

# Whiter than white: dimorphism in the white ventral coloration of *Podarcis muralis*

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## Introduction

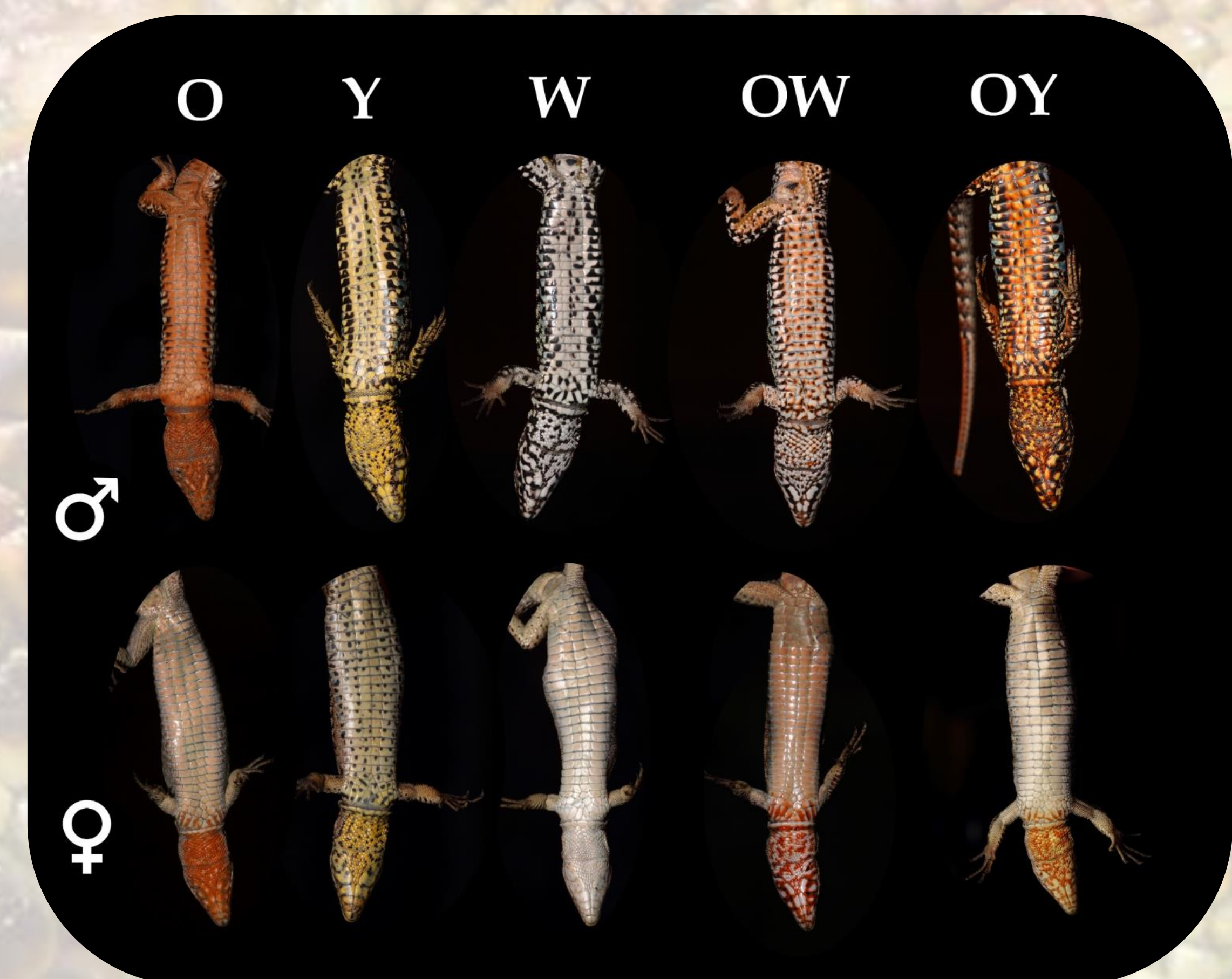
Colour polymorphisms, in which individuals showing discrete colorations (i.e. morphs) coexist within a single population, are common in the family Lacertidae. In the European common wall lizard (*Podarcis muralis*), individuals from polymorphic populations show either white, orange, yellow, or two mixed (orange-white and orange-yellow) ventral adult colours. Undetected by previous work, spectrophotometry shows that there are, in fact, two types of white lizards: non UV and UV-reflecting lizards. In this study we present the reflectance spectra of both types of lizards (i.e. white and UV-white lizards) and evaluate their relative frequency in wild populations.

## Methods

- We measured ventral reflectance in 11 populations of *P. muralis* located along an altitudinal transect ranging from 1200 m in the southern slope of the eastern Pyrenees to 470 m in the northern slope, and peaking at ca. 2000 m.

## Results

- The two types of white lizards differ in their reflectance in the UV range.
- UV-white is relatively more frequent in the northern slope (36%) than in the southern slope of the Pyrenees (11%).
- The difference is bigger in males (53% in the north, 12% in the south) than in females (15% in the north, 11% in the south).



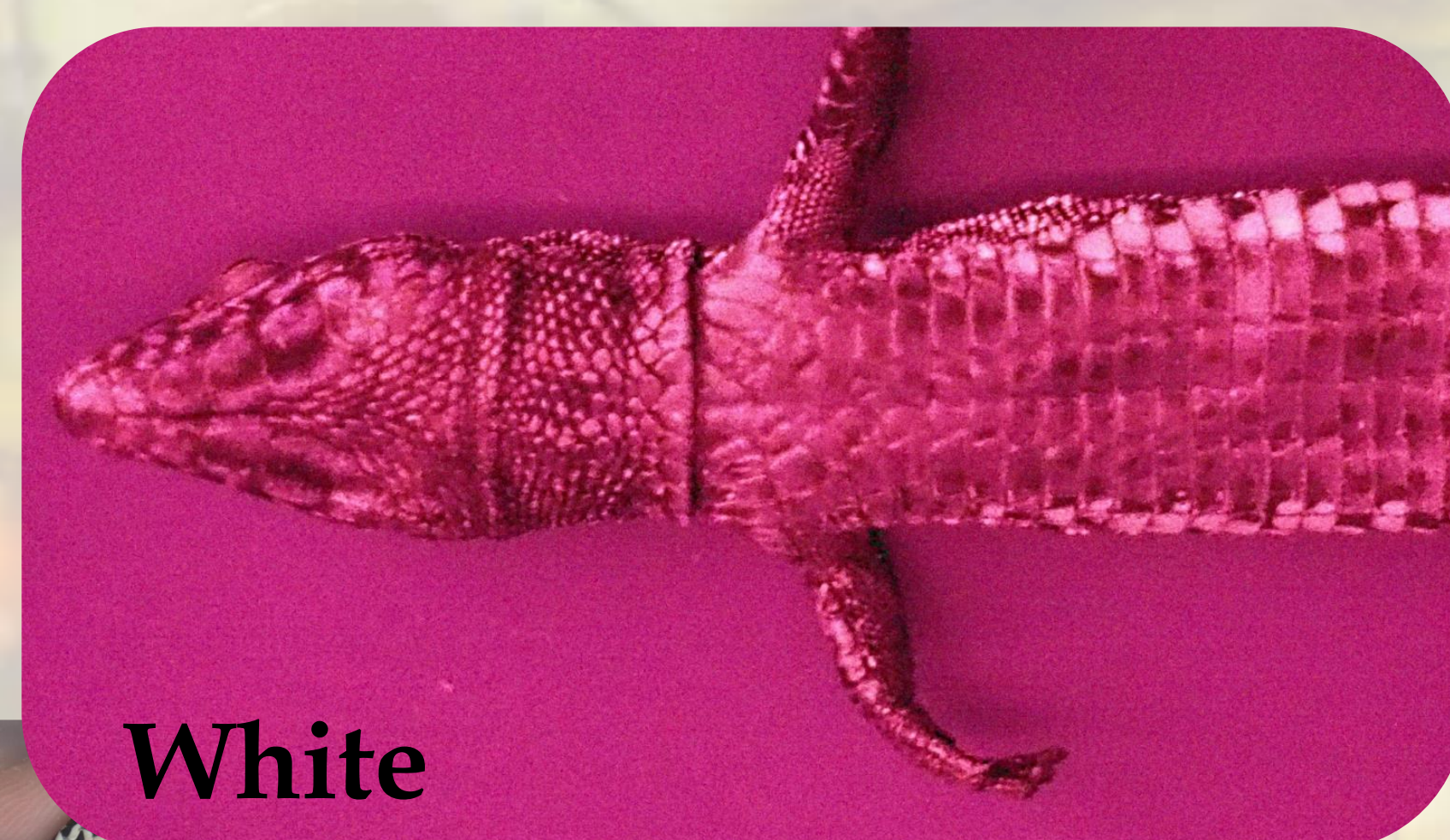
Alternative ventral colorations present in populations of *P. muralis* from the southern slope of the Pyrenees

Two individuals showing the two different types of white coloration.

S1



White



UV phototgraphy (UV-A: 320-380 nm).

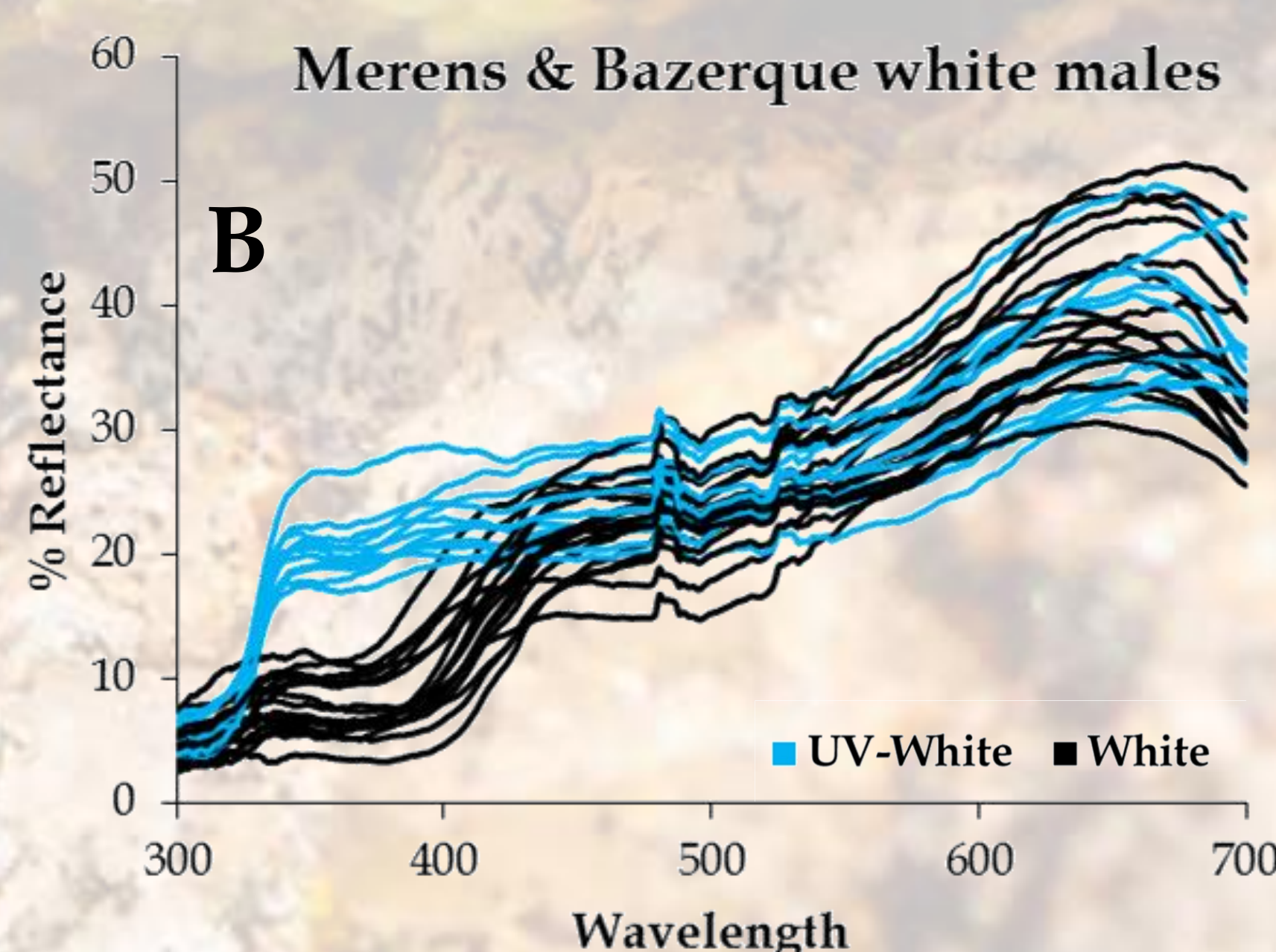
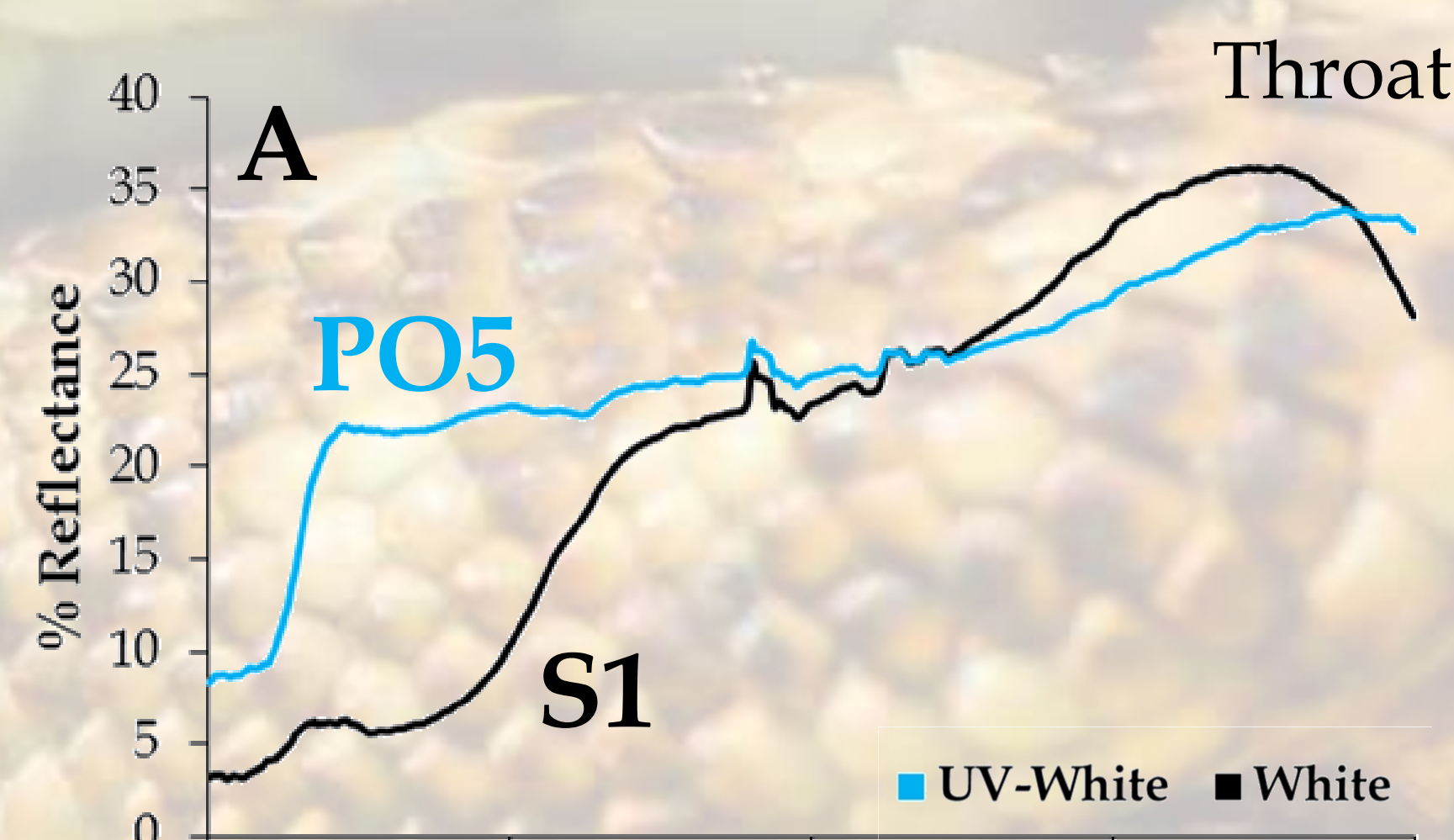
Visible spectrum (400-700nm)



UV-White

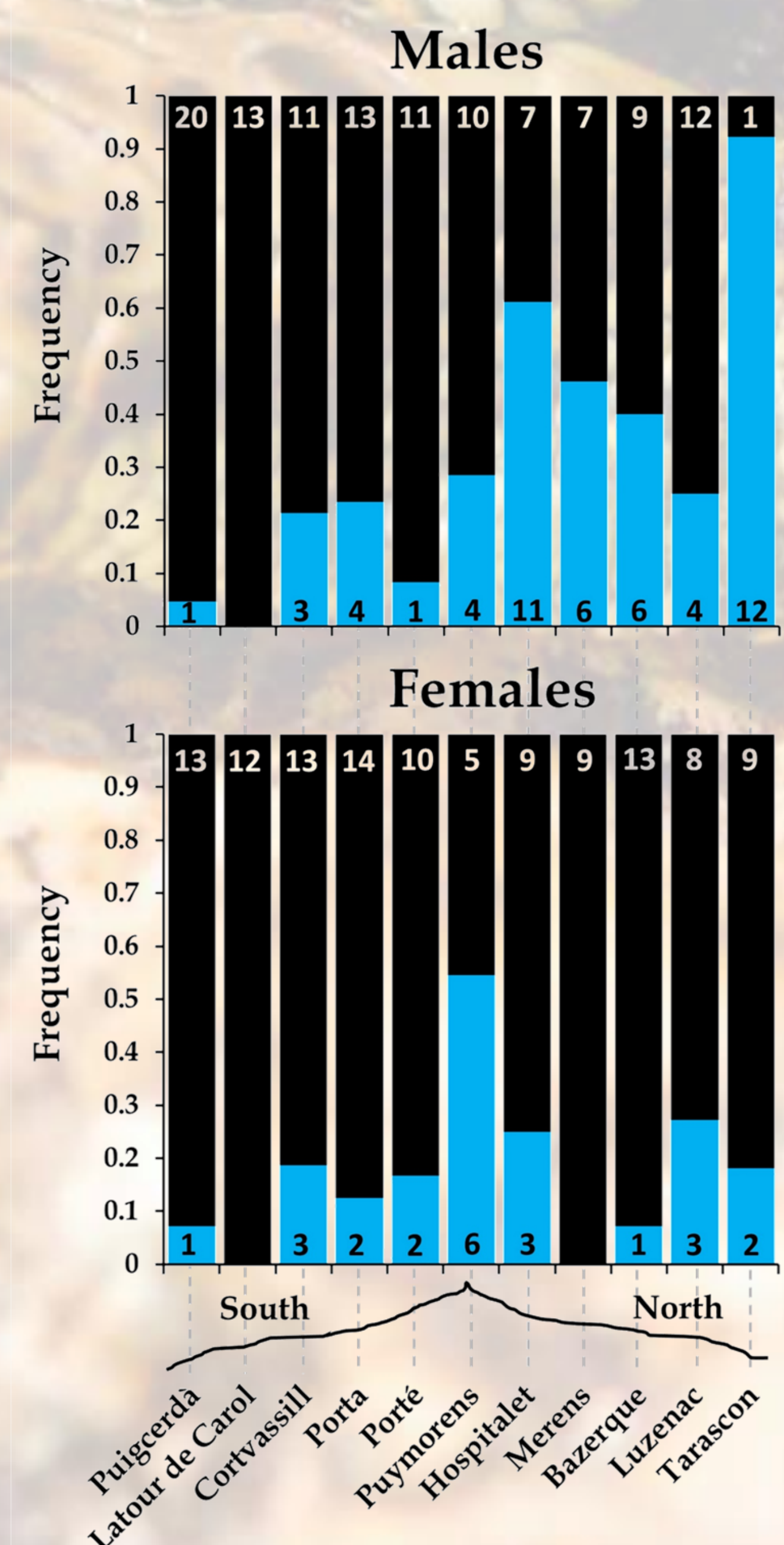
The ventral surface of the lizard in the upper panel (S1) absorbs more UV light than the ventral surface of the lizard in the lower panel.

PO5



A) Throat reflectance spectra of the same individuals, showing the dimorphism in white ventral coloration.

B) Reflectance spectra of all the "white" males from two populations pooled together to evidence the bimodal distribution.



Frequency of white and UV-white ventral coloration in 11 populations located along an altitudinal transect in eastern Pyrenees.