

## **Preliminary data for a distributional map of smooth and southern smooth snakes in north Italy: Lombardy**

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The knowledge of the current distribution of *Coronella a. austriaca* and *Coronella girondica* in Italian regions is incomplete; also works about these two species of snakes are practically absent and only BRUNO (1966, 1970, 1979, 1984, 1990) has presented some aspects of their biology, taxonomy and geonomy in general.

Since 1986, however, regional mapping programs have been started, coordinated by herpetologists who, though slowly, are outlining the current distribution of these and all other reptile and amphibian species in Italy.

The situation is very different in every region and, while the research is more or less completed in some areas (Piedmont, Sicily, Emilia Romagna, Friuli V. Giulia, Liguria and Lombardy), in others they are only at the beginning because of lack of collaborators.

The Centro Studi Erpetologici "Emys" of the S. I. S. N.

The Centro Studi Erpetologici "Emys" is the promoter of the reptile and amphibian mapping in Lombardy and collaborates actively with the researchers working in the nearby regions.

This Research Center was founded in 1985 by a group of naturalists with herpetological interests (including: A. POZZI, M. ZUFFI, A. DAVINI, N. ANCONA, V. FERRI) and, in 1987, was absorbed into the illustrious "Società Italiana di Scienze Naturali", located in the Museo Civico di Storia Naturale of Milan. The statutory goals of the "Emys" Center are:

- census of the herpetological fauna;
- constitution of a herpetological data-base (bibliographic, faunistic, etc.);
- increase of public awareness of the herpetofauna;
- protection of the herpetofauna.

Thanks to the research in the field, knowledge of the status of the species still present has gradually increased, and the pressures upon public institutions, in order to augment the number of protected Reserves and to include snakes among animal species to be protected (unjustifiably persecuted in Italy, including in the Parks and Reserves), were raised.

### Results

Four years after the beginning of the mapping program, collected data and their cartographic conversion (like in the examples proposed, on the regional cartographic quadrants of Lombardy in a 1:10,000 scale and in the U.T.M. 1:25,000 scale) are being analysed. By 1991, the first "Lombardian Herpetological Fauna Atlas" and the "Relation about the current status of the herpetological fauna in Lombardy" should be available for regional Legislative Organs and for the creation of biogenetic reserves for endangered species and places.

Thus, the works on the two species of *Coronella* presented here constitute an example of these activities. On the enclosed maps, the *Coronella*'s distribution data are represented in two different ways: the data derived from the historical distribution, obtained from bibliographic data and from herpetological collections (both private and in museums), are represented as full squares, while the current distribution, established through research in the field or by examining recent bibliography and collections, is represented using full circles. According to a national accord, the "historical" data is up to 1979 (included).

#### *Coronella austriaca austriaca* LAURENTI, 1768

**Historical distribution** – The principal faunistic information was deduced from the work of VANDONI (1914), LUGARO (1957), BRUNO (1966, 1968, 1970, 1984, 1990) and from the herpetological collections kept at "Museo Civico di Storia Naturale di Milano" (MCSNMI), at "Museo Civico di Storia Naturale di Brescia" (MCSNBS), at "Museo Civico di Storia Naturale di Morbegno, Sondrio" (MCSNMO), at "Museo Zoologico" of the University of Pavia" (MZPV) and at "Museo Civico di Storia Naturale di Verona", E. De Betta Collection, (MCSNVR).

The information collected does not make the definition of this species in Lombardy possible, but is useful to outline a potential distribution scenario in the region (see Fig. 1).

**Current distribution** – The verified distribution, still incomplete because of the obvious problems arising with this elusive snake, is quite in accordance with past information. However, one could think that the situation of the smooth snake populations in Lombardy was a slight reduction due to environmental changes during the last decades. In effect this species is becoming rarer in the Lombardian Plain where it survives near the agricultural urban agglomerates, especially near old and semi-abandoned structures with large populations of Lacertidae.

In the area of the Alpine Foothills it seems to be still relatively common: the maximum altitude observed is near Campo Lake, on the Adamello Bresciano, Brescia, at 1700 m (D. BARATELLI's record, 1988).

There is very little evidence of their presence in the Apennines near Pavia, where it seems not to compete with the southern smooth snake (see Fig. 2).

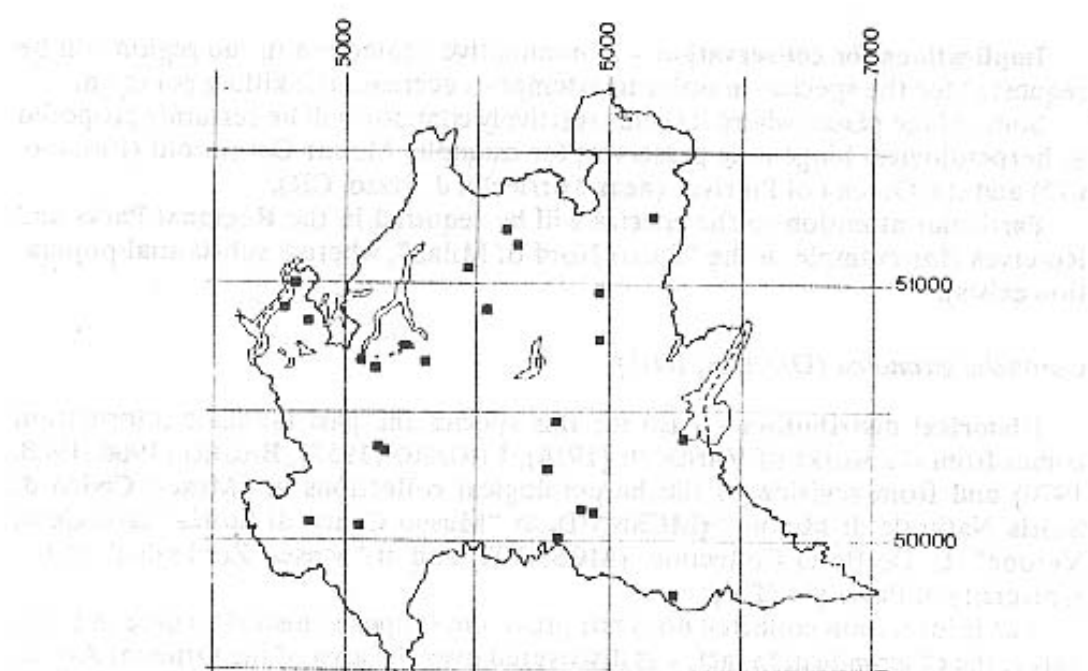


Fig. 1. Historical distribution of *Coronella a. austriaca* in Lombardy (quadrants U.T.M. 1:25,000 scale)

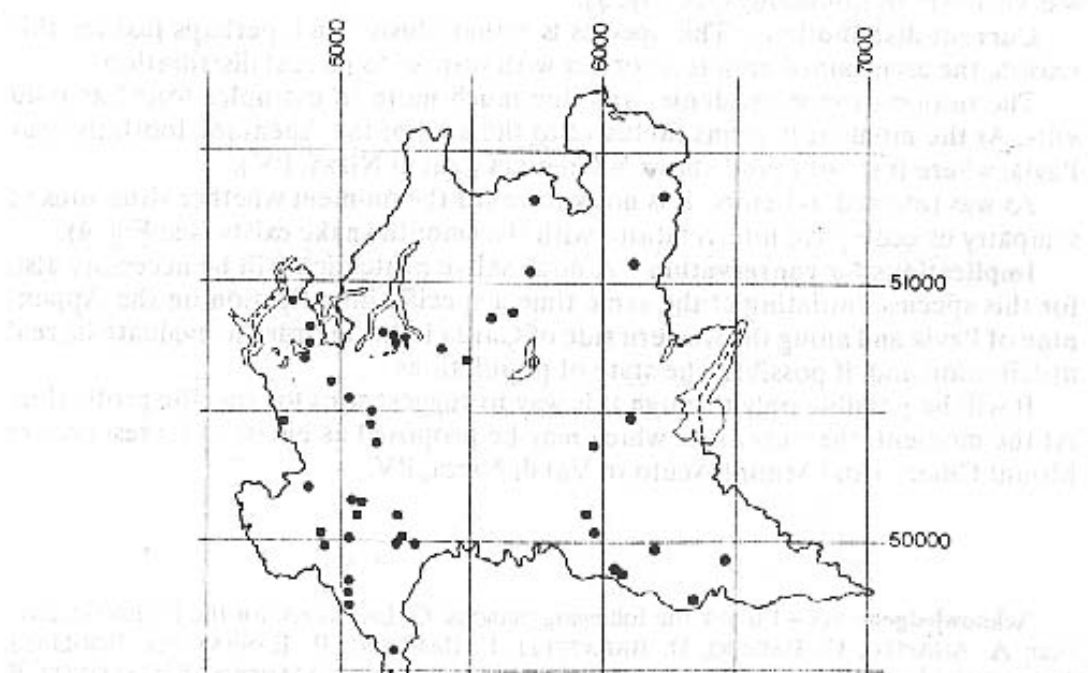


Fig. 2. Current distribution of *Coronella a. austriaca* in Lombardy (quadrants U.T.M. 1:25,000 scale)

**Implications for conservation** – A nominative protection in the region will be requested for the species, in order to attempt to decrease the killing going on.

Some of the places where it seems relatively common will be certainly proposed as herpetological biogenetic preserves: for example, Mount Cornizzolo (Pusiano, CO) and the Golena of Po river (near Torricella d. Pizzo, CR).

Particular attention to the species will be required in the Regional Parks and Reserves (for example in the "Parco Nord of Milan", where a substantial population exists).

*Coronella girondica* (DAUDIN, 1803)

**Historical distribution** – Also for this species the past faunistic information comes from the works of VANDONI (1914), LUGARO (1957), BRUNO (1966, 1968, 1970) and from revision of the herpetological collections at "Museo Civico di Storia Naturale di Milano" (MCSNMI), at "Museo Civico di Storia Naturale di Verona", E. De Betta Collection, (MCSNVR) and at "Museo Zoologico" of the University of Pavia (MZPV).

The information collected does not prove the supposed historical area in Lombardy; the *C. girondica*, in fact, was discovered over the area of the Oriental Alpine foothills and in particular around the Lake Garda near Brescia and in the province of Bergamo (GIACOMELLI 1897). However, VANDONI (1914) said that the species was very rare in Lombardy (see Fig. 3).

**Current distribution** – This species is rather elusive and, perhaps just for this reason, the ascertained area is incorrect with respect to its real distribution.

The information is incidental and due much more to examples found as road kills. At the moment it seems exclusive to the area of the Apennine foothills near Pavia, where it is not found above 500 meters (Val di Nizza, PV).

As was referred to before, it is not known for the moment whether situations of sympatry or ecological interrelations with the smooth snake exists (see Fig. 4).

**Implications for conservation** – A nominative protection will be necessary also for this species, initiating at the same time a specific investigation on the Apennine of Pavia and along the western side of Garda Lake, in order to evaluate its real distribution and, if possible, the state of populations.

It will be possible only through this way to suggest sites for specific protection. At the moment, the only areas which may be proposed as biogenetic preserve are Mount Cinereo and Mount Acuto in Val di Nizza, PV.

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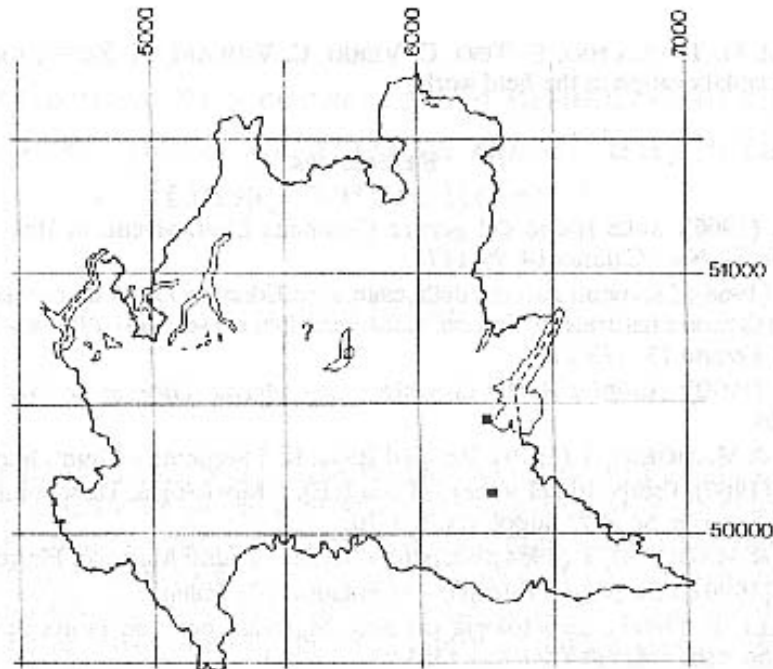


Fig. 3. Historical distribution of *Coronella girondica* in Lombardy (quadrants U.T.M. 1:25,000 scale)

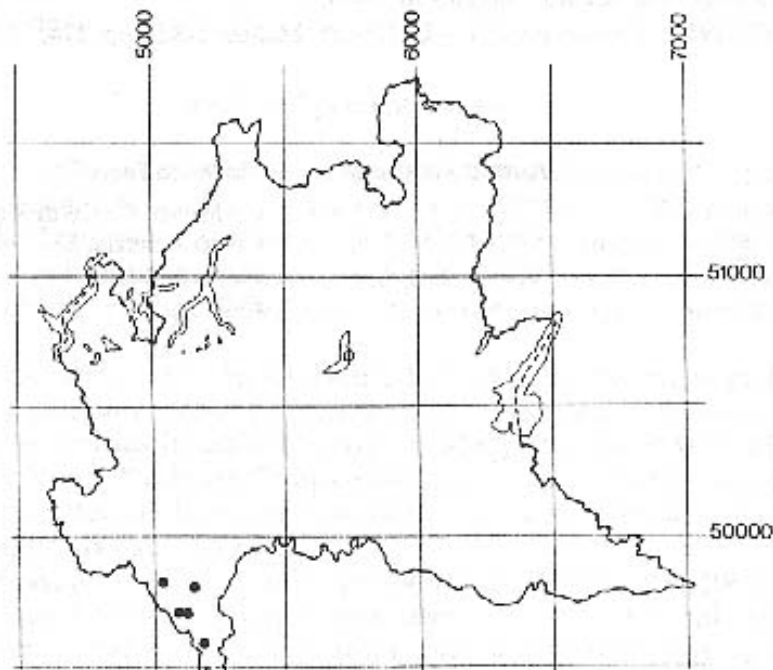


Fig. 4. Current distribution of *Coronella girondica* in Lombardy (quadrants U.T.M. 1:25,000 scale)

SCARAVELLI, G. TAVECCHIO, B. TISO, C. VERRI, C. VIOLANI, M. ZUFFI, for the *Coronella* records and collaboration in the field work.

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