

## Publication

## A new vertebrate for Europe: the discovery of a range-restricted relict viper in the western Italian Alps

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We describe *Vipera walser*, a new viper species from the north-western Italian Alps. Despite an overall morphological resemblance with *Vipera berus*, the new species is remarkably distinct genetically from both *V. berus* and other vipers occurring in western Europe and shows closer affinities to species occurring only in the Caucasus. Morphologically, the new species appear to be more similar to *V. berus* than to its closest relatives occurring in the Caucasus, but can be readily distinguished in most cases by a combination of meristic features as confirmed by discriminant analysis. The extant population shows a very low genetic variability measured with mitochondrial markers, suggesting that the taxon has suffered a serious population reduction/bottleneck in the past. The species is extremely range-restricted (less than 500 km<sup>2</sup>) and occurs only in two disjunct sites within the high rainfall valleys of the Alps north of Biella. This new species should be classified as globally 'endangered' due to its small and fragmented range, and an inferred population decline. The main near-future threats to the species are habitat changes associated with reduced grazing, along with persecution and collecting.

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