









LAYMAN'S REPORT
THE CSMON-LIFE PROJECT

The first LIFE project of citizen science on biodiversity that has involved citizens in the study, management and conservation of biodiversity, creating an active collaboration between citizens, the scientific community and institutions



CSMON-Life

Life

UNIVERSITÀ DEGLI STUDI DI TRIESTE

SAPIENZA UNIVERSITÀ DI ROMA

REGIONE LAZIO

DIPARTIMENTO DI SCIENZE DELLA VITA

Dipartimento di Biologia

CIHEAM BARI

CTS

comunità ambiente

divulgando

LAYMAN'S REPORT

IL PROGETTO CSMON-LIFE

Information on campaigns

Alien species campaign, F. Cerfolli

Ask the expert and **Rare species campaigns**, D. Cesaroni

Global warming campaign, F. Attorre, F. Francesconi

Lichen and anthropization e Data validation campaign with a community driven approach, S. Martellos

Marine organisms, I. Pekez, D. Petruzzella, S. Scorrano and R. Trevisi

Pictures

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And thank you to all our collabors!

Editing

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Cover

1. The Mediterranean clubmoss, S*elaginella denticulata*
2. The veined rapa whelk, *Rapana venosa*
3. The rose-ringed parakeet, *Psittacula krameri*
4. Diploicia, *Diploicia canescens*
5. The sea spurge, *Euphorbia paralias*

The pillars of Citizen Science

Citizens' involvement

Understanding
the nature conservation issues

Collaboration
in developing effective shared solutions

Change
of our behaviors towards the environment

1


2


1. The Italian stream frog, *Rana italica*
2. The Italian Marbled White, *Melanargia arge*

What we have done

Collection of data

Our app
The application developed for the project, available both for iOS and for Android operative systems, has allowed all citizens to participate in the collection of target species reports for different environmental themes.

Validation

Our experts
The collected data have been validated by experts in specific sectors and made available on the CSMON-LIFE portal.

Use

The National Network on Biodiversity
All validated data are inserted in the databases of the National Network on Biodiversity (NNB), a system of national databases promoted by the Ministry of the Environment, the Protection of the Territory and the Sea.

What has been achieved

Global warming campaign

Objectives

The main aim was to raise awareness of citizens on climate change, one of the most relevant environmental issues facing our society today. It is necessary to raise awareness and collect scientifically validated information in order to support appropriate policies for the conservation of rare and threatened species and the control of invasive species under current climate change.
The final results of the campaign have allowed to better understand which species will be potentially favored by climate change and which will not.

Citizens engaged

More than 4000 users have collected more than 10.000 observations, that refer to the 66 target species of the CSMON-Life project.

Results achieved

Once the occurrences data collected by volunteer citizens are made available, a standard procedure has been carried out to elaborate species' ecological niche and five Habitat Suitability maps for each species.



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2

1. The lily of the valley, *Convallaria majalis*
2. The butcher's broom, *Ruscus aculeatus*

‘Ask the expert’ campaign

Objectives

To encourage citizens to satisfy their curiosity. The campaign allowed users to report organisms other than target species and to have experts responding with the identification of the photographed species.

Citizens engaged

About 540.

Data gathered

The campaign has collected 2713 identified species (out of 3738 reports submitted). An analysis of more than 1000 validated data has allowed to identify 706 records belonging to 341 different species.

Results achieved

This campaign has been quite successful. Most of the observations concerned insects, in particular moths and beetles, but also molluscs and vertebrates, especially birds.

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2



1. The common kestrel, *Falco tinnunculus*
2. The brown marmorated stink bug, *Halyomorpha halys*

Data validation campaign with a community driven approach

Objectives

To create a group of skilled citizens able to validate data produced by other citizens.
Data validation is a *sine qua non* in research activities and decision making for the health of citizens and the environment.
Increasing the number of experts able to assess the correctness of data is therefore crucial.

Citizens engaged

Around 350.

Results achieved

Citizens have been involved in various training activities: both in the field and online training, through tutorials, elearning modules and other media. Citizens were selected, based on their previous experiences, in order to validate data in specific campaigns developed in collaboration with other stakeholders.



1



2

1. The snowdrop, *Galanthus nivalis*
2. The northern spectacled salamander, *Salamandrina perspicillata*

Rare species campaign

Objectives

Engage citizens in the observation of rare or uncommon species in order to increase their awareness of the importance of environmental conservation, and in particular fragile ecosystems, often close to urban settlements. The presence of these species can be endangered by anthropic activities such as the use of pesticides in agricultural land or urban pollution, and the presence of alien species. Some rare, threatened or endemic target species have been selected for monitoring.

Citizens engaged

About 250.

Data gathered

645 validated data (on a total of 671 sent).

Results achieved

The target of 200 reports scheduled for the entire duration of the project was achieved with a clear advance in time (November 2015) obtaining three times the set objective.

Alien species campaign

Objectives

Organize dozens of events open to the public to raise awareness of the problem and the risks represented by the presence and diffusion of alien and invasive species throughout the territory of the Region of Lazio. Addressing citizens' attention to alien species, both animal and vegetable, including the rose-ringed parakeet (*Psittacula krameri*); the red-eared slider (*Trachemys scripta elegans*), the red shrimp of Louisiana (*Procambarus clarkii*), the palm weevil (*Rhynchophorus ferrugineus*), the Hottentot-fig (*Carpobrotus edulis).*

Citizens engaged

About 5000 citizens, as well as about 2000 students.

Data gathered

About 5500.

Results achieved

The events were named **Scoprinatura** and **Bioblitz** and saw the involvement of many group of citizens, from primary schools to specialists, from enthusiasts to decision-makers. The collected data has enabled the development of distribution maps and modeling potential spread maps which demonstrate that the problem of alien species is particularly felt today in urban areas but that this situation could turn around in the medium term and affect the biodiversity values of the areas of greater naturalness.

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2



1. The red swamp crawfish, *Procambarus clarkii*
2. The common myna, *Acridotheres tristis*

Lichen and Anthropization Campaign

Objectives

Monitoring of four target species of epiphytic lichens chosen on the basis of their tolerance for phytotoxic gases of anthropogenic origin (in particular nitrogen oxides and sulfur dioxide): very tolerant (*Xanthoria parietina*); moderately tolerant (*Flavoparmelia caperata*); little tolerance (*Evernia prunastri*); not tolerant (*Diploicia canescens*).

Citizens engaged

About 150 citizens, as well as about 2000 students from 100 classes of 50 Primary and Secondary Italian schools.

Data gathered

About 8000.

Results achieved

Anthropic maps have been created for parts of the national territory, particularly for the Lazio area, which show how the impact of humans, particularly in some peri-urban areas, affects air quality, and consequently citizens' quality of life.



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1. The oakmoss, *Evernia prunastri*
2. The common orange lichen, *Xanthoria parietina*



2

1



2



3



1. Melibe viridis, *Melibe viridis*
2. The sea walnut, *Mnemiopsis leiydi*
3. The green sea fingers, *Codium fragile*

Marine organisms campaign

Objectives

The objectives of the MARE campaign in the Salento area (Puglia region) involved professional and non-professional fishermen, as well as diving centers, environmentalists and people attracted by curiosity.

Citizens engaged

About 400 stakeholders, 94 of which fishermen.

Data gathered

153 validated data.

Results achieved

The consultation cycle launched at the start of the project led to the conclusion of 21 protocols of intent. During the implementation of the project, 35 meetings were held.

What we have learned

Main achievements

- CSMON has contributed to promoting a national movement for the development of citizen science activities to monitor biodiversity, laying the foundations for an active community of citizens, researchers and decision makers.
- CSMON has established a solid data validation protocol, a key factor for research and for the development of new environmental policies.
- Thanks to the engagement of local institutions and organizations as an element of contact between citizens and science, activities carried out by the project can be transformed into concrete actions.
- Conveying Data to the National Biodiversity Network of the Ministry of the Environment boosts the results achieved and returns value to the citizen.
- CSMON has proved to be a project of extensive replication in term of approaches, technologies and protocols.

Challenges faced and proposals

- New social media are important facilitators, but they are not sufficient and other communication tools must be put in place to stimulate citizens participation.
- It is not easy to effectively communicate to the general public the value of a citizen science approach in the field of biodiversity, and consequently communication should be entrusted to professionals.
- It is very difficult to retain users; botanical gardens, zoos and natural history museums, as well as professional and volunteer organizations, which are permanently present in the territory, can play an important role as catalysts of interest.



Workshop on 'Alien species' along the Puglia coast, July 23-2016

Lessons learned

- Shared knowledge is crucial for effective management strategies.
- Citizens' engagement in science has a value in itself, as a cultural gain.
- It is important to go beyond the specific sectors and overcome sectoral divisions by integrating all the different components.
- The choice of tools must be commensurate with the results that are to be achieved: with very specifically-targeted activities, but only a few good quality data can be collected, while engaging a large number of citizens can launch more widespread activities requiring a high commitment by experts for validation, but collecting many more data, often of considerable interest.
- When activities foresee the use of target species, these should be chosen taking due account of the skills of the group of citizens engaged. In addition, their identification must be possible from a photo, to allow for accurate validation.
- Citizen science helps citizens to develop new skills to be used to improve the environment and the quality of life.
- Citizens are keen to contribute to decision-making and to be an active part in achieving concrete goals.

The LIFE program and the Nature 2000 network

Established in 1992, the European financial instrument LIFE, is the only European Union fund devoted entirely to environmental projects.

The Habitats Directive provides for the identification and protection of sites characterized by natural and semi-natural habitats and animal and plant species considered to be of Community interest, i.e. in danger, rare or endemic.

For the long-term preservation of natural habitats and of species of flora and fauna considered of Community interest, the Directive provides for the establishment of the Natura 2000 network, an ecological network of protected areas spread throughout the European Union, including sites identified under the Birds Directive for the conservation of many species of avifauna.

Natura 2000 now includes 18% of European territory and 6% of its seas, the largest network of protected areas in the world.

The partnership

- Department of Life Sciences | University of Trieste
- Lazio Region | Regional Direction Environment and Natural Sistems
- CIHEAM | Mediterranean Agronomic Institute of Bari
- Comunità Ambiente srl
- CTS | Centro Turistico Studentesco e Giovanile
- Divulgando srl
- Department of Environmental Biology | University of Rome La Sapienza
- Department of Biology | University of Rome Tor Vergata