

A network of volunteers and observers for LIFE medCLIFFS: an efficient tool for the detection of invasive plants in the Costa Brava

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The main goal of LIFE medCLIFFS is to improve the current management of invasive alien plant species in the habitat of community interest HCI1240



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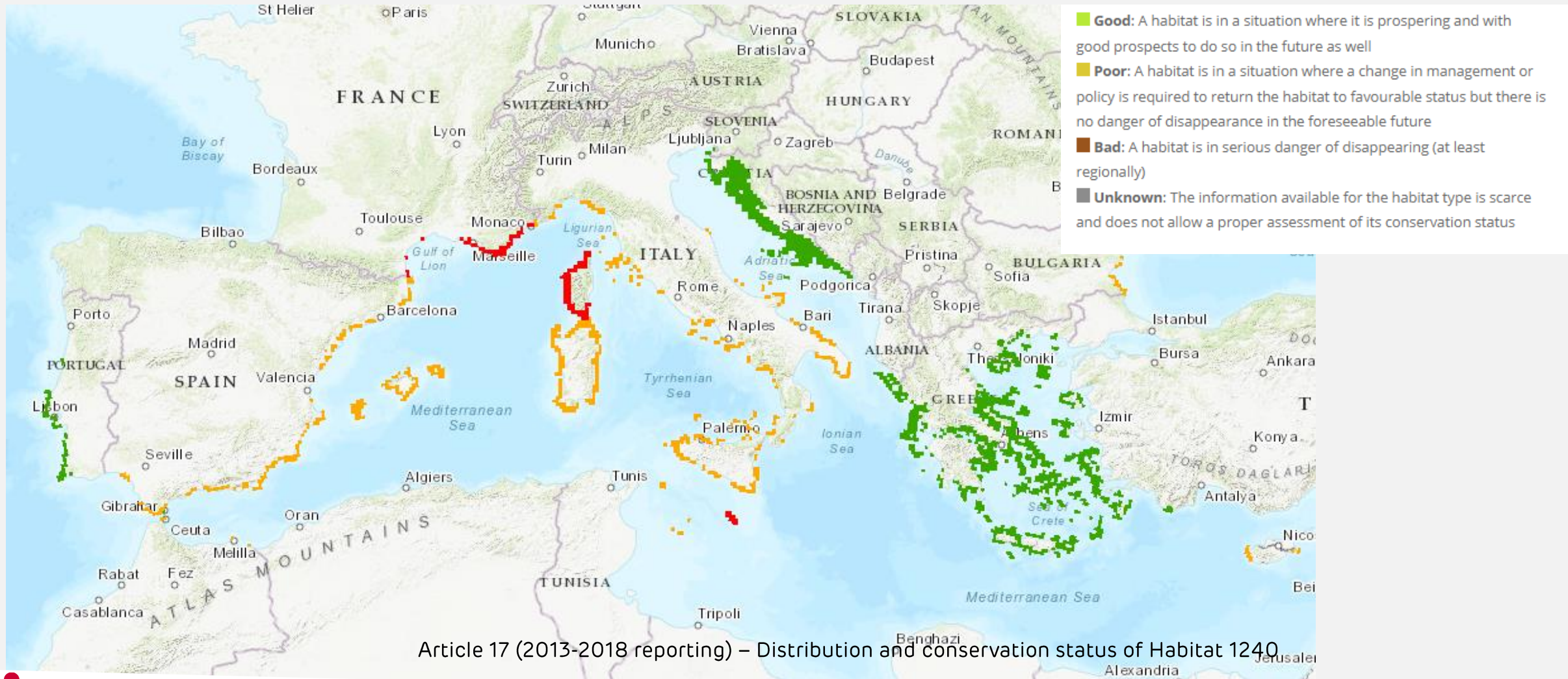
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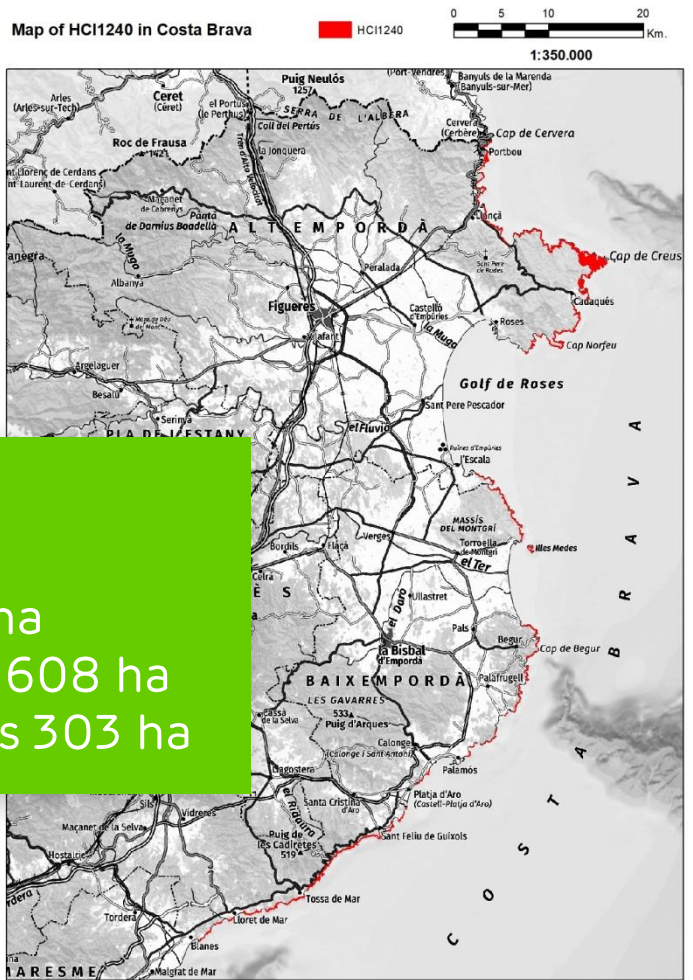
4th Mediterranean Plant
Conservation Week

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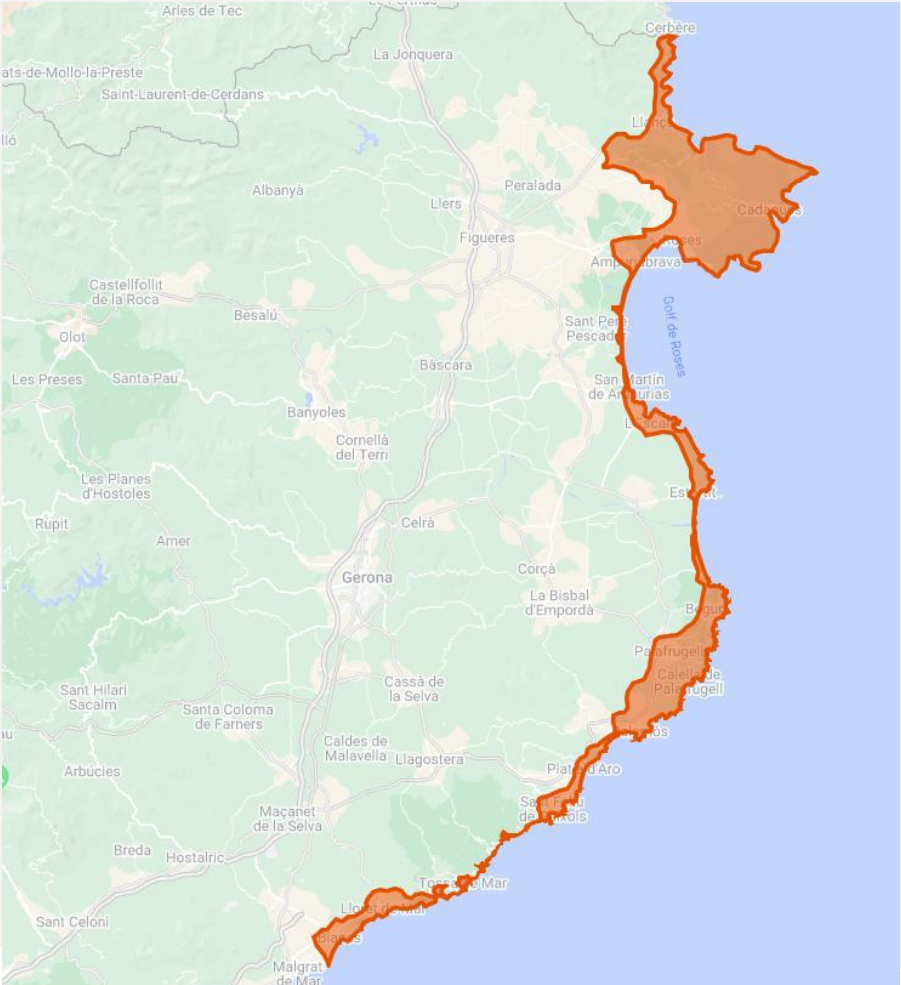
HIC 1240 Vegetated sea cliffs of the Mediterranean coasts with endemic *Limonium* spp.



Specifically, we work on the Costa Brava where this habitat occupies half of the area that it occupies in the whole of Spain



HIC 1240
 Spain 1266 ha
 Costa Brava 608 ha
 Cap de Creus 303 ha



This project takes advantage of **citizen science** with a double objective

1. To early detect invasive plants and improve knowledge of their populations
2. To raise citizen awareness of the problems they cause



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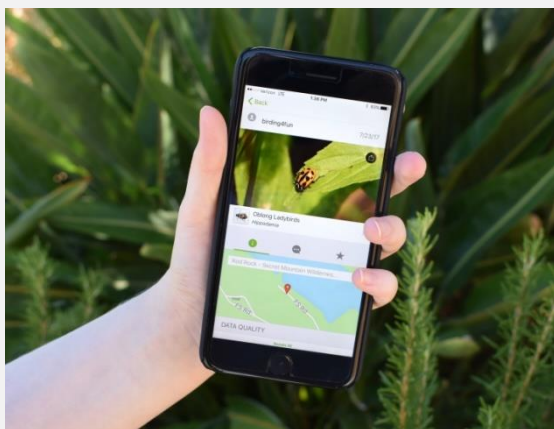


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Two **participatory networks** have been developed through the iNaturalist application

iNaturalist



iNaturalist is a **mobile application** that permits to record the presence of species at a specific time and place simply through a photograph taken by a mobile phone.

Who you are

You'll need to make an **iNaturalist account** and please only post your own personal observations



What you saw

Choose a group of organisms like **butterflies** or better yet a specific organism like the **Monarch butterfly**. If you provide evidence you can leave this blank and the **community can help**



Where you saw it

Record both the coordinates of the encounter as well as their accuracy. You can obscure the location from the public



When you saw it

Record the date of your encounter, not the date you post it to iNaturalist



Evidence of what you saw

By including evidence like a **photo or sound**, the community can help add, improve, or confirm the identification of the organism you encountered. Help the community by taking clear well framed photos, by including multiple photos from different angles



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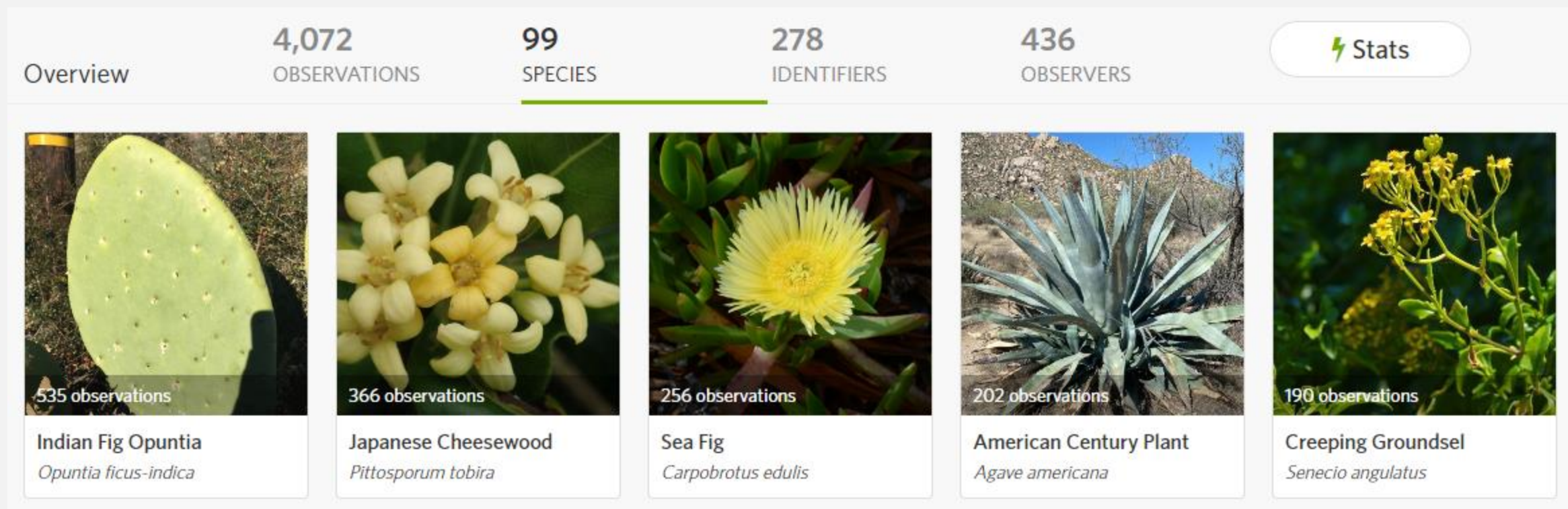
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The **observers' network** of LIFE medCLIFFS allows the public to collect data on 180 alien species



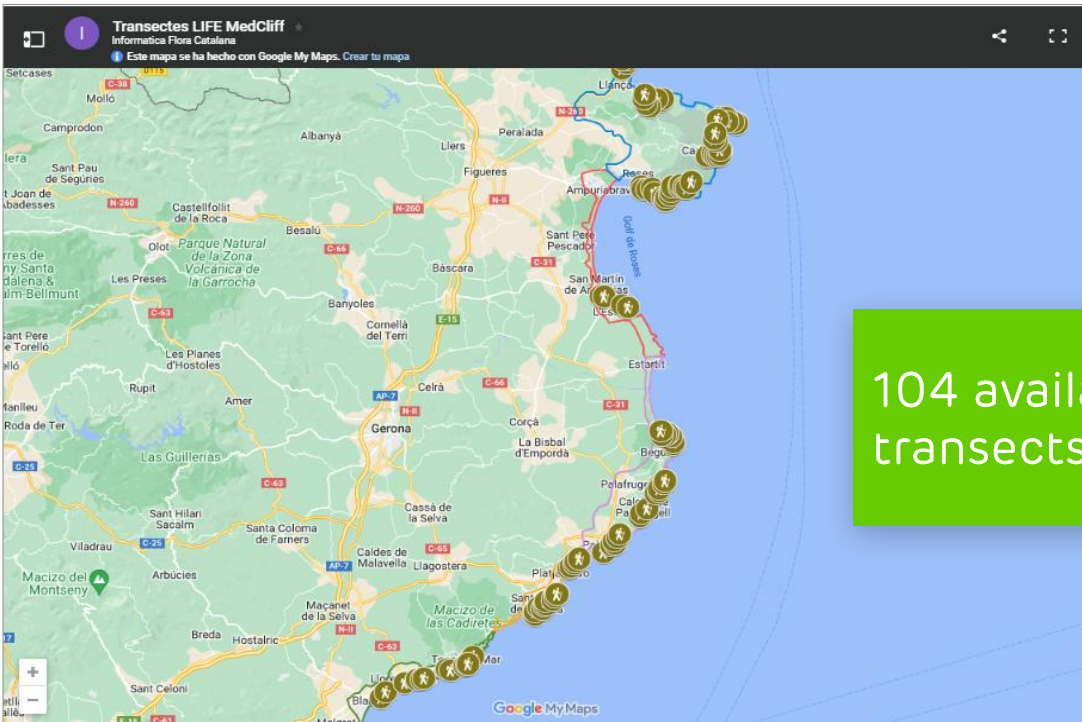
The **volunteers' network** permits to detect and monitor the populations of 33 selected invasive or potentially invasive plant species



This network needs a higher degree of commitment from the participants due they **adopt a transect** of approximately 1 km long that have been designed by our team in the Costa Brava

MAPA DELS TRANSECTES. LIFE medCLIFFS | Treball de camp | Tots els transectes | Mapa | T. disponibles | T. assignats |

Junts, fem el catàleg! Ciència ciutadana a Flora Catalana



Transectes LIFE MedCliff
Informàtica Flora Catalana
Este mapa se ha hecho con Google My Maps. Crear tu mapa

104 available transects

Flora Catalana
Catàleg de Flora

EL CATÀLEG + BRIÒFITS + PLANTES VASCULARS + EINES + C. CIUTADANA + INTERN +

ADOPTA UN TRANSECTE. LIFE medCLIFFS | Treball de camp | Mapa | Tots els transectes | T. disponibles | T. assignats |

Junts, fem el catàleg! Ciència ciutadana a Flora Catalana

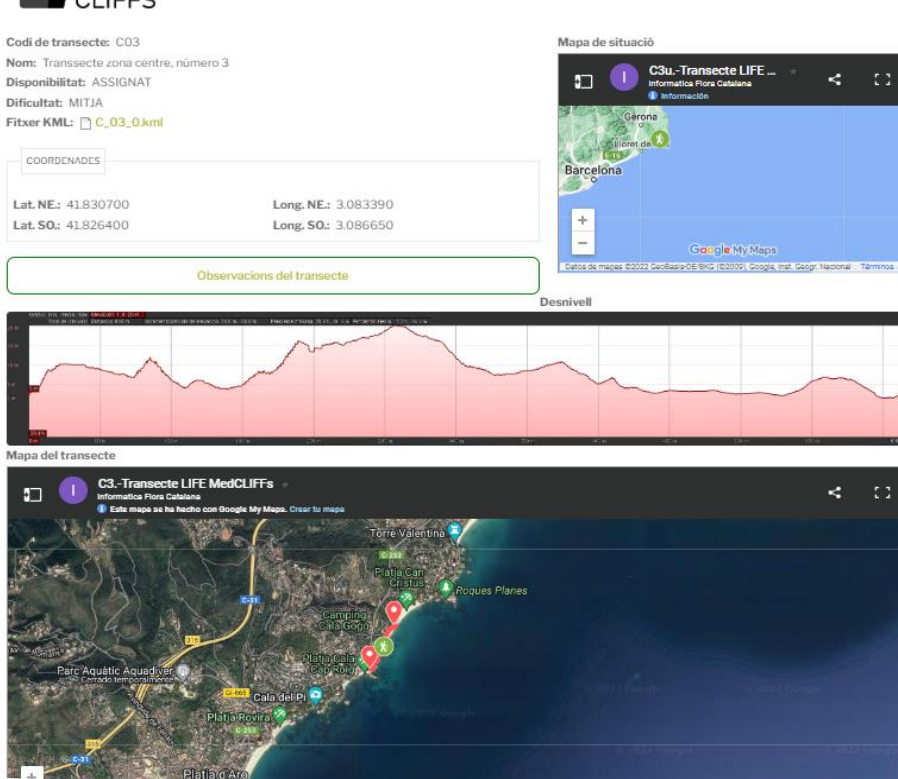
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Codi de transecte: C03
Nom: Transecte zona centre, número 3
Disponibilitat: ASSIGNAT
Dificultat: MITJA
Fitxer KML: C_03_0.kml

COORDENADES
Lat. NE: 41.830700 Long. NE: 3.083390
Lat. SO: 41.826400 Long. SO: 3.086650

Observacions del transecte

Mapa de situació





Desnivell

Mapa del transecte

C03 - Transecte LIFE MedCLIFFS
Informàtica Flora Catalana
Este mapa se ha hecho con Google My Maps. Crear tu mapa

Volunteers must conduct the monitoring of their assigned transects **once a year** and record data about each population: its phenological status, the area occupied and the number of individuals

Opuntia stricta (Shell Mound Pricklypear)  Research Grade 




 camigo
 49 observations  

Observed:
Apr 30, 2023 · 4:24 PM CEST

Submitted:
Apr 30, 2023 · 4:25 PM CEST



 Be the first to fave this observation!

 Observation Fields (10)

Codi del transecte:

N38

Presència d'adults reproductors:

no

Presència d'adults senescents o morts:

no

Presència d'adults vegetatius:

si

Presència de Dactylopius opuntiae:

no

Presència de plàntules/juvenils:

si

Validació:

si

Àrea (m2):

més de 20 m2



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Volunteers are **specifically trained for species recognition and data collection** by:

- Specific courses
- Dichotomous keys
- Complete descriptive cards of the 33 species
- Protocol for monitoring
- One-day trips to teach how to monitor



Acacia dealbata Link
"mimosa"
Fabàcies (leguminoses, papilionàcies)
Especie originària del sud-est d'Àustràlia continental i Tasmània

ESTAT D'INVASIÓ A LA COSTA BRAVA
Especie cultivada i subspontània a la Costa Brava, on puntualment pot aparèixer naturalitzada. Pot tenir comportament invasor, particularment després d'un incendi forestal.

DESCRIPCIÓ
Arbre perennifoli de fins a 30 m d'alçada a la seva regió d'origen, que al nostre país no sol sobrepasar els 15 m. Fulles bipinnatocompostes (dos cops dividides) amb foliols diminuts i estrets. Inflorescències amb moltes flors en forma de petits glomèruls esfèrics, d'uns 5 mm de diàmetre, formats per nombrosos escams gracs que destaquen molt en contrast amb les fulles. Fruit en llegum comprimit, de color verd o marró vermellós.

REPRODUCCIÓ
Floreix a l'hivern i principis de primavera. Les llavors, com passa amb altres acàcies, poden romandre latents a terra durant molt de temps, germinant més tard o després dels incendis que estimulen la seva germinació.

Foto: J. P. M. / CC-BY / 4.0
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LIFE20 NAT/ES/001223



Towards an integrative management of Invasive Alien Plant Species in Mediterranean sea cliffs of European interest
LIFE20 NAT/ES/001223

Xarxa de Voluntaris LIFE medCLIFFS i protocol de seguiment de transsectes

Versió: v.2
Data d'actualització: 19/01/2023



Flora Catalana
Viu, gaudeix i aprèn amb la nostra flora

L'ASSOCIACIÓ + EINES + MIL·LIFLES + CONEIXEMENT

13.2022.-Curs d'identificació i seguiment de plantes potencialment invasores

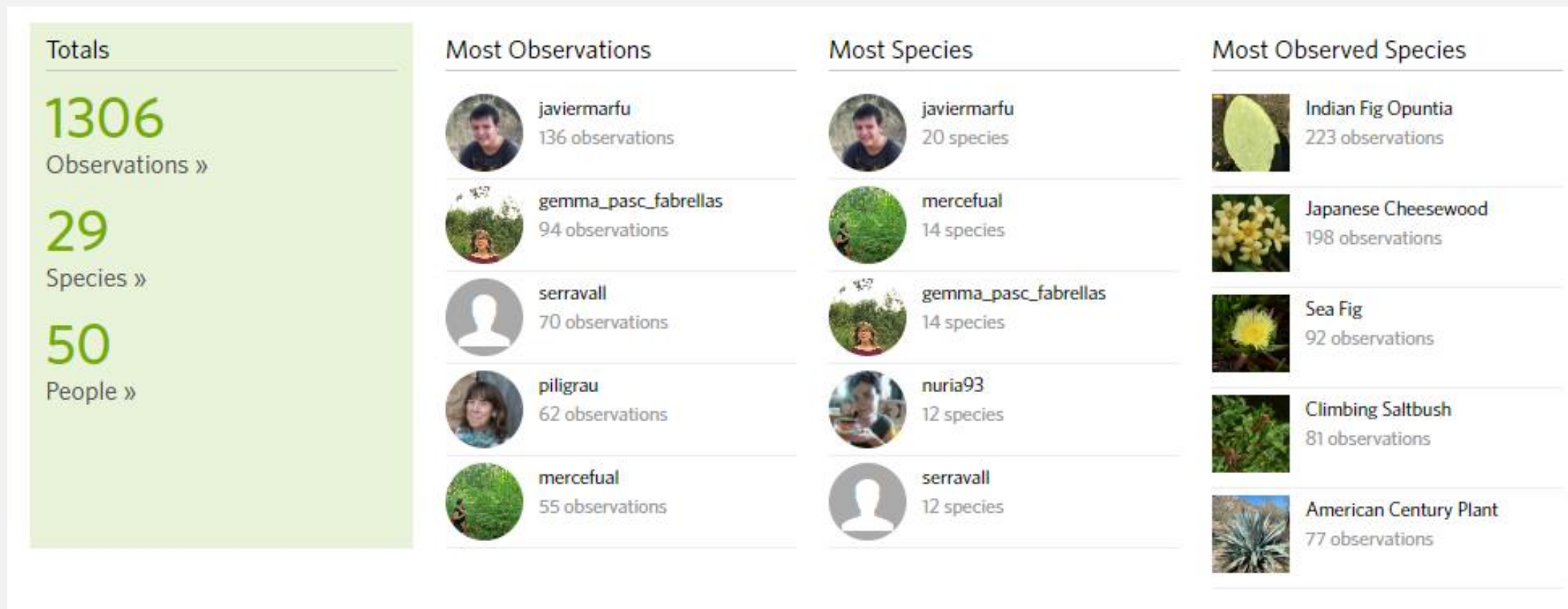
Codi del Curs (referència per a la inscripció): 13.2022
Interacció: EN DIRECTE
Títol del curs: Curs d'identificació i seguiment de plantes potencialment invasores
Estat del curs: Tancat
Personal docent: Carlos Gómez Bellver



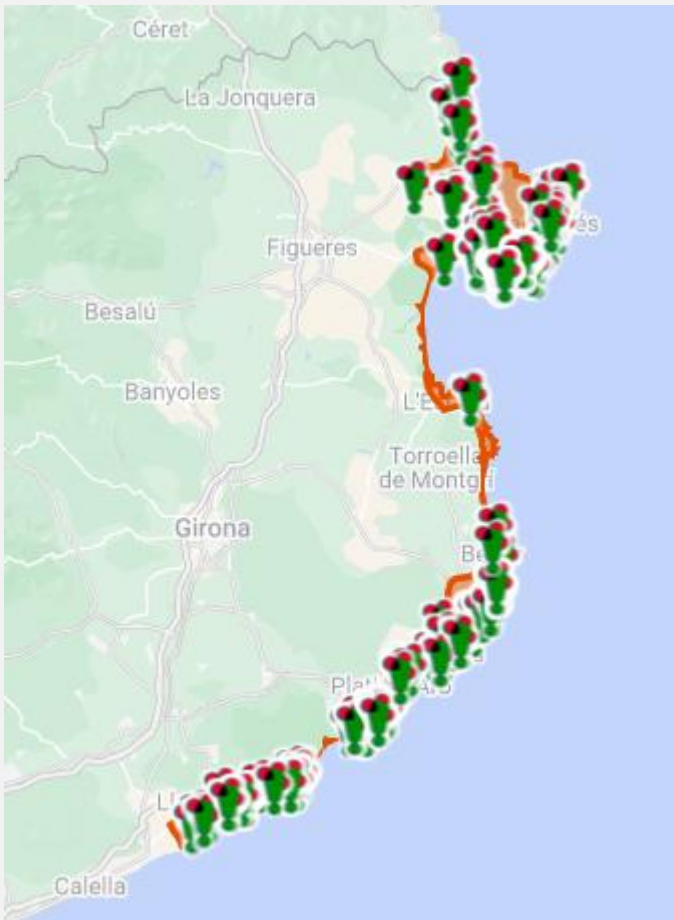
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Since April 2022, 89 volunteers have been recruited to monitor 84 transects (81% of all transects), of them, 50 volunteers have already started to monitoring their transect.



How can we use the **data collected** by observer's and volunteers' networks?



	Observer's network	Volunteers network
Observations	4072	1306
Species	99	29

✔ Observation Fields (10)

Codi del transecte:

N38

Presència d'adults reproductors:

no

Presència d'adults senescents o morts:

no

Presència d'adults vegetatius:

si

Presència de *Dactylopius opuntiae*:

no

Presència de plàntules/juvenils:

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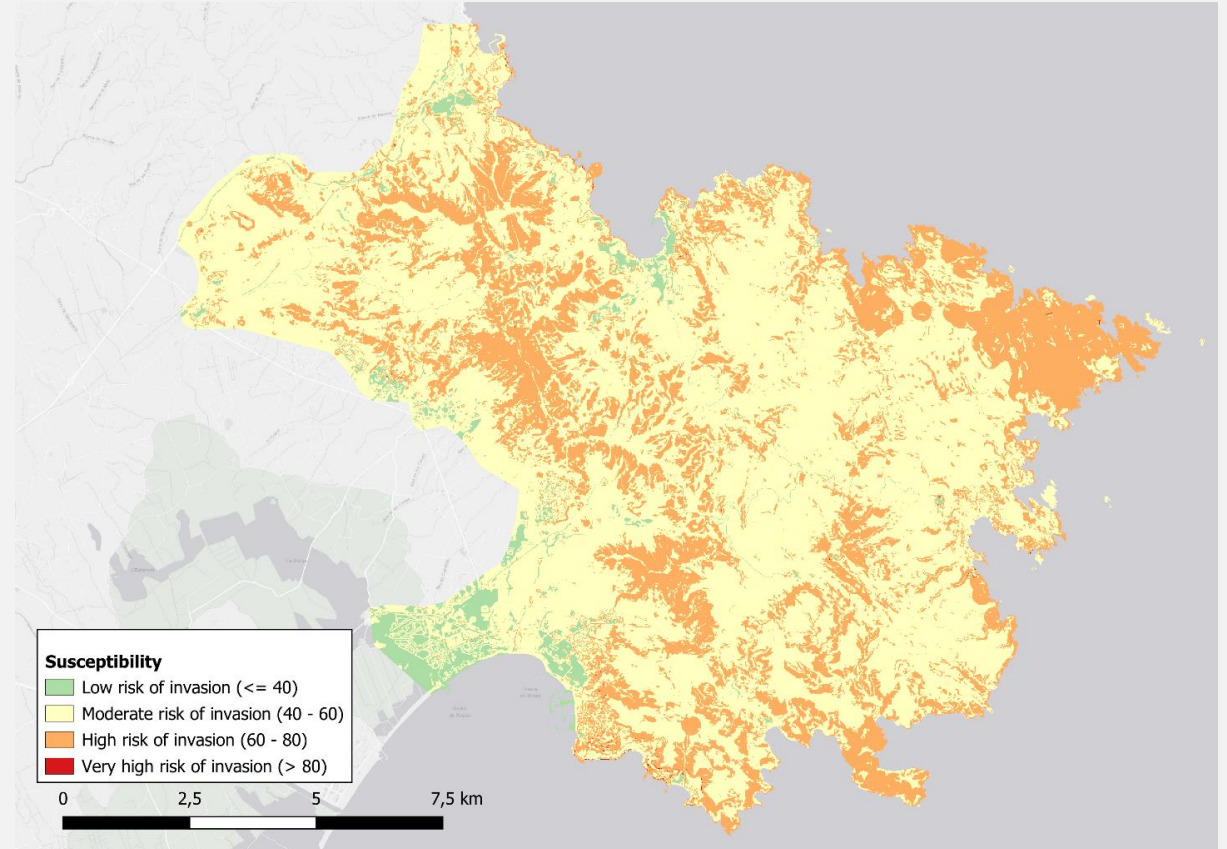


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Chorological data of observers & abundance and phenological data of volunteers

Can be used to improve **risk map modeling**



Risk map of *Opuntia ficus-indica* in the Cap de Creus (NE Spain)



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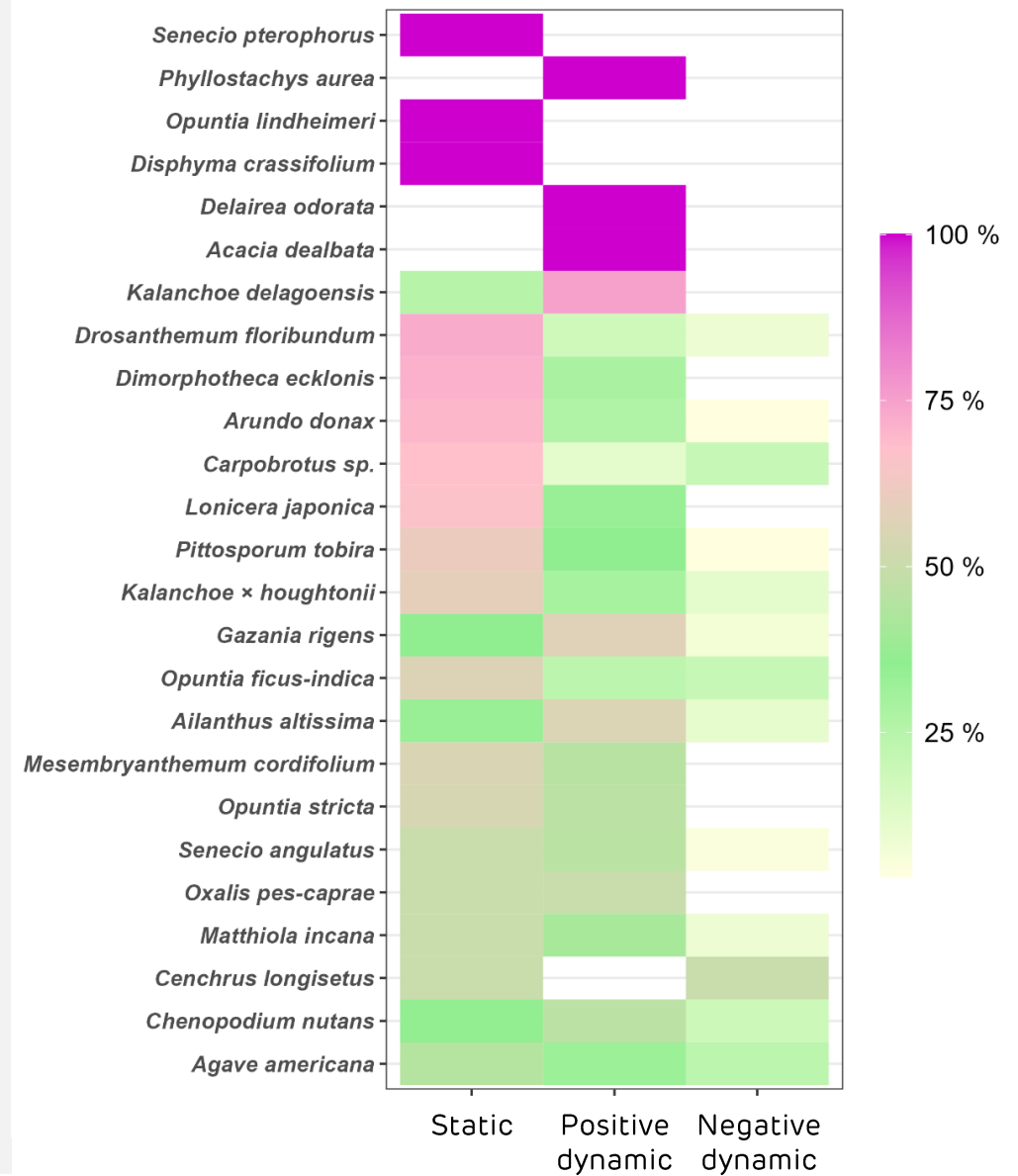
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Phenological data of volunteers can be used to detect the most problematic species and sectors by dividing the transects into three categories for each species

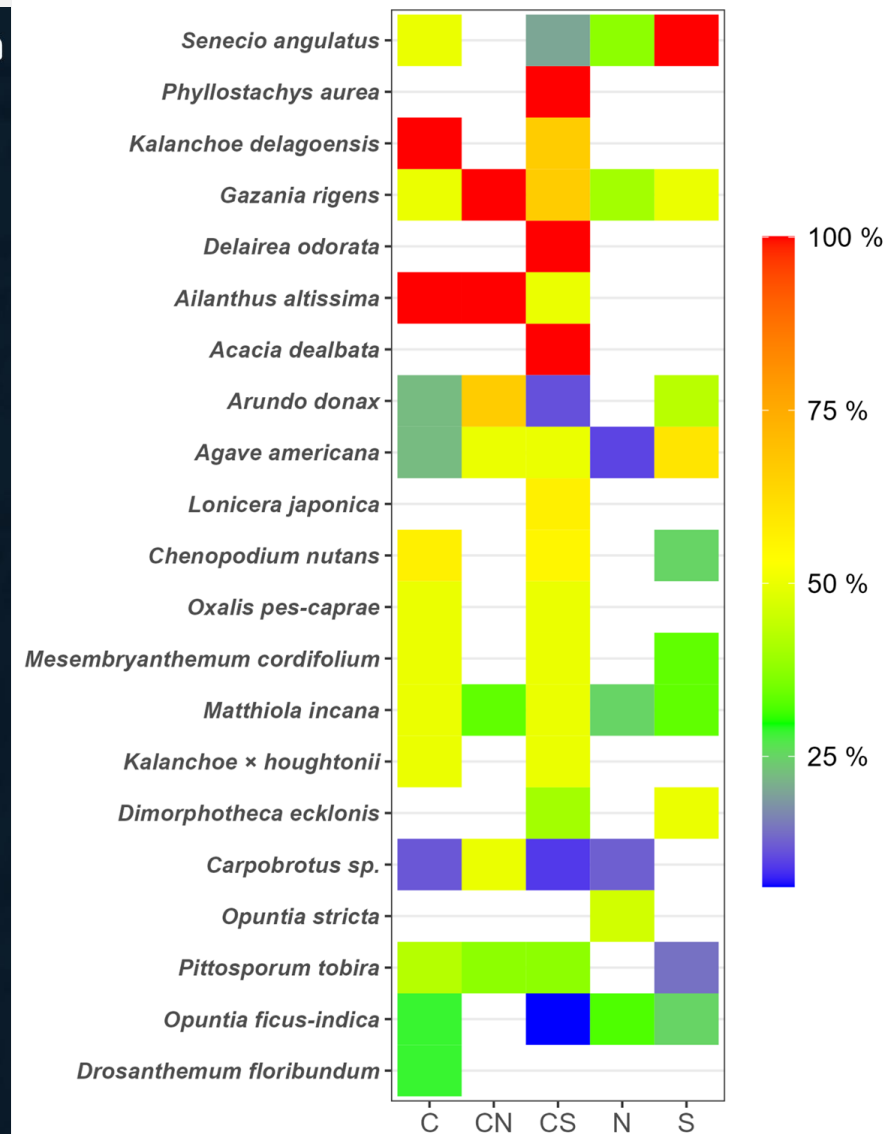
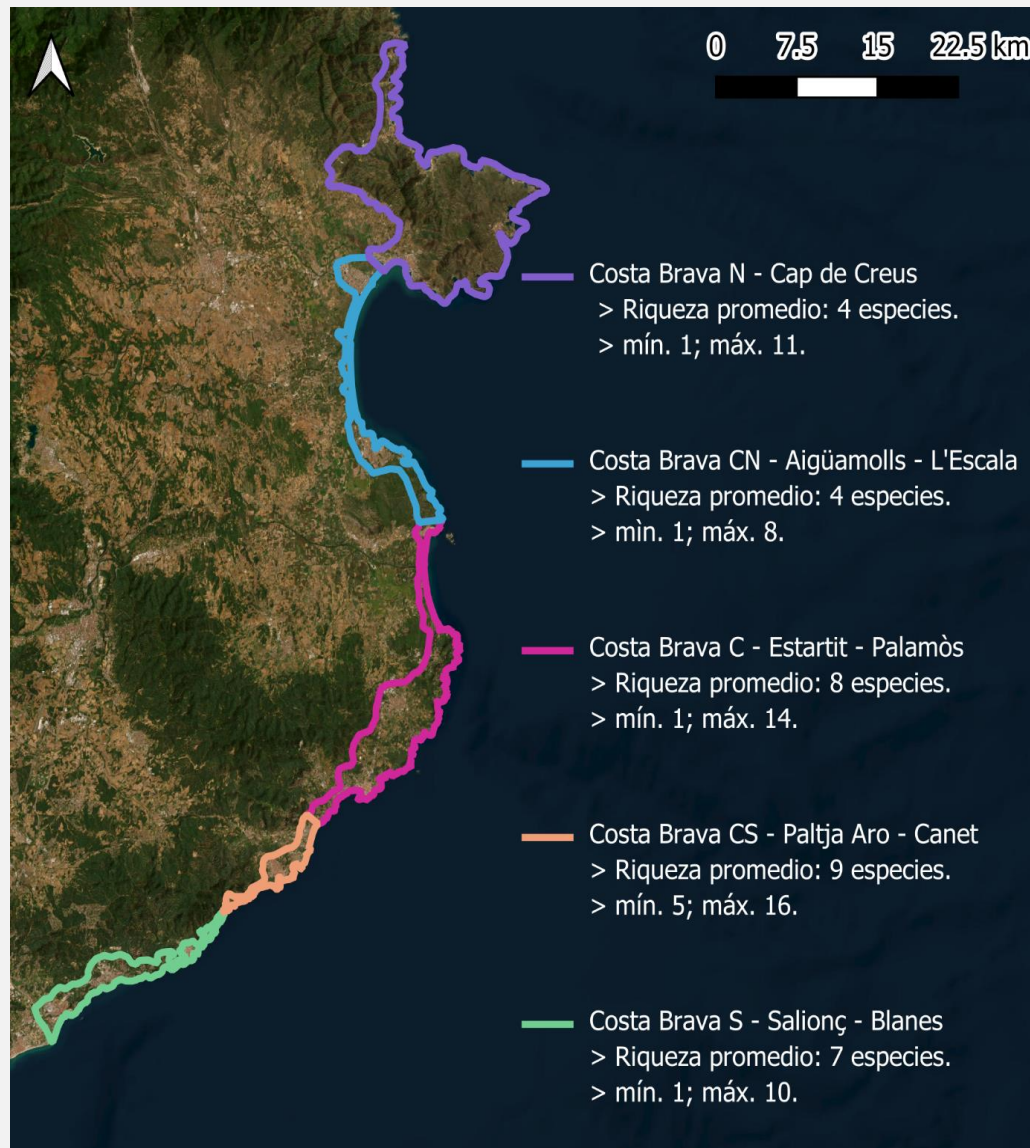
- Positive dynamic transects: with juvenile but not senescent individuals
- Negative dynamic transects: with senescent but not juvenile individuals
- Static transects: without juvenile nor senescent or with both stages.

	A	B	C	D	E	F
1	cod	observaciones/especies	juvenil	vegetativo	reproductivo	senescente
2	C01	<i>Ailanthus altissima</i>	1	1	0	0
3	C01	<i>Dimorphotheca ecklonis</i>	0	0	1	0
4	C01	<i>Pittosporum tobira</i>	0	1	0	0
5	C01	<i>Kalanchoe x houghtonii</i>	1	1	1	0
6	C01	<i>Pittosporum tobira</i>	0	1	0	0
7	C01	<i>Mesembryanthemum cordifolium</i>	0	1	1	0
8	C01	<i>Kalanchoe x houghtonii</i>	1	1	0	0
9	C01	<i>Mesembryanthemum cordifolium</i>	0	0	1	0
10	C01	<i>Kalanchoe x houghtonii</i>	0	0	1	0
11	C01	<i>Mesembryanthemum cordifolium</i>	0	1	1	0
12	C01	<i>Lonicera japonica</i>	0	1	1	0
13	C01	<i>Pittosporum tobira</i>	0	0	1	0

The **most problematic species** will be those with high number of **positive dynamic transects** (with juvenile but not senescent individuals) and **static transects** (without juvenile nor senescent or with both stages).



The **most problematic sectors** will be those with high **species richness** and high number of **positive dynamic transects** (with juvenile but not senescent individuals)



Activities to recruit volunteers and encourage citizens to become observers: **field trips**



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Activities to recruit volunteers and encourage citizens to become observers : **exposition**



Activities to recruit volunteers and encourage citizens to become observers: leaflets

What are invasive plants?

- ☑ Invasive plants originate from **other parts of the world**.
- ☑ They **spread** very efficiently.
- ☑ They **can grow in a wide range of conditions**.
- ☑ They have often been **introduced as a result of human activity**.
- ☑ They have a **negative impact on the environment**.

How do invasive plants affect Mediterranean cliffs?

Invasive plants **spread easily and limit the survival** of the native cliff flora.

Some native plants **are unique in the world and are currently threatened, unable to compete** with invasives.

The negative impact on native flora also **affects insects, birds and other cliff-dwelling organisms**.

In addition, invasive plants make the landscape **extremely uniform**.

Invasive plants cause a severe loss of biodiversity and alter the functioning of Mediterranean cliffs. Landscapes colonised by invasive plants lose social, cultural and economic value.

LIFE medCLIFFS is a nature conservation project

aimed at improving the management of invasive plants in the habitat of community interest **1240 - Vegetated sea cliffs of the Mediterranean coasts with endemic *Limonium* spp.** through:

Prevention

- Consensus list
- Watch list
- White list
- Code of conduct for managing potentially invasive ornamental species and quality label
- Promoting updates to the legal framework

Early detection - citizen science

- Local Observers Network to detect where invasive plants grow
- Expert Volunteers Network to monitor the evolution of invasive flora in priority areas

Rapid response

- Development of an invasion risk assessment system
- Invasion risk maps for 30 invasive and potentially invasive species on the Costa Brava

Eradication

- Control of invasive plants in the Cap de Creus CLIFFS using new and adapted protocols
- Coordinated strategy for private gardens

Prickly pear cactus
Opuntia ficus-indica

Gazania
Gazania rigens

Ice plant
Carpobrotus spp.



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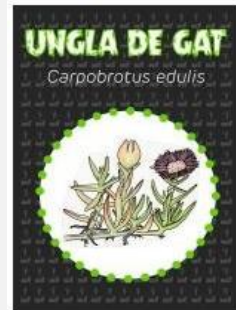
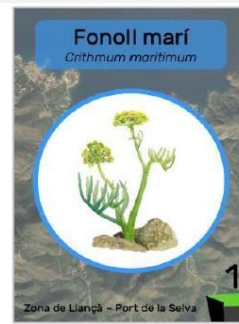
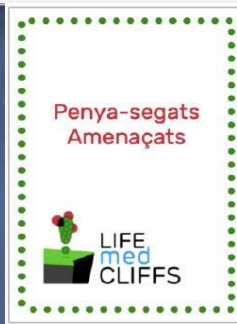
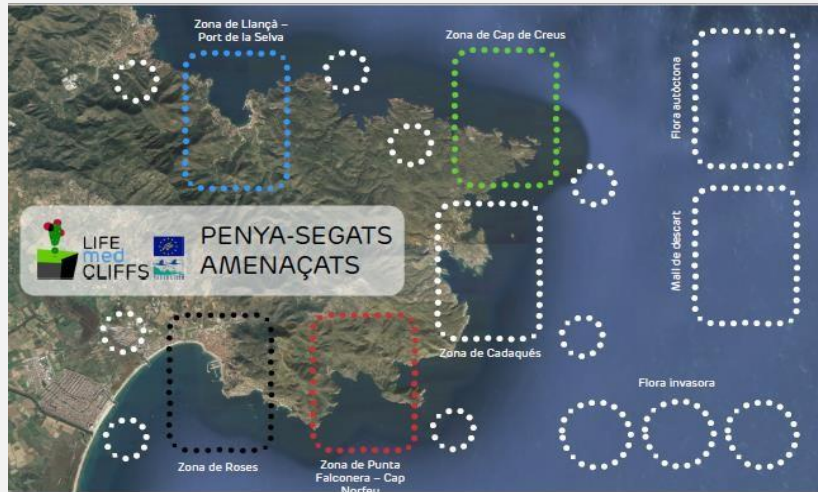
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Activities to recruit volunteers and encourage citizens to become observers: **informative videos**



Activities to recruit volunteers and encourage citizens to become observers : collaborative games



First annual meeting of volunteers — 21 October 2023



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