



**SETOF** Soil Erosion and TOrrential Flood  
*Prevention: Curriculum Development at the  
Universities of Western Balkan Countries*



**[www.agraria.unirc.it](http://www.agraria.unirc.it)**  
**[orienta@agraria.unirc.it](mailto:orienta@agraria.unirc.it)**

Reference Number: 598403-EPP-1-2018-1-RS-EPPKA2-CBHE-JP

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein"

Co-funded by the  
Erasmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# Studying in Reggio Calabria



Co-funded by the  
Erasmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

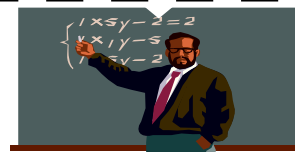
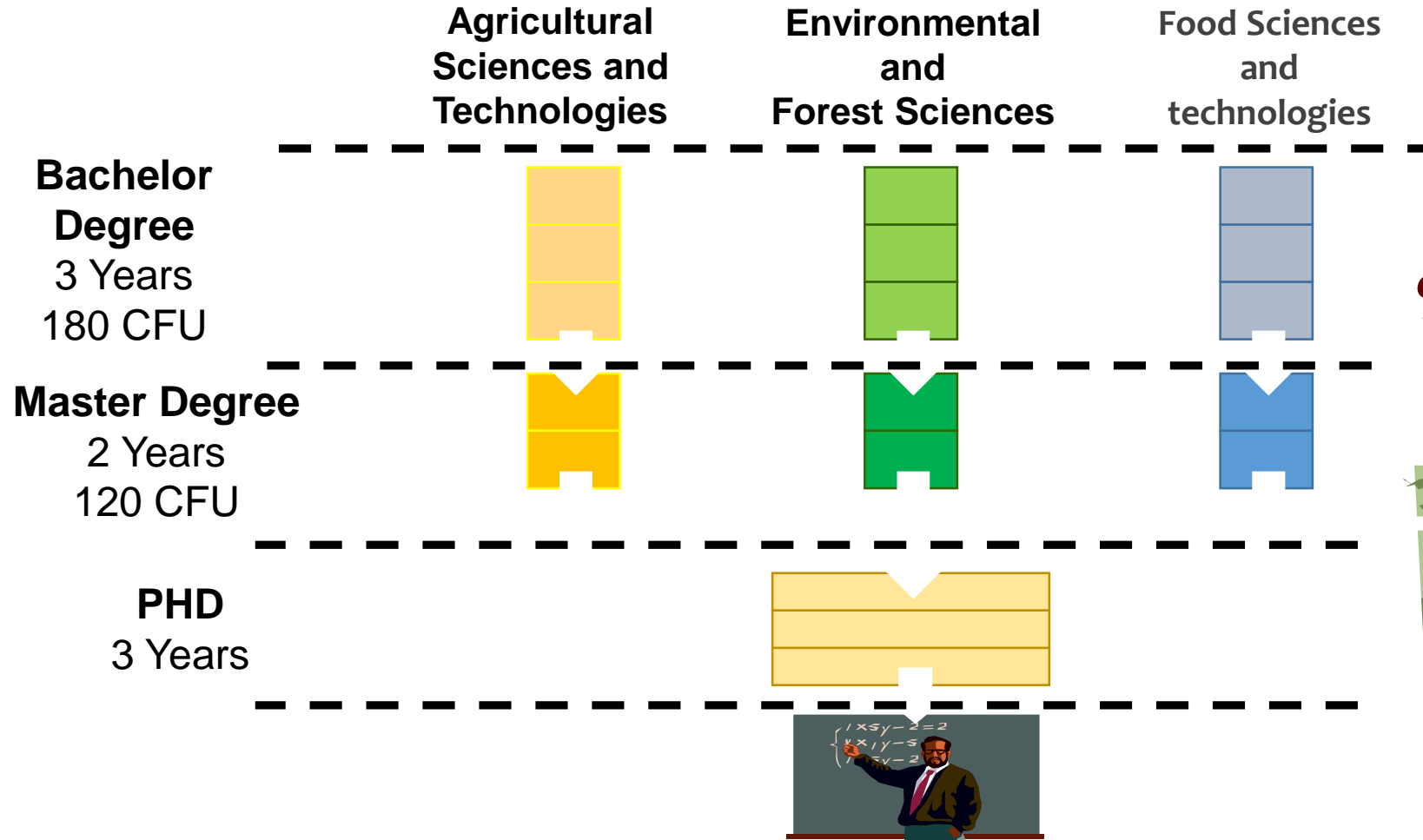


## The Location



Co-funded by the  
Erasmus+ Programme  
of the European Union







## Some history

During the last decades, agriculture activities which were firstly based on local traditions from generation to generation, became much more dynamic, and to date they are dependent on the great potentiality offered by scientific and technological progress.





During the second half of the last century, old manual agriculture activities were abandoned and a new agriculture based on technology and industrial processes took place.

Many varieties of crops characterised by high production replaced the old species, much more demanding. This process, based on the employ of fertilisers and water of idoneous quality lead to an increase of agriculture products.





**Negative effects of the old agriculture promoted the concept of SUSTAINABLE AGRICULTURE that tries to accomplish the following goals:**

- **Saving the stability of agricultural systems;**
- **Saving the environment;**
- **Saving the health of operators, farmers and consumers.**





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the  
Universities of Western Balkan Countries*

One of the main goals of agricultural sciences is the nutrition aspect of food. In this context, the application of biotechnologies is really important in order to improve the quality of life and the environment



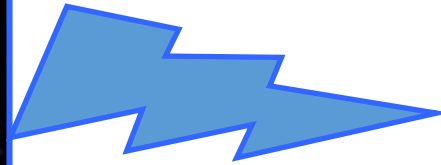
Co-funded by the  
Erasmus+ Programme  
of the European Union







**Agriculture evolution required the employ of much modern instruments, equipments, and technologies that are now very friendly.**



**Modern agriculture is now supported by the contribution of very qualified persons able to transfer their knowledge to our students.**





The Agricultural Faculty in RC operates in two different but complementary contexts:

**SCIENTIFIC RESEARCH AND TECHNOLOGIES** which concern the primary sector and the effects on related fields (biological, environmental, economic)

### **TRAINING**

The main goal is to train people able to operate in the fields mentioned above





## Main subjects of research and teaching

- Cultivation techniques;
- Genetic amelioration of vegetables and crops protection;
- Biodiversity
- Knowledge and genesis of soil;
- Selection of cattle species and management;
- Tracing food through the production and distribution chain to identify and address risks and protect public health;
- Landscape protection;
- Management of territory and related resources;
- Agriculture economy;
- Projecting, management, and restoration, of rural buildings and industrial plants





## FOOD SCIENCES AND TECHNOLOGIES

**...through transformation processes,  
buildings and plants...**

**From the sources**



**...transportation, delivering and utilization**

**... to the final products ...**





## Environmental and Forest Sciences

- Forest sciences deal with:
- Conservation of forest ecosystems and their biodiversity
  - Planning and management of forest environments
  - Sustainable use of forests
  - Hydrological protection of forest environments.





## Content of courses in Forest Sciences:

- Forests amelioration
- Hydraulic structures
- Silviculture for wood production
- Prevention and protection from wildfires
- Forest nursery organization
- Biological protection
- Planning and management of forest roads
- Forest plants
- Animal plants

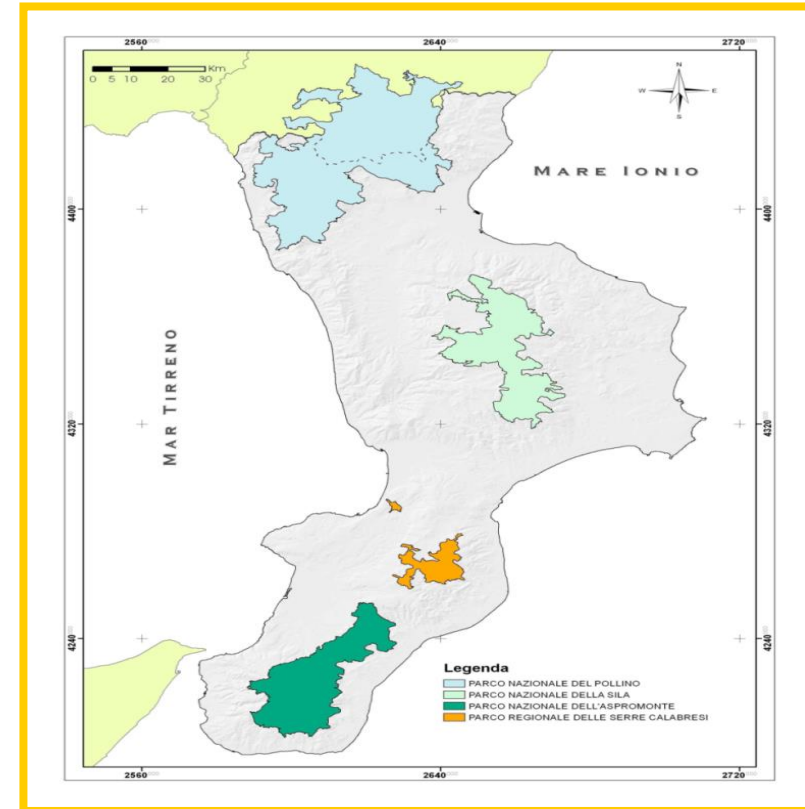




## Forests distribution in Calabria



## NATURAL PARKS





# Forest biodiversity in Calabria

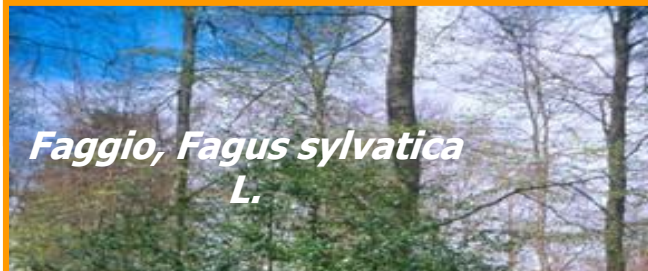
*Pino loricato, Pinus leucodermis Ant.*



*Pino laricio, Pinus laricio Poiret*



*Sughera, Quercus suber L.*



*Faggio, Fagus sylvatica L.*



*Leccio, Quercus ilex*



*Farnetto*



*Rovere, Quercus petraea*







## Monitoring forest ecosystems

- Dynamic evolution of forest vegetation
- Dynamic growth of forests
- Climatic variation
- Storage of CO<sub>2</sub> in forests





## Wood production

- Wood for burning use
- Biomass production for electricity on behalf of fossil combustibles





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# Forest disappearing leads to hydrological catastrophes and desertification



Co-funded by the  
Erasmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# Structures of the Agriculture Faculty

## Laboratories



Co-funded by the  
Erasmus+ Programme  
of the European Union





Soil Erosion and TOrrential Flood  
Prevention: Curriculum Development at the  
Universities of Western Balkan Countries

# Structures of the Agriculture Faculty

## Computer labs



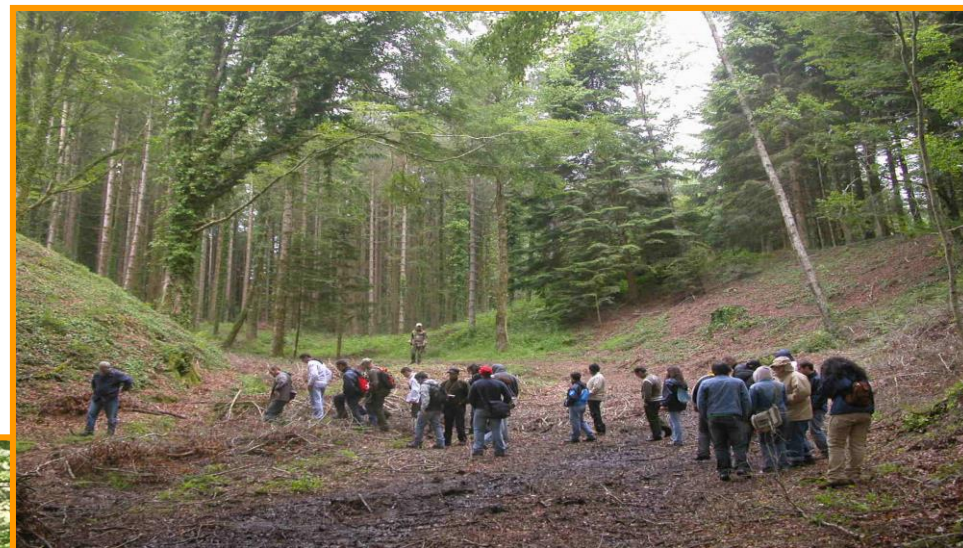
Co-funded by the  
Erasmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

## Field activities - Exercises in external forests



Co-funded by the  
Erasmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# Conferences and seminars



Co-funded by the  
asmus+ Programme  
of the European Union





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# THE ERASMUS PROJECT



Co-funded by the  
Erasmus+ Programme  
of the European Union







## LIFELONG LEARNING PROGRAMME

List of Universities having a bilateral agreement with  
the Faculty of Agriculture of RC

Cartagena (ES), Madrid (ES), Valencia (ES), Valladolid  
(ES), Exeter (UK), Wageningen (NL), Lisbona (P),  
Warsaw (PL) and many others ...

([http://www.unirc.it/internazionalizzazione/accordi\\_bilaterali\\_erasmus.php](http://www.unirc.it/internazionalizzazione/accordi_bilaterali_erasmus.php))





# STUDENTS FACILITIES



- Library
- Internet points
- WI-FI connections
- Account provider
- Fast food point
- Free public transport
- Fellowships





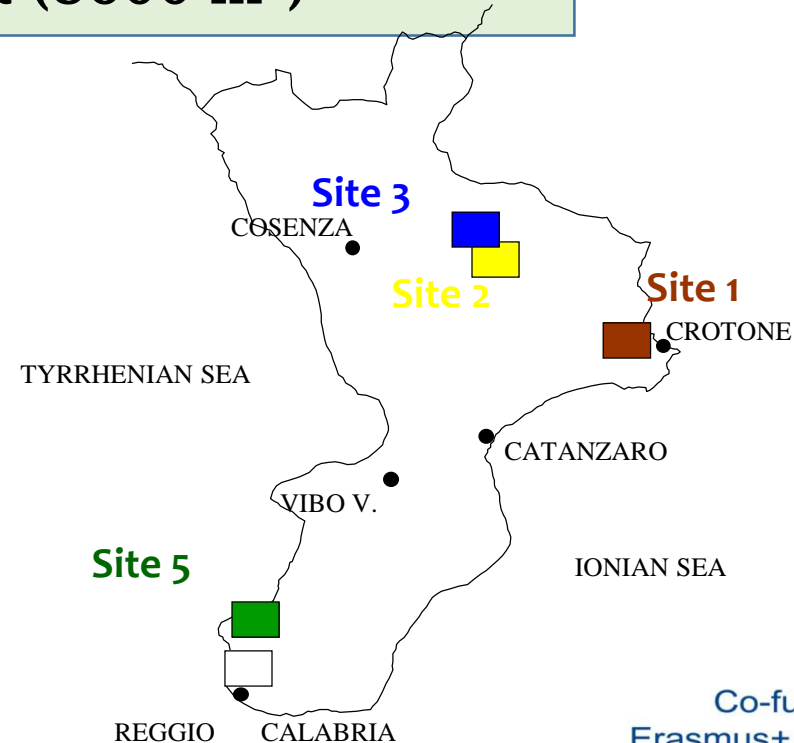
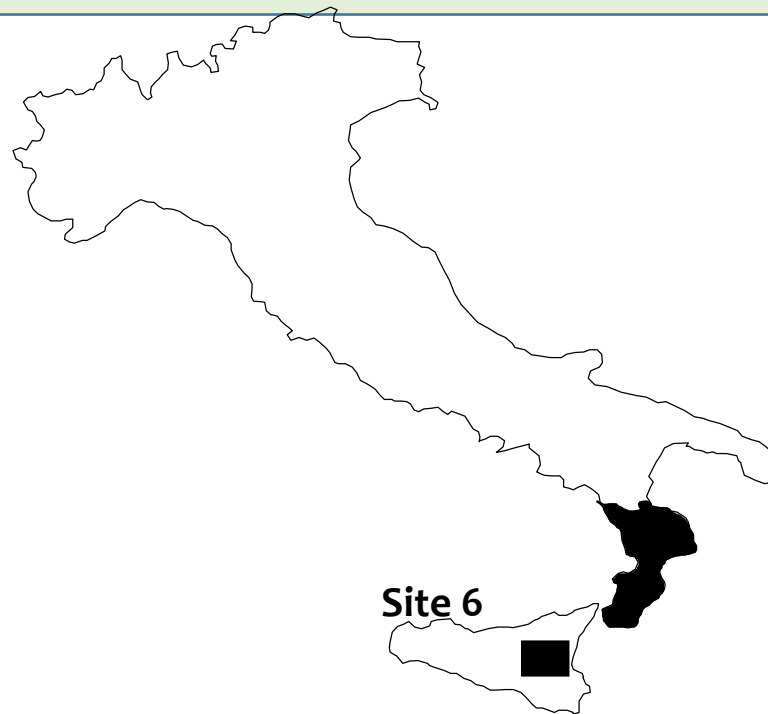
## THE FIELD LABORATORIES

The main purpose of the group of hydraulics and hydrology of the University Mediterranea is to enhance research and teaching in the environmental sciences on the main campus.

In consideration of large scale global climate change, pollutants, soil erosion, and ever-increasing needs for clean water, the field labs represent a crucial point in the research and teaching programmes.



- Site 1** → **Catchment W1, W2, and W3 (ca. 1.5 ha)**
- Site 2** → **Trionto catchment (32 km<sup>2</sup>)**
- Site 3** → **Bonis catchment (1.4 km<sup>2</sup>)**
- Site 4** → **9 experimental plots (100-250 m<sup>2</sup>)**
- Site 5** → **5 experimental plots (250 m<sup>2</sup>)**
- Site 6** → **Raddusa catchment (8600 m<sup>2</sup>)**

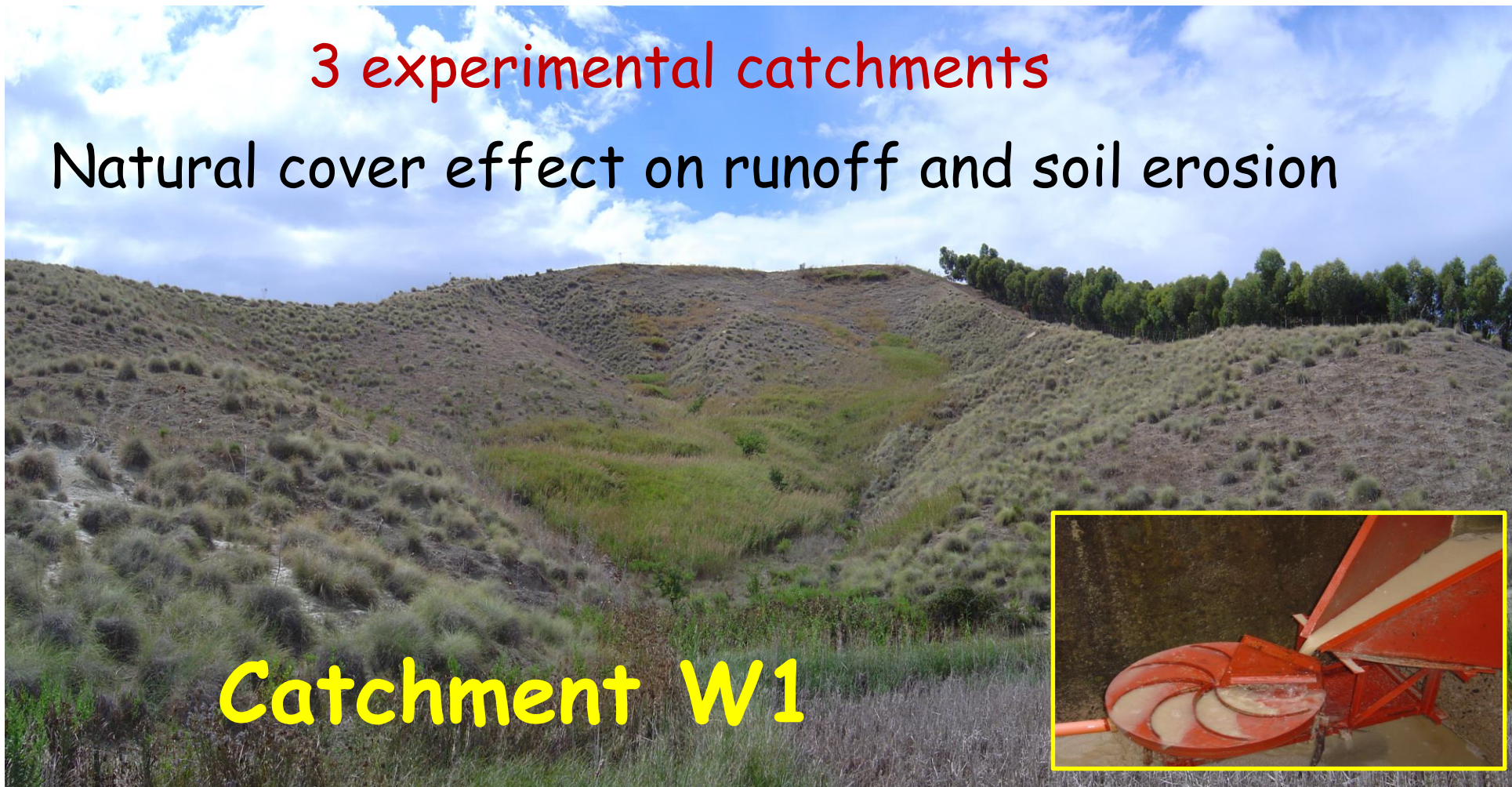




# SITE no. 1

3 experimental catchments

Natural cover effect on runoff and soil erosion



# SITE no. 1

## 3 experimental catchments

Canopy cover effect on runoff and soil erosion

### Catchment W2



# SITE no. 1

3 experimental catchments

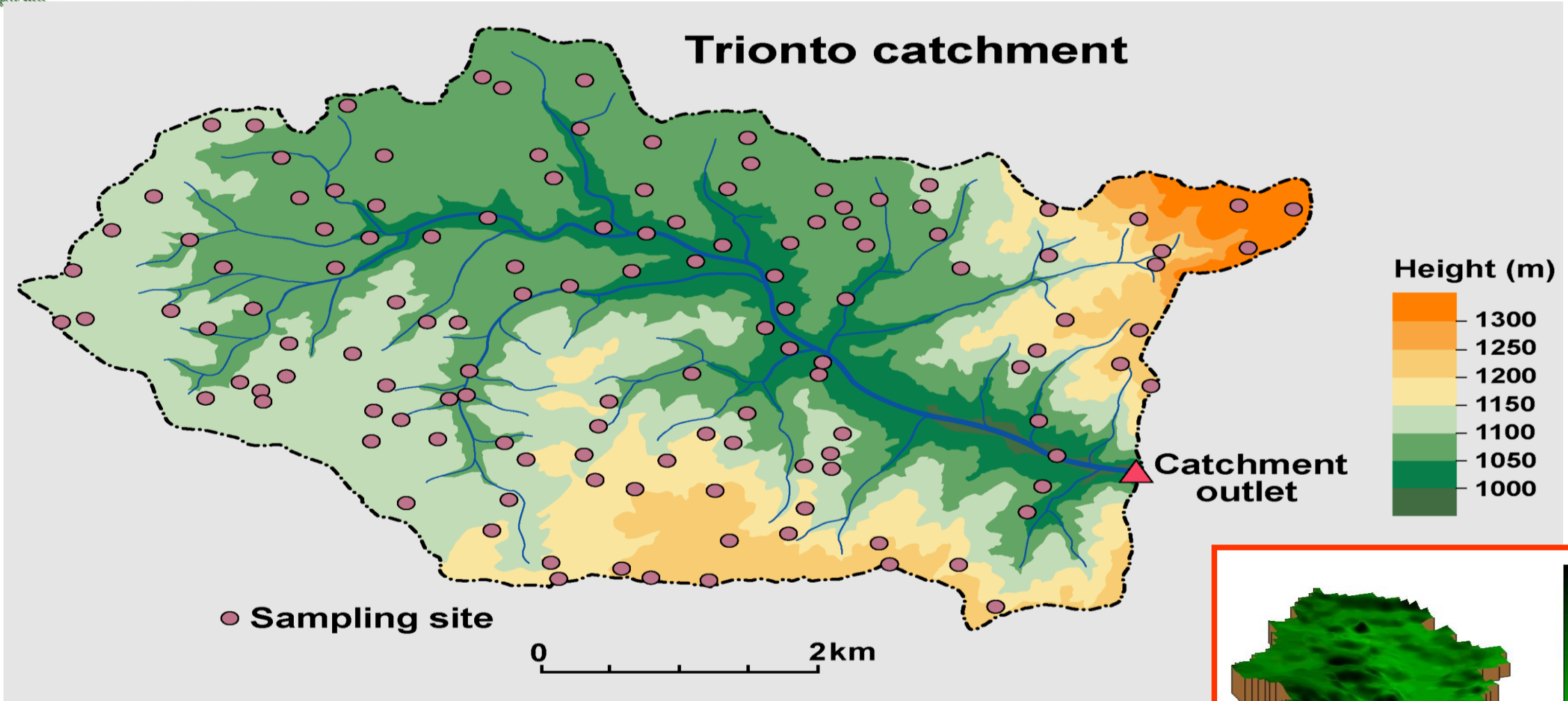
Canopy cover effect on runoff and soil erosion

Catchment W3





# SITE No. 2 - The catchment Trionto



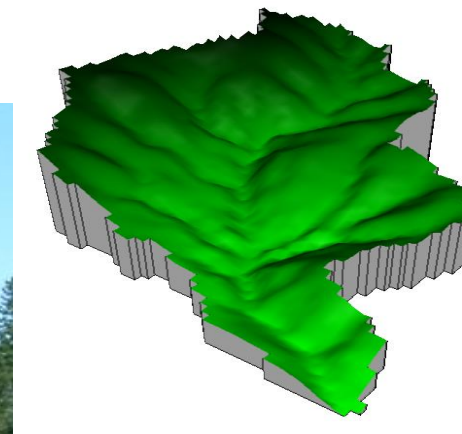




**Soil Erosion and TOrrontial Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# SITE No. 3

## The catchment Bonis



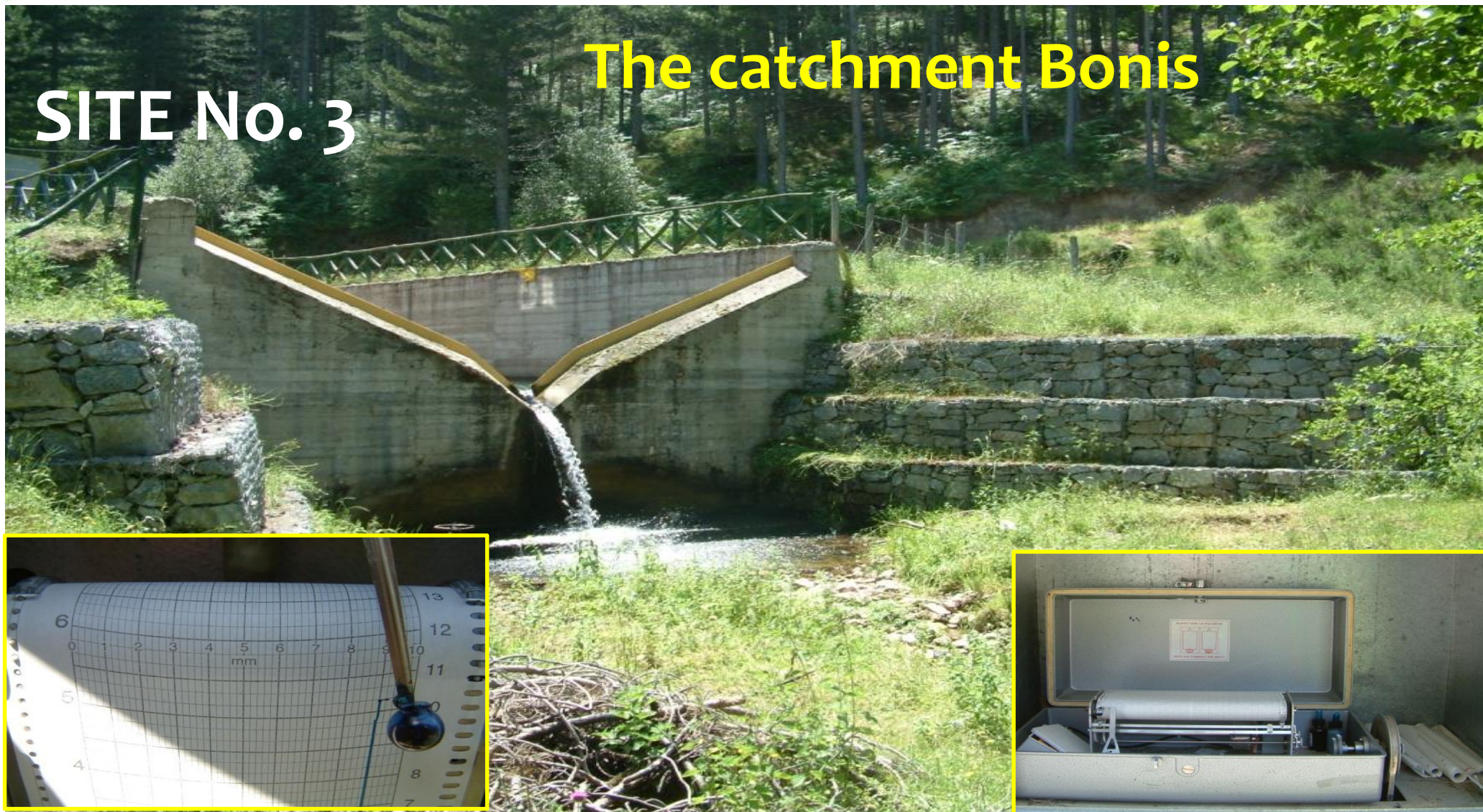
Co-funded by the  
Erasmus+ Programme  
of the European Union





**SITE No. 3**

**The catchment Bonis**





**Soil Erosion and TOrrential Flood**  
*Prevention: Curriculum Development at the*  
*Universities of Western Balkan Countries*

# SITE No. 3

## The catchment Bonis



Co-funded by the  
Erasmus+ Programme  
of the European Union





**SITE No. 3**

**The catchment Bonis**

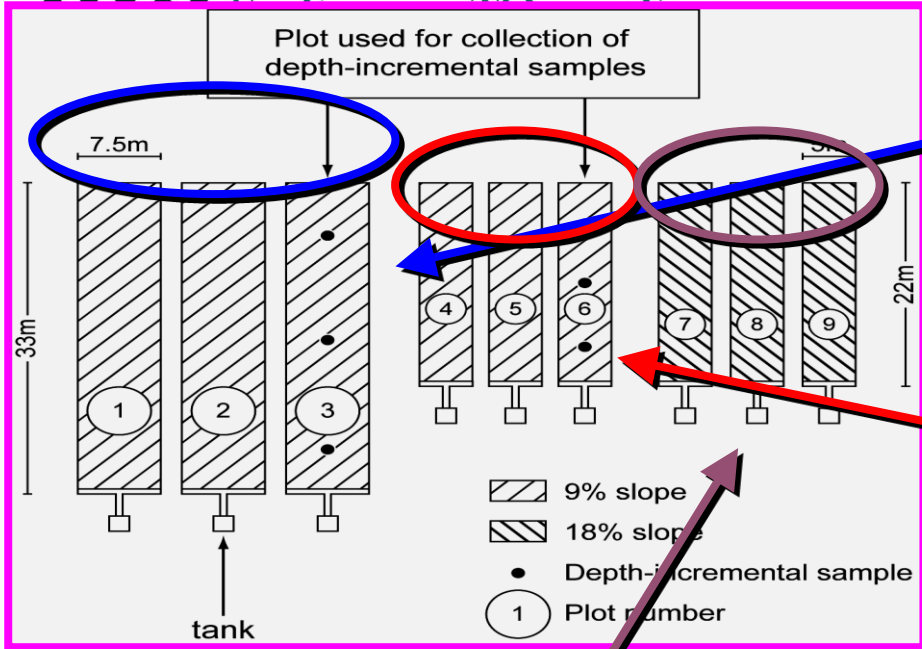


An aerial photograph of a hillside. The top left shows a large, dark brown, tilled field. Below it, a series of rectangular plots are visible, some with green vegetation and others with bare soil. A tall, metal lattice tower stands in the center-right. The background shows more of the hillside with sparse vegetation and a road.

SITE no. 4

9 experimental plots

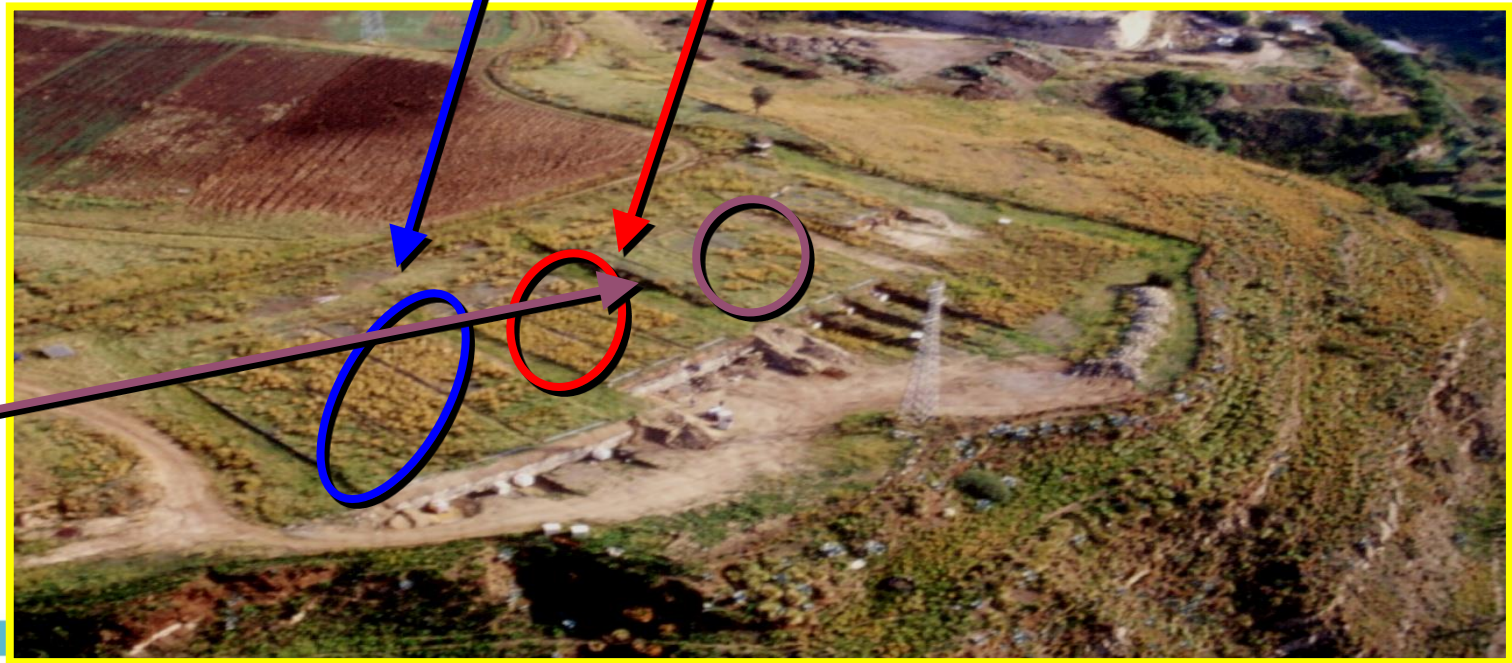
The plots were constructed by the University of Reggio Calabria in 1991, in order to monitor runoff and soil erosion under different slope and vegetation conditions

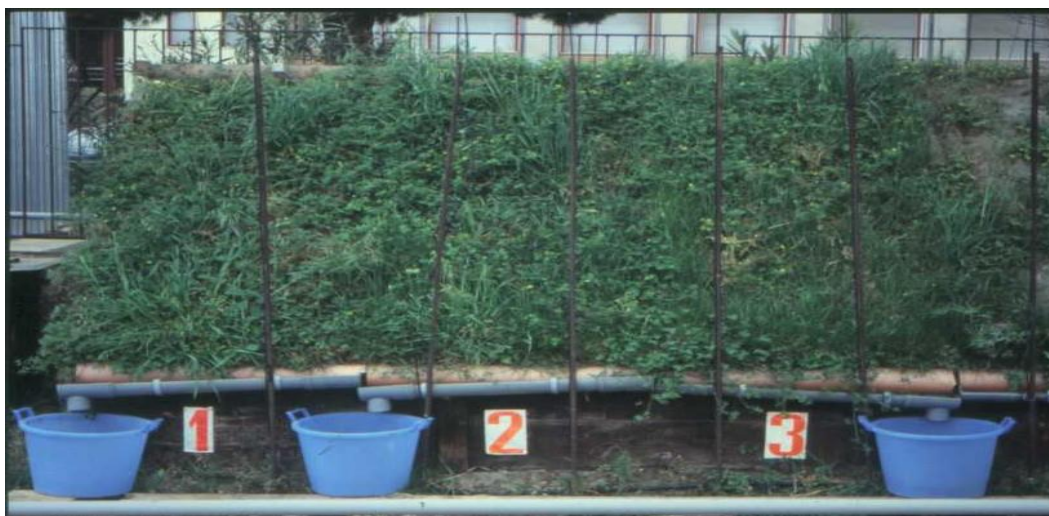
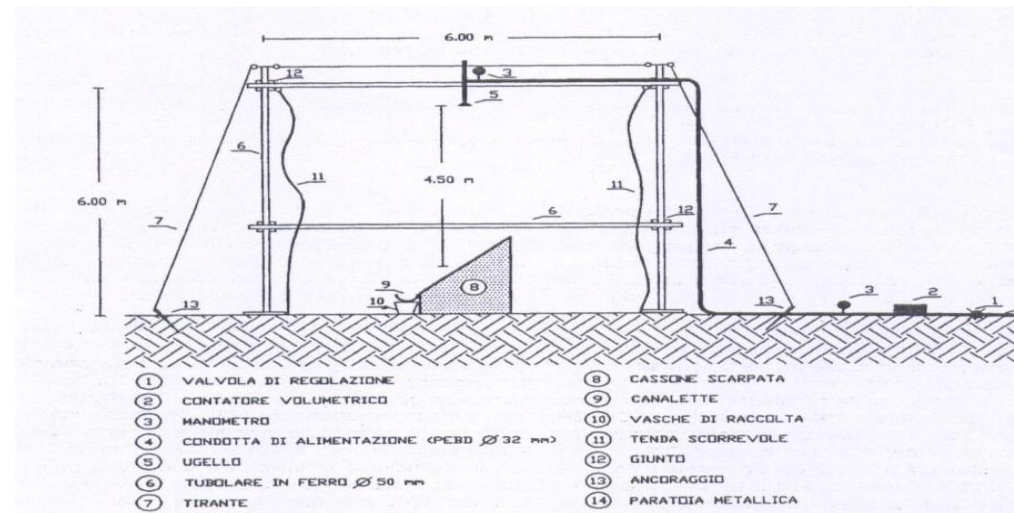


The three larger plots (33 x 7.5 m) have a 9% slope.

Three of the six shorter plots (22 x 5 m) have a 9% slope

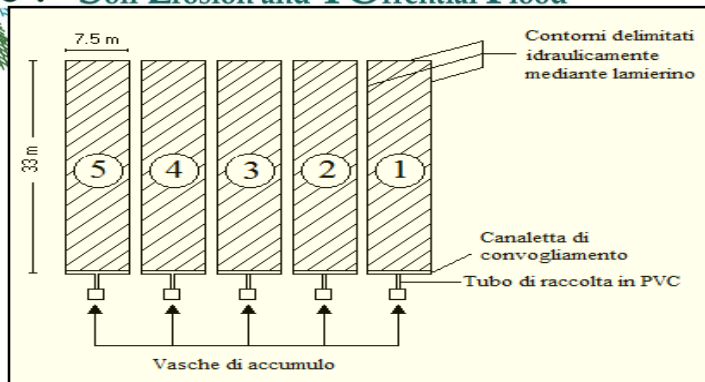
The remaining three (22 x 5 m) have an 18% slope





Irrigated plots

Non irrigated plots



# SITE no. 5

5 experimental plots

Crop cover effect on runoff and soil erosion

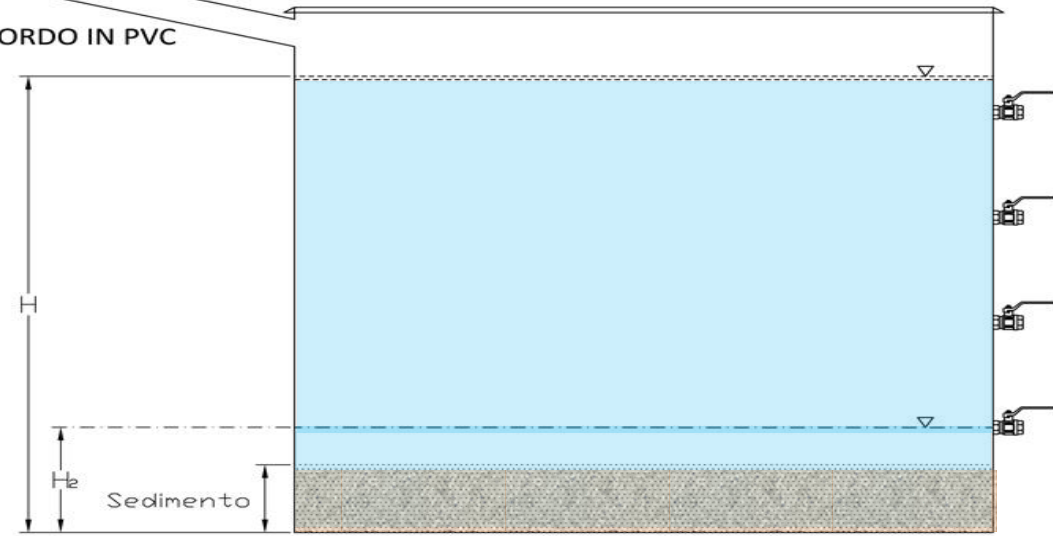




# The sampling design



TUBO DI RACCORDO IN PVC

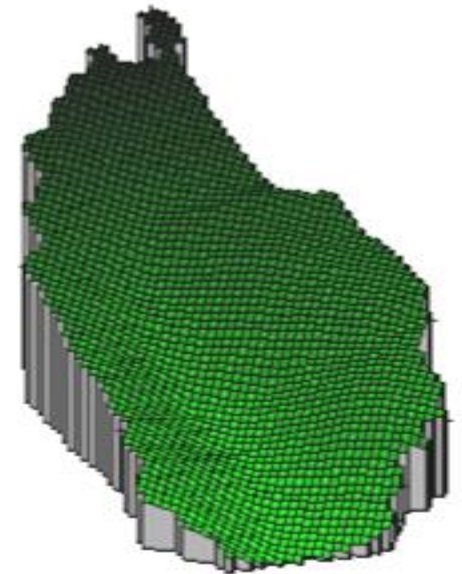
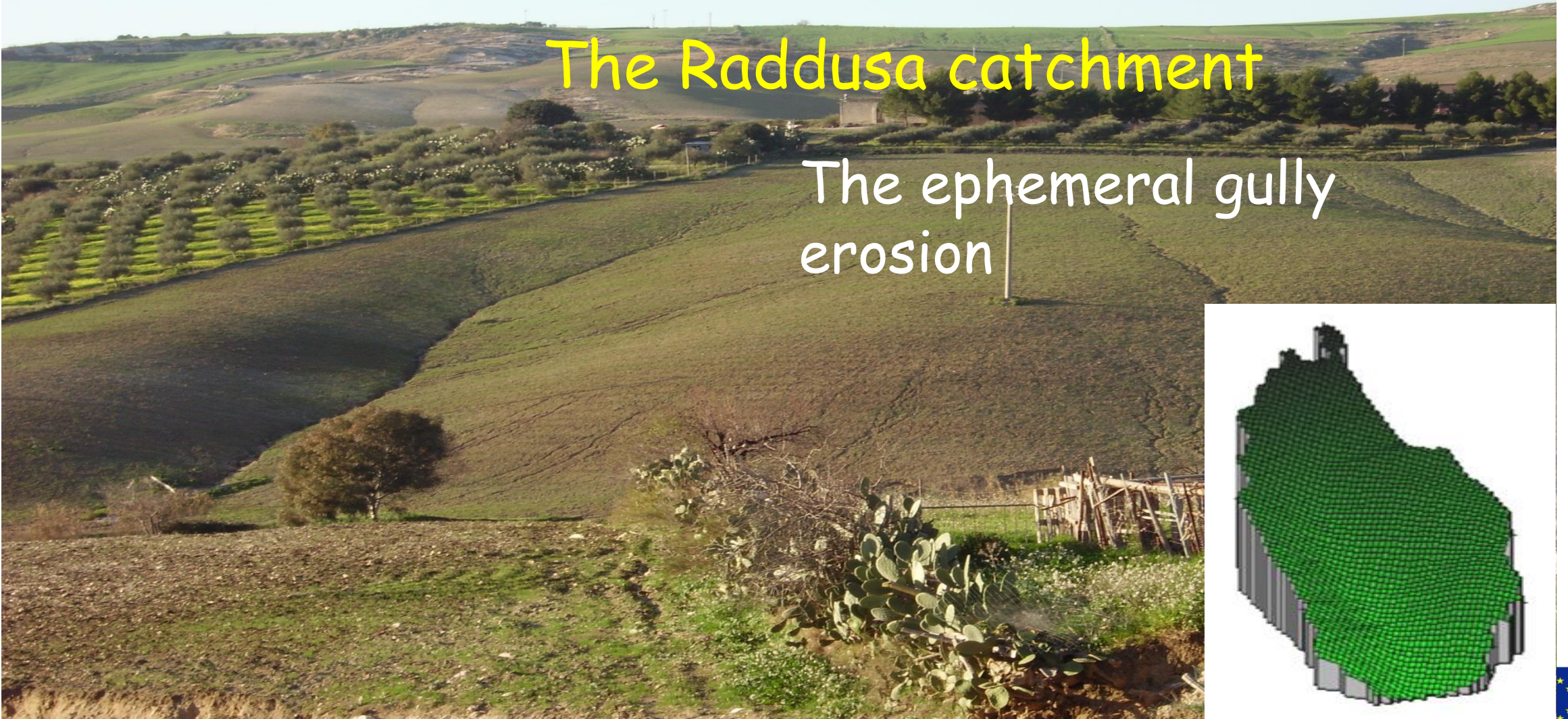


H= altezza torbida totale  
H<sub>2</sub>= altezza primo svuotamento

# SITE no. 6

## The Raddusa catchment

The ephemeral gully erosion



SITE no. 6

## The Raddusa catchment

Runoff and discharge  
measurements

# OTHER RESEARCH FIELDS



**The effect of check-dams in stabilizing the river bed**

<http://paoloporto.en.altervista.org/>

Home - Mozilla Firefox







File Modifica Visualizza Cronologia Segnalibri Strumenti Aiuto

PP Home +

paoloporto.en.altervista.org

Google


ITALIANO ENGLISH



## Prof. Paolo Porto

You are here: Home

- Home
- Teaching
- Research
- Scientific Papers
- Curriculum
- Erasmus Programme
- Photos
- IAHS
- ICCE
- News



**Paolo Porto**  
Professor of Soil Erosion  
Department of Agraria - University Mediterranea of Reggio Calabria  
Feo di Vito – 89122 REGGIO CALABRIA (Italy)  
E-mail: [paolo\\_porto@unirc.it](mailto:paolo_porto@unirc.it)  
Phone: +39 0965 801402 Fax +39 0965 801402

Login

User Name

Password

Remember Me

[Forgot your password?](#)  
[Forgot your username?](#)  
[Create an account](#)

**Thank you for your attention**

21:58 24/09/2013