterus* (= *H. himantopus*) from Egypt. Sharma (1986) described *Haematotrephus chengi* Sharma, 1986 from birds in China (information from Zoological Record, volume 122; however, details on the specific host, locality where the host was collected or a description on this species could not be obtained because this article is not available from libraries worldwide and the author could not be contacted).

Yamaguti (1971) listed 10 species of *Corpopyrum*: *C. kossacki* Witenberg, 1923, the type species, described by Witenberg (1923) from the air sacs of the dunlin, *Tringa alpina* Linnaeus, 1758 (= *Calidris alpine* [Linnaeus, 1758]) from Russia; *C. brasilianum* described by Stossich (1902) from the abdominal and thoracic cavities of the lesser yellowlegs, *T. flaviceps* from Brazil; *C. capellae* Yamaguti, 1933 described by Yamaguti (1933) from the air sacs of the common snipe, *Capella gallinago* Linnaeus, 1758 (= *Gallinago gallinago* [Linnaeus, 1758]) from Formosa; *C. gendrei* (Dubois, 1959) described as *Cyclocoelum* (*Haematotrephus*) *gendrei* by Dubois (1959) from the air sacs

of the African jacana, *Arctophilornis africana* (Gmelin, 1789) from Africa; *C. jaenschi* (Johnston & Simpson, 1940) described by Johnston & Simpson (1940) from the air sacs of the hoary-headed grebe, *Podiceps poliocephalus* Jardine & Selby, 1827 (Some authors place this species of bird in *Tachybaptus* Riechenbach, 1853), and Australasin grebe, *Podiceps novaehollandiae* Stephens, 1820 from Australia; *C. longisacculatum* Yamaguti, 1933 described by Yamaguti (1933) from the air sacs of the spotted redshank, *Erythroscelus erythropus* Pallas, 1764 (= *Tringa erythropus* [Pallas, 1764]) from Japan; *C. nebularium (*Khan, 1935) described by Khan (1935) from the air sacs of the common green shank, *Glottis nebularia* Gunnerus, 1767 (= *Tringa nebularia* [Gunnerus, 1767]); *C. nigropunctatum* von Linstow, 1883 described by von Linstow (1883) from "Akatza" from Russia (the site within the bird or the specific identity of the bird host were not given); *C. phaneropsolus* (Stossich, 1902) originally described by Stossich (1902) from 5 specimens from the Berlin Museum (No. 1139) that were labeled *Distoma* ex *Totano* (= *Totanus* Bechstein, 1803, which has been synonymized with *Tringa* Linnaeus, 1758) from Japan; and *C. tringae* (Brandes, 1892) described as *Monostomum tringae* by Brandes (1892) from the abdominal cavity of the dunlin, *Tringa variabilis* (Meyers) (This appears to be a synonym for *Calidris alpina* [Linnaeus, 1758] from the Sinai of Egypt. As far as we can determine, this species designation for dunlin has never been recognized at either the species or subspecies levels, and therefore, the actual identity of this host can not be determined). Yamaguti (1971) listed only 1 species of *Haematoprimum*, *Haematoprimum fasciatum* (Stossich, 1902), the type species, originally described as *Haemaotrephus fasciatus* by Stossich (1902) from specimens from the Eurasian curlew, *Numenius arquatus* Linnaeus, 1758 (= *Numenius arquata* [Linnaeus, 1758]) from Europe that had been deposited in the Museum of Florence, Florence, Italy by Dr. C. Parona. Neither the exact locality where the bird was collected nor the location in the host where the specimens were found was given. Yamaguti (1971) listed 5 species of *Wardianum*: *W. triangulare* (Harrah, 1922), the type species, originally described as *Cyclocoelum triangulare* Harrah, 1922 by Harrah (1922) from the air sacs of the spotted sandpiper, *Tringa maculate* Linnaeus, 1766 (= *Actitus macularia* [Linnaeus, 1766]) from the U.S.A.; *W. lateriovario* Oshmarin, 1963 described by Oshmarin (1963) from the air sacs of *T. nebularia* from Russia; *W. taxorchis* (Johnston, 1917), originally described as *Cyclocoelum taxorchis* Johnston, 1917 by Johnston (1917) from the body cavity of the anhinga or water turkey, *Limnosa novae-hollandiae* (= *Anhinga novaehollandiae* [Gould, 1847] is a subspecies of *Anhinga anhinga* [Linnaeus, 1766]) from Australia; *W. titiri* (Chatterji, 1958) originally described as *Cyclocoelum titiri* Chatterji, 1958 by Chatterji (1958) from the body cavity of the spur-winged plover, *Hoplopterus ventralis* (= *Vanellus spinosus*) from India; and *W. wilsoni* (Harrah, 1922) originally described as *Cyclocoelum wilsoni* Harrah, 1922 by Harrah (1922) from the intestine (?) of the Wilson's snipe, *Gallinago wilsoni* Ord, 1825 (= the American snipe, *Gallinago delicate* [Ord, 1825]) from the U.S.A. Gupta & Gupta (1979) described *Wardium chauhani* Gupta & Gupta, 1979

from the intestine (?) of *Capella gallinago* Linnaeus, 1758 (= *Gallinago gallinago* [Linnaeus, 1758]) from India. Yamaguti (1971) listed 1 species of *Harrahium*, the type species, *H. halli* (Harrah, 1922) originally described as *Cyclocoelum halli* Harrah, 1922 by Harrah (1922) from the air sacs of greater yellowlegs, *Totanus melanoleucus* Gmelin, 1789 (= *Tringa melanoleuca* [Gmelin, 1789]), from the U. S.A.

The purpose of this study was to provide additional information concerning members of *Haematotrephus* and the cyclocoelids of North America.

Material and methods

In conjunction with a study of the endohelminths of wading birds from the Texas Gulf coast, 5 specimens of a cyclocoelid on deposit in the Harold W. Manter Laboratory of Parasitology, University of Nebraska, Lincoln, Nebraska (HWML) were studied. These specimens had been collected by Dr. J. Teague Self, former professor, Department of Zoology, University of Oklahoma, Norman, Oklahoma from the air sacs of a long-billed dowitcher, *L. scolopaceus*, obtained during a virus survey, of birds from the Cheyenne Bottoms, Roger Mills County, Oklahoma (35° 42' N latitude, 99° 42' longitude) (HWML Parasite Collection Number 41216) on August 3, 1963. Specimens were removed from vials where they had been stored in 70% ethanol, stained in Semichon's carmine and mounted in Canada balsam. Measurements are in micrometers (µm) and are given with the mean followed by the range in parentheses unless otherwise stated. Comparative measurements were taken from the original species descriptions unless otherwise stated. The following specimens from HWML, the United States National Parasite collection, Beltsville, Maryland (USNPC), the Natural History Museum (NHM), London, England, and the Laboratory of Parasitology collection at the Texas Cooperative Wildlife Collection, Department of Wildlife and Fisheries Sciences, Texas A&M University, College Station, Texas (ND) were examined: *Allopyge undulatus* (USNPC 037166.00), *Allopyge* sp. (NHM 1979.3.1.9–10), *Cyclocoelum bivesiculatum* (NHM 1952.12.17.58–67, 1980.6.3.96–98, 1981.2.11.97, 1983.10.10.2), *C. microstomum* (NHM 1952.12.5.161), *C. mutabile* (USNPC 024905.00; NHM 1964.8.25.14–15, 1984.7.7.3, 1984.10.9.18–19, 1988.2.29.4, 1991.7.11.41), *C. obscurum* (USNPC 075304.00, 084775.00; NHM 1965.7.27.9–11, 1979.4.10.132–133, 1980.6.3.136–138, 1982.5.21.146, 1992.6.25.9–11; ND 77a-117a), *C.* (=*Hyptiasmus*) *oculeus* (NHM 1952.12.5.162–163), *Cyclocoelum phasidi* (NHM 1946.12.20.20–23), *Cyclocoelum* (=*Morishitium*) *polonicum* (NHM 1983.9.30.3–37), *C. problematicum* (NHM 1922.10.25.98–99), *C. pseudocotylerus* (NHM 1973.12.11.61–65), *C. vanelli* (NHM 1920.8.26.1–2), *Cyclocoelum* sp. (NHM 1956.9.16.400–401, 1956.11.16.125, 1977.3.28.118–124; HWML 11775, 41216, 42309; ND 71-226-1–6), *Haematotrephus* (=*Cyclocoelum*) *kossacki* (NHM 1975.2.24.117–119), *H.* (= *Cyclocoelum*) *lanceolatum* (USNPC 078879.00; NHM 1991.7.11.50), *H.* (= *Cyclocoelum*) *tringae* (NHM 1990.1.10.1–7), *H.* (=*Cyclocoelum*) *vanelli* (NHM

1970.8.26.1–2), *Haematotrephus* sp. (NHM 1953.10.8.3–5, 1975.2.24.117–119, 1982.5.20.42–56, 1982.5.21.109–111, 1982.5.21.117, 1986.7.14.11; HWML 43005b, 41280; ND 77-426-7), *Ophthalmophagus* sp. (HWML 1501), *Morishitium* sp. (HWML 43005a, 43009, 42237; ND 77a-117–118), *Neoallopyge americanensis* (USNPC 094819.00, 094820.00), *Neohaematotrophus* sp. (HWML 11775, 30407, 43007), *Selfcoelum limnodromi* (HWML 41212, 48162, 48163), and an unidentified cyclocoelid (NHM 1946.12.20.24–25).

Results

Family Cyclocoelidae Stossich, 1902

Subfamily Haematotrephinae Dollfus, 1948

Haematotrephus limnodromi n. sp. (Figs. 1–3)

Type host: *Limnodromus scolopaceus* (Say, 1823) Charadriiformes, Scolopacidae, the long-billed dowitcher.

Type locality: Cheyenne Bottoms, Roger Mills County, Oklahoma, U.S.A., 35° 42’ N latitude, 99° 42’ W longitude.

Site of infection: Air sacs of lungs.

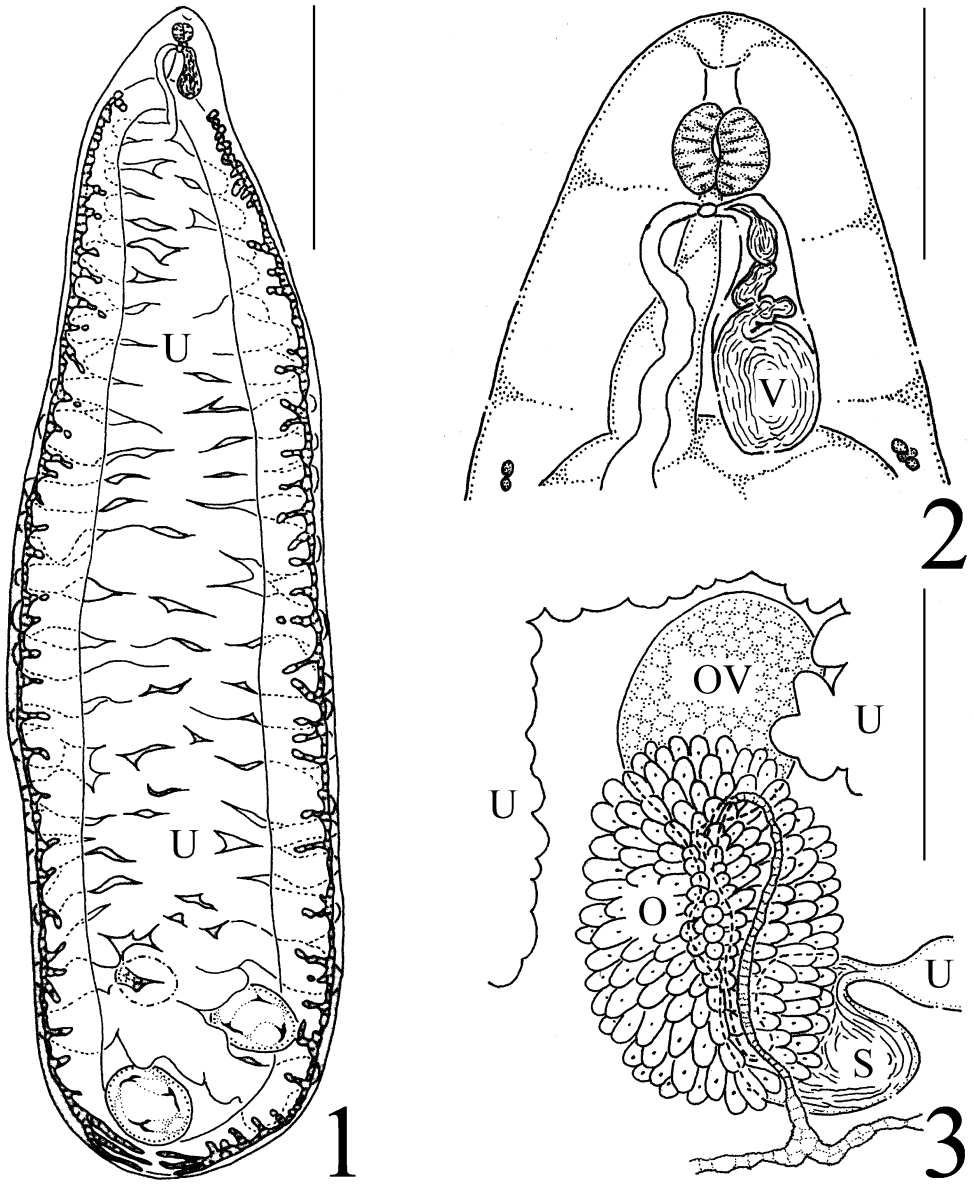
Deposited specimens: Holotype HWML 48259; paratypes (2 specimens) 48260; vouchers (2 specimens) 48261.

Etymology

The species designation reflects the genus of the long-billed dowitcher from which specimens were collected, *Limnodromus* Wied, 1833.

Description

Based on 5 specimens (4 entire adult specimens and 1 broken adult specimen). With characteristics of the genus. Body large, tapered anteriorly, 14.6 (12.0–16.0)mm long by 3.9 (3.8–4.0)mm wide at widest point (n=4). Oral sucker and acetabulum absent. Mouth slightly subterminal; prepharynx (measured as the distance from the opening of the mouth to the anterior margin of the pharynx) 85 (60–110) long; pharynx well developed, 220 (200–250) long by 210 (190–240) wide; esophagus approximately 5 times longer than prepharynx (measured as actual length), 413 (370–450) long. Ceca simple, uniting near posterior extremity to form cyclocoel. Genital pore immediately postpharyngeal near midline of body. Testes smooth, spherical to subspherical, diagonal, located in intercecal region in the posterior sixth of body. Anterior testis in anterior aspect of posterior sixth of



FIGURES 1–3. *Haematotrephus limnodromi* n. sp. from the long-billed dowitcher, *Limnodromus scolopaceus*. **1.** Ventral view of adult. **2.** Composite drawing of anterior end showing placement of the genital pore and terminal genitalia, ventral view. **3.** Composite drawing of female genitalia, dorsal view. Abbreviations: O, oötype; OV, Ovary; S, uterine seminal receptacle; U, uterus; V, Seminal vesicle. Scale bars: 1**,** 3,100 µm; 2**,** 630 µm; 3**,** 510 µm.

body, overlapping cecum, wider than long, 1,100 (870–1,200) long by 1,300 (1,020–1,460) wide. Posterior testis located near posterior extremity of body, overlapping cecum posteriorly, wider than long 1,250 (950–1,410) long by 1,425 (1,100–1,600) wide. Cirrus sac 670 (620–750; approximately 5% of body length) long by 230 (220–250) wide.

Ovary smooth, oval, slightly pretesticular to directly opposite the anterior testis in some specimens, forming a triangle with testes, 420 (410–440) long by 410 (350–450) wide**.** Posttesticular space 525 (430–710 long; approximately 4% of body length). Typical seminal receptacle absent. Laurer's canal absent. Ootype elliptical, located somewhat dextral and immediately posterior to ovary with anterior fourth overlapping posterior third of ovary, approximately 775 long by 475 wide. Vitelline follicles distributed along ceca from level of cecal bifurcation to near posterior extremity, not confluent posteriorly. Uterus extensive, with extracecal loops common throughout body length, intertesticular loops present, proximal fourth filled with sperm, receptacle seminalis uterinum of Harrah (1922) immediately sinistral to posterior end of ootype. Eggs in anterior-most loops of uterus, 155 (150–165) long by 76 (65–80) wide (n=30). Miracidia oculate. Excretory vesicle simple, anterior extent not visible. Excretory pore terminal.

Discussion

Haematotrephus limnodromi n. sp. has an ovary that is generally located slightly pretesticular to directly opposite the anterior testis placing it in Haematotrephinae. Currently there are 3 genera of Haematotrephinae recognized: *Haematotrephus*where the vitelline fields are not united posteriorly and the genital pore is postpharyngeal; *Neohaematotrephus*, where the vitelline fields are united posteriorly and the genital pore is prepharyngeal; and *Uvitellina* where the vitelline fields are united posteriorly and the genital pore is postpharyngeal (Kanev et al. 2002). The new species has diagonal testes that form a triangle with the ovary, a postpharyngeal genital pore and vitelline fields that do not unite posteriorly, placing it in *Haematotrephus.*

If we accept the synonymies of *Corpopyrum* (10 species), *Haematoprimum* (1), *Harrahium* (1), and *Wardianum* (6) with *Haematotrephus* (10) proposed by Kanev et al. (2002) there are some 28 species that could possibly be assigned to *Haematotrephus*. Of these species, *C. tringae*, *H. adelphus*, *H. simile* and *W. titiri* have a postpharyngeal genital pore and vitelline fields that are united posteriorly and should be assigned to *Uvitellina*. Although Kossack (1911), Dubois (1959), and Kanev et al. (2002) illustrated and/or described *C. brasilianum* with a pretesticular ovary (Haematotrophinae), the original description and figure by Stossich (1902) clearly showed that this species has an intertesticular ovary that forms a triangle with the testes (Cyclocoelinae), a postpharyngeal genital pore, vitelline fields that are not united posteriorly, testes that are entire, and extracecal uterine loops, which would suggest that the deposited specimens these later authors examined were not representative of the original species described by Stossich (1902). Based on the original description by Stossich (1902), *C. brasilianum* should be placed with *Selfcoelum limnodromi* Dronen, Gardner & Jiménez, 2006 as a second species in the genus. *Corpopyrum gendrei* has a prepharyngeal genital pore and vitelline fields that are united posteriorly. This species, or a similar species, is likely represented in the

materials examined by Kossack (1911), Dubois (1959), and Kanev et al. (2002) that were used to suggest placement of *C. brasilianum* (= *Selfcoelum brasilianum*) in Haematotrophinae. *Corpopyrum gendrei* should be reassigned to *Neohaematotrephus*.

Kanev et al. (2002) followed Lal (1939) and synonymized *Wardianum* with *Haematotrephus*; however, unlike species of *Haematotrephus*, species of *Wardianum* have the testes positioned laterally to one another (side by side). This testicular arrangement in this group of species is like that of species of *Skrjabinocoelum* Kurashvili, 1953 (Cyclocoelinae) and appears to be a consistent characteristic. We agree with Bashkirova (1950) and Yamaguti (1958, 1971) that W*ardianum* is a valid genus including *W. chauhani*; *W. lateriovario*; *W. taxorchis*; *W. triangulare*; and *W. wilsoni*. *Haematotrephus facioi* also has side by side testes and should be included in W*ardianum* as a sixth species. In the remaining 16 species that could be assigned to *Haematotrephus*, there are 6 that are unlike *H. limnodromi* n. sp. in having an oral sucker present: *H. consimile*; *H. halli*; *H. inflatocoelum*; *H. jaenschi*; *H. lobivanelli*; and *H. nittyanyanse* (Zaliff, 1946). *Haematotrephus limnodromi* n. sp. can be distinguished from the 10 species of the 16 that lack an oral sucker (*H. capellae*, *H. chengi*, *H. dollfusi*, *H. fasciatum*, *H. kossacki*, *H. lanceolatum*, *H. longisacculatum*, *H. nebularium*, *H. nigropunctatum*, and *H. phaneropsolus*) by having intertesticular uterine loops. Of the original 28 species listed above only *H. halli* has an intertesticular loop; however, in addition to lacking an oral sucker, *H. limnodromi* n. sp. has 2 to 3 intertesicular uterine loops compared to 1, it has larger testes (averaging 970 in width compared to 894), it has somewhat smaller eggs (155 by 76 compared to 161 by 99) and *H. limnodromi* n. sp. has a postpharyngeal genital pore rather than it being prepharyngeal. In addition to the differences given above, the new species differs from *H. capellae*, *H. longisacculatum*, and *H. fasciatum* by having extracecal uterine loops rather than having the uterus completely intercecal, and from *H. dollfusi* and *H. lanceolatum* by having the uterus not invading the posttesticular space. *Haematotrephus limnodromi* n. sp. is generally larger (14.6 [12–16] long) than *H. kossacki* (10–12), *H. lanceolatum* (8–12), *H. phaneropsolus* (9), and *H. capellae* (9.5). The new species has a smaller pharynx (210 [190–240] wide, 1% of body length) than *H. dollfusi* (483, 3%) and *H. longisacculatum* (350, 3%). It has a larger anterior testis (1,300 [1,020–1,460] wide, 9% of body length) than *H. dollfusi* (989, 7%), *H. kossacki* (524–684, 5%), *H. longisacculatum* (750, 6%), *H. nebularium* (700–1,000, 7%), and *H. capellae* (630, 7%). It also has a smaller cirrus sac (670 [620–750] long, 5% of body length) than *H. longisacculatum* (1,030, 8%) and *H. nebularium* (1,030, 8%), and a larger cirrus sac than *H. dollfusi* (522, 4%). *Haematotrephus limnodromi* n. sp. has larger eggs (155 [150–165] long by 76 [65–80] wide) than *H. kossacki* (120–130 by 67–72), *H. longisacculatum* (129–135 by 81–90), *H. nebularium* (87 long), and *H. capellae* (125–131 by 68.8–75) and smaller eggs than *H. dollfusi* (243 by 106), *H. lanceolatum* (216 long), and *H. nigropunctatum* (170 by 80). Comparisons to *H. chengi* were not possible because specimens and the original description were not available from any source we could find

worldwide, and the author could not be contacted. This is the first report of a species of *Haeamatotrephus* from a species of *Limnodromus*.

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