

Distributional Records of Amphibians and Reptiles from Lake Oahe, South Dakota, USA

Information on the distributions of amphibians and reptiles in South Dakota has long been considered deficient (Chiszar et al. 1994; Ballinger et al. 2000; Kiesow 2006). While recent surveys and a thorough examination of museum holdings have helped increase our understanding of distributions of native species (Davis et al. 2016, 2017a,b; Davis and Zimmer 2017; Farkas and

Davis 2017), one large area where few records exist is in north-central South Dakota (Ballinger et al. 2000). This region of South Dakota consists of both the Northwestern Glaciated Plains and the Northwestern Great Plains, with Lake Oahe and the Missouri River roughly forming the boundary between these two regions (Omernik 1987). Lake Oahe is a large reservoir along the Missouri River that was created in 1958 after the completion of Oahe Dam, and runs approximately 372 km from north of Pierre, South Dakota to south of Bismarck, North Dakota (USACE 2010). Although the creation of Oahe Dam (and other mainstem dams) has reduced the frequency and severity of flood events along the Missouri River, it has also had profoundly negative cultural, social, and environmental effects (Shanks 1974; NRC 2002). To date, there have been few surveys of amphibians and reptiles from along Lake Oahe (e.g., Timken 1978, Bandas 2003); further, no observations of species from or near Lake Oahe were included

SHAYLYN D. AUSTIN

*Program in the Environment, University of Michigan,
500 South State Street, Ann Arbor, Michigan 48109, USA*

JACOB L. KERBY

DREW R. DAVIS*

*Department of Biology, University of South Dakota,
414 East Clark Street, Vermillion, South Dakota 57069, USA*

**Corresponding author; e-mail: drew.davis@usd.edu*

in the most recent statewide survey of amphibians and reptiles in South Dakota in 2004 (Backlund 2005).

Here, we report 13 new records of six species of amphibians and reptiles from Lake Oahe in South Dakota that are the result of fieldwork conducted in June 2017. These records expand the known distribution of these species into the north-central counties of South Dakota. Prior to these records included below, no vouchered specimens existed from these areas for these species and only anecdotal evidence or unverifiable reports of species occurrence existed. These vouchered specimens are important as they provide the first verifiable record of species occurrence. County records were determined by examining Ballinger et al. (2000), published accounts in *Herpetological Review*, and a previously compiled database of existing museum holdings. Voucher specimens were deposited at the Biodiversity Collections at the University of Texas at Austin (TNHC) and all identifications were verified by Travis J. LaDuc. Locality information was collected by a handheld GPS (WGS 84) and all nomenclature follows that of Crother (2017). Specimens were collected under a South Dakota Game, Fish and Parks Scientific Collecting Permit (2017_#15) issued to DRD and followed an approved University of South Dakota IACUC protocol (#13-04-16-19D). Genetic tissue samples (liver or skeletal muscle) were collected from all individuals and deposited alongside the specimen at TNHC.

ANURA — FROGS

ANAXYRUS WOODHOUSII (Woodhouse's Toad). CAMPBELL CO.: north shore of Vanderlaan Bay, along east shore of Lake Oahe (45.87900°N, 100.33064°W). 20 June 2017. Drew R. Davis. TNHC 103772 (DRD 4131). Juvenile individual (68 mm SVL, 31.5 g) collected along shore of a large bay at 0107 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). *Anaxyrus woodhousii* is thought to occur throughout the state, but records are limited to the southern part of the state (Fischer et al. 1999; Ballinger et al. 2000). This species is known from adjacent Corson and Walworth counties, South Dakota (see below) and Emmons County, North Dakota (Wheeler and Wheeler 1966; Jundt 2000). The nearest known specimens are from ca. 36.2 km to the southwest in Corson County, South Dakota (TNHC 103773, 103774; see below).

CORSON CO.: US Hwy 12 (SD Hwy 20), ca. 0.9 rd km W jct SD Hwy 1806 (45.57069°N, 100.49477°W). 22 June 2017. Drew R. Davis. TNHC 103773 (DRD 4140). Juvenile individual (50 mm SVL, 14.5 g) collected AOR at 0123 h. A second individual (TNHC 103774 [DRD 4141]: 50 mm SVL, 16.0 g) was collected AOR at 0126 h at the same location. These specimens represent a new county record and fill part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). This species is known from adjacent Campbell, Dewey, Walworth, and Ziebach counties, South Dakota (Ballinger et al. 2000; see above, below) and Sioux County, North Dakota (Wheeler and Wheeler 1966; Jundt 2000). The nearest known specimens are from ca. 33.5 km to the southeast in Walworth County, South Dakota (TNHC 103559, 103560; see below).

DEWEY CO.: north shore of Cheyenne River, Lake Oahe; northwest of Sansarc Creek Cove (44.73322°N, 101.01527°W). 7 June 2017. Drew R. Davis, Kalie M. Leonard, and Josie M. Galles. TNHC 103555 (DRD 4084). Adult female (71 mm SVL, 38.8 g)

collected in a small inlet at 1145 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). This species is known from surrounding Corson, Potter, Stanley, Sully, Walworth, and Ziebach counties, South Dakota (Ballinger et al. 2000; Davis et al. 2017b; see above, below). The nearest known specimens are from ca. 46.7 km to the southeast in adjacent Sully County, South Dakota (TNHC 103556, 103561; see below).

POTTER CO.: west shore of Latin Bay, along east shore of Lake Oahe (45.14556°N, 100.26474°W). 11 June 2017. Drew R. Davis, Shaylyn D. Austin, and Emme L. Schmidt. TNHC 103557 (DRD 4115). Juvenile individual (64 mm SVL, 26.1 g) collected on a small gravel bar at 1408 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). This species is known from adjacent Dewey, Sully, and Walworth counties, South Dakota (see above, below). The nearest known specimens are from ca. 19.3 km to the north in adjacent Walworth County, South Dakota (TNHC 103559, 103560; see below).

SULLY CO.: Cow Creek Recreation Area (44.55755°N, 100.47977°W). 7 June 2017. Drew R. Davis and Emme L. Schmidt. TNHC 103556 (DRD 4085). Adult female (90 mm SVL, 90.7 g) collected at 2245 h near the showers in a recreational camping area. Another female individual (TNHC 103561 [DRD 4088]: 100 mm SVL, 116.6 g) was collected at 2330 h at the same location. These specimens represent a new county record and fill part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). This species is known from surrounding Dewey, Hughes, Potter, and Stanley counties, South Dakota (Davis et al. 2017b; see above). The nearest known specimen is from ca. 24.2 km to the south in Stanley County, South Dakota (Museum of Comparative Zoology, Harvard University [MCZ] 4473).

WALWORTH CO.: Swan Creek Recreation Area (45.31947°N, 100.26731°W). 13 June 2017. Drew R. Davis and Shaylyn D. Austin. TNHC 103559 (DRD 4124). Adult female (90 mm SVL, 76.7 g) collected at 2130 h in a recreational camping area. A second juvenile individual (TNHC 103560 [DRD 4125]: 60 mm SVL, 22.84 g) was collected at 2145 h at the same location. These specimens represent a new county record and fill part of a gap in the distribution of this species in north-central South Dakota (Fischer et al. 1999; Ballinger et al. 2000; Naugle et al. 2005). This species is known from adjacent Campbell, Corson, Dewey, and Potter counties, South Dakota (see above). The nearest known specimen is from ca. 19.3 km to the south in adjacent Potter County, South Dakota (TNHC 103557; see above).

PSEUDACRIS MACULATA (Boreal Chorus Frog). WALWORTH CO.: Swan Creek Recreation Area (45.32011°N, 100.26661°W). 14 June 2017. Drew R. Davis. TNHC 103554 (DRD 4126). Adult male (28 mm SVL, 1.14 g) collected at 2350 h while calling on a dirt road. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Ballinger et al. 2000). *Pseudacris maculata* is present in vegetated aquatic habitats across South Dakota (Fischer et al. 1999; Kiesow 2006), but records are lacking in northern South Dakota (Ballinger et al. 2000). This species has been previously reported from Walworth County (Fischer et al. 1999; Naugle et al. 2005), but no known vouchered specimens exist. Records for this species are only known from adjacent Edmunds County, South

Dakota (Davis et al. 2017b). The nearest known specimen is from ca. 66.8 km to the east in Edmunds County, South Dakota (Biodiversity Institute, University of Kansas [KU] 288808).

TESTIDUNES — TURTLES

APALONE MUTICA (Smooth Softshell). DEWEY CO.: north shore of Cheyenne River, Lake Oahe; across from Sansarc Creek (44.74718°N, 100.99804°W). 7 June 2017. Drew R. Davis, Kalie M. Leonard, and Josie M. Galles. TNHC 103520 (DRD 4105). Adult male (160 mm carapace length, 111 mm plastron length, 233.9 g) collected along a gravel bar at 1210 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Ballinger et al. 2000). This species is expected to occur in the Missouri River and its tributaries (Bandas 2003; Bandas and Higgins 2004; Backlund 2005; Kiesow 2006), but few voucher specimens exist (Ballinger et al. 2000). This species has been previously reported from adjacent Corson and Stanley counties, South Dakota (Ballinger et al. 2000). Ballinger et al. (2000) include a known voucher from Corson County, but exact locality details are lacking and an exhaustive search through museum collections has not revealed this specimen. The nearest known specimen is from ca. 71.3 km to the southeast in Hughes County, South Dakota (Museum of Zoology, University of Michigan [UMMZ] 110502).

APALONE SPINIFERA (Spiny Softshell). DEWEY CO.: north shore of Cheyenne River, Lake Oahe; across from Sansarc Creek (44.74708°N, 100.99833°W). 10 June 2017. Drew R. Davis, Kalie M. Leonard, and Josie M. Galles. TNHC 103521 (DRD 4106). Adult male (200 mm carapace length, 145 mm plastron length, 610 g) collected in a baited hoop trap at 1212 h. This specimen represents a new county record and extends the distribution of this greatly under-recorded species into north-central South Dakota (Ballinger et al. 2000). *Apalone spinifera* is expected to occur throughout the Missouri River and several of its larger tributaries (Bandas 2003; Bandas and Higgins 2004; Backlund 2005; Kiesow 2006), but records are largely limited to southeastern South Dakota (Ballinger et al. 2000). This species is known from no adjacent counties. The nearest known specimen is from ca. 272.5 km to the southeast in Gregory County, South Dakota (University of Nebraska State Museum [UNSM] ZM-18315).

CHRYSEMYS PICTA (Painted Turtle). POTTER CO.: south side of Lake Oahe, ca. 5.5 km W (downstream) of US Hwy 212 bridge (45.01307°N, 100.36420°W). 12 June 2017. Drew R. Davis, Shaylyn D. Austin, and Emme L. Schmidt. TNHC 103525 (DRD 4118). Juvenile female (90 mm carapace length, 80 mm plastron length, 76.3 g) collected in a cove at 1237 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Ballinger et al. 2000). *Chrysemys picta* is expected to occur in any permanent aquatic habitats throughout South Dakota (Bandas 2003; Bandas and Higgins 2004; Backlund 2005; Kiesow 2006), though few records exist in north-central and northeastern South Dakota (Ballinger et al. 2000). This species has been previously reported from Potter County (Bandas 2003; Bandas and Higgins 2004), though no known voucher specimens exist. Records for this species are known from adjacent Faulk, Potter, and Sully counties, South Dakota (Ballinger et al. 2000; Davis et al. 2017b; see below). The closest known specimen is from ca. 35.3 km to the north in Walworth County, South Dakota (TNHC 103771; see below).

WALWORTH CO.: Swan Creek Rd., ca. 2.3 rd km E jct Triple U Rd (45.31202°N, 100.21127°W). 27 June 2017. Drew R. Davis. TNHC 103771 (DRD 4157). Adult female (215 mm carapace length, 185 mm plastron length) collected AOR. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Ballinger et al. 2000). This species has been previously reported from Walworth County (Bandas 2003; Bandas and Higgins 2004), though no known voucher specimens exist. Records for this species are known from adjacent Campbell, Corson, and Potter counties, South Dakota (Ballinger et al. 2000; see above). The nearest known specimen is from ca. 35.3 km to the southwest in Potter County, South Dakota (TNHC 103525; see below).

SQUAMATA — SNAKES

THAMNOPHIS RADIX (Plains Gartersnake). POTTER CO.: Brown Creek, east side of Lake Oahe (45.22454°N, 100.23827°W). 13 June 2017. Drew R. Davis and Shaylyn D. Austin. TNHC 103534 (DRD 4123). Adult male (410 mm SVL, 107 mm tail length, 23.42 g) collected from an isolated pool along a creek at 1510 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in north-central South Dakota (Ballinger et al. 2000). *Thamnophis radix* is expected to occur throughout South Dakota (Thompson and Backlund 1998; Backlund 2005; Kiesow 2006), but few museum records exist for north-central South Dakota (Ballinger et al. 2000). This species is known from adjacent Dewey, Edmunds, Faulk, Sully, and Walworth counties, South Dakota (Ballinger et al. 2000; Davis et al. 2017b; see below). The nearest known specimen is from ca. 22.1 km to the south in Dewey County, South Dakota (Smithsonian Institution, National Museum of Natural History [USNM] 128137).

SULLY CO.: Little Bend Recreation Area (44.75711°N, 100.63595°W). 10 June 2017. Drew R. Davis. TNHC 103533 (DRD 4109). Adult female (577 mm SVL, 160 mm tail length, 92.2 g) collected from a recreational camping area near a vault toilet at 1045 h. This specimen represents a new county record and fills part of a gap in the distribution of this species in central South Dakota (Ballinger et al. 2000). This species is known from adjacent Dewey, Hughes, Potter, and Stanley counties, South Dakota (Ballinger et al. 2000; see above). The nearest known specimen is from ca. 37.3 km to the northwest in Dewey County, South Dakota (Smithsonian Institution, National Museum of Natural History [USNM] 128138).

Acknowledgments.—This research was supported by South Dakota Game, Fish and Parks and through the Sustainable RIVER REU Program at the University of South Dakota. We thank C. Heimerl, E. Dowd Stukel, and South Dakota Game, Fish and Parks for collecting permits and continued support of our herpetological research program. We also thank T. LaDuc and K. Hornung (TNHC) for verifying and cataloging all specimens. Museum information was provided by T. Labeledz (UNSM), G. Schneider (UMMZ), and from queries using VertNet (www.vertnet.org). Helpful comments on this manuscript were provided by J. Farkas.

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