AMB Àrea Metropolitana de Barcelona

Barcelona, 31 May - 2 June 2017

the promenade of Castelldefels, dune regeneration

European Forum on Urban Forestry 2017

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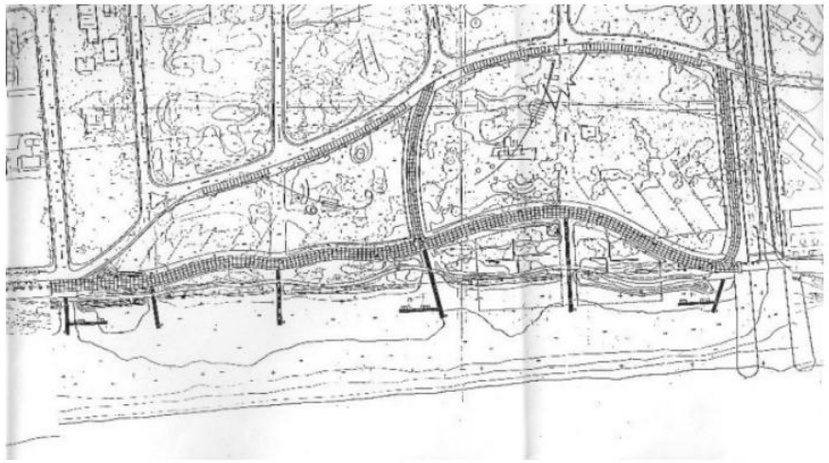
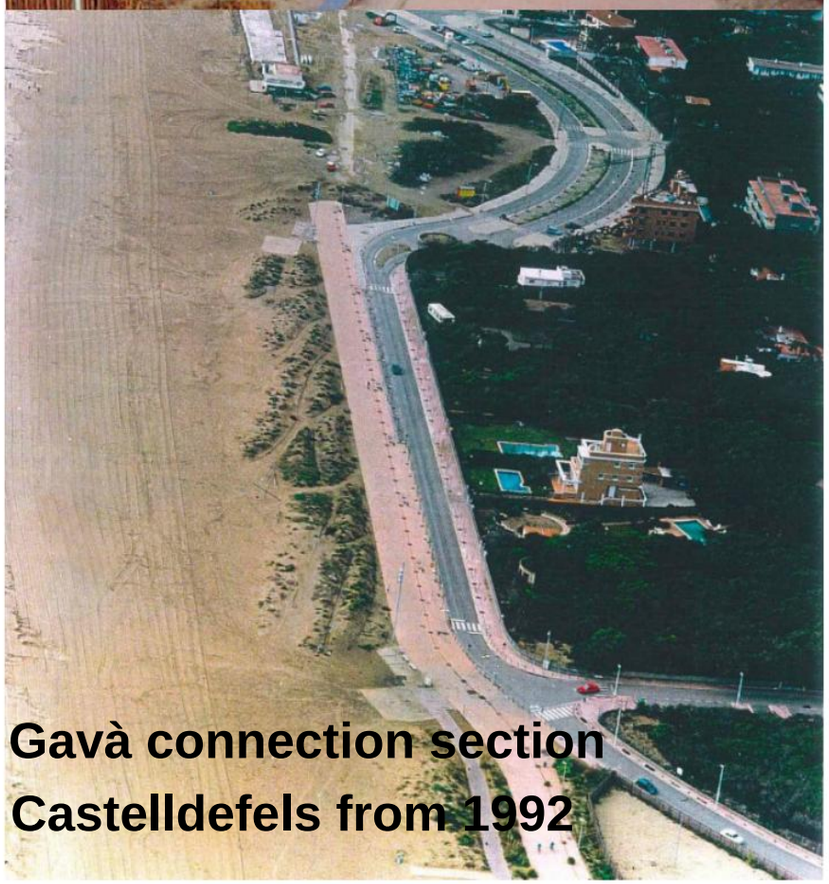
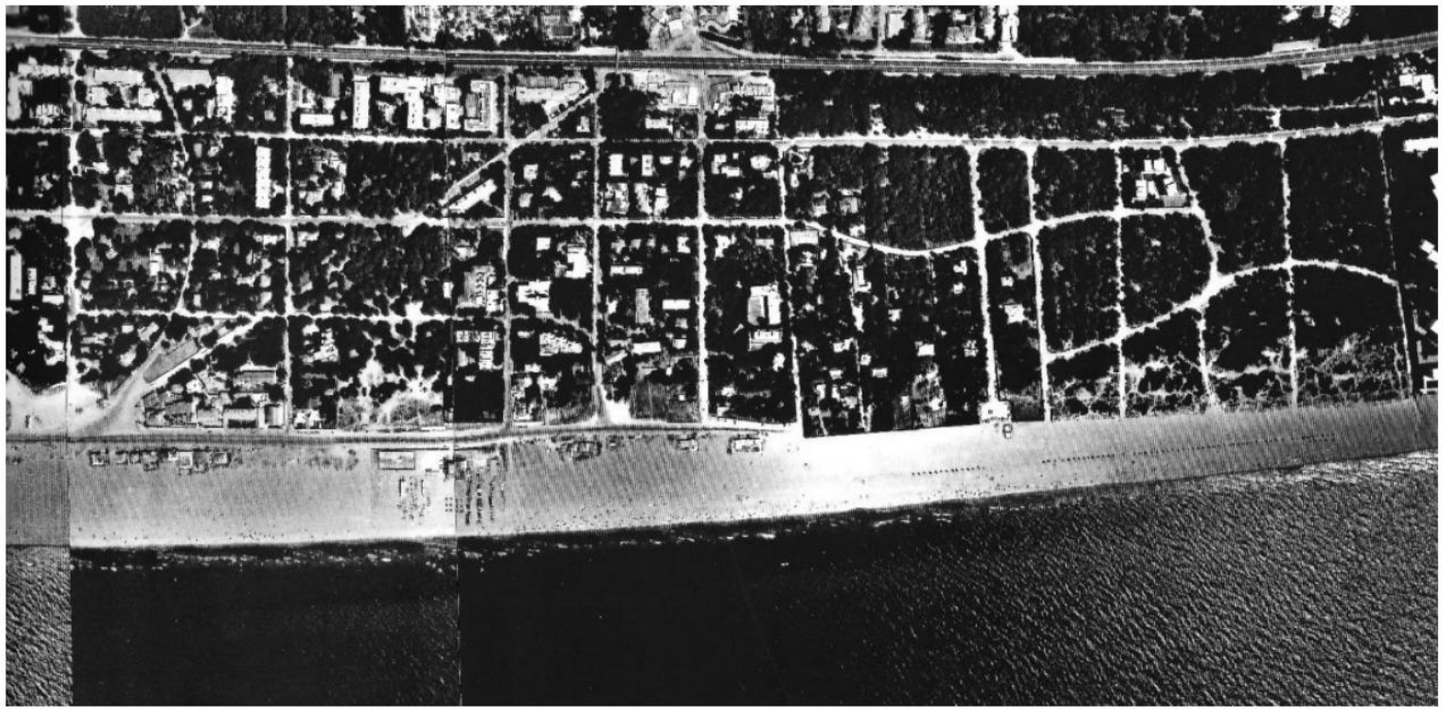
PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

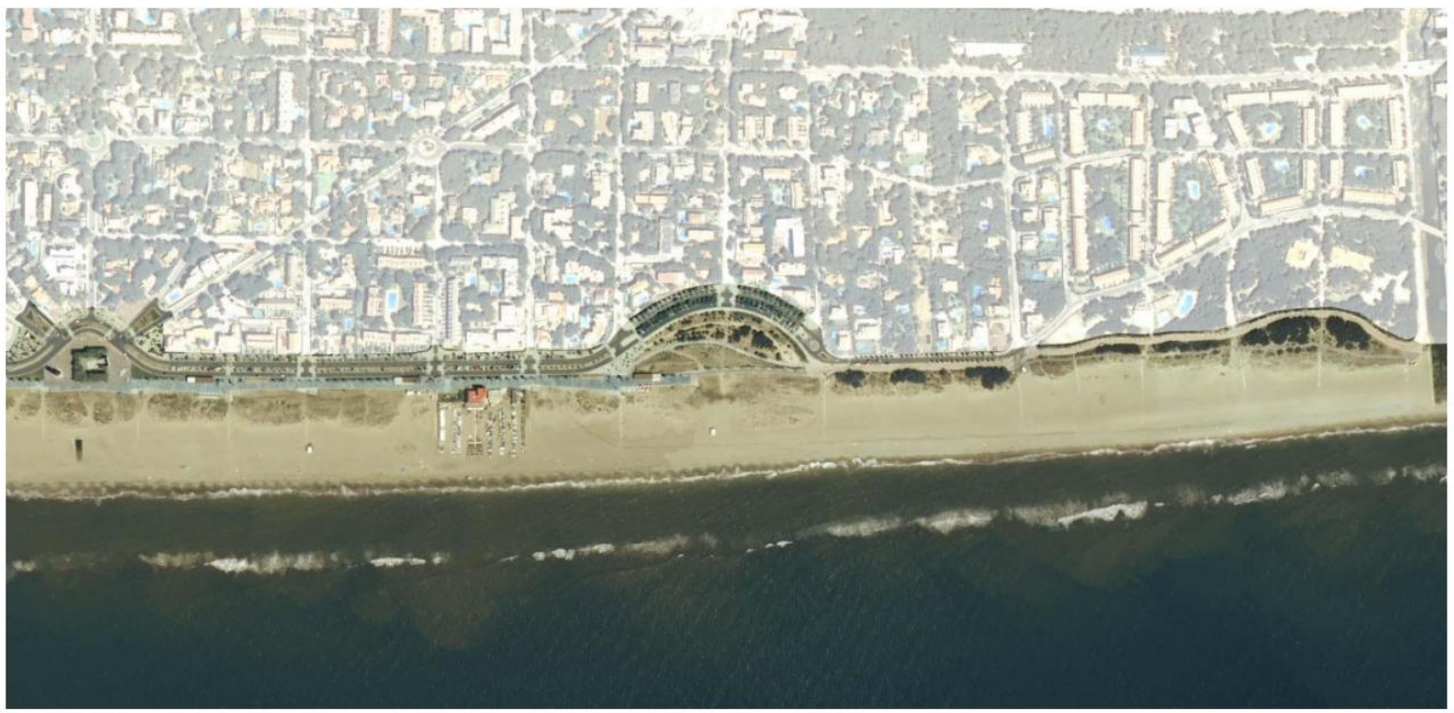




Gavà connection section
Castelldefels from 1992

Paseo marítimo Les Marines de Gavà 1989





Castelldefels and Gavà promenades 2005

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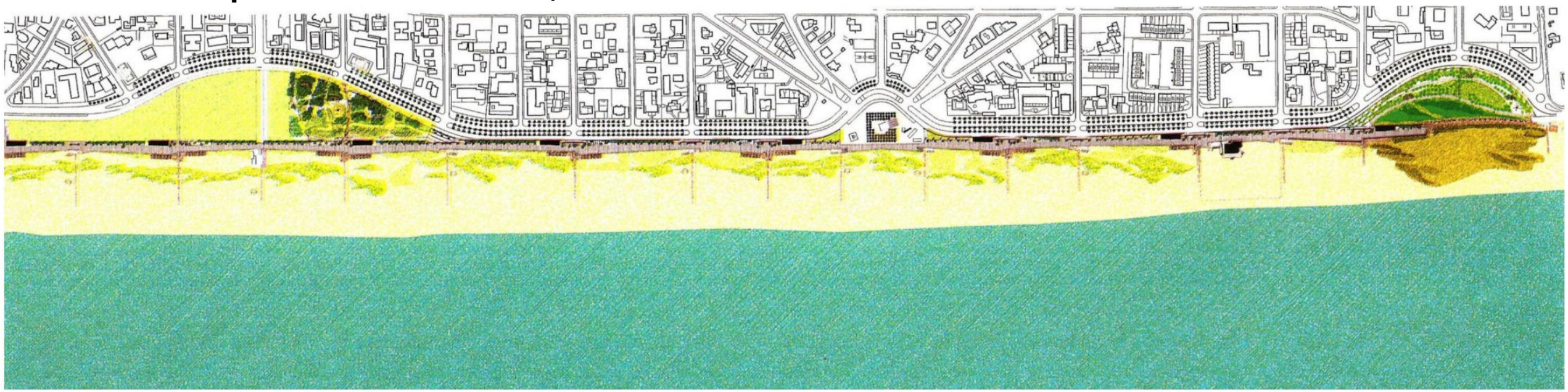
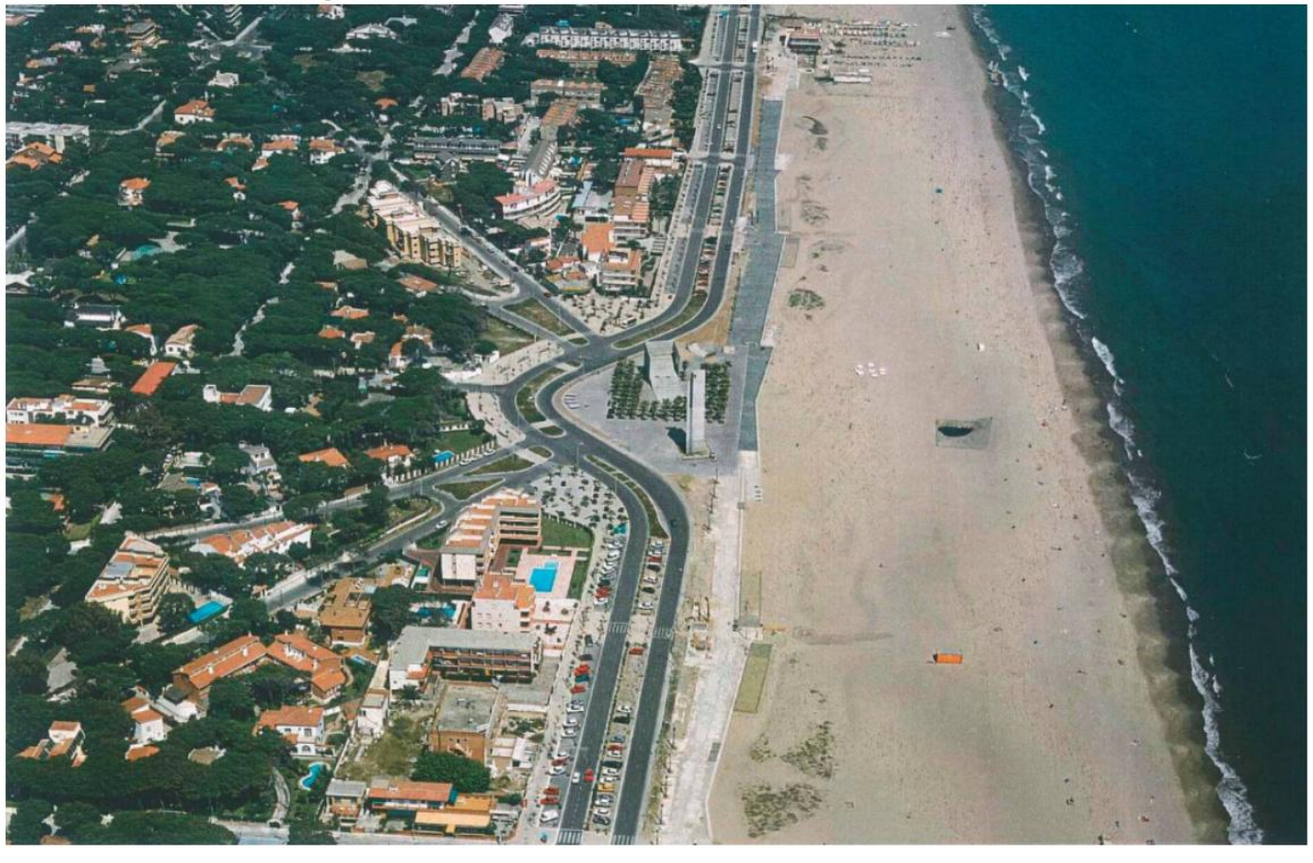
Castelldefels promenade section I, 1995

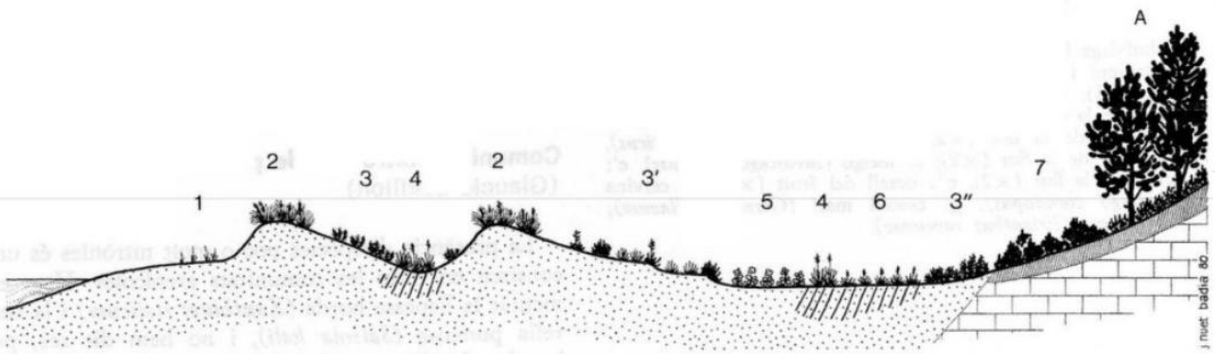


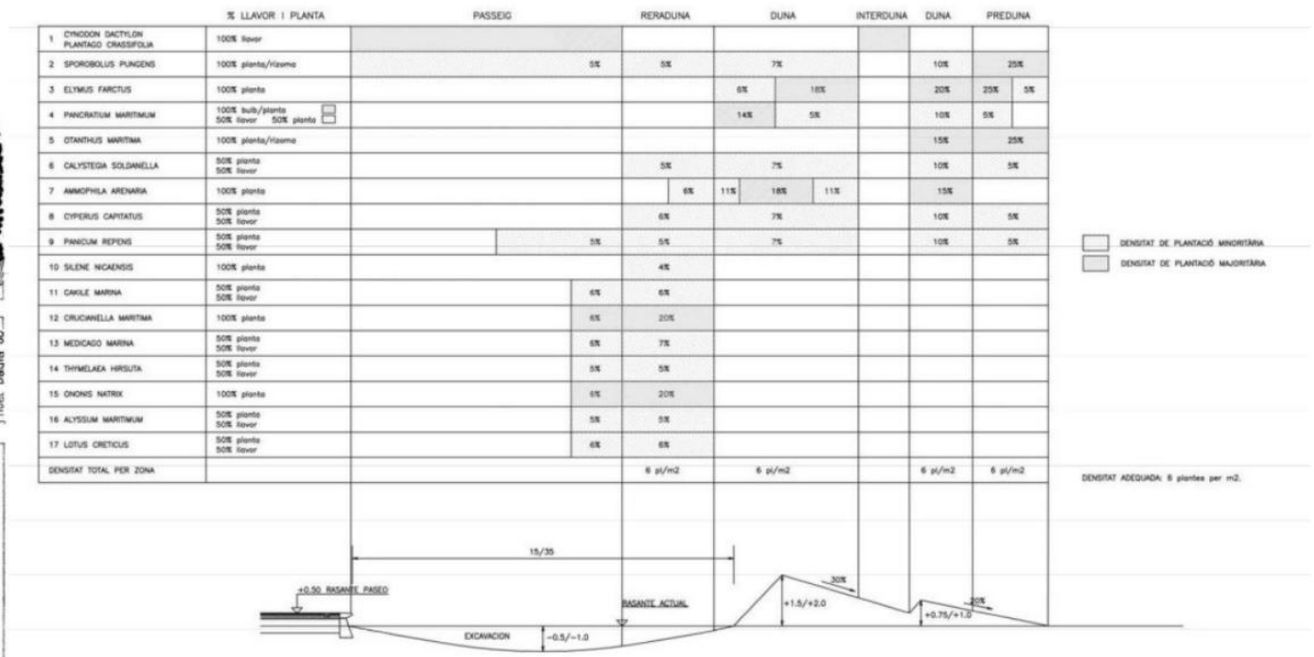
First experience with a seafront of more than 2 km, creating a new landscape.



PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

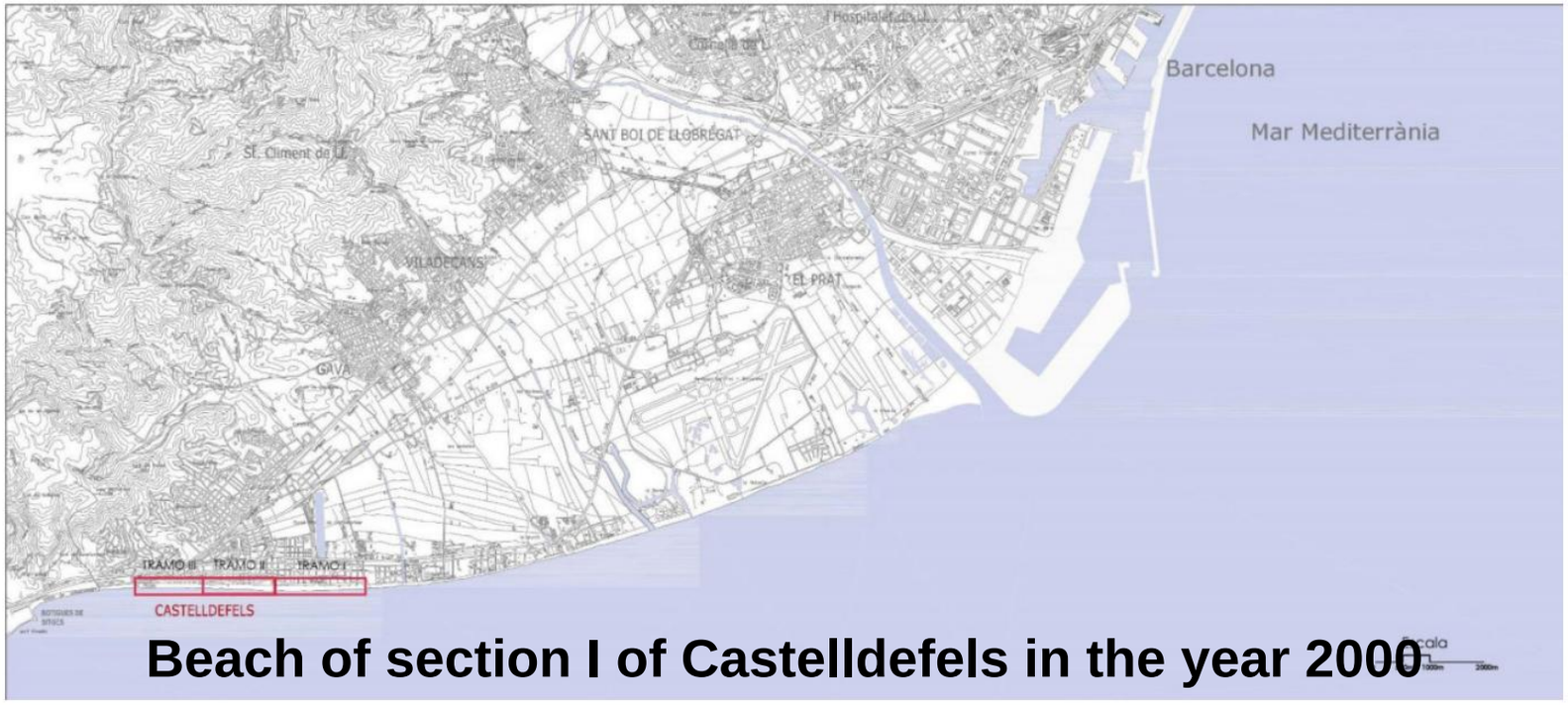
Plant profile of the Catalan sabina "The vegetation of the Catalan countries"



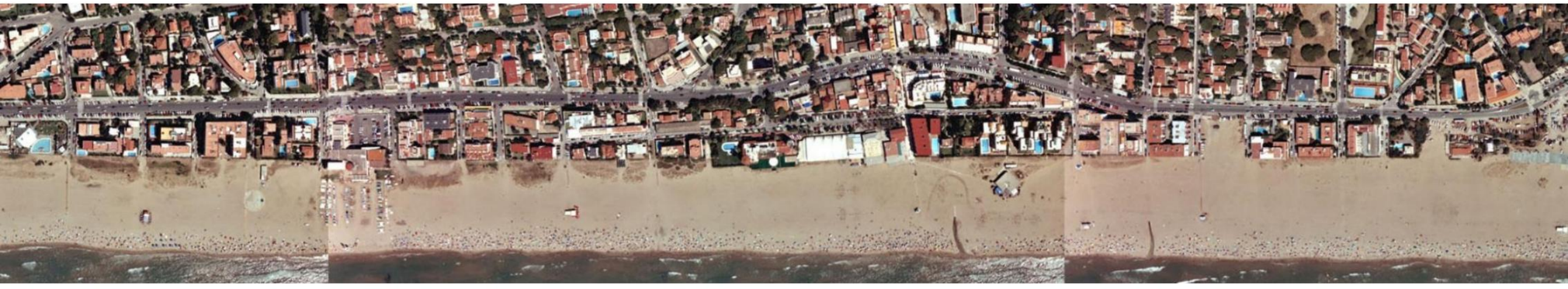


Current state of the dunes of the Castelldefels beach in Section I, already consolidated and self-regenerating

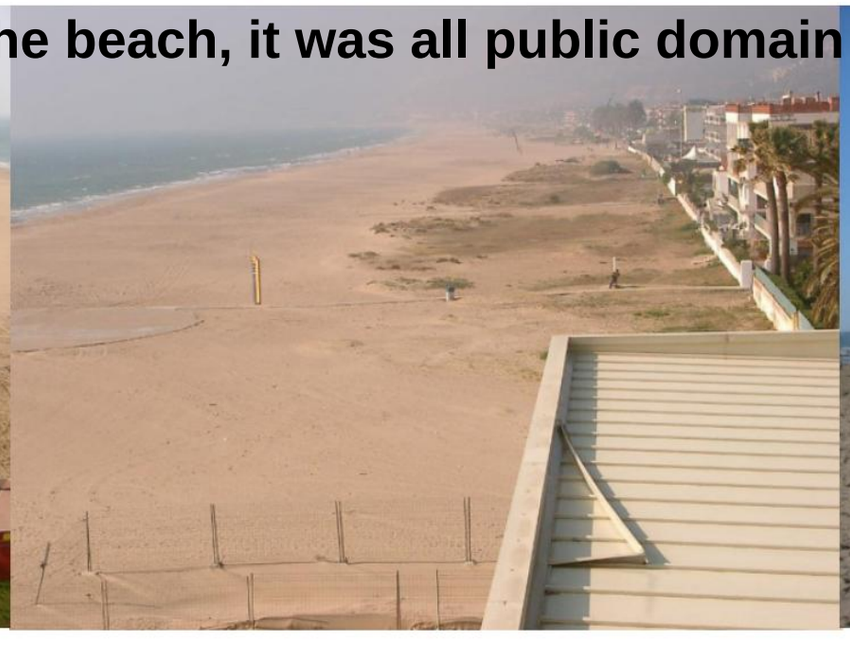
PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

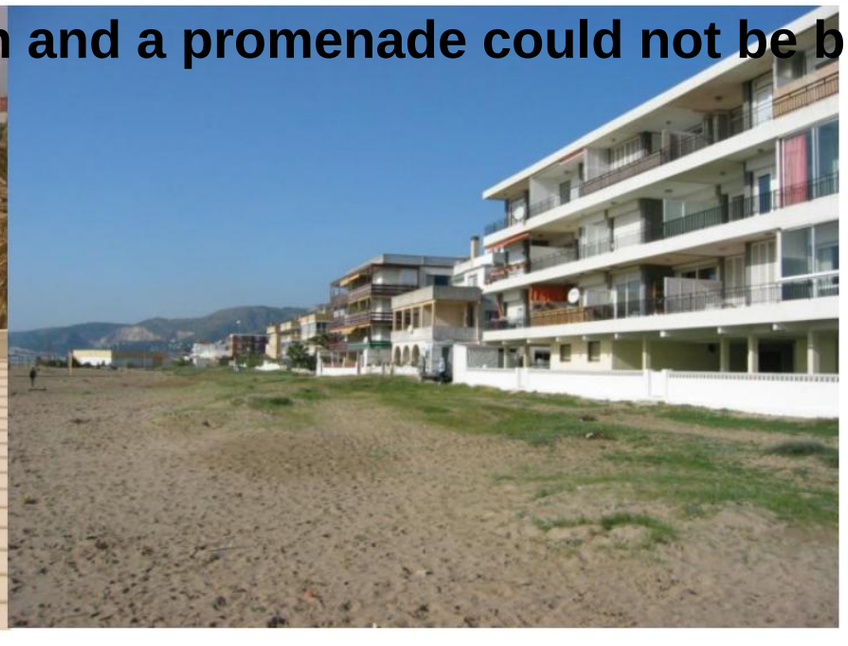


Beach of section I of Castelldefels in the year 2000

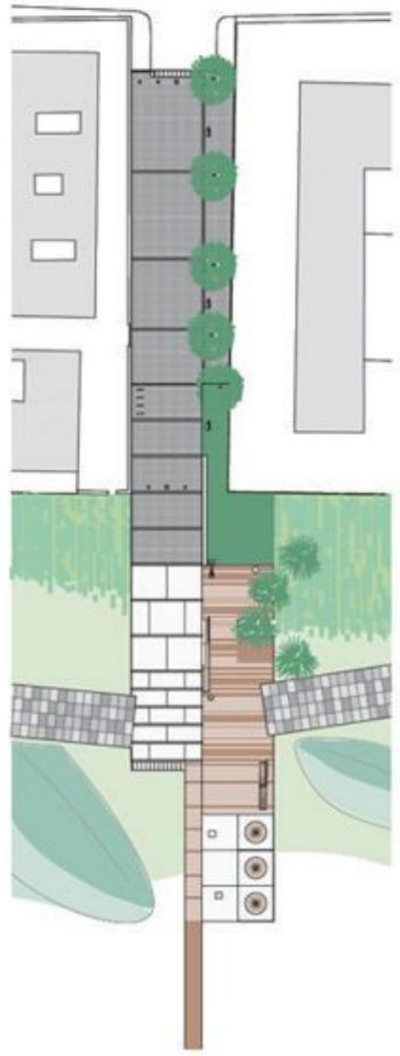


Despite the enormous size of the beach, it was all public domain and a promenade could not be bu

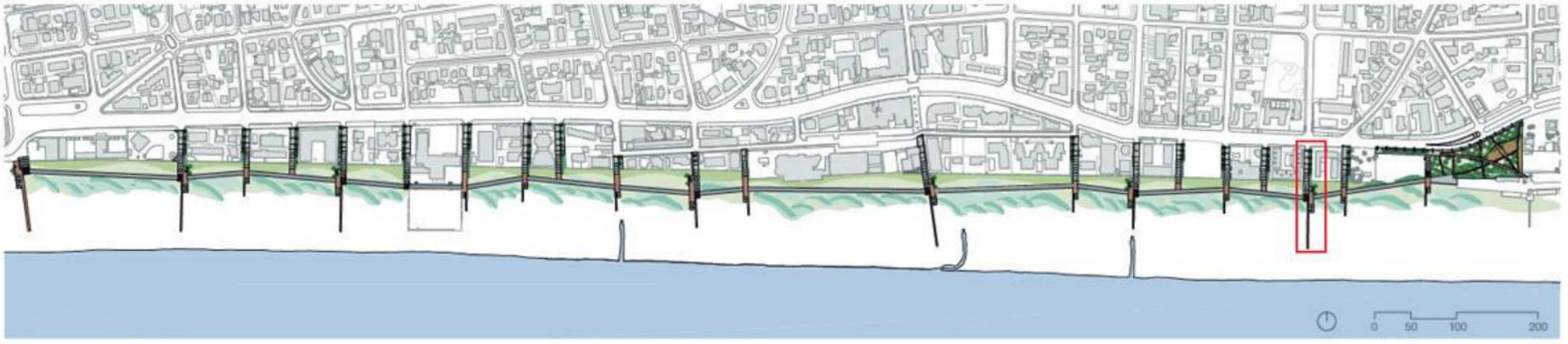




Castelldefels promenade project proposal section II



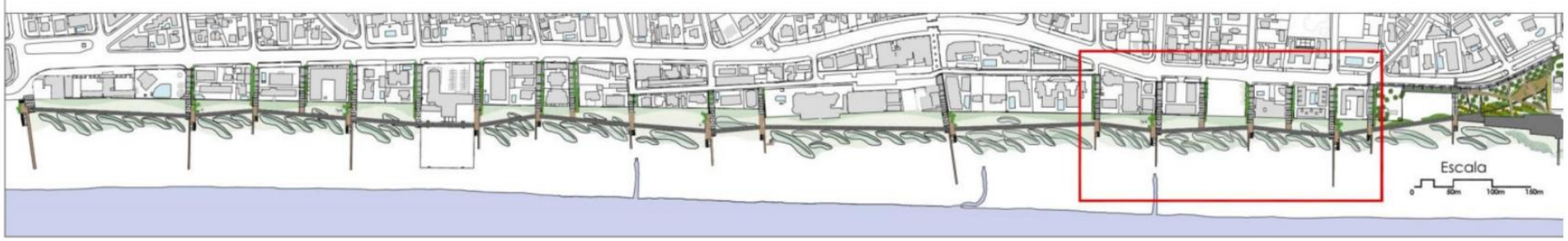
The proposal extends the urban fabric of Castelldefels on the beach



A polygonal footbridge is traced that links the axes of the streets

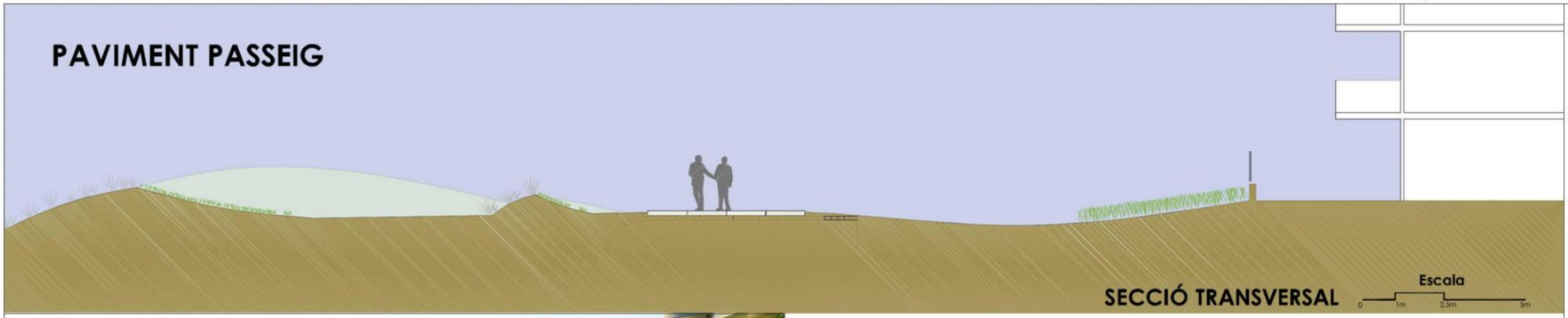
PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

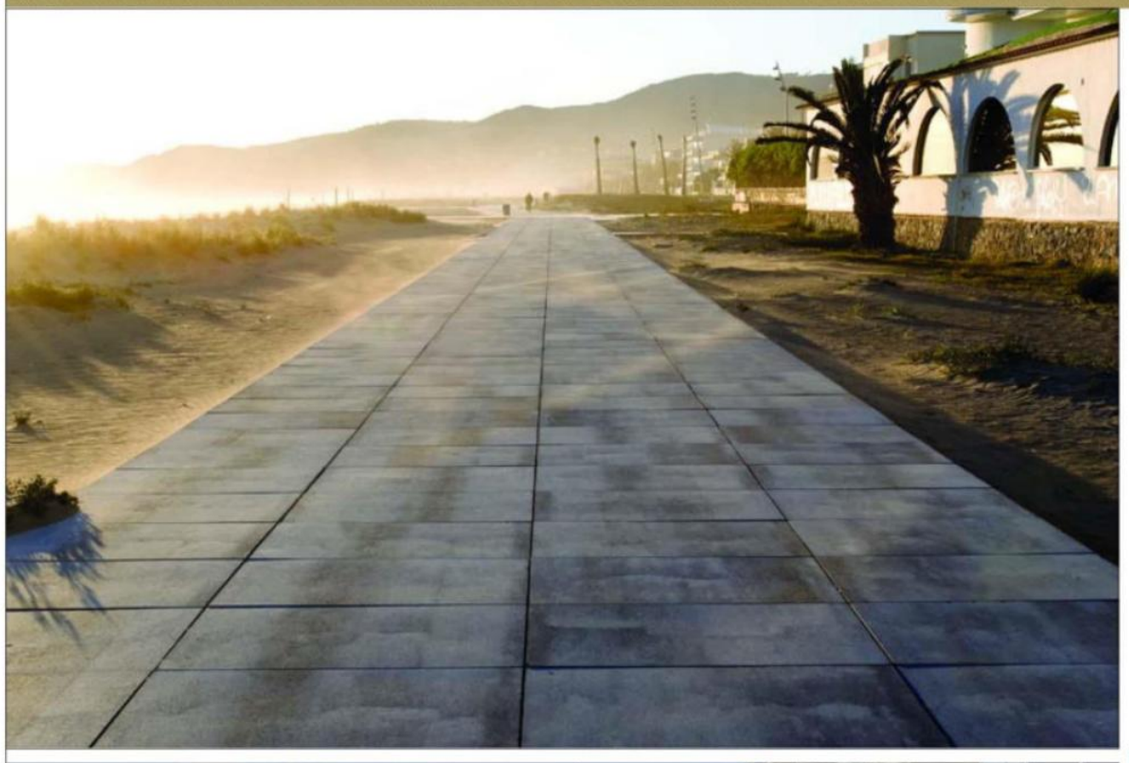
The hierarchy of the streets is reflected in the different treatment of the axes



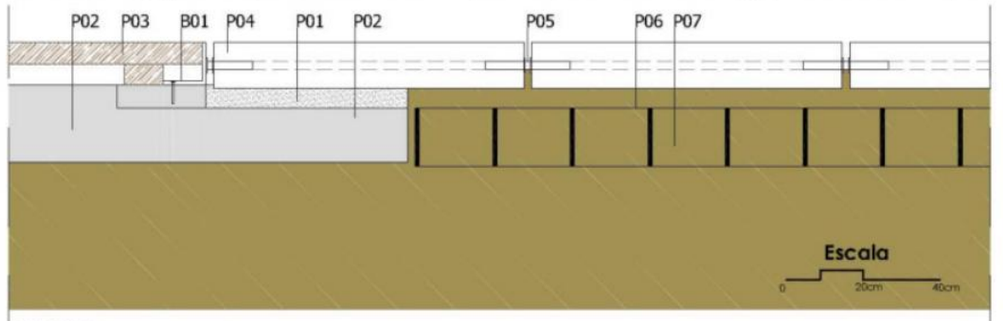
An innovative solution is proposed for the paving of the promenade, concrete slabs on a base of geocells filled with sand.

AMB





Detall unió paviment de fusta amb llosa de formigó 120x80x12cm



VORADA
B01 Vorada en L de 11x5cm de xapa metàl·lica galvanitzada remat de paviment del passeig amb tub metàl·lic d'encaix amb llosa.

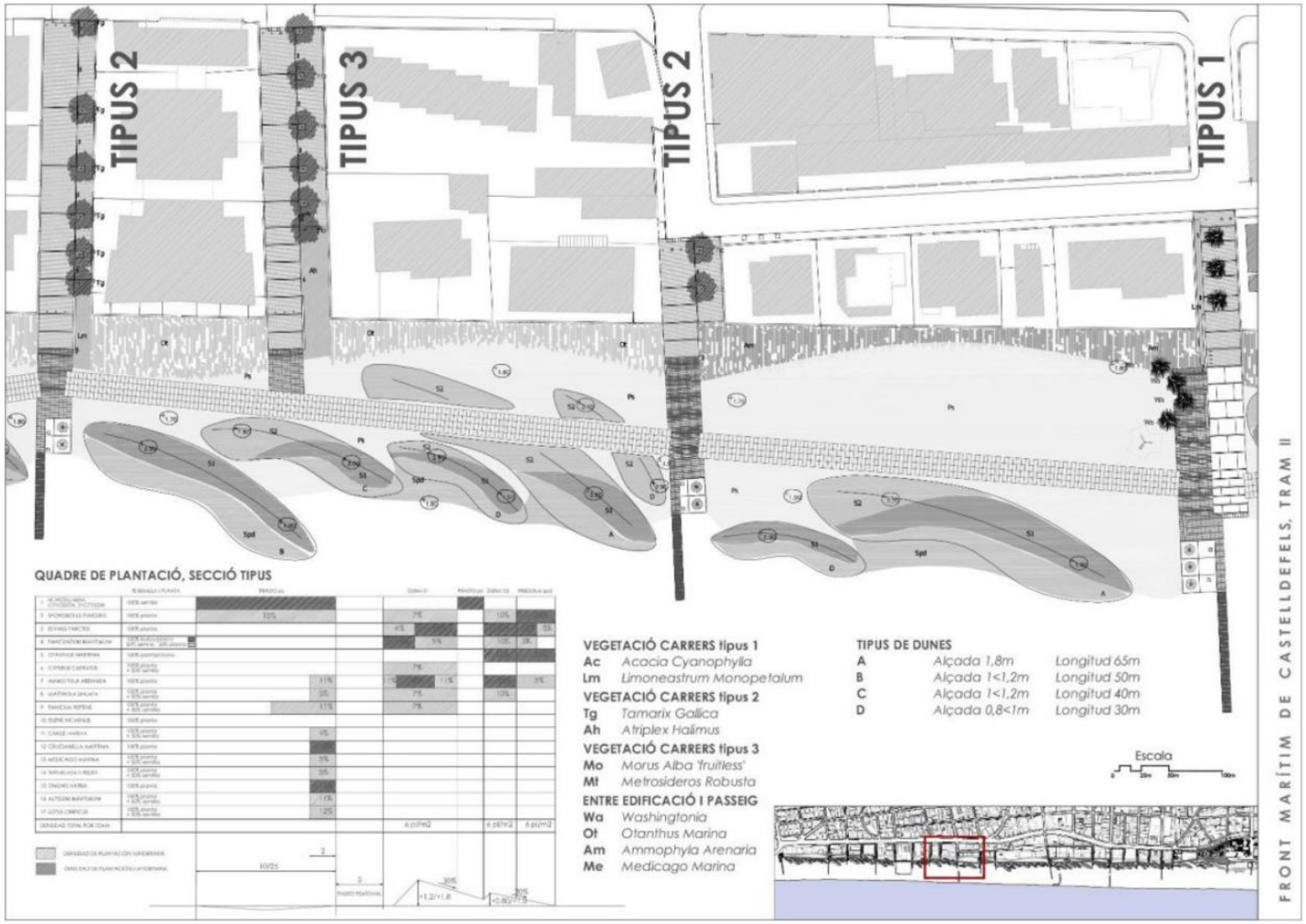
PAVIMENTS
P01 Base de morter per a col·locació de lloses de paviment (3cm)
P02 Subase de formigó HM-20/P/20/I acabat reglejat (20cm)
P03 Taulell d'acabat de plataforma de fusta de pi de flandes de primera categoria tractat a l'autoclau en seccions pulides de 9,5x5,7 14,5x5,7y 19,0x5,7 cm col·locades amb cargols d'acer galvanitzat.
P04 Llosa de formigó tipus GRAN LOSA VULCANO de 120x80x12cm bicapa amb forats laterals, de color gris.
P05 Peca metàl·lica galvanitzada de 20cm de O25mm.
P06 Base amb geocel·les de polietilè de confinamet cel·lular.
P07 Reomplert de sorra sense aportacions de materials al·liens.

FRONT MARÍTIM DE CASTELLDEFELS, TRAM II

Paving tests with geocells and concrete slabs

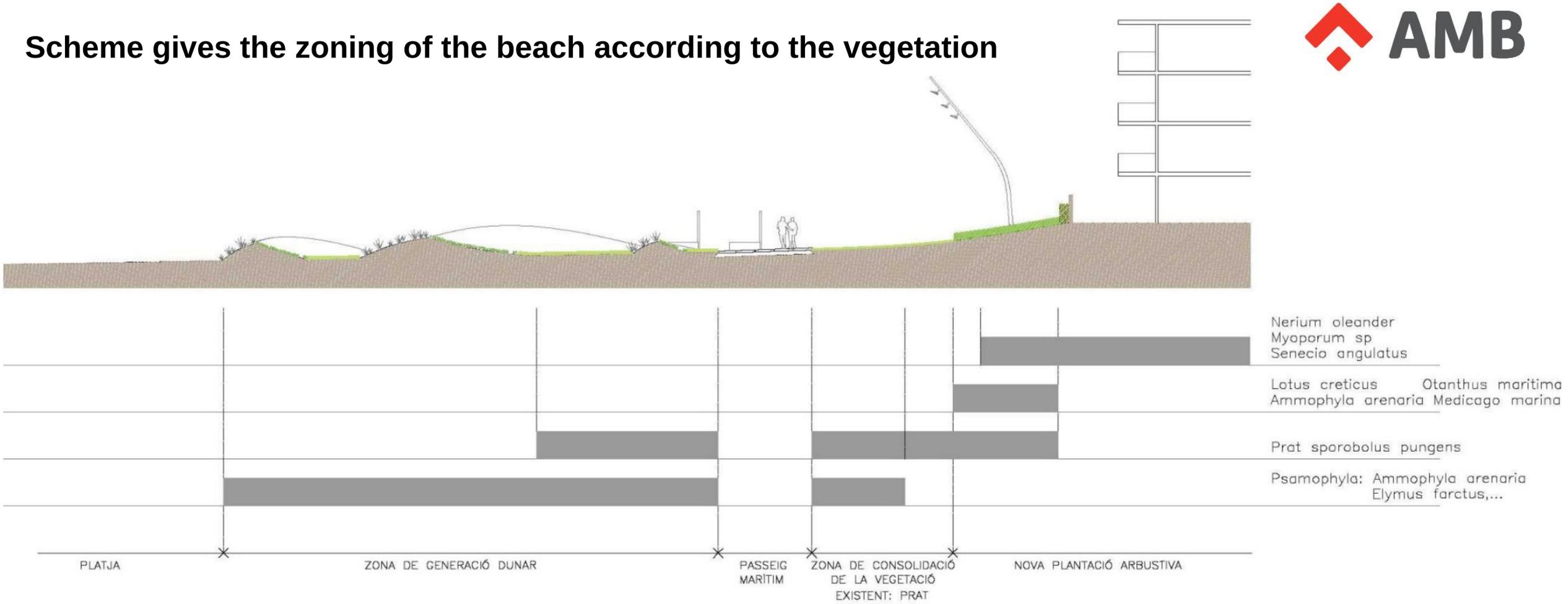
The sand confined with the geocell proves to be a perfect flexible base for the pavement

PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN



Dunes integrated into the promenade are designed, essential to protect the walkway from the invasion of sand

Scheme gives the zoning of the beach according to the vegetation



For the construction of the dunes, heather collectors are used and they are allowed to consolidate a year, while the existing seeds colonize the dunes and are later hydroseeded. In the end, the need for repopulation plants is less.

The new landscape of the beach takes shape little by little
And the influx of users exceeds the forecasts

Castelldefels promenade section III

COMPARATIVE

Playa de Castelldefels in section III - 1992

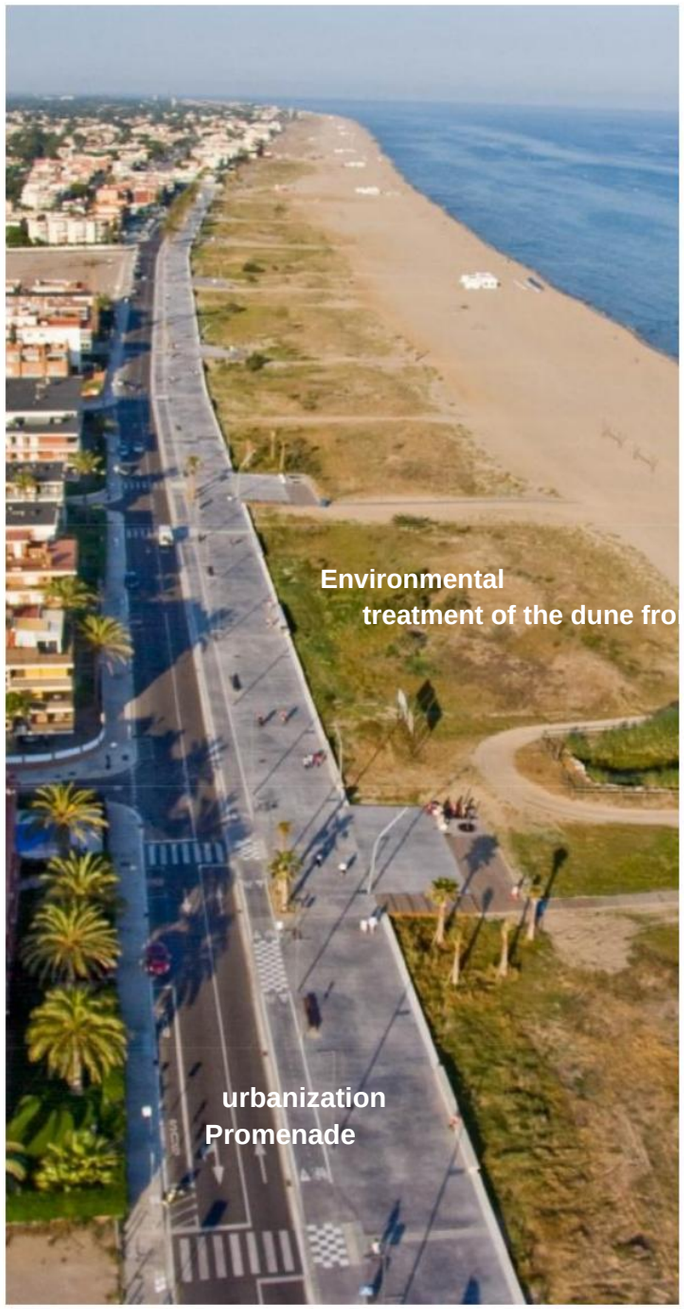
The construction of Port Ginesta in 1985 led to the beginning of the formation of a first embryonic dune line with a subsequent wetland

Playa de Castelldefels in section III - 2017

The consolidation is appreciated as a floodable beach

PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

Castelldefels promenade section III

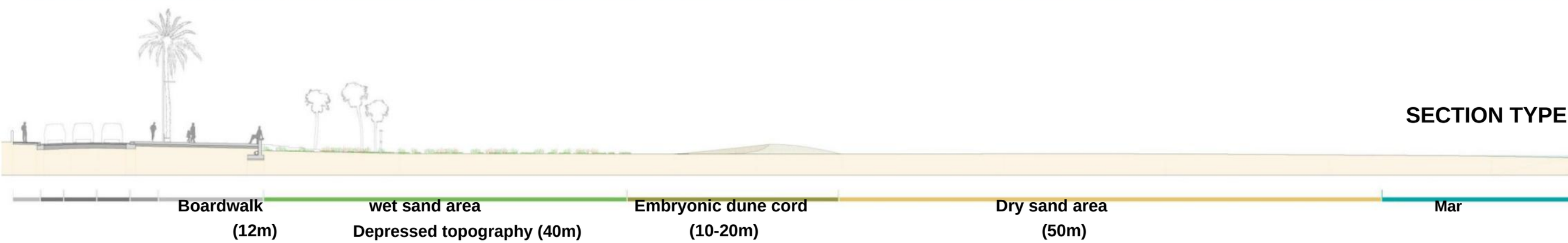


CASTELLDEFELS WALK PROJECT PROPOSAL SECTION III

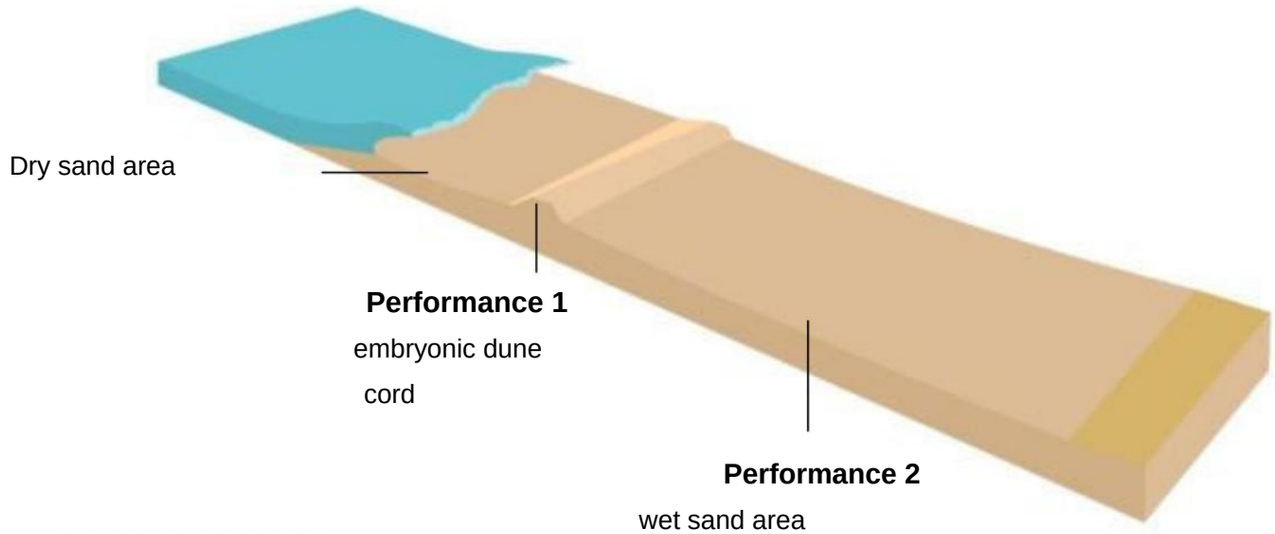
CRITERIA IN THE URBANIZATION PROCESS OF THE PASEO – RECYCLING OF MATERIAL FROM THE DEMOILING

DEMOLITION → TRANSFORMATION → REUSE

SECTION TYPE



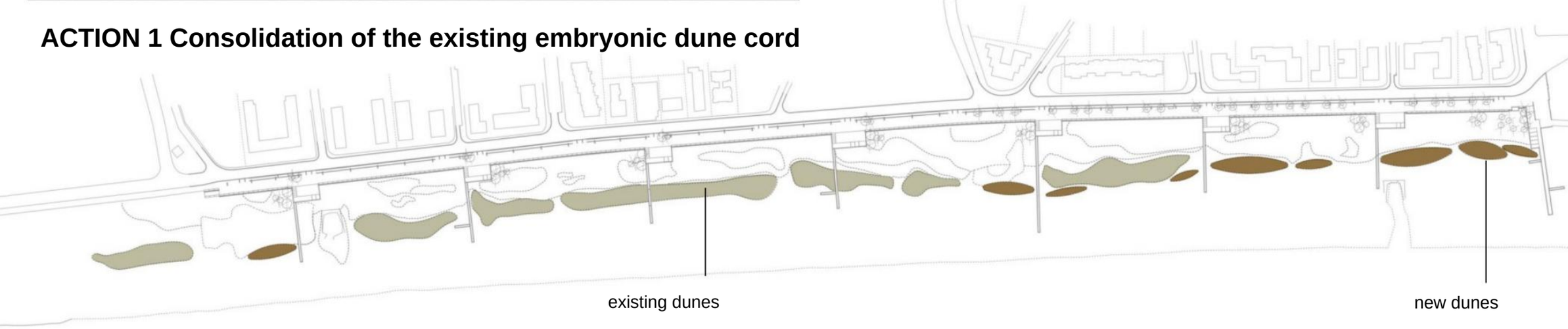
Castelldefels promenade section III



FLOODABLE BEACH

SECTION TYPE

ACTION 1 Consolidation of the existing embryonic dune cord



ACTION 2 Small plantations in an area of humid sand

Castelldefels promenade section III

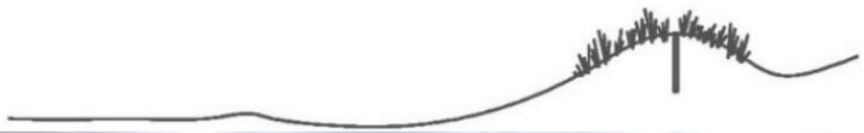
REGENERATION - FORMATION OF THE NEW DUNES

STATE 1

formation new topography

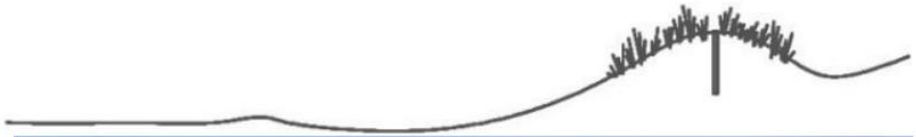
STATE 2

Accumulation through collectors



STATE 3

Plantation of *Ammophila arenaria (marrass)*



STATE 4

Protection

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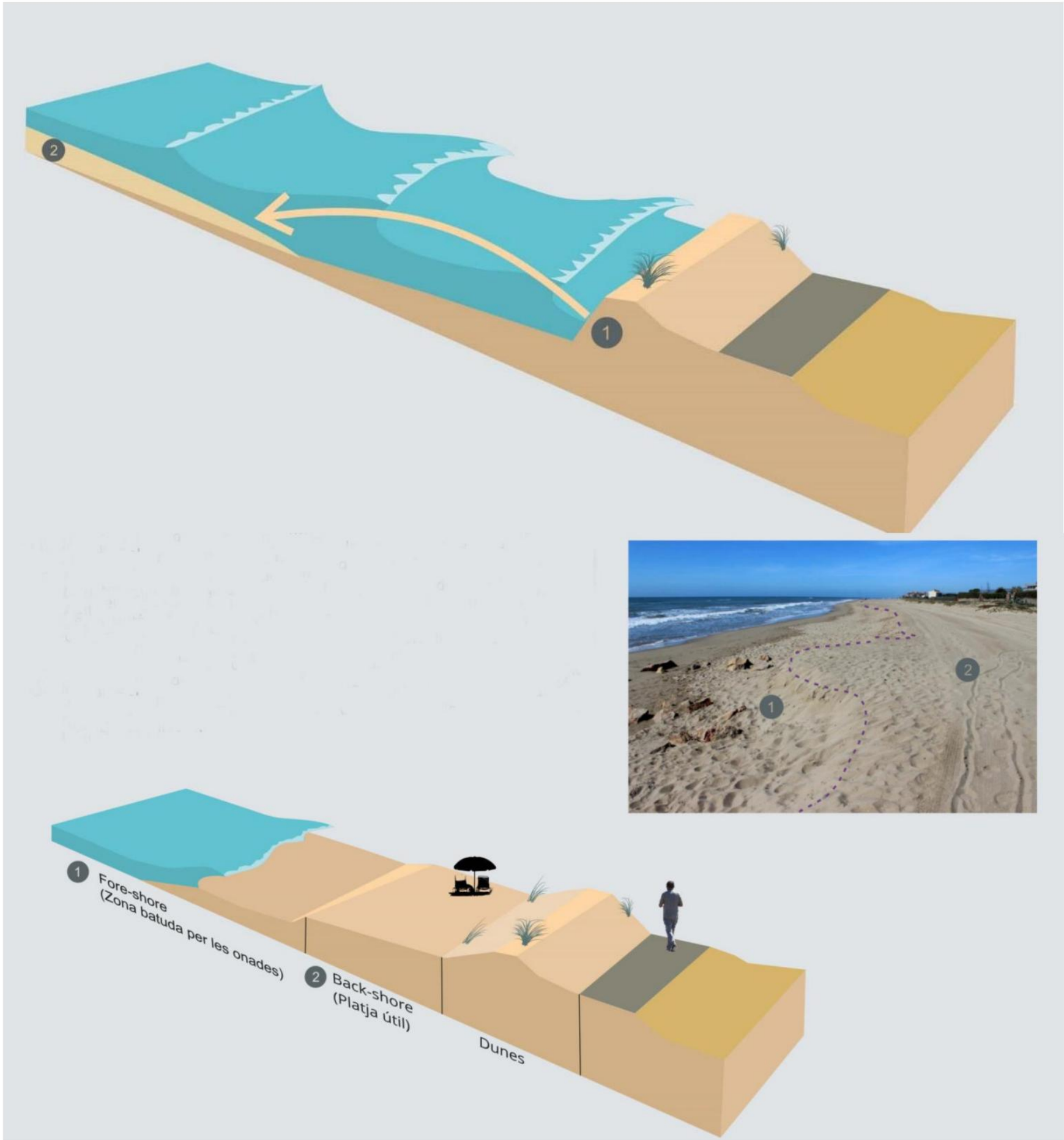


What have we learned after all these experiences?

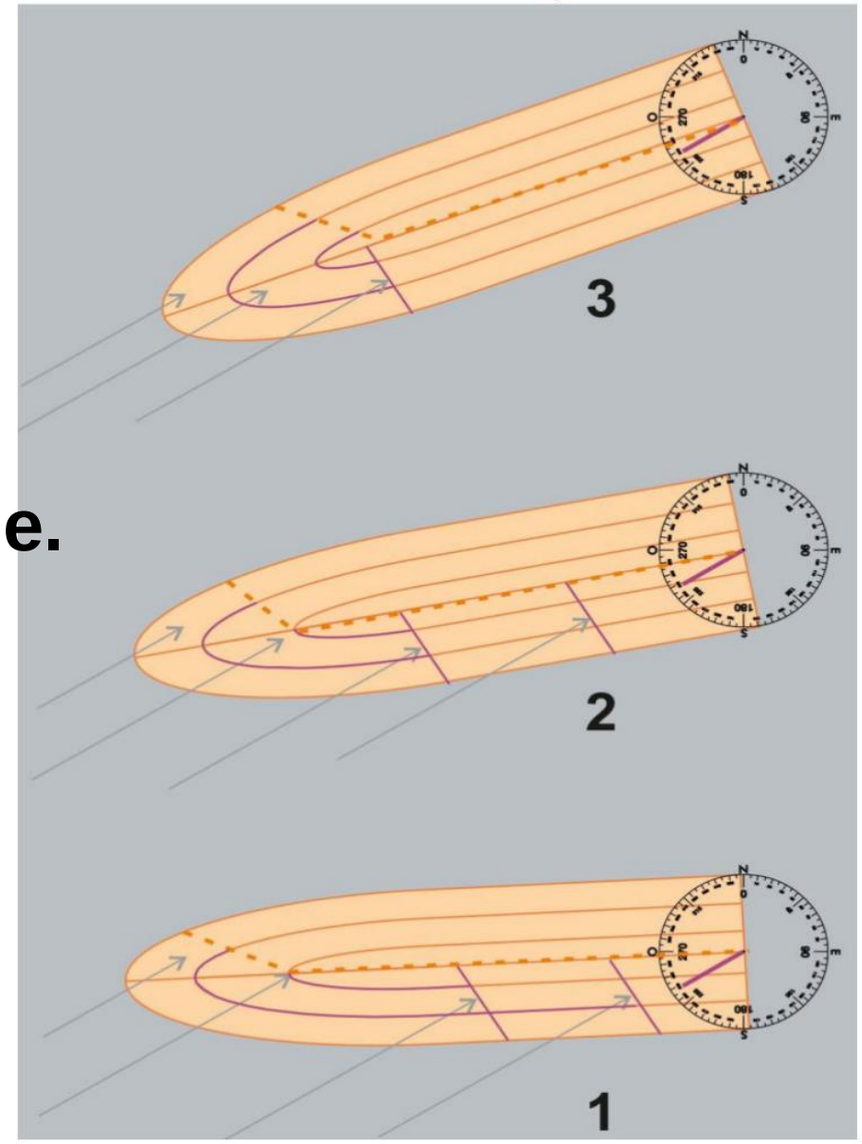
The dunes are physical barriers that prevent the flooding of the beaches due to extraordinary tides, high

PASEO MARÍTIMO CASTELLDEFELS SECTION II DUNAR REGENERACIÓN

The new dunes

or hybrid dunes must be an accumulation

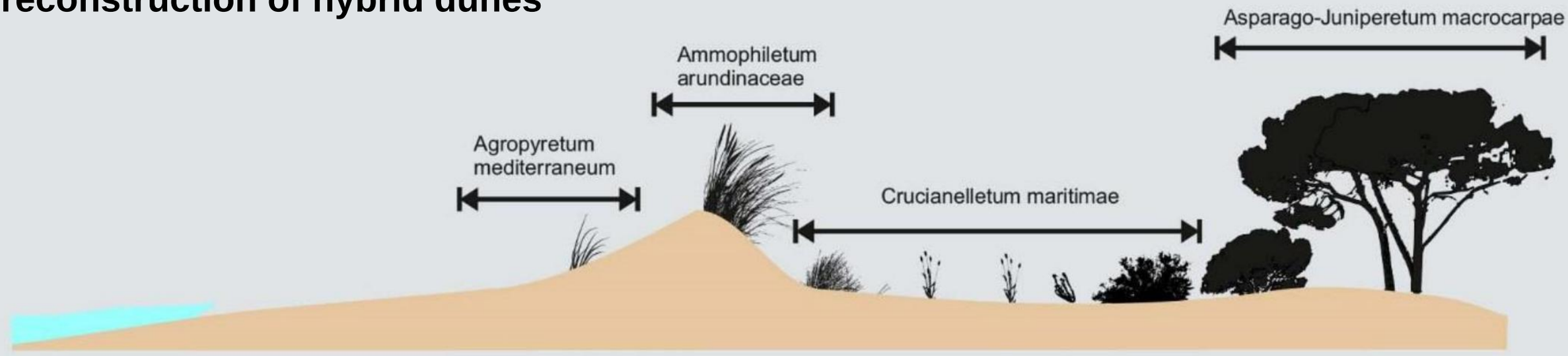
of sand and allow them to settle.

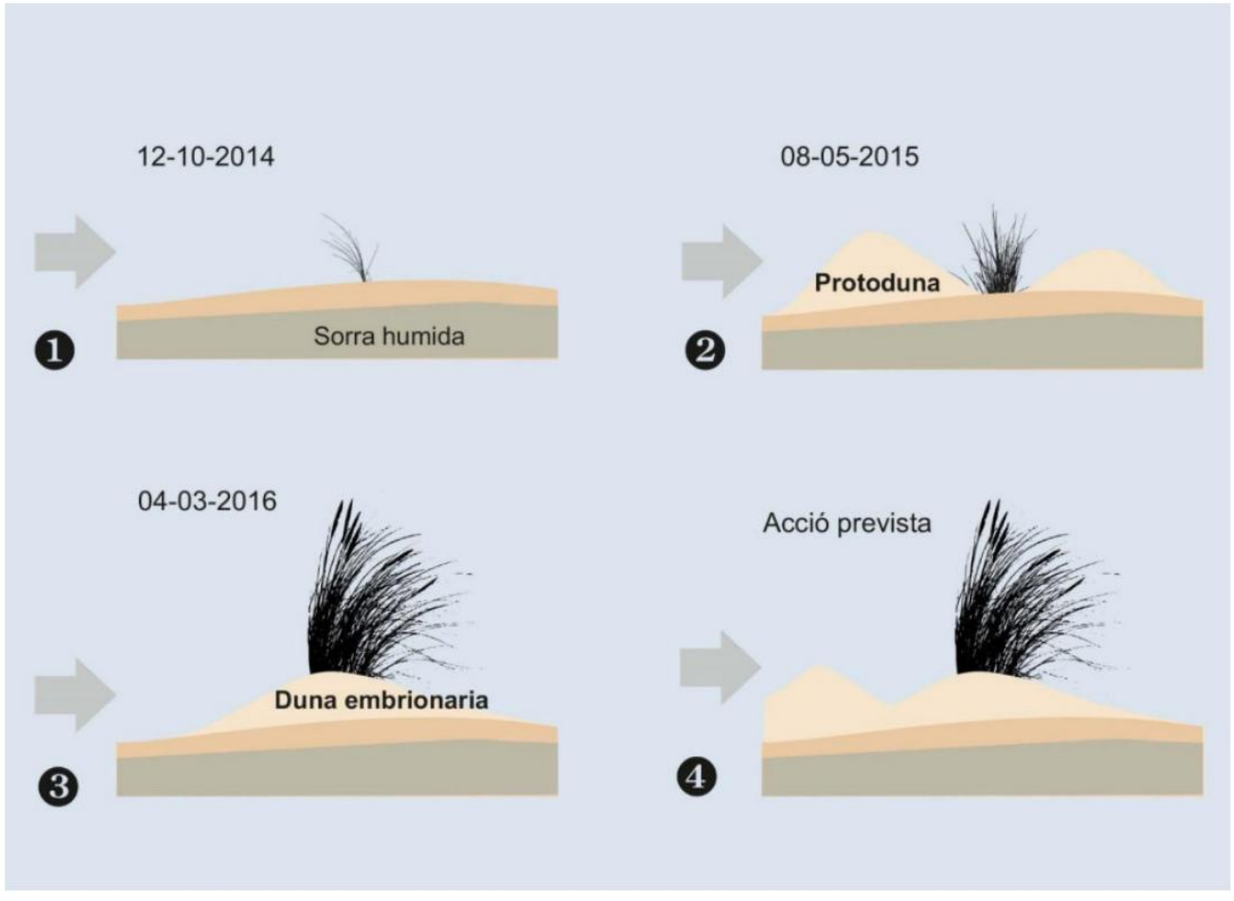


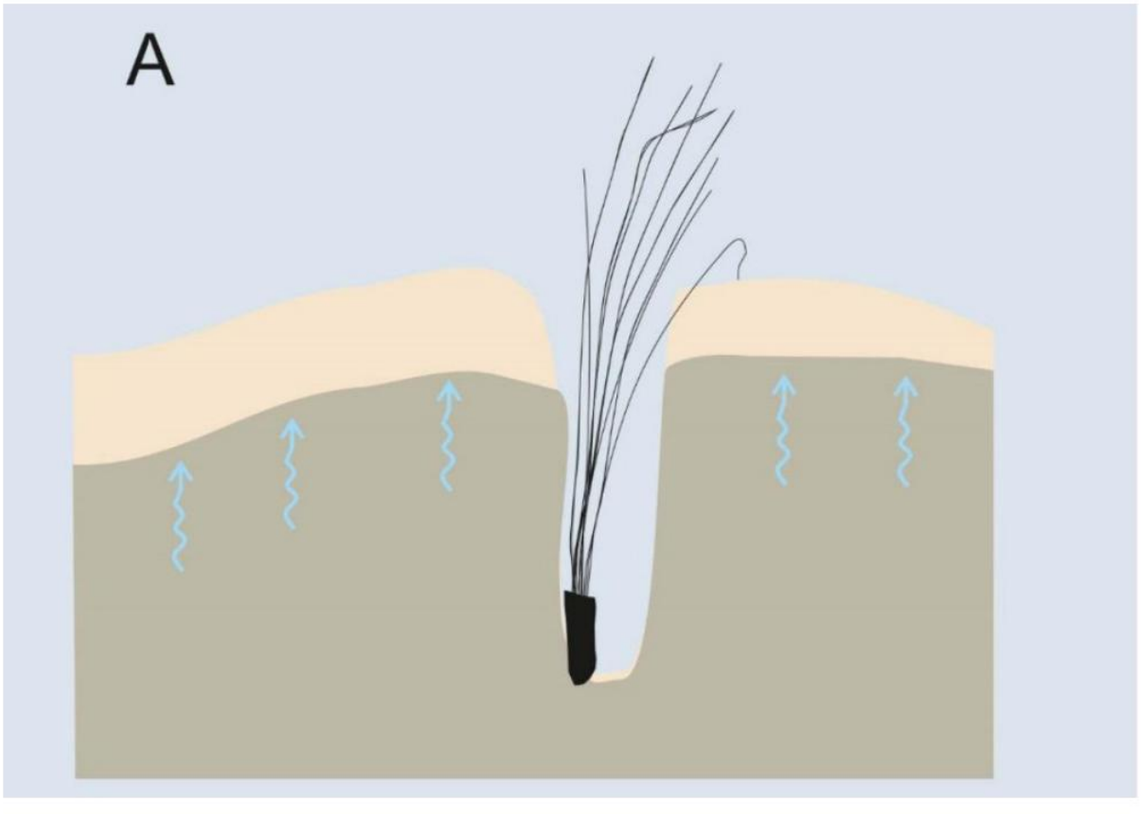
The orientation should be as parallel as possible to the wind to avoid erosion, if they are perpendicular they will need protection.

How should we plant the new hybrid dunes?

The amophila arenaria or the marram is the main species to be used in the reconstruction of hybrid dunes







Maintenance of hybrid dunes

They **must be built on the beaches of Gavà and Castelldefels**

protodunes every two years, and replant them with the amophila in the deepest part of the dune.

The dunes have to manually clean and remove invasive species.

It is convenient to leave a protodunes in front of the existing dunes, to guarantee the contribution of clean sand.