



G CONSELLERIA
O MEDI AMBIENT
I I TERRITORI
B DIRECCIÓ GENERAL
/ ESPAIS NATURALS
I BIODIVERSITAT



Illes Balears
Sostenibles

USER'S MANUAL FOR THE CARTOGRAPHY OF TERRESTRIAL HABITATS OF THE BALEARIC ISLANDS (CHIB10)



September 2022

Introduction

This document aims to aid in the correct interpretation of the *Cartography of terrestrial habitats of the Balearic Islands*. In order to make appropriate use of the results of this cartography, consideration must be given to the limitations derived from the complex methodology used in its preparation, as well as the observations made by the technicians responsible for its creation.

Caution should also be taken about the conclusions drawn from the present cartography. The data quality is only medium to high in the visited patches but low for those sections that were only photo interpreted (not visited).

In parallel with the evolution of the vegetation, the degree of accuracy of the cartography will decrease over time. This dynamic nature of the vegetation is why this cartography must be interpreted as a composite photograph, with the data for the unvisited patches taken from photographs of the years 2018 and 2019 (with the exception of those that could be studied by Google Street View and in areas where previous mapping tessellation had been used), while the visited tessellations stem from photographs from the years 2020-2021-2022..

There are areas where it was difficult to study type of vegetation with the methodology used. This document includes cases of areas of special sensitivity that analyse the particular cases of certain types of plant cover.

In short, this cartography is an interpretation of the reality of the terrestrial habitats present in the Balearic Islands, which are subject to certain limitations of time and resources. Although these maps aspire to provide very useful basic reference information for the management of the territory, the planning of measures and projects should in no case replace field visits carried out by a specialized technician.

The reading of this manual is meant to be accompanied by the **Interpretation of the Map Legend and Correspondence List** to achieve a full understanding of the cartographic thematic content.

Index

What is CHIB10?	6
What is the geographical scope?	6
What methodology was used?	7
Research and analysis of pre-existing cartographic information.	7
Definition of the Legend: Syntaxonomic list, interpretation of the map legend and the correspondence list	8
Methodology and database design.....	8
Delimitation of polygons: Tessellation	8
Assignment of content	10
Field visits.....	14
Areas of special sensitivity	16
Visualization in the IDEIB General Viewer	18
El Mapa general Hàbitats Interès Comunitari 2022 Illes Balears (General Map of the Habitats of Community Interest)	19
Hàbitat Interès Comunitari Majoritari 2022 Illes Balears (Majority Habitat of Community Interest 2022 Balearic Islands Layer)	25
L'agrupació de Capes hàbitat prioritari 2022 Illes Balears (The grouping of the priority habitats layers)	26
L'agrupació de Capes hàbitat no prioritari (The grouping of non-priority habitat layers)	26
Visualization of the WMS of the IDEIB catalog in a GIS (Q-Gis)	27
ANNEX I: Plant communities with potentially very reduced location areas	33

What is CHIB10?

The Cartography of Terrestrial Habitats of the Balearic Islands (CHIB10) is a digital thematic cartography of a continuous vector type.

According to current regulations on official cartographic production, the geodetic reference system used for this cartography is the ETRS89 (European Terrestrial Reference System 1989), while the cartographic representation system is the UTM (Universal Transverse Mercator) projection, which refers to geographic zone 31N.

The planimetric scale of the CHIB10 is 1:10.000.

The CHIB10 provides information on the distribution, cover and other attributes of the mapped plant communities, and indirectly for the correspondence of the habitat types of Community Interest (HTCI) to the sub-types of HTCI present in the Balearic Islands. The accompanying gateway created also establishes the relationships between plant communities and the habitat types of the Spanish Master List of Terrestrial Habitats (LPEHT)¹.

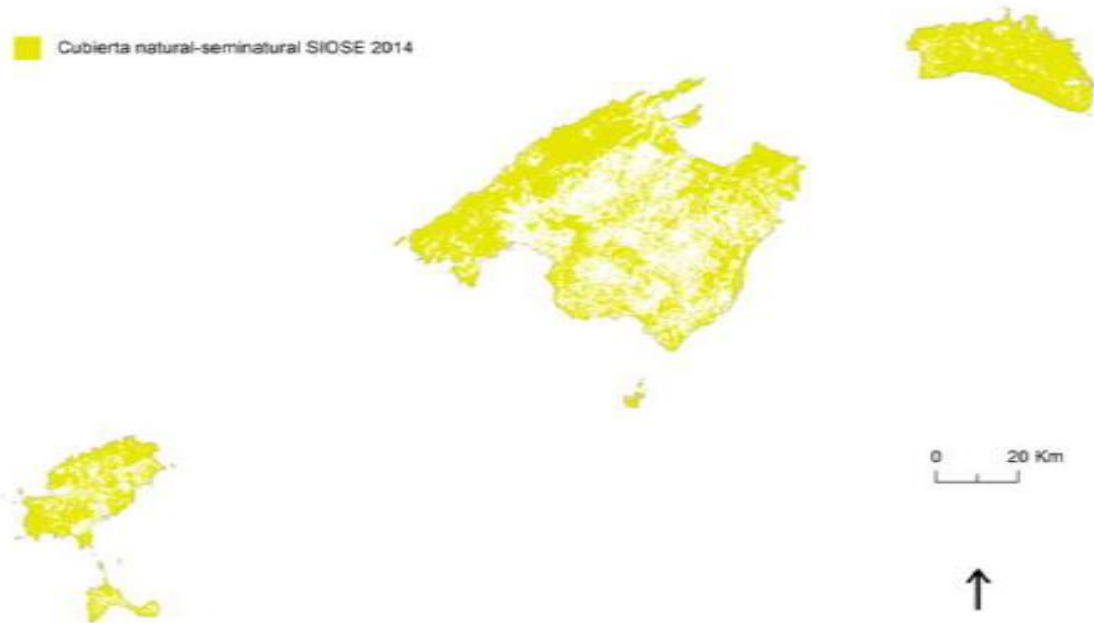
This cartography is a basic instrument for management at the level of an autonomous community, as it indicates which are the priority conservation and management areas. Moreover, the maps permit an evaluation of the diversity of the territory, enabling a monitorization of changes on a regional scale of the distribution and surface area of the terrestrial habitats over time.

What is the geographical scope?

The territory covered by the surfaces analysed is likely to contain natural and semi-natural habitats in the Balearic Islands, which have been delimited into 29,448 polygons or tessellations, covering 244,732.26 ha (representing approximately 49% of the total land surface of the Balearic Islands).

✓ A tessellation is a polygon of homogeneous vegetation

¹ More information about LPEHT: https://www.miteco.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/informacion-disponible/BDN_listas_patron.aspx



Natural and semi-natural cover of SIOSE 2014

What methodology was used?

Research and analysis of pre-existing cartographic information.

The suitability of pre-existing cartographic information to be integrated into the new cartography or to be used as a source of support and consultation information when delimiting tessellations and assigning content has been assessed. The most important aspects on which the assessment was based were the following:

- The quality of the tessellation.
- The type of content.
- The resolution of the content legend.
- The planimetric scale.

Some examples of supporting cartography are the *Mapa Forestal de España* 1:25.000 (MFE25) [MAPA 2012]; the thematic maps of some protected natural spaces; and the mapping of specific types of habitats, such as some temporary ponds (HTCI code 3170) or riverside vegetation.

Definition of the Legend: Syntaxonomic list, interpretation of the map legend and the correspondence list

The habitats are identified as plant assemblages or communities (syntaxa) defined according to the phytosociological methodology of the Sigmata School of Zurich-Montpellier. To update the syntaxonomic scheme of the Balearic Islands, the classic works on Balearic vegetation have been reviewed in addition to the most recent scientific bibliography available, such as, for example, the 2021 re-edition of the *Llibre de la Vegetació de Mallorca* (Llorens et al., 2007). In addition, to create a corresponding relationship with the Habitats of Community Interest (HTCI s) and with the Habitat Types of the Spanish Master List of Terrestrial Habitats (LPEHT), the opinion of experts of the Islands' botany and phytosociology was consulted.

In order to interpret the results of this project and the execution of future similar studies, it should be taken into account that if the objective is to estimate the presence of HTCIs, ideally the content should be assigned, and the tessellations visited in the field in order to evaluate the HTCIs and not the plant communities. Nevertheless, using the plant community level as an initial assignment has been an indispensable requirement for the conversion to LPEHT.

Methodology and database design

The cartography data model allows a direct translation to the model of the INSPIRE Directive (*Infrastructure for Spatial Information in the European Community*), which refers to the spatial data on habitats and biotopes².

The data model is implemented in a geographic database (geodatabase) for the cartography development and in a PostgreSQL/PostGIS database management system for its publication and visualization.

The metadata on the characteristics of the cartography have been adapted to the ISO 19115 standard, in compliance with the INSPIRE Directive and the LISIGE³ transposition; and to that which is established in the Spanish Nucleus of Metadata (Núcleo Español de Metadatos; NEM)⁴. This conformity ensures data interoperability..

Delimitation of polygons: Tessellation

A cabinet work team was formed for the cartographical tasks. They divided the territory into polygons of homogeneous vegetation (tessellations) using as a base imagery the aerial photography of the National Plan for Aerial Photography (PNOA;

² More information about data specification INSPIRE; habitats and Biotopes: <https://inspire.ec.europa.eu/id/document/tg/hb>

³ Link to LISIGE: <https://www.boe.es/buscar/act.php?id=BOE-A-2010-10707>

⁴ NEM v.1.2: <https://gisserver.car.upv.es/html/NEM-Spanish-metadata-core.pdf>

2018 and 2019) for those areas classified as natural or semi-natural, according to the SIOSE.

The tessellation of those recent maps that were shareable with CHIB10 was incorporated, specifically for the areas of the *Serra de Tramuntana* and in Formentera. Excessive modifications were avoided to maintain its integrity and authorship. The only modifications made were:

In the Tramuntana:

- Coastal polygons have been adapted to the general coastline.
- The geometry of some polygons has been altered to connect them to the adjacent polygons of the rest of the cartography.
- The polygons that overlapped with the pilot study area have been replaced.

In Formentera:

- The most obvious tessellation displacements have been corrected.
- Duplicated or triplicated polygons have been removed and the content reassigned, following the data model and general methodology of CHIB10.

The new tessellations were delimited by photo interpretation following guidelines that allow a homogenization of the methodology among the responsible technicians.

A minimum tessellation area of 2,500 m² (0.25 ha) was established to avoid excessive delimitation. Despite this, some areas of high naturalistic interest such as dunes, ponds, among other unique plant elements, with very small surfaces, were demarcated as special tessellations. An attempt has been made to establish the approximate surface area of these tessellations, although in some cases it has been complicated or imprecise.

This map was prepared to be viewed on a scale of 1:10,000. However, the polygons were delimited on a scale of 1:5,000 and the assignment of content in certain areas was carried out using an even more precise working scale.

Tessellation quality increased considerably after the field visit. This was motivated, among other factors, by the fact that many of the communities could not be observed from aerial photography, especially for the coastal communities. Tessellation was particularly complicated in very dynamic areas such as wetlands or torrents because of their dynamics (see section on Areas of special sensitivity).

The cartography of the *Sistema de Información sobre Ocupación del Suelo de España* (from now on SIOSE; 2014) was used to exclude artificial and agricultural surfaces. The non-natural surface excluded was not delimited. However, the artificial and agricultural surfaces that were not isolated by the SIOSE, due to being imbued in

natural territories, were delimited and assigned. The limits of the mapped territory defined by the SIOSE was modified when a clear mismatch with what was observed in the orthophoto could be appreciated.

In territories classified by the SIOSE as natural, we can find non-natural cover elements much more frequently than the opposite case. Within the category of natural-semi-natural, one can find streams, rambles, and hedges that are in a matrix of crops and that are often part of HTCIs valuable from a conservation point of view. Mosaics of natural vegetation and non-natural cover were digitized as independent polygons and a cover value was assigned to the identified content types.

Vegetation communities that are arranged in a catena (following a strong environmental gradient) such as: along the littoral zone, on the edges of streams or lagoons - were delimited as independent tessellations only if they had a sufficient width, in such that they are distinguishable at final viewing scale (1.5mm at 1:10000; 3mm at working scale 1:5000). Otherwise, the tessellations were merged.

Assignment of content

The assignment of content through photointerpretation of the orthophoto had a great weight in the development of the project, since it allowed an increase in our cabinet's resource use efficiency. However, after trips to the field, it had become clear that **the quality of photointerpretation was limited** even for expert technicians and so many plant communities were impossible to photo-interpret accurately. For this reason, **the information existing in unvisited tessellations was considered to be of low quality (See Data quality).**

The hierarchical level of *alliance*, in the phytosociological scheme, is what has generally been employed as the basic unit when assigning content. However, the level of *association* was also used when possible.

In addition, the most prominent floristic variations were indicated as facies, which treated the dynamism and ecology of the plant communities. Moreover, in the content assignment phase, information was provided on the physiognomic-structural aspect of the communities. Both facies and physiognomy information were key for the correspondence into HTCIs and LPEHT habitat types through the correspondence list.

The tessellations contain a single syntaxon in so much as the planimetric scale, resolution and visualization in the orthophoto and, where appropriate, field verification, allowed it. **Otherwise, the tessellations contained as many types of content as were recognizable by the methodology applied, up to a maximum of 10 types.** If a greater number of content types were detected, division of the

tessellation was chosen, while if there were different faces and/or physiognomies, the tessellation was divided.

In this phase, the cover in each tessellation is indicated in the form of a percentage. The cover expresses the proportion of the total area of the tessellation occupied by the specific type of cover.

The value **1** in the cover field indicates **presence**.
It is not a cover percentage.

From this assignment methodology, the following **conclusions emerge that are of great importance when interpreting this cartography:**

- Each tessellation can have up to 10 different content types.
- It is NOT possible to know the distribution of the contents within each tile. Therefore, the presence of a habitat in the content list of a specific tile does NOT imply that it occupies the entire delimited space.
- **We cannot infer presence in a spatial unit lower than the initial tile:**

If we analyse a fraction of a line or a point within a tessellation, one CANNOT deduce that all the contents present in the initial total tessellation are in the selected space.

Content might be present in the area of the split tile that is not included in the selection made. It may have fallen outside the bounded area.

Surface or habitat perimeter cannot be calculated in a spatial unit smaller than the initial tessellation:

The intercept result can show a length and an area. These values refer to the polygons resulting from the intercept, which are the sum of the lengths and areas of the clipped polygons that contain that type of content within the interception polygon.

These values **MUST NOT BE CONFUSED** with the perimeter or surface of the habitat in that delimited space.

And in NO CASE could the cover %, present in the original total tessellation, be applied to the clipped surface.

The cover has been estimated so that the sum of the covers of the different types of content add up to 100% in each tessellation. Nevertheless, there are tessellations where the cover estimate was conflicting:

- Cases of overlapping plant communities: In the visited tessellations, it was decided to weigh the percentage of overlapping communities so that the final sum remained at 100% in an attempt to represent all the plant communities present in the tessellation. In unvisited tessellations, which were assigned by photointerpretation and where overlap could occur, **this degree of overlap could not be estimated.**
- It was decided to differentiate the polygons, even if content could not be assigned to them in the initial phase. For example: In a pine forest with a high tree density, where it was difficult or impossible to recognize the lower stratum, if the auxiliary information did NOT inform about what vegetation might be present
- Below, the plant community content "Undetermined" was selected and no hedge value was assigned. On the other hand, if the syntaxa present were recognized, but it was not possible to estimate the surface they occupied - i.e. hidden under the tree canopy - the syntaxa were indicated but not their cover.
- Rocks and cliffs: The estimation of the cover in the cabinet phase in case of rocky Surface was practically impossible; and the field is very subjective. The high slope makes it impossible to visualize the plant communities at the level of photo interpretation and makes it very difficult in the field, therefore, the estimate of per cent cover becomes very subjective.

- Communities that occupy a very small surface area in the tessellation: On occasions where specific communities are found, a value of 1% cover has been indicated, although this value **does not mean that the community occupies 1%** of the total surface area of the tessellation, but it does indicate that the community is present. Therefore, it must be emphasized that **for these cases, no type of calculation should be performed to obtain the surfaces of the communities of the corresponding habitats**. This situation usually occurs specially in the of the communities shown in Annex I.

There have been cases of difficult-to-interpret communities:

- **Mixed Forests:** The overlap of the pines on the oak communities in numerous forest tessellations gave rise to the need to correct the representativeness after the field trips. There is no possibility that some unvisited forest tessellations where both communities coexist (pine = *Cneoro tricocci-Ceratonietum siliquae* facies *Pinus halepensis* and oak = *Clematido cirrhosae-Quercetum rotundifoliae* facies *Quercus rotundifolia* or *Cyclamini balearicae - Quercetum ilicis* facies *Quercus ilex*), where the pine forest was overrepresented with respect to the oak grove. Pine trees pose a problem when interpreting them syntaxonomically, as due to their high ecological adaptability, they have a great capacity to thrive in disturbed forests and pre-forests. These instances should be interpreted as variants, or as facies of different communities. In this cartography, the communities with an arboreal layer of *Pinus halepensis* were considered as *Cneroro tricocci-Ceratonieum siliquae* facies *Pinus halepensis*.
- **Strawberry-tree Forest:** *Pinus halepensis* can also form an arboreal layer in Strawberry-tree forests (*Ampelodesmo mauritanicae-Arbutetum unedonis*). In this cartography it has been considered as *Cneroro tricocci- Ceratonieum siliquae* facies *Pinus halepensis*. A fact that can lead to an underrepresentation of the surface occupied by *Arbutus spp.*
- **Reed beds:** With the photointerpretation it is often difficult if it belongs to *Cneoro tricocci-Ceratonietum siliquae* facies *Ampelodesmos mauritanica* or *Smilaco balearicae-Ampelodesmetum mauritanicae*. In addition, interpretation in the field is complicated and can be very subjective. *Cneoro tricocci-Ceratonietum siliquae* facies *Ampelodesmos mauritanica* were also considered to be reed beds intermingled with other tree or shrub communities such as *Cneoro tricocci-Ceratonietum siliquae* or *Ampelodesmo mauritanicae-Arbutetum unedonis*, although they may have a scattered and relatively non-abundant distribution in the tessellation.

- Perennial and annual pastures: The ruderal surface is strongly overrepresented to the detriment of the communities of annuals and geophytes, which occupy a minimal surface of the map. When processing a photo interpretation of them, the cabinet preferred to assign the potential vegetation of the area and therefore, in areas with a high degree of anthropization, it was more likely that the pastures were ruderal than vivacious and annual (potentially 6220). However, non-ruderal pastures have been included in tessellations close to others visited (the case of *Hypochoerido-Brachypodietum retusi* in Mallorca is very relevant).
- The reed clumps of *Arundo sp.*: They have been assigned as *Convolvulion sepium* in the case of not possessing any auxiliary information that would allow them to be assigned to another taxon.

The mapping was carried out by establishing the syntaxa in each tessellation and they have subsequently been converted to HTCI. The syntaxon-habitat relationship is not 100% accurate, as there may be errors or inaccuracies in the transposition, which is why the table of contents shows the associations and alliances that were assigned in the first place.

There is a lot of work to be done in terms of the knowledge of the vegetation in the Balearic Islands, which implies that the presence of certain communities and habitats are CURRENTLY the subject of debate at a scientific level and the gateway that derives from this project is a subject proposal to review.

Field visits

A total of 12,125 tessellations have been visited in the field, which represent 41% of the total of them and 68% of the total delimited surface. Ibiza, Formentera and Cabrera are the islands with a higher percentage of visits (> 90% in surface area), while Menorca was the island that has posed the greatest difficulty in visiting (~30% in number of tessellations and ~58% in surface area).

The field work was carried out by technicians who are experts in the vegetation of the Islands.

The criteria for deciding which tessellations to visit were the following:

- Tessellations with no content (“Undetermined”) were considered to be priority and mandatory visits.
- Tessellations with dubious content and lower quality must be prioritized.
- 100% artificial, cultivated, or mixed (cultivated-artificial) tessellations will not be taken into account.
- The aim was to reach a similar and proportional geographical distribution, relative to the frequency with which each unit of the legend is presented in the mapped area.

- The tessellations had to be accessible.
- In the event that the legend unit is present in more than one tessellation, the efficiency of the field visit must be maximized in the design of the route.

Initially, the field work methodology was designed in an exploratory phase (prior to the assignment) and a resolution phase (after the assignment) to check the correctness of the data and clarify doubts. The work carried out during the pilot test has served to readjust the methodology and carry out an **assignment and the visits in parallel** (Especially in Mallorca). In this way, the technician who visited was also responsible for assigning and modifying the limits of the tessellations, increasing the quality of the assignment to the cabinet work phase.

It must be taken into account that the Balearic territory has been divided between the technicians and that, although mechanisms have been established to unify criteria (guidelines, joint visits, etc.) the interpretation can be heterogeneous.

In the course of the field work carried out, the following questions regarding field visits have become evident:

- Many visits to the same tessellations should be made, and **during several seasons of the year, so that the content of the cartography is optimal**. The present project did not have the time necessary to observe the seasonal variability of plant communities. Since many diagnostic species can only be observed at certain times of the year, this fact favoured the overestimation of the ruderal surface. A clear example of these communities is *Allietum chamaemolyos*, where it was not possible to prioritize field trips in spring, which in turn affected the detection of seasonal taxa such as *Helianthemion guttati*, *Trachinion distachae*, *Stipion retortae* or *Alakano-Maresion nanae*.
- A high percentage of the tessellations are fully or partially privately owned. This fact made visits difficult and sometimes impossible.
- Having a limited execution time means that many tessellations were visited from a single point. In the case of large surface tessellations or streams, this limitation was highly relevant.
- It was decided to retain and use the information on communities that are difficult to visualize by a single visit but that had good previous cartographic information, although it is feasible that they are present with a low representation (Cover=1%).

Areas of special sensitivity

In the areas where the general work methodology did not allow the syntaxa present to be correctly established, their cover and tessellation has been particularly complex.

• Streams:

- At the tessellation level it was difficult to set the boundary of the tessellation.
- Many streams could not be seen in orthophotos because they are hidden by tree communities. That is why they could not be included in large surface tessellations and went unnoticed.
- Streambed intervention made it impossible to determine the current cover of their vegetation (Example, Sant Llorenç des Cardassar).
- There are few stream communities that could be assigned by orthophotography (*Pruno- Rubion ulmifolii* and *Molinio-Holoschoenion*) and many such as *Bellio bellidioidis-Menthetum pulegii*, *Brachypodietum phoenicoidis*, *Trifolio fragiferi-Cynodontion*, etc. , and therefore they could not be differentiated.
- Many streams are inaccessible, or one had to invest a lot of time to visit them with confidence. For this reason, low data quality was attributed to torrent tessellations.

• Temporary ponds:

Due to the limitation of the execution time of the project, a large proportion of the ponds were not visited. This cartography includes those observed during the photo interpretation; those observed in the field; the ponds of Lluçmajor present in the list of **Temporary Ponds of the CAIB**⁵; and those of the **LIFE project of Menorca**⁶. However, the previous information on the ponds is often scarce or exceedingly difficult to extrapolate at the level of syntaxa. For this reason, we visualized the syntaxa data that refer to temporary pools as follows:

- The tessellation that refers to the pond was mostly entered as *massa d'aigua* (body of water); facies-> *bassa* (pond); so that it was ensured that

⁵ Link to pla de gestió Natura 2000 Basses Temporals: <http://xarxanatura.es/wp-content/uploads/2015/04/pla-de-gestio-Natura-2000-BASSES-TEMPORALS.pdf>

⁶ Life Basses: gestió i conservació a Menorca; web resum:

https://webgate.ec.europa.eu/life/publicWebsite/index.cfm?fuseaction=search.dspPage&n_proj_id=29

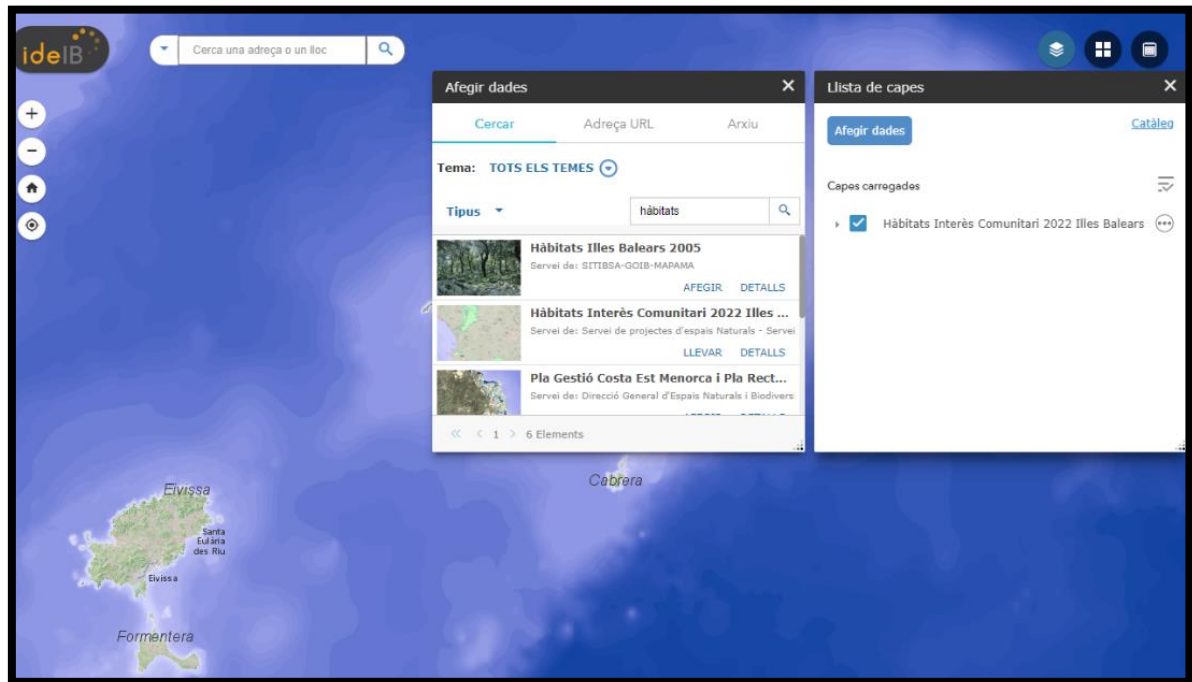
the majority HTCI (the one with the highest cover %) appears as *bassa temporal* (temporary pond).

- The cover of the syntaxa that are present in the pond in non-visited tessellations was always marked as 1% (presence indicator).
- The assignation of Menorca's ponds was carried out with the support of information on botanical species from the LIFE Ponds project.
- It was decided to complete the entire content of the delimited tessellation by establishing the same percentage of representation for each one present.
- The interpretation of the cover of the aquatic vegetation was very subjective: the communities are presented in a poorly defined, fragmentary way, with great interannual variability, etc. That makes it impossible to assign a pond's communities with precision in a single visit. For this reason, alliances of non-permanent flooded and aquatic areas are underrepresented (*Potamion*, *Ranunculion aquatilis*, *Isoetion durei*, etc.)

Visualization in the IDEIB General Viewer

Link to IDEIB General viewer: <https://ideib.caib.es/visor/>

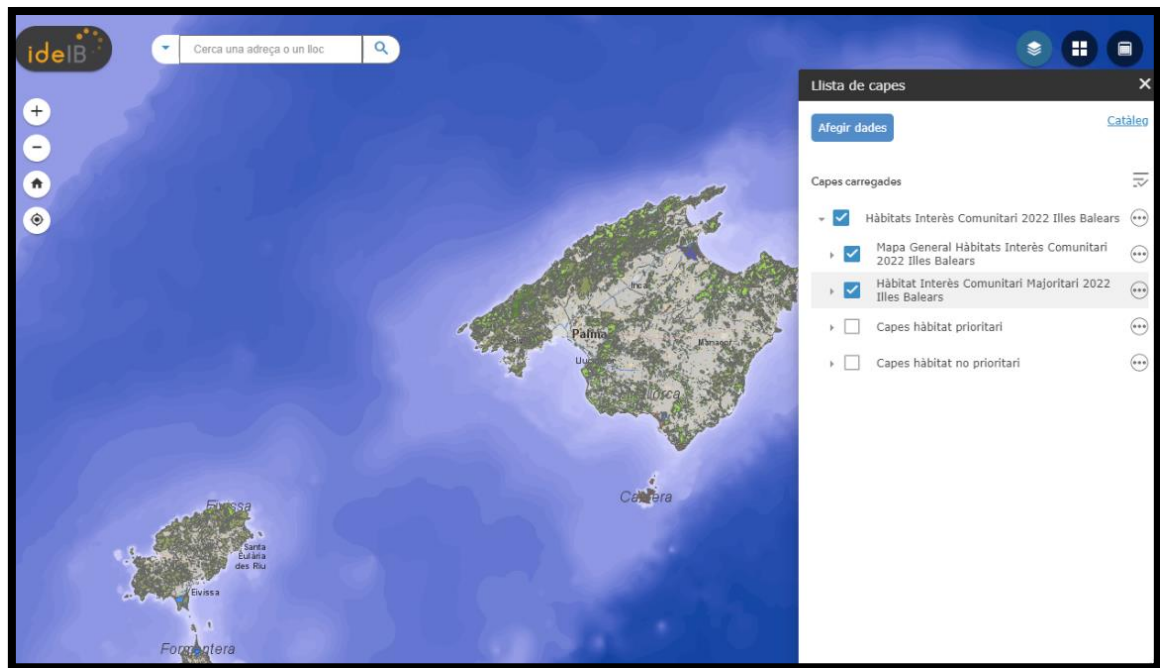
Search in the list of "habitats" layers -> Select "Hàbitats Interès Comunitari 2022 Illes Balears" (Habitats Community Interest 2022 Balearic Islands)



Four types of layers are loaded:

1. [Mapa general Hàbitats Interès Comunitari 2022 Illes Balears](#) (General map Habitats Community Interest 2022 Balearic Islands)
2. [Hàbitat Interès Comunitari Majoritari 2022 Illes Balears](#) (Majority Community Interest Habitat 2022 Balearic Islands)
3. [Capes hàbitat prioritari](#) (Priority habitat layers)
4. [Capes hàbitat no prioritari](#) (Non-priority habitat layers)

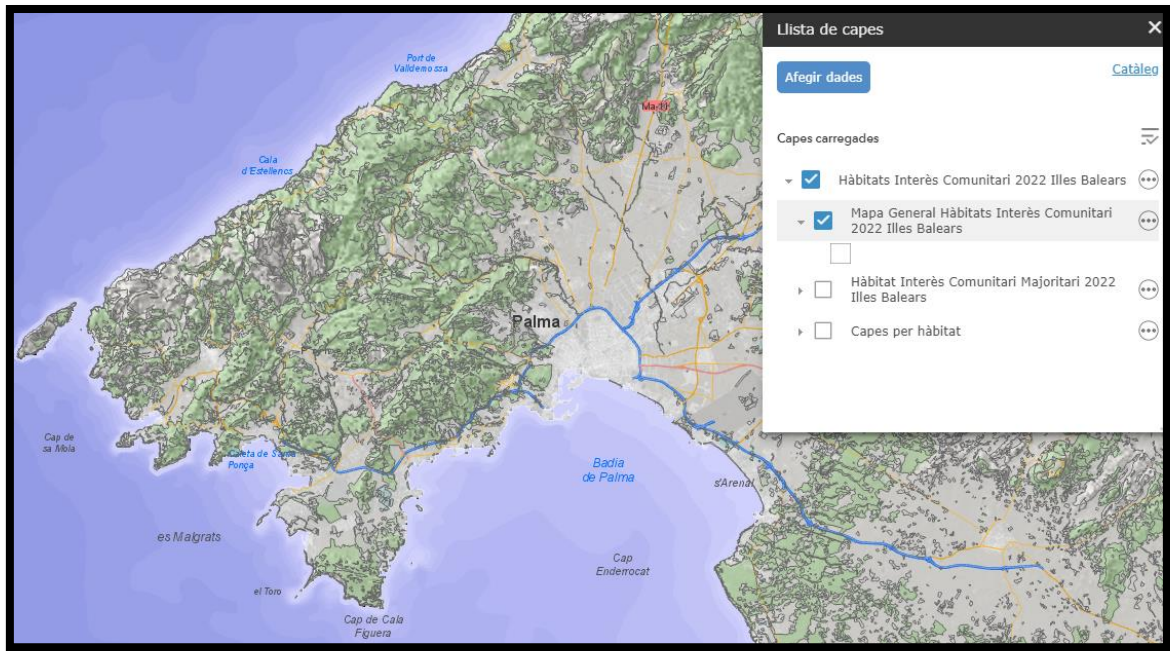
The first two layers are enabled by default.



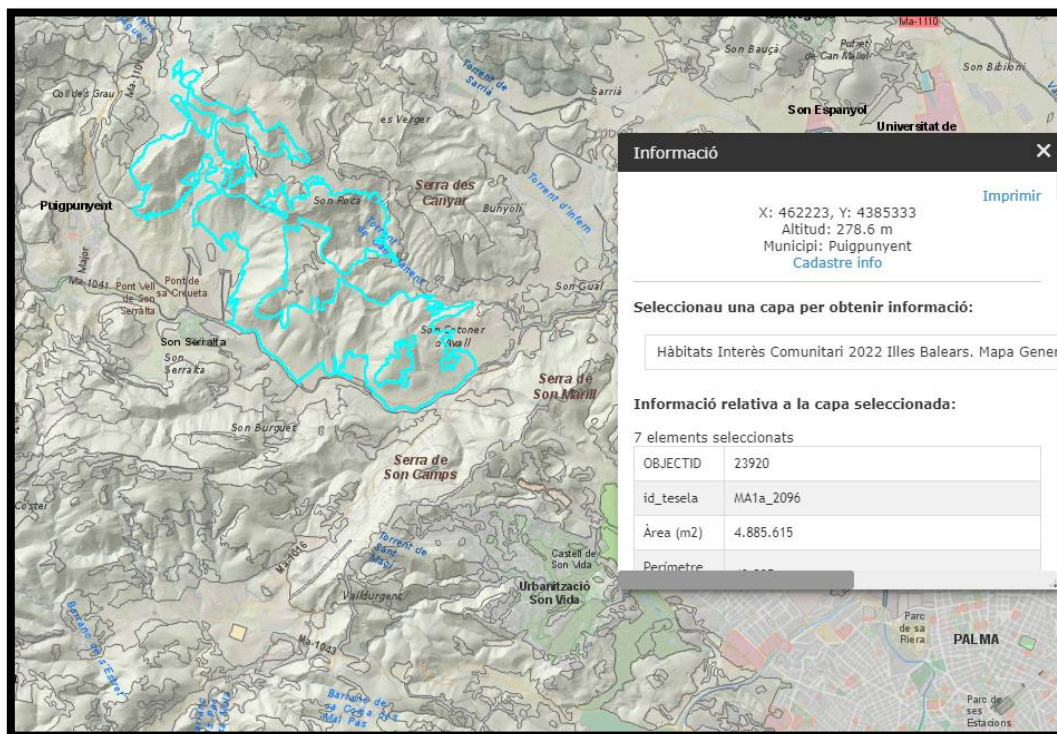
El Mapa general Hàbitats Interès Comunitari 2022 Illes Balears (General Map of the Habitats of Community Interest)

This corresponds to the delimitation of the tessellations and shows the information of all the types of content present in each of them.

The layer is visualized as a dark grey line that delimits the surface in the different tessellations.



When querying a polygon of the mesh, a dialog box appears. In the example tessellation (Id_tesela MA1a_2096) there are "7 selected elements". This means that in this tessellation there are at least 7 different types of content.



✓ Within each tile there can be up to 10 types of content.

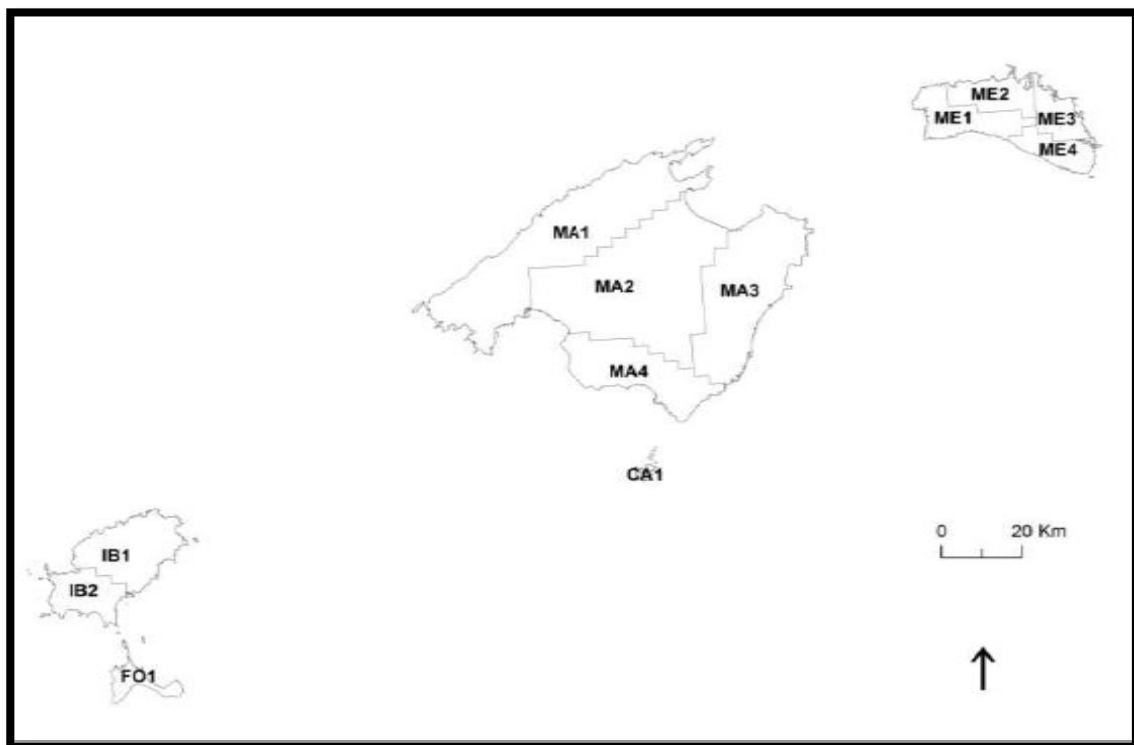
The contents are shown in a table below entitled “Informació relativa a la capa seleccionada” (Information relative to the selected layer).

✓ All types of layers are given the same information

For each content we can determine the following aspects:

OBJECTID: The code of each object or content entry in the database.

Id_tesela: This is the alpha numeric code identifying the polygon (tessellation). The first section refers to the work area (Ma1a, for example, is the Tramuntana area) and the numbering is given progressively for each polygon created.



To facilitate and distribute the task of digitizing the polygons, the Balearic territory has been divided into zones.

Àrea (Area) (m²): The total surface of the delimited polygon, in m².

Perímetre (Perimeter): The length of the total perimeter of the polygon in m.

Qualitat (Quality): The degree of accuracy in terms of the content they present. This was categorized using the following pre-defined data quality classes:

- Alta (High): The content has been confirmed with little doubt during the field visit
- Mitja (Average):

- Content assigned to cabinet with a few doubts regarding the content.
- Content assigned to cabinet with reasonable doubt but confirming with supporting cartographic information.
- Field assigned content to very large tessellations where a large part of the tessellation could not be visited due to inaccessibility.
- Content assigned to the field through photographs taken with a telephoto lens in inaccessible tessellations.
- Content assigned to cabinet in which the information of the content of a nearby tessellation was extrapolated.
- ***Baixa (Low)***: This corresponds to content assigned in the cabinet work phase that lacked supporting cartographic information. It was also decided to assign this category to all the tessellations included in streams, due to the difficulty of assignment and of the visit they entail. More information is available in the "Streams" Section.

Visita (Visited): This entry reports whether the tessellation was visited by a technician or not. Unvisited tessellations had low content quality. The visit consists of a technician physically visiting to the area and surveying it as far as possible to establish its cover. The tessellations that the technician was able to observe with binoculars, by a terrestrial telescope or through photographs with a telephoto lens were also considered visited. These tessellations have limited data quality. The tessellations that the technicians have not been able to visit physically, but are remarkably similar, seen in the orthophoto, to a nearby visited tessellation, were also considered visited.

Codi hàbitat (Habitat code): This entry corresponds to the codes of the Habitat Types of Community Interest (HTCI) present in Annex I of the Council Directive 92/43/EEC of 21 May 1992, relating to the conservation of natural habitats and fauna and wild flora (Habitats Directive), modified by the Council Directive 2013/17/EU of 13 May 2013, by which certain directives are adapted to the area of the natural environment, on the occasion of the accession of the Republic of Croatia to the European Union ([link to the legislation](#)).

Nom Hàbitat (Habitat Name): This entry corresponds to the names of the Habitat Types of Community Interest (HTCI) of the Habitats Directive, present in the Balearic Islands, and translated into Catalan. In some tessellations it may be the case that, as they have more than one type of content, the code and name of the habitat present are repeated but show different associated cover data; this occurred because distinct plant communities were identified in this area, with different covers, but which corresponded to the same HTCI (put it in this section or in the Association or Alliance section)

Hàbitat Prioritari (Priority Habitat): According to the definitions of the Habitats Directive, priority habitats are those that are threatened to disappear whose conservation is a special responsibility for the Community, considering the

importance of the proportion of their area of natural distribution included in the territory. These types of habitats are marked with an asterisk in Annex I of the Habitats Directive and in the table of contents it is indicated as "SI" (yes).

Hàbitat singular (Singular habitat): These correspond to plant communities that always occupy very small areas and that, due to their botanical value, it is necessary to take their unique presence into consideration in the corresponding tessellation. Singular habitats can coincide with priority ones, although this is not a necessary condition. If that habitat has a unique plant community, it is indicated as "SI" in this section.

Cobertura (Cover) (%): This is an estimate of the percentage of occupation of that type of cover in a given tessellation, both by photo interpretation and by *in situ* observation. Covers are adjusted to add up to 100% on each tessellation. In case of overlap between plant communities, care has been taken to ensure that all of them are represented. In some cases, the cover of tree communities has been discounted to leave shrubs and herbs represented that otherwise would not appear.

Fitxa hàbitat (Habitat information sheet): This provides a link to additional information on the particular HTCI. In cases where the covers do not correspond to any plant community related to a subtype of habitat, this section will be empty.

Codi Subtipus (Subtype Code): Corresponding to the habitat code plus a number indicative of the variability in plant communities present in the habitat of community interest. For example: the habitat type 5330 Thermo-Mediterranean and pre-desert scrub has a variability of up to 9 subtypes which are coded as follows: 5330-1, 5330-2, 5330-3, 5330-4, 5330-5, 5330-6, 5330-7, 5330-8, 5330-9. In cases where the covers do not correspond to any plant community related to a subtype of habitat, this section will be empty.

Nom Subtipus (Subtype Name): The name of the subtype tends to refer to the plant community that creates the variant of the main habitat. For example, 5330-1: *Ampelodesmo-Arbutetum unedonis* (strawberry-tree forest). In cases where the cover does not correspond to any plant community related to a subtype of habitat, this section will be empty.

Associació (Association): The mapping was done by establishing the syntaxons present in each tessellation. They were later converted to HTCI by a syntaxon-habitat relationship (bridge). The relationship, in most cases, occurs at the alliance level and, therefore, the association section is empty of content in most of the contents of the tessellations. This section will also be empty when the content is one of the types of covers that do not correspond to any HTCI (see the Alliance section).

Aliança (Alliance): Alliances are the basic thematic information unit. The syntaxa identified in the tessellation at a higher hierarchical level than the association are

named in this field and, in most cases, it was generally at this level that the correspondence with the HTCI was created. If the type of land cover **does not correspond to any specific plant community**, it can be one of the following:

- Massa d'aigua (Body of water): Water bodies were calculated as surface associated with habitat according to their nature or facies:
 - Aigua salada (salt water) = HTCI 1150
 - Aigua dolça (fresh water) = HTCI 3120, 3140 or 3150
 - Bassa temporal (temporary pond) = HTCI 3170

Aquatic communities have been added, in most cases with 1% cover (Presence indicator).

- Sense determinar (Undetermined).
- Ruderal: Refers to the vegetation colonizing disturbed or damaged land, usually in urban environments in general terms. It is not usually possible to distinguish which plant community it represents; "ruderal" can belong to any of the following phytosociological classes:
 - *Saginatea maritima*,
 - *Salicornietea fruticosae*, *Thero-Suadetea*,
 - *Parietarietea*
 - *Pegano-Salsoletea*, *Stellarietea media*
 - *Galio-Urticetea*
 - *Lygeo-Stipetea*
 - *Molinio-Arrhenatheretea*.

In addition, this type of vegetation is of little interest in habitat mapping as it does not normally correspond to any HTCI.

- Sòl nuu (Bare soil): This classification does not correspond to any habitat or plant community. It only applies to those places that are naturally devoid of vegetation, such as the intertidal zone of beaches, rocky outcrops, etc. Places devoid of vegetation due to human action were assigned the "Artificial" content.
- Cultius, artificial i mixte (Crops, Artificial and Mixed: Crops-Artificial): The artificial and agricultural surfaces that have not been discarded by the SIOSE and that are therefore immersed in the mapped territory were delimited and assigned the corresponding content if they reached the minimum tessellation size (0.25 ha).

Codi Nom Hàbitat (Habitat Code Name): This field is the key used to insert the filters program the configuration of the data, filters of each layer and the corresponding symbols. Although the information is redundant, it is essential to display the data.

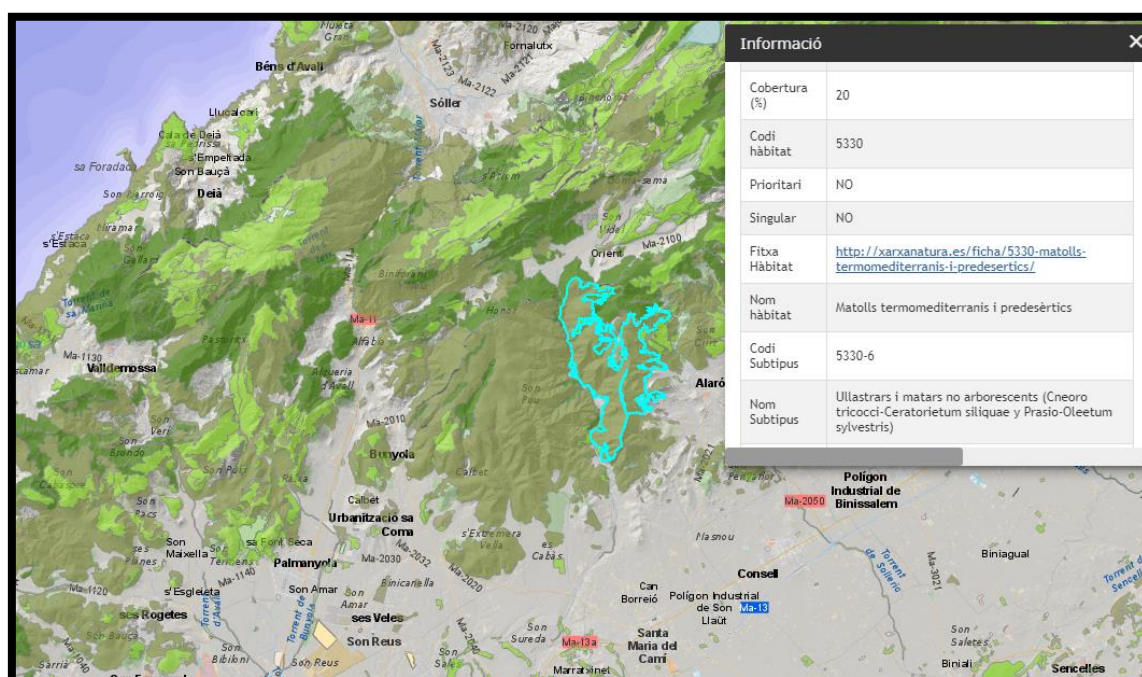
Hàbitat Interès Comunitari Majoritari 2022 Illes Balears (Majority Habitat of Community Interest 2022 Balearic Islands Layer)

This layer aims to give a general idea, at a glance, of which HTCI dominates the landscape in a specific area and allows the changes in the landscape to be visualized more clearly.

Only the colour corresponding to the HTCI with the highest cover percentage in each tessellation is displayed.

If this layer is the only one that is activated, when queried, **only** the content associated with the habitat with the highest cover present in the selected tessellation will appear. The *Informació relativa a la capa seleccionada* (Information about the selected layer) in this layer reveals the same aspects or attributes that have been shown in the *Mapa general* (general content layer).

In the event that there was a high proportion of "bare sun" in a tessellation, only the content that can be correlated with a HTCI with a greater presence within is shown. That is why one can find representations of 5330-6 with a cover of 20% that are majority species. This allows the communities and habitats present in rocky outcrops, overhangs, etc. to be visible.



In no case should it be interpreted that the majority habitat by default covers the entire surface of the tessellation.

L'agrupació de Capes hàbitat prioritari 2022 Illes Balears (The grouping of the priority habitats layers)

The habitat types of those are considered a priority from the point of view of the Habitats Directive are grouped in order from smallest to largest by HTCI code (See Habitat Code and Priority Habitat sections). This distinction has been made on account of the involvement in the management of spaces that contain a habitat of priority community interest. In a space where there is a priority HTCI, priority is given to the rapid implementation of measures aimed at its conservation:

- Their presence favours the creation of places of Community Importance, where conservation measures are applied.
- In an area with the presence of priority HTCI, if the impact assessment of a plan or project is negative, the only alternative actions that will be considered will be those related to human health and public safety.

When an individual layer of a HTCI is activated, only the colour corresponding to the selected HTCI is displayed on the tessellations where it is present. If more than one HTCI is selected and they happen to overlap, as they are on the same tessellation, the display order, or the fact that one HTCI colour is shown and not the other, has no bearing on the per cent cover.

If just one layer of an HTCI is turned on when queried, only the content associated with the selected habitat will appear. If there is more than one habitat layer activated, the information of one habitat will appear above that of the next. Placement order will not be relevant to the per cent cover. The *Informació relativa a la capa seleccionada* (Information about the selected layer) in this layer reveals the same aspects or attributes that have been shown in the *Mapa general* (general content layer).

L'agrupació de Capes hàbitat no prioritari (The grouping of non-priority habitat layers)

The habitat types that are not considered priority from the point of view of the Habitats Directive are grouped in order from smallest to largest by HTCI code.

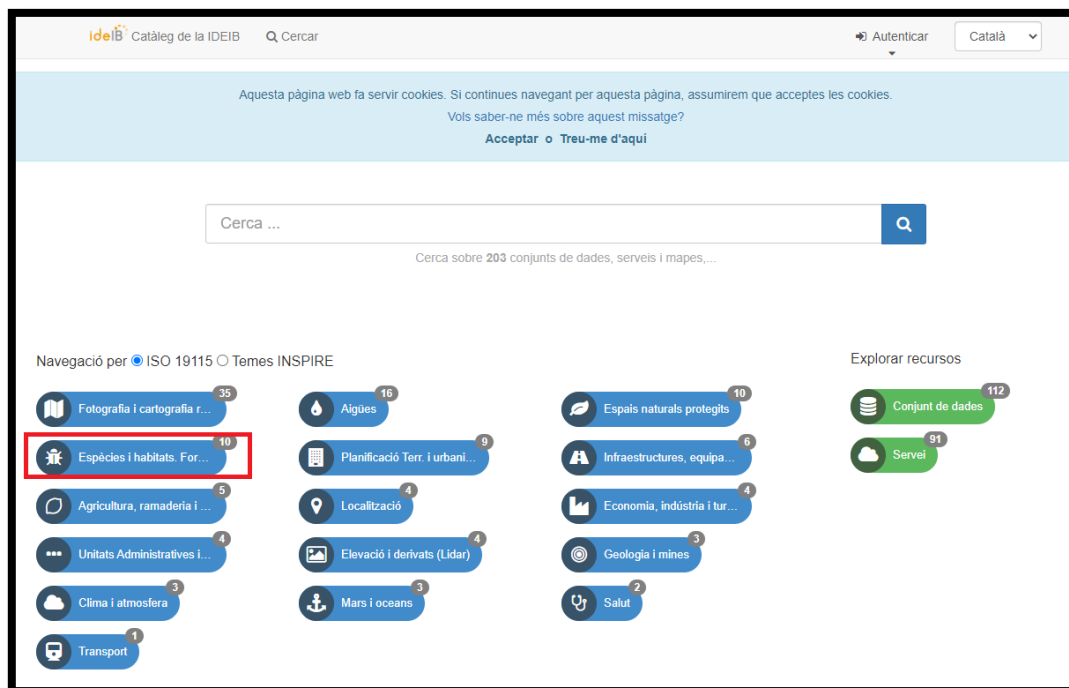
The structure and functions of these layers are the same as for the grouping of priority habitats.

Visualization of the WMS of the IDEIB catalog in a GIS (Q-Gis)

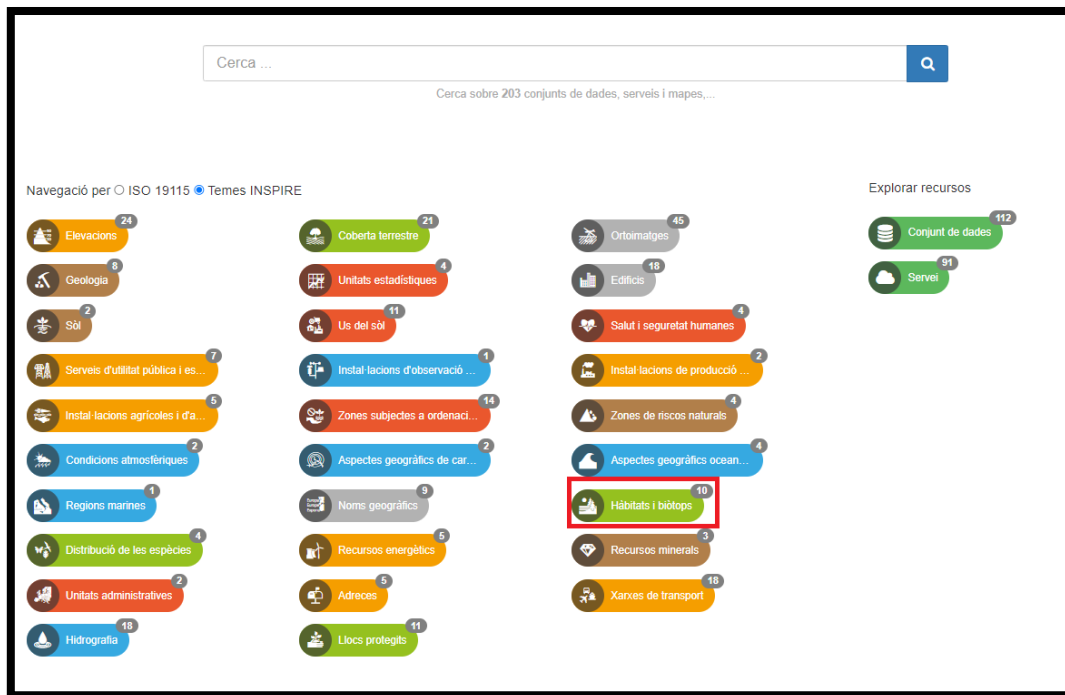
Link to the IDEIB Catalogue:

<http://ideib.caib.es/catalog/srv/cat/catalog.search;jsessionid=5C5C077834C8E44010D719A28A5D861E#/home>

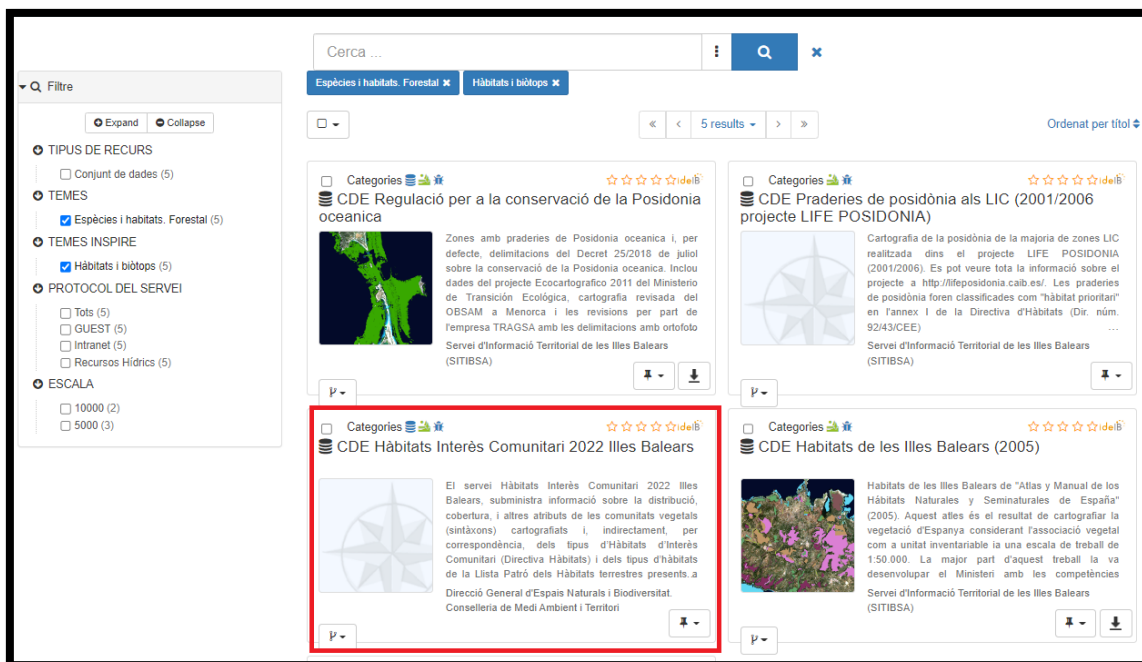
Select by ISO 19115: *espècies i Hàbitats. Forestal*



Or by INSPIRE topic: *Hàbitats i biòtops*



Select the CDE *Habitats Interès Comunitari 2022*



Copy the link of the *servei de visualització WMS* (WMS display service).

CDE Hàbitats Interès Comunitari 2022 Illes Balears

El servei Hàbitats Interès Comunitari 2022 Illes Balears, subministra informació sobre la distribució, cobertura, i altres atributs de les comunitats vegetals (sintàxons) cartografiats i, indirectament, per correspondència, dels tipus d'Hàbitats d'Interès Comunitari (Directiva Hàbitats) i dels tipus d'hàbitats de la Llista Patró dels Hàbitats terrestres presents a Espanya. El servei conté varies capes, la primera, anomenada Mapa General Hàbitats Interès Comunitari 2022 Illes Balears conté una superposició poligonal, tessel·les amb informació sobre la presència d'un determinat hàbitat. La segona capa Hàbitat Interès Comunitari Majoritari 2022 Illes Balears, mostra un continuu de tessel·les sense superposició amb informació sobre l'hàbitat amb més presència o majoritari. Finalment, hi ha una agrupació de capes, Capes per hàbitat, on cada capa correspon a la distribució percentual per tessel·les de cada hàbitat. Les dades espacials tenen un abast del territori de les Illes Balears cobert pels tipus d'hàbitats naturals i semi-naturals. Queden excloses les superfícies artificials i agrícoles de les quals han estat identificades a priori mitjançant el SIOSE 2014.

Extensió espacial

Proporcionat per **ideIB**

Actualitzat: fa 3 dies

Compartir en xarxes socials

Puntuació: ☆☆☆☆☆

Descàrregues i enllaços

EN#https://ideib.caib.es/geoserveis/services/public/GOIB_HIC2022/MapServer/WMSServer?request=GetCapabilities&service=WMS&ES#CA#

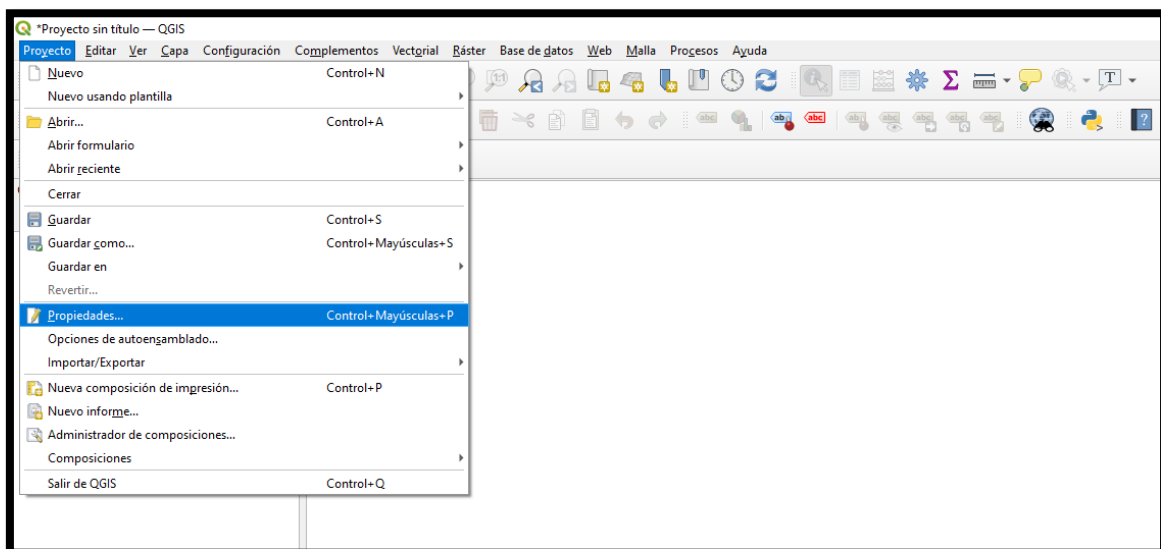
Aquest conjunt de dades es publica al servei de visualització (WMS) disponible a https://ideib.caib.es/geoserveis/services/public/GOIB_HIC2022/MapServer/WMSServer?request=GetCapabilities&service=WMS&ES#CA#

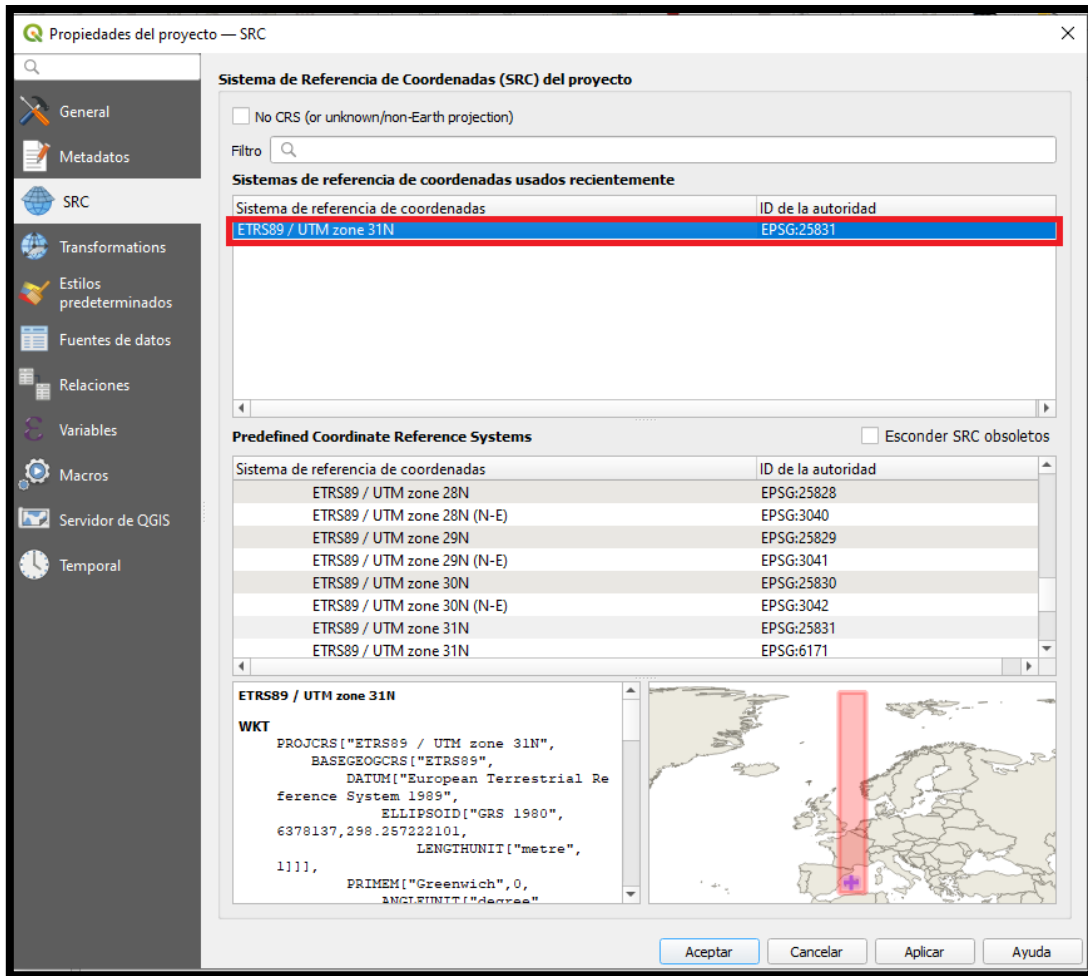
REST https://ideib.caib.es/geoserveis/services/public/GOIB_HIC2022/MapServer/WMSServer?request=GetCapabilities&service=WMS&ES#CA#

Recursos associats

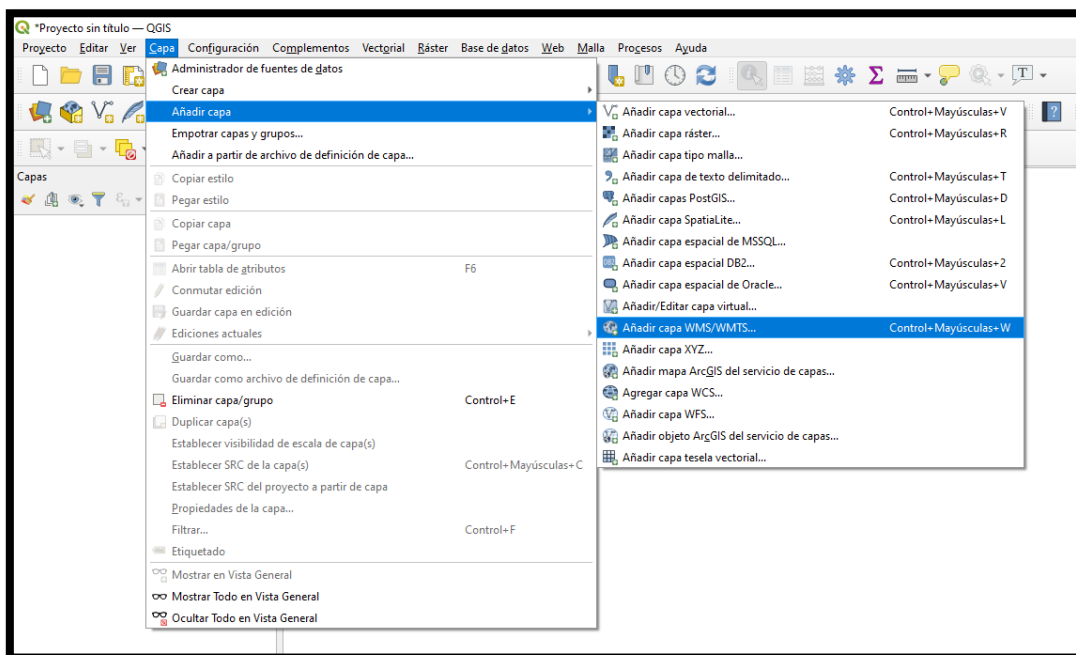
Servei mapa temàtic Hàbitats Interès Comunitari 2022 Illes Balears (Servei relacionat)

Assure that the Q-gis project configuration: Project -> Properties has the spatial reference system EPSG 25831, projection UTM 31N, datum ETRS89.

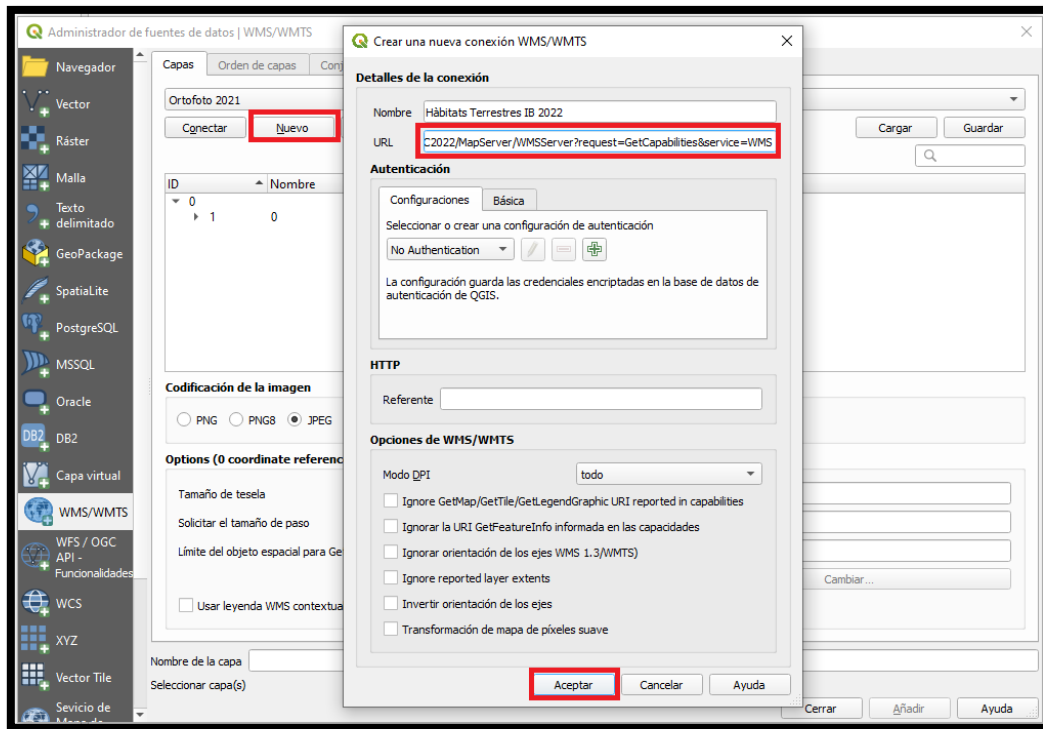




Add the WMS/WMTS layer

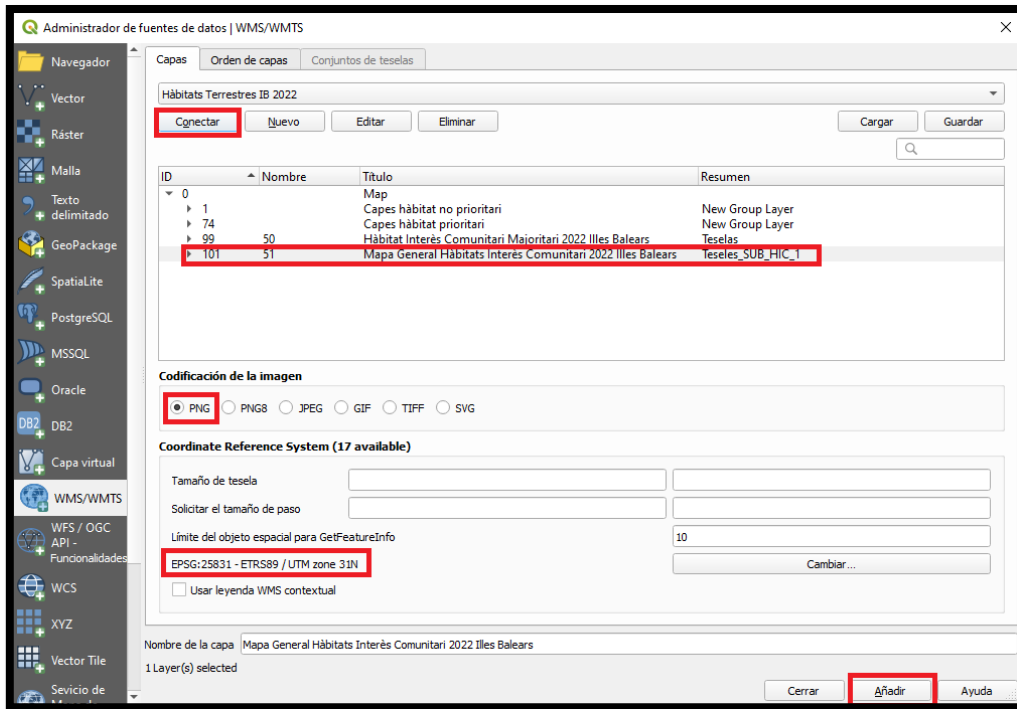


Select New -> Name the connection -> Paste the link copied from the IDEIB catalogue in the URL section -> Select Accept.

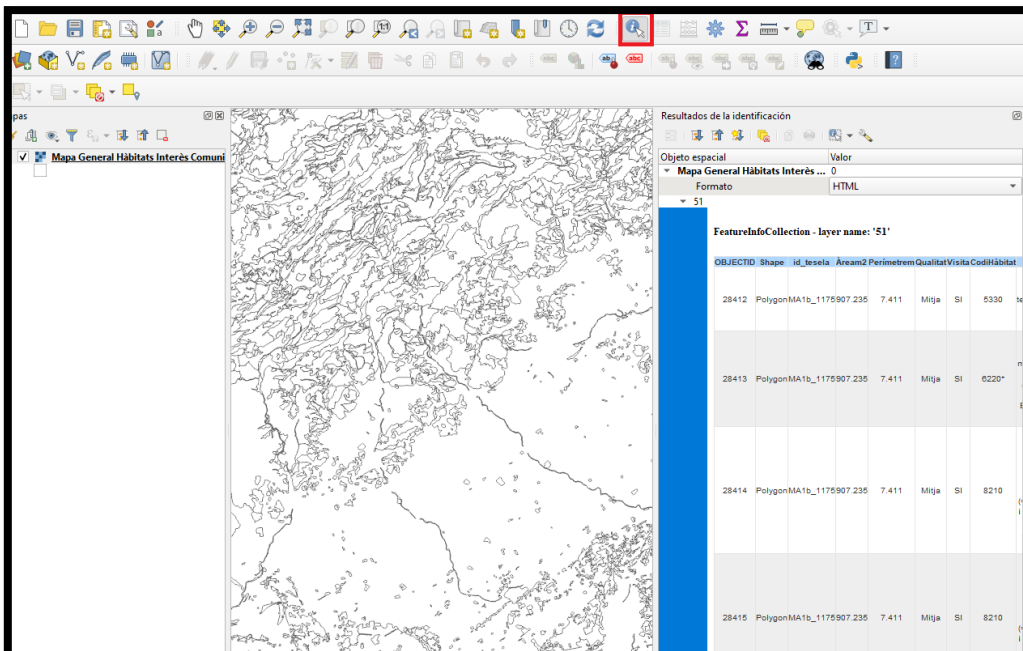


The information that can be viewed through the WMS is the same as that shown in the IDEIB viewer

Select *Connect*; the layers will be loaded (To speed up the process, it is better to select each type of layer separately. For example: the General Map) -> Select the encoding of the image in PNG -> Make sure that the layer is also in the spatial reference system EPSG 25831 -> projection UTM 31N, datum ETRS89 -> Select *Add*.



Bounded polygons will be loaded. If the information symbol is selected and a space bounded by a polygon is clicked. In the Result of the identification, an HTML table will appear with the content of the tessellation.



ANNEX I: Plant communities with potentially very reduced location areas

Plant communities with potentially very reduced location areas	HTCI and Subtypes
<p><i>CHARETEA FRAGILIS</i> <u><i>Charetalia hispidae</i></u> <i>Charion fragilis</i> <i>Charion vulgaris</i> <i>Charion canescentis</i> <i>Charetum canescentis</i></p>	<p>1150 3140 3170-2</p>
<p><i>LEMNETEA</i> <u><i>Lemnetalia minoris</i></u> <i>Lemnion minoris</i> <i>Lemnetum gibbae</i> <i>Lemnetum minoris</i></p>	<p>1150 3150 3170-2</p>
<p><i>POTAMETEA</i> <u><i>Potametalia</i></u> <i>Potamion</i> <i>Myriophyllo verticillati-Potametum pectinati</i> <i>Potametum colorati</i> (= <i>Zannichellio palustres-Potametum colorati</i>) <i>Potamo pectinati-Myriophylletum spicati</i> <i>Ranunculion aquatilis</i> [= <i>Callitricho-Batrachion</i>]) <i>Ranunculetum baudotii</i> <i>Callitricho-Ranunculetum aquatilis</i> <i>Zannichellion pedicellatae</i> <i>Najadetum marinae</i> <i>Zannichellietum pedicellatae</i> Community of <i>Althenia filiformis</i> <i>Ceratophyllion demersi</i> <i>Potamo-Ceratophylletum demersi</i></p>	<p>1150 3150 3170-2</p>
<p><i>RUPPIETEA</i> <u><i>Ruppialia maritimae</i></u> <i>Ruppion maritimae</i> <i>Enteromorpha intestinalidis-Ruppium maritimae</i> <i>Ruppium drepanensis</i> <i>Ruppium spiralis</i></p>	<p>1150 3150 3170-2</p>
<p><i>ISOETO-NANOJUNCETEA (ISOETO DURIEUI-JUNCETEA BUFONII)</i> <u><i>Isoetalia durieui</i></u> <i>Isoetion duriei</i> <i>Bellio bellidioidis-Menthetum pulegii</i> <i>Isoetetum duriaei</i> <i>Damasonio bourgaei-Crassuletum vaillantii</i> (= <i>Myosuro heldrechii-Bulliardetum vaillantii</i>) Community of <i>Lythrum borysthenicum</i> <u><i>Nanocyperetalia</i></u> <i>Verbenion supinae</i> <i>Polypogono maritimi-Centaurietum spicati</i> <i>Heleochloion schoenoidis</i> Community of <i>Crypsis aculeata</i></p>	<p>1150 3170-1 3170-2 6220</p>

<p>MONTIO-CARDAMINETEA <u>Montio-Cardaminetalia</u> <i>Cratoneurion commutati</i> <i>Cratoneuro filicini-Anagallidetum tenellae</i></p>	7220-1
<p>PHRAGMITO-MAGNOCARICETEA <u>Phragmitetalia communis</u> <i>Phragmition communis</i> <i>Bolboschoenetum maritimi</i> (= <i>Phragmito australis-Bolboschoenetum maritimi</i>) <i>Typho-Schoenoplectetum glauci</i> <u>Nasturtio-Glycerietalia Pignatti</u> <i>Nasturtion officinalis</i> (= <i>Rorippion nasturtii-aquatici</i>) <i>Apietum bermejoi</i> <i>Helosciadietum nodiflori</i></p>	7210
<p>SAGINETEA MARITIMAE <u>Frankenietalia pulverulentae</u> <i>Frankenion pulverulentae</i> <i>Parapholido incurvae-Frankenietum pulverulentae</i> <i>Sagino maritimae-Bellidetum bellidioidis</i> Community of <i>Limonium echioides</i> and <i>Sagina maritima</i> Community of <i>Spergularia heldreichii</i></p>	1310
<p>THERO-SUAEDETEA <u>Thero-Suaedetalia</u> <i>Thero-Suaedion</i> <i>Atriplici salinae-Suaedetum spicati</i> (= <i>Atriplici-Suaedetum maritimae</i>) <i>Cressetum villosae</i> Community of <i>Salsola soda</i> (<i>Salsoletum sodae</i>) <u>Thero-Salicornietalia</u> <i>Salicornion patulae</i> <i>Salicornietum emeric</i> <i>Població de Suaeda spicata</i></p>	1310
<p>ADJANTETEA <u>Adiantetalia capilli-veneris</u> <i>Adiantion capilli-veneris</i> <i>Eucladio-Adiantetum capilli-veneris</i> <i>Trachelio coerulei-Adiantetum capilli-veneris</i></p>	7220-2
<p>PARIETARIETEA <u>Parietarietalia</u> <i>Cymbalario-Asplenion</i> <i>Umbilicetum gaditani</i> <i>Asplenion marini</i> Community of <i>Asplenium marinum</i> and <i>Crithmum maritimum</i></p>	8210 Others
<p>ANOMODONTO-POLYPODIETEA <u>Anomodonto-Polypodietalia</u> <i>Polypodion serrati</i> <i>Polypodietum serrati</i> Community of <i>Saxifraga cossoniana</i> and <i>Chaenorhinum pithusicum</i></p>	8210-1 8210-2
<p>POLYGONO-POETEA ANNUAE</p>	3170-2

<u>Polygono arenastri-Poetalia annuae</u> <i>Sclerochloo durae-Coronopodion squamati</i> <i>Coronopodo procumbentis-Sclerochloetum durae</i> <i>Polycarpion tetraphylli</i> <i>Crepido pusilli-Filaginetum</i> <i>Solivetum stoloniferae</i>	6220
STELLARIETEA MEDIAE <u>Chenopodietalia muralis</u> <i>Mesembryanthemion crystallini</i> <i>Gasouletum crystallino-nodiflori</i> Community of <i>Mesembryanthemum crystallinum</i> Community of <i>Aizoon hispanicum</i>	Altres (Others)
GALIO APARINES-URTICETEA MAIORIS <u>Galio aparines-Alliarietalia petiolatae</u> <i>Galio-Alliarion petiolatae</i> <i>Urtico membranaceae-Smyrniyetum</i> Community of <i>Delphinium pictum</i> Community of <i>Urtica bianorii/Pimpinella bicknellii</i>	6430-4