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CLEMMYS INSCULPTA (Wood Turtle). **HATCHING FAILURE.** Hatchlings of many turtle species, instead of hatching and emerging from the nest before winter, may overwinter in the nest and emerge the following spring (Gibbons and Nelson 1978. Evolution 32:297–303). Wood turtle *(Clemmys insculpta)* hatchlings are not known to delay emergence and overwinter in the nest (Harding and Bloomer 1979. Bull. New York Herpetol. Soc.15:9–26; Lovich et. al. 1990. Can. J. Zool. 68: 672–677). This assertion is based on abundant records of wood turtle hatchlings emerging from nests in the months of August through October, and no records of hatching or recent hatchlings in spring or early summer. Here, we report that wood turtle embryos in a natural nest did not complete development before winter in a cool year and did not survive over winter.

On 15 June 1993, we observed a wood turtle creating a nest in St. Louis County, Minnesota, USA. The nest was located on a sandy cutbank, 3 m from the main channel of a river and 2 m above water, and on a fully exposed site with a 34° slope and southwestern aspect. Herbaceous cover surrounding the nest site was 50% red raspberry *(Rubus idaeus)*. We checked the nest site on 29 September, 5 October, 15 October, and 21 October 1993, and found no evidence of disturbance on the nest surface. We excavated the nest on 21 October 1993 and counted 11 eggs; 10 appeared viable and one was shriveled. One of the 10 apparently viable eggs was accidentally slit during excavation. This egg contained a live turtle embryo. This egg and the nine good eggs were returned to the nest cavity and recovered with sand. A wire basket was staked over the nest to exclude nest predators.

We revisited the nest on 9 May 1994, and found it and the basket exclosure intact. We removed the 10 eggs, some of which now appeared dead, placed them in moist sand, and transported them to a facility where they were stored at room temperature. On 9 June, we slit the shell of each egg and examined each embryo for signs of life but found none. One badly deteriorated egg was discarded. The nine remaining eggs were preserved in formalin. Upon close examination at a later date, all eggs appeared to have been decayed at the time of preservation. Two eggs lacked any evidence of development. These eggs could have been infertile, or their embryos could have died in the oviducts prior to laying. One egg appeared to contain an early embryo; however, it was too decayed to locate with precision. The egg appeared to have a subgerminal space, which is characteristic of fertile eggs. Two eggs contained Yntema stage 24 embryos, which are advanced but smaller than term embryos and probably incapable of surviving a premature hatching. The remaining four eggs contained stage 25 embryos; that is, they were very close to term size and almost ready to hatch and leave the nest.

Weather records were available from a nearby station for the period 1986 to 2001. Air temperatures from May through September in 1992 and 1993 were the coldest for this period. In 1993, most nests were constructed during the second week of June, many hatchlings did not leave their nest until the last half of September, and hatchlings from two nests left their nests during the first two weeks of October. Compared to other nests on the cutbank, the single nest we report on was clearly late in completing incubation. Inspection of photographs showed that this nest site had the most herbaceous vegetation near the nest site. Thus, in addition to 1993 being a cool year for incubation, this nest site was probably more shaded than all other nest sites.

Our observations of at least one live embryo on 21 October, as well as six advanced-stage embryos the following spring, suggest that 6 of the 10 eggs narrowly missed hatching before winter. Furthermore, the appearance of eggs in fall and the following spring, and their state of decay on 9 June suggest that none were alive by spring. Thus, overall, our observations corroborate other evidence, which suggests that wood turtle embryos must complete development and leave their nest before onset of winter to survive in more northern latitudes.

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EMYDOIDEA BLANDINGII (Blanding's Turtle). **MAXIMUM SIZE.** The maximum straight line carapace length (CL) for *E. blandingii* reported is 27.4 cm (Ernst et al. 1994. Turtles of the United States and Canada. Smithsonian Institution Press, Washington. 578 pp.). Here, we report on the measurement of a larger individual. On 10 June 2001, an adult male *E. blandingii* was captured during a herpetological species inventory survey in Lake Maria State Park, Wright County, Minnesota, USA. The turtle was measured at 28.4 cm CL. The turtle was marked and released after data was taken. A slide of the record is deposited in the James Ford Bell Museum, University of Minnesota, Minneapolis (accession no. P-248).

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GOPHERUS BERLANDIERI (Texas Tortoise). **MORTALITY.** During mammalian wildlife research on ranches in Webb County, Texas (Engeman et al. 2002. Wildl. Res. 29:85–90), we observed two common sources of mortality for *Gopherus berlandieri* (listed as a threatened species in Texas) based on locations of shell remains. First, the ranches had a network of primary dirt roads criscrossed by smaller one-lane roads/tracks. Shell remains (often in poor condition) were frequently discovered adjacent to the roads in this network, suggesting collisions with vehicles as the source

of mortality. Vehicles have been well-documented as hazards for the related *G. agassizii* (e.g., Luckenbach 1982. *In* Bury [ed.], North American Tortoises: Conservation and Ecology, pp. 1–38, USFWS Wildl. Res. Rpt. 12; Boarman and Sazaki 1996. *In* Evink et al. [eds.], Trends in Addressing Transportation Related Wildlife Mortality, pp. 179–184, State of Florida Dept. Transportation, Tallahassee, Florida). The other common location for discovery of tortoise shell remains was along fences constructed with woven field fencing at the bottom. The tortoises apparently became entangled in the fence wires and were unable to free themselves. We observed no shell remains away from these human constructions, despite extensive work in natural habitat.

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HEOSEMYS GRANDIS (Giant Asian Pond Turtle). **ANOPHTHALMIA**. Abnormalities and malformations are well documented in turtles from some regions but not others, especially Asia. Most reports are on shell deformities (e.g., Lynn, 1937. Amer. Nat. 71:421–426; Nixon and Smith 1949. Turtox News 27:28–29; Rhodin et al. 1984. Brit. J. Herpetol. 6:369–373; Saumure 2001. Chelonian Cons. Biol. 4:159). Others refer to abnormalities of the head, limbs, and shells of hatchlings (e.g., Ewert 1979. *In* Harless and Morlock [eds.], Turtles: Perspectives and Research, pp. 333–413, Wiley InterScience, New York). A large sample of *H. grandis* was among the 10,000 turtles putatively from Malaysia that was confiscated by Hong Kong authorities on 11 December 2001. Approximately 3900 turtles were shipped to the United States in January 2002 for processing and distribution to rescue centers, zoos, veterinarians, and university research programs (Hudson and Buhlmann 2002. Turtle and Tortoise Newslett. 6:11–14). A total of 355 *H. grandis* was received in the three shipments (Ades and Crow 2002. Turtle and Tortoise Newslett. 6:2–7). During the triage, marking, and measuring process we discovered that one unsexed adult (347 mm CL, 299 mm PL, 5.7 kg, marked 289) was missing its right eye. The abnormality appears to be congenital, as normally pigmented skin lies over the orbit and there was no evidence of injury or loss (Fig. 1). Palpation revealed the bony orbit but no eye mass. This is the first report of natural anophthalmia for this poorly known freshwater turtle.

FIG. 1. *Heosemys grandis* exhibiting congenital anophthalmia.

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PHRYNOPS GIBBUS (Gibba Turtle). **TRAP-HAPPY BEHAVIOR.** Most estimates for determining the size of a population using mark-recapture methods assume equal capture probability among individuals. Behavioral differences between or within species or flawed trap design or placement might bias sampling with regard to this assumption (Lindeman 1990. J. Herpetol. 24:78–81). Kazmaier et. al. (2001. J. Herpetol. 35:410–417) attributed a shift from biased to unbiased captures of *Gopherus berlandieri* from early to late summer to sexual differences in reproductive behaviors. Sampling biases have been reported in studies of *Chrysemys picta* (Ream and Ream 1966. Amer. Midl. Nat. 75:325–338; Frazer 1990. Copeia 1990:1150–1152) and *Terrapene carolina* (Langtimm 1996. Herpetologica 52:496–504). Koper and Brooks (1998. Can. J. Zool. 76:458–465) identified flaws in several different sampling techniques and population size estimators, and found no method that was completely unbiased.

The present study documents an apparent example of extreme trap-happy behavior, i.e. where previously-marked individuals are

TABLE 1. Dates of capture and recapture in 2001, sex, carapace length, and plastron length, for an Ecuadorian population of *Phrynops gibbus*.

	Sex	Carapace length (mm)	Plastron length (mm)	Date of first capture	Date(s) of recapture
Turtle #1	female	165	135	21 Jan	19 Feb
Turtle #2	male	163	143	21 Jan	23 Jan, 31 Jan, 4 Feb, 10 Feb, 22 Feb
Turtle #3	male	206	177	21Jan	10 Feb
Turtle #4	male	192	167	29 Jan	2 Feb, 8 Feb, 17 Feb
Turtle #5	female	185	159	10 Feb	