

Blue “Green Frogs” (*Rana esculenta*) and other herpetofauna on the Drulon estate (dépt. Cher), France

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INTRODUCTION

I first visited the Drulon estate in 2001 together with my girlfriend Chantal Ruijgrok. Drulon is situated in the vicinity of St. Amand Montrond in the département Cher. This is roughly in the geographical centre of France. On this estate extensive cattle farming, nature and art are interwoven in an interesting manner. Apart from many species of birds (such as the Hoopoe (*Upupa epops*), Green Woodpecker (*Picus viridus*) and Purple Egret (*Ardea purpurea*)) and mammals (such as various species of bats, deer (*Capreolus capreolus*), Wild Boar (*Sus scrofa*) and Nutria (*Myocastor coypus*)), the castle grounds harbour several less striking, but definitely not less interesting, species of reptiles, amphibians and insects. Among the amphibians are ‘blue’ frogs.

THE ARTISTIC GARDENS OF DRULON

After having worked as farmers for eight years in the Cher region, Piet and Nanou Hendriks started the transformation of the largely derelict castle of Drulon and its grounds in 1988. Their goal was to combine farming with art. The rural section of the estate they prepared for extensive agriculture and cattle ranching. Another section was set aside for a classical garden, a decorative garden and a natural area. They placed all manner of works of art in



Sculpture by Martine Salavize that is being used by *Rana esculenta*.

the gardens, as well as in the natural and agricultural areas, and even in the pastures among the cows.

In addition, they reserved space for smaller and less weather-resistant works of art in some of the auxiliary buildings of the castle, which date from the 15th to the 18th century. Each year additional pieces are added to the collection, and some of them (especially larger ones) are produced locally with the estate being the main source of inspiration. Artists will come and work on the estate for a period of time. Most works of

art are for sale, but are sold without a profit for the Drulon estate. The fifteen-hectare estate now contains over 80 sculptures, ranging from bronze statues to abstract works with mirrors, produced by 36 different artists.



Habitat of *Natrix natrix* and *Rana esculenta*: a former fishpond and the swamp containing several sculptures.

The larger part of the estate has remained in its natural state. A forest parcel, two clay pools (the sunnier one being called 'the frog pond'), former fishponds, swamp, pastures and hedges form an important habitat for many species of animals. A small brook connects the fishponds.

In 2001, Drulon was awarded the second prize by the Association des Journalistes du Jardin et de l'Horticulture, out of a selection of eighty gardens in all of France, for its unique combination of ancient buildings, undisturbed natural areas and an extraordinarily lush garden. The criteria for this award were originality, creativity, maintenance, respect for nature and educational qualities of the garden.

SPECIAL INSECTS

Because of the incredible variety of habitats on the estate, an enormous array of insects can be found here. I am not knowledgeable enough to fully assess this diversity, but I was amazed at the variety of butterflies, dragonflies and grasshoppers. Of course, I was able to identify some species. Personally, the most impressive was the Staghorn Beetle, *Lucanus cervus*. This is one of the largest beetles in Europe. These animals only survive in old-growth deciduous woods with a high density of oak trees since this is the major food source for the larvae, which live off these trees for five to eight years (KLAUSNITZER, 1995). After this period they pupate and metamorphose into a beetle. Males are easily recognised by their 'staghorns' (which really are modified jaws), a feature that the females lack. Males perform a ritualised combat for the females. These take place on tree trunks, where the loser gets tossed off the tree. These beetles only become active at dusk and can be seen between June and August. I frequently saw them in various locations during evening walks. Another striking insect to me was the European praying mantis, *Mantis religiosa*.



A pair of Staghorn Beetles (*Lucanus cervus*).

REPTILES AND AMPHIBIANS

Five species of reptiles and five species of amphibians could be positively identified on the estate. Mostly of these were species that are relatively common in France; in the Netherlands an area with a comparable diversity would be designated as a nature reserve! Three species of lizards are present, the more common one being *Podarcis muralis*. This small lizard is found on stone walls or on walls of buildings that are riddled with crevices and holes. On clean, smooth masonry this lizard will not find a place to live. I also encountered *Podarcis muralis* in open areas in the woods and along pastures where it was basking on logs.



A male *Lacerta bilineata*.

The larger and much more secretive *Lacerta bilineata* mostly lives in the thicket along small roads in this area, but also occurs in the vegetation near the fishpond.

Finally there is *Anguis fragilis*, which leads a life hidden from view in the dense underbrush of road and forest edges.

As far as snakes go, I only observed *Natrix natrix* on the estate. These are mostly found around the former fishpond and in the swamp, basking on tufts of grass and on flattened tufts of *Juncus effusus*. However, I was told (P. Hendriks, pers. comm.) that *Vipera aspis* occurs here as well, even the melanistic variety. Normally the males of this species have a greyish coloration and females are reddish brown. In the local folklore, black individuals are referred to as 'devil's adders', although they are simply a colour variety similar to albinos.



Juvenile *Natrix natrix*.



Vipera aspis.

On the Drulon estate two species of salamanders occur. *Triturus helveticus* is the more common species and is found on both clay pools. The considerably larger *Triturus cristatus* is much more rare and is found in the sunnier frog pond.

The common toad, *Bufo bufo*, is a common sight here. They reproduce in the larger ponds. During summer nights, adults can be seen foraging in the gardens around the buildings.

Rana dalmatina presumably reproduces in both clay pools. I only observed these animals in the woods where they spend the summer. They migrate to a pond in early spring to lay their eggs. The remainder of the year they inhabit the forested parts of the estate.

The most common frog on the Drulon estate is the green frog, *Rana esculenta*: these can be seen in every body of water. However, at the same time it is also the most remarkable herpetological species on the Drulon estate.

BLUE GREEN FROGS

During my first visit in 2001, Piet Hendriks told me that he would occasionally see blue frogs and asked me what they might be. As a biologist, I am often confronted with the most wide-ranging questions and with some jocular remarks about colour blindness I attempted to appease my host. After all, how reliable is a person's perception when it comes to colours? In the past I have regularly been faced with stories about orange salamanders (which invariably turned out to be just terrestrial-phase *Triturus vulgaris*) or green snakes (there are no grass-green snakes in Europe, but some friends repeatedly claim to have seen some...).

Therefore, my first guess was *Rana dalmatina*. Males of this species can have a bluish-grey hue in spring. Just to be certain I asked Piet to take some pictures if he saw another one. In the spring of 2002 I received the first photograph and to my surprise there really were blue frogs out there! More specifically, they were blue mutations of the green frog, *Rana esculenta*. It was apparent also that it didn't just concern a single animal; Piet had observed both adult and subadult blue frogs in different places. He told me that they were much shyer than the regular green frogs. During the summer of 2002 I was able to see these blue frogs with my own eyes.

On my first day I immediately spotted two blue frogs. They were subadults that indeed behaved in a more elusive manner than their normally pigmented congeners, which were



Blue *Rana esculenta*.

surrounding them. It was moderately overcast, and therefore not easy to find green frogs, let alone photograph them. On the final day of our vacation, the sun came out and all green frogs were basking, enabling me to catch and photograph a subadult.

In The Netherlands, blue green frogs have been reported as well (e.g. HOFSTRA, 1997). On the Drulon estate it concerns similar colour mutations to those described by HOFSTRA (1997). The animals have a bluish hue, but because they display a pattern of blotches and stripes, their coloration is not a uniform blue such as is in some European tree frogs (see e.g. GONZALEZ DE LA VEGA et al. (2001) for an entirely blue *Hyla meridionalis*). This has been observed in another species of tree frog: Jan van der Winden and myself observed a partially blue juvenile *Hyla savigny* on 16 August 1991 in the Göksu Delta, Turkey (VAN DER WINDEN & BOGAERTS, 1992).

The reason why this blue mutation occurs on the Drulon estate remains unclear. It is not an isolated or segregated area. The estate does contain several small ponds and clay pools, whereas outside of the estate I could only find large fishponds. However, it is very well possible that these animals occur outside of the estate as well, although I did not verify this. It is a fact that the bizarre colour forms fit in nicely with the unique character of the estate.

IN CONCLUSION

I have visited the Drulon estate for two summers now, although only for a few days per visit. This makes it very likely that I have missed out on species that probably occur on the estate. Species that come to mind are *Salamandra salamandra terrestris* and *Hyla arborea*, both of which are difficult to find when not visiting in the appropriate season. In addition, *Alytes obstetricans* could be expected here. The presence of snakes is always difficult to determine, but I think that *Coronella austriaca*, *Coluber viridiflavus* and *Elaphe longissima* should definitely be expected here.

The large variety of habitats that is available on the estate's grounds offers the aforementioned species sufficient possibilities to build viable populations. The presence of humans, the gardens that attract many insects, in combination with the agriculture (which attracts mice) and many stone walls and old buildings supplement the already attractive terrain of Drulon. Several bird species are known to thrive on the combination of human interference and natural terrain. Species such as *Phoenicurus phoenicurus*, *Tyto alba*, *Hirundo rustica*, and *Passer domesticus* are good examples. These species have declined drastically in The Netherlands. However, many reptiles, amphibians and insects will find a safe haven in such terrain. Therefore the unique combination of nature, art and agriculture makes the Drulon estate a genuine paradise for animals.

ACKNOWLEDGEMENTS

I would especially like to thank the Hendriks family for their hospitality and effort to capture the blue frogs on film. And of course Chantal Ruijgrok since I would have never travelled there without her.

SUMMARY

In 2001 and 2002 I visited the Drulon estate in the Cher Department, France. On this estate, extensive cattle farming, nature and art are tightly interwoven. Apart from many insects, such as the Staghorn Beetle, *Lucanus cervus*, and Praying Mantis, *Mantis religiosa*, at least five species of reptile and five amphibian species occur here: *Podarcis muralis*, *Lacerta bilineata*, *Anguis fragilis*, *Natrix natrix*, *Vipera aspis*, *Triturus helveticus*, *Triturus cristatus*, *Bufo bufo*, *Rana dalmatina* and *Rana esculenta*. The latter species also occurs in a blue colour mutation with some frequency. There is a good chance that additional species will be found here, but I only briefly visited the area twice during the summer months and missed out on the spring – an important time for amphibian inventories.

LITERATURE

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