

## *Trachemys scripta elegans* in Southwestern Spain

In recent years, the introduction of foreign species has become a common practice in Spain, including Extremadura (southwestern Spain). The crustacean *Procambarus clarkii* (pers. observ.), the fish *Micropterus salmoides* and *Lepomis gibbosus* (Lope and Cruz 1985), and the bird *Amandava amandava* (Cruz et al. 1981) can now be found in this region, and permanent breeding populations are established. As regards the herpetofauna, *Rana catesbeiana* was reported north of Cáceres, the frogs having escaped from a commercial culture operation (García París 1991). In this note we report the presence, in Badajoz province, of a chelonian of American origin, *Trachemys scripta*, from two areas 80 km apart. Courtship behavior is also reported.

In the summer of 1993, a specimen of *T. scripta* was captured in the Río Zapatón (22 km north of Badajoz city). Two other individuals were subsequently reported by a fisherman in the same place. In March 1994, we observed two specimens on three occasions at the dam of Cornalvo (70 km east of Badajoz city).

The captured specimen was an adult female with a carapace length of 201.6 mm, a plastron length of 199.5 mm, and a weight of 1426 g. This specimen is referable to the subspecies *T. s. elegans* (using the descriptions by Behler and King 1979).

The estimated carapace length of the two individuals observed at the dam of Cornalvo was 170–180 mm. Most of the time they were inactive and basking. At dusk on 9 March, they began a series of movements. Because terrestrial telescopes were used, our observations were restricted to the movements which took place on the water surface. One of the individuals remained motionless, with its head and carapace above the surface, while the other appeared and disappeared at several points around it. The second individual occasionally emerged facing the static one, which would follow it for a short distance as it swam backwards. These behaviors have been reported for females and males respectively (Jackson and Davis 1972). Occasionally, the more active individual threw small water spouts toward the other, a behavior reported in the neotropical races *T. s. grayi* and *T. s. ornata* (Lovich et al. 1990).

The introduction of this species has been confirmed in different countries (Bouskila 1986; Daniels 1994; Ernst 1990; Newbery 1984; Platt and Fontenot 1992), as well as in North American areas outside its natural range. Also, *T. scripta* has been reported in some Spanish locations where the development of stable populations seems unlikely (García-Paris and Martín 1987; García-Paris et al. 1989; Rivera and Arrivas 1993). This is the first report of this species in Extremadura. The ecological features of our two sites are very different. Adjacent riparian vegetation (*Fraxinus* sp., *Salix* sp., *Populus* sp., *Rubus* sp., *Arundo* sp., *Phragmites* sp., *Typha* sp., and *Juncus* sp.), and areas of submerged vegetation provide good protection on the banks of the Río Zapatón, close to the optimum habitat for the species (Morreale and Gibbons 1986). In contrast, the dam of Cornalvo is completely bare, with rocky soil, although the surrounding area has holm oak and low brush, *Cistus* sp. and *Quercus* sp. being the dominant vegetation (Mediterranean forest). *Trachemys scripta* coexists with *Mauremys leprosa* in both places, and perhaps also with *Emys orbicularis* in Cornalvo, since the latter occurs in adjacent brooks.

The turtles from Cornalvo are within the size range for mature individuals (Jackson 1988), and the described behavior suggests that they are breeding, with the consequent risk of settlement. The size of the captured female and the descriptions of the other individuals suggest that the same could be happening in the Río Zapatón.

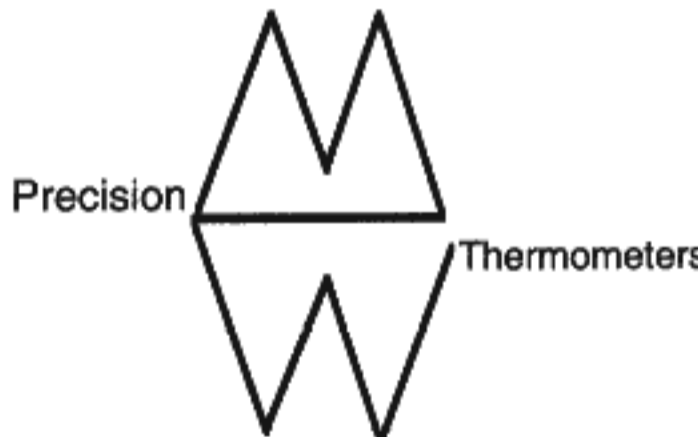
The potential for competition between *T. scripta* and the native species (*M. leprosa* and *E. orbicularis*) needs to be studied (Bouskila 1986). If the range of *T. scripta* expands, a displacement of the native species can be expected, as is suspected for *Pelomedusa subrufa* in South Africa (Newbery 1984), and *Mauremys caspica* in Israel (Bouskila 1986). This event would have especially deleterious consequences for *E. orbicularis*, as it is far more endangered and scarce in Extremadura than is *M. leprosa* (da Silva 1993). Steps are being taken to eliminate *T. scripta* individuals, and decisions will have to be made on the trade of exotic species and their subsequent establishment, as four to seven million hatchlings are sold annually in the international market (Warwick 1991). Due to its broad ecological tolerances, omnivorous diet, and dispersal ability, it seems likely that breeding populations of *T. scripta* will become established in southwestern Spain, an area of habitats and climate similar to parts of its native range (Morreale and Gibbons 1986). This supports the need for controls on the international market for this species.

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## Fox Snake Winter Activity in Central Illinois

The western fox snake (*Elaphe vulpina vulpina*) is distributed in the north-central midwest (Powell 1990). In the northern portion of its range (e.g., Wisconsin), the snake inhabits forested areas and various other habitats (Vogt 1981). An isolated eastern race (*E. vulpina gloydi*) in the region bordering Lake Huron and Lake Erie occurs in extensive marshes (Conant and Collins 1991). In marked contrast, *E. v. vulpina* persists in agricultural areas that were formerly prairie in the Prairie Peninsula of central Illinois and Indiana (L. E. Brown and J. R. Brown 1975; Minton 1972; Smith 1961). Even though *E. vulpina* is commonly encountered, Ernst and Barbour (1989) pointed out that it is the least known of the species of *Elaphe* in North America. Furthermore, little information is available on the thermal ecology of the species (Ernst and Barbour 1989). The most notable contributions were provided by Dill (1972) who recorded body core temperatures from transmitters implanted in a single individual during August-September in Minnesota, and Costanzo (1986) and Zaremba (1978) who collected temperature data within and near hibernacula (cisterns) in Wisconsin in late summer, fall, and spring. We report the observation of substantial winter surface activity by an *E. v. vulpina* in central Illinois. This is highly unusual behavior because snakes, as ectotherms, are known for their lack of surface activity during the cold months of winter in northern regions.

Our observations occurred at an ice skating party on 17 February 1991 on Peterson's Pond (a human-made impoundment), 4.7 km NNE Hudson, Illinois (NW 1/4, NE 1/4, SE 1/4, Section 3, T25N, R2E, Hudson Township, McLean County), USA. The *E. v. vulpina* was first noticed at 1440 h on the south edge of the pond. It proceeded to move slowly over the ice across the center of the pond. The guests at the ice skating party were located some distance away and did not chase or pursue the snake. When the *E. v. vulpina* reached the opposite side of the pond it was collected. It had traveled 39.6 m across the ice. When captured, the *E. v. vulpina* was quite cold and lethargic, but after it was taken inside, it eventually warmed up and behaved normally. No *E. v. vulpina* are kept as pets in this rural area, and thus it is probable that the *E. v. vulpina* we observed was not an escapee from captivity. The specimen was an adult male with a total length of 101 cm and tail length of 17 cm (measured alive).

Air temperature near Peterson's Pond was observed to be 9.4°C shortly after the capture of the *E. v. vulpina*, but the thermometer was not shaded and not of scientific quality. Maximum and minimum temperatures on 17 February 1991 were +6.7 and -3.3°C respectively, recorded at the Illinois State University weather station in Normal, Illinois, some 16 km to the south of Peterson's Pond. For the five days preceding 17 February 1991, the mean minimum temperature was -12.6°C (range was -3.3 to -17.8°C). Mean maximum temperature for the same five days was -1.2°C (range was +3.9 to -11.7°C). Maximum temperature was above 0°C on only two of the five days. On 12 and 14 February 1991, trace amounts of snow were recorded at the Illinois State University weather station. However, on 15 February 1991, 1.8 cm of snow fell with 40.2-48.3 km/hour winds resulting in poor visibility and blizzard-like conditions. By the afternoon of 17 February 1991 most of the snow on the ground near Peterson's Pond had melted but some patches remained from the snowfalls of 15 February 1991 and earlier dates. The ground was still frozen except for about 1 cm which had thawed on the surface. The pond ice had been measured on 11 February 1991 and was 45.7 cm thick.