

CURRICULUM VITAE

● **PERSONAL INFORMATION**

Name: Eusebio Bergò, Simone

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Nationality: italian

Date of birth: 04/09/1998

● **EDUCATION**

28 October 2022 Master Degree in Science of Nature

Department of Life Science and Biology of System

Univeristy of Turin, Italy

Grade: LM-60

Title of Master Degree Thesis: Mapping habitats in Nature 2000 sites in Aosta Valley through photo-interpretation of images from drones (UAVs) and field surveys.

15 December 2020 Bachelor Degree in Science and Technology for Environment and Nature

Department of Life Science and Biology of System

Univeristy of Turin, Italy

Grade: L-32

Title of Bachelor Thesis: Analysis of snow data from the Aosta Valley region and related effects on vegetation.

● **OTHER TRAINING**

2020 Ichthyology Course

Italian association of naturalists (AIN), Italy

2017 Techniques for monitoring alpine bovids: the census on the wintering areas of Chamois and Ibex

Vesulus Naturalistic Guides, Italy

● **CURRENT POSITION(S)**

1 November 2022 PhD Student in Biological Sciences and Applied Biotechnologies
38th cycle

Univeristy of Turin, Italy

• **PREVIOUS RESEARCH AND PROFESSIONAL POSITION(S) / PARTICIPATION TO RESEARCH GROUPS / FELLOWSHIP(S)**

2020-2022 student

Master Degree in Science of Nature

Department of Life Science and Biology of System

Univeristy of Turin, Italy

Title of Master Degree Thesis: Mapping habitats in Nature 2000 sites in Aosta Valley through photo-interpretation of images from drones (UAVs) and field surveys

Supervisor: Consolata Siniscalco

Abstract:

So far, vegetation monitoring has been conducted mainly in the field, with methods that can take a long time and logistical difficulties. In recent years, however, remote sensing is becoming more and more important and represents a useful tool and a suitable source of data for the classification of vegetation. The most common approaches are currently satellite remote sensing, followed by other images.

Through the interpretation of aerial photos, the Aosta Valley region, in compliance with the European Directive 92/43/EEC (Habitat), has provided for the development of habitat maps of the Nature 2000 sites in the region.

However, these approaches can produce large errors when applied to highly heterogeneous vegetation on a small scale and when the pixel size is not small enough to avoid a combination of different species within it.

To overcome this obstacle, unmanned aerial vehicles (UAVs), which can reach a very high resolution with pixel size of a few centimetres, represent a great opportunity to monitor vegetation dynamics, replace part of the field work, reduce the costs and to acquire images with a high temporal resolution. However, so far few studies have used images acquired by UAVs to classify vegetation.

In this work we updated the habitats cartography of 5 Nature 2000 sites in the Aosta Valley through photo-interpretation of the images acquired by UAVs and comparison with field surveys data. The aim of the work was to define and test a protocol for the detection of images from UAVs that took into account the phenology of the vegetation and guaranteed the acquisition of the best images. The design and classification of the polygons were carried out following the surveys in the field aimed at verifying the phytocoenoses, the composition of the layers and the phenological trend. Finally, a comparison was made between the old maps and the updated ones to quantify the increase in detail in the information obtained from the new high-resolution images and the validity of the approach followed.

The work was supplemented by a phytosociological study conducted on the IT1205082 “Stagno Lo Ditor” site with a particular interest in peat bog vegetation types.

The results show an increase in the resolution of the habitat cartography, the correct definition of the best conditions and times of the year for image acquisition, and the need of verifying the real conditions of the vegetation in the field for its correct classification.

2017-2020 student

Bachelor Degree in Science and Technology for Environment and Nature

Department of Life Science and Biology of System

Univeristy of Turin, Italy

Grade: L-32

Title of Bachelor Thesis: Analysis of snow data from the Aosta Valley region and related effects on vegetation

Supervisor: Giorgio Carnevale

Abstract:

The current climate warming has a strong impact on terrestrial ecosystems, in particularly in mountain ones. The mountain areas, which characterize the territory of the Aosta Valley region, are particularly sensitive considering the presence of a rich biodiversity and a native flora specialized in the conditions of this environment. In these areas the increase of temperature in recent years has caused a reduction in snowpack duration and snowy days, inducing changes in the ecosystem.

Based on snow data, obtained from the site of the Functional Center of the Autonomous Aosta Valley Region, I did the thesis work with the aim of analyzing the snow trend in the regional area during the last decade (2009-2019) and evaluate its possible effects on vegetation.

The daily data of snow depth on the ground (HS) recorded by the meteorological stations of the Valle d'Aosta region were collected and at the end of the quality control procedure 10 stations were found to be suitable, located at altitudes from 1200 to 2430 m a.s.l. and representative of the vegetation belts of the mountain, alpine and subalpine plain.

The height of fresh snow (HN) was obtained from the daily values of HS, as the difference between the HS value of one day with that of the previous day, and then the climatic indexes of snowy days ($HN > 0$) and days with snow cover ($HS > 0$). The parameters and indices were analyzed at monthly and annual scale considering their cumulative, average, maximum and minimum average values and absolute maximums. Their seasonal and inter-annual trends were then analyzed.

The research made it possible to highlight the variations in the snowpack showing an increase of quantity and seasonal duration of its parameters as the altitude increases, showing distinct values between the stations below and those above 2000 m a.s.l. In addition, was also highlighted a regional variation of snow regimes and snowfall trends between eastern and western stations in the region.

Finally, the effects that variations in the duration of the snowpack have on the vegetation of the vegetational belts in which the stations have been located were discussed, such as: alpine and subalpine meadows, snowbeds and shrubs. The results show that the stations most affected by the reduction of snowfall and snow cover are those located at the lowest altitudes, below 1500 m a.s.l., with on average respective trends of -4.4 cm / year and -3.95 days / year. Here, despite the stability of the prairie communities, changes due to arrival of species moving towards higher altitudes, and changes in vegetative development and phenology of the community can be observed. While shrubs which thus exhibit a longer growing season benefit. At higher altitudes the changes in the snow are minor but still always present. Above 2000 m a.s.l., where there are snowbeds, there are minor changes in snow cover (on average -0.52 days / year) that allow, together with an increase in fresh snow (on average +1.98 cm / year), to preserve this community. Even if we locally find reductions in the duration of the snowpack or in the amount of fresh snow that

lead to the entry of species from the surrounding prairies.

- **AWARDS AND PRIZES**

03/12/2017 Recognition of an excellent technical-professional diploma in the 2016/2017 school year, Turin Chamber of Commerce, Industry, Crafts and Agriculture, Italy.

- **PRESENTATION OF PAPERS, POSTER, GIVEN SPEECHES AT CONFERENCES AND SEMINARS**

08/09/2022 Poster, Mapping habitats in Natura 2000 sites in Aosta Valley through photo-interpretation of images from drones (UAVs) and field surveys, 117th Congress of the Italian Botanical Society (VIII International Conference of Plant Science), Italian Botanical Society, Italy

- **LANGUAGE SKILLS**

Native speaker: Italian Other

Language(s): English

English, very good/B2, Cambridge English Level 1 Certificate in ESOL International (First)

- **SOFT SKILLS**

Communication skills, Volunteering at the Circolo Legambiente Dora Baltea as manager and coordinator of the international summer volunteer camps, from 2017 to 2021.

Organizational/Managerial skills, Volunteering with the regional Anti Forest Fire team of Chiaverano as councilor and manager of territorial maintenance, from 2018 to 2022.

Autonomous work/Team work abilities, Collaboration in the role of junior herpetologist for the project LIFE19NAT/IT/000883 - Life Insubricus, from April 2021 to September 2022.