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Twenty-four New County and River Drainage Records for *Graptemys* spp. for Iowa, USA

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county record (Scott and Redmond 2008). This record extends the distributional range of *Pantherophis guttatus* further north in Tennessee. The nearest record for this species is ca. 37 km south in Van Buren County ([UTKVZC] 6534).

PANTHEROPHIS SPILOIDES (Gray Ratsnake). JACKSON CO.: Cummins Falls State Park (36.24986°N, 85.56895°W; WGS 84). 9 April 2017. Matthew Grisnik and Jake Leys. APSU 19950 (photo voucher). Individual (147.5 cm SVL) collected from a snake trap. New county record (same individual from Grisnik et al. 2018; Scott and Redmond 2008). This record fills a gap in the distribution of *Pantherophis spiloides* in the state with previous records from adjacent Putnam, Smith, Macon, and Overton counties. The nearest record for this species is ca. 27 km east in Overton County (Gentry 1941).

STORERIA DEKAYI (Dekay's Brownsnake). JACKSON CO.: Cummins Falls State Park (36.31454°N, 85.56807°W; WGS 84). 24 March 2017. Matthew Grisnik. APSU 19951 (photo voucher). Two individuals found under a rock along a forest edge. New county record (same individuals from Grisnik et al. 2018; Scott and Redmond 2008). This record fills a gap in the distribution of *Storeria dekayi* in the state with previous records from adjacent Putnam County. The nearest record for this species is ca. 20 km east in Overton County (Grisnik et al. 2018).

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Twenty-four New County and River Drainage Records for *Graptemys* spp. for Iowa, USA

Much of the known distribution of *Graptemys* species (*Graptemys geographica*, *Graptemys ouachitensis*, and *Graptemys pseudogeographica*) within the state of Iowa are documented from ca. 101 museum specimen records, 88 of which were collected before 1980 (Drake University Research Collection [DURC], Field Museum of Natural History [FMNH], Iowa State University [ISUA], Museum of Comparative Zoology, Harvard [MCZ], Texas Cooperative Wildlife Collection, Texas A&M University [TCWC], University of Michigan Zoology [UMMZ], and National Museum of Natural History, Smithsonian Institution [USNM]). The majority of these records were recorded from surveys focused on areas along the Mississippi River, associated backwaters, and the confluence of the lower Iowa and Cedar rivers near the Mississippi River. *Graptemys* species can be notoriously difficult to trap utilizing traditional trapping methods (e.g., baited hoop nets, basking traps); therefore, additional work remains to verify the locations these turtles occur within the state. The advancement of photography equipment and editing software

has improved the ability to photo-voucher these species and provides relatively quick and effective method for documenting the distribution of basking turtles.

The following report contains distributional records that help fill in distributional gaps or extend the known distribution of the three *Graptemys* species in the state. This includes 24 new county records (8 *G. geographica*, 7 *G. ouachitensis*, and 9 *G. pseudogeographica*), eight new river drainage systems occurrences (2 *G. geographica*, 3 *G. ouachitensis*, and 3 *G. pseudogeographica*), and seven furthest recorded upriver locations (4 *G. geographica*, 2 *G. ouachitensis*, and 2 *G. pseudogeographica*), all supported by voucher photographs. All observations occurred between April 2016 and September 2018. All voucher photographs were deposited into the James Ford Bell Museum of Natural History, University of Minnesota (JFBM) and were verified by Benjamin Lowe. County records were determined by reviewing previously published records (Christiansen and Bailey 1991; Iverson 1992; LeClere 2013; Lindeman 2013), individual accounts published in *Herpetological Review*, museum vouchers, VertNet, and HerpMapper Inc. (HM). Locality information was collected using a handheld GPS (WGS 84), and nomenclature used follows that of Crother (2017). All observations were made by the author, except one which was made by Don Becker.

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TESTUDINES – TURTLES

GRAPTEMYS GEOGRAPHICA (Northern Map Turtle). BLACK HAWK CO.: Cedar River, ca. 0.1 km S of 1st Street in Cedar Falls (42.53725°N, 92.44269°W; 42.53745°N, 92.44284°W; 42.53712°N, 92.44264°W). 12 June 2016. JFBM P509–511 (photo vouchers) and HM 147753, 147754, and 147756 (photo vouchers). These observations represent a new county record and extend the distribution of this species down the Cedar River. The nearest known specimen record is from ca. 70.2 km north in Floyd County, Iowa (UMMZ 92706).

BREMER CO.: Cedar River, ca. 6.5 km N of Plainfield (42.90693°N, 92.53134°W). 18 September 2016. JFBM P512 (photo voucher) and HM 161709 (photo voucher). This observation represents a new county record, extending the distribution of this species south along the upper Cedar River. The nearest known specimen record is from ca. 30.7 km north in Floyd County, Iowa (UMMZ 92706).

BUCHANAN CO.: Wapsipinicon River, ca. 4.8 km W of Quasqueton (42.39880°N, 91.81060°W; 42.40014°N, 91.8134°W). 18 and 19 May 2016. JFBM P513, P514 (photo vouchers) and HM 140994, 141053 (photo vouchers). These records are the first documented observations of *G. geographica* within the county and within the Wapsipinicon River drainage, ca. 80 km southeast of the nearest known location in Floyd County, Iowa (UMMZ 92706). This record is also ca. 150.5 km from the nearest connected river system (Mississippi River in Jackson County) in which *G. geographica* is known to occur (UMMZ 86649).

DES MOINES CO.: Mississippi River, ca. 6.5 km S of Oakville (41.06271°N, 90.96550°W). 6 May 2016. JFBM P515 (photo voucher) and HM 141073 (photo voucher). This observation represents a new county record, filling in a distributional gap of the species within the Mississippi River. The nearest known specimen record is from ca. 32.3 km southwest in Lee County, Iowa (USNM 288147). Skunk River, 7.3 km E of Wever (40.69860°N, 91.13159°W). 10 September 2016. JFBM 516 (photo voucher) and HM 160532 (photo voucher). This is the second observation within the county and the first documented observation of *G. geographica* within the Skunk River drainage extending their known range west in the county, ca. 20.2 km from the nearest known occurrence, south in Lee County, Iowa (USNM 288147).

HARDIN CO.: Iowa River, ca. 6.5 km N of Berlin (42.47252°N, 93.14465°W). 25 September 2017. JFBM P518 (photo voucher) and HM 203020 (photo voucher). This observation represents a new county record and is the furthest upstream observation of *G. geographica* in the Iowa River, extending the distribution by ca. 175.6 km northwest, the nearest known specimen record from Johnson County, Iowa (FMNH 435; USNM 25393).

JONES CO.: Wapsipinicon River, ca. 0.5 km S of Anamosa (42.09787°N, 91.28854°W). 31 July 2018. JFBM P522 (photo voucher) and HM 233367 (photo voucher). This observation represents a new county record and only the second occurrence of *G. geographica* from the Wapsipinicon River drainage, ca. 70.5 km east of the nearest known occurrence in Dubuque County, Iowa (HM 70308).

MARSHALL CO.: Iowa River, ca. 4.8 km N of LeGrand (42.02735°N, 92.78454°W). 12 May 2016. JFBM P523 (photo voucher) and HM 141065 (photo voucher). This observation represents a new county record, filling in a distributional gap within the Iowa River, extending the known range in the Iowa River by ca. 120.2 km from the nearest known specimen record in Johnson County, Iowa (FMNH 435; USNM 25393).

MITCHELL CO.: Cedar River, ca. 4.9 km W of Osage (43.28045°N, 92.85676°W). 5 May 2016. JFBM P524 (photo voucher) and HM 140997 (photo voucher). Cedar River, ca. 2.4 km NW of St. Ansgar (43.38799°N, 92.93950°W). 5 May 16. JFBM P525 (photo voucher) and HM 140998 (photo voucher). Cedar River, ca. 1.6 km S of Mitchell (43.31129°N, 92.87275°W). 16 September 2015. JFBM 526 (photo voucher) and HM 140996 (photo voucher). These records represent a new county record and the furthest upriver locations of *G. geographica* on the Cedar River, extending the known range 31.2 km to the north from the nearest known specimen record in Floyd County, Iowa (UMMZ 92706).

GRAPTEMYS OUACHITENSIS (Ouachita Map Turtle). CEDAR CO.: Cedar River, ca. 0.8 km NE of Cedar Valley (41.72883°N, 91.24154°W; 41.72883°N, 91.24154°W). 23 April 2016. JFBM P527, P528 (photo vouchers) and HM 147966, 147967 (photo vouchers). These records represent a new county record and the first documented observation of *G. ouachitensis* from the Cedar River drainage. These records are ca. 75.6 km west from the nearest known specimen record in Scott County, Iowa (USNM 220880).

CLAYTON CO.: Mississippi River, ca. 4.8 km N of Marquette (43.06837°N, 91.17980°W; 43.06707°N, 91.17960°W). 26 June 2016. JFBM P529, P530 (photo vouchers) and HM 149653, 149654 (photo vouchers). These records represent a new county record and extend the range of *G. ouachitensis* north in the Mississippi River by ca. 170.2 km from the nearest known specimen record in Scott County, Iowa (USNM 220880).

DES MOINES CO.: Mississippi River, ca. 6.4 km S of Oakville (41.06159°N, 90.96675°W; 41.06259°N, 90.96583°W; 41.06279°N, 90.96556°W). 6 May 2016. JFBM P531–P533 (photo vouchers) and HM 141070, 141072, and 147973 (photo vouchers). These records represent a new county record and extend the range of *G. ouachitensis* in the Mississippi River by ca. 20.2 km south from the nearest known location in Louisa County, Iowa (HM 67680).

JOHNSON CO.: Cedar River, ca. 0.4 km W of Sutliff (41.83824°N, 91.39451°W; 41.83816°N, 91.39456°W; 41.83737°N, 91.39517°W; 41.83816°N, 91.39451°W). 23 April 2016. JFBM P536–539 (photo vouchers) and HM 134148, 134151, 134152, and 141908 (photo vouchers). These records represent a new county record and the second documented observation of *G. ouachitensis* from the Cedar River drainage, ca. 80.3 km from the nearest known specimen record in Scott County, Iowa (USNM 220880). Iowa River, ca. 2.0 km E of Hills (41.55784°N, 91.52122°W; 41.55787°N, 91.52161°W; 41.55787°N, 91.52161°W). 12 July 2016. JFBM P540–542 (photo vouchers) and HM 164058, 164060, and 164061 (photo vouchers). This is the first known record of *G. ouachitensis* from the Iowa River drainage and are ca. 40.1 km from the closest known published record of *G. ouachitensis* (DURC PC101a).

LEE CO.: Skunk River, ca. 6.4 km E of Wever, Iowa (40.70234°N, 91.14116°W). 10 September 2016. JFBM P543 (photo voucher) and HM 160530 (photo voucher). This record represents a new county record and is the first documented observation of *G. ouachitensis* in the Skunk River drainage, ca. 50.6 km south of the nearest known record in Louisa County, Iowa (HM 67680).

LINN CO.: Cedar River, ca. 5.6 km SW of Mt. Vernon (41.87747°N, 91.44440°W; 41.87713°N, 91.44546°W). 21, 23 April 2016. Cedar River, ca. 4.0 km SE of Bertram (41.91889°N, 91.51354°W; 41.91882°N, 91.51225°W). 14 July 2016. JFBM P544–P547 (photo vouchers) and HM 134145, 133861, 151686, and 151742 (photo vouchers). These records represent a new county record and is

the furthest observed upriver location of *G. ouachitensis* in the Cedar River, ca. 80.2 km from the nearest known record in Louisa County, Iowa (HM 67680).

WASHINGTON Co.: Iowa River, ca. 5.6 km E of Riverside (41.49006°N, 91.50300°W). 12 July 2016. JFBM P548 (photo voucher) and HM (photo voucher). This record represents a new county record as well as only the second documented observation of *G. ouachitensis* within the Iowa River drainage, ca. 40.2 km from the nearest known record (DURC PC101a).

GRAPTEMYS PSEUDOGEOGRAPHICA. (False Map Turtle).

BUCHANAN Co.: Wapsipinicon River, ca. 4.8 km W of Quasqueton (42.39882°N, 91.81068°W). 18 May 2016. JFBM P549 (photo voucher) and HM 141051 (photo voucher). This record is the first documented observation of *G. pseudogeographica* within the county and the furthest upriver location within the Wapsipinicon River drainage. The nearest known specimen record is from ca. 28.5 km east in Black Hawk County, Iowa (DURC 3278; 1973).

CEDAR Co.: Cedar River, ca. 1.6 km N of Cedar Bluff (41.79374°N, 91.31154°W; 41.72617°N, 91.23959°W). 23 April 2016. JFBM P550, P551 (photo vouchers) and HM 147964, 147965 (photo vouchers). These records are a new county record and fill a distributional gap as the species is known from the adjacent counties of Linn and Muscatine, with the nearest known record ca. 39.9 km to the northwest in Linn County, Iowa (HM 31292).

CHICKASAW Co.: Cedar River, ca. 0.8 km E of Nashua (42.95320°N, 92.52868°W). 18 September 2016. JFBM P552 (photo voucher) and HM 161707 (photo voucher). This record represents a new county record and is the furthest documented upriver observation of *G. pseudogeographica* in the Cedar River, ca. 40.3 km north of the nearest known specimen, from Black Hawk County, Iowa (DURC 3279).

HENRY Co.: Skunk River, ca. 3.2 km E of Rome (40.98863°N, 91.65692°W). 28 July 2016. JFBM 553 (photo voucher) and HM 155883 (photo voucher). This record represents a new county record and is the first documented observation of *G. pseudogeographica* from the Skunk River drainage, ca. 50 km northwest of the nearest known specimen, from Des Moines County, Iowa (MCZ R-4951).

JONES Co.: Wapsipinicon River, ca. 1.6 km S of Anamosa (42.09813°N, 91.28212°W). 21 April 2016. Don Becker. JFBM P558 (photo voucher) and HM 133647 (photo voucher). This record represents a new county record and is the first documented observation of *G. pseudogeographica* from the Wapsipinicon River drainage, ca. 35.8 km from the nearest documented observation southwest in Linn County, Iowa (HM 265). Three additional records from two different counties were found within the Wapsipinicon River after this individual was found.

MARSHALL Co.: Iowa River, ca. 4.8 km N of LeGrand (42.02732°N, 92.78454°). 12 May 2016. JFBM P562 (photo voucher) and HM 141064 (photo voucher). This record represents a new

county record and is the furthest upstream observation of *G. p. pseudogeographica*, extending the known range in the Iowa River by ca. 109.2 km from the nearest known specimen, from Johnson County, Iowa (USNM 25394).

TAMA Co.: Iowa River, ca. 3.2 km WSW of Belle Plaine (42.88343°N, 92.33499°W). 14 July 2016. JFBM P563 (photo voucher) and HM 151616 (photo voucher). This record represents a new county record and fills in a distributional gap between the previous described record from Marshall County and a historic record ca. 68.9 km southeast in Johnson County, Iowa (USNM 25394).

WAPELLO Co.: Des Moines River, 4.8 km SW of Agency (40.95741°N, 92.34464°W). 28 July 2016. JFBM P564 (photo voucher) and HM 155885 (photo voucher). This record represents a new county record and is the first documented observation of *G. pseudogeographica* from the Des Moines River drainage, ca. 90.4 km west of the nearest known specimen from Lee County, Iowa (USNM 55259).

WASHINGTON Co.: Skunk River, ca. 1.6 km N of Brighton (41.19689°N, 91.81389°W). 24 May 2016. JFBM P565 (photo voucher) and HM 141905 (photo voucher). This record represents a new county record and is the furthest observed upriver record of *G. pseudogeographica* from the Skunk River, ca. 47.8 km west of the nearest known specimen from Louisa County, Iowa (DURC 3296).

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