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## OBSERVATIONS ON THE HERPETOFAUNA OF CAMPONE (CARNIC PREALPS, FRIULI)

### OSSERVAZIONI SULLA FAUNA ERPETOLOGICA DI CAMPONE (PREALPI CARNICHE, FRIULI)

**Abstract** — The herpetological fauna of Campone (Central Friuli, province of Pordenone) consists of 8 amphibian and 11 reptile species. From the biogeographical point of view, the most interesting species are *Triturus alpestris*, *Bombina variegata*, *Lacerta vivipara*, *Vipera ammodytes* and *V. aspis*. Short ecological and taxonomical remarks about the discussed entities are reported.

**Key words:** Amphibians, Reptiles, Ecology, Friuli.

**Riassunto breve** — La fauna erpetologica della regione di Campone (Friuli centrale, provincia di Pordenone) è costituita da 8 specie di Anfibi e da 11 specie di Rettili. Le specie più interessanti dal punto di vista biogeografico sono *Triturus alpestris*, *Bombina variegata*, *Lacerta vivipara*, *Vipera ammodytes* e *V. aspis*. Gli Autori descrivono brevemente i biotopi frequentati dalle entità presenti nell'area considerata, riportando anche alcune osservazioni conservazionistiche.

**Parole chiave:** Anfibi, Rettili, Ecologia, Friuli.

### Introduction

The local interest in biogeography and ecology, and the paucity of data from Central Friuli, led us to intensive herpetological collecting in the surrounding area of Campone (province of Pordenone) as well as in the upper and middle valley of the Chiarzò stream in 1969-1982.

A major part of the collection of Amphibians and Reptiles is preserved in the Natural History Museum of Friuli, Udine; a few specimens are also preserved in the Institute of Zoology of the University of Rome.

The investigated area, situated between the artificial Lake of Tramonti and the Monte Rossa mountain system (Carnic Prealps, eastern Italy), extends

from 350 m to 800 m a.s.l. (fig. 1). The whole area is characterized by a temperate-damp climate and by plentiful rainfalls all over the year, with two main peaks in autumn and in spring.

The vegetation of the eocene hills of Campone is characterized by the *Carici-Fagetum* association (LAUSI et al., 1978). Nevertheless, because of the deforestation and the excessive development of the montane pasture, the original *Fagus sylvatica* forests are now reduced to degraded beech-woods, with a moderate infiltration of alien trees such as *Robinia pseudacacia* and *Ailanthus altissima*. The grass vegetation of the pastures of the hill zone belongs to the *Seslerio-Mesobrometum* s.l. association. *Alnus glutinosa*, *A. incana* and *Salix* spp., together with *Populus alba* and *Quercus petraea*, characterize the vegetation of the banks of the Chiarzò stream. Moreover, in the hillsides of the upper Chiarzò valley it is to be noted the presence of the following entities: *Pinus mugo* (grex arborea), *Larix decidua*, *Rhododendron hirsutum*, *Arctostaphylos uva-ursi*.

## Herpetofaunal survey

### AMPHIBIA

#### *Salamandridae*

##### *Salamandra salamandra salamandra* (LINNAEUS, 1758)

- Rù del Taront, 430 m: 1♂, 1♀ (10.9.1970); 1♀, 1 juv. (12.9.1972).
- Grisa, 428 m: 1♀ (10.9.1970); 1♀ (13.9.1972).
- Sghittosa di sopra, 510 m: 3♂♂, 1♀ (12.7.1970); 2♀♀ (12.7.1971); 2♂♂ (9.7.1972).
- Cleva, 430-460 m: 3♂♂, 1♀ (9.9.1972); 1♂ (10.9.1973).
- La Fratta sui Piani, near Sclaf, 570-685 m: 8♂♂, 3♀♀, 2 juv. (10.9.1972).
- Battei, near Pradis Grotte, 600 m.: 1♀ (10.9.1972).
- Sialin, 580 m: 10♂♂, 2♀♀, 1 juv. (18.9.1973).
- Panzet, 670 m: 1♀ (18.9.1973).
- Beloz, 500 m: 1♂ (18.9.1973); 2♂♂ (25.9.1973).
- Rovine di Pagnac, 450 m: 5♂♂ (24.9.1973).
- Sualdin, 590-630 m: 3♂♂, 2♀♀ (25.9.1973).
- Sghittosa di sotto, 490 m: 1♂, 1♀ (25.9.1973).
- Zulian, 528 m: 32 larvae (20.8.1975).
- Campone, 436 m: 2 juv. (5.9.1972).

An extremely common species, found in a variety of moist places such

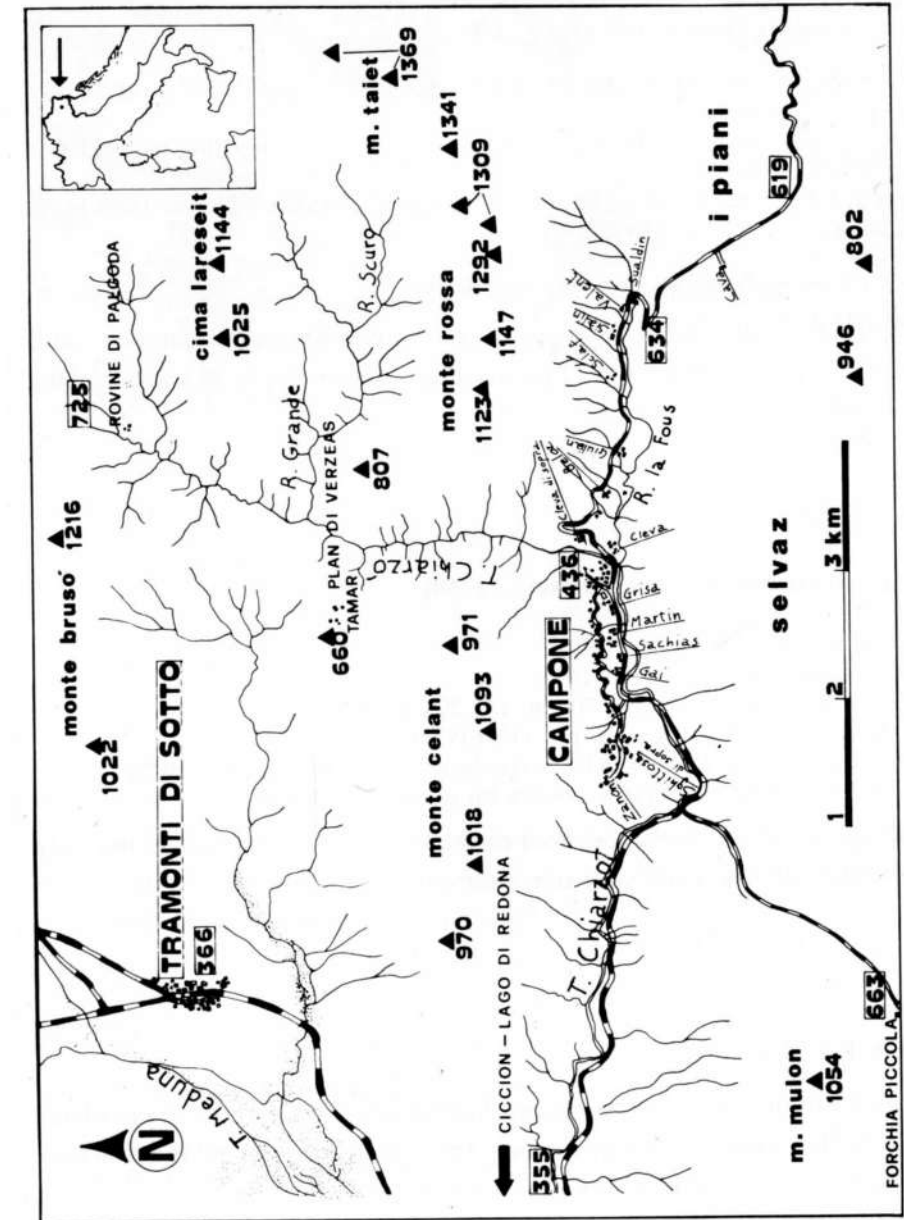


Fig. 1 - Map of the investigated area.  
- Carta schematica dell'area studiata.

as wooded sides of springs, ponds and streams. The population living in the investigated area consists of a large number of individuals.

*Triturus alpestris alpestris* (LAURENTI, 1768)

- Forchia Piccola, 663 m: 3♀♀ (15.8.1969); 1♂, 3♀♀ (18.7.1970); 3♀♀ (10.7.1972); 7♂♂, 4♀♀ (22.8.1976).
- Chiarzò stream, near the Bus del Castigu cave, 390 m: 1♀ (together with a lot of larvae) (10.7.1972).
- Ropas di sopra, near Sualdin, 682 m: 2♂♂, 2♀♀ (12.10.1978); 10 larvae (12.8.1977).
- Zanon, 517 m: 25 larvae (10.8.1976).
- Campone, 436 m: 1♂ (24.9.1973).
- Lake of Tramonti, 340 m: 13 larvae (19.8.1973).

A species on the decrease — because of environmental changes — still common in a few localities (e.g. Forchia Piccola and Ropas di sopra) of the Campone area.

*Discoglossidae*

*Bombina variegata variegata* (LINNAEUS, 1758)

- Selvaz, 630-750 m: 2♀♀ (9.8.1970).
- Rù del Taront, 430 m: 1♀ (11.8.1972).
- La Fratta sui Piani, near Sclaf, 700 m: 1♂, 2♀♀ (12.8.1969).
- Plan di Verzas, 495 m: 3♀♀, 10 juv. (15.8.1974).
- Chiarzò stream, near the Bus del Castigu cave, 390 m: 1♂, 1♀ (10.7.1972).
- Ciccion, 470 m: 1♂, 1♀ (together with a lot of larvae) (11.8.1972).

This species is extremely localized in the considered area and occurs only in small ponds and in artificial water reservoirs.

*Bufonidae*

*Bufo bufo* (LINNAEUS, 1758)

With no doubt the most common Amphibian of the whole area, where it is widely distributed especially along the wooded banks of the Chiarzò stream, as far as the artificial Lake of Tramonti.

Observations: see the localities mentioned for *Salamandra salamandra*.

*Bufo viridis viridis* LAURENTI, 1768



Fig. 2 - Campone: a view of the Chiarzò stream at 440 m showing one of the main reproduction areas of *Salamandra salamandra*, *Triturus alpestris*, *Bombina variegata*, *Bufo bufo* and *Rana temporaria*.  
- Campone: particolare del Torrente Chiarzò a 440 m. Questo tratto di torrente è frequentato, soprattutto durante il periodo riproduttivo, da *Salamandra salamandra*, *Triturus alpestris*, *Bombina variegata*, *Bufo bufo* e *Rana temporaria*.

- Lake of Tramonti, 340 m: 1♀ (11.8.1977).

The only one specimen of this species up to now known for the territory of Campone was found in the neighbourhood of the above-mentioned lake, not far from the Campone-Redona road.

*Hylidae*

*Hyla arborea arborea* (LINNAEUS, 1758)

- Valent, 590 m: 1♂, 2♀♀ (1.9.1973).
- Rù del Taront, 430 m: 2♂♂ (15.9.1972).

All the examined specimens were found in temporary ponds. The Common Tree Frog, as well as the Alpine Newt, is at present on the decrease because of the draining of the natural pools.

*Ranidae**Rana* cfr. *esculenta* LINNAEUS, 1758

— Meduna stream, near Navarons, 320 m: 3♂♂, 2♀♀ (18.8.1974).

This species occurs only in the bordering area of Meduno, where it is fairly common, while it was never observed in the upper valley of the Chiarzò stream.

Although both *Rana esculenta* and *Rana lessonae* occur in the northern Italian regions north of the Po Valley, we prefer to leave the specific status of the examined specimens pending, awaiting further electrophoretic and morphological investigations on the Italian populations of these taxa (see also UZZELL & HOTZ, 1979).

*Rana temporaria temporaria* LINNAEUS, 1758

- Chiarzò stream, near the Bus del Castigu cave, 390 m: 1 juv. (12.7.1969); 1♂ (4.8.1971); 1♂ (28.4.1980).
- Sghittosa di sopra, 510 m: 1 juv. (25.7.1972).
- Zanon, 520 m: 1♂, 2 juv. (15.9.1972).
- Ropas di sopra, near Sualdin, 682 m: 1♂ (16.8.1977); 3♂♂, 2♀♀ (4.10.1977).
- Chiarzò stream, near Borgata Brandolin, 440 m: 2♀♀ (12.8.1973).
- Sghittosa di sotto, 490 m: 3 juv. (15.9.1972).

In addition, the larvae of this species were found also in the following localities: Plan di Verzeas, 495 m; Lake of Tramonti; Ciccion, 470 m.

The Common Frog is especially spread in the small tributaries of the Chiarzò stream, but it is also frequent in the middle valley of this stream, as far as the Lake of Tramonti.

## REPTILIA

*Lacertidae**Podarcis muralis* (LAURENTI, 1768)

This lizard — with no doubt the most common Reptile of the considered area — was observed in a variety of habitats and especially in dry-stone walls and road banks.

Concerning the morphological features, the Common Wall Lizard of Campone may be referred to the subsp. *muralis* (LAURENTI); nevertheless, awaiting an adequate review of the taxonomic status of this species (see also NASCETTI et al., 1981), we prefer to leave the subspecific status of the examined specimens pending.

*Lacerta viridis viridis* (LAURENTI, 1768)

- Sghittosa di sopra, 510 m: 2♂♂ (16.7.1970).
- Rù del Taront, 430 m: 1 juv. (10.8.1971).
- Martin, 500 m: 1♀ (11.8.1972).

In the last few years, the Green Lizard seems to be disappeared from several localities situated in the surroundings of Campone. It is our opinion that the decrease of this species is almost entirely due to the human modifications of the environment conditions.



Fig. 3 - The "magredo" near Ciccion, a typical habitat of *Lacerta vivipara*.  
- Particolare del "magredo" situato in località Ciccion. In questo ambiente è stata osservata una piccola colonia di *Lacerta vivipara*.



*Lacerta vivipara* JACQUIN, 1787<sup>(1)</sup>

- Beloz, 500 m: 1♂ (9.9.1973).
- Ciccione, 470 m: 1♂ (2.4.1978).

Both specimens were found in wet biotopes situated in the upper valley of the Chiarzò stream (fig. 3). Probably, this lizard may be regarded as a relict species within the Campone area.

*Anguidae**Anguis fragilis fragilis* LINNAEUS, 1758

An extremely common species, observed in almost all of the above-mentioned localities. The Slow Worm is particularly frequent at the edges of the woods, where it is found mostly under the stones. It is the main prey of the Smooth Snake (*Coronella austriaca*).

*Colubridae**Natrix natrix* (LINNAEUS, 1758)

- Chiarzò stream, near Campone, 440 m: 10 juv. (9.8.1971).
- Lake of Tramonti, 340 m: 1♂ (20.8.1974).
- Barzanai, 450 m: 1♂ (12.8.1972).
- Ciccione, 470 m: 1♀ (7.8.1973).
- Sghittosa di sotto, 490 m: 1♂ (10.8.1978).
- Chiarzò stream, near Gorgiola, 325 m: 4 juv. (11.7.1981).

This species, certainly the most common snake of the area, is widely spread in the Chiarzò stream, where it is mostly found in the small side-ponds. It preys upon the larvae and the adults of *Bufo bufo*, *Rana temporaria* and *Salamandra salamandra*. As far as the morphological features are concerned, the examined individuals might be referred to the subsp. *dalmatina* (SCHINZ) (see BRUNO, 1980). Nevertheless, we feel — in agreement with THORPE (1980) — that “the arbitrary nature of this species is evident and it is difficult to see how it can be regarded as having genetic cohesion between

its constituent populations and consequently be a natural genetic and evolutionary unit (except like a genus it is the product of evolution) or be an ecological unit as conceived by MAYR (1970). It is also impossible to see how it could be divided to produce taxonomic species which have the attribute of “biological” species (sensu MAYR, 1970; WHITE, 1978).” THORPE (1980) recognizes four main forms of *Natrix natrix*, i.e. eastern, western, Sardinian and Corsican, which although treated as conspecific are — according to this Author — “not far below the level of species”.

*Natrix tessellata tessellata* (LAURENTI, 1768)

- Chiarzò stream, near Campone: 3♂♂, 1♀, 2 juv. (5.8.1973).
- Chiarzò stream, near Grisa, 428 m: 1♂, 1 juv. (12.8.1976).

The Dice Snake is fairly common in the Chiarzò stream, but it is lacking in the small tributaries of this body of water, probably because of the scarcity of ichthyofauna. This species was also found in the artificial Lake of Tramonti.

*Coluber viridiflavus carbonarius* BONAPARTE, 1833

- Campone, 436 m: 1♂ (7.8.1973).
- Valent, 590 m: 1 juv. (10.8.1973).

This snake, once widely spread in the considered area, is at present on the decrease. It is relatively frequent only in the locality “I Piani” (670-682 m) and in the environs of the Lake of Tramonti.

*Coronella austriaca* LAURENTI, 1768

- Gai, near Campone, 410 m: 1♂ (10.8.1976).
- Sghittosa di sotto, 490 m: 1♀ (11.8.1976).
- Valent, 590 m: 1♀ (7.9.1977).
- Giulian, 528 m: 1♂ (17.7.1981).
- Campone, 436 m: 2♂♂, 1♀ (1.11.1974); 1♂, 1♀ (7.8.1975).

The Smooth Snake, still fairly common in the Campone area, particularly occurs in sunny, rocky hillsides, but it is also found in montane pastures and in the old dry-stone walls bordering on the country roads, where it preys upon the Common Wall Lizard (*Podarcis muralis*).

*Elaphe longissima longissima* (LAURENTI, 1768)

(1) Genus *Lacerta* sensu ARNOLD, 1973.

- Valent, 590 m: 1♂ (15.8.1975).
- Sghittosa di sotto, 490 m: 1♀ (4.9.1975).
- Mulino, near Campone, 425 m: 1♂ (16.7.1981).
- Giulian, 528 m: 1♀ (15.7.1981).

This widespread species was observed in a variety of mainly dry habitats, such as dry-stone walls and open woods, but it also occurs in wood-edges and montane pastures.

### Viperidae

#### *Vipera ammodytes ammodytes* (LINNAEUS, 1758)

- Sghittosa di sopra, 510 m: 1♂ (4.9.1977).
- Mount Celant, 725 m: 1 juv. (5.8.1974).
- Piè delle Grave, 460 m: 1♂ (5.9.1974).
- Ciccion, 470 m: 1 juv. (18.8.1976).
- Zulian, 528 m: 1♀ (9.8.1972).
- Martin, 500 m: 1 juv. (2.8.1971).
- Grisa, 428 m: 1♀ (10.8.1972).

This species, though still widely spread on the Monte Rossa mountain system as well as on the Mount Celant, is at present dying off in the Campone area because of both herpetological trade and snake-hunting.

#### *Vipera aspis francisciredi* LAURENTI, 1768

- Martin, 500 m: 1♂ (12.8.1974).
- Campone, 436 m: 1♂ (17.9.1978).

Both specimens — the only ones collected in the considered area — were found in dry open habitats in the neighbourhood of Campone. Probably a sporadic species, which on the contrary is frequently recorded in the adjoining territory of Maniago.

### Discussion

Although the human activities during the last few years have led to a serious danger for the survival of some "herps", i.e. *Triturus alpestris*, *Hyla arborea*, *Lacerta viridis*, *Coluber viridiflavus* and *Vipera ammodytes*, the territory

of Campone is still one of the most interesting areas in the whole Friuli as far as the herpetofauna is concerned. In fact, this preliminary investigation led us to ascertain the occurrence of 8 amphibian and 11 reptile species.

*Salamandra salamandra*, *Triturus alpestris*, *Bombina variegata*, *Lacerta vivipara*, *Coronella austriaca* and *Vipera ammodytes* can be regarded as the most representative species of the area. Particularly, it is to be noted the presence of both *Lacerta vivipara*, which was found only in two localities characterized by peculiar microclimatic conditions, and *Vipera aspis francisciredi* (sensu KRAMER, 1971), only twice observed in the surroundings of Campone. On the contrary, *Salamandra atra* and *Vipera berus* — two species occurring in the eastern Italian Alps (DOLCE, 1977, 1979) — are lacking in the investigated area. On the whole, the most spread Amphibians and Reptiles are *Salamandra salamandra*, *Bufo bufo*, *Rana temporaria*, *Podarcis muralis*, *Anguis fragilis*, *Coronella austriaca*, *Elaphe longissima* and *Natrix natrix*.

It appears to us that the amphibian and reptile species occurring in the Campone area are not actually responding to a particular plant association, but rather to the physical characteristics of the habitat (e.g. *Lacerta vivipara*, an orophilic element living only in two particular biotopes, locally named "magredi", sited on the gravelly cones of the Chiarzò stream and characterized by a high biocenotic affinity with the poor pastures on gravels and sands situated around the southern border of the Alps (see BRANDMAYR, 1982). In fact, with the exception of *Salamandra salamandra* which is mostly bound to beech-woods, it seems that none of the considered species is restricted to a single plant association. In terms of community ecology — though samples from the same vegetational zone represent the same "herpetological assemblage" (see HEATWOLE, 1982)<sup>(2)</sup> — the habitat structuring of the examined herpetological entities can be exemplified as follows:

#### I - fresh-water habitats

##### a. slow-flowing waters

*Triturus alpestris*  
*Natrix natrix*  
*Natrix tessellata*

(2) According to HEATWOLE (1982) "a community is not limited to specific taxa, and a "herpetological community" by definition is not an ecologically meaningful entity". However, we think in agreement with this Author that "it is important to examine the structuring and interactions among community members of the same taxon, or of a few taxa".

- b. still waters
- Triturus alpestris*  
*Bombina variegata*  
*Rana* cfr. *esculenta*  
*Natrix natrix*  
*Natrix tessellata*
- II - wet biotopes ("magredi")
- Lacerta vivipara*
- III - damp-wooded habitats
- Salamandra salamandra*  
*Bufo bufo*  
*Hyla arborea*  
*Rana temporaria*  
*Anguis fragilis*  
*Natrix natrix*
- IV - open dry habitats
- a. open woods
- Bufo viridis*  
*Podarcis muralis*  
*Lacerta viridis*  
*Coronella austriaca*  
*Elaphe longissima*  
*Vipera ammodytes*
- b. rocky places
- Podarcis muralis*  
*Coluber viridiflavus*  
*Coronella austriaca*  
*Elaphe longissima*  
*Vipera ammodytes*  
*Vipera aspis*

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