

PEIN 25 years later: are threatened plant species in Catalonia truly protected?

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Introduction

A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley, 2008).

The System of Protected Areas in Catalonia was initiated in 1985 with the publication of Law 12/1985, which defined all types of protected areas and launched the idea of PEIN (*Pla d'Espais d'Interès Natural*). In 1992 PEIN Order (*Decret 328/1992*) was completely published, and the System of Protected Areas in Catalonia became true. The third Annex of this Order comprised a list of protected plant species in PEIN areas. Lately, a small modification of it was made, with the release of the *Catàleg de flora amenaçada de Catalunya* in 2008.

The main aim of this report is to evaluate the efficiency of PEIN system, focusing on the protection of plant threatened species, as well as the assessment of active plant species management in areas that contain a Management Entity.

Materials and Methods

An Excel document was created with Pteridophyta and Spermatophyta species that are protected in one or more PEINs. For each of them, several characteristics were analysed.

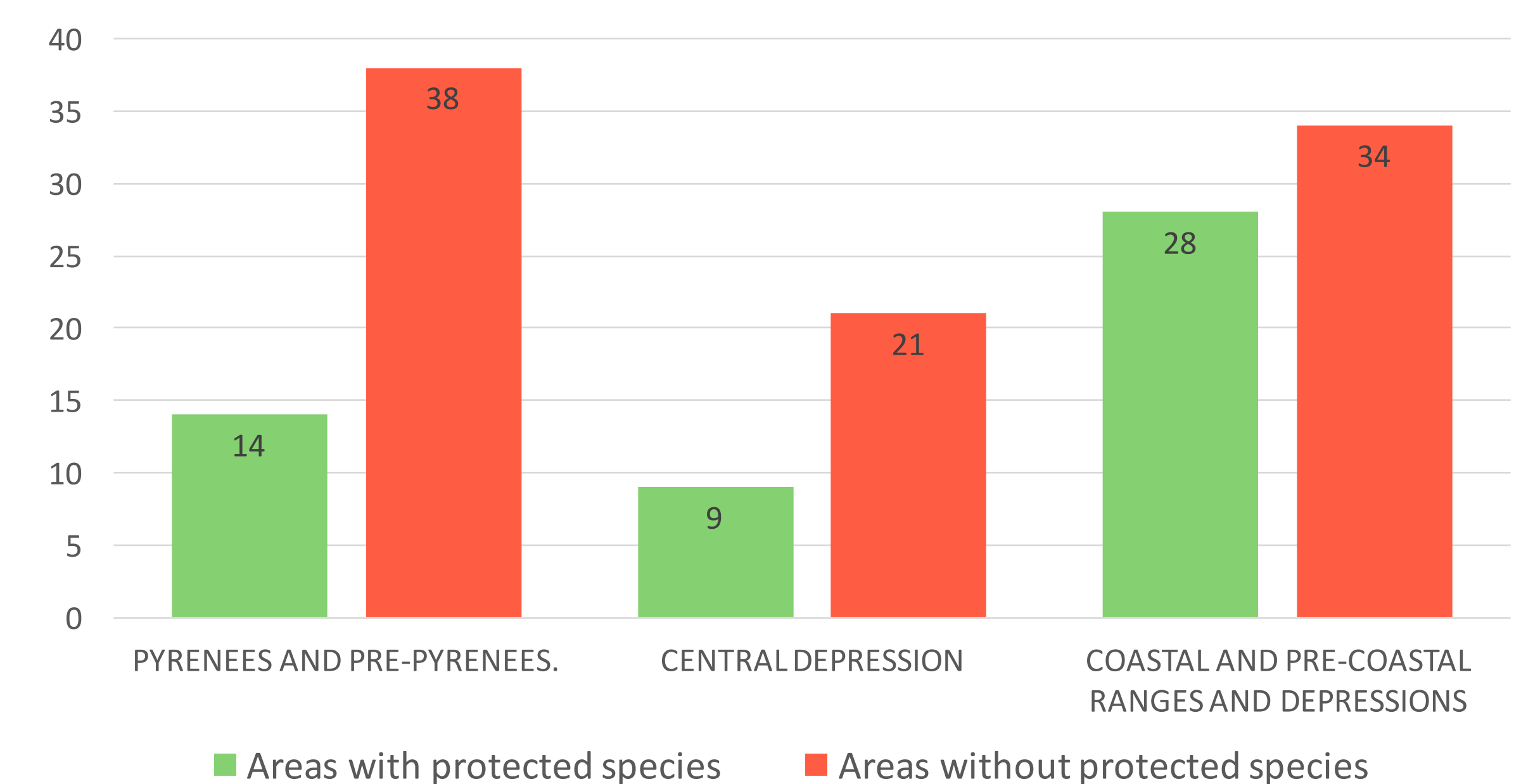
PEIN areas were divided into one of the subsequent categories: Pyrenees and Pre-Pyrenees, Central Depression and Coastal and Precoastal Ranges and Depressions.

There were 10 species in the list that were either introduced in the area of interest, or they were not present there at all. In consequence, they were excluded for the subsequent analysis.

Results

1. Plant protected species relative to the number of PEIN areas

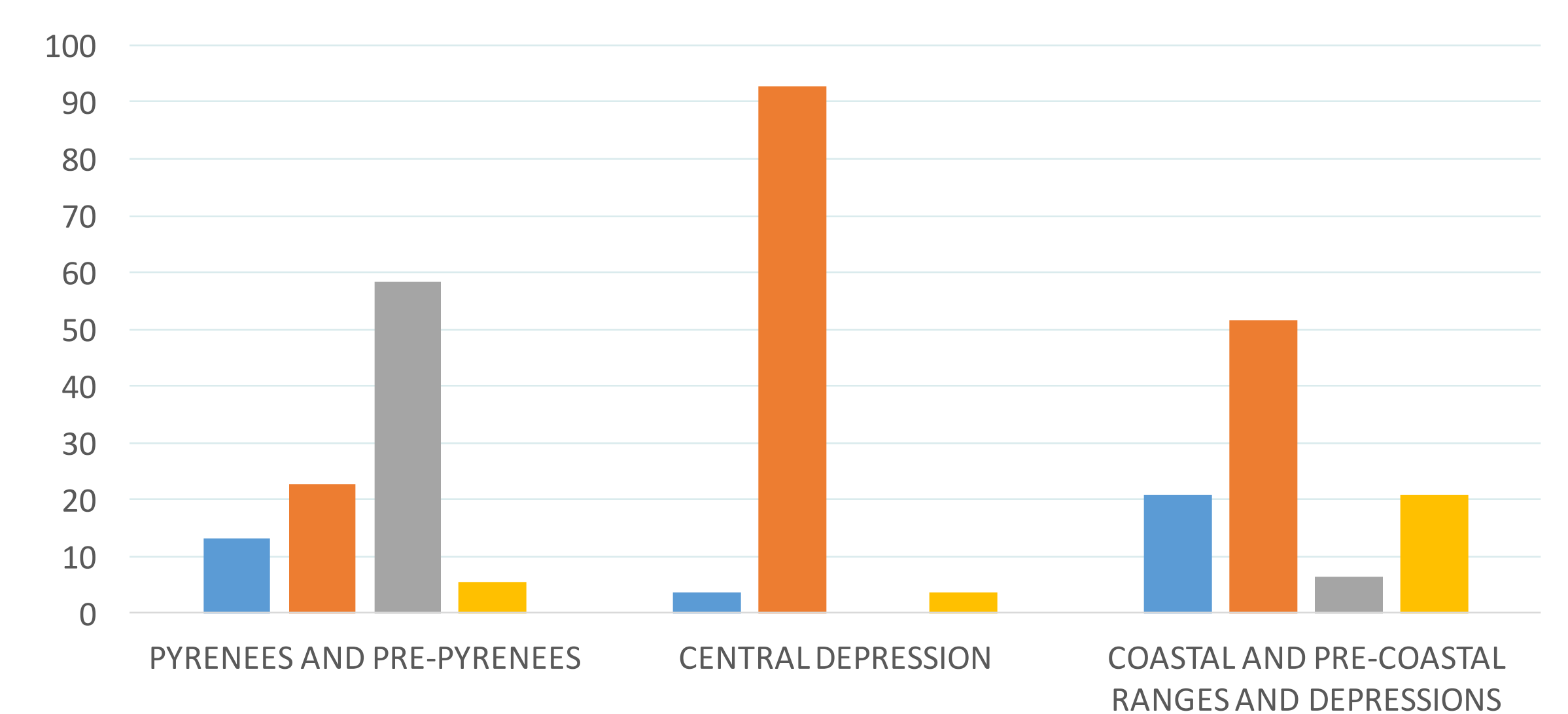
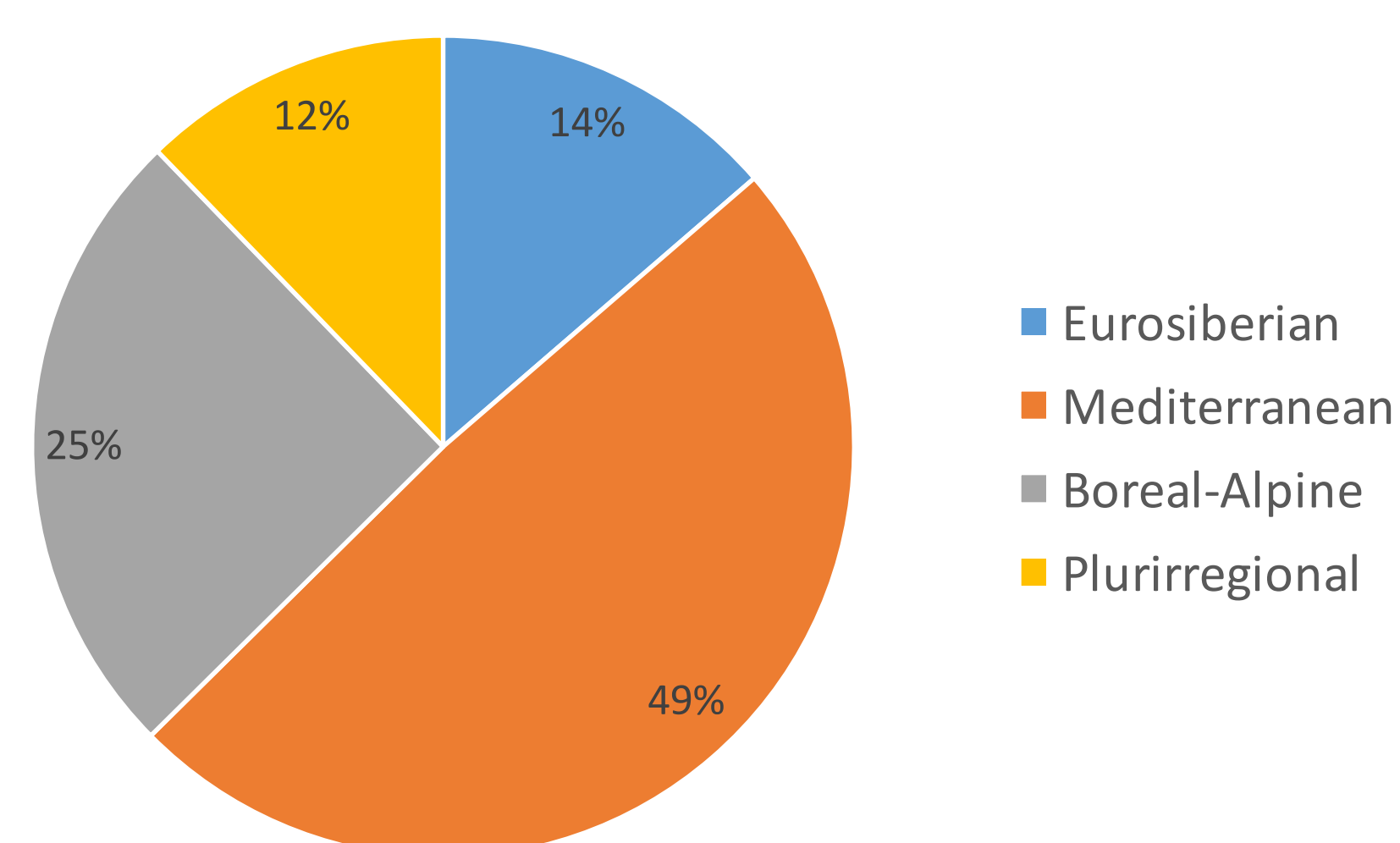
PEIN areas are more or less uniformly distributed across Catalonia. Nevertheless, not all protected areas have protected plant species. In all regions of Catalonia, PEINs that don't contain protected species are more abundant than those which contain them, with the higher difference in the region comprising the Pyrenees and Pre-Pyrenees. Thus, on average, there is only one protected species in every PEIN area.



2. Protection according to species biogeography

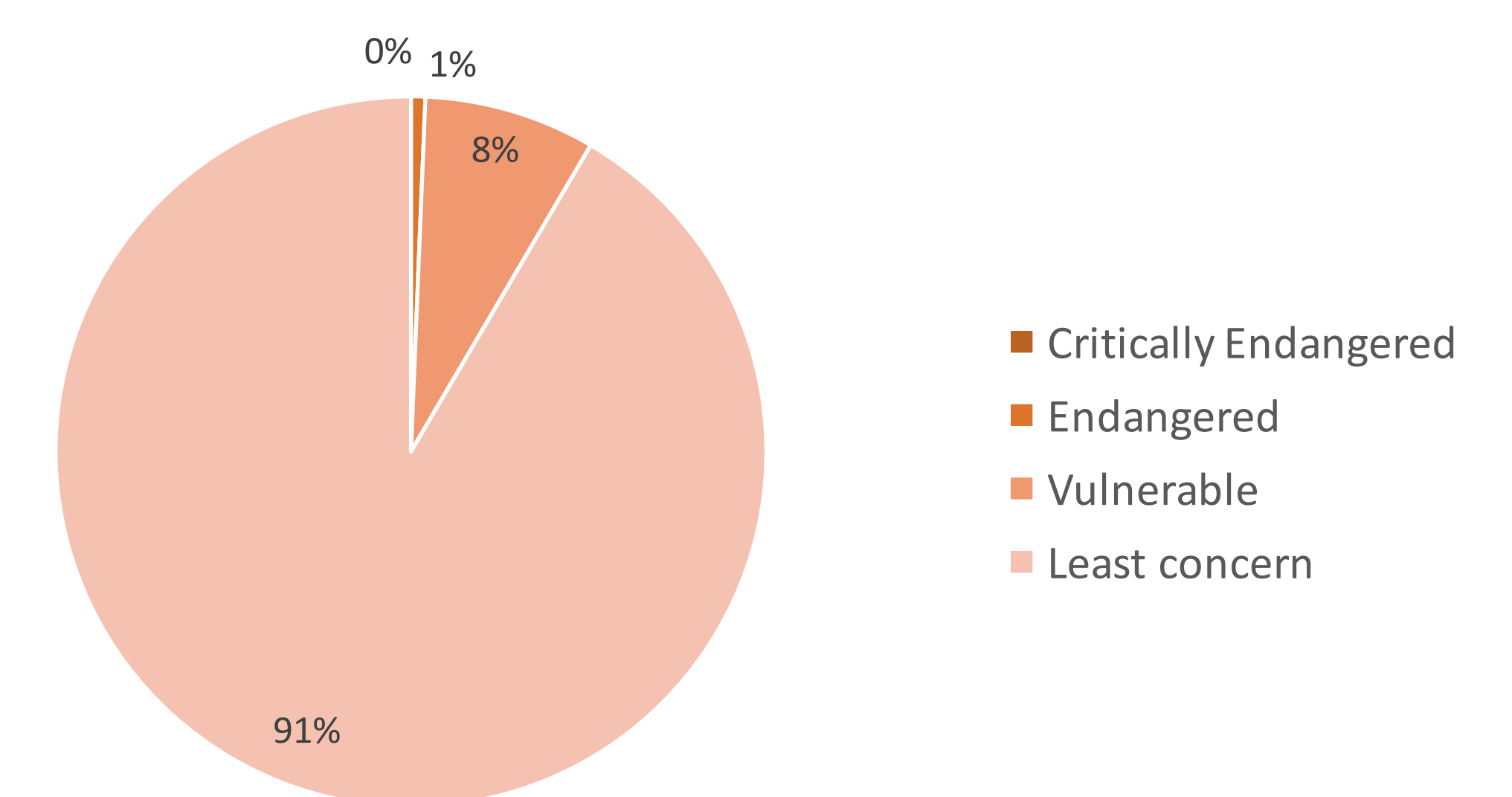
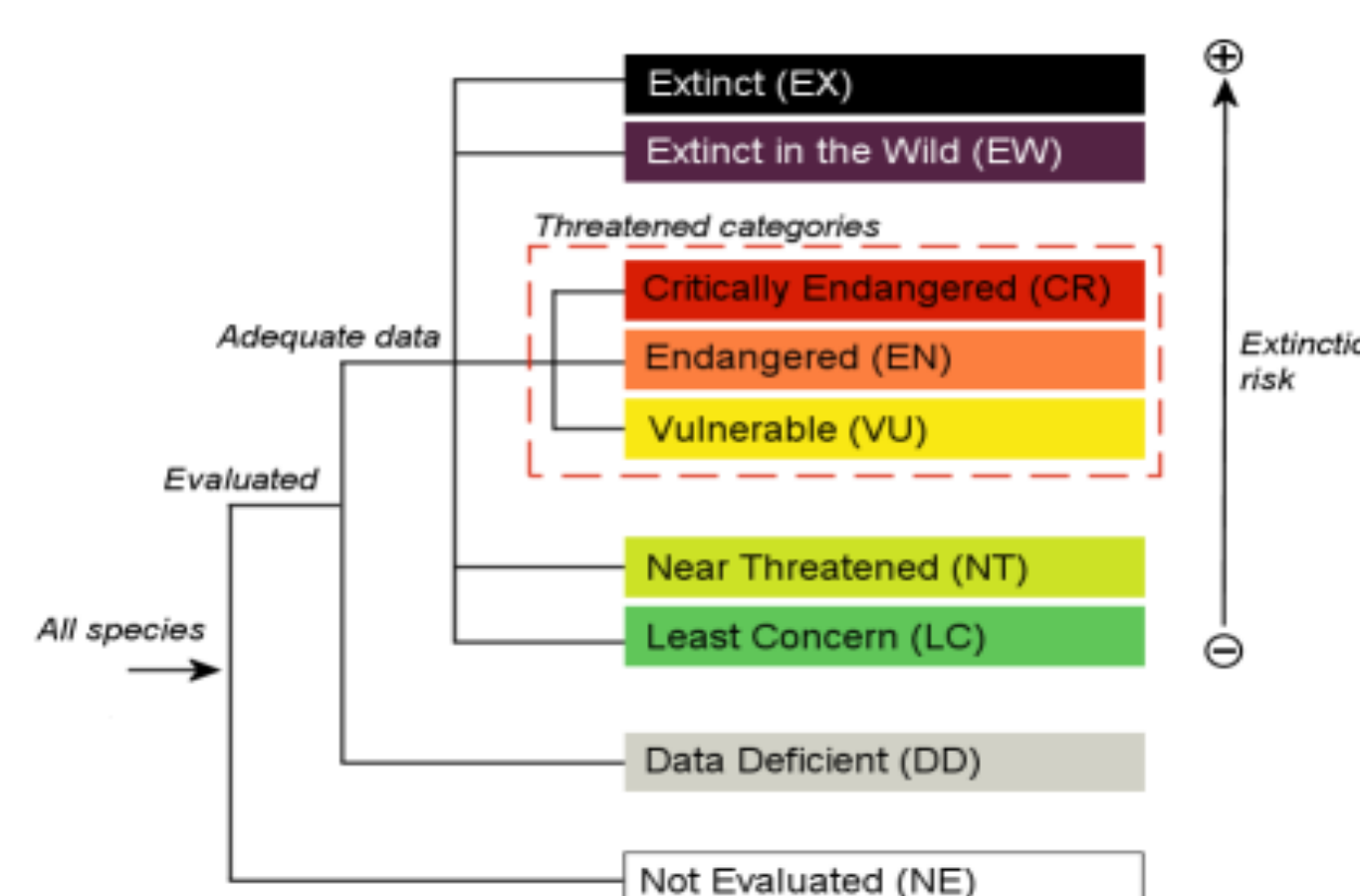
Comparing protected species considering their biogeography there is a predominance of Mediterranean ones, which corresponds with their preponderance throughout Catalonia.

When dividing PEIN areas into the same three regions as before, there is a logical protection in them. Boreal-alpine species are over-represented in the Pyrenees and Pre-Pyrenees region, while Mediterranean ones form the majority of protected plant species in the centre and coastal part of Catalonia.



3. Protection according to species' threaten level

The IUCN Red List Categories are the standardised and most widely used system of classifying species at high risk of global extinction. When classifying protected species in Catalonia into one of the threaten categories, there is an undoubtedly predominance of Least-Concern (LC) species protected, which are not endangered at all. Vulnerable (VU) species comprise a mere 8% of the list, while endangered (EN) species are absent. Only one Critically Endangered (CR) species is protected in Catalonia.



Conclusions

25 years is a reasonable time to assess the consequences of PEIN Order, and this report has focused on plant species' protection.

On the whole, the results show that:

- The majority of protected areas don't contain protected species.
- On average, there is only one protected plant species in every area.
- There are 10 protected species which are either introduced in that PEIN or not present there at all.
- Protection of plant species throughout Catalonia according to their biogeography is fairly adequate.
- Protection regarding the threaten level is not reasonable at all. Nearly all protected species are not threatened at all, while endangered species are not protected by the PEIN Order.

Future perspectives:

- ✓ Exclude species that are introduced in the area of interest
- ✓ Exclude species that are not present in that area
- ✓ Exclude common species that don't need protection
- ✓ Include endangered and endemic species that need special protection

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