

1992

Distributional Survey of the Bird-Voiced Treefrog, *Hyla avivoca* (Anura: Hylidae), in Arkansas

Stanley E. Trauth
Arkansas State University

Follow this and additional works at: <https://scholarworks.uark.edu/jaas>



Part of the [Terrestrial and Aquatic Ecology Commons](#), and the [Zoology Commons](#)

Recommended Citation

Trauth, Stanley E. (1992) "Distributional Survey of the Bird-Voiced Treefrog, *Hyla avivoca* (Anura: Hylidae), in Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 46, Article 14.

Available at: <https://scholarworks.uark.edu/jaas/vol46/iss1/14>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This Article is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

Mississippi River Basin.—Several potential sites in three counties along the Mississippi River were visited. The most promising locality, Wapanocca National Wildlife Refuge in Crittenden County, contained habitats typical for *H. avivoca* in other parts of the state. Common anuran species, such as *Acris crepitans*, *Hyla chrysoscelis*, *H. cinerea*, *Rana catesbeiana*, and *R. clamitans* were all breeding there on 20 May. At another site, a swampy floodplain in the St. Francis National Forest (Phillips County), was also ideally suited for bird-voiced treefrogs. *Hyla chrysoscelis*, *R. clamitans*, and *Gastrophryne carolinensis* were calling there on 23 May. Potential habitat along Lake Chicot (Chicot County) was visited on 1 June and had numerous breeding populations of *R. catesbeiana*.

White River Basin.—Although numerous aquatic areas were visited within this drainage, only two contiguous sites in Phillips and Monroe counties yielded *H. avivoca*. Both were associated with a headwater swamp located in the vicinity of the Louisiana Purchase Historic State Park (sites 9 and 10). Surprisingly, few males were heard calling at these sites considering the protected status of the park. Site 9, representing the historic site for *H. avivoca* within the park (documented by the Arkansas Heritage Commission), and site 10 (1.0 km west of this site) were visited frequently at night during time spent within this basin in order to confirm that environmental conditions were conducive for calling by males throughout the basin. The populations at sites 9 and 10 represent the easternmost ones presently known for the species in Arkansas.

Arkansas River Basin.—*Hyla avivoca* have been collected from seven sites in this basin. I failed to find frogs in the swampy habitats along the lower stretches of the Arkansas River drainage in Arkansas and Jefferson counties, although these areas appeared to provide ideal habitat situations; yet, sites 3, 4, and 12 just south of Little Rock (Saline County) and sites farther north along the Arkansas River in Faulkner (13), Conway (2 and 11), and Pope (1) counties supported the large populations of the frog. The largest aggregate of breeding males found during the present study was within a floodplain along the West Fork of Point Remove Creek (site 11) in Conway County. On each of three visits (25 May, 9 June, and 4 July) to this site, calling males were so numerous that samples of specimens were taken within minutes of arrival. Estimates of population size (including unobserved females) were roughly from 100 to 200 individuals. Historic sites 1 and 2, just to the north of site 11, were remote and not visited. Flag Pond (site 13), a new record for *H. avivoca*, is one of many swampy floodplain habitats found sporadically distributed along the Arkansas River and represents an "enclave for *H. avivoca* surrounded by cultivated fields." Males were calling here on 16 June. Sites 3 and 4 in Saline County are historic sites for the species; males were calling at site 12 (near Spring Lake in Saline County), just southwest of the two above, on 3 June.

Ouachita River Basin.—Four historic sites for *H. avivoca* (5, 6, 7, and 8) occur in this basin which includes most of southern Arkansas. The Cox Creek Lake site (5) in Grant County was visited to verify the existence of calling males within the upper limits of this region; however, no new sites were discovered within ideal habitats along the Saline River. Aquatic habitats in the vicinity of the lower access points to Seven Devils Swamp (Drew County), likewise, yielded no bird-voiced treefrogs. Also, many other promising swampy areas associated with Bayou Bartholomew in Ashley County (e.g., Lake Grampus, Parkin's Slough, Walker's Slough, and Sawyer Slough) were checked on 2 June without success. The historic sites (6, 7, and 8) were not visited during the present study.

Red River Basin.—The southwesternmost locality (site 14) for *H. avivoca* in Arkansas was discovered on 5 July on Lake Erling (Lafayette County). Male choruses were heard on either side of the lake along St. Highway 360. An additional site in northwestern Lafayette County near the Red River (Tom White Lake) was noted by the Arkansas Natural Heritage Commission in 1981, although no voucher specimen was taken. The only other site within this basin in known from the Little River in Oklahoma (Krupa *et al.*, 1985; Krupa, 1986).

Summary and Recommendations.—The bird-voiced treefrog is currently known from 14 sites and 10 counties in Arkansas. Populations are distributed discontinuously within four major river basins. In most instances, the species exists in isolated enclaves (e.g., in permanently-aquatic floodplains, small lakes, swamps, or sloughs) along major river

systems. Population size and structure are variable in the localized demes; the largest aggregate of frogs observed occurred in a floodplain, whereas the smallest was in a headwater swamp. Habitat perturbation and reduction by man within aquatic ecosystems along major aquatic transportation or thoroughfare routes have undoubtedly contributed to the extirpation of this species in many stretches of potentially-favorable riparian habitats. In addition, industrial, municipal, and agricultural waste discharge practices that require or indirectly lead to an aquatic disposal of pollutants will continue to reduce and degrade the availability of the optimal habitat conditions. The present status of the known populations of *Hyla avivoca* in Arkansas is uncertain, but the survival requirements of this species are directly related to its habitat preference; i.e., they currently exist in a limited number of favorable aquatic environmental settings. Further alteration of these and similar habitats may result in population declines and total extirpation in some areas. Additional studies into the life history and ecology of this species in Arkansas (i.e., Jamieson *et al.*, in press) may help determine the direction of any future management efforts that may be needed to retain or protect thriving colonies of frogs. Given the interest in the global reduction of anuran populations and amphibians as a whole, long-term research efforts are a matter of necessity and are in tune with the future of sound conservation policies.

ACKNOWLEDGMENT

John W. Robinette, David H. Jamieson, and Chris T. McAllister provided field assistance. A special use permit (No. 37849) for the Wapanocca National Wildlife Refuge was secured with the assistance of Dennis J. Widner, Project Leader of the Wapanocca/Big Lake/Cache River National Wildlife Refuges. Collection of specimens was under the authority of the Arkansas Game & Fish Commission (Scientific Collection Permit # 34). This study was partially funded by a grant (F90-3) from the Arkansas Nongame Preservation Committee.

LITERATURE CITED

- CONANT, R., and J. T. COLLINS. 1991. A field guide to reptiles and amphibians of eastern and central North America. Houghton Mifflin Co., Boston, 450 pp.
- DAVIS, B. J., and N. HOLLENBACK. 1978. New records for the bird-voiced treefrog, *Hyla avivoca* (Hylidae), from Arkansas and Louisiana. Southwest. Nat. 23:161-162.
- DUNDEE, H. A., and D. A. ROSSMAN. 1989. The amphibians and reptiles of Louisiana. Louisiana State University Press, Baton Rouge, 300 pp.
- JAMIESON, D. H., S. E. TRAUTH, and C. T. McALLISTER. Diet of the bird-voiced treefrog, *Hyla avivoca* (Anura: Hylidae), in Arkansas. Texas J. Sci. (in press).
- KRUPA, J. J. 1986. Distribution in Oklahoma of the bird-voiced treefrog (*Hyla avivoca*). Proc. Oklahoma Acad. Sci. 66:37-38.
- KRUPA, J. J., S. M. SECOR, and G. SIEVERT. 1985. Observations of the bird-voiced treefrog in Oklahoma: a resighting of an isolated population after 23 years. Bull. Oklahoma Herpetol. Soc. 10:8-10.
- MOUNT, R. H. 1975. The reptiles and amphibians of Alabama. Auburn Univ. Agri. Exp. Sta., Auburn, 347 pp.
- SMITH, P. W. 1966. *Hyla avivoca*. Cat. Amer. Amph. Rept. 28:1-28.2.

SMITH, K. L., W. F. PELL, J. H. RETTIG, R. H. DAVIS, and H. W. ROBISON. 1984. Arkansas's natural heritage. August House Publ., Little Rock, 116 pp.

TRAUTH, S. E., and J. W. ROBINETTE. 1990a. Notes on distribution, mating activity, and reproduction in the bird-voiced treefrog, *Hyla avivoca*, in Arkansas. *Bull. Chicago Herpetol. Soc.* 25:218-219.

TRAUTH, S. E., and J. W. ROBINETTE. 1990b. Geographic distribution. *Hyla avivoca* (Bird-voiced Treefrog). *Herpetol. Rev.* 21:95.

TURNIPSEED, G. 1976. Geographic distribution. *Hyla avivoca avivoca* (Western Bird-voiced Treefrog). *Herpetol. Rev.* 7:178-179.

APPENDIX I

The following general localities and their township, range, and section (in parentheses) were visited in an attempt to find bird-voiced treefrogs from 19 May through 5 July, 1991. The localities have been grouped according to their respective river basin and county. An asterisk denotes a collection site and includes ASUMZ voucher numbers.

Mississippi River Basin.—CHICOT: Lake Chicot (no T,R,S); CRITTENDEN: Wapanocca National Wildlife Refuge (T9N, R8E, S33, 34); PHILLIPS: St. Francis National Forest (T1S, R5E, S29), Humphrey Slough and St. Hwy 20 (T4S, R2E, S22), Long Lake Bayou and St. Hwy 20 (T3S, R3E, S35), Long Lake Bayou and St. Hwy 20 (T3S, R4E, S23), Long Lake Bayou and St. Hwy 20 (T2S, R5E, S30).

White River Basin.—ARKANSAS: Prairie Bayou at Weber (T6S, R1W, S30), MONROE: White River National Wildlife Refuge and St. Hwy 1 (T4S, R1W, S4; T3S, R1W, S34, 26), Indian Bayou (T3S, R1W, S26), Prairie Cypress Creek and St. Hwy 1 (T3S, R1E, S18), Big Cypress Creek and St. Hwy 1 (T3S, R1E, S5), Little Cypress Creek and St. Hwy 362 (*T1N, R1W, S36; ASUMZ 17766), Little Cypress Creek and U.S. Hwy 49 (T1N, R1W, S27, 21), Cypress Creek and U.S. Hwy 49 (T2N, R2W, S14); PHILLIPS: Little Cypress Creek and St. Hwy 39 (T2S, R1E, S9), Little Cypress Creek and St. Hwy 49 (T1S, R1E, S21), Big Creek and St. Hwy 318 (T3S, R1E, S24), Big Creek and U.S. Hwy 49 (T2S, R2E, S36), Little Cypress Creek and U.S. Hwy 49 (T1S, R1E, S21),

Louisiana Purchase Historic State Park (T1S, R1E, S6), Bayou DeView and St. Hwy 17 (T4N, R2W, S29, 30); WHITE: White River at Georgetown (T6N, R4W, S21); WOODRUFF: Cache River and U.S. Hwy 64 (T8N, R2W, S31), Cache River and St. Hwy 260 (T7N, R2W, S19), Maple Slough (T7N, R3W, S30), Cache Bayou and St. Hwy 262 (T6N, R4W, S1), Seven Mile Lake and St. Hwy 262 (T6N, R4W, S15), Bear Slough and St. Hwy 262 (T6N, R4W, S34), Cache River and St. Hwy 38 (T4N, R3W, S5), Gum Flat Creek and St. Hwy 38 (T4N, R3W, S2).

Arkansas River Basin.—ARKANSAS: Lake Merrisach (no T,R,S; T7S, R3W, S30), Mill Bayou and St. Hwy 276 (T5S, R4W, S26), Cypress Bayou and St. Hwy 44 (T6S, R2W, S30), Bayou Meto Wildlife Management Area—Cox Creek Lake (T5S, R6W, S2); CONWAY: vic. West Fork of Point Remove Creek (*T7N, R17W, S16; ASUMZ 17799-822; 17733-38; 17770-74; 17787-88; 17920-25); FAULKNER: East Fork Cadron Creek and U.S. Hwy 65 (T6N, R13W, S16), Flag Pond (*T4N, R14W, S21, 22; ASUMZ 17860-67); JEFFERSON: Tar Camp Creek and Arkansas River (T3S, R10W, S17); PERRY: Flat Cypress Creek and St. Hwy 9 (T5N, R17W, S27), Tributary of Bull Slough and St. Hwy 60 (T4N, R17W, S18), Bull Slough (T4N, R17W, S19). SALINE: Spring Lake Rd. at Spring Lake (*T2S, R12W, S7; ASUMZ 17767-69);

Ouachita River Basin.—ASHLEY: Bartholomew Bayou and St. Hwy 82 (T16S, R5W, S24), Lake Grampus (T16S, R4W, S18), Parkins Slough (T16S, R4W, S17), Bartholomew Bayou and St. Hwy 52 (T19S, R5W, S1, 2), Walker's Slough (T19S, R5W, S4), Sawyer Slough (T19S, R5W, S18); CALHOUN: U.S. Hwy 79 and Calhoun/Dallas county line (T11S, R13W, S6), U.S. Hwy 79 and Calhoun/Ouachita county line (T11S, R14W, S30); CLEVELAND: Moro Creek and U.S. Hwy 79 (T10S, R12W, S7); DALLAS: Saline River and U.S. Hwy 167 (T7S, R13W, S15), Moro Creek and U.S. Hwy 167 (T9S, R13W, S15); DREW: Seven Devils Swamp (T13S, R5W, S13, 23), Wolf Creek (T14S, R5W, S14); GRANT: Hurricane Creek and U.S. Hwy 270 (T5S, R12W, S6), Cox Creek Lake (*T6S, R15W, S27, 28; ASUMZ 17834); JEFFERSON: Swan Lake (T6S, R6W, S31), Round Cypress Lake (T5S, R6W, S33; T6S, R6W, S4), Slough (T6S, R6W, S9), English Lake and St. Hwy 88 (T6S, R6W, S15), Bayou Meto Wildlife Management Area (T6S, R5W, S5, 6), Bartholomew Bayou and St. Hwy 15 (T6S, R9W, S7); LINCOLN: Caney Creek Lake (T9S, R6W, S8).

Red River Basin.—LAFAYETTE: Lake Erling and St. Hwy 360 (*T18S, R24W, S9, 10; ASUMZ 17926-32), Slough and St. Hwy 360 (T18S, R25W, S14), Posten Bayou and St. Hwy 160 (T19S, R25W, S8).