



# Can the integration of the environmental dimension make a metropolitan context smart?

## An argument about planning in the recently established Metropolitan City of Cagliari and the Natura 2000 Network

Ignazio Cannas, [ignazio.cannas@unica.it](mailto:ignazio.cannas@unica.it)

Daniela Ruggeri, [daniela.ruggeri@unica.it](mailto:daniela.ruggeri@unica.it)

Doctoral Research Students

DICAAR – Dipartimento di Ingegneria Civile, Ambientale e ARchitettura, Università degli Studi di Cagliari





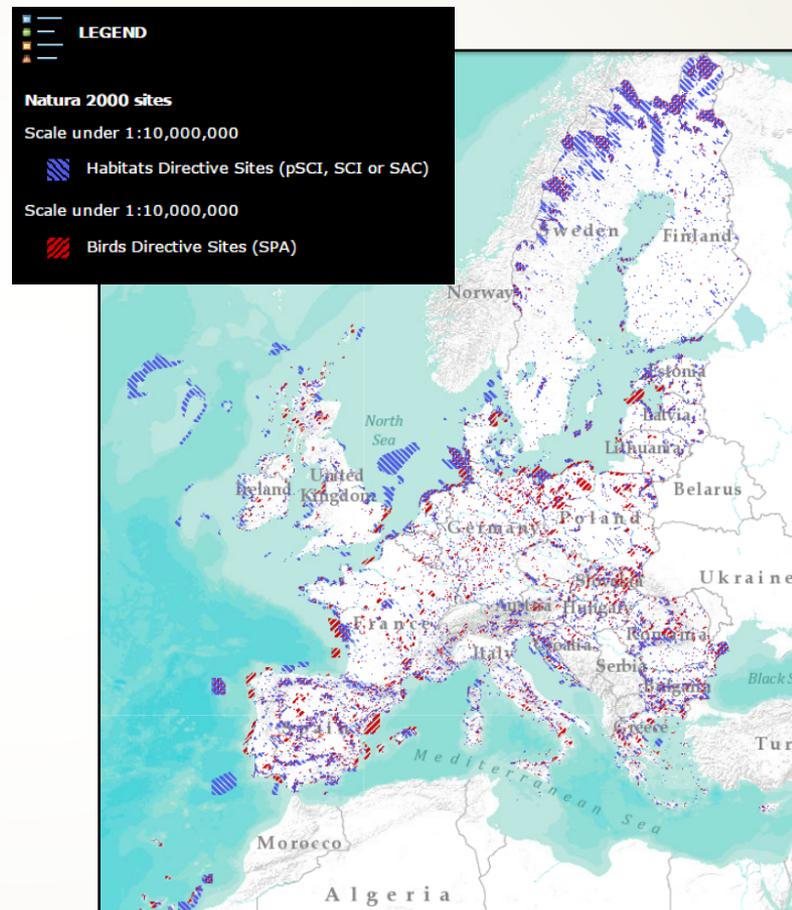
## Introduction

- General concepts about the Natura 2000 Network
- The Natura 2000 Network within the Metropolitan City of Cagliari
- A qualitative approach for habitat suitability assessment for a specific species
- Issues associated with the spatial planning and the Natura 2000 Network



## General concepts about the Natura 2000 Network

- ▶ Natura 2000 is a coherent ecological network, established in order to protect biodiversity, to conserve wild flora and fauna species, and natural habitats existing within the Member States, taking economic, social, and cultural requirements into account, as well as regional and local characteristics.



▶ Source: <http://natura2000.eea.europa.eu/#>

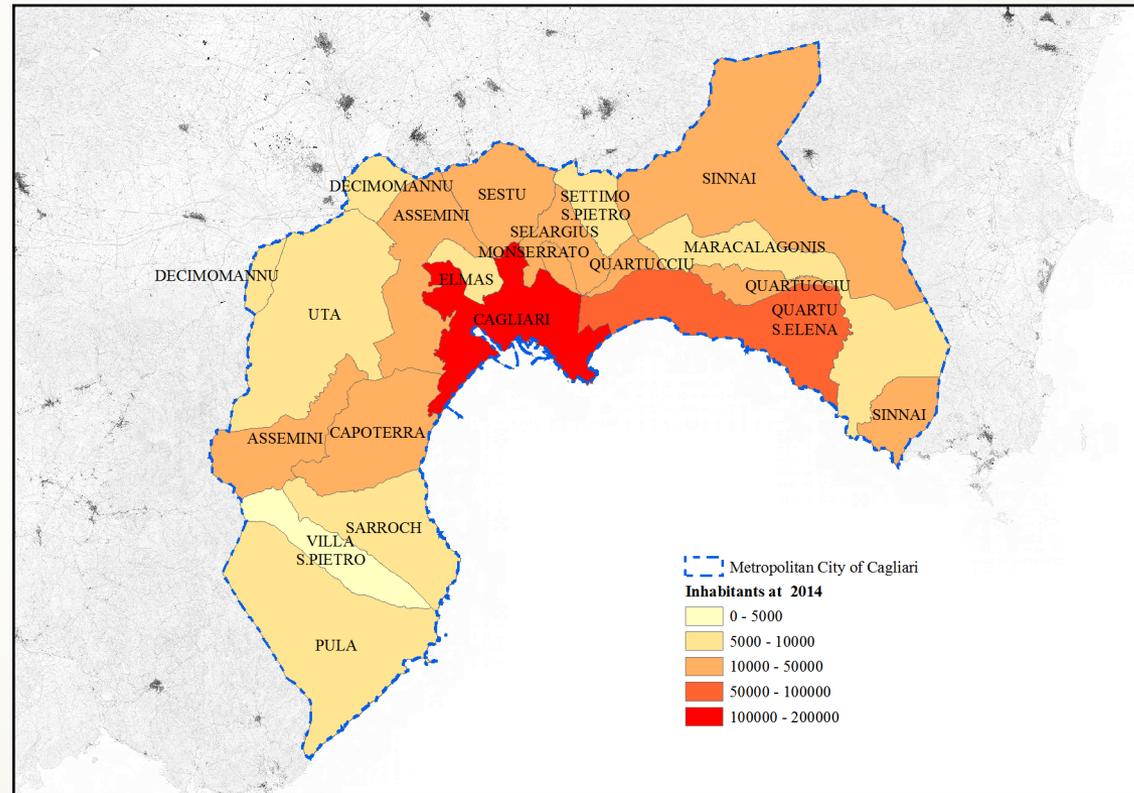
# The Natura 2000 Network within the Metropolitan City of Cagliari

- ▶ The Metropolitan City of Cagliari is located on the southern coast of Sardinia, Italy.



# The Natura 2000 Network within the Metropolitan City of Cagliari

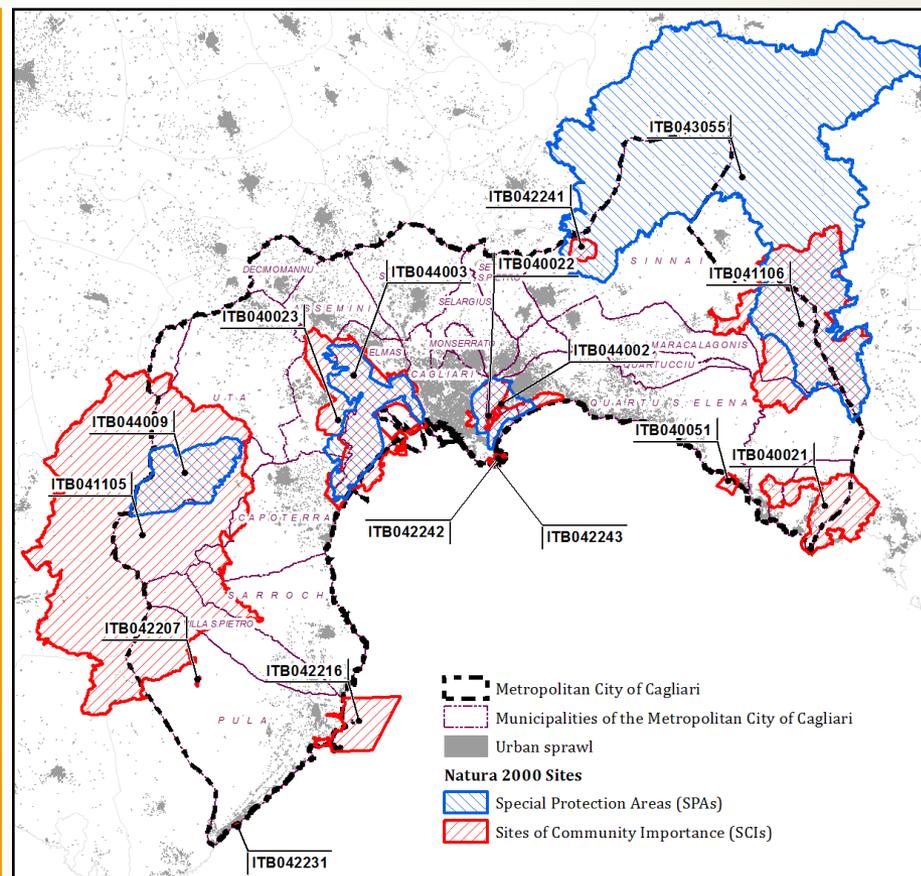
- ▶ The Metropolitan City of Cagliari includes 17 municipalities.



## The Natura 2000 Network within the Metropolitan City of Cagliari

➤ In the metropolitan context there are 16 sites of the Natura 2000 Network.

Type	Natura 2000 Sites	Management plan
SCI	ITB040021 Costa di Cagliari	Approved
	ITB040022 Stagno di Molentargius e territori limitrofi	Approved
	ITB040023 Stagno di Cagliari, Saline di Macchiarreddu, Laguna di Santa Gilla	Approved
	ITB040051 Bruncu de Su Monte Moru, Geremeas (Mari Pintau)	Approved
	ITB041105 Foresta di Monte Arcosu	Approved
	ITB041106 Monte dei Sette Fratelli e Sarrabus	Approved
	ITB042207 Canale su Longuvresu	Approved
	ITB042216 Capo di Pula	Approved
	ITB042231 Tra Forte Village e Perla Marina	Approved
	ITB042241 Riu S. Barzolu	Approved
	ITB042242 Torre del Poetto	Approved
	ITB042243 Monte Sant'Elia, Cala Mosca e Cala Fighera	Approved
	SPA	ITB043055 Monte dei Sette Fratelli
ITB044002 Saline di Molentargius		-
ITB044003 Stagno di Cagliari		-
ITB044009 Foresta di Monte Arcosu		In approving (with SEA)

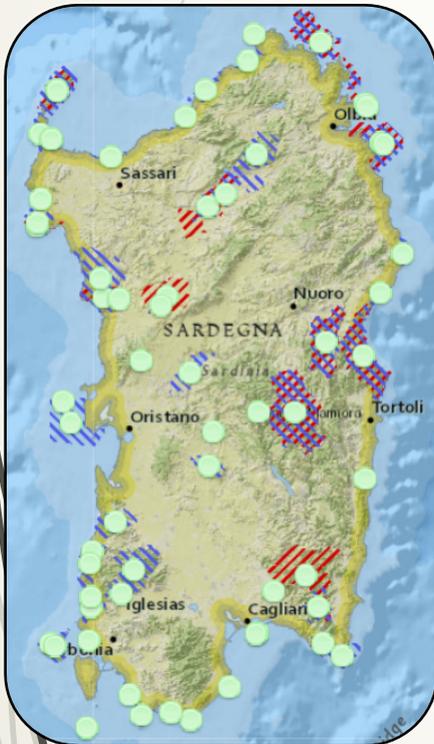


## A qualitative approach for habitat suitability assessment for a specific species

- ▶ We apply a methodology to analyse the metropolitan context of Cagliari based on a dual approach that relates territorial and ecological aspects. Maintaining a physical and territorial, and an ecological and functional continuity within natural environment is an eligible strategy to be considered during the planning processes, which would mitigate fragmentation effects in favour of a better ecological connectivity
- ▶ In fact, used data in the applied methodology are based on two conceptual types:
  - ▶ spatial data that describe environmental variables, such as land use classes of Corine Land Cover level 3 and infrastructure networks data;
  - ▶ spatial perception data on species compared to a particular land use, such as suitability of fauna species-specific values.

# A qualitative approach for habitat suitability assessment for a specific species

- ▶ The *Euleptes Europaea* (*Phyllodactylus Europaeus*, in Italian known as *Tarantolino*) is a reptile and is an endemic species of the west-central Mediterranean.



*Euleptes Europaea* distribution in the Natura 2000 Sites in Sardinia. Source: <http://natura2000.eea.europa.eu/#>



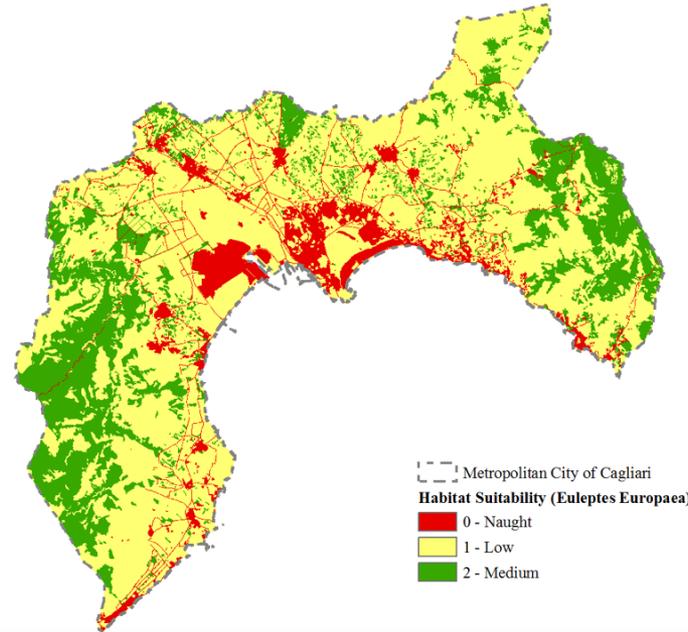
Source: [http://reptile-database.reptarium.cz/species?genus=Euleptes&species=europaea&search\\_param=%28%28search%3D%27eulep%27%29%29](http://reptile-database.reptarium.cz/species?genus=Euleptes&species=europaea&search_param=%28%28search%3D%27eulep%27%29%29)



Source: [http://www.euleptes.net/?page\\_id=172](http://www.euleptes.net/?page_id=172)

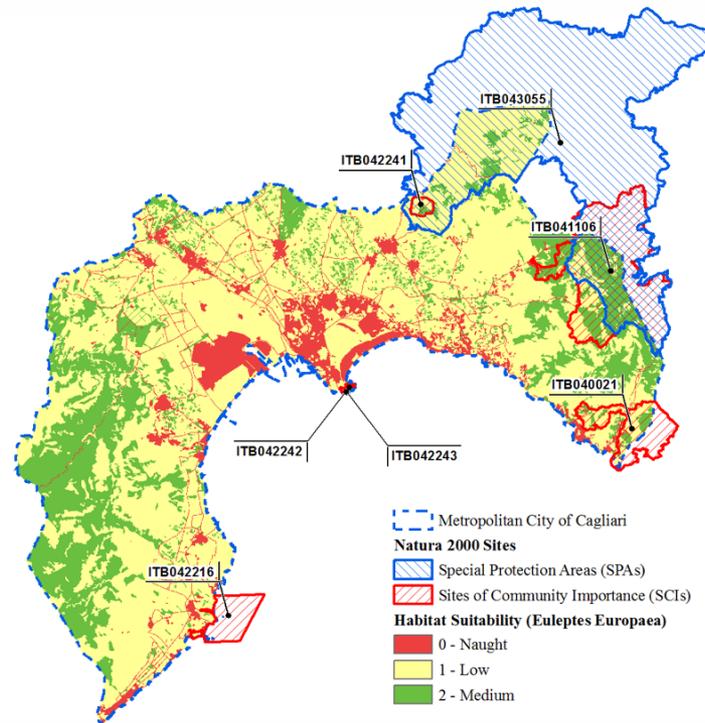
# A qualitative approach for habitat suitability assessment for a specific species

- ▶ A habitat suitability assessment constitutes an important initial basis to plot potential distribution of every single species in the area.



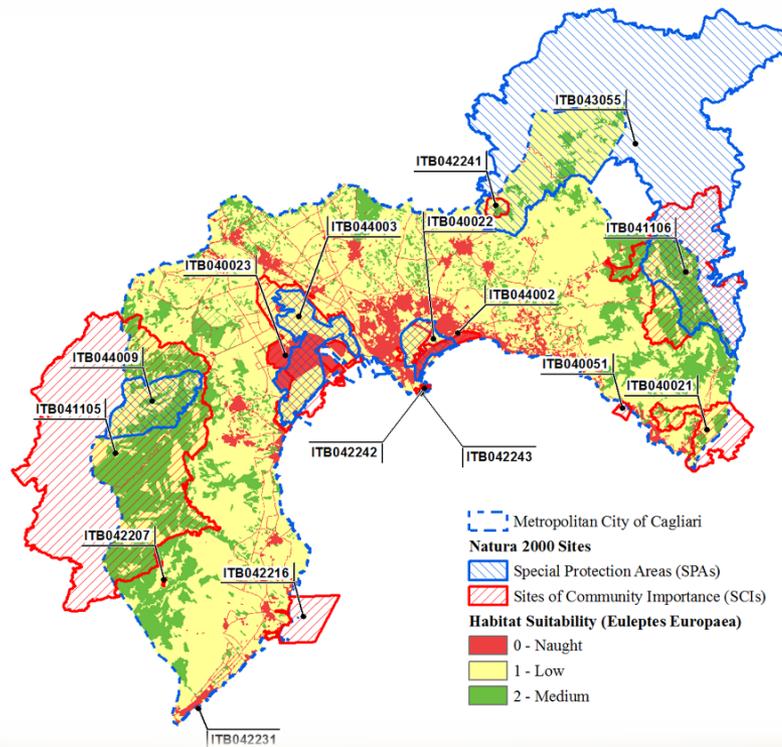
# A qualitative approach for habitat suitability assessment for a specific species

- ▶ The *Euleptes Europaea* presence is detected in 7 sites .



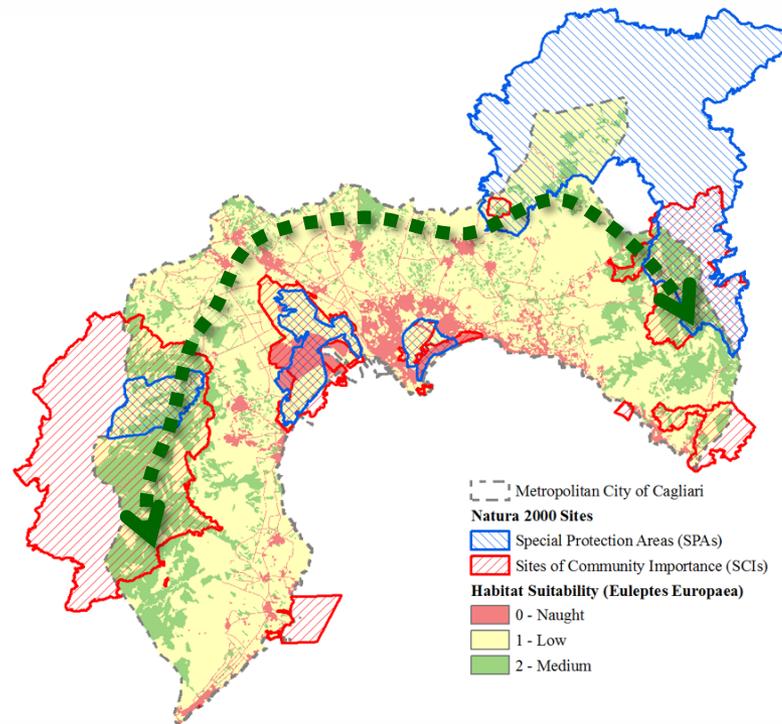
# A qualitative approach for habitat suitability assessment for a specific species

- ▶ According to the green value of habitat suitability many sites can support the presence.



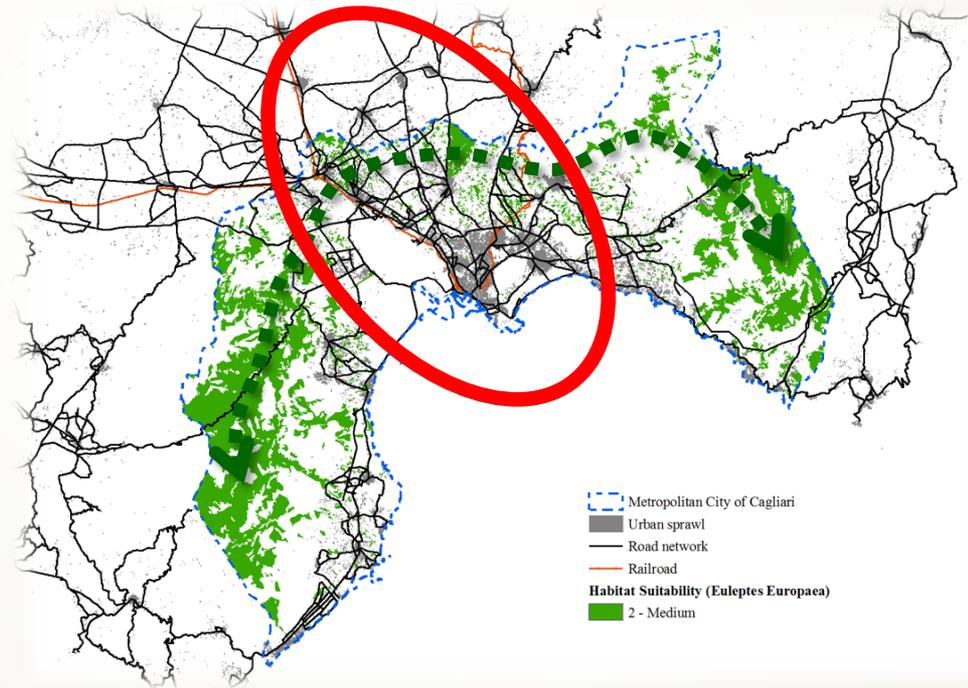
# A qualitative approach for habitat suitability assessment for a specific species

- Potential species-specific “ecological corridor” are needed.



# A qualitative approach for habitat suitability assessment for a specific species

- From an ecological and functional point of view, physical elements, as main road infrastructures in central sector, seem to be an almost insurmountable obstacle between East and West.



## Conclusions

We describe an example of an ecological analysis approach applied in the Metropolitan City of Cagliari. We use species-specific habitats suitability models to analyse the ecological connectivity, which is interpreted as the vocation of the metropolitan context to be crossed by species.

We think this analysis, integrated in the Strategic Environmental Assessment process, allows to define objectives on protection of the ecological and natural heritage, and to improve the coherence of the Natura 2000 Network.

If the ambition of the Metropolitan City of Cagliari is to become a **smart metropolitan city**, at least from the environmental point of view, the Metropolitan City of Cagliari should recognise this ecological network existing in its context and should become aware of its environmental heritage.

