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New Records of the American Badger (*Taxidea taxus*) in Arkansas, with an updated distribution map

Cover Page Footnote

We thank David Good, Wade Grayson, Sheila Lambert, Amanda Russom, Jason New, and Trevin Tripodi for information and photographs regarding new records of badgers.

New Records of the American Badger (*Taxidea taxus*) in Arkansas, with an Updated Distribution Map

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Running Title: Updated distribution of American badgers (*Taxidea taxus*) in Arkansas

Within 30 years of the first published record of American badgers (*Taxidea taxus*) in Arkansas, only 3 specimens had been documented. In 1964, the first specimen was collected in Washington County in the northwestern corner of the state (Sealander and Forsyth 1966). Franklin County later produced a specimen trapped near the Arkansas River (Cartwright and Heidt 1994). A roadkill specimen from Stone County, far eastward of the first specimens, became the third verified record of occurrence (Cartwright and Heidt 1994).

Fur harvest records maintained by the Arkansas Game and Fish Commission (AGFC) have included reports of badgers as far back as 1976. No county-level data are available for the early records, as they were saved only by region, and most reports were from the Ozark Mountains. In 1984, a record 10 badgers was reported to have been taken in Arkansas, 7 from the Ozarks and 3 of unreported origins. Otherwise, 5 badgers were reported taken in 1986 and 1993, and 1-3 were reported during 16 of the other years since 1976. In the 17 years since 2000, only 5 badgers have been reported. The cause of the shifting numbers is not known, but could be related to trapping effort or pelt prices. Although occurrences in fur reports have dwindled since highs in the 1980s and early 1990s, verifiable records based on specimens or photographs have increased.

Tumilson and Bastarache (2007) noted eastward expansion of range in Oklahoma, near the Arkansas border. This observation was soon followed by new records in Sebastian and Crawford Counties, bordering Oklahoma, and providing evidence of a recent range expansion into the state along the Arkansas River (Tumilson and Sasse 2015).

Beginning about 2003, several new verified observations also significantly expanded the known range into northeastern Arkansas, apparently from the bootheel region of Missouri (Tumilson *et al.* 2012,

2017). Further observations revealed 2 locations, both in Crittenden County, with dens supporting offspring (Tumilson *et al.* 2012).

On 13 November 2017, the AGFC posted information about badgers on their facebook page, and requested that viewers post their observations and images of badgers in Arkansas. Though many people responded in some manner, useful information was sparse, and many reported observations likely were actually woodchucks (*Marmota monax*). However, numerous comments came from areas where badgers have been documented already, and help support the idea that badgers have become established in northern counties of Arkansas.

Current distribution of the badger in Arkansas is dynamic and reflects very recent expansion of historic range, and the species is listed as a Species of Greatest Conservation Need in Arkansas (Fowler 2015). Therefore, herein we report new validated records and consolidate all known records onto one map to provide an updated distribution for this species whose biology in Arkansas began unfolding only in the last 2 decades.

New Records of Distribution

Benton County: near Bentonville, 0.4 km (0.25 mi.) N of Pea Ridge exit. Trevin Tripodi, a predator control trapper, captured a male badger by use of a foothold trap and coyote/skunk gland lure on 14 January 2017. He had set the trap because he recognized badger tracks on a man-made berm covered with vegetation. The trapper also noted dense populations of rabbits and rodents at the site, which would serve well as a food base. This is the first verified record for Benton County with locality data.

Boone County: about 5 km N of Harrison, 36.279615°N, 93.097541°W. On 24 July 2017, Wade Grayson photographed a badger in a den located in a

field in which he runs cattle. Few records of badgers have been reported from this region of the state in the Ozark Mountains, though other observations are documented from neighboring Marion County (Tumilson *et al.* 2012). This photo-documented individual represents a new county record for Arkansas.

In the evening of 2 December 2017, David Good caught a male badger in a box trap at Hill Top, Arkansas, on Gaither Mountain, 36.15750°N, 93.22556°W. He had set traps to capture a predator attacking his chickens, and unexpectedly caught the badger. The trap was set at the edge between a grassy field and mature mixed woods. He killed and photographed the animal, and upon skinning it observed that it was laden with greasy fat, but no chicken remains were in the stomach at the time. It was 790 mm (31 in.) in total length. This record is about 21 km (13 mi.) SW of the other new Boone County record, and is located near the Carroll and Newton County lines.

Clay County: County Road 528, 18 km ENE of Rector, 36.32157°N, 90.10389°W. Amanda Russom photographed the roadkill individual on 27 July 2017, along the road beside a bean field, about 1.5 km from the St. Francis River. A couple of farmers in the area reportedly claimed to have recently spotted several animals they identified as badgers. This represents a new county record for Arkansas.

Craighead County: Caraway Cemetery, 35.767°N, 90.341°W. Several people on facebook reported this badger, which was trapped after the discovery of an animal digging by tombstones. Jason New provided the verifying photograph. This is the most southeastern occurrence documented in Craighead Co. The area is surrounded by farmland.

Missouri: Dunklin County: 0.8 km west of Arbyrd on MO St. Hwy 108, ca. 5.6 km N of Arkmo or about 12.9 km N of Leachville (Mississippi County, AR). A roadkill badger was photographed by Sheila Lambert on 24 July 2017. Though not technically in Arkansas, this record is just north of the Mississippi County line, very close to other records in that county, represents a new locality in Missouri, and connects the likely path of colonization from the Missouri bootheel region into northeastern Arkansas (Tumilson *et al.* 2012).

Previous Records of Distribution

Benton County: no specific locality given, as record was gleaned from a fur buyer's report (Tumilson *et al.* 2012).

Craighead County: County Road 907, 2.0 km N of jct. with Hwy 18, E of Jonesboro, 35.8397228°N, 90.5833338°W; Jonesboro, Johnson Avenue near jct. U.S. Hwy 49 35.8522228°N, 90.6672228°W; Lake City, AR St. Hwy 18, ca. 1.6 km E of the St. Francis River Bridge; Lake City, 0.4 km W jct. of AR St. Hwy 18E and AR St. Hwy 135N, 35.8221258°N, 90.4706348°W; U.S. Hwy 63, N of Trumann, 35.7138478°N, 90.5765088°W (all records from Tumilson *et al.* 2012).

Crawford County: Van Buren, 1.9 km NE of the Arkansas River and 0.6 km S of U.S. I-40, 35.458°N, 94.364°W (Tumilson and Sasse 2015).

Crittenden County: 1.6 km N Ebony (Tumilson *et al.* 2012); near Proctor, 35.081878°N, 90.335088°W (Tumilson *et al.* 2012); Roseboro Island Road, 5.5 km WNW of Marion, 3.2 km N of jct. with U.S. Hwy 64, 35.22627°N, 90.25420°W (Tumilson and Sasse 2015); AR St. Hwy 77, 1.1 km N of Clarkdale, 35.31905°N, 90.23970°W (Tumilson and Sasse 2015); ca. 1.6 km W of previous site, along U.S. I-55, 35.322564°N, 90.259220°W (Tumilson and Sasse 2015); AR St. Hwy 50 and Woollard Road, 35.25642°N, 90.32569°W (Tumilson *et al.* 2017).

Franklin County: 2.5 km S of the Ozark Dam near the Arkansas River (Cartwright and Heidt 1994).

Lawrence County: off US Hwy 412 W of Walnut Ridge, 36.0646198°N, 90.9939258°W (Tumilson *et al.* 2012).

Marion County: Crooked Creek S of Pyatt; AR St. Hwy 14, 8 km S Yellville, 36.152558°N, 92.674058°W (Tumilson *et al.* 2012).

Mississippi County: AR St. Hwy 18 near Manila, 1.6 km W of Big Lake NWR, 35.872112°N, 90.156273°W; AR St. Hwy 119 E of Marie, Sec. 6, T11N, R10E (both records from Tumilson and Sasse 2015).

Newton County: no specific localities given (Sealander and Heidt 1990; Tumilson *et al.* 2012).

Observations of American badgers (*Taxidea taxus*) in Arkansas

Poinsett County: 2.4 km N Shady Grove, 35.6875808°N, 90.5798538°W (Tumilson *et al.* 2012).

Randolph County: no specific locality given (Tumilson *et al.* 2012).

Sebastian County: 100 S 10th Street, Fort Smith, about 1.1 km SE of the Arkansas River (Tumilson and Sasse 2015).

Stone County: AR St. Hwy 5 near Optimus (Cartwright and Heidt 1994).

Washington County: 3.2 km W Fayetteville (Sealander and Forsyth 1966).

Dens

The den occupied by the badger in Boone County was constructed under a tree that had been covered by honeysuckle. The entrance to the den had the typical U-shaped fan of excavated dirt and was situated at the base of a tree (Fig. 1). Dirt around the tree was more elevated than the surrounding grassy field. The immediate area of the den was covered by woody and herbaceous vegetation, and its location at the tree likely protected it from movements of cattle. This den is similar to the only other den previously reported in Arkansas (Tumilson and Sasse 2015), which also was under a tree in elevated ground.

A den believed to be that of the male badger caught in Benton County was located near the capture site in an elevated berm, but not at the base of a tree. The opening was about 30 cm (1 ft.) wide with a fan of excavated dirt below the opening.

Currently, the scattered reports from around the state seem to indicate 3 primary areas in which populations of badgers are becoming more established (Fig. 2). In western Arkansas, the Arkansas River appears to be a corridor down which badgers are moving into the Arkansas River Valley in Crawford and Sebastian Counties, on both sides of the river. In the mountainous regions of the state, the most numerous and recent reports come from the central Ozarks (Marion and Boone Counties), bordering Missouri. However, the largest number of observations covering the widest area flows from southeastern Missouri, mostly between the St. Francis and Mississippi Rivers, in the northeastern section of the Mississippi Alluvial Plain (Foti 1974). This is the only region where reproduction has been observed.



Figure 1. A badger (*Taxidea taxus*) in its den in Boone Co., AR, 24 July 2017. Photo by Wade Grayson.

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R. Tumlison and D.B. Sasse

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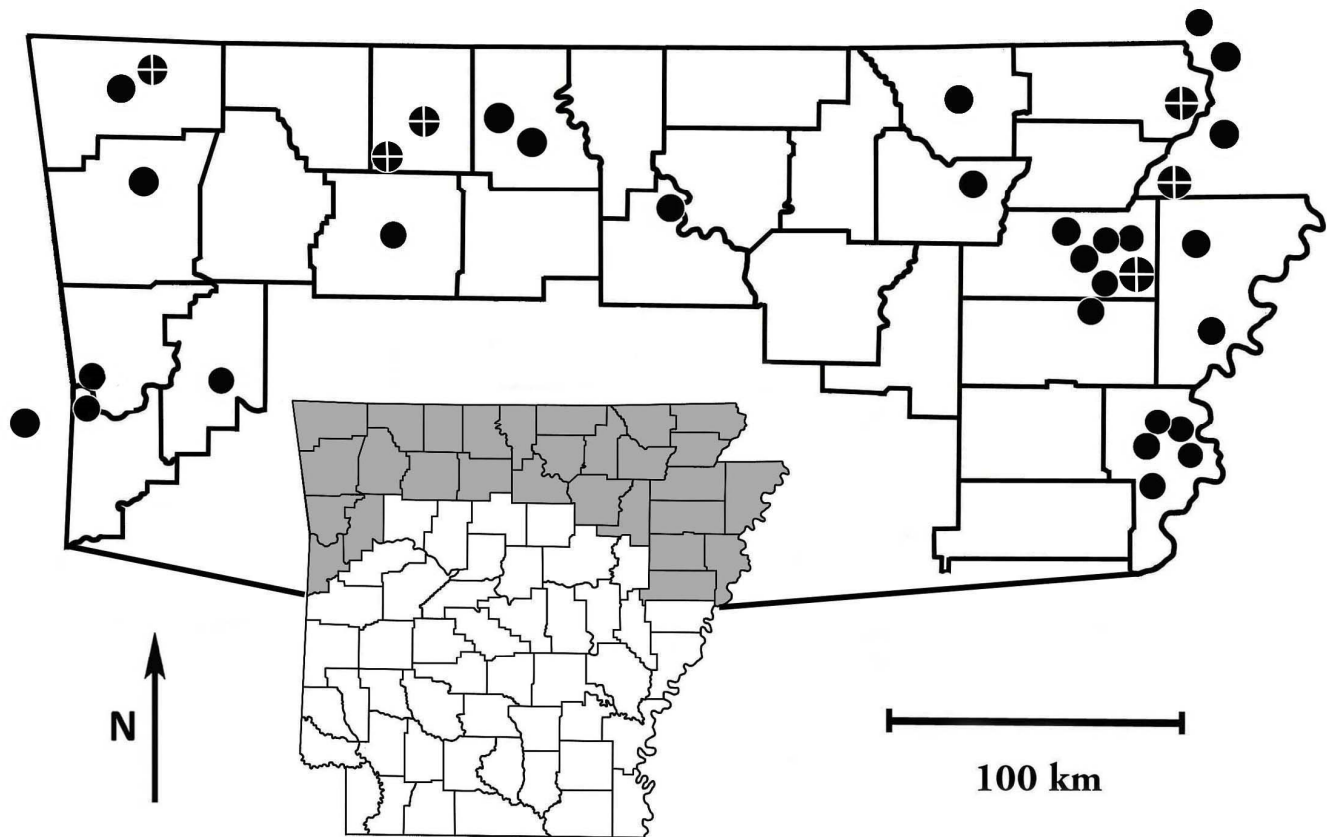


Figure 2. Currently known distribution of American badgers (*Taxidea taxus*) in Arkansas. Historical records are indicated by black dots and new records by crossed black dots. Scale bar is for the enlargement. Nearby record from LeFlore County, OK from Tumlison and Bastarache (2007), and from Dunklin and Stoddard Counties, MO, from Tumlison *et al.* (2012).