***HARDELLA THURJII* (Crowned River Turtle). BASKING BEHAVIOR.** Within its range in India, Bangladesh, Nepal, and Pakistan, *Hardella thurjii* is known to inhabit deeper sections of slow-flowing water bodies such as rivers, pools, canals, ponds, and oxbow lakes (Das 1995. Turtles and Tortoises of India. World Wide Fund for Nature – India, Oxford University Press, Bombay, India. 176 pp.). Generally, turtles bask as a thermoregulatory mechanism (among other reasons), absorbing heat from both sunlight and the substrate on which they bask. However, *H. thurjii* is highly aquatic and unlike most other chelonians they are not typically observed coming out from the water to bask (Minton 1966. Bull. Am. Mus. Nat. Hist. 134:27–184; Das 1995, *op. cit.*). Evidence suggests that this species thermoregulates by surface basking, absorbing the needed solar radiation by floating close to, or at, the surface of the water. In a report contrary to evidence suggesting that this species does not bask aerially, Sarkar and Hussain (1997. *In* Van Abbema [ed.], Proceedings: Conservation, Restoration and Management of Tortoises and Turtles: An International Conference, pp. 290–294. New York Turtle and Tortoises Society, New York, New York) reported that in Bangladesh, *H. thurjii* use riverbanks and newly emerged islands for basking. However, these authors appear to have lumped *H. thurjii* together with other species well-known to bask on riverbanks, such as the Indian Tent Turtle (*Pangshura tentoria*) and the Brown Roofed Turtle (*P. smithii*); it was unclear if thermoregulatory emergence of *H. thurjii* had been confirmed. Aerial basking behavior for the species was not observed in the Ganga, Chambal, and Gomti Rivers (SS, pers. obs.). Other than a few images from a commercial website showing *H. thurjii* males basking on fallen branches in Keoledo Ghana National Park, Bharatpur Rajasthan, no additional reports or information on basking behavior for the species are available.

Here we report thermoregulatory emergence and aerial basking observations of four male *H. thurjii* from Golwaghat, along the Lower Sarju River in Bahraich, Uttar Pradesh, India. The river is highly polluted, as sewage from the Bahraich District drains into the river in this area, yet a viable population of *H. thurjii* exists here. On 19 June 2019 at 1030 h we observed a single male *H. thurjii* on a rock along the side of the river near the Golwaghat Bridge (Fig. 1). The individual was motionless, with its head extended while the posterior portion of the animal was partially submerged in the river. At the time of observation, the weather was cloudy, and the air temperature was 27°C. The turtle continued basking until 1042 h, when it retreated into the river.

On the same day, while conducting surveys further downstream at 1300 h, three more adult males were found competing for basking space. This site was surrounded by agricultural fields, and unlike the site of the previous observation, this section of the river is choked with aquatic vegetation. When first encountered, we observed one male sitting on a plastic sack, which was stuck inside the thick aquatic vegetation. Shortly after we began observing, two more individuals climbed onto this same platform. A slight struggle ensued for ca. 3 min, when one of them slipped back into the river, leaving the other two to bask on the sack (Fig. 2). They were basking in full sunlight with an air temperature of 32°C. At ca. 1312 h both the turtles slipped back into the river.

Once considered an abundant species throughout much of its range, *H. thurjii* has greatly declined and is now proposed for endangered status by the IUCN (Turtle Taxonomy Working Group 2017. *In* Rhodin et al. [eds.], Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelon. Res. Monogr. 7:1–292). With this species' biology poorly understood, additional research is needed on its status and biology to better understand its conservation needs. Our observations and previous findings indicate that aerial basking in *H. thurjii* is male biased, warranting further study to better understand how basking is related to factors such as body size, substrate type, season, and sex of the species.

PHOTO BY SREEPARNA DUTTA

Fig. 1. A male *Hardella thurjii* observed basking on a rock in the Lower Sarju River, near Golwaghat, Uttar Pradesh, India.

PHOTO BY SREEPARNA DUTTA

Fig. 2. Two male *Hardella thurjii* observed basking on a plastic sack stuck in thick vegetation along the Lower Sarju River, near Golwaghat, Uttar Pradesh, India.

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***HEOSEMYS SPINOSA* (Spiny Hill Turtle). DIET.** *Heosemys spinosa* has been described as primarily herbivorous (Lim and Das 1999. Turtles of Borneo and Peninsular Malaysia. Natural History

Fig. 1. Female *Heosemys spinosa* with fungal spores in facial region in the proximity of mushrooms of the genera *Boletus* (A–B) and *Russula* (C–D).

Publications [Borneo], Sdn. Bhd., Kota Kinabalu. xii + 151 pp.; Goetz 2007. Radiata 16:1–15), but there is little published information on the wild diet of the species. From August to October 2018, observations were made at Kubah National Park, Sarawak (Borneo). Two females were encountered feeding on mushrooms, identified as *Boletus* sp. (Fig. 1A, B) and *Russula* sp. (Fig. 1C, D), based on the morphology of the cap. *Boletus* (family Boletaceae) is a fungus genus with over 100 described species, four of which (*B. ananas*, *B. aurisporus*, *B. mirabilis*, and *B. nanus*) have been recorded from the Park (Clifton 2017. B.Sc. Dissertation, Universiti Malaysia Sarawak, Kota Samarahan. 45 pp.). The second genus, *Russula* (family Russulaceae), is an ectomycorrhizal mushroom, with around 750 species, with few published data on its Bornean representatives, and complex taxonomic issues regarding its contents worldwide (Miller and Buyck 2002. Mycol. Res. 106:259–276).

Additionally, fecal content analysis recorded five different seed types, suggestive of a potential role played as a seed dispersal agent, seed size range being 500 µm to 20 mm. The largest seed was collected from an adult male of 201 mm carapace length. Apart from plant matter, the fecal contents from seven individuals (four females, three males) obtained from March 2017 to December 2018 included arthropods, including representatives of the orders Odonata, Diplopoda, Lepidoptera, and Coleoptera, the latter being the most abundant. A strand of hair was also found in a sample, suggestive of opportunistic scavenging on mammals, as reported by Jensen and Das (2006. Herpetol. Rev. 37:458).

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***KINIXYS ZOMBENSIS* (Southeastern Hinge-back Tortoise). INJURY.** Chelonians worldwide are exposed to natural and anthropogenic threats throughout their lifespan. These can include

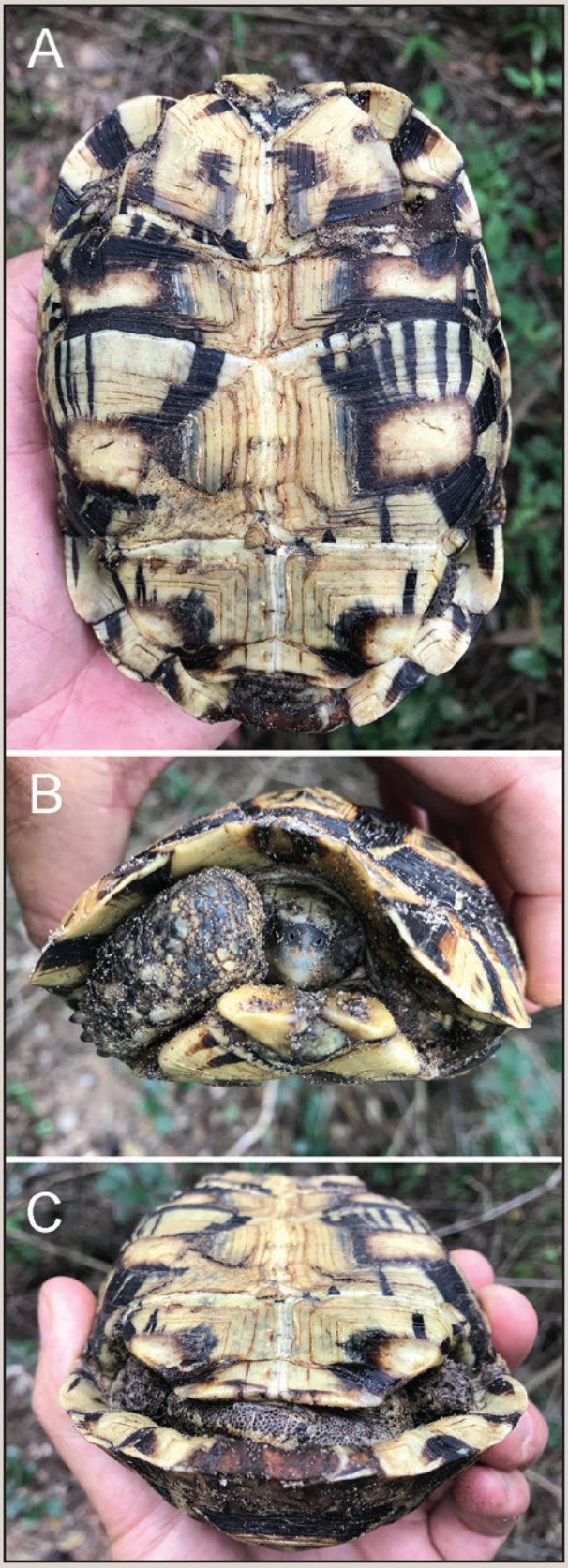

Fig. 1. A) Plastral view of *Kinixys zombensis* from South Africa showing injuries from presumed predation attempt; B) anterior view showing missing limb and reduced limb opening; C) posterior view showing missing limb and slightly reduced limb opening.