

## A CASUAL HERPER IN EASTERN NORTH AMERICA

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The herpetofauna of North America (north of Mexico) consists of about 477 species (194 amphibia, 283 reptiles), as listed by Behler & King (1979); 112 salamanders, 82 anurans, 3 crocodylians, 49 chelonians, 115 lizards, 1 amphisbaenid and 115 snakes. Conant (1975) lists 331 species (135 amphibia, 196 reptiles) for eastern and central North America alone, which with subspecies include 574 kinds of herpetofauna! This compares with the 135 species (45 amphibia, 90 reptiles) listed by Arnold, Burton & Ovenden (1978) for Europe west of a line joining the White Sea and Sea of Azov (Moscow is on longitude 37°42'E) in USSR. Our island herpetofauna in Britain and Ireland (Smith, 1951), in contrast, can only boast twelve indigenous species! With this huge herpetofauna and a human population of 244 million (USA and Canada), it is not surprising that a substantial interest is taken in amphibians and reptiles by North American zoologists. Three national and over 50 state societies support and help cater for this interest. The two purely herpetological national societies, the Society for the Study of Amphibians and Reptiles (SSAR) and the Herpetologists' League (HL) held respectively their 25th Anniversary and 30th Annual meeting jointly at Raleigh, North Carolina, 1-6th August 1982. Like the BHS in Europe, the American Society of Ichthyologists and Herpetologists (ASIH) is a non-governmental member of IUCN.

While touring eastern North America with my wife in August and early September 1982, after the Raleigh meeting, and as a casual 'herper', I could not help but come into contact with several species of amphibia and reptiles without making any particular or detailed effort to do so by looking for them in their natural habitats. In effect, many species come to you and one only has to be observant! This is of possible interest and indeed relevant in that it is only the typically widespread and abundant species adapted to a wide range of habitats and not immediately threatened that are likely to be recorded in this way. Furthermore, it is of possible value to record precise localities where individual species are observed in order that distribution atlases can be compiled in due course. Such records, which anyone, trained or untrained, can make, especially with information on the state of habitats, has been requested by the Societas Europaea Herpetologica Conservation Committee for Europe (Corbett & Podlucky, 1982).

During the joint SSAR/HL meeting at Raleigh, a liquid entertainment one dry evening (2nd August) at the State Fair Ground at Cary, near Raleigh, was, perhaps needless to say, not intended to yield species, but one of the younger participants produced an adult American toad, *Bufo a. americanus*, which he found in the woods during the proceedings. This is a very widespread and abundant species in north-eastern North America.

**Florida:** Our stay with Peter Pritchard, the turtle enthusiast, and his wife, Sybille, and their three boys, in Oviedo, near Orlando, was (and indeed elsewhere in the deep south of the USA in August) frequently interrupted by rain storms. Drainage channels by the sides of the roads were invariably full. Not infrequently, pairs of Florida red-bellied turtles, *Chrysemys nelsoni*, were seen basking on half-submerged logs and sliding quietly into the dark water to leave only wide ripples indicating their presence when distributed. The Florida snapper turtle, *Chelydra serpentina osceola*, is also common in many Florida pools, even entering brackish water, and on land strikes, lunging forward with mouth wide agape. The omnivorous diet includes fish, carrion and vegetable matter. The reddish appearance of *Chrysemys nelsoni* contrasts with the darker peninsula cooter, *Chrysemys floridana peninsularis*, which inhabits lakes and which human divers equipped with face masks can see under banks of clear streams and in springs of central and northern Florida.

Many of the human denizens of Florida maintain swimming pools in their gardens to provide relief from the sub-tropical summer heat. Sadly, being heavily chlorinated and otherwise treated to prevent the growth of green algae, they are death traps to amphibia roaming the lawns and garden paths at night, especially after rain. The corpses of unfortunate, usually half grown frogs

and toads were invariably found in swimming pool exit filters. Over four days (13th-17th August), three species were collected. The eastern spadefoot toad, *Scaphiopus h. holbrookii* (21 collected), is only found east of the Mississippi River, inhabiting sandy or loose soils in the forested areas of the South and South-East USA. It is very abundant, emerging with rain. It bears red spots on a darkish grey background colour. The southern toad, *Bufo terrestris* (two collected), is likewise abundant and the common toad of the South, becoming active at twilight and foraging well into the night. It roams garden lawns and paths by houses, and adults are often seen on roads at night and invariably squashed flat by motor traffic. The species ranges from Louisiana to extreme south-east Virginia, breeding in shallow water. The less widespread Florida gopher frog, *Rana areolata aesopus*, was only collected once (17th August) in the swimming pool filter. It has black-brown marks on a pale greyish background with yellow dorso-lateral ridges and white belly with spotted throat. It burrows diurnally in sand, sometimes quite deeply in the burrows of the gopher tortoise, *Gopherus polyphemus*, the "gopher" of the Deep South.

Although quite common now after protective legislation, American alligators, *Alligator mississippiensis*, were not observed by me in Florida drainage channels, but have been seen by tourists visiting the Kennedy Space Centre at Cape Canaveral in deep flood pools by the entrance of the car park. Gators can be pests in back gardens.

**Georgia:** In the Stephen Foster Memorial Park near Fargo, part of the Okefenokee Swamp, alligators are able to breed unmolested. Several were seen (18th August) swimming in the dark brown swamp water, seeking their turtle prey, and basking, even in overcast conditions on half-submerged logs by waterways. The females were nest-guarding. Gators have a predilection for dogs as food, and cases of dog snatching from anglers' punts are not unknown, but humans, even two-year olds falling into the water nearby are quite ignored. The cedar trees emerge stark from the water and the reflections of their silhouettes in the still dark water convey an air of tranquility and perhaps mystery. Occasional pig frogs, *Rana grylio*, a "bull frog" with a rather narrow pointed head and mouth, jump into the water from floating logs by waterways when disturbed in their 'guttural grunt of a pig'-like croaking.

**Ontario:** Continuing northwards, the number of species declines. In the Canadian North, tundra offers little protection to ectothermic species like amphibia and reptiles. Amphibia abound by the Great Lakes, however. The northern leopard frog, *Rana pipiens*, has a widespread distribution across the northern USA and Canada, except the far west, and has commonly been used for dissection in schools and collected for physiological research purposes. One half-grown frog was collected (29th August) in a damp, recently-cut, grassy meadow above the R. Maitland at Benmiller, near Goderich on Lake Huron, and another seen (1st September) by the river at St. Mary's, near Stratford, the centre of the Theatre Festival in Canada. A young eastern garter snake, *Thamnophis s. sirtalis*, no doubt at times preying on leopard frogs, was seen basking on a rock and quietly slid into the water.

**New York State:** Entertained by Kraig Adler, the SSAR 1982 President, and his wife, Dolores, with son, Todd, another opportunity was taken to see some of the common amphibia of north-eastern USA. Cornell University is based at Ithaca and one of the eight 'Ivy League' Universities in eastern USA (others comprise Harvard, Yale, Princeton, Columbia, Dartmouth, Pennsylvania and Brown). Ithaca is situated amongst woodland and hills among the superb Finger Lakes country of Upper New York State. Investigating one of Cornell's ecological study areas 9km east of Ithaca, the several amphibia included (2nd September) many red-efts of the red-spotted newt, *Notophthalmus v. viridescens*, crawling on open grass and amongst fallen leaves by half-embedded trunks near a muddy swamp. These newts can be seen still crawling in the early morning on garden lawns often in enormous numbers during spring breeding. Extremely common and producing a noxious secretion, they have also been the subject of ecological and behavioural work. The red-backed salamander, *Plethodon c. cinereus*, is terrestrial, often with earthworm-like habits and found ubiquitously under discarded refuse and flattish objects by swamps and near houses in wooded areas. It occurs in two phases: red-backed (straight-edged reddish stripe from the base of the head to tail, bordered by dark sides) and lead-backed (uniformly dark grey to almost black). By the swamp under a half-buried tree trunk and amongst decaying leaves, a half-grown spotted salamander, *Ambystoma maculatum*, was found. It is a widespread Eastern species, but one of 'special concern' to New York State's Endangered

**Species Unit.** It is black, bearing pale or yellow spots in an irregular dorso-lateral row, and not unlike spotted individuals of the European fire salamander, *Salamandra salamandra*, similarly sized, and no doubt occupying a similar ecological niche. Most of the time is spent underground, beneath logs and stones, but as an early spring breeder, it makes mass migrations to woodland ponds with the stimulus of warm rains. An adult green frog, *Rana clamitans melanota*, was also captured jumping among dead fallen leaves by the swamp. Another widespread species, dark olive-green in colour, but often more brown than green in individuals and tending to be very dark in Canada and northernmost USA. Inevitably, the ubiquitous American toad, *Bufo a. americanus*, was also found here. Several half-grown specimens, often in a scattered group, had also been previously seen elsewhere, near South Norwalk, Connecticut (23rd August), and on an earlier visit to USA near Valpariso, Indiana (21st May 1972). The habitat range is enormous; suburban back yards to mountain wildernesses, with the basic requirements shallow bodies of water and abundant invertebrate prey. Not unexpectedly with such adaptability, this toad does well in captivity, so long as loose soil is provided to hide away from light and they are little handled.

The same evening (2nd September), after late afternoon rain, several more *Bufo a. americanus*, including an adult female of 7.7cm, were seen on the road two or three hours after darkness, together with *Rana c. melanota* and other species. A northern spring peeper, *Hyla c. crucifer*, was heard during the day by the swamp and another collected on the road at night. It is a small (3.5cm) frog of woodlands, especially by small or temporary swamp pools. Its voice is a high, piping whistle, a single clear note repeated at 1 second intervals. Several pickerel frogs, *Rana palustris*, included an adult (6.7cm). The back bears square spots in two parallel rows and bright yellow or orange on the concealed surfaces of the hind legs. It typically inhabits cool, clear water in the North — in sphagnum bogs, rocky ravines and meadow streams. Probably being distasteful on account of skin-gland secretions, few snakes will eat pickerel frogs. A single immature wood frog, *Rana sylvatica*, was also collected off the road at night. The individual was pale pinkish-brown, with a dark patch, rather like the European 'brown frogs' such as the common frog, *Rana temporaria*, extending behind the eye to include the tympanum. The frog can be almost black in some colour phases. It is usually encountered in wooded areas, often wandering great distances from water. It occurs in north-eastern USA and ranges farther north into the Alaska-Labrador range in Canada than any other North American amphibian or reptile. Finally, of the species squashed on the roads near Ithaca that night besides red-efts and a red-backed salamander, a half-grown eastern garter snake had been bisected by a motor vehicle's tyre.

Earlier, during the afternoon, a visit had been made to the Ornithological Centre near Ithaca, where there is a lake with many aquatic species of bird. Through field glasses, about ten painted turtles, *Chrysemys p. picta*, could be seen, struggling to maintain their balance and bask on a rounded floating log, which rolled every time another turtle tried to clamber on. Kraig Adler also reported finding a wood turtle, *Clemmys insculpta*, early one evening on the road home about 7km east of Ithaca. The shell is very rough, each scute in the form of an irregular pyramid rising upward in series of concentric grooves and ridges. Orange on the neck and limbs led to a vernacular name of 'red leg' when sold as human food in the early part of the century. It is a somewhat terrestrial turtle, although at home in water and hibernating there, and frequently wanders through woods and meadows, across farmlands, and — often with fatal results — on roads.

**Road-kills:** Motor vehicles are a particular hazard to amphibia and reptiles traversing roads through wild habitats in USA. Peter Pritchard had earlier showed me two eastern box turtles, *Terrapene c. carolina*, which he had found on the road. One a bright-coloured, red eyed male from 12km east of Millville, New Jersey (6th August), and the other, a smaller female from the Appalachian mountains near Hickory, North Carolina (9th August). He had also collected a road-killed specimen from near the latter in North Carolina. Road-kill amphibia and reptiles, if not too damaged, provide useful specimens for museum and teaching purposes when appropriately preserved. Indeed one of the policy statements made at the inaugural meeting of the IUCN/Species Survival Commission Tortoise Group urges the collection of dead specimens found in the wild, including on roads through natural habitat, for depositing in museum collections as bone or pickled material with full locality, date and other information recorded. This will hopefully help in reducing the random collection of living specimens from the wild.

For Europe, USA and elsewhere with species of amphibia and reptiles, road-kills can often also provide useful locality data and give information on the distribution of species for later mapping and conservation purposes, particularly when habitat information is included for the latter!

Material collected in North America has been deposited with the Amphibian and Reptile Section, British Museum (Natural History), London.

#### REFERENCES

- Arnold, E.N., Burton, J.A. & Ovenden, D.W. (1978). *A field guide to the reptiles and amphibians of Britain and Europe*. London, Collins. 272 pp.
- Behler, J.L. & King, F.W. (1979). *The Audubon Society field guide to North American reptiles and amphibians*. New York, Chanticleer Press, Inc. 719 pp.
- Conant, R. (1975). *A field guide to reptiles and amphibians of eastern and central North America*. Second edition. The Peterson field guide series. Boston, Houghton Mifflin Company. 429 pp.
- Corbett, K. & Podloucky, R. (1982). European conservation. *Amphibia-Reptilia* 3: 97.
- Smith, M. (1951). *The British amphibians and reptiles*. The new naturalist series. London, Collins. 322 pp.