SAVING ITALY'S VIPERS

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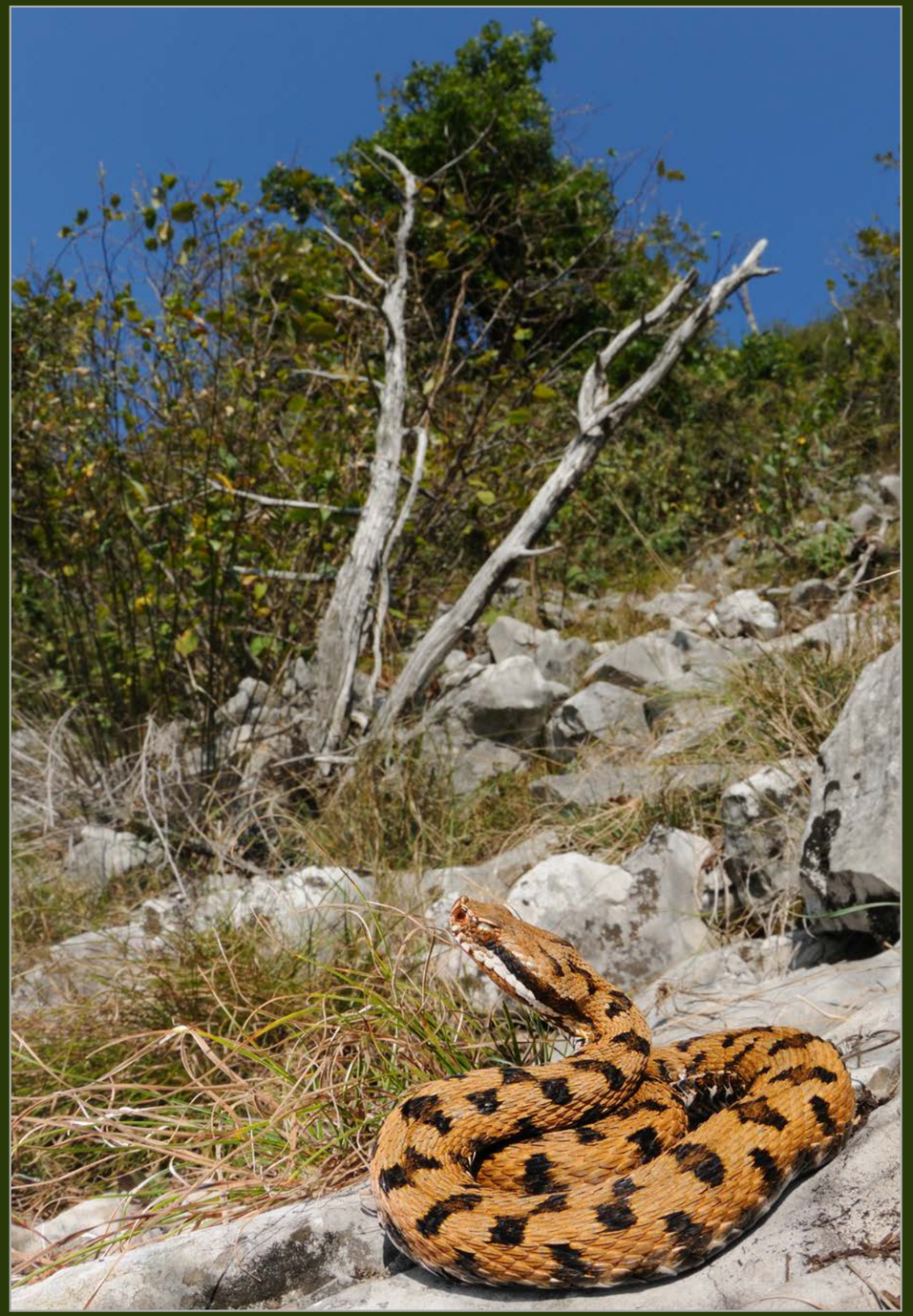
A HOT NEW LOOK FOR ADDERS

How can a young man save his own country's most maligned, feared and persecuted animal? Matteo Di Nicola has chosen - successfully - to highlight its unique beauty

The small Meadow viper *Vipera ursinii* inhabits mountain meadows in a few areas of Umbria, Lazio, Marche and Abruzzo. This specimen was sunbathing at the base of a sunny calcareous hillside. On the title page, a striking close-up portrait of a melanistic *Vipera aspis atra*.



Redi's asp *Vipera aspis francisciredi* can be observed in different sunny environments, like this showy male in a xeric stony ground of Lombardy.

TEXT AND PHOTOS
BY MATTEO DI NICOLA

Regarding its wildlife aspects, one could safely say that Italy is a country of huge contradictions. On one hand the territorial and climatic characteristics confer a value of biodiversity among the highest in Europe (ranging from the Mediterranean xeric coasts to the alpine habitats, passing by lowland forests, lakes and hills), on the other hand human pressure and urbanization make wild animals increasingly rarefied and even harder to find. There is another conflict to be considered in the specific topic of this article - snakes. The bulk of the population hates and fears them, basing its attitude on ridiculous myths and legends, but there exists a minority of "herp lovers" who morbidly look for reptiles in every corner. However few succeed in the enterprise, because it is not easy to systematically find certain species in Italy, such as vipers - excluding casual encounters, of course. To achieve the goal you need to have good knowledge of the behaviour and habits of these animals and you need to learn about the places where to search. Elusiveness and difficulty of discovery are two of the reasons that made me excited about vipers, which are my preferred photographic and naturalistic subjects. Other reasons are the charm of their shape and patterns, their ecology and their venom. This, combined with the shameful ignorance shown by most people towards certain animals, encourages me to raise awareness about these snakes through both photography and popularization.

More than 3300 living species of snakes are currently known in the world and about 220 belong to the *Viperidae* family, for which Italy, with its bare four species - all belonging to the genus *Vipera* - does not bear any special record. Nevertheless, one could write several pages about why they are so fascinating. This group of venomous snakes, widespread in the Palearctic region, includes only viviparous species. They have terrestrial habits and most of the species prefer a cool environment, in fact at low latitudes they generally colonize areas at higher altitudes.

It would be impossible not mentioning what makes vipers so discussed: their venom. Used to kill their prey (also helping the digestion due to specific enzymes) and possibly for defense, the venom is produced by a specialized triangular shaped gland, located in the postero-lateral position in the head. The venom varies in composition and injected quantity depending on the species. In general, it contains a mixture of many substances including water, metallic and non-metallic ions,

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Differences in skin color occur even between the sexes. This is not an absolute rule, but usually males have more vivid colors and a more contrasted pattern than females. In the first column: males of *Vipera aspis francisciredi* and *Vipera berus*; in the second column, two females belonging to the same species.

Not only the back differs in coloration. Some individuals have unusual colors even on the belly, as this striking “salmon-throat” specimen clearly shows.

Skin before molting appears faded and less contrasty than normal and eyes are bluish: this is due to the presence of a thin layer of fluid that helps the old skin to separate from the underlying new one.

aminoacids and enzymatic proteins such as phospholipase, protease, esterase and thrombin-like enzymes. The effects are mainly haemotoxic, neurotoxic, cytotoxic and cardiotoxic.

The vipers of Italy commonly share a small to medium sized body and a shy behavior: when confronted by humans they prefer to escape rather than attack, which only happens if they have no alternative. In case of an envenomating bite the effects depend on several factors such as the species involved, the amount of injected venom, the age and physical condition of the animal as well as the age and physical condition of the affected person. Generally the four Italian species do not cause very serious effects and they are not considered deadly for an adult in good health.

The four species living in Italy are the Common asp *Vipera aspis*, widespread all over the territory except Sardinia; the European adder *Vipera berus* present in the central and eastern Alps; the Horned or Sand viper *Vipera ammodytes* - the largest of them all - present in South Tyrol and Friuli Venezia Giulia, and the Meadow viper *Vipera ursinii* present in the central Apennines.

With regard to the Common asp, there are three subspecies in our country: *V. aspis atra* (recently ascribed to *V. aspis aspis*), in Piedmont, Val d'Aosta and Western Liguria; *V. aspis francisciredi* in the rest of the peninsula except Calabria and Sicily; *V. aspis hugyi* in the southern regions and in Sicily.

Although to an untrained eye these species may appear quite similar in overall shape, size and behavior, the distinguishing features are many, including differences in ecological, ethological and morphological characteristics.

An amazing feature is that each specimen, even of the same subspecies, is never the same as another: the colors and the dorsal pattern are always slightly different, as if they were fingerprints. This is what pushes me to continue photographing the same species even after having seen dozens of specimens. I am always very puzzled by those who fear these animals more than they need to, without really knowing them. How can one not be captured by their fierce eyes, their elegant posture and their movements - so accurate and calibrated as to never waste more energy than necessary. As an example, their capacity to annihilate the prey, or even their would-be predators, thanks to the use of an extraordinarily complex chemical, the result of millions years of evolution, should be considered an added value and not an element of contempt! And turning to snake lovers from all over the world, I think that Italian Vipers have nothing to envy to several far more popular species. In fact, this is already well-known to many people, especially those involved in the illegal trade of our species, the collection (and killing) of which is strictly prohibited by specific laws. This is why one should never disclose sites of observation of these snakes to unknown people or even on Internet forums.

Males of the Common European adder *Vipera berus* are usually found in shades of grey with a more or less but usually strongly contrasting black pattern. This species can be observed in different alpine environments, such as pastures, rocks, moors or - as the specimen in the picture on the following page - close to bogs.

The European adder *Vipera berus* is found in the central and eastern Alps. This species reaches the highest altitude, up to 3000 meters above sea level.

Vipera aspis atra can rarely be seen in a rare monochromatic coloration without any ornamentation. This variety is called *"concolor"*.

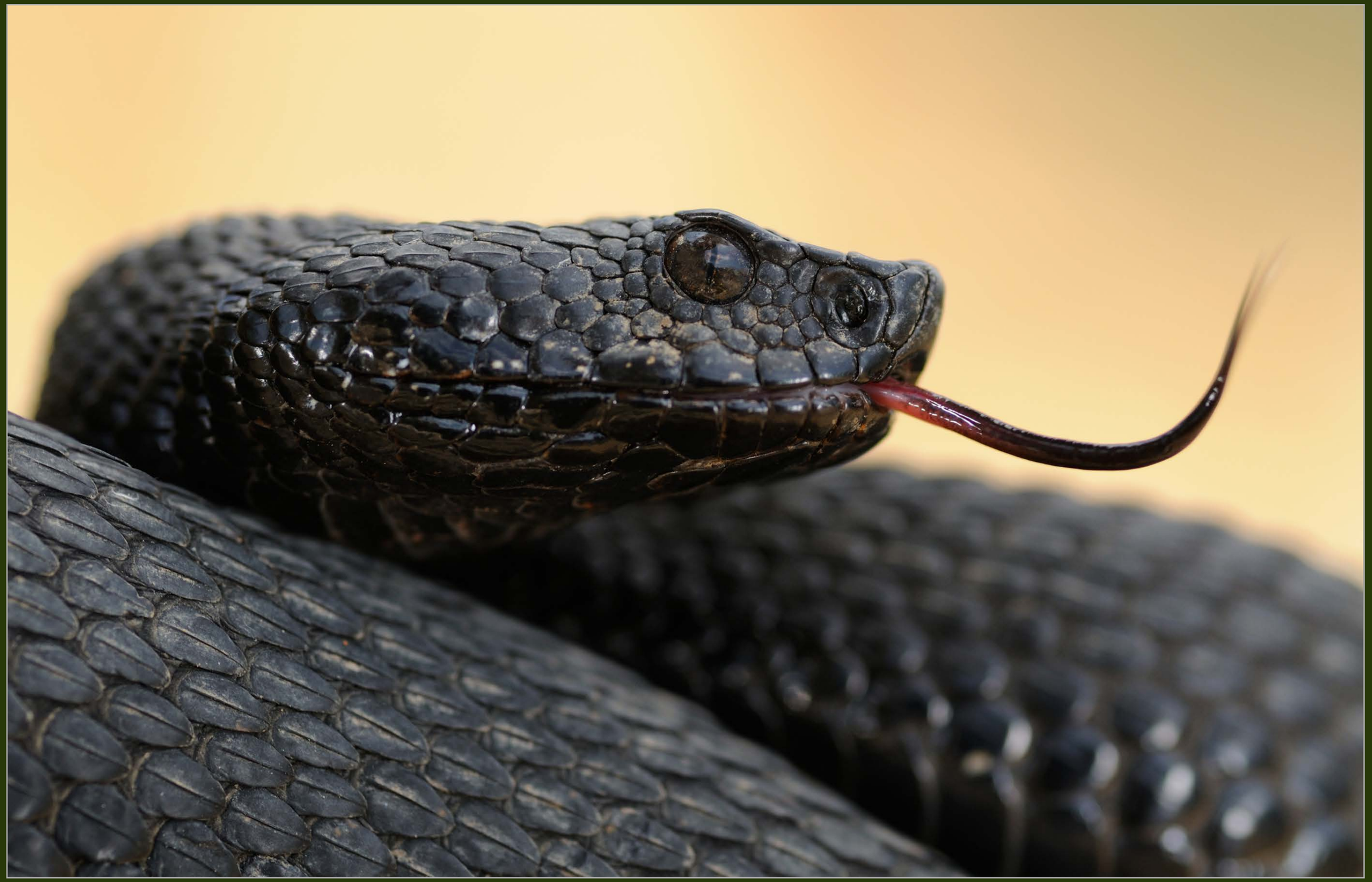
The horned viper *Vipera ammodytes* lives in sunlit calcareous environments in South Tyrol and Friuli Venezia Giulia, like the female in this picture.

In Italy *Vipera ammodytes* typically shows a greyish coloration, but in some areas of Friuli VG females can be reddish, like specimens from Albania.

The chromatic variability is very high, not only between different species but even within the same subspecies, as in these *Vipera aspis atra* specimens.

A comprehensive view of the different patterns of the six species/subspecies.
In the left column, from the top: *V. aspis atra; V. aspis francisciredi* and *V. aspis hugyi*.
In the right column, from the top: *V. ammodytes, V. berus, V. ursinii*.

Now a view of the different heads. Same as the previous picture:
in the left column, from the top: *V. aspis atra; V. aspis francisciredi and V. aspis hugyi*.
In the right column, from the top: *V. ammodytes, V. berus, V. ursinii*.



Melanism (dark pigmentation excess in the skin) is a quite common chromatic variation in *Vipera aspis atra, V. aspis franciscirediand* and *V. berus* but it was recorded just one time for *Vipera aspis hugyi*, more than 25 years ago. In 2012 I was lucky enough, together with my friend G. Meier, to find in nature another melanistic specimen.

Not rare but really cool, the *"infernalis"* variety of *Vipera aspis atra:* a melanistic subject with red eyes and venter.

The Alpine viper *V. aspis atra* lives in the northwest (Piedmont, Aosta Valley and Western Liguria), in alpine stony ground and meadows, also over 2000 meters above sea level.

The Southern Italian asp *V. aspis hugyi* is endemic in Puglia, Basilicata, Calabria, Sicily and Montecristo isle, where it has been introduced. Here a female in a *Pinus nigra laricio* forest in Calabria.