

Supplementary material

Table S1. Equivalence among categories in Natural protected Areas System of Spain and IUCN protected areas classification (Amos et al. 1996; López-Carrique et al. 1999; López-Ornat and Pons 2007; Dudley 2008; Múgica and Aauri 2009).

IUCN categories	Natural Protected Areas
Ia Strict nature reserve	-
Ib Wilderness área	Reserva Natural Integral
II National park:	Parque Nacional
III Natural monument or feature	Monumento Natural Biotopo Protegido
IV Habitat/species management area:	Reserva Natural Reserva concertada Paraje Natural Paraje Natural Municipal Paraje Natural de Interés Nacional Sitio Natural de Interés Nacional Zona de Especial Conservación de Importancia Comunitaria Zona de Especial Protección de los Valores Naturales Zona de Interés Regional LIC ZEPA
V Protected landscape or seascape	Parque Natural Parque rural Parque Regional Reserva de la Biosfera Paisaje Protegido
VI Protected areas with sustainable use of natural resources	Parque Periurbano Plan Especial de Protección (PEIN)

Table S2. List of the compiled 151 taxa of threatened plant cliff species classified by their climbing intensity. The IUCN category of the species, the number of 10×10 km grid cells where the species was found (*i.e.* occurrences), and the mean percentage (%) of climbing intensity is shown for each taxa.

Threatened Cliff Plant Species	Sps. IUCN category	Occurrences (number of grid cells)	Mean % climbing intensity
Range from 25 to 50 %			
1 <i>Alchemilla serratisaxatilis</i>	DD	2	47.80
2 <i>Alchemilla pentaphyllea</i>	VU	3	47.37
3 <i>Saxifraga catalaunica</i>	NT	5	37.54
4 <i>Galium pulvinatum</i>	EN	7	33.39
5 <i>Linaria aeruginea pruinosa</i>	NT	4	30.13
6 <i>Saxifraga felineri</i>	VU	6	27.15
7 <i>Petrocoptis pardoii</i>	VU	28	26.02
8 <i>Saxifraga cotyledon</i>	VU	9	25.26
Range from 0 to 25 %			
1 <i>Saxifraga biternata</i>	EN	11	23.76
2 <i>Saxifraga reuteriana</i>	NT	28	22.58
3 <i>Agrostis barceloi</i>	CR	2	21.34
4 <i>Erodium recoderi</i>	VU	8	20.18
5 <i>Armeria rivasmartinezii</i>	NT	16	19.46
6 <i>Dracocephalum austriacum</i>	EN	2	19.23
7 <i>Argyranthemum coronopifolium</i>	VU	3	19.18
8 <i>Sideritis glauca</i>	VU	11	18.78
9 <i>Thymus richardii ebusitanus</i>	VU	5	18.67
10 <i>Circaea alpina alpina</i>	VU	3	18.49
11 <i>Centaurea avilae</i>	VU	18	18.02
12 <i>Rupicapnos africana decipiens</i>	EN	28	17.87
13 <i>Erodium tordylioides</i>	CR	8	17.77

14	<i>Papaver rupifragum</i>	EN	9	17.63
15	<i>Centaurea saxicola saxicola</i>	NT	2	17.61
16	<i>Biscutella hozensis</i>	VU	2	17.07
17	<i>Brimeura duvigneaudii</i>	CR	9	16.75
18	<i>Alchemilla nieto-felineri</i>	DD	1	16.71
19	<i>Viola jaubertiana</i>	NT	8	16.64
20	<i>Asperula paui dianensis</i>	VU	13	15.88
21	<i>Hypericum robertii</i>	EN	6	15.86
22	<i>Athamanta vayredana</i>	VU	27	15.84
23	<i>Centaurea saxifraga</i>	CR	2	15.72
24	<i>Hieracium ramondii</i>	NT	45	15.68
25	<i>Hieracium recoderi</i>	CR	6	15.46
26	<i>Euphorbia margalidiana</i>	CR	3	15.42
27	<i>Biscutella ebusitana</i>	VU	3	15.42
28	<i>Armeria euscadiensis</i>	NT	11	15.03
29	<i>Armeria cantabrica vasconica</i>	VU	11	14.97
30	<i>Athamanta hispanica</i>	VU	7	14.80
31	<i>Vicia argentea</i>	VU	8	14.71
32	<i>Paeonia cambessedesii</i>	NT	25	13.63
33	<i>Ranunculus weyleri</i>	VU	5	13.35
34	<i>Thymus richardii richardii</i>	VU	6	13.34
35	<i>Rhodanthemum arundanum</i>	EN	14	13.29
36	<i>Androsace helvetica</i>	VU	11	13.26
37	<i>Asplenium seelosii</i>	NT	9	13.06
38	<i>Centaurea prolongoi</i>	VU	40	13.03
39	<i>Petrocoptis montserratii</i>	VU	11	12.92
40	<i>Erodium mouretii</i>	NT	7	12.89
41	<i>Anthyllis hystrix</i>	NT	12	12.83
42	<i>Allium grosii</i>	VU	8	12.58
43	<i>Limonium emarginatum</i>	VU	6	12.31
44	<i>Petrocoptis crassifolia</i>	NT	18	12.25

45	<i>Linaria clementei</i>	VU	21	11.93
46	<i>Saxifraga gemmulosa</i>	VU	16	11.62
47	<i>Cystopteris montana</i>	NT	25	11.51
48	<i>Aeonium nobile</i>	NT	1	10.88
49	<i>Pellaea calomelanos</i>	CR	5	10.87
50	<i>Trisetum spicatum</i> <i>ovatipaniculatum</i>	DD	7	10.50
51	<i>Saponaria bellidifolia</i>	VU	7	10.50
52	<i>Carduncellus dianius</i>	VU	15	10.49
53	<i>Androsace pyrenaica</i>	NT	17	10.41
54	<i>Rumex scutatus gallaecicus</i>	VU	2	9.99
55	<i>Antirrhinum latifolium</i>	VU	35	9.36
56	<i>Thymus willkommii</i>	NT	33	8.90
57	<i>Silene fernandezii</i>	EN	12	8.75
58	<i>Teucrium carthaginense</i>	NT	31	8.42
59	<i>Limonium perplexum</i>	CR	1	8.36
60	<i>Asplenium balearicum</i>	VU	10	8.32
61	<i>Fumaria munbyi</i>	EN	3	8.23
62	<i>Aeonium haworthii</i>	VU	6	7.85
63	<i>Teucrium intricatum</i>	NT	16	7.72
64	<i>Silene marizii</i>	CR	12	7.65
65	<i>Antirrhinum microphyllum</i>	VU	6	6.71
66	<i>Saxifraga genesiana</i>	VU	9	6.68
67	<i>Primula pedemontana</i>	VU	3	6.47
68	<i>Antirrhinum valentinum</i>	VU	12	6.46
69	<i>Ceratocarpus heterocarpa</i>	EN	15	6.42
70	<i>Ornithogalum reverchonii</i>	NT	20	6.23
71	<i>Rosmarinus tomentosus</i>	EN	18	6.01
72	<i>Melica bocquetii</i>	EN	23	5.95
73	<i>Sonchus pustulatus</i>	CR	7	5.94
74	<i>Draba hispanica lebrunii</i>	EN	11	5.70

75	<i>Sideritis lasiantha</i>	NT	44	5.65
76	<i>Limonium malacitanum</i>	CR	8	5.63
77	<i>Limonium revolutum</i>	VU	6	5.39
78	<i>Sideritis stachydioides</i>	VU	12	4.89
79	<i>Hypochaeris rutea</i>	CR	4	4.44
80	<i>Galium erythrorrhizon</i>	NT	26	4.32
81	<i>Hormathophylla cadevalliana</i>	VU	18	4.26
82	<i>Arenaria conimbricensis viridis</i>	NT	15	4.05
83	<i>Armeria colorata</i>	EN	10	3.96
84	<i>Erodium rupicola</i>	VU	12	3.74
85	<i>Helianthemum marifolium frigidulum</i>	VU	11	3.73
86	<i>Centaurea mariana</i>	VU	12	3.73
87	<i>Saxifraga trabutiana</i>	VU	3	3.63
88	<i>Iberis grosii</i>	VU	8	3.33
89	<i>Spergula viscosa</i>	VU	40	3.29
90	<i>Sarcocapnos baetica baetica</i>	NT	39	3.18
91	<i>Pinguicula vallisneriifolia</i>	VU	29	3.11
92	<i>Scrophularia sublyrata</i>	CR	43	2.92
93	<i>Alchemilla angustiserrata</i>	DD	4	2.72
94	<i>Limonium tremolsii</i>	NT	12	2.69
95	<i>Erodium macrocalyx</i>	VU	8	2.68
96	<i>Pinguicula dertosensis</i>	VU	15	2.57
97	<i>Anthyllis ramburii</i>	NT	33	2.52
98	<i>Centranthus nevadensis</i>	VU	24	2.51
99	<i>Dianthus charidemi</i>	VU	17	2.48
100	<i>Scrophularia valdesii</i>	VU	9	2.47
101	<i>Coincya rupestris rupestris</i>	CR	11	2.47
102	<i>Psilotum nudum</i>	CR	13	1.87
103	<i>Moehringia intricata intricata</i>	VU	43	1.57
104	<i>Limonium dufourii</i>	CR	17	1.39

105	<i>Coincya rupestris leptocarpa</i>	VU	20	1.36
106	<i>Pseudoscabiosa grosii</i>	VU	11	1.35
107	<i>Viola cazorlensis</i>	VU	33	1.20
108	<i>Pinguicula mundi</i>	VU	19	1.17
109	<i>Linaria amoi</i>	VU	14	1.06
110	<i>Coincya longirostra</i>	EN	50	1.04
111	<i>Geranium cataractarum</i>	VU	16	0.75
112	<i>Leontodon farinosus</i>	VU	25	0.59

Mean Climbing Intensity (0%, no climbing)

1	<i>Anthyllis rupestris</i>	CR	20	0.00
2	<i>Antirrhinum charidemi</i>	CR	8	0.00
3	<i>Cephalaria squamiflora mediterranea</i>	CR	2	0.00
4	<i>Geranium dolomiticum</i>	CR	3	0.00
5	<i>Moehringia intricata tejedensis</i>	CR	1	0.00
6	<i>Rubia balearica caespitosa</i>	CR	2	0.00
7	<i>Alchemilla crenulata</i>	DD	2	0.00
8	<i>Alchemilla lainzii</i>	DD	3	0.00
9	<i>Asplenium terorense</i>	DD	1	0.00
10	<i>Antirrhinum lopesianum</i>	EN	5	0.00
11	<i>Antirrhinum pertegasii</i>	EN	10	0.00
12	<i>Antirrhinum subbaeticum</i>	EN	5	0.00
13	<i>Aquilegia pyrenaica cazorlensis</i>	EN	7	0.00
14	<i>Bupleurum balansae</i>	EN	1	0.00
15	<i>Daphne alpina</i>	EN	2	0.00
16	<i>Dipcadi serotinum fulvum</i>	EN	1	0.00
17	<i>Hormathophylla reverchonii</i>	EN	8	0.00
18	<i>Sideritis pumila</i>	EN	1	0.00
19	<i>Teucrium heterophyllum hierrense</i>	EN	1	0.00
20	<i>Asplenium hemionitis</i>	NT	7	0.00

21 <i>Chaenorhinum tenellum</i>	NT	17	0.00
22 <i>Armeria rothmaleri</i>	VU	9	0.00
23 <i>Asperula paui paui</i>	VU	3	0.00
24 <i>Asplenium obovatum obovatum</i>	VU	4	0.00
25 <i>Dianthus rupicola bocchoriana</i>	VU	1	0.00
26 <i>Limonium fontqueri</i>	VU	3	0.00
27 <i>Limonium scopulorum</i>	VU	1	0.00
28 <i>Lotus mascaensis</i>	VU	1	0.00
29 <i>Moehringia intricata giennensis</i>	VU	11	0.00
30 <i>Petrocoptis grandiflora</i>	VU	13	0.00
31 <i>Silene hifacensis</i>	VU	2	0.00

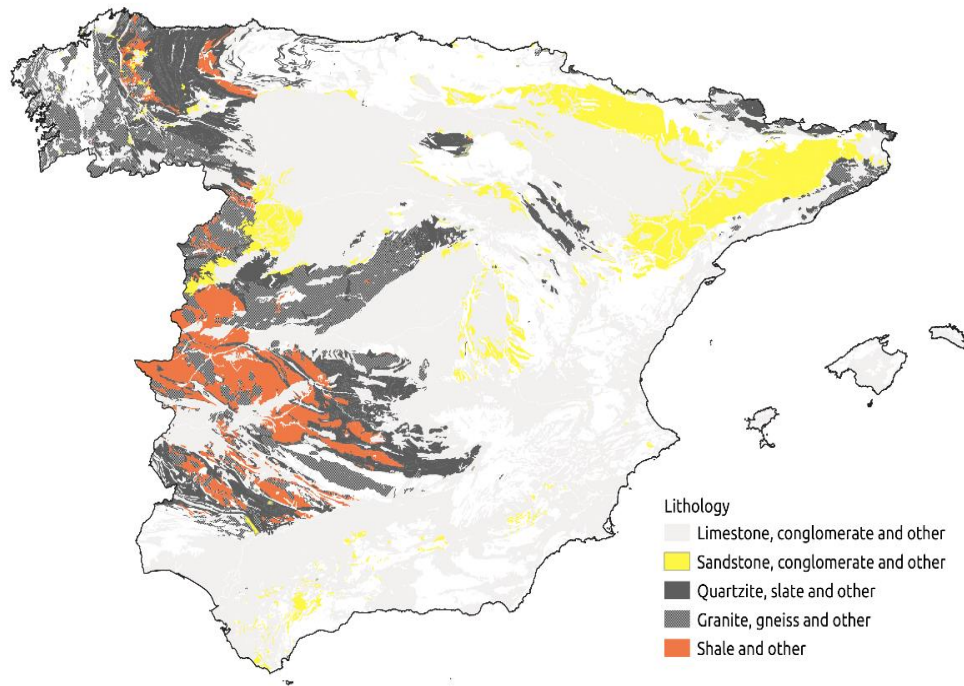
Table S3. Popularity categories of climbing crags in Spain (according to Martos et al. 2018).

Popularity	Description
1	Crag with no particular interest
2	Local crag, worth a visit
3	Local crag with remarkable peculiarities
4	Interesting crag due to its possibilities, location, etc.
5	Very good climbing crag, main travel destination
6	The best crags of the country for rock-climbing

Table S4. Description of the priority localities identified in the study. This includes the name of the climbing crag, the number of routes within the crag, the climbing popularity level, the percentage of climbing intensity, and the richness and names of threatened cliff plants species found in these priority locations.

ID	Priority locations	Crags	Number of routes	Popularity	% Climbing intensity	Threatened cliff plant richness	Threatened cliff plant species
1	Gaidovar (Cádiz)	AGUJA DEL PUERTO DE LAS PALOMAS	5	3	9.7	11	<i>Centaurea prolongoi</i> , <i>Centranthus nevadensis</i> , <i>Erodium recoderi</i> , <i>Erodium tordylioides</i> , <i>Melica bocquetii</i> , <i>Ornithogalum reverchonii</i> , <i>Papaver rupifragum</i> , <i>Rupicapnos africana</i> , <i>Saxifraga biternata</i> , <i>Saxifraga gemmulosa</i> , <i>Saxifraga reuteriana</i>
2	Álora (Málaga)	EL CHORRO	1000	6	83.29	6	<i>Athamanta vayredana</i> , <i>Erodium recoderi</i> , <i>Galium pulvinatum</i> , <i>Rupicapnos africana</i> , <i>Saxifraga gemmulosa</i> , <i>Saxifraga reuteriana</i>
3	Collbató (Barcelona)	MONTSERRAT	4000	6	100	2	<i>Saxifraga catalaunica</i> , <i>Saxifraga cotyledon</i>
4	Escorca (Mallorca)	GORG BLAU / S'AIGUA BLAVA	70 / 50	5 / 3	42.69	7	<i>Agrostis barceloi</i> , <i>Brimeura duvigneaudii</i> , <i>Linaria aeruginea</i> , <i>Paeonia cambessedesii</i> , <i>Ranunculus weyleri</i> , <i>Thymus richardii</i> , <i>Viola jaubertiana</i>

Figure S1. Lithological map of the Iberian Peninsula and Balearic Islands (modified from IGN, 2020).



References of the Supplementary material

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