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Aquatic Polyphaga (Coleoptera) State Records from the Missouri Prairie Region

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Introduction and Methods

Faunistic investigations are fundamental and essential precursors upon which studies of biogeography, community ecology, and conservation biology are based (Wilson, 2000). Studies of the Nearctic aquatic Coleoptera fauna have been published for various regions of the continent throughout the latter half of the 20th century. More specifically, these studies include taxonomic treatments of family level taxa for Alberta (Larson, 1975), California (Leech and Chandler, 1956; Challet and Brett, 1998), Florida (Young, 1954; Epler, 1996), Illinois (Woolridge, 1967), Manitoba and Minnesota (Wallis, 1973; Gunderson and Otremba, 1988), Mississippi (Testa and Lago, 1994), Utah (Anderson, 1960), Virginia (Matta, 1974, 1976; Michael and Matta, 1977), and Wisconsin (Hilsenhoff and Brigham, 1978; Hilsenhoff, 1980, 1990, 1992, 1993a, b, c, 1994, 1995). The aquatic beetle fauna of Missouri, however, is poorly documented, and due to the state's central geographic position, elements of northern, southern, eastern, and western faunas and floras overlap within the state's political borders. As part of a more detailed study on the biogeography, community structure, and mesohabitat affinities of the aquatic beetle fauna in Missouri's Prairie Region (sensu Steyermark, 1963), presented here are nine new state records of aquatic Coleoptera in the families Hydrophilidae, Chrysomelidae, and Curculionidae collected from ponds within the Prairie Region of Missouri in 1998 and 1999. All material from this study was collected with an aquatic D-net from 105 anthropogenic ponds within the boundaries of various conservation areas owned and operated by the Missouri Department of Conservation and the University of Missouri. All specimens have been deposited in the Enns Entomology Museum, University of Missouri-Columbia (UMC), unless noted otherwise. Other material collected from the Prairie Region prior to the present study, now housed in UMC, also was examined.

Results and Discussion

Detailed data on collection locality, distribution, and habitat association are presented for eight species of aquatic Polyphaga that previously have not been recorded from Missouri. The phylogenetic ordination of suborders, families and subfamilies listed below follows that of Downie and Arnett (1996).

Suborder POLYPHAGA Emery
HYDROPHILIDAE Latreille
Subfamily Hydrophilinae Latreille
Hydrophilus triangularis Say

Distribution and remarks: This species was previously reported from New York south to Florida, and west to Texas and California. In the Prairie Region of Missouri, *H. triangularis* is widespread and commonly collected near lights at night, but not commonly collected from small ponds.

Habitat associations: *Hydrophilus triangularis* was collected in association with species of *Polygonum*, Cyperaceae, and Poaceae.

Material collected: MISSOURI: BUCHANAN CO.: Monkey Mountain Cons. Ar., 13 September 1998, Pond 19: Poaceae A, Landwer and Whiteman (1); DEKALB CO.: Pony Express Cons. Ar., 13 September 1998, Pond 20: Cyperaceae A, Landwer and Whiteman (4); same data, Poaceae C (2); LEWIS CO.: Deer Ridge Cons. Ar., 25 April 1999, Pond 82: *Polygonum* sp. B, Landwer and Whiteman (4).

Other material examined: MISSOURI: BARTON CO.: Mon-Shon Prairie Cons. Ar., 27-IX-1999, Blacklight, Landwer and Whiteman (1); Dorris Creek Cons. Ar., 8-VI-1999, Blacklight, Landwer and Whiteman (1); BOONE CO.: 12-IX-1972, Aldrich (2); Columbia, 21-IX-1935, R. Froeschner (1); Columbia, 2-VIII-1934, T. E. Birkett (1); Columbia, 6-V-1953, Grabau (1); Columbia, 15-IX-1953, M. C. Grabau (3); Columbia, 7-VIII-1952, M. C. Grabau (1); Columbia, 10-V-1953, M. Grabau (3); Columbia, 15-IX-1936, H. E. Brown (1); Columbia, V-VIII-1940, W. S. Craig (1); Columbia, 16-IX-1939, W. S. Craig (1); Columbia, 26-III-1994, at car park lights, B. Nichols (5); CALLAWAY CO.: Tucker Prairie, 18-VII-1969, Light Trap (1); ST. LOUIS CO.: 17-VII-1935, Wm. M. Gordon (1); Ranken, 23-III-1930, E. P. Meiners (1), Ranken, 2-X-1938, E. P. Meiners (1); St. Louis, USDA Traps, 2-VIII-1935 (1); St. Louis, USDA Traps, 2-VII-1935 (1); St. Louis, USDA Traps, 14-VIII-1935 (1); St. Louis, 26-IX-1954, E. P. Meiners (1); St. Louis, USDA Traps, 5-VIII-1935 (1).

Helocombus bifidus (LeConte)

Distribution and remarks: This species was previously reported from Labrador south to Florida and Mississippi. In the Prairie Region of Missouri, *H. bifidus* is extremely uncommon and only one individual was collected from one pond in Lincoln County.

Habitat associations: This specimen was collected in association with emergent sedges (Cyperaceae).

Material collected: MISSOURI: LINCOLN CO.: William R. Logan W. A., 2 July 1999, Pond 117: Cyperaceae spp., Landwer and Whiteman (1).

Berosus pantherinus LeConte

Distribution and remarks: This species was previously reported from West Virginia south to Texas, and north to Nebraska and Wisconsin. In the Prairie Region of Missouri, *B. pantherinus* is widespread and common.

Habitat associations: *Berosus pantherinus* was collected in association with a variety of submerged macrophytes and emergent vegetation, including species of *Chara*, *Juncus*, *Ludwigia*, *Polygonum*, *Potamogeton*, *Salix* (root mats), *Typha*, Cyperaceae, and Poaceae.

Material collected: MISSOURI: ADAIR CO.: Union Ridge Cons. Ar., 11 April 1999, Pond 71: Poaceae B, Landwer and Whiteman (2); ATCHISON CO., Tarkio Prairie Cons. Ar., 12 September 1998, Pond 17: *Chara* spp. A, Landwer and Whiteman (1); same data, *Typha* spp. B (1); same data, Pond 18: *Typha* spp. A (3); same data, *Chara* spp. B (3); same data, *Juncus* spp. C (25); AUDRAIN CO.: Robert M. White II Cons. Ar., 9 September 1998, Pond 12: *Potamogeton* spp. B, Landwer and Whiteman (2); same data, Poaceae C (1); BARTON CO.: Dorris Creek Prairie Cons. Ar., 9 June 1999, Pond 90: *Ludwigia* spp. A, Landwer and Whiteman (1); Treaty Line Prairie Cons. Ar., 27 September 1998, Pond 41: *Ludwigia* spp. B, Landwer and Whiteman (5); BOONE CO.: Columbia; MU S. Farms, 18 April 1999, Pond 77: Poaceae A, Landwer and Whiteman (2); Columbia; MU S. Farms, 18 April 1999, Pond 77: *Salix* spp. B, Landwer and Whiteman (7); BUCHANAN CO.: Bluffwoods Cons. Ar., 19 September 1998, Pond 27: Poaceae A, Landwer and Whiteman (1); Bluffwoods Cons. Ar., 21 March 1999, Pond 48: Poaceae A, Landwer and Whiteman (2); CALDWELL CO.: Bonanza Cons. Ar., 10 April 1999, Pond 68: Cyperaceae A, Landwer and Whiteman (2); CALLAWAY CO.: Whetstone Creek Cons. Ar., 18 June 1999, Pond 102: *Polygonum* spp. A, Landwer and Whiteman (2); Reform Cons. Ar., 19 June 1999, Pond 104: Cyperaceae C, Landwer and Whiteman (3); CASS CO.: James P. Harter Cons. Ar., 22 March 1999, Pond 53: Poaceae B, Landwer and Whiteman (1); CLARK CO.: Fox Valley Lake Cons. Ar., 6 September 1998, Pond 5: *Juncus* spp. B, Landwer and Whiteman (1); DADE CO.: Stoney Point Prairie Cons. Ar., 3 April 1999, Pond 62: *Polygonum* spp. B, Landwer and Whiteman (1); DAVIESS CO.: Gallatin Cons. Ar., 11 April 1999, Pond 69: Cyperaceae A, Landwer and Whiteman (1) same data, *Typha* spp. C (1); HARRISON CO.: Wayne Helton Mem. W. A., 23 June 1999, Pond 111: Poaceae A, Landwer and Whiteman (18); HOLT CO.: Riverbreaks Cons. Ar., 15 June 1999, Pond 97: Marg. Veg. A, Landwer and Whiteman (1); HOWARD CO.: Davisdale Cons. Ar., 30 September 1998, Pond 42: Cyperaceae A, Landwer and Whiteman (21); same data, *Salix* spp. B (3); same data, *Typha* spp. C (2); same data, Cyperaceae spp. D (10); LAFAYETTE CO.: Maple Leaf Lake Cons. Ar., 18 September 1998, Pond 25: Poaceae A, Landwer and Whiteman (1); LEWIS CO.: Deer Ridge Cons. Ar., 25 April 1999, Pond 82: *Polygonum* spp. B, Landwer and Whiteman (1);

LINCOLN CO.: Vonaventure Cons. Ar., 25 April 1999, Pond 81: Poaceae A, Landwer and Whiteman (1); LIVINGSTON CO.: Poosey Cons. Ar., 12 September 1998, Pond 14: *Salix* spp. roots A, Landwer and Whiteman (1); NODAWAY CO.: Bilby Ranch Lake Cons. Ar., 23 June 1999, Pond 109: Poaceae, Landwer and Whiteman (1); SCOTLAND CO.: Indian Hills Cons. Ar., 5 September 1998, Pond 4: Cyperaceae C, Landwer and Whiteman (3); WORTH CO.: Seat Mem. Cons. Ar., 12 September 1998, Pond 16: Poaceae A, Landwer and Whiteman (3).

Berosus striatus (Say)

Distribution and remarks: This species is widely distributed in North America and was previously reported from the Northwest Territories east to Quebec, and south to California and Florida. In Missouri, *B. striatus* is widespread, although very few individuals were collected from each site listed below.

Habitat associations: *Berosus striatus* was collected in association with a variety of plants, including species of *Alisma*, *Juncus*, *Polygonum*, *Salix* (root mats), Cyperaceae, and Poaceae.

Material collected: MISSOURI: ADAIR CO.: Sugar Creek Cons. Ar., 11 April 1999, Pond 72: Cyperaceae A, Landwer and Whiteman (2); CASS CO.: James P. Harter Cons. Ar., 22 March 1999, Pond 53: Poaceae B, Landwer and Whiteman (1); Amarugia Highlands Cons. Ar., 19 September 1998, Pond 29: *Alisma* spp. A, Landwer and Whiteman (1); same data, *Typha* spp. B (1); CLARK CO.: Fox Valley Lake Cons. Ar., 6 September 1998, Pond 5: *Juncus* spp., Landwer and Whiteman (1); DADE CO.: Stoney Point Prairie Cons. Ar., 3 April 1999, Pond 62: *Polygonum* spp. B, Landwer and Whiteman (1); DEKALB CO.: Pony Express Cons. Ar., 13 September 1998, Pond 20: Poaceae C, Landwer and Whiteman (1); HARRISON CO.: Wayne Helton Mem. W. A., 20 March 1999, Pond 46: Poaceae C, Landwer and Whiteman (1); JOHNSON CO.: Hazel Hill Lake Cons. Ar., 4 April 1999, Pond 64: Poaceae A, Landwer and Whiteman (1); LEWIS CO.: Deer Ridge Cons. Ar., 6 September 1998, Pond 6: *Salix* spp. roots C, Landwer and Whiteman (1); same data, 25 April 1999, Pond 82: *Polygonum* spp. B, Landwer and Whiteman (1); LINCOLN CO.: William R. Logan W. A., 2 July 1999, Pond 117: Cyperaceae A, Landwer and Whiteman (1).

Derallus altus (LeConte)

Distribution and remarks: This species was previously reported from New Jersey south to Florida, and west to Texas. In the Prairie Region of Missouri, *D. altus* is known only from one pond in Boone County, where two individuals were collected.

Habitat associations: *Derallus altus* was collected from marginal pond vegetation. Bald cypress trees (*Taxodium distichum* L.) were present at the collecting locality.

Material collected: MISSOURI: BOONE CO.: Baskett Wildlife Area, 6 mi. E Ashland, 4 October 1998, Marg. Veg., Landwer and Whiteman (2).

Anacaena limbata (Fabricius)

Distribution and remarks: This species was previously reported from across southern Canada, south to California, east to Mississippi and Arkansas. In the Prairie Region of Missouri, *A. limbata* is extremely uncommon and only one individual was collected from one pond in Barton County, at the southern limit of the Prairie Region.

Habitat associations: *Anacaena limbata* was collected in association with *Ludwigia* sp.

Material collected: MISSOURI: BARTON CO.: Mon-Shon Prairie Cons. Ar., 8 June 1999, Pond 87: *Ludwigia* sp. C, Landwer and Whiteman (1).

CHRYSOMELIDAE Latreille

Subfamily Donaciinae Kirby

Donacia palmata Olivier

Distribution and remarks: This species was previously recorded from Nova Scotia west to Ontario, and south to Alabama and North Carolina (Marx, 1957). In the Prairie Region of Missouri, this species was collected from two ponds in Vernon and Barton Counties, both in the Osage Prairie in southwest Missouri. Riley and Enns (1979) listed six additional species of *Donacia* from Missouri.

Habitat associations: *Donacia palmata* was collected in association with *Nelumbo lutea* (Willdenow) Persoon and *Nuphar* spp.

Material collected: MISSOURI: BARTON CO.: Dorris Creek Prairie Cons. Ar., 9 June 1999, Pond 90: *Nuphar* sp., Landwer and Whiteman (1, UMC; 1, Texas A&M University Insect Collection); VERNON CO.: Osage Prairie Cons. Ar., 7 June 1999, Pond 85: *Nelumbo lutea* and *Nuphar* spp., Landwer and Whiteman (5, UMC; 1, Texas A&M University Insect Collection).

Other material examined: MISSOURI: BARTON CO.: SE Lamar, 21 June 1978, on *Nuphar*, S. Quisenberry (1).

CURCULIONIDAE Latreille
Subfamily Curculioninae Latreille
Barilepton quadricolle LeConte

Distribution and remarks: This species was previously recorded from New York, New Jersey, Michigan, Indiana, Illinois, Nebraska, and Kansas. In the Prairie Region of Missouri, *B. quadricolle* is widespread, although not commonly collected.

Habitat associations: *Barilepton quadricolle* was collected in association with species of *Juncus*, Cyperaceae, and multispecific stands of marginal vegetation.

Material collected: MISSOURI: COOPER CO.: Prairie Home Cons. Ar., 5 October 1998, Pond 45: Cyperaceae A, Coll. Landwer and Whiteman (1); DEKALB CO.: Pony Express Cons. Ar., 13 September 1998, Pond 20: Cyperaceae A, Coll. Landwer and Whiteman (1); HOLT CO.: Riverbreaks Cons. Ar., 15 June 1999, Pond 97: Marg. Veg. A, Coll. Landwer and Whiteman (1); MACON CO.: Redman Cons. Ar., 1 July 1999, Pond 114: Cyperaceae B, Coll. Landwer and Whiteman (1); MONROE CO.: 0.5 mi E Jct Co Rds. 900 and 915, 1 July 1999, Pond 113: *Juncus* spp. B, Coll. Landwer and Whiteman (1).

Onychylis nigrirostris (Boheman)

Distribution and remarks: This species is widespread and was previously reported from New Hampshire west to Minnesota, and south to Florida and Texas. In the Prairie Region of Missouri, *O. nigrirostris* is widespread.

Habitat associations: *Onychylis nigrirostris* was collected in association with species of *Ludwigia*, *Polygonum*, *Typha*, Cyperaceae, and Poaceae.

Material collected: MISSOURI: BARTON CO.: Treaty Line Prairie Cons. Ar., 8 June 1999, Pond 88: *Ludwigia* spp. A, Landwer and Whiteman (1); Dorris Creek Prairie Cons. Ar., 9 June 1999, Pond 90: *Polygonum* spp. C, Landwer and Whiteman (1); Clear Creek Prairie Cons. Ar., 9 June 1999, Pond 91: *Polygonum* spp. B, Landwer and Whiteman (2); BATES CO.: Harmony Mission Lake Cons. Ar., 9 June 1999, Pond 92: *Polygonum* spp. E, Landwer and Whiteman (1); BOONE CO.: Baskett Wildlife Cons. Ar., 14 September 1998, Pond 23: *Typha* spp. A, Landwer and Whiteman (1); CASS CO.: Amarugia Highlands Cons. Ar., 19 September 1998, Pond 29: *Typha* spp. B, Landwer and Whiteman (1); DEKALB CO.: Pony Express Cons. Ar., 13 September 1998, Pond 20: Poaceae C, Landwer and Whiteman (1); HARRISON CO.: Wayne Helton Mem. W. A., 23 June 1999, Pond 111: Poaceae A, Landwer and Whiteman (1); HENRY CO.: Conor O. Fewel Wildlife Ar., 20 September 1998, Pond 31: Cyperaceae C, Landwer and Whiteman (2); HOWARD CO.: Davisdale Cons. Ar., 30 September 1998, Pond 42: Cyperaceae A (1), Landwer and Whiteman (1); LEWIS CO.: Deer Ridge Cons. Ar., 25 April 1999, Pond 82: Cyperaceae A, Landwer and Whiteman (3); ST. CLAIR CO.: Wah-Kan-Tah Prairie Cons. Ar., 26 September 1998, Pond 35: Poaceae A, Landwer and Whiteman (1).

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