

*charlesmithi* (Dwarf American Toad). In the latter case, a small melanistic individual (<2.4 cm) was photographed at ca. 0900 h under dry diurnal conditions on 12 July 2020, which documented a substantial dispersal distance for the species at a small size from one of the two mentioned potential breeding sites.

The nexus for this report occurred at 1430 h on 12 April 2021 as a large number of one gallon plastic containers used for growing a variety of summer plants were being activated for use in that growing season. They had remained unattended on the north side of the house subsequent to freezing temperatures in November of 2020. Activation of the containers involved removing roots and stirring the residual potting mixture in each container by hand. As JMW grasped a handful of the medium near the bottom of one of these the texture of it was immediately noted as being unusual. Upon removal from the container the handful of medium was found to include a large female of *A. americanus charlesmithi*. The animal quickly became active, and it hopped away after being photographed in the container (Fig. 1) and released under a large southern magnolia tree. Although, there is no way of knowing the duration that the animal had sequestered itself in the container, it was recalled that the surface of the potting mixture showed no signs of recent disturbance. Although neither the approximate date the toad buried itself nor how it gained access to the upright gallon container are known, we can state that the pot was located among an accumulation of leaves and that it contained a soft well-drained mixture that could provide a respite from temperature fluctuations, aridity, and predation. That this amphibian is attracted to shelters provided by groups of containers-grown plants was again indicated by an observation of a large adult sheltered among such a display on the same suburban lot in Fayetteville on 4 May 2022. Upon making the 2021 observation known, SET added that an individual of *A. a. charlesmithi* had once taken refuge in one of his work shoes left outside in suburban Morrilton, Conway County, Arkansas. We offer these as examples of the tolerances and opportunistic behaviors of this euryecious amphibian species which have facilitated its success in urban and suburban environs within its vast continental distribution often well removed from breeding sites.

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**BOANA AGUILARI AND SCINAX RUBER (Common Snouted Treefrog). INTERSPECIFIC AMPLEXUS.** *Boana aguilari* is an endemic species inhabiting the Eastern Andes of Central Peru, in the Pasco and Junín regions, at elevations of 1225–2200 m, while *Scinax ruber* is a species with a widespread distribution in the Amazon basin in South America (Frost 2020. Amphibian Species of the World 6.1, an Online Reference. <https://amphibiansoftheworld.amnh.org>; 25 Nov 2020). Although examples of interspecific amplexus among frogs are relatively common (Grogan and Grogan 2011. Herpetol. Rev. 42:89–90; Manzano and Corzas 2011. Herpetol. Rev. 42:84), details of the interactions between species with divergent elevational ranges are scarce. Here, we report for the first time, interspecific amplexus between a male *B. aguilari* and a female *S. ruber*.

During a night survey at 2050 h on 17 December 2019 at Quimiri Sur, Chanchamayo Province, Junín region, LAGA observed two male *B. aguilari* in amplexus with the same adult gravid female *S. ruber* on the surface of a small pond (ca. 1.3 km<sup>2</sup>)



FIG. 1. Adult male *Boana aguilari* in amplexus with adult female *Scinax ruber* at Quimiri Sur, Chanchamayo Province, Junín region, Peru.

close to a recently burned farm (11.0806°S, 75.3123°W; WGS 84; 1215 m elev.). Both males were on top of the female; one was in axillary amplexus, the other was holding the *S. ruber* around the neck potentially causing asphyxia to the female. The *S. ruber* tried to pull itself away from the male *B. aguilari* around its neck. Once disturbed by our presence, this male released the neck and jumped out of the pond toward nearby shrubs. This left the other male *B. aguilari* in amplexus with the female *S. ruber*, which remained still in the center of the pond. The female *S. ruber* made no attempt to release itself from the amplexing male *B. aguilari* (Fig. 1). Four hours later, this pair was observed in the same position. The voucher specimens of *B. aguilari* (CORBIDI 22212) and *S. ruber* (CORBIDI 22213) are stored in the Colección de Herpetología of the Centro de Ornitología y Biodiversidad (CORBIDI), Lima, Peru.

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**BUFO BUFO (Common Toad). ARBOREAL BEHAVIOR.** *Bufo bufo* is a common and terrestrial toad found throughout Europe in a variety of habitats including a range of wetlands, temperate grasslands and forests (Arnold and Ovenden 2002. A Field Guide to the Reptiles and Amphibians of Britain and Europe. Second edition. Collins Publishers, London, U.K. 288 pp.). They are nocturnal outside of the breeding season (Britain's Reptiles and Amphibians. WildGuides Ltd. Hampshire, U.K. 164 pp.) and have been reported to forage exclusively on land ([www.amphibiaweb.org](http://www.amphibiaweb.org); 31 August 2021), using a combination of active searching and sit-and-wait foraging.

There are few published records of the substantial climbing behavior in *B. bufo*. Bringsøe (2016. Mertensiella 24:146–149) reported individuals climbing walls, hedges, a young Norway Spruce (*Picea abies*) at unspecified heights, and 50–60 cm among the flowers of a European Goldenrod (*Solidago virgaurea*) in Denmark. Here, we report observations of arboreal behavior in *B. bufo* while collecting toads as part of an unrelated research project.

During fieldwork at Fairwood Common on the Gower Peninsula, Swansea, Wales, U.K. (51.60181°N, 4.03534°W; WGS 84; 103 m elev.), we observed a young adult *B. bufo* (29 g, ca. 6

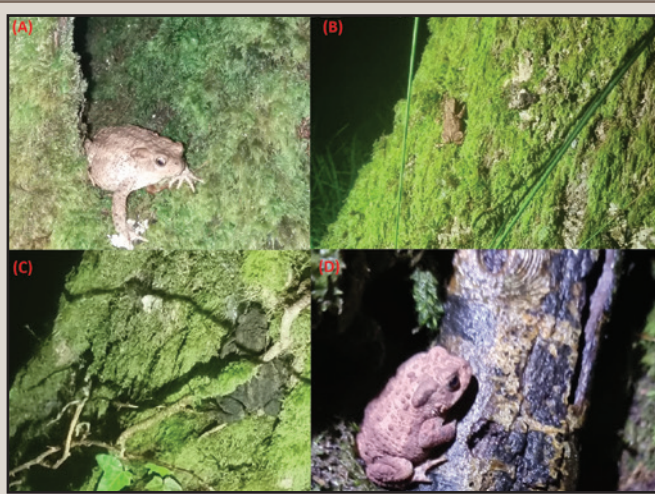


FIG. 1. Four individuals of *Bufo bufo* found climbing up to ca. 120 cm in trees at Fairwood Common on the Gower Peninsula, Swansea, Wales, U.K.

cm SVL) resting ca. 120 cm high in a tree fork at 2208 h on 2 June 2021, 30 min after sunset (Fig. 1A). Since then, we have observed an additional six separate instances of *B. bufo* climbing into trees at the same site. On the nights of 23 and 24 June 2021, there were a total of 13 *B. bufo* found, five of which were located at heights between 30–120 cm in trees. Figure 1B and 1C show a juvenile and adult respectively, exhibiting this arboreal behavior. On 6 July 2021 at 2257 h, another juvenile (Fig. 1D) was found climbing a tree at a steep angle (ca. 70°) ca. 90 cm off the ground.

The conditions have varied when this behavior has been observed, with high humidity (ca. 80%) and temperatures ranging from 14–18°C. The sightings all occurred within an hour of sunset, with damp ground conditions. The available routes by which the *B. bufo* could have reached the locations where we observed them involved climbs ranging from 45 to nearly 90°, and the behavior was not limited to adult *B. bufo*.

*Bufo bufo* is an opportunistic and generalist predator of small invertebrates (Gittins 1987. *Amphibia-Reptilia* 8:13–17; Vignoli et al. 2009. *Life Environ.* 59:47–57; Mallov and Stojanova 2010. *Biotechnol. Biotechnol. Eq.* 24(Suppl):263–269; Crnobrnja-Isailovi et al. 2012. *J. Herpetol.* 46:562–567) and these prey items were commonly found on tree trunks in the area, including those which toads had climbed. However, as they were also common at ground level, it is difficult to conclude that arboreal behavior in *B. bufo* provides specific advantages for feeding compared to foraging at ground level. We suggest that general exploratory activity, perhaps largely consisting of active foraging, leads *B. bufo* to move around any part of the environment it can feasibly access, including tree trunks.

The paucity of previous published records of arboreal activity in *B. bufo*, and the consideration of it as a firmly terrestrial species (Arnold and Ovenden 2002, *op. cit.*), are perhaps more to do with human search patterns than toad activity. Herpetologists searching for *B. bufo* (particularly in the U.K. where no arboreal reptiles or amphibians are native) typically search on the ground. Our observations suggest that researchers may benefit from expanding active searches for *B. bufo* to include tree trunks in suitable habitats, particularly where forks and cavities provide opportunities to securely rest. Although arboreal behavior has been documented in *B. bufo* previously (Bringsøe 2016, *op. cit.*), published observations remain rare and the species is

still considered firmly terrestrial. Our observations add, to our knowledge, the first records of arboreality for *B. bufo* in the U.K. and suggest that it may be an under-reported but common behavioral strategy in this well-studied species.

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**BUFO SPINOSUS (Spined Toad). PREDATION.** Bufonids are well known for their ability to produce steroid toxins (bufadienolides) mainly from their parotoid glands, but also from their dorsal tegument (Chen et al. 2017. *Ecol. Evol.* 7:8950–8957). These toxins are associated with a bitter taste and inhibit Na<sup>+</sup>/K<sup>+</sup> -ATPase activity with effects ranging from nausea to heart failure. They are mainly used as an antipredator defense to repel or kill potential predators. Despite their potent skin toxins, many bufonids are preyed upon by reptilian (Costa and Trevelin 2020. *Herpetol. Notes* 13:649–660), avian (Bordignon et al. 2018. *PLoS ONE* 13:e0193551; Blancas-Calva and Castro-Torreblanca 2021. *Reptil. Amphib.* 28:227–228) and mammalian species (Cabrera-Guzmán et al. 2014. *J. Pest Sci.* 88:143–153). In Europe, mammalian predators of *Bufo* spp. (mainly mustelids: Smiraldo et al. 2019. *Mammal Rev.* 49:240–255) have evolved specialized behaviors to avoid intoxication by bufadienolides: most species aim at the ventral surface (which contains fewer toxins (Bringsøe and Holden 2021. *Herpetozoa* 34:57–59) and peel the skin of individuals to have access to toxin-free viscera and muscles (Henry 1984. *Rev. Ecol.* 39:291–296).

While monitoring the reproduction of *Bufo spinosus* in western France, we noticed remains of male and female individuals at one of our study sites (46.17313°N, 0.46059°W; WGS 84). Most carcasses were characterized by open abdomens and evisceration as well as skinned legs and missing muscles (Fig. 1A, B). When predation involved reproductive females,



FIG. 1. A male (A) and a female (B) *Bufo spinosus* preyed upon by a *Rattus norvegicus* in western France: A) the male has been eviscerated (1), another wound is visible in the pelvic area (2) and muscles of the right hind limb are missing (3); B) The female has been wounded in the ventral area (4) with non-consumed eggs clearly visible, the gular area (5), and eviscerated at the pelvic area (6), muscles of the left hind limb are missing (7) and both forelimbs (which bones are visible – 8) are missing.