

**AN ADDITIONAL SPECIMEN OF
TERRAPENE CAROLINA TRIUNGUIS
(REPTILIA: TESTUDINES) FROM
SOUTHERN ILLINOIS**

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ABSTRACT

A third confirmed specimen of *Terrapene carolina triunguis* is reported for the state of Illinois. This specimen may represent a free-ranging individual from adjacent Missouri. This finding raises interesting questions regarding distributions of and potential gene flow among the two species and two subspecies of box turtles that occur in Illinois.

INTRODUCTION

The three-toed box turtle (*Terrapene carolina triunguis*) occurs from western Georgia to northeastern Texas, northward from northern Louisiana west of the Mississippi River through Arkansas, the eastern half of Oklahoma and throughout most of Missouri (Pope, 1939; Conant, 1975). North of Tennessee, the Mississippi River apparently forms a boundary between the ranges of *T. c. triunguis* and *T. c. carolina*, with *T. c. triunguis* occurring on the Missouri side of the river and *T. c. carolina* occurring in Illinois (Pope, 1939; Smith, 1961).

To date, there have been two confirmed specimens of *T. c. triunguis* collected in Illinois. One specimen collected in northern Illinois is undoubtedly an introduced specimen (Dancik, 1974). Smith (1961) described the earliest recorded specimen

(collected in Calhoun County) as being "unquestionably" *T. c. triunguis* and further states, "This single example may be a waif, or possibly the population between the Mississippi and nearby Illinois rivers consists of intergrades, in which the characters of *triunguis* are recessive to those of *carolina*." Garman (1892) also reported that both *T. c. triunguis* and *T. c. carolina* occurred in Illinois, but no specimens are available to substantiate this report. Several additional specimens of *T. c. triunguis* also have been collected (M. Morris, pers. comm.), but it is, again, uncertain whether or not these specimens are naturally occurring.

In this paper we describe a third specimen of *T. c. triunguis* collected in southern Illinois.

DESCRIPTION AND DISCUSSION

One specimen identified as *Terrapene carolina triunguis* was collected 7 September 1987 as it was crossing Illinois Route 3 approximately 3.81 km north of Olive Branch, Alexander County. This site is approximately 4.8 km due east of the Mississippi River. The specimen is a subadult male (plastron length 90 mm; plastron width 50 mm) with a keeled carapace and flared posterior marginals. The coloration of the specimen is: olive brown carapace with a diffuse, yellow radiating pattern; uniform yellow plastron; and several distinct yellow spots on the sides of the head posterior to the eyes. There are three digits on each of the hind limbs. Independent confirmation of the identification of this specimen has been provided by L. E. Brown. The specimen was then photographed and released near the original collection site. Photographic slides of the specimen are in the herpetological collection of the Illinois Natural History Survey.

While it is possible that this specimen represents an individual that was transported from within the natural range of *T. c. triunguis* and released in Illinois, we feel there is substantial evidence that this specimen could be naturally occurring. First, while there are various reports as to the swimming ability of *T. carolina*, it is generally agreed upon that this species can swim (Ditmars, 1930; Barker, 1964) and may, in fact, swim quite well (Cahn, 1937). Second, it is generally uncommon for rivers to limit the distributions of turtles (Pope, 1939). Finally, certain individuals of *T. c. triunguis* are free-ranging, move almost constantly, and are capable of traveling long distances (Kiester et al., 1982).

These factors, in conjunction with the close proximity of the Mississippi River to where the specimen was collected, lead us to believe that there is a very good possibility that this specimen represents a free-ranging, naturally-occurring individual.

This represents a second case where the three-toed box turtle could have crossed the Mississippi River. A crossing is more likely because the river passes through a narrow gorge just upstream, at Thebes. The larger river and broader flood plain might theoretically be more of a barrier to the south, but *T. c. triunguis* occurs extensively on both sides there. It would be helpful to check the east bank of the Mississippi River in Kentucky. Barbour (1971) says that only *T. c. carolina* occurs in Kentucky, but that a small percentage from western Kentucky do have three toes on the hind feet, "showing evidence of intergradation." It should be noted that a ferry has crossed the river for many years at Golden Eagle, in Calhoun

County, Illinois, which raises the chances that Smith's specimen was transported across.

If *T. c. triunguis* can cross the Mississippi River into Illinois, intergrades with *T. c. carolina* would be expected, since subspecies are supposed to be able to interbreed. Barbour (1971) mentioned some apparent intergrades elsewhere, and Pope (1939) says that "presumably" and "apparently" they interbreed elsewhere, but he does not report or describe any intergrades. Smith (1961) suggests that "possibly" intergrades occur in Illinois, but didn't report finding any. The distribution and genetic relationships of box turtles in southern Illinois are of considerable interest in that hybridization between *T. carolina* and *T. ornata* also may occur in this region. *Terrapene ornata* occurs throughout most of the state of Missouri and as far south in Illinois as Jackson and Franklin counties (Smith, 1961). Presumed Illinois hybrids have been reported by Smith (1955). Further, presumed hybrids have been collected in Indiana (Clark, 1935) and Missouri (Shannon and Smith, 1949). Collins (1974) has suggested that *T. c. triunguis* and *T. ornata* may hybridize in Kansas.

The lack of specimens of *T. c. triunguis* from southern Illinois raises several interesting questions regarding both biogeography and genetics of this subspecies in Illinois and merits further investigation.

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