

State University Press, Detroit, Michigan. 291 pp.  
 JOHNSON, W. J. 1965. A zoogeographical analysis of the herpetofauna in northern Michigan and adjacent Isle Royale. M.S. Thesis, Michigan State University, East Lansing, Michigan. 90 pp.  
 PHILLIPS, J. G. 2016. Updated geographic distributions of Michigan

herpetofauna; a synthesis of old and new sources. J. N. Am. Herpetol. 2016:45–69.  
 RUTHVEN A. G., C. THOMPSON, AND H. T. GAIGE. 1928. The Herpetology of Michigan. Michigan Handbook Series No. 3, University of Michigan, Ann Arbor, Michigan. 190 pp.

*Herpetological Review*, 2023, 54(1), 84–86.  
 © 2023 by Society for the Study of Amphibians and Reptiles

## Aquatic Turtle County Records from Trapping Surveys in East Texas, USA

The following represent nine new county reports for aquatic turtle species in east Texas, USA. Records were collected between June 2020 and September 2022 as part of statewide assessments for aquatic turtles. Surveys were conducted in public waters, on privately owned land, or under special use permit with state, local, and regional agencies. All specimens were observed alive, photographed, and released unharmed at the capture location. All photo vouchers were deposited to the Amphibian and Reptile Diversity Research Center at the University of Texas at Arlington

**NICHOLAS S. HUGHES**  
**MANDI L. GORDON**  
**SARAH BULLARD**  
**AURORA ALVAREZ**  
**DAVID R. BONTRAGER**  
**DANIELLE DAVIDSON**  
**DANIELLE DECHELLIS**  
**KELLY GARCIA**  
**BRANDI G. GILES**  
**ROBYN GRAY**  
**JAIMIE KITTLE**  
**ISABEL MARZULLO**  
**TAYLER MCKENZIE**  
**JASON NAGRO**  
**ADRIANA PUZON**  
**SARAH SCHROCK**  
**BRANDI STEVENSON**  
**TAYLOR THOMSIEE**  
**MATHEW VANBEMMEL**  
**JIMMY WELCH**  
**HALEY WELSHOFF**  
**EMILY YARGEAU**

*Environmental Institute of Houston, University of Houston—Clear Lake, 2700 Bay Area Boulevard, Houston, Texas 77058, USA;*  
*e-mails: nhughes72199@gmail.com (NSH), gordon@uhcl.edu (MLG), sbullard0222@gmail.com (SB)*

**ERIC C. MUNSCHER**  
**ARRON TUGGLE**

*SWCA Environmental Consultants, 10245 West Little York Road, Houston, Texas, 77040, USA*

**JASON E. WATSON**  
**TERRY CORBETT**

*Lower Neches Valley Authority, P.O. Box 5117, Beaumont, Texas 77726, USA*

**DAVID ROSENBAUM**

*Arthur Temple College of Forestry and Agriculture, Stephen F. Austin University, 419 E. College Street, Nacogdoches, Texas 75965, USA*

(UTADC; verified by Gregory Pandelis). Additionally, vouchers were submitted to the Texas Turtles Digital Collection (TTDC; verified by Viviana Ricardez) for supplementation of the TTDC public education collection database (established in 2019). Voucher numbers for both collections are included for each species and county of record. Field work was conducted under Texas Parks and Wildlife Permits SPR-0504-383 (issued to George Guillen) and SPR-0321-026 (issued to MLG). Animals were handled under Institutional Animal Care and Usage Committee protocols 0320.001.R0-R2 (issued to George Guillen and MLG).

To supplement observations from trapping surveys, a query of the Global Biodiversity Information Facility (GBIF; <https://www.gbif.org/>) was conducted for each species. This facility incorporates verified records from VertNet, research grade reports from iNaturalist, and other sources into a single database. Search functions used for each species included the scientific name of the species (specific epithet), records of “present”, and the polygon mapping feature outlining the county of note. A link to the extracted data is included within the descriptions for each species and county record, when applicable.

### TESTUDINES – TURTLES

**APALONE SPINIFERA PALLIDA (Pallid Spiny Softshell).** ANDERSON Co.: ca. 6.6 air km N and 1.4 air km E of Palestine (31.82196°N, 95.61750°W; WGS 84). 29 June 2022. Jason Nagro, Sarah Bullard, and Adriana Puzon. UTADC 9844a, b (photo vouchers) and TTDC 267, 268 (photo vouchers). One adult female was captured alive via baited hoop trap. In addition to the individual captured via trapping surveys, one account of *A. s. pallida* has been documented within GBIF (<https://doi.org/10.15468/dl.nrb53g>; 7 Nov 2022). These records fill a gap between Henderson County to the north, Cherokee County to the east, Leon County to the southeast, and Freestone County to the west (Dixon 2013). The nearest observation on record is 58.6 air km south and 101 air km southwest at Fin Feather Lake in Brazos County (National Museum of Natural History, Smithsonian Institution [USNM] 313653).

**BRAZORIA Co.:** Scoby Lake, San Bernard National Wildlife Refuge (Hudson Unit), ca. 6.6 air km W and 0.4 air km S of Angleton (29.16560°N, 95.50119°W; WGS 84). 9 June 2021 and 2 October 2021. Mandi Gordon, David Bontrager, Haley Welshoff, Robyn Gray, Danielle Davidson, Jaimie Kittle, and Sarah Schrock. Chocolate Bayou (above tidal), Camp Mohawk County Park ca. 1.1 river-km upstream of SH 35 bridge crossing (29.33909°N, 95.28708°W; WGS 84). 10–11 June 2021 and 28–29 September 2021. Mandi

Gordon, David Bontrager, Haley Welshoff, Isabel Marzullo, Brandi Stevenson, Danielle Davidson, Jaimie Kittle, and Sarah Schrock. Lemon Reservoir, ca. 9.7 air km E of Angleton (29.16800°N, 95.33288°W; WGS 84). 14 April 2021. David Bontrager, Mathew VanBommel, Isabel Marzullo, and Mandi Gordon. UTADC 9829–9838b (photo vouchers) and TTDC 238–252 (photo vouchers). All individuals were captured alive via baited hoop traps. In addition to the individuals captured via trapping surveys, three accounts of *A. s. pallida* have been documented within GBIF (<https://doi.org/10.15468/dl.tsq65p>; 5 Oct 2022). These records fill a gap between Fort Bend County to the north-northwest and Galveston County to the east (Dixon 2013). The nearest observation on record identified to subspecies is near Port Arthur in Jefferson County (North Carolina Museum of Natural Sciences Herpetology Collection; NCSM 82113). The nearest observation on record not identified to subspecies is in Harris County (USNM 94336).

**APALONE MUTICA (Smooth Softshell).** FORT BEND CO.: Brazos River, Sugarland Memorial Park ca. 2.5 river-km downstream of IH69 bridge crossing (29.56098°N, 95.64597°W; WGS 84). 27 April 2022. Brandi Giles, Kelly Garcia, Aurora Alvarez, and Eric Munscher. UTADC 9839a–c (photo vouchers) and TTDC 253–255 (photo vouchers). One adult female was captured alive via baited hoop trap. No records were found within GBIF. This record fills a gap between Waller and Austin Counties to the north-northeast and Wharton County to the west. Due to its presence in the Brazos River, it is possible it populates the region of the river in the undocumented Brazoria County to the south (Dixon 2013). The nearest observation on record is in Wharton County (University of Michigan Museum of Zoology [UMMZ] 92751).

**DEIROCHELYS RETICULARIA MIARIA (Western Chicken Turtle).** UPSHUR CO.: ca. 3.5 air km SW and 9.3 air km S of Pittsburg (32.88942°N, 94.99332°W; WGS 84). 13 June 2022. Jason Nagro, Emily Yargeau, and Aurora Alvarez. UTADC 9840a–c (photo vouchers) and TTDC 256–258 (photo vouchers). One adult male was captured alive via un-baited hoop trap at end of an in-water drift fence. No records were found within GBIF. This record fills a gap in known occupancy between Franklin County to the northwest, Harrison County to the southeast, and Smith County to the southwest (Dixon 2013). Additionally, species presence was confirmed via environmental DNA (eDNA) detection in 2021 and 2022 (M. Gordon, unpubl. data). The nearest observation on record is 1.1 air km south and 84.7 air km or 1.8 mi east of East Tawakoni on SH 35 in Raines County (Biodiversity Research and Teaching Collection, Texas A&M University [TCWC] 62700).

**GRAPTEMYS SABINENSIS (Sabine Map Turtle).** HARDIN CO.: Pine Island Bayou, Big Thicket National Preserve (Beaumont Unit) ca. 3.2 river-km upstream of Neches River Saltwater Barrier (30.16746°N, 94.13198°W; WGS 84). 2–3 March 2022. Brandi Giles, Kelly Garcia, Aurora Alvarez, Nick Hughes, Mandi Gordon, Jason Watson, and Terry Corbett. UTADC 9846a–d (photo vouchers) and TTDC 224–237 (photo vouchers). Three adult males and one adult female captured alive via baited hoop trap. Pine Island Bayou delineates the boundary between Jefferson County to the south and Hardin County to the north. The nearest observation on record is within Village Creek in Hardin County (Lindeman 2018). To our knowledge, these captures represent the first documentation along the Jefferson County border. Due to the prevalence of tributaries feeding into Pine Island Bayou from Jefferson County, we believe that these captures are indicative of the species presence

within additional areas of the county. In addition to the individual captured via trapping surveys, five accounts of *G. sabinensis* have been documented within GBIF (<https://doi.org/10.15468/dl.45ycmt>; 27 Oct 2022).

**MACROCHELYS TEMMINCKII (Alligator Snapping Turtle).** LA-MAR CO.: Craddock Creek, ca. 600 m downstream of FM1499 in boundaries of Pat Mayse Wildlife Management Area (33.79424°N, 95.66969°W; WGS 84). 22 September 2022. Brandi Giles, Sarah Bullard, and Taylor Thomisee. UTADC 9845a–c (photo vouchers). One adult male was captured alive via baited hoop trap. No records were found within GBIF. This record extends the current occupied range of *M. temminckii* north of Delta County and west of Red River County (Dixon 2013; Rosenbaum et al. 2022). The nearest observations on record are in Red River and Delta Counties, though no specific coordinates are available due to the concern for historic poaching of the species (U.S. Fish and Wildlife Service 2021).

**PSEUDEMYIS CONCINNA (River Cooter).** CHAMBERS CO.: Double Bayou (tidal), Double Bayou Park ca. 1.4 river-km downstream of the Smith Point Rd. bridge crossing (29.67612°N, 94.63212°W; WGS 84). 16 March 2022. Brandi Giles, Kelly Garcia, and Nick Hughes. UTADC 9841a–c (photo vouchers) and TTDC 259–261 (photo vouchers). One adult male was captured alive via baited hoop trap. In addition to the individual captured via trapping surveys, 19 accounts of *P. concinna* have been documented within GBIF (<https://doi.org/10.15468/dl.9c9hte>; 5 Oct 2022). These records fill a gap between Liberty County to the north, Jefferson County to the east and Harris County to the west (Dixon 2013). The nearest observation on record is 29.6 air km north and 7.4 air km east from Devers Creek at FM 1410 in Liberty County (Biodiversity Collections, The University of Texas at Austin [TNHC] 97199).

HUNT CO.: South Fork Sabine River at confluence with Lake Tawakoni (32.86375°N, 96.12456°W; WGS 84). 18 May 2022. Brandi Giles, Kelly Garcia, and Nick Hughes. UTADC 9842a–c (photo vouchers) and TTDC 262–264 (photo vouchers). One adult female was captured alive via baited hoop trap. No records were found within GBIF. These records fill a gap between Fannin County to the north and Rains County to the south (Dixon 2013). The nearest observation on record is 15.8 air km south and 45.8 air km east near Grand Saline in Van Zandt County (Florida Museum of Natural History, University of Florida [UF] 185773).

**STERNOTHERUS CARINATUS (Razor-backed Musk Turtle).** ORANGE CO.: Swift Bayou at confluence with Sabine River on Texas-Louisiana border ca. 15.7 air km E of Texla (30.22013°N, 93.71824°W; WGS 84). 23 July 2021. Jaimie Kittle, Mandi Gordon, and Tayler McKenzie. UTADC 9843a, b (photo vouchers) and TTDC 265–266 (photo vouchers). One adult male was captured alive via baited hoop trap. In addition to the individual captured via trapping surveys, one account of *S. carinatus* has been documented within GBIF (<https://doi.org/10.15468/dl.2zg75d>; 27 Oct 2022). These records fill a gap between Jasper and Newton Counties to the north, Jefferson County to the south-southwest and Hardin County to the west (Dixon 2013). The nearest record is 4.0 air km north and 43.7 air km west in Hardin County (TCWC 92292).

*Acknowledgments.*—Funding for this work was provided by the Texas Comptroller of Public Accounts (contracts 20-6997BG and 21-7219BG). We are indebted to the U.S. Fish and Wildlife Service

(J. Sanchez, C. Jones), Brazoria County Parks and Recreation Department (J. Jiminez), City of Sugarland (J. Cordova), National Parks Service (A. Bennett, W. Howeth, M. Urban), Sabine River Authority of Texas (B. Kirby, M. Howard, D. Williams, K. McDade), Texas Parks and Wildlife Department (J. White and K. Herriman), and multiple private landowners for their assistance in site access and permissions to complete this work.

## LITERATURE CITED

DIXON, J. R. 2013. Amphibians and Reptiles of Texas: with Keys, Taxonomic Synopses, Bibliography, and Distribution Maps. Third

Edition. Texas A&M University Press, College Station, Texas. viii + 447 pp.

LINDEMAN, P.V. 2018. Map Turtles of the Upper Neches River Drainage in East Texas. *Southwest. Nat.* 63:199–204.

ROSENBAUM, D., C.M. SCHALK, AND D. SAENZ. 2022. Distribution, occupancy, and mercury bioaccumulation of alligator snapping turtles (*Macrochelys temminckii*) in Texas. Texas Parks and Wildlife Report TX T-195-R-1, F19AF00902. Texas Parks and Wildlife Department, Austin, Texas. ix + 74 pp.

U.S. FISH AND WILDLIFE SERVICE. 2021. Species status assessment report for the alligator snapping turtle (*Macrochelys temminckii*), Version 1.2. March 2021. Atlanta, Georgia. xix + 199 pp.

*Herpetological Review*, 2023, 54(1), 86–87.

© 2023 by Society for the Study of Amphibians and Reptiles

## New Distribution Records for *Terrapene carolina* (Eastern Box Turtle) Collected Through a Community Scientist Program in West Virginia, USA

Accurate spatial distributions are essential for developing effective, science-based conservation strategies, but occurrence data is often limited for rare and elusive species. Community science initiatives offer a powerful mechanism for obtaining large numbers of occurrence records over broad geographic areas for target species (Bonney et al. 2009; Dickinson et al. 2010), and thus can be a valuable data collection tool for scientists and managers with limited funding. Data from community science-based projects have allowed researchers to track population trends and improve species distribution maps and models (e.g., Pearce and Boyce 2006; Tiago et al. 2017; Heres et al. 2021). However, data collected during community science projects are often spatially biased (Phillips et al. 2009), and data integrity can be a concern if participants lack the skills needed to identify the target species (Silvertown 2009). Selecting target species that are easily identifiable and incorporating photograph verification into the project workflow can maximize integrity of the observation data.

In January 2020, the West Virginia Division of Natural Resources (WVDNR) initiated a two-year statewide community science initiative to improve our knowledge of the distribution of *Terrapene carolina* (Eastern Box Turtle). The program operated using ArcGIS Survey123 (<https://survey123.arcgis.com>; 6 Dec

2022), where community scientists uploaded photographs, entered observation information (location, date of observation, comments on the observation), and provided their contact information. Submissions were then reviewed by WVDNR staff, and verified records were added to the state herpetofaunal records database.

The community science monitoring program received 6,045 verified and 2,681 unverified *T. carolina* observations between 1 January 2020 and 31 December 2021 (Fig. 1). Of these observations, 25.1% and 2.3% of individuals were observed alive and dead on a road, respectively. Five of the submissions were county records, which we report here. All photograph vouchers were deposited in the Illinois Natural History Survey (INHS) digital image collection. Every county in West Virginia is now vouchered for *T. carolina*. Fayette County was vouchered between Green and Pauley (1987) and this publication (Florida Museum of Natural History [UF] 155798).

### TESTUDINES — TURTLES

**TERRAPENE CAROLINA (Eastern Box Turtle).** BARBOUR CO.: 1.1 km E Hanging Rock Road and 0.1 km N Little Laurel Run (39.1069°N, 80.0270°W; WGS 84). 17 June 2020. Malachia Evans. Verified by Chris A. Phillips. INHS 2021nn (photo voucher). New county record (Green and Pauley 1987). A total of 28 verified *T. carolina* community science observations were received for Barbour County.

BROOKE CO.: 0.1 km S Route 27, off Bowers Lane (40.2669°N, 80.5902°W; WGS 84). 28 May 2021. Nancy Ford. Verified by Chris A. Phillips. INHS 2021oo (photo voucher). New county record (Green and Pauley 1987). A total of 8 verified *T. carolina* community science observations were received for Brooke County.

MARION CO.: 0.3 km E Davey Run Road (39.5425°N, 80.1980°W; WGS 84). 13 September 2020. Ryan Ward. Verified by Chris A.

#### DONALD J. BROWN

Pacific Northwest Research Station, U.S.D.A. Forest Service, Amboy, Washington 98601, USA

#### KEVIN J. OXENRIDER\*

West Virginia Division of Natural Resources, 1 Depot Street, Romney, West Virginia 26757, USA

#### THOMAS K. PAULEY

Department of Biological Sciences, Marshall University, 400 Hal Greer Boulevard, Huntington, West Virginia 25755, USA

\*Corresponding author; e-mail: kevin.j.oxenrider@wv.gov