Workshop 2.2: Novel initiatives for Plant conservation in the Mediterranean

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Trento Science Museum
RIBES Italian Seedbank Network

3rd Mediterranean Plant Conservation Week
CHANIA, CRETE, GREECE | 27 SEPTEMBER - 1 OCTOBER 2021
Plant Conservation Strategies: from Science to Practice

RIBES

MuSe

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

- Project idea originates from the Italian seedbank network (RIBES)
- Ambition to carry out a national flagship project to demonstrate seedbank contribution to plant conservation with well targeted conservation actions where most needed.
- Express full potential of seedbanks and demonstrate their role for plant conservation in a skeptical national context

A case study: LIFE SEEDFORCE

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The partnership

15 beneficiaries:

- **11 RIBES seedbanks:**
  - MUSE, Trento (coordinator)
  - Parco Nazionale della Majella
  - Lombardy Seed Bank, Parco Monte Barro
  - Università di Genova
  - Università di Padova
  - Università di Udine
  - Università della Tuscia
  - Università di Roma La Sapienza
  - Università di Palermo
  - Università di Catania
  - Università di Cagliari
- **3 cross-border partners**
  - Conservatoire Botanique National Méditerranéen de Porquerolles (France)
  - University of Ljubljana (Slovenia)
  - University of Malta
- **1 NGO** Legambiente Italia

A case study: LIFE SEEDFORCE

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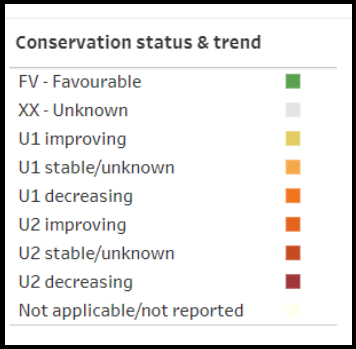
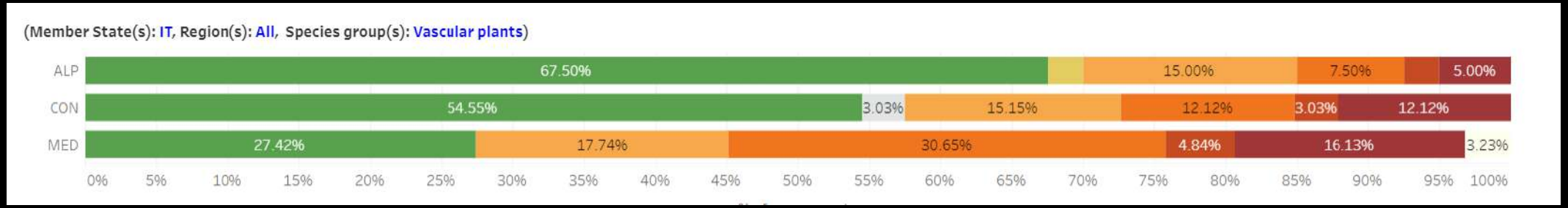
The need

68% (58 out of 84) of HD annex II species are reported in bad conservation status in Italy (IV Report ex art.17) and need urgent conservation actions.

The project idea

Use seedbank collections and expertise to reverse this situation, propagating and translocationg plants to reinfroce / restore 153 popuations of 30 target species, in Italy and cross-border regions of neighbouring countries.





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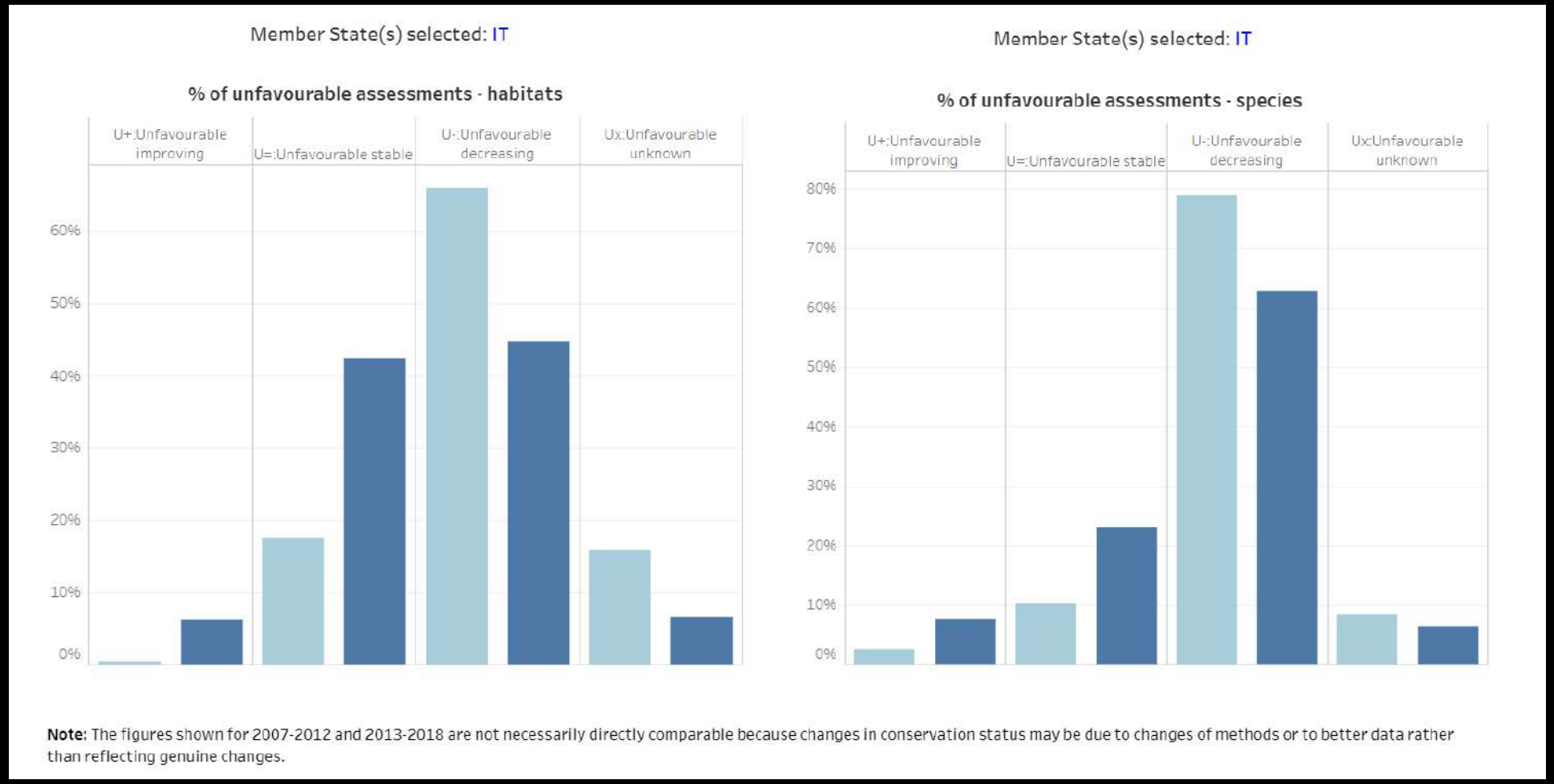


A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Photo: Renzo Salvo, 7.2007, Pietraporzio (CN)

Photo: Fernando Possamai, 8,2015, Carnia (UD), 1700 m a.s.l.

Eryngium alpinum L. (Umbelliferae) Ann. II (1604)

Actions (UNIUD, UL-BF) in SACs: IT3320012 - Prealpi Giulie Settentrionali, SI3000119 - Porezen

Distribution: Alpine endemic on the whole alpine chain (ALP, CON in AT, FR, HR, IT, SI).
Habitat: wet meadows, wet ravines with low shrubs. ***Threats***: discontinued haymaking, reforestation, fragmentation
Conservation status (2018): Inadequate (U1+) in IT(ALP), (U1=) in SI(ALP). ***IUCN status*** IT(2013): EN B2ab(i,ii,iv,v), EU(2011): NT

Group	Feature name + code	Group	Region	Member State	Presence	CS-2012	CS-2018	Reason for change - CS	CS trend-2012	CS trend-2018	Reason for change - trend in CS	Natura 2000 trend-2018	Use for statistics
Vascular plants	Eryngium alpinum (1604)	Vascular plants	ALP	AT	PRE	FV	FV	no change	Null	=	no change	=	yes
				FR	PRE	FV	FV	no change	Null	=	no change	+	yes
				HR	PRE	Null	XX		Null	Null		x	yes
				IT	PRE	U2	U1	improved knowledge	-	+	improved knowledge	=	yes
				SI	PRE	U1	U1	no change	-	x	no info provided	x	yes
			CON	FR	PRE	U1	U1	no change	x	=	no change	x	yes

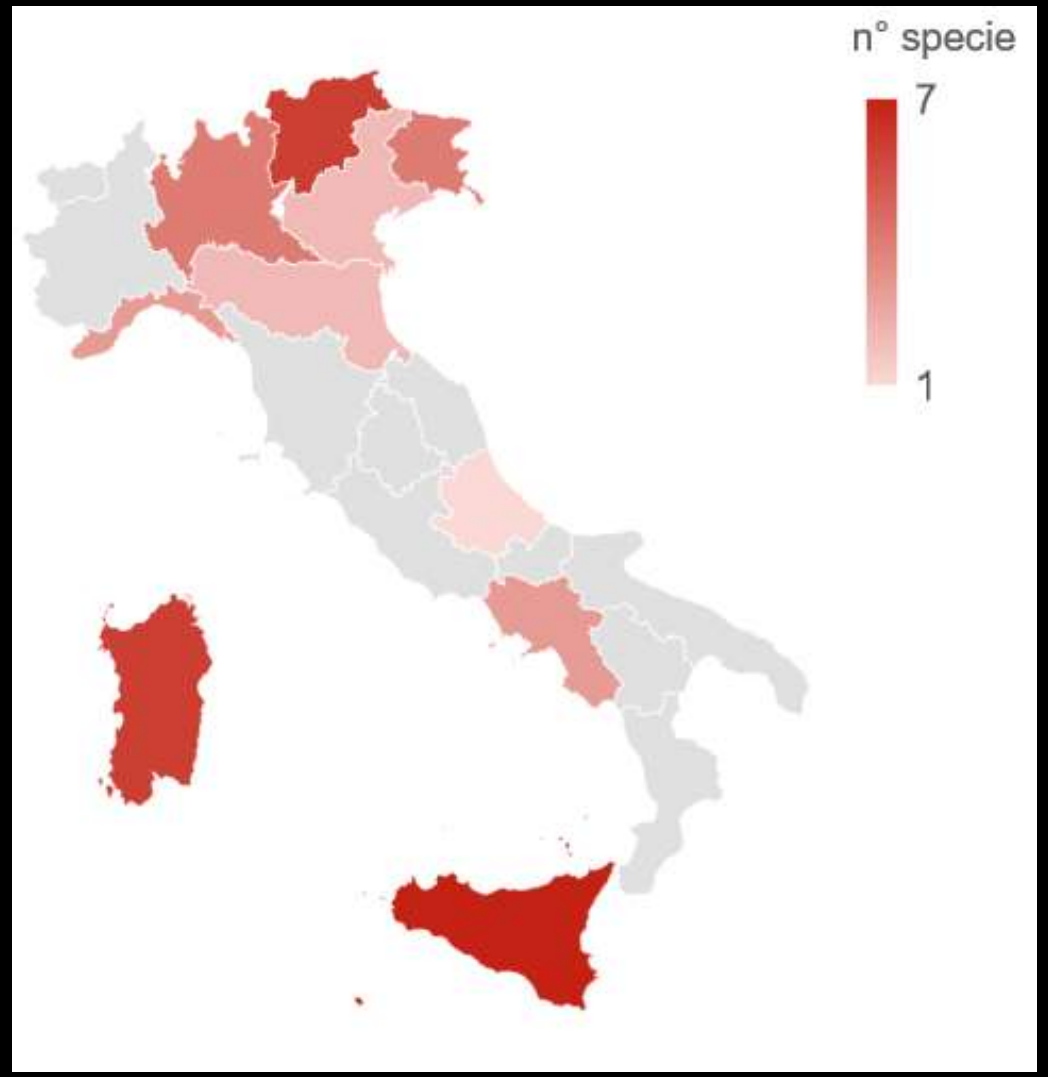
The project in numbers - The species

29 species of Habitat Directive Annex II (33%)

- **48%** of species with Unfavourable status (IV report ex art. 17)
- **19** U1 (**45%**) + **9** U2 (**56%**)
- **9 priority species** (27%)
- **17 endemics** (30%)
- **20 threatened with extinction** (CR, EN, VU) + **3 near threatened** (NT)

3 biogeographical regions

- **ALP: 60%** U1-U2 species, **58%U1 + 67%U2**
- **CON: 36%** U1-U2 species, **22%U1 + 60%U2**
- **MED: 47%** U1-U2 species, **43%U1 + 54%U2**



The project in numbers - The translocations

Reintroductions

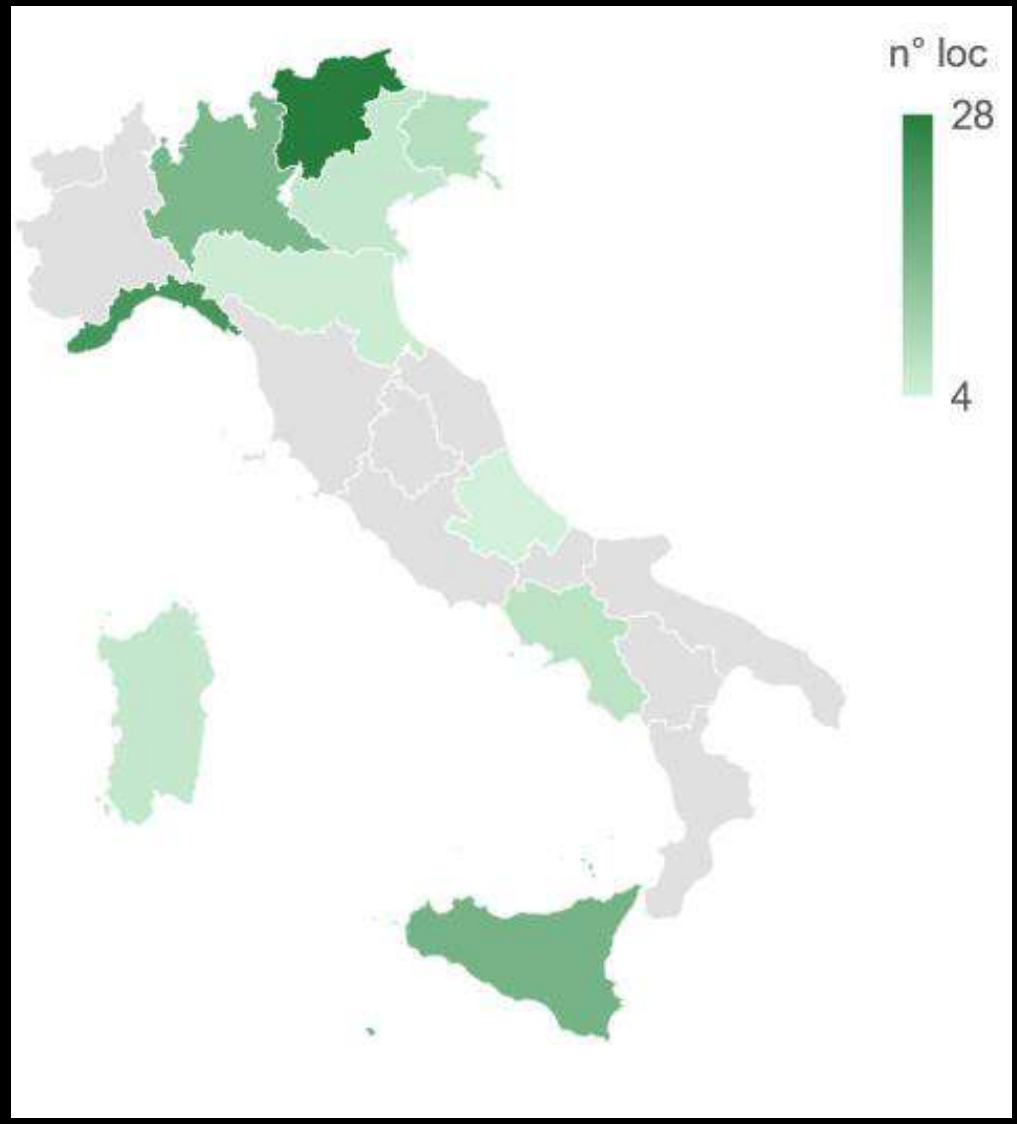
- **24** populations, **17** in Italy (ca. **3.700** individuals)
- **8** locally extint species
- in **17** SCI/SACs, **13** in Italy

Introductions (only in Italy)

- **8** new populations (ca. **2.800** individuals)
- **4** locally extint species
- in **8** SCI/SACs

Reinforcements

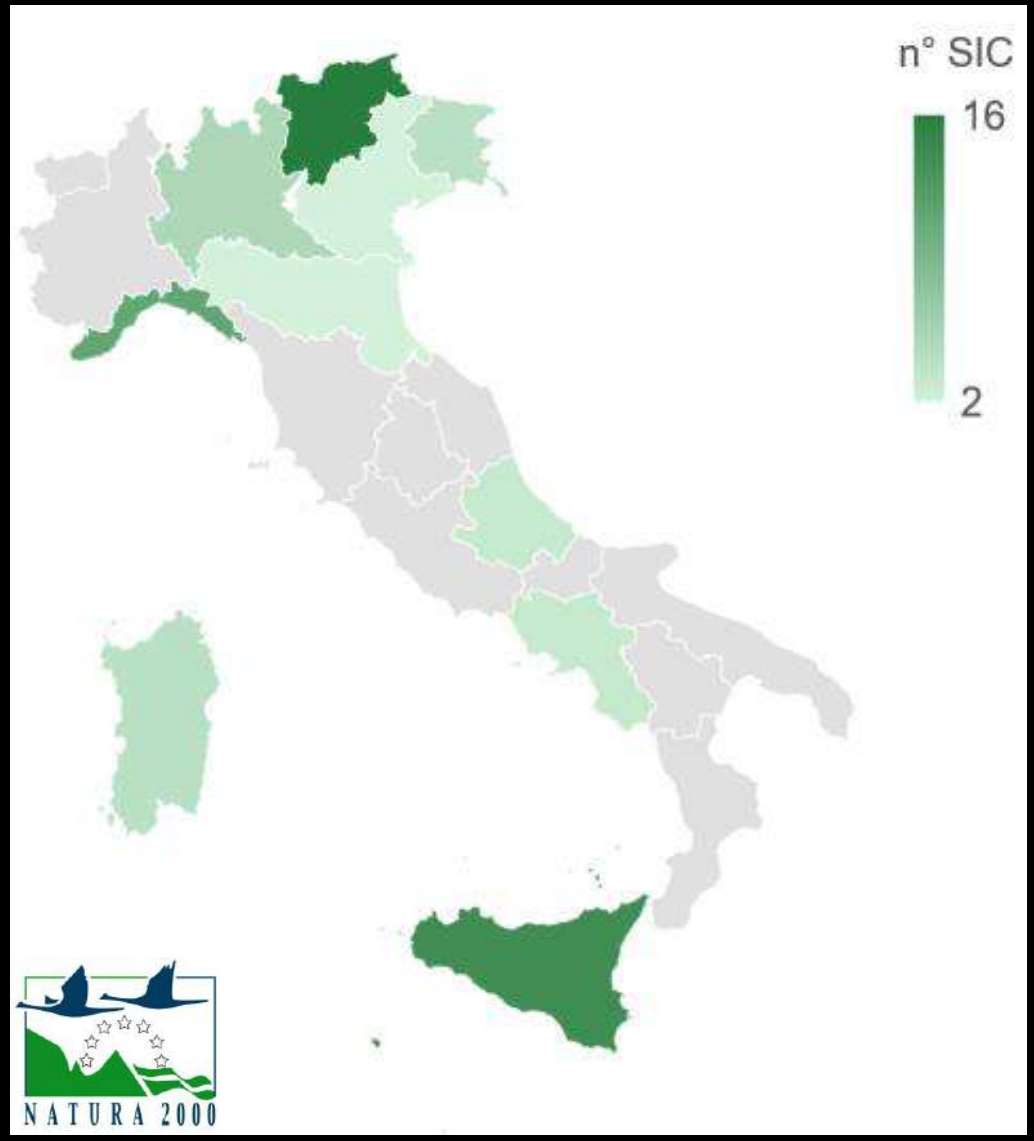
- **107** populations, among them **82** in Italy (more than **20.000** individuals, with an average increase of ca. **800%**)
- **28** species
- in **58** SCI/SACs, among them **45** in Italy



The project in numbers – N2000 sites

The N2000 sites involved

- **76** SCI/SACs, covering **450,250 ha,** mainly in Italy (59) but also in Slovenia (12), France (4) and Malta (1)
- **153** reinforcement/reintroduction sites, **120** in Italy
- **10** Italian regions
- **3** cross-border countries



Seedforce - the species & the sites

4 Stenoendemic species
with narrow distribution limited to 3-5 sites
occurring within few km

Listed per geographical occurrence N to S:

Centranthus amazonum, *Ribes sardoum,
***Astragalus verrucosus, *Galium litorale,**

Centranthus amazonum Fridl. & A.Raynal (Caprifoliaceae) Ann. II, IV (6909)

Actions (UNICA) in SAC ITB022212 Supramonte di Oliena, Orgosolo e Urzulei - Su Sercone

Photo: G. Bacchetta, 18.6.2014, Monte Corrasi 1180 m a.s.l.

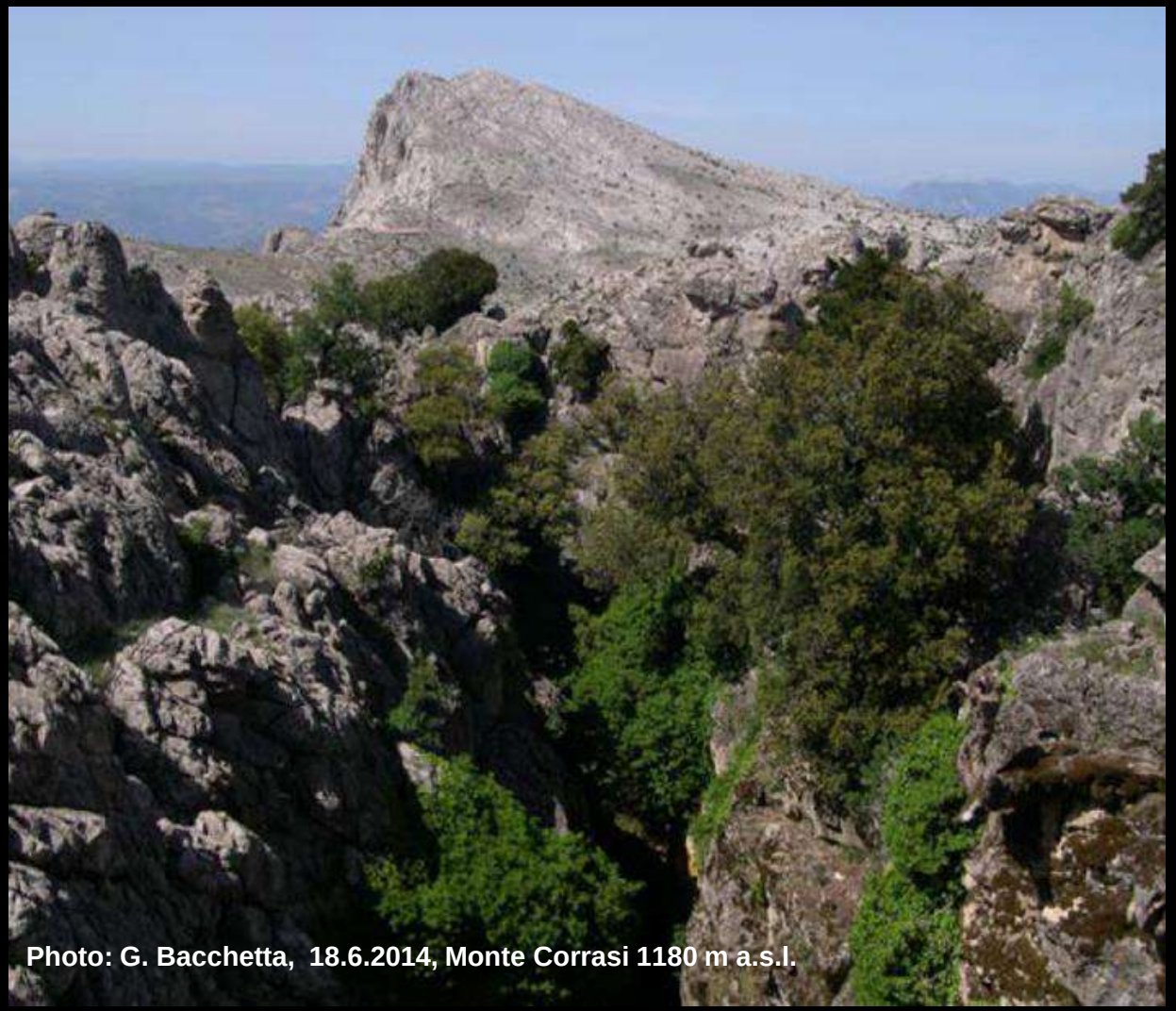


Photo: G. Bacchetta, 18.6.2014, Monte Corrasi 1180 m a.s.l.

Distribution: Narrow endemic plant of Central-Eastern Sardinia (Italy). (MED in IT).
Habitat: It grows on limestone karst mountains at ca. 1300 m a.s.l.. ***Threats:*** small population size, grazing by goats, collectors.
Conservation status (2018): Bad U2(-) in IT(MED), ***IUCN status***: (2013): CR B1ab(i,ii,iii,iv,v) + B2ab(i,ii,iii,iv,v) + D1.

Ribes sardoum Martelli (Grossulariaceae) Ann. II*, IV (1531)

Actions (UNICA) in SAC: ITB022212 - Supramonte di Oliena, Orgosolo e Urzulei - Su Sercone

Photo: G. Bacchetta, 09.10.2015, Monte Corrasi, 1146 m a.l.s.

Photo: G. Bacchetta, 18.6.2014, Monte Corrasi, 1146 m a.l.s.

Distribution: *Ribes sardoum* has been recorded from just one site in Sardinia in the Nuoro Province, in Prados (Oliena).
Habitat: It grows in dolomitic limestones at ca. 1160 m a.s.l. ***Threats:*** low seed viability and grazing by goats and sheep.
Conservation status (2018): Bad (U2 (-) in IT(MED), ***IUCN status***: (2013): CR B1ab(i,ii,iii,v) + B2ab(i,ii,iii,v) + D1.

Astragalus verrucosus Moris (Fabaceae) Ann. II*, IV (1555)
Actions (UNICA) in SAC: Is Arenas S'Acqua e S'Ollastu (ITB032229)

Distribution: endemic to Sardinia; only one population of about 220 individuals situated in the municipality of Arbus. (MED in IT).
Habitat: coastal grassland. ***Threats***: grazing or undergrazing, trampling, infrastructure development, inbreeding.
Conservation status (2018): Inadequate (U1(-)) in IT(MED), ***IUCN status***: (2011): CR B1ab(iii)+2ab(iii).

Galium litorale Guss. (Rubiaceae) Ann. II*, IV (1661)

Actions (UNIPA) in SAC: ITA010011 - Sistema dunale Capo Granitola, Porto Palo e Foce del Belice

Distribution: Endemic to south-western coast of Sicily (MED in IT).
Habitat: Thermo-Mediterranean and pre-desert scrub. ***Threats***: discontinuous urbanization, burning down, garbage and solid waste.
Conservation status (2018): Bad (U2-) in IT (MED). ***IUCN status*** IT(2013): NT, EU(2011): NT

Seedforce - the species & the sites

13 Euriendemic species
with wider distribution in approx. 10 sites
occurring within a 200 km radius

Listed per geographical occurrence N to S

Saxifraga tombeanensis,
***Campanula sabatia, Gentiana ligustica, Leucojium nicaeense,**
***Limonium strictissimum, Linaria flava, *Linus muelleri,**
Primula palinuri, *Bassia saxicola, *Cytisus aeolicus, *Silene hicesiae,
Elatine gussonei, Linaria pseudolaxiflora

Saxifraga tombeanensis Boiss. ex Engl. (Saxifragaceae) Ann. II, IV (1524)

Actions (CFA-LSB, MUSE) in SACs: IT2070021 - Valvestino, IT3120093 - Crinale Pichea Rocchetta, IT3120094 - Alpe di Storo e Bondone, IT3120104 - Monte Baldo Cima Valdritta, IT3120116 - Monte Malachin, IT3120127 - Monti Tremalzo e Tombea, IT3120173 - Monte Baldo di Brentonico

Photo: C. Bonomi, 6.6.2004, Monte Misone , 1.750 m a.s.l.

Phto: C. Bonomi, 6.6.2004, Monte Misone, 1.750 m a.s.l.

Distribution: narrow Italian endemic of the CS Alps: Lombardy, Trentino Alto Adige, Veneto (ALP in IT).
Habitat: Dry limestone cliffs. ***Threats***: reforestation, habitat fragmentation.
Conservation status (2018): Inadequate (U1=) in IT (ALP). ***IUCN status*** IT (2013): EN B1ab(iii,iv,v)+B2ab(iii,iv,v).

Campanula sabatia De Not. (Campanulaceae) Ann. II, IV (1751)

Actions (UNIGE, CBNMed) in SACs: IT1323202 - Isola di Bergeggi - P. Predani, IT1324896 - Lerrone Valloni

Photo: Gabriele Casazza, 5.2009, Isola Gallinara (SV)

Photo: Gabriele Casazza, 6.2008, Aquila d'Arroscia(IM)

Distribution: Endemic to Liguria (MED in IT).
Habitat: sparsely vegetated land. ***Threats***: development of the infrastructure - urbanisation, roads and paths.
Conservation status (2018): Inadequate (U1-) in IT(MED). ***IUCN status*** IT(2013): VU C1, EU(2010): VU C1

Gentiana ligustica R. Vilm. & Chopinet (Gentianaceae) Ann. II, IV (1656)

Actions (UNIGE, CBNMed) in SACs: FR9301563 - Brec d'Utelle, FR9301564 - Gorges de la Vésubie et du Var - mont Vial - mont Férion, FR9301567 - Vallée du Carei - collines de Castillon, IT1315313 - Gouta - Testa d'Alpe - Valle Barbaira, IT1315407 - Monte Ceppo, IT1315717 - Monte Grammondo - Torrente Bevera

Photo: Gabriele Casazza, 6, 2008, Monte Toraggio (IM)

Photo: Gabriele Casazza, 7, 2009, Monte Toraggio (IM)

Distribution: Endemic grasslands. ***Threats***: pillagingto the SW Alps (ALP, MED in FR, IT).
Habitat: alpine, grazing, succession and interspecific floral relations
Conservation status (2018): Inadequate (U1=) in FR(MED) and (U1x) in IT(MED), ***IUCN status*** IT(2011): LC, FR (2018): LC, EU(2011): LC

Leucojum nicaeense Ardoino (Amaryllidaceae) Ann. II, IV (1871)

Actions (UNIGE, CBNMed) in SACs: FR9301567 - Vallée du Carei - collines de Castillon, FR9301568 - Corniches de la Riviera, IT1315717 - Monte Grammondo - Torrente Bevera, IT1316118 - Capo Mortola

Photo: Katia Diadema, 4.2008, La Trinité (06), 330 a.s.l.

Photo: Katia Diadema, 4.2009, Monaco (MC), 30 m a.s.l.

Distribution: Endemic to Maritime and Ligurian Alps (MED in FR, IT). ***Habitat***: rocky grassland, thermo-mediterranean scrub.
Threats: land use change, invasive species, and specimen collection. ***Conservation status*** (2018): Inadequate (U1-) in FR(MED), bad (U2-) in IT(MED). ***IUCN status*** FR(2018): EN B2ab(ii,iii,iv), IT(2013): CR B2ab(iii)+C2a(ii), EU(2015): EN B1ab(iii,iv,v)+2ab(iii,iv,v)

Limonium strictissimum (Salzm.) Arrigoni (Plumbaginaceae) Ann. II*, IV (1643)

Actions (UNICA) in the SCI: Arcipelago La Maddalena (ITB010008)

Photo: G. Bacchetta, 15.6.2016, La Maddalena, 10 m a.s.l.

Photo: G. Bacchetta, 15.6.2016La Maddalena, 10 m a.s.l.

Distribution: endemic of Corse and Sardinia, where it only occurs in Caprera (Arcipelago of La Maddalena). (MED in FR, IT)
Habitat: coastal strips with sands, coarse, to granite and limestone rocks. ***Threats:*** anthropic activities.
Conservation status (2018): Bad (U2(-)) in IT(MED), ***IUCN status***: (2013): VU D2 (in Italy), EN (in Europe).

Linaria flava (Poiret) Desf. (Scrophulariaceae) Ann. II, IV (1715)

Actions (UNICA) in SAC: Stagno di Molentargius e territori limitrofi (ITB040022)

Photo: M. Porceddu, 09.05.2018, Molentargius 5 m a.s.l.

Photo: M. Porceddu, 09.05.2018, Molentargius 5 m a.s.l.

Distribution: Endemic to Sardinia and Corsica. (MED in FR, IT).
Habitat: This species is found in coastal sandy areas. ***Threats:*** anthropic and tourist activities.
Conservation status (2018): Inadequate (U1-) in IT(MED), ***IUCN status***: (2013): EN B1ab(i,ii,iv).

Linum muelleri Moris (Linaceae) Ann. II*, IV (1572)
Actions (UNICA) in SAC: Monte Linas – Marganai (ITB041111)

Photo: M. Porceddu, 5.6.2014, Iglesias 140 m a.s.l.

Photo: G. Bacchetta, 5.6.2015, Iglesias 140 m a.s.l.

Distribution: endemic to Sardinia, in 3 localities: Mines of San Giovanni di Bindua, Monteponi and Monte Marganai. (MED in IT).
Habitat: heliophile and xerophile in scrub areas and in garrigue. ***Threats:*** small populations.
Conservation status (2018): Inadequate (U1) in IT(MED), ***IUCN status***: (2013): EN B1ab(i,ii,iii,iv,v) + B2ab(i,ii,iii,iv,v).

Primula palinuri Petagna (Primulaceae) Ann. II, IV (1628)

Action (BGR-DEB) in SACS: IT8050008 - Capo Palinuro,
IT8050011 - Fascia interna di Costa degli Infreschi e della Masseta

Distribution: endemic to Southern Italy (Campania, Basilicata e Calabria) in 6 fragmented populations. (MED in IT)
Habitat: Limestone cliffs facing north. ***Threats***: grazing, anthropogenic disturbance, invasive alien species, fires.
Conservation status (2018): Inadequate (U1-) in IT (MED), ***IUCN status***: IT(2013): VU, B1ab(iii, v)+ B2ab(iii, v), EU(2011): VU.

Bassia saxicola (Guss.) A. J. Scott (Amaranthaceae) Ann. II, IV (1445)

Actions (BGR-DEB, UNICT) in SACs: IT8050008 - Capo Palinuro,
ITA030026 – Isole di Stromboli e Strombolicchio, ITA030030 - Isola di Lipari

Photo: P. Lo Cascio, 16.10.2017, Strombolicchio, 20 m a.s.l.

Photo: P. Lo Cascio, 16.10.2017, Strombolicchio, 20 m a.s.l.

Distribution: endemic to Campania (Capri and Capo Palinuro) and Sicily (Aeolian Islands - Strombolicchio) (MED in IT).
Habitat: limestone or volcanic cliffs from 5 to 90 m a.s.l. ***Threats***: landslides, limited dispersal and restricted range.
Conservation status (2018): Inadequate (U1-) in IT(MED). ***IUCN status*** IT (2013): EN, EU (2011): EN

Cytisus aeolicus Guss. (Fabaceae) Ann. II, IV (1546)

Actions (UNICT) in SACs: Isola di Vulcano - ITA030027, Isola di Alicudi - ITA030023

Picture: S. Cambria, 10.04.2016,Stromboli 500 m. slm

Picture: A. Cristaudo, 30.07.2015, Stromboli 470 m. slm

Distribution: endemic to the islands of Vulcano, Stromboli and Alicudi (Aeolian Archipelago, Sicily, Italy) (MED in IT).
Habitat: cliffs and scrub formations in the thermo-Mediterranean zone. ***Threats***: Fire, grazing, fragmentation.
Conservation status (2018): Inadequate (U1-) in IT(MED). ***IUCN status*** IT (2013): EN, EU (2011): CR

Silene hicesiae Brullo & Signor. (Caryophyllaceae) Ann. II, IV (1461)

Actions (UNICT) in SACs: Isola di Panarea e scogli viciniori - ITA030025, Isola di Alicudi - ITA030023

Picture: P. Lo Cascio, 01.06.2013, Panarea 330 m slm

Picture: A. Cristaudo, 31.07.2017, Panarea 327 m slm

Distribution: endemic to the islands of Alicudi and Panarea (Aeolian Archipelago, Sicily, Italy) (MED in IT).
Habitat: steep slopes on sandy volcanic soils and *dry* grasslands. ***Threats***: fire, trampling, IAS (*Ailanthus altissima)*, fragmentation. ***Conservation status*** (2018): Inadequate (U1=) in IT(MED). ***IUCN status*** IT (2013): VU, EU (2011): VU

Elatine gussonei (Sommier) Brullo et al. (Elatinaceae) Ann. II, IV (4092)

Actions (UNICT) in SACs: ITA090002 - Vendicari, ITA090008 - Capo Murro di Porco, Penisola della Maddalena e Grotta Pellegrino, ITA090012 - Grotta Palombara, ITA090013 - Saline di Priolo

Photo: A. Cristaudo, 03.5.2019, Vulpiglia, 7 m a.s.l.

Photo: A. Cristaudo, 03.5.2019, Vulpiglia, 7 m a.s.l.

Distribution: Sicily and Malta (MED in IT, MT).
Habitat: temporary winter rainwater rockpools. ***Threats***: trampling, infrastructure development, run-off of polluted waters.
Conservation status (2018): Inadequate (U1x) in IT(MED). ***IUCN status*** IT (2013): CR, EU (2011): LC

Linaria pseudolaxiflora Lojac. (Plantaginaceae) Ann. II, IV (4114)

Actions (UNICT) in SAC: ITA040001 – Isola di Linosa

Photo: S. Cambria, 04.03.2016, 110 m a.s.l.

Photo: S. Cambria, 04.03.2016, 110 m a.s.l.

Distribution: Maltese Islands and Linosa (Sicily - Italy) (MED in IT, MT).
Habitat: shallow calcareous soils and volcanic rocks (Linosa), in coastal areas. ***Threats***: Change in land use.
Conservation status (2018): Inadequate (U1=) in IT(MED). ***IUCN status*** IT (2013): NT, EU (2011): VU

Seedforce - the species & the sites

12 widely distributed species
with several sites occurring across thousands of km

Listed per geographical occurrence N to S:

Botrychium simplex, Liparis loeselii, Dracocephalum austriacum, Eryngium alpinum, Adenophora liliifolia, Gladiolus palustris, Himantoglossum adriaticum, Eleocharis carniolica, Kosteletzkya pentacarpos, Marsilea quadrifolia, Woodwardia radicans, Crepis pusilla

Botrychium simplex E. Hitchc. (Ophioglossaceae) Ann. II, IV (1419)

Actions (MUSE) in SCI: IT3120179 - Val Jumela

Photo: C. Bonomi, 10.8.2004, Val Jumela, 2207 m a.s.l.

Photo: C. Bonomi, 22.8.2006, Val Jumela, 2350 m a.s.l.

Distribution: Arctic-Alpine (Europe and Nord America) (ALP, ATL, BOR, CON, MED in AT, DE, DK, FI, FR, IT, GR, LT, LV, SE, SI).
Habitat: wet meadows and acidic peat bogs. ***Threats***: bog drainage, habitat fragmentation, small populations.
Conservation status (2018): Bad (U2-) in IT (ALP). ***IUCN status*** IT (2013): CR B2ab(i,ii,iv,v), EU (2011): NT.

Liparis loeselii (L.) Rich. (Orchidaceae) Ann. II, IV (1903)

Actions (CFA-LSB, MUSE, UNIUD) in SACs: IT2030005 - Palude di Brivio, IT3120038 - Inghiaie, IT3120040 - Lago Pudro, IT3120068 - Fiavè, IT3120091 - Alberè di Tenna, IT3120170 - Monte Barco - Le Grave, IT3320026 - Risorgive dello Stella

Photo: C. Bonomi, 29.8.2002, Lago Pudro, 500 m a.s.l.

Photo: C. Bonomi, 29.8.2002, Lago Pudro, 500 m a.s.l.

Distribution: Eurasia & Nord America (ALP, ATL, BOR, CON, MED, PAN in AT,BE,DE,CZ,DK,EE,FI,FR,HU,IT,LT,LV,NL,PL,RO,SI,SE,SK,UK).
Habitat: wet peaty medows, swamps. ***Threats***: discontinued haymaking, reforestation, habitat fragmentation.
Conservation status (2018): Bad (U2-) in IT (ALP), Bad (U2=) in IT (CON). ***IUCN status*** IT(2013): EN C2a(i), EU(2011): NT.

Dracocephalum austriacum L. (Labiatae) Ann. II, IV (1689)

Actions (MUSE) in SACs: IT3120114 - Monte Zugna, IT3120116 - Monte Malachin

Photo: C. Bonomi, 28.5.2003, Monte Malachin,1450 m a.s.l.

Photo: C. Bonomi, 28.5.2003, Monte Malachin,1450 m a.s.l.

Distribution: Mountains of Central Europe and Caucasus (ALP, CON, MED, PAN in AT, CZ, ES, FR, HU, IT, RO, SK).
Habitat: Dry rocky grassland. ***Threats***: discontinued haymaking, reforestation, habitat fragmentation.
Conservation status (2018): Inadequate (U1=) in IT (ALP). ***IUCN status*** IT(2013): EN B2ab(iii), EU(2011): DD.

Eryngium alpinum L. (Umbelliferae) Ann. II (1604)

Actions (UNIUD, UL-BF) in SACs: IT3320012 - Prealpi Giulie Settentrionali, SI3000119 - Porezen

Photo: Renzo Salvo, 7.2007, Pietraporzio (CN)

Photo: Fernando Possamai, 8,2015, Carnia (UD), 1700 m a.s.l.

Distribution: Alpine endemic on the whole alpine chain (ALP, CON in AT, FR, HR, IT, SI).
Habitat: wet meadows, wet ravines with low shrubs. ***Threats***: discontinued haymaking, reforestation, fragmentation
Conservation status (2018): Inadequate (U1+) in IT(ALP), (U1=) in SI(ALP). ***IUCN status*** IT(2013): EN B2ab(i,ii,iv,v), EU(2011): NT

Adenophora liliifolia (L.) Ledeb. ex A. DC. (Campanulaceae) Ann. II, IV (4068)

Actions (MUSE, UNIPD, UL-BF) in SACs: IT3120127 - Monti Tremalzo e Tombea, IT3230083 - Dolomiti Feltrine e Bellunesi, SI3000181 - Kum, SI3000263 - Kočevsko

Photo: Graziano Propetto, 8.2006, Val Venzonassa (UD), 700 m a.s.l.

Photo: Graziano Propetto, 8.2006, Val Venzonassa (UD), 700 m a.s.l.

Distribution: E Europe and Asia (ALP, CON, PAN in AT, CZ, DE, HR, HU, IT, PL, RO, SI, SK).
Habitat:Bright woodland edges on limestone. ***Threats***: discontinued haymaking, reforestation, fragmentation.
Conservation status (2018): Inadequate (U1-) in IT(ALP), (U1=) in SI(CON). ***IUCN status*** IT(2013): NT, EU(2011): LC.

Gladiolus palustris Gaudin (Iridaceae) Ann. II, IV (4096)

Actions (CFA-LSB, MUSE, UL-BF) in SACs: IT2030003 - Monte Barro, IT2020002 - Sasso Malascarpa, IT3120081 - Prà dall'Albi Cei, IT3120114 - Monte Zugna, IT3120089 - Montepiano Palù di Fornace, IT3120170 - Monte Barco Le Grave, SI3000171 - Radensko polje, SI3000196 - Breginjski kot, SI3000232 - Notranjski trikotnik

Photo: S. Poli, 14.7.2010, Sasso Malascarpa,1,150 m a.s.l.

Photo: G. Brusa, 11.6.2017, Monte Barro, 670 m a.s.l.

Distribution: Central and SE Europe (ALP, CON, MED, PAN in AT, BG, CZ, DE, FR, GR, HR, HU, IT, PL, RO, SI, SK).
Habitat: sesonally wet secondary meadows. ***Threats***: discontinued haymaking, reforestation, habitat fragmentation.
Conservation status (2018): Inadequate (U1=) in IT (ALP,CON,MED) & SI (ALP,CON). ***IUCN status*** IT(2013): NT, EU(2011): DD

Himantoglossum adriaticum Baumann (Orchidaceae) Ann. II, IV (4104)

Actions (MUSE, PNM) in SAC/SCI: IT3120110 - Terlago, IT7110201 - Monti della Laga e Lago di Campotosto
IT7110205 - Parco Nazionale d'Abruzzo, IT7140203 - Maiella

Photo: G. Perazza, 2.6.2010, Castel Thun, 570 m a.s.l.

Photo: G. Perazza, 2.6.2012, Lago di Cavedine, 270 m a.s.l.

Distribution: NE Mediterranean: E Alps, Appennines and the Balkans (ALP, CON, MED, PAN in AT, CZ, HR, HU, IT, SI, SK).
Habitat: warm dry meadows or clear woodlands. ***Threats***: discontinued haymaking, reforestation, fragmentation, excess nutrients.
Conservation status (2018): Inadequate (U1=) in IT (ALP). ***IUCN status*** IT (2013): LC, EU (2011): LC.

Eleocharis carniolica *W.D.J. Koch* (Cyperaceae) Ann. II, IV (1898)

Actions (CFA-LSB, UNIUD, UL-BF) in SACs: IT2050002 - Boschi delle Groane, IT3330007 - Cavana di Monfalcone, SI3000079 - Češeniške gmajne z Rovščico, SI3000080 - Medvedce, SI3000100 - Gozd Kranj, SI3000257 - Rački ribniki

Photo: G. Brusa, 16.8.2012, Monate, 270 m a.s.l.

Photo: G. Brusa, 26.6.2018, Boschi delle Groane, 200 m a.s.l.

Distribution: SE-Europe: Alps, Balkans, Carpatians and Danube region (ALP, CON, PAN in AT, BG, HR, HU, IT, PL, RO, SI, SK).
Habitat: disturbed wet meadows. ***Threats***: discontinued haymaking, reforestation, habitat fragmentation.
Conservation status (2018): Inadequate (U1=) in IT (ALP, CON) & SI (CON). ***IUCN status*** IT(2013): EN B2ab(i,ii,iii) EU(2011): LC

Marsilea quadrifolia L. (Marsileaceae) Ann. II, IV (1428)

Actions (UNIPD, UNIUD, UL-BF) in SACs: IT4060015 Bosco della Mesola, Bosco Panfilia, Bosco di Santa Giustina, Valle Falce, La Goara, IT3320026 Risorgive dello Stella, SI3000257 Rački ribniki, SI3000113 Podvinci; SI3000089 Pragersko

Photo: S.Orsenigo, 22.7.2017, Candia Lomellina (PV),100 m a.s.l.

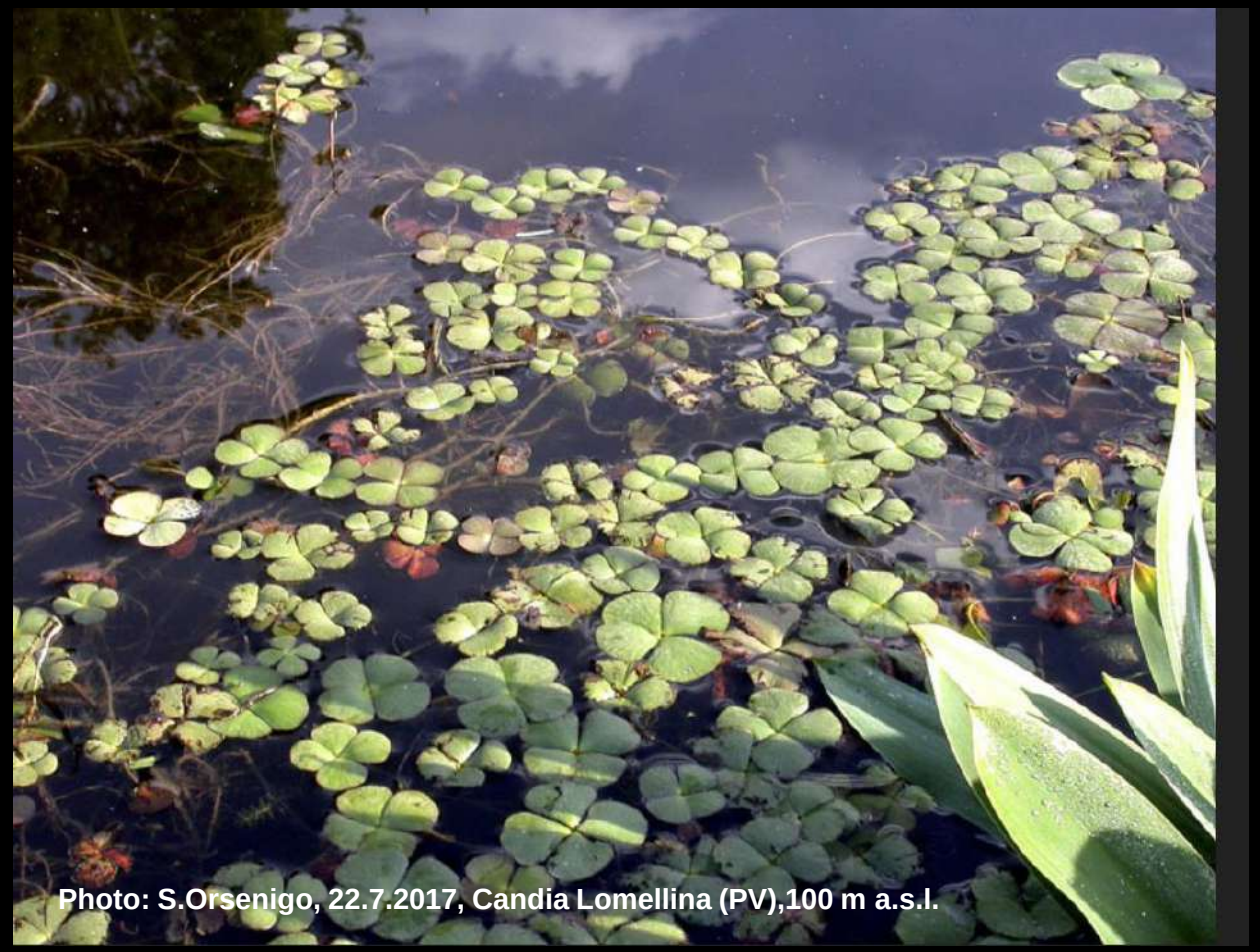


Photo: S.Orsenigo, 22.7.2017, Candia Lomellina (PV),100 m a.s.l.

Distribution: circumpolar (ALP, ATL, CON, MED, PAN, STE in AT, BG, DE, EL, ES, FR, GR, HR, HU, IT, PL, PT, RO, SK, SI)
Habitat: ponds, still waters. ***Threats***: pollution, draining / filling ponds.
Conservation status (2018): Bad (U2=) in IT, SI (CON). ***IUCN status***: IT (2013): EN A 2c, B2ab (i,ii,iii), EU (2011): NT

Kosteletzkya pentacarpos (L.) Ledeb. (Malvaceae) Ann. II, IV (1581)

Actions (UNIPD) in SACs: IT3250003 – Penisola del Cavallino: biotopi litoranei, IT4060015 – Bosco della Mesola, Bosco Panfilia, Bosco di Santa Giustina, Valle Falce, La Goara, IT4060005 – Sacca di Goro, Valle Dindona, Foce del Po di Volano

Photo: M. Villani, 22.7.2017, Punta Sabbioni, 0 m a.s.l.

Photo: M. Villani, 22.7.2017, Punta Sabbioni, 0 m a.s.l.

Distribution: SE Europe (CON, MED in ES, F, IT).
Habitat: irregular flooded coastal areas and along rivers. ***Threats***: land reclamation, drainage, invasion of alien species.
Conservation status (2018): Inadequate (U1-) in IT (MED). ***IUCN status*** IT (2013): CR A2ac, EU (2011): VU.

Woodwardia radicans (L.) Sm. (Blechnaceae) Ann. II, IV (1426)

Actions (UNITUS) in SACs: IT8030008 Dorsale dei Monti Lattari,
ITA030010 Fiume Fiumedinisi, Monte Scuderi, ITA030011 Dorsale Curcuraci, Antennamare

Distribution: boreal-subtropical, found in Macaronesia and in the Mediterranean (ATL, MAC, MED in ES, FR, GR, IT, PT)
Habitat: wet cliffs, undergrowth of gorges. ***Threats***: isolation, fragmentation and small population size; grazing.
Conservation status (2018): Inadequate (U1-) in IT (MED). ***IUCN status*** IT(2013): EN B2ab(i,ii,iii,iv), EU (2017): VU A2c.

Crepis pusilla (Sommier) Merxmüller. (Asteraceae) Ann. II, IV (4082)

Action (UOM) in SACs: Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa - MT0000024

Photos: A. Casha, 2012. Dingli Malta 100 m asl

Photos: J. Buhagiar 2021, 27.01.2021, Dingli Malta

Distribution: Maltese Islands, Cyprus, Greece, Portugal (MED in MT, CY, GR, PT).
Habitat: shallow calcareous soils, roadside, coastal areas. ***Threats***: Change in land and management use.
Conservation status (2018): Bad: Unfavourable-bad (U2). ***IUCN status***: EU(2011): DD.

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

3 attempts: call Life19 – narrow fail

Proposal number: **LIFE19 NAT/IT/000966**

Proposal acronym: **LIFE SEED FORCE**

Maximum amount of the grant (maximum funding from the EU in €): **3,703,229**

Award Criteria	AW1	AW2	AW3	AW4	AW5	AW6	Pass Score*	Overall Score
Max. score and Min. passing score	20 (pass 10)	20 (pass 10)	20 (pass 10)	15 (pass 8)	10 NA	15 NA	100 (pass 50)	100 NA
Final scores	15	14	15	12	10	4	56	70

5. FP AWARD CRITERION 5 - EU added value: Contribution to the project topics

The proposal clearly complies with priority project topic 1 for Nature because it targets the improvement of the conservation status of 27 species of vascular plant of Community interest occurring in 63 Nature2000 sites. The proposal also complies with priority

topic 2 for Nature because 25 of the 27 target species have an Unfavourable-Inadequate (U1) or Unfavourable-Bad (U2) conservation status according to the latest Article 17 reports.

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

3 attempts: call Life 20 success!!

Proposal number: LIFE20 NAT/IT/001468

Proposal acronym: LIFE SEEDFORCE

Maximum amount of the grant (maximum funding from the EU in €): 4,671,420

Award Criteria	AW1	AW2	AW3	AW4	AW5	AW6	Pass Score*	Overall Score
Max. score and Min. passing score	20 (pass 10)	20 (pass 10)	20 (pass 10)	15 (pass 8)	10 NA	15 NA	100 (pass 50)	100 NA
Final scores	17	15	17	13	10	10	62	82

(* Total score must be at least 50 according to criteria 1 + 2 + 3 + 4)

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Key aspects critical for success:

- Landowners identified (Land registry details of target areas)
- Formal Support gained in writing (A8) **76** forms signed attached

LIFE20 NAT/IT/001468 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:

Azienda: Gruppo Padana del F.lli Gazzola s.a.s. Società Agricola - Private citizens, LAND OWNER

Full address:

via Olimpia,41 - 31038 Paese (TV)

Tel: +39 0422 451232 Fax:

Email: info@gruppopadana.com

Contact person (name and function):

F.lli Gazzola Giorgio Gazzola - Legale rappresentante
Dr. Agr. Marzilio Loosi

Please specify whether, why and how you will support this project:

In my capacity of owner of the land (land registry reference: Comune di Cessinaggiore: Sheet 38 Parcel 12) that falls within the boundaries of the following SAC IT3230083: Dolomiti Feltrine e Bellunesi, I commit to grant access to the land and authorise the site preparation, plant translocation and monitoring activities that will be carried out on Adenophora liliifolia, as part of the project LIFE20/NAT/IT/001468 SEEDFORCE 'Using SEED banks to restore and reinFORCE the endangered native plants of Italy'.
I also commit to sign, in due course, a specific Memorandum of Understanding with the relevant project beneficiary to guarantee that I will not to take any action that would compromise the investments/restoration made by the project activities and that I will grant access to the land for the project duration and beyond. This MoU will have a duration adequate to grant the long term conservation of the target species (approximately 6 years, with automatic renewal beyond the expiry date)

At: Paese (TV) on: 16th February 2021

Signature of the Competent Authority: .....

Name and status of signatory: F.lli Gazzola Giorgio Gazzola Legale rappresentante

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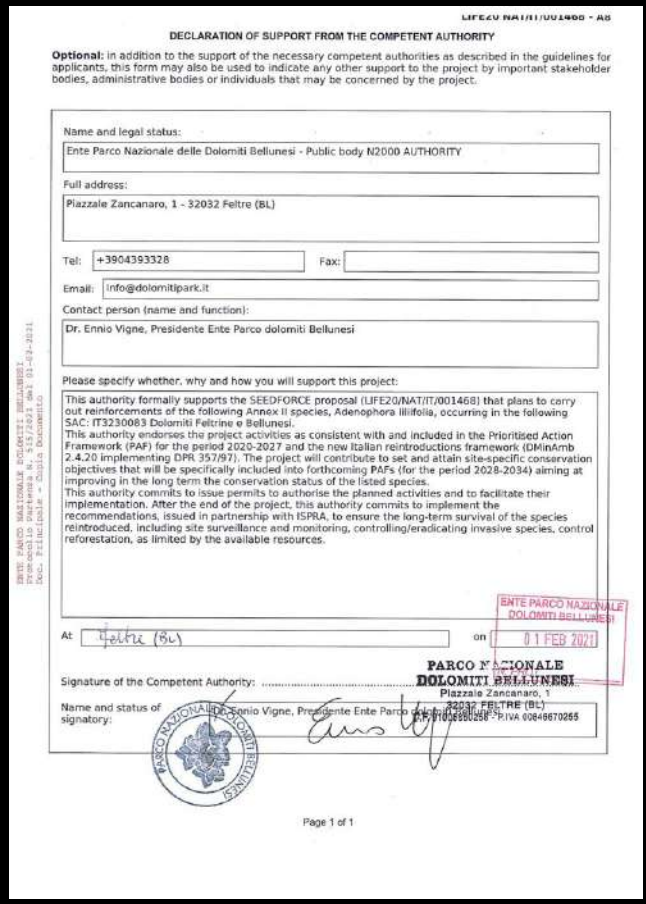
A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Key aspects critical for success:

- All threats identified
- Clear plan on how to remove them, involving all stakeholders
- Long term committment of N2000 to carry out site managment after plant translocation
- Formal Support of N2000 authorities gained in writing (A8) **48** forms signed attached



DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:
Ente Parco Nazionale delle Dolomiti Bellunesi - Public body N2000 AUTHORITY

Full address:
Piazzale Zancanaro, 1 - 32032 Feltre (BL)

Tel: +3904393328 Fax:

Email: info@dolomitipark.it

Contact person (name and function):
Dr. Ennio Vigne, Presidente Ente Parco dolomiti Bellunesi

Please specify whether, why and how you will support this project:
This authority formally supports the SEEDFORCE proposal (LIFE20/NAT/IT/001468) that plans to carry out reinforcements of the following Annex II species, Adenophora lilifolia, occurring in the following SAC: IT3230083 Dolomiti Feltrine e Bellunesi.
This authority endorses the project activities as consistent with and included in the Prioritised Action Framework (PAF) for the period 2020-2027 and the new Italian reintroductions framework (DMinAmb 2.4.20 implementing DPR 357/97). The project will contribute to set and attain site-specific conservation objectives that will be specifically included into forthcoming PAFs (for the period 2028-2034) aiming at improving in the long term the conservation status of the listed species.
This authority commits to issue permits to authorise the planned activities and to facilitate their implementation. After the end of the project, this authority commits to implement the recommendations, issued in partnership with ISPRA, to ensure the long-term survival of the species reintroduced, including site surveillance and monitoring, controlling/eradicating invasive species, control reforestation, as limited by the available resources.

ENTE PARCO NAZIONALE DOLOMITI BELLUNESI 01 FEB 2021

At: Feltre (BL) on:

Signature of the Competent Authority:

PARCO NAZIONALE DOLOMITI BELLUNESI
Piazzale Zancanaro, 1
32032 FELTRE (BL)
C.F. 91026500258 - P.IVA 00849870265

Name and status of signatory: Dr. Ennio Vigne, Presidente Ente Parco dolomiti bellunesi

Page 1 of 1

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Key aspects critical for success:

- Engaging national N2000 autority (Ministry)

MINISTERO DELLA TRANSIZIONE ECOLOGICA

Acqua Aria Energia Natura Territorio

- Will distribute project guidelines to regional N2000 authorities

- Endorsed the project as a mean to answer to the EU infringement procedure 2015/2163 vs. Italy and in particular the complementary default notice that warned Italy that it failed to set site-specific conservation objectives and the related specific actions to conserve Annex I habitats and Annex II species

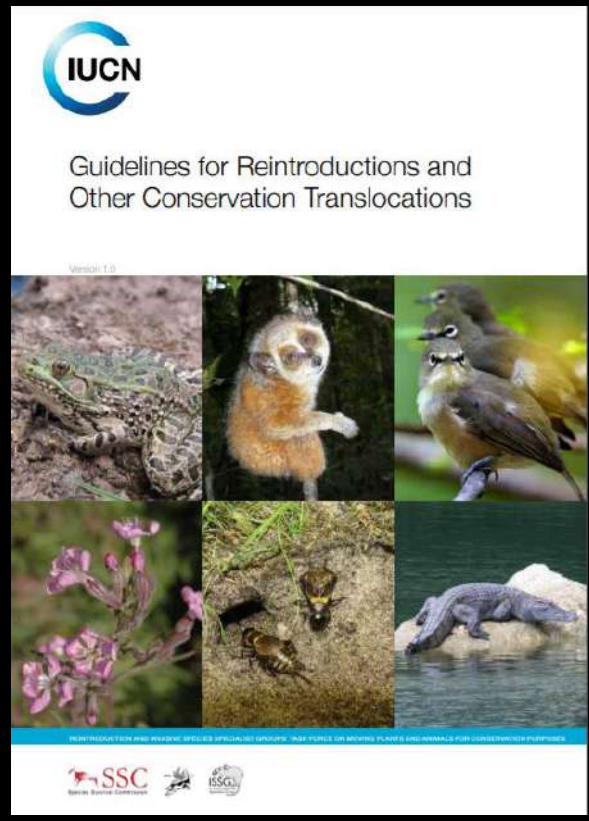
A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

3 Key preparatory actions
giving implementation to IUCN Translocation guidelines

1. Climate envelope assessment (GIS)
2. Genetic diversity assessment (SSRAD)
3. Analisys of throphic dependencies



Data produced merged to devise Best propagation mix
- site adapted curing plant isolation and habitat fragmentation
- re-establishing gene flow among threatened populations
- improving population size above critical values

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Key aspects critical for success:

Demonstrate contribution to other EU policy areas
Adopting a multipurpose delivery mechanism

- Agriculture (CAP)
- Economic development
- Educationa and training

A case study: LIFE SEEDFORCE

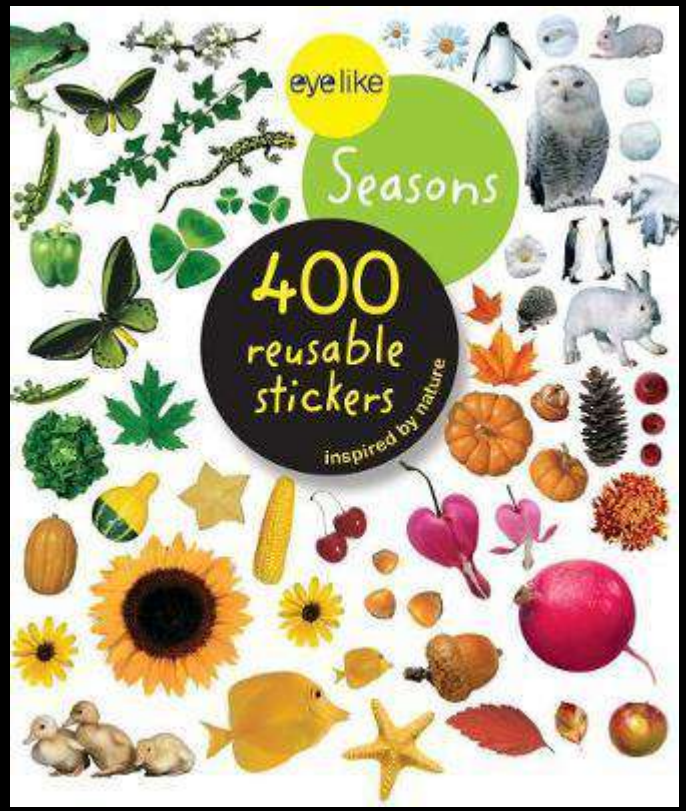
«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Key aspects critical for success:

Build participation and support with dedicated actions

- Vintage sticker album on target plants
- Artists in residence - plant jewels
- Recruiting plant stewards
- Portable seed bank to build amateur community
- Target plant dispaly in partner cities for species with garden value



A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Project actions:

A. Preparatory actions, elaboration of management plans and/or of action plans

- A1 Stakeholder re-engagement and MoU signature
- A2 Ecological niche modelling and climate change response
- A3 Genetic diversity analysis
- A4 Trophic dependency analysis
- A5 Implementation plan
- A6 Standardisation of operating procedures

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Project actions:

C. Conservation actions

- C1 Germplasm collection
- C2 Plant propagation
- C3 Site preparation
- C4 IAS eradication and mitigation
- C5 Plant translocation (population reinforcement/reintroduction/introduction)
- C6 Site protection

A case study: LIFE SEEDFORCE

«Using SEEDbanks to restore and reinFORCE the endangered native plants of Italy»

LIFE20 NAT/IT/001468

Project actions:

D. Monitoring of the impact of the project actions (obligatory)

- D1 Baseline monitoring
- D2 Evaluation of the effectiveness of the conservation actions
- D3 Socio-economic monitoring

E. Public awareness and dissemination of results (obligatory)

- E1 Communication and outreach
- E2 Building participation and support
- E3 Networking, transferability and replicability

F. Project management

Networking for plant conservation

How is it relevant for plant conservation?

- experiences and lesson learnt across different countries
- avoid duplications of efforts
- exchange and review operating protocols and approaches
- stay in touch with you colleagues and ask advice

……

can you add more?

Facilitating discussion

- Question 1 – to be discussed in small groups

How can help seedforce?

Please review spcies list and make suggestions

Feedback:

Seedforce - the species

4 Stenoendemic species: Centranthus amazonum, *Ribes sardoum, *Astragalus verrucosus, *Galium litorale

13 Euriendemic species Saxifraga tombeanensis, *Campanula sabatia, Gentiana ligustica, Leucojium nicaeense, *Limonium strictissimum, Linaria flava, *Linus muelleri, Primula palinuri, *Bassia saxicola, *Cytisus aeolicus, *Silene hicesiae, Elatine gussonei, Linaria pseudolaxiflora

12 widely distributed species: Botrychium simplex, Liparis loeselii, Dracocephalum austriacum, Eryngium alpinum, Adenophora liliifolia, Gladiolus palustris, Himantoglossum adriaticum, Eleocharis carniolica, Kosteletzkya pentacarpos, Marsilea quadrifolia, Woodwardia radicans, Crepis pusilla

Facilitating discussion

- Question 2 – to be discussed in small groups

What do you think are the more relevant novel plant conservation initiatives?

Can you name 5 and explain why?

Feedback:

Facilitating discussion

- Question 3 – to be discussed in small groups

What is the most urgent plant conservation need in the mediterranan?

Please choose one and explain why

Feedback:

Facilitating discussion

- Question 4 – to be discussed in small groups

How can the plant conservation community collaborate to meet these needs?

Please make suggestions

Feedback:

Thank you for your attention

Muse

Workshop 2.2:

Novel initiatives for Plant conservation in the Mediterranean

ENDSLIDE

Costantino Bonomi

Trento Science Museum
RIBES Italian Seedbank Network

3rd Mediterranean Plant Conservation Week
CHANIA, CRETE, GREECE | 27 SEPTEMBER - 1 OCTOBER 2021
Plant Conservation Strategies: from Science to Practice

MUSE