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CHRYSEMYS PICTA MARGINATA (Midland Painted Turtle). **RETICULATE MELANISM**. Reticulate melanism (RM) in painted turtles refers to a netlike or vermiculate pattern of black markings on the carapace, found in addition to any normal carapacial patterns. The pattern was first reported by Smith et al. (1969. J. Herpetol. 3:173–176) as occurring occasionally in adult male western painted turtles (*Chrysemys picta bellii*) from North Dakota. Ernst and Ernst (1972. J. Minnesota Acad. Sci. 38:77–80) found RM in six male and three female *C. p. bellii* from Lake Shetuck in Minnesota, MacCulloch (1981. J. Herpetol. 15:181–185) noted the pattern in Canadian *C. p. bellii*, and Schueler (1983. Blue Jay 41:83–91) added that Canadian *C. p. bellii* with carapacial RM also typically have the dorsal head stripes interrupted by a reticulate or vermiculate pattern. Stuart (1998. Herpetol. Rev. 29:80–82) found RM to be common in, and restricted to, male *C. p. bellii* from New Mexico, with a developmental sequence of cephalic RM appearing initially, followed by a progressive anterior-to-posterior spread of carapacial RM.

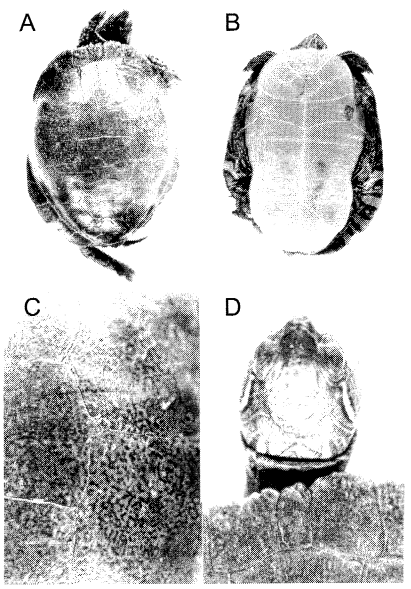

FIG. 1. A female midland painted turtle (*Chrysemys picta marginata*) collected in Shiawassee County, Michigan, in July, 1998. A. dorsal view, showing vermiculate patterning on entire carapace; B. ventral view, showing lack of typical plastral patterning of *C. p. marginata*; C. close-up of upper right quadrant of carapace, showing details of melanistic patterning; D. dorsal aspect of head, showing lack of reticulate or vermiculate pattern.

All reports of RM have been for *C. p. bellii*, and all except that of Ernst and Ernst (*op. cit.*), have found it only on adult males. Here I report a pattern resembling RM in a female *Chrysemys picta marginata* (14.1 cm straight-line carapace length, Fig. 1A). The animal (deposited at the Florida Museum of Natural History, UF 116102) was the only one of 86 turtles collected in 1998 in Shiawassee and Clinton Counties, Michigan (USA), to display this pattern. It had a typical *C. p. marginata* degree of disalignment of carapacial scutes (90.1%, using the method of Hartman 1958. Copeia 1958:261–265), but lacked the usual plastral patterning (Fig. 1B); however, the lack of a plastral pattern is not unusual in *C. p. marginata*: seven others in this sample also lacked a plastral pattern. The RM occurred on the entire carapace (Fig. 1A), and is perhaps more aptly termed vermiculate than reticulate (Fig. 1C). There was no clear evidence of cephalic RM (Fig. 1D).

This is apparently the first report of RM in a subspecies of *Chrysemys picta* other than *bellii*, and the only one other than that of Ernst and Ernst (*op. cit.*) for a female. In a study in progress, we have seen RM in other *C. p. bellii*, but we have not seen it in *Chrysemys picta picta* (29 from Massachusetts, 12 from Rhode Island, 107 from Connecticut, 28 from Virginia, 21 from North Carolina, 29 from South Carolina, 44 from Georgia), *C. p. dorsalis* (15 from Mississippi, 38 from Louisiana, 5 from Arkansas), or other *C. p. marginata* (24 from Michigan, 9 from Ohio, 4 from Tennessee).

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CLEMMYS INSCULPTA (Wood Turtle) and ***EMYDOIDEA BLANDINGII*** (Blanding's Turtle). **HYBRIDIZATION.** Intergeneric hybridization in turtles is apparently uncommon; most reported instances have occurred under captive conditions (Fritz 1995. Herpetofauna 17:19–34). Here we report repeated occurrences of hybridization between the emydine turtles *Clemmys insculpta* and *Emydoidea blandingii* in a semi-natural enclosure.

In August 1997 a clutch of 12 hatchling turtles was discovered during the examination of a prepared sand nesting mound within a 0.1 ha research enclosure in Ingham County, Michigan, USA. The enclosure includes a 670 m^2 pond with an average depth of about 1 meter. A variable number of freshwater turtles are maintained within this enclosure; these include research specimens as well as several donated specimens of pet trade or unknown origin, used for educational purposes. In spring of 1997 this population included four mature *Clemmys insculpta* (one male and three females) and two mature *Emydoidea blandingii* (one male and one female), as well as various deirochelines (*Chrysemys, Pseudemys, Graptemys*) and several *Sternotherus odoratus*. The male *Clemmys insculpta* had previously lost two limbs and had suffered severe damage to its cloaca and penis in a raccoon attack; it was assumed to be incapable of reproduction.

The hatchling turtles were recognized to be anomalous based on coloration and details of morphology; a hybridization event was suspected but could not be confirmed based on external morphology. Tissues of one hatchling (killed accidentally during nest excavation) were subjected to DNA analysis (by SKD at Texas A&M University). Comparison of mitochondrial DNA confirmed that the mother of the hatchlings had been *Clemmys insculpta*. Paternity was resolved by using the microsatellite method (Weber and Wong 1993. Hum. Mol. Gen. 2:1123–1128); this confirmed that the clutch had been fathered by an *Emydoidea blandingii*.

In June 1998 one of the captive female *C. insculpta* deposited a clutch of 12 eggs in the enclosure. Hatchlings resulting from this nesting were also obvious hybrids. It is presently unknown whether the 1997 and 1998 clutches shared the same mother. The presumed father (*Emydoidea blandingii*) of the 1997 clutch had been released in June 1997, and a second male *E. blandingii* had been present for

about three weeks in May 1998. Thus, the 1998 hatchlings were either fathered by a different *E. blandingii* than the 1997 hatchlings, or were the result of long-term sperm storage in the female *C. insculpta*, a phenomenon presently unreported for this species, but known in *Emydoidea* (unpublished data).

The hybrid turtles display coloration and morphology that can be interpreted as intermediate between parental species, as well as features that may be unique: the hatchling carapace is light tan to dark brown, mottled with black pigment, and is keeled, broad but slightly elongate, with posterior marginal serrations; the lateral sutures of the first vertebral scute are nearly aligned with the lateral sutures of the first anterior marginal scutes; the terminus of the upper jaw is weakly notched, without cusps; the head is black or brown above, prominently marked with lateral and descending tan or yellow stripes and blotches; there is a large light spot or blotch on each side of the neck; the throat is pale yellow, invaded by dark striping. With growth, the carapace tends to elongate and darken, while becoming heavily flecked with yellow; the chin and throat become mostly yellow; and the soft skin on the neck and under the legs becomes a darker yellow-orange. The post-hatchling plastral pattern is yellow with black lateral blotches, a trait shared by both parental species. Hybrid specimens are being captive-raised to investigate questions about adult coloration and morphology, possible plastral hinge development, fertility, sex determination, and behavior.

We speculate that hybridization between *Clemmys insculpta* and *Emydoidea blandingii* could occur under natural conditions, as they are sympatric over portions of the Upper Great Lakes region. While *C. insculpta* prefers lotic habitats, as opposed to the lentic tendencies of *Emydoidea*, one of us (JHH) has frequently noted each species in habitat more typical of the other.

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PHRYNOPS WILLIAMSI (Williams' Side-necked Turtle). **PREDATION**. The mayuato, *Procyon cancrivorus,* is a nocturnal mammal (Carnivora: Procyonidae) that feeds mainly on crabs, fish, insects, molluscs, amphibians, and occasionally on fruits (Bisbal 1986. Mammalia 50:329–339; Emmons 1990. Neotropical Rainforest Mammals. Univ. of Chicago Press, Chicago, Illinois. 281 pp.). Individual mayuatos eat in specific places called rompederos, which are normally located on the banks of rivers and streams, and are so characteristic that they can be used to confirm the presence of this species in an area. On 9 June 1993, one of us (SB), travelling along a river at Iguazú National Park (25°39'S, 54°20'W) in Misiones Province, Argentina, found crabs and portions of the shell of a juvenile turtle (est. one year of age), identified as *Phrynops williamsi,* in the rompedero of a mayuato. As far as we know, this is the first account of mayuatos feeding on turtles. The reference material is housed at the Herpetological Collection, Fundación Miguel Lillo (FML 07764). The identification of the turtle was verified by Gustavo Scrocchi (FML).

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TRACHEMYS GAIGEAE (Big Bend Slider). **ENDOPARASITES**. In the only study of parasites of *Trachemys gaigeae*, McAllister et al. (1995. J. Parasitol. 81:804–805) reported seven species of *Eimeria* (Apicomplexa: Eimeriidae) from turtles collected at Bosque del Apache National Wildlife Refuge, Socorro Co., New Mexico, USA (33°48'N, 106°53'W). Herein we report two species of helminths from a *T. gaigeae* taken in the same study area.

On 1 August 1996, a previously-marked *T. gaigeae* (immature female; 182 mm maximal straight-line carapace length, SCL; 790 g) was found drowned in a hoop trap in a pond that was ca. 1 m deep. The specimen was frozen and later dissected, at which time the stomach, intestines, kidneys, and lungs were removed and examined for helminths. The contents of the gastrointestinal tract (mostly filamentous algae, with fragments of aquatic insects, crayfish, and aquatic vascular plants) were also examined. Helminths were found only in the small intestine and included the digenetic trematode *Telorchis corti* (N = 11) and the spirurid nematode *Serpinema trispinosum* (N = 2 females). Trematodes were fixed in 10% buffered formalin, stained with Semichon's aceto-carmine, dehydrated in an alcohol series, mounted in Canada balsam, and identified using characteristics in MacDonald and Brooks (1989. Can. J. Zool. 67:2301–2320). Nematodes were cleared with lactophenol and identified using characteristics in Baker (1979. Can. J. Zool. 57:934–939) and Moravec and Vargas-Vázquez (1998. J. Nat. Hist. 32:455–468). Voucher specimens are deposited in the U.S. National Parasite Collection (Animal Parasitology Institute, Beltsville, Maryland, USA) as USNPC 88139 (*T. corti*) and 88140 (*S. trispinosum*). Both helminths are the first records for *T. gaigeae* and for New Mexico.

The *T. gaigeae* (University of New Mexico Museum of Southwestern Biology, MSB 60413) was first captured and released in a pond ca. 200 m from her drowning site on 19 July 1994 when she was 122 mm SCL and 228 g. A fecal sample obtained at that capture included six species of *Eimeria* (McAllister et al. 1995, *op. cit.*).

Telorchis corti parasitizes many turtle species, including emydids (Ernst and Ernst 1977. Bull. Maryland Herpetol. Soc. 13:1–75); metacercariae occur in aquatic snails, fingernail clams, and amphibian larvae. *Serpinema trispinosum* parasitizes Nearctic turtles (Baker 1979, *op. cit.*); paratenic hosts include lymnaeid snails and fish (Bartlett and Anderson 1985. J. Invert. Pathol. 46:153–159; Moravec et al. 1998. J. Parasitol. 84:454–456). *Trachemys gaigeae* is an omnivore and scavenger (JNS, pers. obs.), and probably consumes various potential intermediate and paratenic hosts for these helminths.

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