

A NEW CONTRIBUTION TO ASSESMENT OF THREATENED SPECIES IN RED LIST OF LICHEN-FORMING AND LICHENICOLOUS FUNGI IN SPAIN AND PORTUGAL

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The Spanish Lichen Society (SEL) has recently launched an initiative to create a Red Lists of lichen-forming and lichenicolous fungi

for risk of putative menaced species by assessing threats according IUCN criteria and to provide accurate information for

conservation measures. A first package of nineteen species was evaluated in 2019. Here, we present the threat assessments

corresponding to 23 lichen-forming fungi. Profiles follow recommendations proposed by Atienza & al. (2017, British Bulletin 120).

Datasheets include the following aspects: 1) Main characters for identification; 2) Ecology and habitat description; 3) Map of areas

of occurrence including: extent of occurrence (EOO), area of occupancy (AOO), number of localities; 4) Main threats to species

survival; 5) IUCN Red list category and criteria used for assessment; 6) Proposed conservation actions that are needed to mitigate

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included in protected areas and Natura 2000 sites



Platygramme buxi (Etayo) Etayo • Assessor: J. Etayo, M.E. López de Silanes &

•Threats: Its only phorophyte is *Buxus sempervirens* which formations are affected by human disturbances and since 2014 are highly affected by the Cydalima perspectalis plague whose larvae defoliate the boxwoods, so that Platygramme buxi could not be adapted to those

conditions and being in CR (critically endangered). •Conservation. Populations included in several protected EOO: 33.184 km² areas: in Navarra, Arbayún Gorge is a Natural Reserve; in AOO: 4 km² Huesca, Torla, it is found in the Ordesa and Monte Perdido Number of localities: 4 National Park, but also the Añisclo canyon and the Escuáin Population number: Indeterminate gorge; in Tarragona, La Sénia, the Retaule ravine, belongs to | IUCN Category & Criteria: the Ports Natural Park.



Assessor: Graciela Paz Bermúdez

Threats and Conservation Since this taxon is only known from herbarium EOO: Unknown material collected over a century (in 1880), and it is AOO: Unknown an easily recognisable species both for its size and its Number of localities: 1 morphological and chemical characteristics, we think | Population number: Unknown | that it may be an Extinct taxon.

Immersaria usbekica (Hertel) M. Barbero, Nav.-Ros. & Cl. Roux



• Threats: Immersaria usbekica is in regression due to fires and intens land use. The detachment of thalli of this species has been observed in areas affected by forest fires. • Conservation: Immersaria usbekica is legally protected in Catalonia (I



UICN classification Spain (Iberian Peninsula and Balearic Islands) EOO: 250 km² AOO: 3-4 km² Number of localities: 3 Population size: Indeterminate

UICN Category & Criteria: VD2



Number of localities: 33 Population size: Indeterminate



IUCN Clasification Spain



IUCN Category: EX? microclimate conditions.

Assessor: Pere Navarro-Rosinés • Threats: We consider that Koerberiella pruinosa may in one of its localities. • Conservation: The species is not locally protected AOO: 4 km² Community Importance (SCI).



hanges in abiotic conditions due to climate are the Catalonia (NE of Spain). Most of the populations are included in protected areas and Natura 2000 sites.



IUCN Clasification to Spain Number of localities: 1 Population number: Unknown IUCN Category: CR JCN Criteria: B1 B2ab iv IUCN Clasification to Portugal lumber of localities: 2

Population number: Unknown Habitat of the species in Serra da Estrela IUCN Category: EN (Portugal). Photos: Juan Ramón Vidal Romaní | IUCN Criteria: B1 B2ab iv Threats and Conservation

• PORTUGAL: Both populations seem to be very small, the one in Ponte de Lima being the most threatened by the strong anthropic pressure in the area since 1924. The Serra da Estrela population reported by Boom & Jansen (2002) was found in a 'Tor' (granitic formations of large stones piled up as a result of a process of differential erosion and of variable size) and frequent in the Serra da

deciduous forest, a type of habitat clearly threatened all over Europe.

Estrela (Vidal Romaní & Rowland, 1998). • SPAIN: The only specimen was collected on soil mosses, located inside an ancient



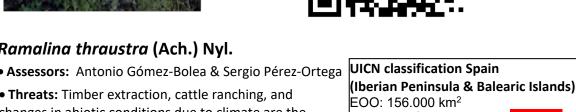
Leptogium laceroides B. de Lesd • Assessor: M.E. López de Silanes & G. Paz-Bermúdez •Threats: The most recent specimens were collected in 2001. The reduction of habitat is mainly due to anthropic disturbances such as the increase in urban areas, forest fires, more intense and frequent in recent years, the replacement of forests by crops and forest changes in

 Conservation. Populations included in several IUCN Clasification Portugal protected areas: in Minho, Serra do Gerêz is included in the Peneda-Gerêz National Park (PNPG) and in Beira Litoral, Buçaco, which according to the ICNF is included in Number of localities: 4 Demography: Insufficient data a type of Portuguese protection called Matas Nacionais. Population number: Insufficient data Póvoa do Lanhoso and Serra da Lousa are outside the Portuguese protection areas although today many of IUCN Criteria: B2 (a)+(b iv) them are still forested and/or agricultural areas.



be in regression due to the destruction of part of its UICN classification Spain habitat, to be used for agricultural uses, a fact verified (Iberian Peninsula & Balearic Islands) EOO: 3800 km² except the locality Secans de Mas de Melons-Alfés, Number of localities: 4 which is a space that is included in the European | Population size: Indeterminate Natura 2000 network since 2003 as a Site of UICN Category & Criteria: Vu D2



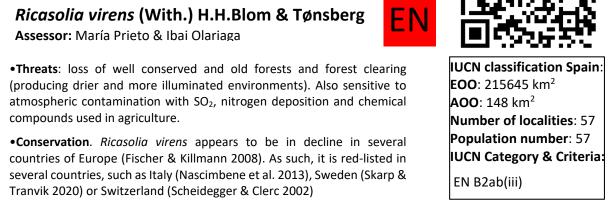




these threats; and 7) Research needed.

Botánico, CSIC. Plaza de Murillo 2, 28014, Madrid, Spain.

Assessor: María Prieto & Ibai Olariaga compounds used in agriculture. •Conservation. Ricasolia virens appears to be in decline in several





Wedin & S. Ekman •Assessor: María Prieto & Ibai Olariaga •Threats: of this habitat with high humidity and well-preserved has disappeared and the remnants are fragmented. The scarce presence and abundance of *P. plumbea* in the center of the Iberian Peninsula depends on human actors related mainly to **IUCN classification Spair**

habitat loss. •Conservation: Included in several red lists of Europe and North America (Italy, Sweden, Wales and Canada). Pectenia plumbea was previously listed as vulnerable in the Red List of lichens of central Spain.

(Nascimbene et al. 2013; Institución Catalana de Historia Natural,

2010), NT in Wales and LC in Great Britain (Woods & Coppins, 2012).



EOO: 336782 km²

Number of localities: 10

Populations number: 71

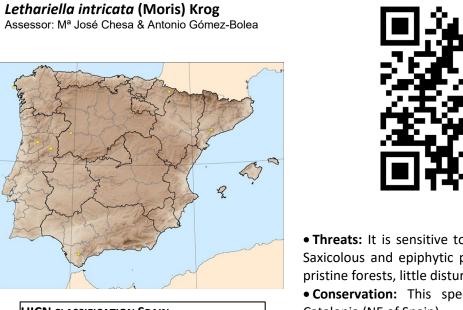
IUCN Category & Criteria:

IUCN Category & Criteria:

AOO: 296 km²

EN B2ab(iii)





Number of localities: 6

V B2ab (i,ii,iii,iv,v)

Population size: Unknown

UICN Category & Criteria Spain:

• Threats: It is sensitive to the alteration of its habitat. Saxicolous and epiphytic populations seem confined to pristine forests, little disturbed by human activity. • Conservation: This species is legally protected in **UICN CLASSIFICATION SPAIN** Catalonia (NE of Spain). (Iberian Peninsula and Balearic Islands EOO: 273.650 km²

UICN CLASSIFICATION PORTUGAL EOO: 255 km² Number of localities: 2 Population size: Unknown UICN Category & Criteria Portugal: DD



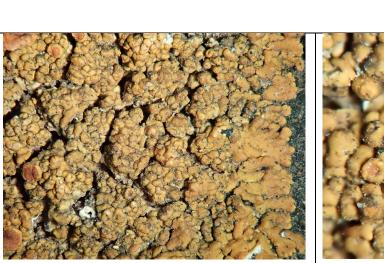
Rinodina striatotunicata Matzer et H. Mayrhofer Assessor: Pere Navarro-Rosinés • Threats: restricted population, only known from one locality and also alteration of the habitat, due to erosion and fires are the most important threats. • Conservation: The habitat of this species is not currently protected at a national or local level, but is within the Parque Natural dels Ports, a protected area in Catalonia (NE of Spain). **UICN classification Spain** (Iberian Peninsula & Balearic Islands) AOO: 1 km² Number of localities: 1 Population size: Indeterminate UICN Category & Criteria:

CR B2a +D2

For more information on species profiles, including bibliographic references, see the QR codes



Anzia centrifuga Haugan • Assessor: Israel Pérez-Vargas & Cristina González Montelongo. •Threats: Global climate models predict reduced rainfall and higher average temperatures across Madeira (Cruz et al., 2009). Fires and anthropogenic disturbances due to tourism are other threats that causes significant habitat alterations. Conservation: Populations are not included in any protected area.



UICN classification Spain

Number of localities: 2

Population size: Indeterminate

UICN Category & Criteria: Vu D2

EOO: 3008 km²

AOO: 2 km²

(Iberian Peninsula & Balearic Islands

Variospora cancarixiticola (Nav.-Ros., Egea & Llimona) Arup, Søchting & Frödén Assessor: Pere Navarro-Rosinés • Threats: Alterations in the habitat due to frequent of tourists visits are the main threat to this species • Conservation: The species grows on ultrabasic igneous rocks, a rare habitat which is not legally protected at a national or local level. **UICN** classification Portugal EOO: 495 km² Number of localities: 2 Population size: Indeterminate UICN Category & Criteria: Vu D2

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etween localities and populations is considerably high. Most of the

Cladonia sulphurina (Michx.) Fr.

• Assesor: Clara Rodríguez-Arribas & Ana Rosa Burgaz



JICN classification Spain

EOO: 184.087 km²

Threats: The principal threats in Spain are due to its rareness

Iberian territory. Being a circumpolar species, in Spain it finds the

environmental conditions caused by global change and impacts in

• Conservation: C. sulphurina counts with no protection measures

UCN classification Canary Islands

opulation number: indeterminate

IUCN Category & Criteria: CR; B2 a,b(iii), C

lumber of localities: 2

southern limit of its distributional range. For these reasons, C.

sulphuring is particularly vulnerable to changes in the

its habitat conditions.

and the very few locations and small populations cited in the

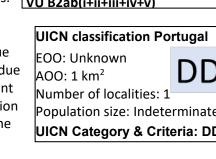
Number of localities: 3

Population size: Indeterminate

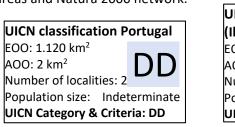
UICN Category & Criteria:

AOO: 3 km²

Iberian Peninsula & Balearic Islands











Cladonia deformis (L.) Hoffm.



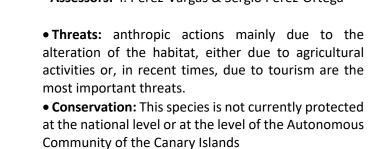
• Threats: The principal threats in Spain are due to its rareness and the very few and small populations, located on the southern limit of its distributional range. This set of factors make C. deformis especially vulnerable to the effects of global change and alterations in its habitat conditions.

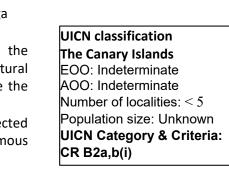
• Conservation: The eastern populations are not located on protected areas. The western populations are found on areas with territorial protective measures. The populations of Huesca are within the limits of Pyrenees National Park and the population of Lérida are inside Aigüestortes y Lago de San Mauricio National Park.



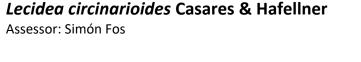












• Threats: Reduction and loss of quality of gypsum

Porina fortunata P.M. McCarthy & Etayo

habitat alterations.

Naturales Protegidos de Canarias".

Assessor: Israel Pérez-Vargas & Cristina González Montelongo.

•Threats: In the Canaries, global climate models predict a change in the pattern of trade-

winds that will have a direct effect on the survival of the laurel forest (Sperling et al., 2004).

Fires and anthropogenic disturbances due to tourism are other threats that causes significant

•Conservation. Populations included in several protected areas belong to "Red de Espacios

habitats: urbanization, agricultural transformation, mining exploitation, installation of landfills, forest plantations, etc. • Conservation: Gypsum habitats are qualified as priority by Habitats Directive and so, are protected within the Natura 2000 network. In addition, several populations are included in other protected areas and, in the Valencian Community, also in Plant Micro-



UICN classification Spain

EOO: 110.000 km²

Number of localities: 12

Population size: Indeterminate

UICN Category & Criteria:

VU B2ab(i+ii+iii+iv+v)

(Iberian Peninsula & Balearic Islands)

reagens (Zahlbr.) Clauzade & Cl. Roux Assessor: Antonio Gómez-Bolea, Simón Fos & Violeta Atienza

• Threats: The establishment of rubbish tips and mining in the área, and also trampling are the main threats to this taxón. • Conservation: Iberian Peninsula gypsum soil lichen communities (Gypsophiletalia) are considered a priority habitat within the Habitats Directive that has protection measures within the Natura 2000 Network, providing effective territorial protection over the characteristic habitat of this taxon. In addition, in the Valencian Community, this habitat is protected UICN Category & Criteria: NT by regional regulations.

UICN classification Spain (Iberian Peninsula and Balearic Islands) Number of localities: 47 Population size: Indeterminate