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SIZE, AGE, AND GROWTH OF AN ALLIGATOR SNAPPING TURTLE, *MACROCLEMYS TEMMINCKI*, FROM ILLINOIS

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ABSTRACT

An adult male *Macroclemys temmincki* (495 mm carapace length) from Union Co., Illinois, is the first verifiable record for the state since 1960. The specimen was approximately 28 years old, and showed relatively uniform growth through its life. The turtle was marked "Contact IL Conservation" with white nail polish, and released at the capture site.

INTRODUCTION

The alligator snapping turtle, *Macroclemys temmincki*, is found in the south-central United States from western Florida to eastern Texas, north to southern Kansas and Missouri, and extending up the Mississippi River Valley to southeastern Iowa and northwestern Illinois (Conant, 1975). It is extremely rare in the northern part of its range (Anderson, 1965; Minton, 1972; Smith, 1961). While it is not included as an endangered or threatened species in Illinois (Kenney, 1978; Morris and Smith, 1981), it has been termed "rare and restricted" in the state (Morris and P.W. Smith, ms).

Other than an unverified sight record for Peoria Co. (Blanchard and Princen, 1976), the last reported specimens for the state were collected in Union and Jackson cos. in 1959 and 1960, respectively (Galbreath, 1961). Previous Illinois records, including those of Galbreath (1961), are summarized by Smith (1961).

On 27 or 28 October 1984, Lance Cantrall captured an adult male *M. temmincki* on the bank of Clear Creek (a small tributary of the Mississippi River), 5 mi. WSW Jonesboro, Union Co., Illinois. The turtle was subsequently given to the Illinois Department of Conservation. It was marked and released at the capture site on 15 November 1984. Before it was released, data on size, age, and growth were recorded. We report this specimen in order to: (1) make available data on growth and age, previously unavailable for the species at the northern part of its range; (2) bring attention to the identification marks; and (3) report a new Illinois locality for the species.

METHODS

All shell measurements are straight-line (i.e., not measured over the shell curvature). Annuli, separating areas of growth, were counted on the left and right second pleural scutes, and verified by counts on other scutes (Dobie, 1971). Areas of growth between annuli were measured to the nearest mm. The specimen was marked by notching the left second and third marginals (counted from the tail) with a triangular file, and by painting "Contact IL Conservation" with white nail polish on the posterior half of the carapace (Fig. 1).

RESULTS

Mensuration data are summarized in Table 1. The turtle's weight was estimated at 32 kg, but this may have been an overestimate (cf. weights recorded by Dobie, 1971). There were 17 annuli on the right second pleural and 28 on the left second pleural. The right pleural scutes were more worn than the left ones. For reasons outlined below, we believe that the left side annulus count is accurate. The turtle, then, was approximately 28 years old (28 growing seasons). Measurements of individual growth increments were relatively uniform (Table 1), indicating uniform growth of the turtle. The central portion of each scute, representing the hatchling scute, was 10 mm, a typical size for scutes of hatchling *Macroclemys* (Dobie, 1971).

DISCUSSION

The discrepancy between left and right side annulus counts is unusual. As noted above, however, the right pleurals were more worn than the left ones, and this obscured some annuli. Dobie (1971) found that male *M. temmincki* did not reach sizes comparable to our specimen until after the 25th growing season; hence we believe that the left side annulus count of 28 is correct.

In Louisiana, alligator snappers grew rapidly for 10-13 years, and thereafter grew more slowly (Dobie, 1971). There is also geographic variation in growth rate, with turtles in Florida growing faster than ones from Louisiana, and ones in southern Louisiana growing more rapidly than ones from east-central Louisiana (Dobie, 1971). Growth is influenced by several factors, but one of the most important ones is duration of the growing season (Dobie, 1971). Since the activity season of reptiles is shorter in Illinois than in more southern states, it is not surprising that the turtle we examined had initially grown comparatively more slowly.

Our specimen did, in general, grow more slowly after the tenth season (Table 1), but the growth rates were remarkably uniform compared to turtles examined

by Dobie (1971), which had an initial mean growth rate of 8 mm/season, but often reaching 10 mm/season, for the first several seasons. Our turtle may have been able to reach its size in the same length of time as southern turtles by maintaining a more uniform growth rate after its fifteenth season than did southern snappers, which decreased to about 3 mm/season (Dobie, 1971: Fig. 8).

Although *M. temmincki* may be highly vagile (Ernst and Barbour, 1972), we believe that the growth rates of the Illinois specimen reported here support the contention that the turtle was a resident of Illinois, or at least of the northern part of the species' range, where growing seasons are short.

Alligator snappers are primarily inhabitants of large rivers and swamps (Ernst and Barbour, 1972). It is evident from our record and others (Galbreath, 1961; Smith, 1961) that they do, at least on occasion, ascend small tributaries of larger rivers. It is not known if they are permanent residents of such habitats.

While we regard *M. temmincki* as extremely rare in Illinois, the species may be more common than available records indicate. Because they are bottom-dwellers of inaccessible habitats (Ernst and Barbour, 1972), they may be less easily collected or observed than other turtle species.

We request that any person observing the turtle we marked notify the Illinois Department of Conservation.

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Fig. 1. Dorsal view of an adult *Macroclemys temmincki* from Union Co., Illinois, marked for future identification.

Table 1. Measurements (in mm) of an adult male *Macroclemys temminckii* from Union Co., Illinois. Measurements of growth areas are listed from oldest to youngest.

Character	Measurement
Carapace Length	495
Carapace Width	381
Plastron Length	368
Preanal Tail Length	210
Dorsal Tail Length	381
Head Width	145
Growth Areas on Second Pleural	
Right	5, 5, 3, 7, 10, 10, 10, 11, 5, 4, 3, 4, 3, 2, 3, 2, 3 (X = 5.3)
Left	6, 5, 6, 7, 4, 4, 4, 5, 4, 4, 3, 3, 4, 3, 4, 5, 4, 5, 4, 3, 4, 6, 4, 3, 3, 3, 3, 2 (X = 4.1)