variation in the presence or absence of them in *Charina bottae* and *Epicrates cenchris*. Moreover, the possibility of ontogenetic and sexual variation exists, although neither of these variations were demonstrated in the present report.

In the two complete specimens of *Chondropython viridis* the neural spine expansions were so strikingly well-developed, and of such regular occurrence along the posterior precaudal part of the vertebral column that I suspect these expansions are genetically stable and that they may represent valid taxonomic characters.

It is presently a matter of speculation whether or not the massive neural spine expansions of the caudal vertebrae of *Charina* and *Lichanura* indicate a close phyletic relationship between the two. This is because these expansions form a significant part of the skeleton of the blunt tail that occurs in both genera. Such a tail seems a highly adaptive feature that could easily be a product of convergent evolution. The neural spine expansions of the caudal vertebrae of *Charina* and *Lichanura* become larger and larger toward the posterior end of the tail. Finally, the terminus of the tail is composed of several ankylosed vertebrae, united in part by fusion of their massive neural spines.

It is interesting to note that the skeleton of the blunt tail of *Eryx johni* has a much different structure. In *Eryx* the posterior caudals are weirdly elaborated by a reticulum of bone around the centrum and neural arch. This reticulum greatly increases the size of the posterior caudal vertebrae. As in *Charina* and *Lichanura* the last few caudals are ankylosed.

I wish to thank Mr. Gene Hartz of the Lincoln Park Zoological Gardens, Chicago, Illinois, and Dr. George Rabb of the Chicago Zoological Society, Brookfield, Illinois for the gift of specimens used in this study.

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## SOME OBSERVATIONS OF THE HERPETOFAUNA OF CORSICA

by

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The island of Corsica is best known as being the birthplace of Napoleon. Formerly under Italian rule it has now come to be under French legislation.

Corsica is situated in the western Mediterranean between Europe and North Africa and is flanked to the north by France, to the east by Italy and to the south by the island of Sardinia.

The vegetation is of particular interest to botanists on account of the large number of endemic species that are included in its flora: 150 out of a total of 2,000 are confined to the island or only otherwise to be found on Sardinia or the Balearic islands.

The reptile and amphibian population, comprising a total of 18 species, is large relative to the small size of the island and represents elements in the herpetofauna of the land masses surrounding it.

Since the Tertiary age, many earth movements have taken place in the western Mediterranean due to the tectonic cycle of events leading up to the formation of the Alps. During the early Tertiary, a land mass incorporating the island of Corsica included Spain, Italy and other islands of the western Mediterranean and part of North Africa from Morocco to Tunisia. Reptiles and amphibians were present in this area at that time and made up the basic species that are to be found throughout the western area of the Mediterranean today.

Due to the tectonic movements of the Alps, the sea has transgressed many times resulting in the Corsican fauna having affinities with France, Spain, Italy and Sicily, and in particular Sardinia, to which Corsica was connected by a land bridge as late as the Quaternary age just before the onslaught of glaciation. These two islands have several common species of reptiles and amphibians (as well as plants), which are confined to them and which probably evolved *in situ*.

The Ice Age did not have the same devastating effect on the distribution of the reptiles and amphibians of Corsica as it did on their distribution in northern Europe, but caused those species that are now found at high altitudes to be confined to lower levels. The passages of 80 glaciers, that primarily sculptured the mountains to their present form, have been observed in the highest mountains. These would have been detrimental to hibernation.

At the present time the climate consists of long, hot and dry summers with temperatures ranging from 70° to 90°F., while the winters are cool and wet with temperatures from 40° to 60°F. The island is subjected to winds that blow violently at intervals throughout the year; the Mistral roars down the Rhone Valley and together with the biting Tramontana from central Europe brings cold from the north, while the Sirocco from North Africa, blowing at intervals throughout the year, brings warm dry air from the south-east.

It would be expected that animals so affected by cold as reptiles and amphibians, would have their general distribution on the island influenced by temperature.

The range of altitude in Corsica is considerable and rising from the hot, dry coastal plain the higher altitudes give rise to a damper, colder climate, while snow remains at 6,500 feet throughout the year on the mountains in the centre of the island.

The geology of the western and southern part of the island consists primarily of plutonic granite but to the extreme southernmost tip, at the Cape of Bonifacio, the rock is of Miocene limestone, abrupted against the granite to form an interesting geological feature. The geology of the island has little effect on the reptiles directly but does affect the vegetation amongst which they live, while calcareous regions are not well favoured by amphibians.

Mertens (1961) has carried out work on the reptiles and amphibians of Corsica, and Meyer (1963) has made some observations in the north of the island around Calvi. The observations of the present work are confined approximately south of a line running across the island from Ajaccio in the west to Solenzara in the east. They were carried out during the course of a botanical expedition to Corsica in June 1964.

The distribution of the reptiles and amphibians in Corsica is primarily divided by the 1,000 feet level, a definite set of species occurring above and below it. Moisture is a further factor which influences the distribution of a species.

### Below 1,000 feet:

### Dry habitats:

The species in this habitat are made up of reptiles. A specimen of *Tarentola m. mauritanica* was observed among the rafters of a ruined shack on the limestone cliffs of Bonifacio just above the sea. In the same locality climbing up the rocks making up the fortress, several remarkable lizards, possibly of the introduced species

*Lacerta sicula cetti?* were seen. The cliffs are very arid, exposed to wind and with sparce vegetation providing little shelter, but with many cracks and crevices in which the lizards seek refuge. *Lacerta t. tiliguerta* was to be seen everywhere in drier habitats and is particularly abundant on the coastal plain to the S.E. of the island. The lizard was often seen basking in clearings of the *Maquis*, the vegetation covering the hillsides rising from the coast and growing luxuriantly on the siliceous soils. A very common snake inhabitating dry hillsides among other habitats, although never far from water, is the whip snake *Coluber v. viridiflavus*. It is very vicious, biting and hissing vigorously when captured, and possesses a striking dark olive background colour with paler flecks scattered over the back. The species is quite ubiquitous occurring at high altitudes, in damp lowland situations or even seeking refuge in dry walls near the coast. It occurs wherever lizards, mainly *L.t. tiliguerta* that make up its food, are to be found.

**Wet habitats:**

In almost every pond below 1,000 feet, *Rana esculenta* could either be seen or heard. At the particular time of the year (June) many full grown larvae occur in ponds. Individual specimens may occur at greater altitudes and one large female was found in a stream near L'Ospidale at 3,000 feet. It is particularly common in ponds near the coast, leaping rapidly into the brackish water on being disturbed. A single individual of the pond tortoise *Emys orbicularis* was observed floating in the middle of a pond near Porto-Vecchio that was primarily inhabitated by *R. esculenta* whose larvae, no doubt, provide the animal with food. Near by in a damp meadow a single, large female specimen of *Testudo hermanni robertmertensi* was seen. Two lizards were seen in this locality, *Lacerta sicula campestris* and the ubiquitous *L. t. tiliguerta* that quickly disappears into bushes on human intrusion. It was also near this pond that the only recording of *N. natrix corsa*, which was observed gliding into a pile of sticks at great haste, was made. In a similar habitat of bramble bushes growing by a swamp occupied by *R. esculenta*, a specimen of *Coluber v. viridiflavus* was observed, basking on a bush but rapidly disappearing on being disturbed.

**Above 1,000 feet:**

**Dry habitats:**

The active little lizard—*Lacerta t. tiliguerta* was seen basking on rocks almost everywhere up to 5,000 feet, above which level it becomes scarce. Where the lizard is present, *Coluber v. viridiflavus* is also found, and one individual was observed amongst scrub and rocks, which make up the mountain sides at 5,000 feet, gliding into the former burrow of a rodent. The splendid lizard—*L. b. bedriagae*, which runs actively over large boulders seeking refuge beneath them and thence reappearing again, occurs locally. This lizard is grey-green with large dark patches on its back and blue lateral scutes and is up to eight inches long. A few specimens were seen above a ravine at 3,000 feet on Mt. Renoso and at 4,000 feet on Mt. d'Oro near Vizzavone in the centre of the island.

**Wet habitats:**

The most abundant amphibian to be found, beneath boulders in every fast stream running over granite at heights of from 3000 to 5000 feet, is the Corsican mountain newt—*Euproctus montanus*. It is warty and olive brown in colour growing to a length of four inches. Several adult newts were found in a stream running through a pine forest near L'Ospidale at 3,000 feet. They swim from under rocks when they are disturbed and are easily captured. They are very sensitive to warmth and cannot survive temperatures above 65°F for very long. Juveniles were found at altitudes as low as 2,000 feet. Two dead individuals of the Corsican fire salamander—*S. salamandra corsica* were found at 3,500 feet near the beech wood probably from which they had strayed. Juveniles of the painted frog—*Discoglussis pictus sardus* were seen at 3,000 feet in a stream passing through a chestnut forest, but at a greater altitude of 5,000 feet adults were observed basking by the side of small, brown pools filled with submerged and floating aquatic plants in acid mountain bog, into which they leap on being disturbed. At 2,000 feet, just above Ajaccio, young adults and fully developed larvae of *Bufo v. viridis* were seen in a pool of a mountain stream.

The list below shows those species recorded and their general distribution against the check list of amphibians and reptiles of Corsica (Steward (1963), after Mertens).

Amphibia.

Caudata

Salamandridae

*Euproctus montanus*. Common in streams at high altitudes. Confined to Corsica.

*S. salamandra corsica*. Occurs in damp woodland at 3,000 feet emerging at night. A Corsican subspecies.

Salientia

Discoglossidae

*Discoglossus pictus sardus*. Common in pools on mountain bog. A subspecies also occurring in Sardinia and some Tyrrhenian islands.

Bufonidae

*Bufo v. viridis*. In streams at 2,000 feet. (Larvae in June).

*Hylidae*

*Hyla arborea sarda*. Not recorded.

*Ranidae*

*Rana esculenta*. Common in pools below 1,000 feet.

Reptiles.

Testudines

Emydidae

*Emys orbicularis*. One record only below 1,000 feet.

*Testudinidae*

*Testudo hermanni robertmertensi*. One record only below 1,000 feet. A subspecies also occurring in Sardinia, the Balearic islands, Southern France and Spain.

Sauria

Gekkonidae

*?Hemidactylus t. turcicus*. Not recorded.

*Phyllodactylus europaeus*. Not recorded.

*Tarentola m. mauritanica*. One record. By the coast at Bonifacio.

*Lacertidae*

*Algyroides fitzingeri*. Not recorded.

*Lacerta b. bedriagae*. Occurring locally at 3,000-4,000 feet in the centre of the island. A subspecies, also occurring on Sardinia.

*L. sicula campestris*. Occurs on the coastal plain.

*L. sicula cetti?* Seen on the fortress of Bonifacio by the coast. Introduced subspecies, also occurring in Western Sicily, Sardinia, and one or two Tyrrhenian islands.

*L. t. tiliguerta*. Very common from the coast up to 3,000 feet, becoming scarce at 5,000 feet. Ubiquitous. A subspecies, also occurring on Sardinia, Monte Christo and Caprera.

Serpentes

Colubridae

*Coluber v. viridiflavus*. Common from the coast up to 3,000 feet, becoming scarce at 5,000 feet. Ubiquitous.

*? Coronella girondica*. Not recorded.

*Natrix natrix corsa*. One record below 1,000 feet. A subspecies, only otherwise found on Sardinia.


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