

PSEUDEMYNS CONCINNA (river cooter): UK ALIEN SPECIES. The farming and export of *Trachemys scripta elegans* for the pet trade and subsequent releases into the wild have been a concern for environmentalists for many years. Releases have resulted in the establishment of feral populations across the globe, including the UK. As a consequence *T. s. elegans* has been identified as one of the world's top 100 invasive species (Lowe et al., 2000). In 1998 the UK government banned *T. s. elegans* imports but other species (or subspecies), including several types of sliders (*T. s. scripta* and *T. s. troosti*) and river cooter (*Pseudemys concinna*) continue to be imported. Although *T. s. elegans* is apparently unable to reproduce successfully in the UK it can persist for many years and sightings of feral terrapins in northern areas of the UK usually concern only this species (RM pers. obs.). This note reports on a sighting of a different terrapin species in northern England.

On 28 July 2011 one of us (JSB) photographed a terrapin basking near the edge of the Leeds/Liverpool Canal near Saltaire (53°50'N). The weather was sunny and warm and the selected basking site was a log in a semi-shaded area (Fig. 1 above). The terrapin had been seen swimming in the canal some weeks earlier and had an estimated straight-line carapace length of approximately 28 cm and would hence be an adult. It was seen again on 21 August at 08:20 emerging onto the same log to bask. It quickly returned to the water at the approach of cyclists but by 09:12 was back basking on the log. Further observations of basking were made at the same location on 22 August at 02:45 when water temperature was 18.6°C and the air temperature 15.5°C. A further sighting on 4 September, during mainly overcast weather, enabled a photograph of the neck markings (Fig. 1 below).

The canal is frequently used for pleasure boating, disturbing its muddy base, which may explain why the shell pattern is not particularly distinct and appears to differ daily. Wide yellow stripes on the underside of the neck with the central chin stripe dividing to form a Y-shaped mark, and notching at the rear of the carapace indicate it is a river cooter *P. concinna* from the eastern USA (Ernst & Lovich, 2009).

The tail and front claws are short suggesting it is female.

River cooters are mainly herbivorous as adults and capable of hibernating at the bottom of ponds for several months (Ernst & Lovich, 2009) and hence have the potential to survive for long periods in the UK. Non-native species may disrupt ecological systems by predation or through competitive exclusion, but the numbers



Figure 1. First sighting on 28 July shows what appears to be a carapace covered in silt (above). Neck markings are those of a river cooter, which is supported by the serrations at the rear of the carapace (below).

of *P. concinna* imported are small compared to the former trade in *T. s. elegans* hence they may not present the same level of threat. However, their influence on UK ecosystems is unknown.

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RANA SYLVATICA (wood frog): LARVAL DURATION. *Rana sylvatica* is a widespread North American frog that breeds primarily in ephemeral wetlands in early spring. The duration of the larval period varies among populations and is influenced by temperature, latitude, altitude, density and pond-drying. Time to metamorphosis is a highly important life history trait in this species, as ephemeral wetlands typically dry by mid-summer in the eastern United States. Wood frog tadpoles that do not complete metamorphosis before pond-drying perish. In 2010 and 2011, I collected wood frog egg masses (total n = 33) from Pennsylvania Game Lands #176, Centre County, Pennsylvania, USA, and raised a subset of tadpoles from each clutch to metamorphosis in the laboratory. I observed a mean larval duration of 62.2 days \pm 0.65 SE for a total of 564 tadpoles that survived to metamorphosis, with larval duration ranging from 34 to 118 days.

One tadpole (not included in the above average) spent 147 days (almost five months) in the larval phase before metamorphosing. This tadpole hatched in the laboratory on 4 April 2011, sprouted one hind limb on 26 August and the second hind limb on 28 August 2011, thus completing metamorphosis approximately three months later than the average tadpole in our study population. At metamorphosis, this individual had a snout-vent length of 11 mm and was 0.612 g, which was close to the averages of other individuals at metamorphosis in this population. Although all

tadpoles were raised in the laboratory under a constant temperature (22.2°C), the majority of tadpoles completed metamorphosis before their respective ponds dried in the field. The larval duration of this unusual tadpole even exceeds by 14 days the maximum duration of a high-altitude population in the Shenandoah Mountains, Virginia, where larval duration is typically very long, ranging from 82 to 133 days (Berven, 1982). This intra-population variation is notable in a species with strong selection on larval duration due to pond-drying. This specimen will ultimately be deposited in the Langkilde Laboratory, Penn State University, Pennsylvania, with a voucher number of 1:1.5H.28 Aug 11.

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RHINELLA GRANULOSA and **PHYSALAEMUS KROYERI**: INVERTEBRATE DYTISCID PREDATORS. The dytiscid family of predatory water beetles comprises a large number of species distributed almost worldwide. It includes some of the main predators of adults and larvae of several anuran species, as reported by researchers since 1960s (see Wells, 2007). Dytiscids are important predators of adults and larvae of anurans (Rubbo et al., 2006; Wells, 2007), playing a fundamental role in the demographic control of amphibian populations (Ideker, 1979; Formanowicz, 1986; Holomuzki, 1986). In addition to anurans, the diet of adults and larvae of dytiscid beetles includes invertebrates (e.g., molluscs, crustaceans, insects, and leeches) and vertebrates such as small fish.

In the present study, we report two events of anuran predation by dytiscids: adults of *Megadytes*