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Climate And Habitat Diversity Affect Variety Of Animal Species In Spain

ScienceDaily (Mar. 28, 2009) — The Iberian Peninsula is one of the richest regions of Europe in terms of animal biodiversity. In this context, Spanish researchers have shown that the variation in terrestrial vertebrate diversity in Spain is influenced above all by climate. In addition to habitat diversity, the study concludes that, when all other factors are taken into consideration, this wealth is higher in the north (Pyrenees) and the south (Straits of Gibraltar), and is relatively less in the centre of the peninsula.

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"Climate, human population density, the variety of animal habitat and spatial structure are some of the factors contributing to the distribution and wealth of Spanish amphibians, reptiles, mammals and birds, according to their taxonomic category." Researchers from the University of Granada (UGR) started out from this premise in order to research the reasons behind the variations in the wealth of vertebrate species in Spain, where there are, on average, 98 species per 100 km2.

Although the scientists thought that habitat variation was the main determining factor of biodiversity, their study, published in *Ecological Research*, shows that other factors

impact on the variety of animal species.

The wealth of terrestrial vertebrates in Spain is primarily determined by climate. "Precipitation favours the high variety of bird and mammal species, while temperature does the same for amphibians and reptiles," Gregorio Moreno-Rueda, lead author of the study and a researcher at the UGR's Department of Animal Biology, tells SINC.

This means that more species were found in places with higher recorded levels of precipitation. According to Moreno-Rueda "annual precipitation is probably the most important factor in determining the number of bird and mammal species in Spain".

The research study also shows that the disparity of habitats within a single area where various species, each belonging to different habitats, coexist increases biodiversity. Despite all the studies that have attributed the wealth of Spanish species to habitat availability, "the relative importance of habitat diversity is less than that of climate" in the Iberian Peninsula, according to the researcher. The research team places greater importance on the diversity of habitats at local level, as also indicated by other studies.

Conflict between human populations and the natural environment

"Human beings tend to establish themselves in areas of high primary production, which is where the diversity of animal species is also at its highest," points out the biologist. This is the reason for conflict between the human population and the environment, because birds and mammals prefer to live in the same areas chosen by humans.

Some areas planted to crops, which are more densely populated and highly productive, still have - despite their degraded landscapes - "great environmental value, although this is rarely taken into account by public administrations", claims Moreno-Rueda.

The number of animal species rises still further in the south (Straits of Gibraltar) and the north (Pyrenees). The researcher explains that this phenomenon "could be due to the flow of species coming from the rest of Europe and the north of Africa, which would increase the variety of species near the Pyrenean isthmus (passeriform birds) and the Straits of Gibraltar (amphibians and reptiles), respectively".

For the researchers, understanding the patterns of species variety and the relationships between environmental and geographical factors is of paramount importance in order to define the key places in which to set up conservation areas.

In addition, not all reserves for species conservation should be in remote areas. In this sense, reserves for amphibians and reptiles should be located in the hotter parts of Spain, preferably in rural areas.

Journal reference:

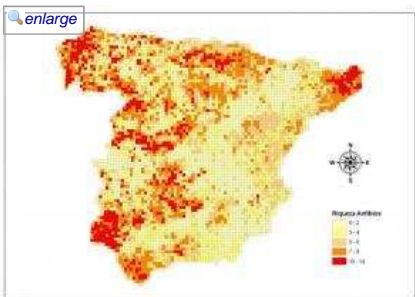
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Map of species richness of amphibians in Spain. (Credit: Gregorio Moreno-Rueda / SYNC)

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