HEMIDACTYLIUM SCUTATUM (Four-toed Salamander) **NESTING ECOLOGY**. Little is known about the nesting ecology of *Hemidactylium scutatum* in Wisconsin (Vogt 1981. Natural History of Amphibians and Reptiles of Wisconsin. Milwaukee Public Museum). During late May and early June 2002, we conducted surveys for nesting *H. scutatum* at three separate ponds at The Ridges Sanctuary and Toft Point State Natural Area (hereafter RS-TP) in Door County, Wisconsin, USA (T30N R28E Secs 3, 4, 9, 10, 15, 16, 17, 21, 22). Dominant woody vegetation surrounding the ponds included White Cedar (*Thuja occidentalis*), Paper Birch (*Betula papyrifera*), Tamarack (*Larix laricina*), Black Spruce (*Picea mariana*), Eastern Hemlock (*Tsuga canadensis*), and Speckled Alder (*Alnus rugosa*). Emergent vegetation within the ponds included Cattail (*Typha latifolia*), sedges (*Carex* sp.), and Marsh Marigold (*Caltha palustris*). All ponds had considerable moss (mostly *Sphagnum* sp.) growth along their perimeters.

The nest survey consisted of searching mosses, moss-covered islets, sedge mats, and fallen logs along the margins or within the ponds. Once a nest was located, we recorded the vertical position of the nest in relation to the water surface, the water depth (cm) below the nest, the snout–vent length (SVL) (mm), and total length (TL) (mm) of all females present, and the number of eggs. We classified nests into four categories based on the nest forms described by Breitenbach (1982. J. Herpetol. 341–346). Nest forms included: 1) solitary, 2) solitary with neighboring nests on the same islet, 3) double (eggs of no more than two females), and 4) multiple (eggs of three or more individuals). Solitary nests were defined as having no more than 40 eggs, all of which were the same stage of development. Double nests were defined as having between 41–79 eggs, whereas multiple nests were defined as having greater than 80 eggs. We considered double and multiple nests to be joint or communal.

Thirty *H. scutatum* nests were located within cavities in moss. No nests were located in sedge mats or decaying logs. Nests were positioned between 7–19 cm (mean 12.87, SD 3.81) above the water surface. Water depth below the nest ranged from 1.5–12 cm (mean 7.76, SD 3.28). Fifteen of the 30 nests had a female attendant at the time of discovery. No more than one female was found in any nest. Female SVL ranged from 33.26–43 mm (mean 36.46, SD 2.47 mm) and TL ranged from 65.66–94.96 mm (mean 84.49, SD 8.06 mm). The total number of eggs per nest ranged from 17–200 (mean 51.30, SD 37.02). Of the 30 nests found, the majority were classified as either solitary (40%) or double (37%). Four nests were solitary with neighboring nests on the same islet, and only three nests were considered multiple. The three multiple nests contained 100, 115, and 200 eggs and all lacked a female guardian. Approximately 46% of nests were considered joint.

Nest searches at RS-TP provided the first site examination of nesting *H. scutatum* in Wisconsin. The relative frequency of joint nesting during Spring 2002 at RS-TP was higher than most published accounts (Gilbert 1941. Copeia 1941:47; Wood 1953. Amer. Nat. 87:77–86; Harris and Gill 1980. Herpetologica 36:141–144.; Breitenbach 1982. J. Herpetol. 16:341–346), however Blanchard (1934. Copeia 1934:137–138) found 61% of nests in a Michigan population to be communal. This research was funded by The Ridges Sanctuary and Cofrin Center of Biodiversity, University of Wisconsin-Green Bay.

Submitted by **STEVEN J. PRICE** and **JEANETTE M. JASKULA**, Cofrin Center for Biodiversity MAC 212, University of Wisconsin-Green Bay, 2420 Nicolet Rd., Green Bay, Wisconsin 54311, USA.

HEMIDACTYLIUM SCUTATUM (Four-toed Salamander) **TERRESTRIAL MICROHABITAT.** Although *Hemidactylium scutatum* spends the majority of its life on the forest floor, few studies have focused on their terrestrial microhabitat preferences outside of the nesting season. Between August and late October 2001, we located *H. scutatum* during the day by searching 10 m^2 quadrats in a mature upland conifer forest at Toft Point State Natural Area in Door County, Wisconsin, USA (T30N R28E Sec 16). Each quadrat was searched for 15 min by both researchers and consisted of investigating cover objects (coarse woody debris, leaf litter, rocks, and decaying stumps). Once a specimen was found, we recorded the vertical position of the salamander (subsurface, surface under shelter, or exposed), the substrate immediately below the salamander (moss, soil, decaying wood, or leaf litter), and other amphibian species present within the quadrat.

Searches of 105 quadrats revealed the presence of 22 *H. scutatum*. Twelve (55%) were found on the surface under shelter, 8 (36%) were found beneath the soil surface, and only 2 (9%) were found exposed on the surface. Most subsurface encounters occurred when examining the contents of rotten stumps. The substrate directly beneath 10 (45%) salamanders was organic soil, decaying wood was found under 5 (23%), leaf litter under 4 (18%) and moss under 3 (14%). Other amphibians found during surveys included *Pseudacris crucifer*, *Rana sylvatica*, *Ambystoma laterale*, and *Plethodon cinereus*. The Chi-square test of independence ($\alpha = 0.05$) revealed that *H. scutatum* was positively associated with all species except *Plethodon cinereus*. Our research supports the observations of Schaaf and Moore (1969. J. Herpetol. 3:180), Vogt 1981. Natural History of Amphibians and Reptiles of Wisconsin. Milwaukee Public Museum) and others, which suggest that *H. scutatum* spends its time outside the breeding season beneath cover objects on the forest floor or becomes fossorial. The Cofrin Center of Biodiversity, University of Wisconsin-Green Bay funded this research.

Submitted by **STEVEN J. PRICE** and **JEANETTE M. JASKULA**, Cofrin Center for Biodiversity MAC 212, University of Wisconsin-Green Bay, 2420 Nicolet Rd., Green Bay, Wisconsin 54311, USA.

ANURA

BUFO FOWLERI (Fowler's Toad). **PREDATION**. In Canada, *Bufo fowleri* occurs in three disjunct populations (Rondeau, Long Point, and the Eastern Basin, largely encompassed by Niagara County). This disjunct distribution and fluctuations in abundance have resulted in the Committee on the Status of Endangered Species (COSEWIC) listing *B. fowleri* as a Threatened species. As a Threatened species, knowing potential sources of predation is especially important. Here we report the predation of a juvenile *B. fowleri* by two Ring-Billed Gulls (*Larus delawarensis*) in James N. Allan Provincial Park, Ontario, Canada within the Niagara region (N42.848 W079.664).

During the late afternoon of 16 Aug 2003 while conducting a

survey of toadlet abundance along the park beach, we observed a pair of Ring-billed Gulls on the beach pulling at a juvenile toad. When the gulls were disturbed, they flew out ca. 20 m into Lake Erie where the toad was dropped. The gulls landed beside the toad and swallowed it.

To our knowledge, this is the first reported predation of *B. fowleri* by gulls. Estimating the occurrence and sources of predation for such a threatened species has important conservation and management ramifications. We thank the Ontario Ministry of Natural Resources, and Ontario Parks for permission to conduct research and David Judd for his hospitality in the field.

Submitted by **M. ALEX SMITH** and **DAVID M. GREEN**. Redpath Museum, McGill University, 859 Sherbrooke Street W., Montréal, PQ, H3A 2K6, Canada; e-mail: alex.smith@mail.mcgill.ca.

BUFO OCELLATUS (NCN). **DEATH FEIGNING**. Death feigning or thanatosis (Edmunds 1974. Defense in Animals. Longman, New York, 357 pp.), is a common behavior among frogs (Sazima 1974. J. Herpetol. 8:376–377; Duellman and Trueb 1986. Biology of Amphibians. McGraw-Hill, New York; Azevedo-Ramos 1995. Rev. Bras. Biol. 55:45–47). On 7 Aug 2003, in Unaí municipality (46°7'W, 16°9'S) when handling an adult male *Bufo ocellatus* (42.8 mm SVL), we observed death feigning behavior in this species. The specimen adopted a motionless posture, keeping his limbs close to the body and eyes closed. After 45 sec. in this position, the frog started moving, attempting to escape. However, when restrained it reinflated the lungs and released bladder liquid. Both behaviors are similar to those described for *B. paracnemis* (Zamprogno et al. 1998. Herpetol. Rev. 29:96–97) and probably are widespread among other species of this genus. The function of death feigning may be related to increasing the chances of being lost by a predator and/or to minimization injuries when seized by a predator (Sazima, *op. cit.*).

A voucher specimen (AAG-UFU 2484) is housed in the Museu of Biodiversidade do Cerrado, Universidade Federal de Uberlândia, Minas Gerais, Brazil. We thank Ariovaldo A. Giaretta for critically reading the manuscript and the owners of the Fazenda Sagres S. A. for logistic support.

Submitted by **MARCELO N. DE C. KOKUBUM**, Laboratório de Ecologia e Sistemática de Anuros Neotropicais, Instituto de Biologia, Universidade Federal de Uberlândia, Minas Gerais, Brazil, and Programa de Pós-graduação em Ecologia, Universidade de Brasília; Brazil; e-mail: mnckokubum@hotmail.com.

CHIASMOCLEIS VENTRIMACULATA and ***HAMPTOPHRYNE BOLIVIANA*** (NCN). **EFFECT OF PECCARY-HUNTING ON BREEDING HABITATS.** Anthropogenic influences on amphibian population declines can be categorized as direct habitat degradation and large-scale environmental changes (Blaustein et al. 1994. Conserv. Biol. 8:60–71; Dunson and Wyman 1992. J. Herpetol. 26:349–352; Fellers and Drost 1993. Biol. Conserv. 65:177–181; Harte and Hoffman 1989. Conserv. Biol. 3:149–158; Lind et al. 1996. Herpetol. Rev. 27:62–65).

The microhylid species *Chiasmocleis ventrimaculata*, *Ctenophryne geayi*, and *Hamptophryne boliviana* are sympatric throughout their western range, the Upper Amazon Basin of Ecuador and Peru. Since 1977, ecological data were gathered at the Peruvian Field Station Panguana where temporal blackwater ponds are typical spawning places for these species. At a large pond ca. 1200 m^2 spawning is coincident with an increase in precipitation followed by a short rainless period at the beginning of the rainy season. In addition to this pond there are small water-filled depressions, some of them muddy puddles used by collared and white-lipped peccaries (*Tayassu tajacu* and *T. pecari*) throughout the year. Like pigs, these peccaries are always moving in search of food and water, leaving the ground churned. They often return to the same mud wallows. Both species consume a wide range of food including fruit, roots, mushrooms, insects, snails; they occasionally feed on small vertebrates, e.g., lizards, snakes, frogs, and turtles. Their presence in a certain area is episodic and unpredictable. At Panguana *T. tajacu* is more common than *T. pecari* (Hutterer et al. 1995. Ecotropica 1:3–20).

These peccaries are eminent landscape architectures, increasing the diversity of aquatic plant and animal species. Anthropogenic influences on the herpetofauna of Panguana has been observed for a couple of years. One observation is the disappearance of many of the small temporary ponds, which can be caused directly by clearing woodlands or indirectly by hunting peccaries. Two of the small breeding ponds of *Hamptophryne boliviana*, *Chiasmocleis ventrimaculata*, and probably *Ctenophryne geayi* have disappeared. These ponds, known by the author since 1977, have formerly been puddles frequently used by peccaries. Since about 1992 footprints could not be found and the depressions gradually disappeared.

At the Río Pachitea and its confluence both peccaries are widely hunted, comprising a major part of daily proteins and skins (Redford and Robinson 1987. Am. Anthropol. 89:650–667). Detailed investigations are necessary to understand how this local hunting pressure depleting peccary populations affects amphibians and their reproduction. Similar studies will be necessary on tapirs (*Tapirus terrestris*) as amplecting pairs and egg clutches of *Hamptophryne boliviana* could be found in water-filled trails of peccaries and tapirs (Schlüter 1984. Doct. Dissert. Univ. Hamburg).

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Submitted by **ANDREAS SCHLÜTER**, Staatliches Museum für Naturkunde, Rosenstein 1, D-70191 Stuttgart, Germany; e-mail: schlueter.smns@naturkundemuseum-bw.de.

COLOSTETHUS DEGRANVILLEI (Degranville's Rocket Frog). **REPRODUCTION**. While photographing *Colostethus degranvillei* in French Guyana, Cacao in a village 80 km from the capital Cayenne (4°33'32"N, 52°28'11"W), 500 m elev., 7 June 1999 (1415 h), we observed three small frogs on the back of an adult frog. When first observed we thought these were small tad-