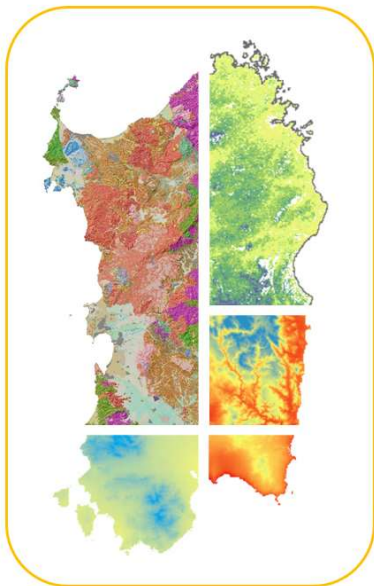


Assessment of Soil Biodiversity from different land use: preliminary research through QBS-ar approach in Sardinia Island

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INTRODUCTION

The lack of quantitative standardized data at a large scale has resulted in poor understanding of how **soil biodiversity** could be incorporated into legislation for the protection of soil quality.

Among several indices developed in the last years, **QBS-ar** (Soil Biological Quality-arthropod) index joins the biodiversity of soil **microarthropods community** with the degree of soil vulnerability. In this study, data (n=140 samples) from 10 continuous years of QBS-ar measurements over **10 ecosystems of Sardinian** were summarized to analyze the response of the index to climate and soil.

STUDY AREA

**SARDINIA ISLAND
(ITALY)**



SAMPLING



CLASSIFY FROM

TIME - FENOPHASE

T1 Green
T2 Dry
T3 Regreen

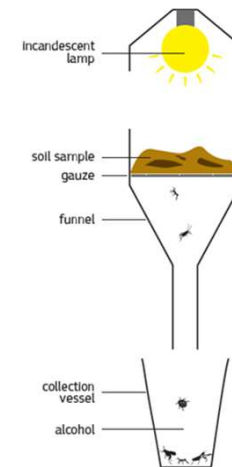


LAND USE

CT Cultivated
FS Forestry
GR Grassland



QBS-ar Index Determination



Rapporto di prova

Rassegna di prova

Rapporto di prova

Rapporto di prova

Rapporto di prova

ANALISI DELL'INDICE DI QUALITÀ BIOLOGICA DEL

SUOLO-MICROARTROPODI (QBS-ar)

Settore Difesa

delle Punte

Progetto

Certificato N°

32/2017

5/12/2017

05/12/2017

12/12/2017

22, 25/01/2017

Estrazione N°

Demonstrazione campione (a cura del Settore Sesto, Territorio e Ambiente)

Univaria - S. Michele 1, 2, 3

IL RESPONSABILE DELL'ANALISI

RESULTS

Parameters	QBSar	n. Taxa 1 (ARACHNID)	n. Taxa 2 (MIRAPOD)	n. Taxa 3 (CROSTACEI)	n. Taxa 4 (INSETTI)
Sand	-0.13***	-0.10*	-0.08	-0.17**	-0.06
Clay	0.03	-0.04	0.02	-0.09	0.03
Silt	0.20**	0.02	0.06	0.14*	0.03
BD	-0.33***	-0.02	-0.07	-0.40***	-0.03
PH	-0.14***	-0.05	-0.05	-0.17*	-0.05
OC	0.37***	0.12	-0.11	0.32***	0.32***
N	0.26**	0.05	-0.02	0.28**	0.24**
CSC	0.42***	0.01	-0.06	0.49***	0.11
Ece	-0.01	0.01	-0.02	-0.04	0.03
Altitude	0.11	0.02	-0.03	0.07	0.06
Sea distance	0.03	0.02	0.01	0.03	-0.02
Slope	0.15*	0.01	0.06	0.10*	0.09
Skeleton	-0.01	-0.16	-0.19*	-0.16	-0.09
Temperature	-0.44***	0.01	-0.20*	-0.35***	-0.08
WC	0.25**	-0.05	0.19*	0.21***	-0.04

- Stepwise regression analysis indicated that, the QBS-ar decreased ($P<0.001$) with an increase in **Temperature** ($R^2=-0.44$) and **Bulk density** ($R^2=-0.33$); however, the index increased ($P<0.001$) with an increase in **CSC**, **Organic carbon**, **Water content** and **Concentrations of nitrogen** ($R^2=0.43$, 0.37 , 0.25 , 0.25 , respectively);
- Analyzing the index as the number of taxa per sample shows different behaviors of the microfauna for land use (**Forestry**, **Cultivated** and **Grassland Area**) and temporal phase (corresponding to phenological dynamics: **T1 green**, **T2 dry** and **T3 regreen**);
- Considering the importance of soil biodiversity to support the provision of **ecosystem services**, the ability to create knowledge on the diversity of microarthropod within soil biodiversity is a **key to future environmental policy**, the optimization of land use and the support for land management decisions, considering the loss and profits on soil biodiversity.

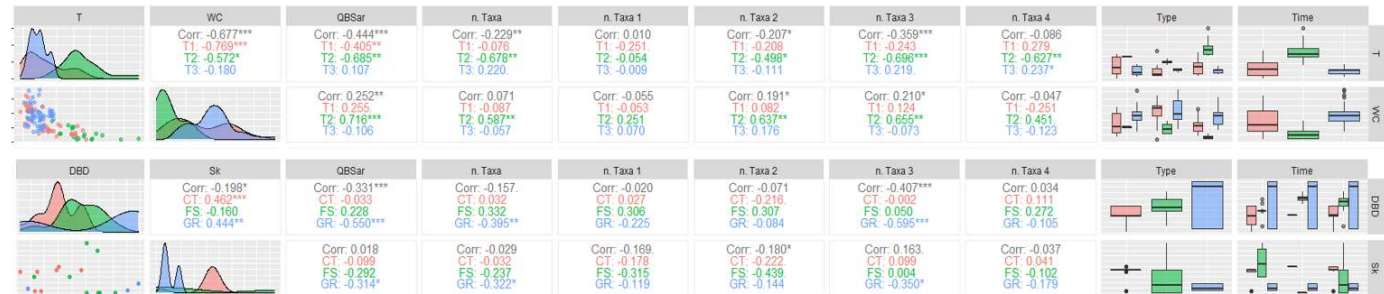
FUTURE STUDIES

INCREASING THE SAMPLE DATA

EXPLORING DIFFERENT ENVIRONMENTAL CONDITIONS

APPLICATION OF OTHER STATISTICAL METHODS

ENVIRONMENT



CHEMICAL



PHYSICAL

