

Citizen Science

Solutions mapping

SECOND EDITION - 2022

PROGRAM
Citizen/Science 



Ministry of Science,
Technology and Innovation
Argentina

Co_
Lab



UN
DIP

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accelerator
lab





Definition and glossary

Citizen Science Project

Collective, participatory, and open scientific research project, aimed at building knowledge in a rigorous manner and driven by different types of stakeholders, which do not necessarily belong to the academic spheres.

Category of Citizen Science Project¹	It refers to the type of project based on the degree of citizen participation. The variants identified are exclusively the following: <ul style="list-style-type: none"> • Contributory Project: It is designed by members of the scientific community, and citizens participate in data collection. • Collaborative Project: Citizens participate in data collection and analysis. • Co-Creative Project: Citizens participate in all stages of the scientific process.
Organizations	Stakeholders involved in the initiative. The variants identified are non-exclusively the following: <ul style="list-style-type: none"> • Civil society • Activists • Faculty • Academic and scientific institutions • State • Other/s
Status	It indicates the initiative's execution status. The variants identified are exclusively the following: <ul style="list-style-type: none"> • Design • In progress • Finished
Time frame	It indicates both the start date of the initiative and its end date (if applicable), in the following format: mm/dd/yyyy .
Scope of the initiative	It refers to the territory covered by the execution of the initiative. The variants identified include the following: <ul style="list-style-type: none"> • Locality/localities • Province/provinces • Country/countries

Frequency	It specifies the frequency with which the initiative is carried out. The variants identified are exclusively the following: <ul style="list-style-type: none"> • One-time only • Seasonal (by time of year) • According to the demands or approaches to the community/communities. • Uninterruptedly • Other/s
Participation period	It indicates the period of time required for citizen participation, which can be days, weeks and months, among other options identified.
Geographic Scope	Refers to locality/s, province/s, country/ies where the initiative was implemented.
Project development members	It refers to the people who developed the initiative. The variants identified are exclusively the following: <ul style="list-style-type: none"> • Collaboratively developed by members of the scientific community and participants without formal training. • Collaboratively developed by members of the scientific community and participants with and without formal training. • Entirely developed by participants with formal scientific training. • Entirely developed by participants without formal scientific training. • Other/s.
Participants	Total number of people who have already been part of the citizens involved in the initiative. The variants identified and expressed in ranges are exclusively the following: <ul style="list-style-type: none"> • From 1 to 50. • From 51 to 100. • From 101 to 500. • From 501 to 1000. • Over 1001.

Actions involving citizen participation	It refers to the list of action/s involving citizen participation. The variants identified are non-exclusively the following: <ul style="list-style-type: none"> • Problem definition • Data collection • Data analysis • Phenomenon monitoring • Solution design • Solution implementation • Across the project • Other/s
Replicability	It refers to the replication of the initiative in another context and/or geographic scope.
Scalability	It refers to the shown ability of the initiative to increase its capacity, either by expanding the number of participants and/or the tools required, among other variables.
Open access to data	It refers to making data freely available and accessible, so that it can be used by anyone.
Partnership with State stakeholders	It includes information on cooperation and/or joint action between the initiative and public sector entities, at all levels.
Awards	It includes awards and distinctions.
Other relevant clarifications	N/A (Not Applicable) is used in each form as an answer and express indication in the fields that require information that is not relevant, not applicable, or not valid for that initiative. A dash (-) is used in each form as an answer and express indication in the fields where no information has been obtained.

¹"Citizen science comprises projects created by scientists in which citizens participate in data collection (contributory projects), data collection and analysis (collaborative projects), and projects in which citizens participate in all stages of the scientific process (co-creative projects)." (CREAF, 2019)



Adopto un Cuerpo de Agua como mi Mascota (Adopting a Waterbody as my Pet)

Educational linkage, interinstitutional integration, environmental monitoring, and establishing ties with the community



Objectives

Overall goal: Enhance the appearance and quality of the waterbodies which are significant for each educational community on the basis of responsible stewardship. For this purpose, the project aims to improve the appearance and quality of waterbodies by adopting them responsibly, taking care of its watershed, monitoring the quantity and quality of runoff, cleaning its margins, re-educating neighbors and the educational community and raising their awareness of this issue.

Specific goals:

- Establish ties at every educational level (from the earliest level to postgraduate courses) between public and private educational establishments.
- Draw analogies between responsible pet care and surface waterbody stewardship.
- Identify waterbodies with a high impact on different educational communities.
- Propose that the watershed of these surface waterbodies be considered a territorial unit to perform responsible water resource stewardship and management.
- Perform surveys, among other field activities, in the waterbody adopted by applying simple and advanced experimental techniques developed by the research team.
- Together with the community, co-create knowledge to be shared with the rest of society and the agencies responsible for water resource management.

Description of citizen participation

The following activities are carried out by the students, the teaching staff, and the project work team:

- Definition of comparisons between properly caring for pets and properly caring for surface bodies of water.
- Determining the bodies of water that are significant to the community and the boundaries of their contribution.
- Analysis of the temporal evolution of bodies of water using cutting-edge technology and historical descriptions of the community that interacts with this body of water.
- Participating in fieldwork (surveys, monitoring, and others).
- Transfer of findings to organizations in charge of managing water resources.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Faculty of Exact, Physical and Natural Sciences (FCEFYn, in Spanish) of the National University of Córdoba (UNC, in Spanish).
- National Scientific and Technical Research Council (CONICET, in Spanish) of Argentina.

Status. In progress.

Time frame. 01/03/2013 – N/A

Frequency of project execution. Based on demand or community outreach.

Participation period. On a sustained basis.

Scope of the initiative. Local (city, province).

Geographic scope. The project originated in Villa Carlos Paz, province of Córdoba. It is being implemented in different regions of the province.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation Problem identification. Data collection. Data analysis. Phenomenon monitoring. Solution design. Solution implementation. Citizens are involved in the entire process.

Technological device/tool required.

- Low-cost automatic weather stations for commercial application
- Rain gauges and eco-friendly rain gauges (made of recyclable material)
- Photographic cameras
- Ruler
- Chronometer
- Tracer (pieces of wood)
- Multi-parameter water quality meter (provided by the university and APRHi)
- Basin model

Recruitment methods. Educational establishments joined the initiative as a result of the interest of both students and the teaching staff. Agreements have been signed with the Directorate of Technical Schools of the Province of Córdoba for this project to become part of the curricula recommended by said directorate.

Replicability. Action is being taken towards extending the activities performed with Instituto Dante Alighieri to other schools, both public and private., including all educational levels, from the earliest level to the third year of high school orientation cycle.

Scalability. New educational communities join the initiative by adopting other waterbodies, such as streams, rivers, lakes and wetlands.

Open access to data. The knowledge gained through crowdsourcing is transferred to the agencies responsible for water resource management. Students also spread knowledge among their families, friends and acquaintances, and consequently ensure that this is an extensionist project.

Feedback. Students, educators and the residents of educational communities create a set of guidelines which are incorporated into the new stages of the project.

Linkage with state agency/government.

- Ministry of Public Services of the Province of Córdoba.
- Ministry of Education of the Province of Córdoba.
- Provincial Administration of Water Resources of Córdoba.
- Instituto Nacional del Agua, subgerencia de la Región Semiárida (CIR-SA).
- Municipality of Villa Carlos Paz, Córdoba province.
- Municipality of Río Ceballos, Córdoba province.
- Municipality of Laborde, Córdoba province.

The data generated are transferred directly to the government agencies in charge of monitoring the water resources of the province of Córdoba. A Bill proposing that one of the adopted waterbodies be named "Huahuas Mayún" (Children's Stream) was passed by the Legislature of the province of Córdoba (law No. 10350). The name was proposed by educational communities that develop their activities in regions drained by this stream.

Institutional funds. Extension secretariats of the universities responsible for this initiative. Ministry of Public Services of the Province of Córdoba. Provincial Administration of Water Resources of Córdoba. Municipality of Villa Carlos Paz. CONICET.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Computer and information sciences
NATURAL SCIENCES / Earth and related Environmental sciences
SOCIAL SCIENCES / Educational sciences

Project leaders.

- Carlos Marcelo García Rodríguez, Physical and Natural Sciences (FCEFYn, in Spanish) / National University of Córdoba (UNC, in Spanish) and National Scientific and Technical Research Council (CONICET, in Spanish).
- José Manuel Díaz Lozada, FCEFYn/UNC and CONICET.

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Anticipando la crecida (Anticipating floods)

Community-based strategies for disaster reduction and urban flooding.



Objectives

Overall goal

Contribute to disaster risk reduction associated with hydro-meteorological events, through dialogue with territorial stakeholders in order to improve the community early warning system focused on the population.

Specific goals

- Identify hydro-meteorological monitoring and forecasting needs for the sectors involved.
- Improve communication, dissemination and interpretation mechanisms for forecasts and alerts.
- Create a space for permanent joint knowledge building between the academic-scientific sector and the community, as a strategy for social ownership of information about hydro-meteorological events in a given territory.

Description of citizen participation

The activities include dialogue and community development of vulnerability and exposure maps describing how water moves in the territory, either due to the overflowing of rivers and streams, and/or rainfall affecting the neighborhoods located along the riverbanks.

Prior to the workshop, the scientific-technical sector investigates the issues in each neighborhood to identify characteristics that help explain the water risks.

During the workshop, the community is asked to transfer all their knowledge about water risks on a map or a high-resolution photo of their neighborhood. In addition, a tour of the neighborhood is organized in order to identify possible sites where the rain gauge and the level ruler will be installed in a nearby river or stream easily accessible so that observations can be recorded at all times. Community leaders send photos of each device at relevant moments, which are then used to analyze the information during possible flood events.

Subsequently, in a final stage, the knowledge is consolidated in a single geo-referenced map that is used by the scientific-technical sector and the community. Thus, parties are involved in the construction of an early warning system.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Department of Science, Technology and Education Policies, La Matanza.
- Department of Social Development, La Matanza.
- Under Secretariat of Emergency Management, Ministry of Security, Province of Buenos Aires.
- Civil Defense, La Matanza.
- National Water Institute.
- National Geographic Institute.
- Department of Emergency Management, San Antonio de Areco, Province of Buenos Aires.
- Sea and Atmosphere Research Center (National Scientific and Technical Research Council (CONICET, by its initials in Spanish), (UBA).
- Department of Atmospheric and Oceanic Sciences (FCEN-UBA)

Status. In progress.

Time frame. 5/6/2013 - N/A.

Frequency of project execution. According to the demands or approaches to the community/communities.

Participation period. Sustained over time; new conversations are being initiated with stakeholders from multiple neighborhoods affected by floods.

Scope of the initiative. National (two or more provinces).

Geographic scope. Province of Buenos Aires (Quilmes, Lomas de Zamora, La Matanza, Luján, La Plata, Avellaneda and San Antonio de Areco), Corrientes (Santa Lucía) and Autonomous City of Buenos Aires, Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Phenomenon monitoring.
- Solution planning.
- Solution deployment.

Technological device/tool required.

- Device with camera and recorder to take logs.
- Rain gauges and level rulers (manual/automatic).

Recruitment methods. The community is recruited through educational institutions of the affected neighborhoods and different departments of local governments (municipalities), as well as through social media. Depending on the town, the recruitment process is disseminated through formal communication means within a Department and in the Civil Defense delegations, or through direct contact with a leader.

Replicability. The project and the methodology are replicated in other neighborhoods, in other educational institutions of each community, in other towns such as Quilmes, Lomas de Zamora, La Matanza, Luján, La Plata, Avellaneda, San Antonio de Areco, Saavedra, CABA and Santa Lucía (Province of Corrientes). This methodology was also used with communities in Mendoza to address the risk of landslides.

Scalability. The project started locally in La Ribera, Quilmes, to address the issue of urban flooding due to rain and southeastern winds, but it has been scaling up in terms of spatial scope. It also scaled temporally since work continued with affected neighborhoods, which made it possible to provide more information and improve and expand the community monitoring network. Human resources and institutions also joined the program.

In the future, as part of an ImpaCT.AR project, a mobile application will be developed where each user will be able to receive alerts, news and situation reports, and will be able to inform about the condition of the streets, and upload photos of rulers or rain gauges.

Open access to data. Data is shared with the entire community through WhatsApp groups, social media and web developments.

Feedback. Through pre-event warnings and reports of rainfall and level height recorded by the community in each neighborhood.

Linkage with state agency/government.

- Municipalities and provincial state (Buenos Aires).
- Municipality of Santa Lucía (Corrientes).
- Government of Posadas (Misiones).
- Civil Defense (Metropolitan Area of Buenos Aires, Córdoba and Misiones).
- Federation of Associations of Volunteer Firefighters of the Province of Buenos Aires (FABVB, by its initials in Spanish).
- National Water Institute.
- National Geographic Institute.
- National Weather Service.
- Naval Hydrography Service.

Institutional funds. Institutional funds: Exactas con la Sociedad (School of Natural and Exact Sciences) (FCEN), UBA), UBANEX (UBA), ImpaCT.AR (Ministry of Science, Technology, and Innovation (MinCyT, by its initials in Spanish).

Awards/distinctions. "Centenary of the University Reform" award, granted by "Exactas con la Sociedad 7" on March 11, 2019. Honorable mention during the Seminar of the Interdisciplinary Programs of the University of Buenos Aires (PIUBACC - PIUBAMAS), November 8, 2013, awarded to the paper "Anticipating floods".

Comments. The initiative seeks to combine the capacities of various scientific institutions and link them to the territorial knowledge on flooding issues. Therefore, a common perspective is formed to address the challenges posed by the issue. For further information click: <https://youtu.be/9KM1-grhqzg>, <https://youtu.be/080EkD5pbEw>, https://youtu.be/F_5sGoXLMzs.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Engineering and Technology / Civil Engineering
Social Sciences / Economic and Social Geography

Leaders.

- Federico Robledo, Sea and Atmosphere Research Center (CIMA)/National Scientific and Technical Research Council (CONICET), University of Buenos Aires (UBA) and the Department of Atmospheric and Oceanic Sciences (FCEN)/UBA.
- Diego Moreira, CIMA/CONICET-UBA and the Department of Atmospheric and Oceanic Sciences/FCEN/UBA

Contact information.

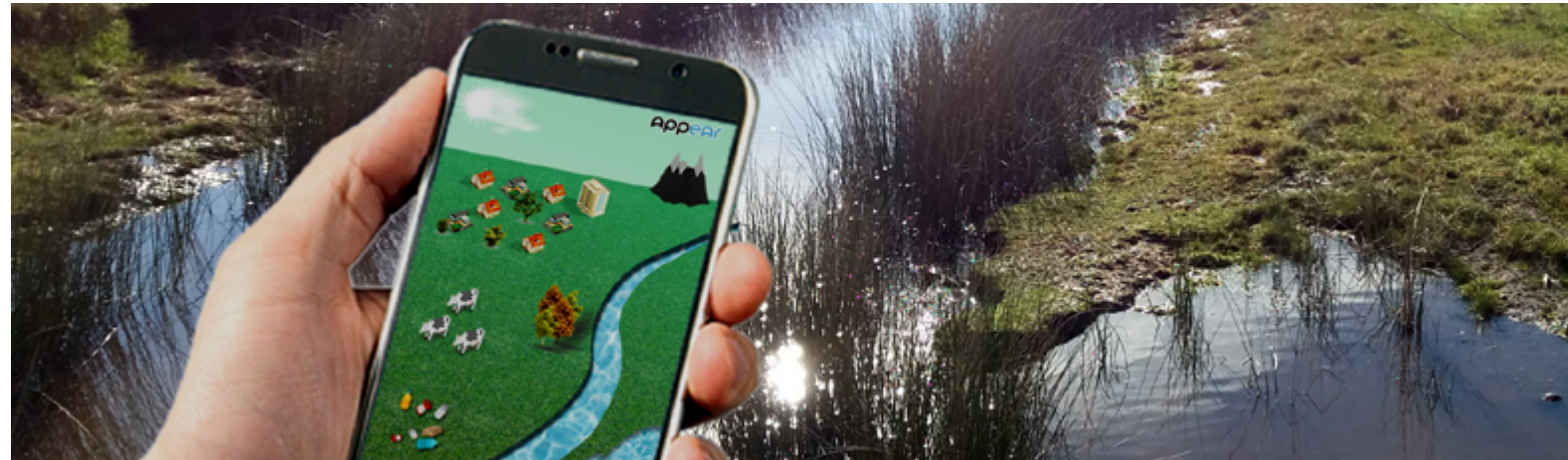
Email: moreira@cima.fcen.uba.ar; federico.robledo@cima.fcen.uba.ar
Web: anticipandolacrecida.cima.fcen.uba.ar/
Instagram: [instagram.com/anticipando.la.crecida](https://www.instagram.com/anticipando.la.crecida)





AppEAR

Environmental monitoring of freshwater ecosystems



Objectives

Overall goal: Study freshwater environments (rivers, lakes, lagoons and estuaries) both for scientific and educational purposes.

Specific goals: The scientific purpose is to analyze the condition of inland water ecosystems using citizen participation strategies. Particularly, the project aims to: identify the environmental factors that positively and negatively impact freshwater ecosystems; generate new tools for monitoring such ecosystems; and calibrate existing tools for assessment.

Besides, the educational purpose is to create materials related to the preservation of freshwater ecosystems. To achieve such purpose, the project aims at: drawing up simple manuals for monitoring said ecosystems to be used in educational activities; making available to educational institutions maps showing the condition of courses of freshwater; and educating on scientific reasoning, by directly involving citizen scientists in some or all stages of the scientific method.

Description of citizen participation

Citizen scientists assess habitat condition in aquatic environments by using an app for Android or a website. The information sent is concentrated in the AppEAR database and used to create a real-time map showing aquatic habitat conditions, both of which may be freely accessed.

Also, citizen scientists are able to learn about the aquatic environments present in their communities and educate others using the educational resources generated by themselves. People interaction and active involvement in discussion forums are useful to measure habitat quality in aquatic environments, to learn how to generate educational resources for these ecosystems, and even to improve AppEAR.

Type of citizen science project

Contributory project. It is designed by scientists, and citizens participate in data collection.

Participating parties.

Researchers of the National Scientific and Technical Research Council (CONICET, in Spanish) / National University of La Plata (UNLP, in Spanish)

Status. In progress.

Time frame. 06/01/2016 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been entirely developed by people with formal scientific training.

Number of participants. Over 1001.

Action/s involving citizen participation

- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

- Mobile device or PC
- Digital camera
- App for Android
- Internet access

Recruitment methods. Through social media, the project website and by making direct contact with schools and organizations.

Replicability. “PreserVamos” project, with UNDP Accelerator Lab’s support.

Scalability. “PreserVamos” project, with UNDP Accelerator Lab’s support.

Open access to data. Both the code and the validated reports may be freely accessed.

Feedback. Feedback on reports is provided via e-mail and/or push notification through social media.

Linkage with state agency/government. Meetings have been held with the state agencies and local governments interested in the project.

Institutional funds. Project’s own funding sources.

Awards/distinctions. “Ciencia, Tecnología e Innovación 2017” (“Science, Technology and Innovation 2017”) award granted by the Scientific Research Commission of the province of Buenos Aires.



Knowledge areas/disciplines (OECD)

NATURAL SCIENCES / Earth and related Environmental sciences
NATURAL SCIENCES / Biological sciences

Project leaders.

Joaquín Cochero. National Council for Scientific and Technical Research (CONICET in Spanish).

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Facebook: facebook.com/AppEARarg
Instagram: instagram.com/appear.h2o
Twitter: twitter.com/AppEARarg





ArgentiNat.org

Biodiversity



Objectives

Overall goal: Learn more about the life cycles, distribution and population dynamics of all species existing in Argentina.

Specific goals:

- Promote the culture of biodiversity observation, recording and dissemination.
- Boost the National Biodiversity Database (BNDB, in Spanish).

Description of citizen participation

Anyone who is interested in the project may participate using the platform or mobile app to:

- Share observations and contribute to the creation of species lists.
- Take part in the identification of their own observations, as well as of other users', together with natural science specialists and enthusiasts.
- Find an interesting project or start their own.
- Plan a massive event where participants try to find as many species as possible.

This platform makes it possible to share recorded observations with other naturalists, and to engage in dialogue with specialists (researchers or enthusiasts).

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

Fundación Vida Silvestre Argentina (Argentine Wildlife Foundation) and iNaturalist.

Status. In progress.

Time frame. 11/13/2019 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. N/A

Scope of the initiative. International (two or more countries).

Geographic scope. Global, focused on Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation

- Data collection.
- Data analysis.
- Phenomenon monitoring.

Technological device/tool required.

- Cell phone.
- Photographic camera.
- Sound recorders.
- Lenses, etc.

Recruitment methods. Through social media, social events, and buy-in from users and other institutional stakeholders

Replicability. ArgentiNat is the national node of iNaturalist. Projects may be replicated under different conditions within the platform (for instance, a birding project implemented in the province of San Luis can be replicated to create another one for La Pampa). The national web portal helps and boosts other projects at an international level, e.g., those in Chile or Uruguay.

Scalability. By the end of 2020, as compared with the previous year, the community had grown by 75%; the quantity of shared observations had risen by 64%; the new species recorded had gone up by 15%, and the number of participants performing identification tasks had increased by 13%.

Open access to data. Most observations create open data, which are shared with the Global Biodiversity Information Facility (GBIF). The coordinates of certain taxa are hidden to prevent risks. Researchers may request to be entrusted with such data. Openly-licensed images are generated, which may be used by them and other persons.

Feedback. Two annual events are held at which final results are shared. Recently, recognition was granted to users selected by the community and to those who made the greatest contributions.

Linkage with state agency/government. Argentine Museum of Natural Sciences (MACN, in Spanish) – National Scientific and Technical Research Council (CONICET, in Spanish)

Institutional funds. National Geographic, with human resources provided by Fundación Vida Silvestre Argentina.

Awards/distinctions. –

Comments. ArgentiNat is the iNaturalist node for Argentina, the largest citizen science global network with over one million active users worldwide. Although they are not different projects, ArgentiNat is aimed at the local public and customized for local institutions and participants. iNaturalist was developed by the California Academy of Sciences and is supported by National Geographic.

Knowledge areas/disciplines (OECD)

NATURAL SCIENCES / Biological sciences

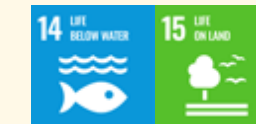
Project leaders.

Leonel Roget, Fundación Vida Silvestre Argentina.

Contact information.

Email: leonel.roget@vidasilvestre.org.ar

Web: www.argentinat.org





AsioProject

Birds - Short-eared Owl (*Asio flammeus*)



Objectives

Overall goal:

Collect information to know the general biology of the species in Argentina and adopt measures for its conservation.

Specific goals:

- Learn about the current status of the species and its conservation problems.
- Understand the distribution, habitat and threats to the species by province.
- Prepare an annual report based on the information obtained from the observers' records.

Description of citizen participation

In some cases, citizens participate by raising conservation issues for certain populations. In addition, they are responsible for collecting data from species observations, posting the records in a Facebook group. Participants are requested to upload photographs and include geographic location, coordinates, description of the environment, possible disturbances and number of birds. In the case of a nesting record, the number of eggs or chicks and their description should be added.

If the recordings are conducted in areas that could become potential protected areas, citizens will coordinate future conservation efforts involving the project and the landowner.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- "Bajo de Bordenave", Municipal Educational Natural Reserve (Puan, Province of Buenos Aires, Argentina).
- "Félix de Azara", Natural History Foundation.

Status. In progress.

Time frame. 05/04/2012 - N/A

Frequency. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. International (two or more countries).

Geographic scope. Argentina and Chile.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Solution planning.
- Solution deployment.

Technological device/tool required

- Camera or mobile phone to capture the record.

Recruitment methods. Through Facebook.

Replicability. It has not been replicated yet.

Scalability. In terms of the number of people who are aware of the project and, as a result, the number of records is increasing.

Open access to data. To all users of the Facebook group.

Feedback. No.

Linkage with state agency/government. No.

Institutional funds. Project's own funding sources.

Awards/distinctions No.

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences

Natural and Exact Sciences / Biology

Social Sciences / Education Sciences



Project leaders.

- Alejandro Morici, Fundación Azara

Contact information.

Web: proyectoasio.wordpress.com/

Facebook: facebook.com/groups/proyectoasio





Bajemos los decibeles (Let's lower the noise)

Detection of noisy environments..

Objectives

Overall goal:

- Articulate an extension practice that strengthens open collaboration in the study of everyday phenomena and research, among researchers and citizens, especially youth.
- Measure environmental noise in different areas of the province of Tucumán that help determine the degree of noise pollution of the environment in which people develop their activities.
- Identify the level of noise in school and health environments to raise awareness of how much it can impact the health of people and animals, among other others.

Specific goals:

- Promote a scientific and collaborative analysis of the environment of activities such as teaching and health to identify noise pollution and then expand the scope of study.
- Develop the ability to make the results obtained through research available to the community.
- Encourage the interpretation of the data collected and generate the appropriate space for discussion and exchange of ideas among different actors.
- Train for the presentation of reports to public agencies in charge of environmental decision-making and impact on society, such as municipal and provincial governments.
- Promote collaboration with other organizations, networks, and associations to monitor and care for the Tucumán environment.
- Make an approach to the cultural identity of the region from a sound perspective, that is, to identify those sounds that are typical of the region (from birdsong to business noises), in order to integrate sound to the urbanistic view of an area.

Description of citizen participation

This is a proposal and part of it is in process, so some steps may change depending on previous studies.

Measurements:

- First, students from primary and secondary schools discuss, analyze, and conduct a noise pollution measurement protocol organized by researchers from the National University of Tucumán. The measurements will be conducted with cell phone applications suitable for this purpose that allow measuring sound levels and geolocation. Once the measurement is generated, the data is uploaded to a map that displays the data on a web page.
- The information is completed with a survey of the population of the study area (problematic areas from the point of view of noise in the microcenter of Tucumán, which will allow a first approach to the design) invited to participate through a web page. With the data obtained, students from secondary schools in the province participate in a first analysis.
- The proposal begins with the participation of students from high schools in the province of Tucumán and then will be offered to the community in general.
- After the entire process, a report will be prepared and presented to university and municipal authorities. If the participating citizens assess that the problem is serious (based on available legislation, for example), the process of proposing solutions at the municipal level begins.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.



Participating parties.

- Research teachers at the National University of Tucumán (UNT in Spanish), who participate in different research projects.
- University students from Exact Sciences, Arts, and Cinema disciplines and high school students from pre-university schools of the UNT.
- Board of Experimental Schools from the University.
- Fundación Cultura para Todos (Culture for All Foundation).

Status. Under design.

Time frame. 01/03/2022 - N/A.

Frequency of project execution. Don't know/No answer.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. Tucumán.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Phenomenon monitoring.
- Solution planning.
- Solution deployment.

Technological device/tool required.

- Cell phones to detect noise levels and locate them geo-referentially.

Recruitment methods. For the purposes of design participation, UNT institutional communication channels and facilities will be used for meetings. When the project is ongoing, colleges and schools will be used as convening venues.

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. The maps generated with the data inputs will be open and interactive, allowing access to audio files and geo-referencing data. Each of the maps will contain different information for each analysis zone.

Feedback. Several feedback meetings will be held where participants will be able to express their doubts, suggestions, and practical solutions.

Linkage with state agency/government. No.

Institutional funds. The project was approved by the UNT Extension Secretariat, without budget. It is currently seeking subsidies from various sources.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

NATURAL AND EXACT SCIENCES / Physics.
NATURAL AND EXACT SCIENCES / Earth and environmental sciences.

Leaders.

Walter Diaz, research professor at UNT and director of a research project.

Contact information.

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Ballena Franca Austral (Southern Right Whale)

Photo-identification of individual whales



Photo: Bonafide whale with its calf on El Doradillo beach (Golfo Nuevo, Puerto Madryn) Image obtained in September 2018 through a drone. Credit: Frederik Christiansen

Objectives

Evidence the potential of whale watching boats for whale research, and of citizen science as a form of crowdsourcing for studies on whale habitat and conservation.

Description of citizen participation

Photographs taken by professional photographers from whale watching boats are added to a catalog of identified southern right whale. The photographs allow for the identification of the specimens present in the waters surrounding Puerto Pirámides between June and December, and for recording more information on the same whale while in the Nuevo Golfo area. This photographic evidence supplements that obtained during the annual aerial survey conducted by ICB and Ocean Alliance along the coast of Península Valdés in September, during the peak season of whale population density. The photographs provided by AGB document with sufficient detail the calves' pattern of callosities, hardly visible from a certain height. This allows for their identification in the year of their birth and makes it possible to know their age and the family they belong to.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

Asociación de Guías Balleneros de Puerto Pirámides (Association of Whale Watching Tour Guides of Puerto Pirámides) (AGB, in Spanish) in agreement with *Instituto de Conservación de Ballenas* (Whale Conservation Institute) (ICB, in Spanish).

Status. In progress.

Status. 10/01/2016 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis, during the whale watching season, from June to December.

Scope of the initiative. Local (city, province).

Geographic scope. Península Valdés, province of Chubut

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1 to 50.

Action/s involving citizen participation

- Data collection.
- Dissemination of findings by interacting with whale watching tourists.

Technological device/tool required.

- Professional cameras: to take photographs of whales.
- Computers used by ICB: to analyze the photographs submitted and to identify individual whales.
- Three special computer programs: two of them to photo-identify right whales. And an artificial intelligence algorithm developed with Vates' company to speed up the process by sorting the photographs received and identifying those that include whales.

Recruitment methods. At an annual exchange and updating meeting held at AGB headquarters.

Replicability. It is unknown whether an identical initiative has been implemented in another setting, but there are very similar ones.

Scalability. The number of researchers actively working on this project has upscaled from one to six researchers at the time. Two volunteers have recently been trained and incorporated.

Open access to data. Project findings are made available in scientific publications and pieces of popular science.

Feedback. Findings are reported and guidelines for image capture and photo curatorship are proposed at the annual exchange and updating meeting held at AGB headquarters.



Linkage with state agency/government. –

Institutional funds. Project's own funding sources. Marine Conservation Action Fund.

Awards/distinctions. N/A

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Computer and information sciences
NATURAL SCIENCES / Biological sciences

Project leaders.

Florencia Vilches, Institute of Whale Conservation (ICB, in Spanish).

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Facebook: facebook.com/icb.argentina

Instagram: instagram.com/icb.argentina

Relevant links: ballenas.org.ar/conservacion/la-ciencia-ciudadana-contribuye-al-catalogo-de-ballenas-francas-identificadas-en-peninsula-valdes-durante-casi-cinco-decadas





Bee colony monitoring

Environmental monitoring.



Objectives

Overall goal

Monitor the loss of bee colonies in Argentina.

Specific goals

Measure the mortality rate of honey and stingless bee colonies in Argentina and understand the causes behind it to help to reverse the situation or alleviate this problem.

Description of citizen participation

A national survey only of beekeepers and meliponiculturists is conducted in person or online (website, email, social media, press media, and beekeeping magazines) to record bee colony losses. This survey is based on internationally standardized methods involving voluntary participation, a national network of beekeepers, a questionnaire, and diverse promotion strategies. Estimates and statistical analyses of colony losses depend on the participation of producers, without which it is not possible to study the mortality causes, nor to provide recommendations for reducing mortality that can inform decision-making for the sector.

- 1) Bee handling (number of beehives, type of honey harvesting, bee genetics, etc.)
- 2) Presence of bio-aggressors (disease symptoms and identification, etc.)
- 3) Colony loss rate (winter and summer colony losses).

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Sociedad Latinoamericana de Investigación en Abejas [Latin American Bee Research Association] (SOLATINA in Spanish)
- Sociedad Argentina de Apicultores [Argentine Society of Beekeepers] (SADA in Spanish)
- National University of Río Cuarto (UNRC in Spanish)
- National University of Comahue (UNCOMA in Spanish)

Status. In progress.

Time frame. 04/01/2016 - N/A.

Frequency of project execution. Seasonal (from October to December).

Participation period. 1 day per year.

Scope of the initiative. International (two or more countries).

Geographic scope. 17 Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Honduras, Mexico, Panama, Paraguay, Peru, Puerto Rico, Dominican Republic, Uruguay, and Venezuela).

Project development members. It has been developed with the collaboration of both scientists and participants with formal training and without it.

Number of participants. Over 1001.

Action/s involving citizen participation.

- Problem definition
- Data collection
- Phenomenon monitoring
- Solution deployment.

Technological device/tool required.

- Mobiles and computers with an Internet connection to respond to the surveys.

Recruitment methods. The survey of beekeepers and meliponiculturists is promoted annually using multiple strategies:

- Website
- Email
- Social media, press media, and beekeeping magazines (Campo y Abejas, La Gaceta del Colmenar, Espacio Apícola, Apicultura sin Fronteras)
- Face-to-face interviews with citizens who do not have an Internet connection.

Replicability. The initiative has been replicated in Latin America by the Bee Colony Loss Monitoring Group of Sociedad Latinoamericana de Investigación en Abejas (SOLATINA).

Scalability. In 2016, the survey began exclusively for Argentina and, today, it has reached 17 Latin American countries.

Open access to data. No.

Feedback. Website, press release, and flyer with results.

Linkage with state agency/government. National Institute of Agricultural Technology (INTA in Spanish), Centro PYME [Center for Small and Medium-sized Enterprises]/Agencia de Desarrollo Económico del Neuquén [Agency for the Economic Development of Neuquén](ADE-NEU in Spanish).

Institutional funds. No funds.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Biology
Agricultural Sciences / Dairy and animal production

Leaders.

- Fabrice Requier, Institut de Recherche pour le Développement (French National Research Institute for Sustainable Development).
- Florencia Riafrecha.

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Web: solatina.org/temas-de-estudio/monitoreo/

Facebook of Sociedad Latinoamericana de Investigación en Abejas (SOLATINA): facebook.com/SoLatInA2017





Bioleft

Participatory seed innovation



Photo: Manuel Correa for Bioleft

Objectives

Overall goal

Build an open seed network for its conservation, exchange and breeding to offer alternative solutions to current and future agricultural challenges, based on collective intelligence, open knowledge, local know-how and scientific knowledge.

Specific goals

- Create technological and legal tools to guarantee the ongoing exchange of germplasm for personal use, research, and development purposes, with the aim of strengthening farmers' roles in seed conservation and breeding.
- Increase the availability of resilient and biodiverse seeds as a commons; this will promote food and technological sovereignty, as well as biological, cultural, and economic diversity.
- Enhance collaborative and/or participatory breeding, where seed exchanges are tracked and mapped, combining technology with collective knowledge through an ongoing co-designed digital platform.

Description of citizen participation

Bioleft is a community for the conservation, exchange, and breeding of open seeds that offers alternative solutions to the challenges of agriculture, through the co-design of tools for conservation, dissemination and open and collaborative seed breeding. The licenses and the digital platform are co-designed with multiple stakeholders, and they are constantly reviewed and improved based on their contributions.

The project involves agricultural producers using different farming practices (from organic production to family farming), who innovate in the seeds they produce, specialists in plant breeding, research teams from public institutions (such as the School of Agricultural Studies at the University of Buenos Aires and the National Institute of Agricultural Technology) and activists of Citizen Science and free software.

Based on the needs shared by these stakeholders, a digital platform is designed for the following purposes:

- Identify and connect sustainable agriculture actors through the "community" section.
- Record, map and transfer seeds.
- Monitor seed circulation through different stakeholders of the agricultural sector.
- Collect valuable information through a "field notebook".
- Promote knowledge sharing and participatory and/or collaborative improvement.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

The project was created by the Research Center for Transformation (CENIT, in Spanish)/ National University of San Martín (UNSAM, in Spanish) together with the STEPS Centre (UK), within the framework of the global project on Transformative Pathways to Sustainability. Currently, it receives financial support from the Conservation Food and Health Foundation.

The project is conducted in collaboration with the following organizations:

- School of Agricultural Studies, University of Buenos Aires (FAUBA).
- Argentinean Organic Agriculture Movement (MAPO).
- Argentine Association for Biodynamic Agriculture (AABDA).
- National Network of Municipalities and Communities that Promote Agroecology of Argentina (RENAMA).
- National Laboratory of Sustainability Sciences of the National Autonomous University of Mexico (LANCIS - UNAM).
- National Institute of Agricultural Technology in Pergamino.
- National University of the South.
- National University of La Plata.
- National University of Río Cuarto.
- SemillAR program.

It is a member of Global Open Source Seed Initiatives (GOSSI).

Status. In progress.

Time frame. 2016 - N/A

Frequency of project execution. Permanently.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. At a territorial level (in terms of seed circulation and experimentation), the project stretches across Argentina, while at a conceptual level it has global reach, through networks of open seed initiatives and projects that drive transitions to sustainability. Besides, the platform and licenses are not geographically bound.

Project development members. It has been developed with the collaboration of members of the transdisciplinary scientific community (namely, professionals specialized in innovation, economics, agronomy and psychology), practitioners, software developers, extension agents, and participants with expertise in agriculture.

Number of participants. Over 1001.

Action/s involving citizen participation Problem identification. Data collection. Data analysis. Phenomenon monitoring. Solution design. Solution implementation. Citizens are involved in the entire process.

Technological device/tool required. Cell phones (with internet access). Computer (with internet access).

Recruitment methods. Through existing participants, by holding face-to-face and online workshops, etc. Dissemination through communication pieces (audiovisual and written).

Replicability. By means of a knowledge transfer process funded by The Conservation, Food and Health Foundation and The Global Consortium for Sustainable Outcomes, the project contributed to the setup of Bioleft Mexico, led by LANCIS - UNAM. The project leader of this initiative is Ana Escalante. Period: 2019 -2020.

Scalability. The scalability strategy is designed in three stages:

- First, the project is protected from the demands of agriculture and commercial seeds. We identified two protection strategies: the provision of non-reimbursable funds and market protection, through the creation of a critical mass of users.
- In the second stage, networks are being consolidated and diversified to include new networks of farmers and new crops, groups of female farmers and breeders

(who are underrepresented in current organizations), developers of new technology, legal activists, and artists.

- The third stage entails interaction and communication with participants in the traditional agricultural system and efforts related to it that are carried out outside the agrifood system and/or the area in which they are currently being implemented (replicability).

Open access to data. There are three types of data:

- Seed-related agronomic data: Access to these data is granted to those interested in implementing and promoting an open source seed logic. Requests for data are being documented and access is only granted to users who have requested it.
- Informative data related to the records displayed on the platform: It is feared that they might be "viewed" by companies intending to profit from this information, and consequently, exclude communities. For this reason, only users who have signed up and share their own data may access the data displayed on the platform.
- Data on platform design and process: They are available at gitlab <https://gitlab.com/bioleft/bioleft> and <https://gitlab.com/bioleft/organizacion/bioleft>, respectively.

Feedback. The communities we worked with are part of the team, so we receive constant feedback. The process is shared during the different meetings that take place during the Bioleft project. As regards the workshops related to the networks of experiments on corn and tomato, informal meetings are held after their development to receive feedback on the design and progress of these workshops.

Linkage with state agency/government.

- SemillAR program - Ministry of Agriculture, Livestock and Fishery (MAGyP)
- National Institute of Agricultural Technology (INTA) in Argentina
- Argentine Ministry of Science, Technology, and Innovation (MINTYT)
- National Institute of Seeds (INASE) in Argentina.

Institutional funds.

Two main sources: **National public institutions:** the project is executed within the framework of CENIT- UNSAM, which provide infrastructure and research assistants; the National Scientific and Technical Research Council (CONICET, in Spanish), some members of the research team are CONICET's researchers; and FAUBA, part of the research and extension team is based in its facilities, where trials are conducted, seeds are multiplied, etc. **International organizations:** the third cycle of grants awarded by The Conservation Food and Health Foundation is starting.

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Biological Sciences
AGRICULTURAL SCIENCES / Agriculture, Forestry, and Fisheries
SOCIAL SCIENCES / Economics and Business

Project leaders.

- Antoine Patalano, School of Exact, Physical and Natural Sciences (FCEFYN), National University of Córdoba (UNC) and the National Scientific and Technical Research Council (CONICET) in Argentina
- Leandro Masso, FCEFYN/UNC and CONICET
- Carlos Marcelo García Rodríguez, FCEFYN/UNC and CONICET

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LinkedIn: [linkedin.com/company/bioleft/](https://www.linkedin.com/company/bioleft/)





Bonding and technology transfer project for solidarity-based production of CO₂ meters



Objectives

Overall:

- Provide a low-cost device for indoor ventilation monitoring by measuring carbon dioxide (CO₂).
- Reduce the probability of contracting airborne diseases, such as COVID-19, among others.
- Contribute to enhance performance of people sharing indoor spaces by monitoring ventilation.

Specific:

Research CO₂ meter designs, select those that use components available in Argentina, build a working prototype and make the circuit and microcontroller programming code freely and publicly available.

Description of citizen participation

Citizens are provided with a CO₂ meter, equivalent to a “thermometer”, and receive basic training. They learn that the optimal outdoor ventilation rate is about 400 parts per million (PPM), while the indoor ventilation rate can easily reach 2500 PPM. Therefore, if during monitoring, the value is less than 800 PPM, citizens will record that ventilation is adequate and they can remain indoors with a low risk, as long as they keep at least a one (1) meter distance and wear a mask (in the context of the COVID-19 pandemic). On the other hand, if the value rises, citizens know that they will have to increase ventilation or, otherwise, leave the room until the air is renewed.

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Teaching and research staff from the Universidad Nacional de Hurlingham (National University of Hurlingham, UNAHUR by its Spanish acronym)
- High school and technical school teaching staff
- High school and university students
- Parent auxiliaries

Status. In progress.

Time frame. 12/26/2020 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. As long as citizens adopt the use of CO₂ meters, their usage will be maintained over time.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Specific subject: Indoor ventilation monitoring by measuring carbon dioxide (CO₂).

Project development members. Entirely developed by participants with formal scientific training.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Solution implementation.

Technological device/tool required.

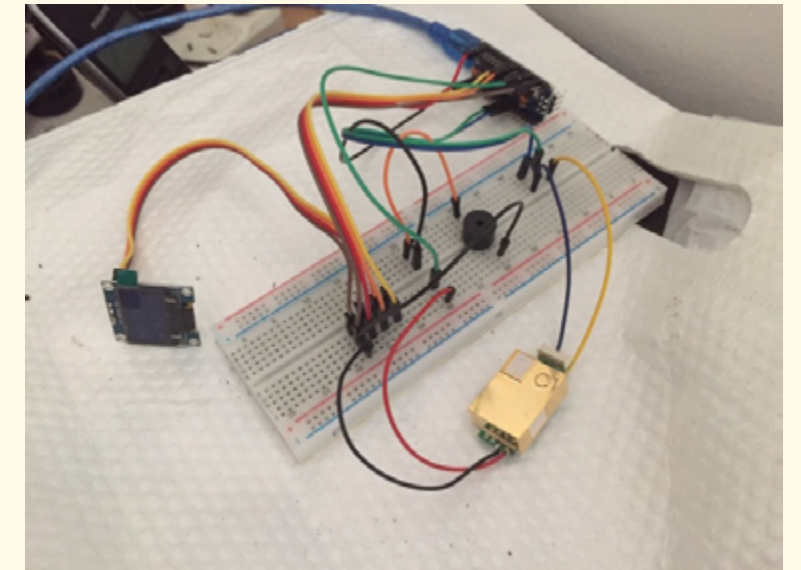
- CO₂ meter for ventilation monitoring. While versions of CO₂ meters that transfer data to mobile phones can be developed, it is not required.

Recruitment methods.

Replicability. Both in Colombia and Bolivia, different entities used the meter assembly instructions to build their own equipment.

Scalability. In February 2020, UNAHUR signed agreements with the Municipal Governments of Hurlingham and Morón to supply 200 meters to each of them. These agreements were later replicated in other Municipal Governments and public entities, so it is estimated that 1,000 meters have already been manufactured with students from the University through internships. Furthermore, since the code is free, several Parent Auxiliaries throughout the country, from Salta to Tierra del Fuego, have started to build their own meters. Added to the numerous seminars and several interviews given in 2021, this allowed several groups of parents to join the initiative.

During the year 2022, a collaboration took place between the National Ministry of Education, the National Institute of Technology Education (INET) and the National University of Hurlingham (UNAHUR), in Argentina, and the course “Build your carbon dioxide meter” (Armá tu medidor de dióxido de carbono) was developed through the Educ.AR portal. The course is available to the entire community and encourages participants to learn about the potential application of carbon dioxide meters as a tool to aid in the ventilation of spaces to stop the aerosol transmission of COVID-19. Additionally, it will give students the opportunity to learn how to create, program, and use them in institutional settings as part of careful presence measures. The course was designed to be self-assisted (taught without a tutor) so that participants may access the materials whenever they wanted. More than 1,300 participants registered for the first three cohorts (<https://formacion.conectarigualdad.edu.ar/cursos/728>).



Open access to data. Free and open source code in jorgealiaga.com.ar/?page_id=2864

Feedback. Questions, doubts and queries are answered through social media and/or Whatsapp.

Linkage with state agency/government. The Province of Buenos Aires and several Municipal Governments across the country decided to supply these meters in schools.

Institutional funds. Project's own funding sources (for the two initial prototypes, the components of which were purchased over the Internet at a cost of approximately ARS \$6500.00 each).

Awards/distinctions. No.

Classification of knowledge areas (OECD).

NATURAL AND EXACT SCIENCES/Physics.
NATURAL AND EXACT SCIENCES/Earth and Environmental Sciences.
HEALTH AND MEDICAL SCIENCES/Health Sciences.

Project leaders.

Jorge Aliaga, National University of Hurlingham (UNAHUR, in Spanish), University of Buenos Aires (UBA by its Spanish acronym) and National Scientific and Technical Research Council (CONICET, in Spanish).

Contact information.

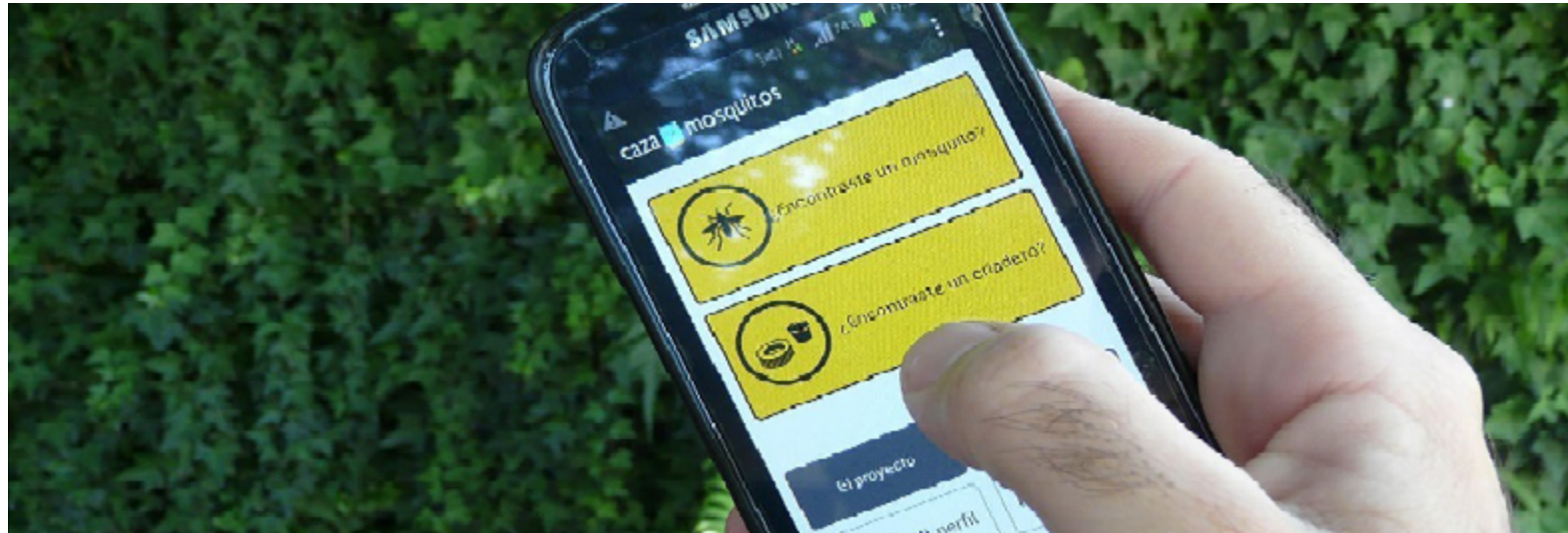
Email: jorge.aliaga@unahur.edu.ar
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Caza Mosquitos (Mosquito Catchers)

Study of vector-borne diseases (transmitted by animals)



Objectives

- Study the distribution of mosquito vectors, including *Aedes aegypti*, a species transmitting dengue, Zika, chikungunya and yellow fever viruses
- Involve citizens in analyzing and questioning their environment, and lead them to take individual actions to contribute to the prevention of the spread of the insect vector

Description of citizen participation

Through the project's social media or by a digital, educational and free app, citizens are encouraged to collect data for the creation of a database to study the distribution of mosquito vectors, such as *Aedes aegypti*, among other significant species present in Argentina. It is also an opportunity for citizen scientists to receive information on actions to prevent mosquito-borne diseases and on other relevant aspects in connection with this issue.

Using this app, citizen scientists can report the presence of mosquitoes and potential breeding sites by submitting photographs and sharing the location detected by their mobile devices. A panel of expert reviewers helps users to identify mosquitoes and determine whether they are potential disease vectors. Then, citizen scientists are informed of such determination.

All information is included in the database created to determine mosquito distribution at a national level.

Type of citizen science project

Contributory project. It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Institute of Limnology of La Plata (ILPLA).
- National Scientific and Technical Research Council (CONICET, in Spanish).
- National University of La Plata (UNLP, in Spanish).

Status. In progress.

Time frame. 03/01/2017 - N/A

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Frequency of project execution. Uninterruptedly.

Project development members. It has been entirely developed by people with formal scientific training.

Action/s involving citizen participation Data collection.

Participation period. On a sustained basis.

Technological device/tool required.

- Cell phone
- App

Number of participants. Over 1001.

Recruitment methods. Through social media, news websites and science fairs

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. All the information collected may be freely accessed on the project website.

Feedback. Participants receive their feedback through social media, by the app, or via e-mail, depending on the communication channel selected.

Linkage with state agency/government. The Ministry of Health of the Province of Buenos Aires showed interest in implementing it as a tool for the management of the dengue virus.

Institutional funds. Project's own funding sources.

Awards/distinctions.

- "Science, Technology and Innovation 2017" award granted by the Scientific Research Commission of the province of Buenos Aires
- Honey Bee Network Creativity & Inclusive Innovation Awards (HB-NCRIIA) 2020

Área/s (OCDE).

NATURAL SCIENCES / Biological Sciences
MEDICAL AND HEALTH SCIENCES / Basic Medicine



Project leaders.

- Cristian Di Battista, Institute of Limnology "Raúl A. Ringuelet" (ILPLA) / National Scientific and Technical Research Council CONICET)-National University of La Plata (UNLP).
- Fernando Garelli, Physics of Liquids and Biological Systems Institute (IFLYSIB) / CONICET-UNLP
- Joaquín Cochero, Institute of Limnology "Raúl A. Ringuelet" (ILPLA)/ CONICET-UNLP
- Ana Dumrauf, IFLYSIB / CONICET-UNLP
- Mariana Sanmartino, IFLYSIB / CONICET-UNLP

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Cazadores de Crecidas (Flood Chasers)

Monitoring floods in urban rivers and basins



Objectives

Overall goal: Continue the recent developments of the Working Group (WP) by improving the capture of flash flood videos and optimizing the performance of the software being developed by the WG for processing the flood images recorded by citizens. The discharges estimated on the basis of crowdsourced data will be reported to the authorities for flood hazard management.

Specific goals:

- Give citizens the chance to share flood videos through a website to be later analyzed by the WG.
 - Work on two new pillars for recording higher quality videos:
 - 1) Selection of favorite sites for video recording identified by the WG together with the local Civil Defense personnel previously trained (by the WG) on video capture. A field survey is conducted in order to assess such topographic characteristics of the site as required for video processing.
 - 2) Automation of video processing at fixed gauging stations using security cameras.
- These pillars require constant technological development at every stage of the process, namely: during video recording and processing, as well as during data transfer to authorities.
- Continue the development required by each stage so as to maximize systematization and minimize human intervention. The goal is to optimize the software developed by the WG using tailor-made hardware.

Description of citizen participation

Citizens, firefighters, civil defense staff, and law enforcement personnel record videos of flash floods in urban rivers and basins. Then, the videos are sent to a team of scientists who will process the relevant data. The material can be sent through the project's website and social networks, or by contacting members of the GDT and sharing it by e-mail.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

The project is led by the Faculty of Exact, Physical and Natural Sciences (FCEFYN, in Spanish) of the National University of Córdoba (UNC, in Spanish). It is supported by the following institutions:

- National Scientific and Technical Research Council (CONICET, in Spanish) of Argentina
- Ministry of Public Services of the Province of Córdoba
- Provincial Administration of Water Resources of Córdoba

Status. In progress.

Time frame. 10/01/2014 – N/A

Frequency of project execution. Seasonal (on a particular season of the year)

Participation period. On a sustained basis.

Scope of the initiative. International (two or more countries).

Geographic scope. Córdoba, Tucumán, Salta and Paraguay.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1 to 50.

Action/s involving citizen participation

- Problem identification.
- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

- Cell phone
- Photographic camera

Recruitment methods. Through news programs, social media (Twitter) and workshops carried out in different towns.

Replicability. In the provinces of Tucumán and Salta.

Scalability. Every year, the number of participants increases significantly.

Open access to data. The main findings and knowledge are transferred to society through social media and by means of the reports prepared by project members.

Feedback. Participants create a set of guidelines which are incorporated into the new stages of the project.

Linkage with state agency/government.

It has the institutional support of the following entities:

- Ministry of Public Services of the Province of Córdoba
- Provincial Administration of Water Resources of Córdoba
- Ministry of Education of the Province of Córdoba

Institutional funds. Extension secretariats of the universities leading this initiative. Ministry of Public Services of the Province of Córdoba. Provincial Administration of Water Resources of Córdoba. CONICET.

Awards/distinctions. –

Classification of knowledge areas (OECD).

ENGINEERING AND TECHNOLOGY/ Environmental engineering
ENGINEERING AND TECHNOLOGY/ Civil Engineering

Project leaders.

- Antoine Patalano, Facultad de Ciencias Exactas, Físicas y Naturales (FCEFYN)/Universidad Nacional de Córdoba (UNC) y Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET).
- Leandro Masso, FCEFYN/UNC y CONICET.
- Carlos Marcelo García Rodríguez, FCEFYN/UNC y CONICET.

Contact information.

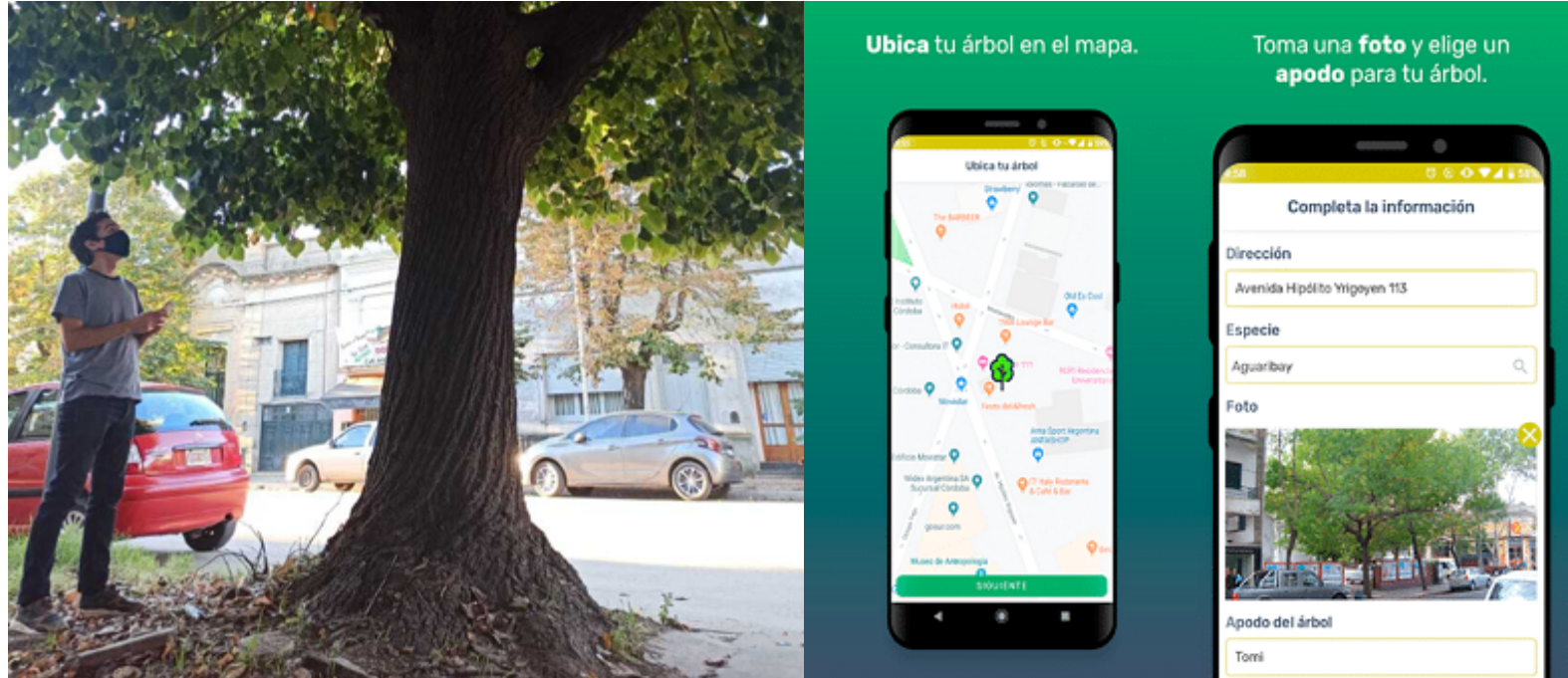
Email: antoine.patalano@unc.edu.ar ; leandro.masso@unc.edu.ar ; carlos.marcelo.garcia@unc.edu.ar
Web: www.cazadoresdecrecidas.unc.edu.ar
Twitter: twitter.com/CdC_Cordoba





Censo Forestal Urbano de la ciudad de Bragado

(Urban Tree Census in the city of Bragado) Developing and planning activities for the care and conservation of urban forests



Objectives

Overall goal: Conduct a census of the entire tree population in the chief town of the district (Bragado) for future public policy-making

Specific goals:

- Expand the urban tree census to the remaining towns located in the District of Bragado.
- Create technical and scientific material based on the surveys conducted.
- Identify and solve issues related to urban forests in the medium and long term.
- Plan public strategies for proper tree care and pruning.
- Set solid foundations for future landscape designs to be used for city planning, based on such previously assessed needs.

Description of citizen participation

Citizens collect tree census data using a mobile app, after having been trained (both on the operation of the app and on the botanical knowledge required for tree identification).

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Members of Foro Ambiental de Bragado (Bragado Environmental Forum).
- Residents with different occupations (e.g., nursery owners, university students in similar fields, high school students, etc.).
- Municipal staff, including both administrative and technical personnel employed in this specific area (holding degrees in Engineering and Biology).
- Members of the local legislature.

The following people participated as consultants:

- Argentinian Network of Municipalities Facing Climate Change (RAMCC, in Spanish).
- Developers of MuniArbol app.

Specific subject:

- Developing and planning activities for the care and conservation of urban forests.
- Assessing the status of tree populations in the city.
- Identifying species belonging to the urban forest structure.
- Planning and designing landscapes.
- Implementing new technologies to determine the geographical location of every tree in the city.

Status. In progress.

Time frame. 03/21/2021 – N/A

Frequency of project execution. Seasonal (on a particular season of the year)

Participation period. The activity lasted 4 weeks, including training sessions and the subsequent data collection process. In the future, it will continue so as to expand its geographical scope and increase data collection in the city.

Scope of the initiative. Local (city, province).

Geographic scope. Bragado, province of Buenos Aires

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1 to 50.

Action/s involving citizen participation Data collection.

Technological device/tool required.

- Cell phone with photographic camera
- App: to collect the necessary data

Recruitment methods. Through Foro Ambiental de Bragado and social media, where this activity was disseminated.

Replicability. It has been replicated in other cities. In the city of Córdoba, an urban tree census has also been conducted using MuniArbol app. However, in this case, data collection was carried out by technical personnel.

Scalability. It has not been upscaled yet.

Open access to data. The data collected are available for consultation by the public at large using MuniArbol web app. Then, they may be accessed on the official website of the Municipality of Bragado, in the form of a didactic map generated from the data collected and georeferenced. Said data are displayed on the map together with a photograph of the relevant species.

Feedback. Certificates of participation and appreciation were handed out and information on project progress was exchanged.

Linkage with state agency/government. The Municipality took part in the initiative from its inception, providing support, collaboration, and guidance in every stage of the process.

Institutional funds. Municipality of Bragado, specifically from the budget allocated to the Secretariat of Urban and Environmental Development.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
NATURAL SCIENCES / Biological Sciences
ENGINEERING AND TECHNOLOGY/ Environmental engineering

Project leaders.

- Maximiliano Dorado
- Silvina Guayta
- Luciano Burghetti
- Marcelo Bondoni

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The initiative has been posted on the official website of the Municipality of Bragado, on the Citizen Science tab, as well as on the social media accounts of the local government and Foro Ambiental de Bragado.

Web: www.bragado.gov.ar/participacion-ciudadana





Ciencia, educación y desarrollo sostenible local (Science, education, and local sustainable development)

Education for Sustainable Development (ESD) and localization of the Sustainable Development Goals (SDG).



Objectives

Overall goal

Contribute to the transition to sustainable development through the co-production of knowledge aimed at localizing the SDGs.

Specific goals

- Diagnose the existing socioeconomic and institutional situation to localize the SDGs.
- Develop a localization plan for the SDGs.
- Incorporate Education for Sustainable Development in the curriculum of Colegio Superior 42 (CS42).
- Build a communications strategy to engage society around the SDGs.

Description of citizen participation

Teaching staff, civil servants and social organizations participate in workshops where records are produced. The workshops will basically comprise two types depending on their participants. Type I workshops consist of researchers and municipal professionals. Type II workshops consist of civil society participants, professionals, stakeholders, specialists, and other participants deemed appropriate for better process development and promotion. In both workshops, people in charge of coordinating the project prepare a work agenda with the topics to be discussed, considering the problems that will be addressed, the hypothesis and the knowledge that they intend to process and discuss from a local perspective. The workshops are interactive and written and visual records are obtained for later use in reports and publications. In addition, in both cases, surveys are conducted to establish the starting points (baselines) of the project, involving high school and college teachers, municipal officials, and representatives of local organizations and institutions.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

The co-production of knowledge is performed by scientists and non-scientists (teachers, local government officials, and members of social organizations).

- Social actors of the Commercial and Industrial Center, neighborhood associations, and other high school and technical colleges in Vera.
- Officials of the executive and legislative power of the city of Vera.
- Teachers of Colegio Superior N.º 42 (CS42).

Status. In progress.

Time frame. 01/03/2021 - N/A

Frequency of project execution. According to the demands or approaches to the community/communities.

Participation period. As requested by teachers and authorities of Colegio Superior N.º 42 "Dr. Agustín Rossi", the project has an initial duration of 4 years.

Scope of the initiative. Local (city, province).

Geographic scope. Vera, province of Santa Fe, Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Data analysis.
- Phenomenon monitoring.

Technological device/tool required.

- Cameras and cellphones.

Recruitment methods. By means of educational institutions and the Municipality of Vera, which publish the activities and results of the project through the Communications Office, which reports to the Secretariat of Institutional Relations of Santa Fe, together with the Project's Communications Module.

Replicability. It has not been replicated yet.

Scalability. It began in Colegio Superior 42; currently, representatives from other colleges are participating. In addition, a Focal Point was created (area designated by the highest authority of the Municipality Vera, responsible for the process of incorporating the SDG 2030 Agenda into local management.)

The Focal Point is essential for scalability; some of its functions are (i) to promote the SDG initiative among local executive and legislative offices, and the community; (ii) to contribute to local diagnosis and the localization plan of the ODS; and (iii) to coordinate the localization plan monitoring.



Open access to data. The initiative is open. Records are created and made available for all citizens and publications will be made.

Feedback. In the workshops, the results of the analysis of the data collected (surveys) and the bibliography of the project are shared.

Linkage with state agency/government. The Municipality of Vera and the City Council.

Institutional funds. Currently, there is no financing; the participants of the initiative work ad honorem.

Awards/distinctions. No.

Comments. There is great potential for the initiative to be replicated in other cities. Initial results can be observed and measured in the first year, based on the data recorded in the baselines.

Knowledge areas/disciplines (OECD)

Social Sciences / Education Sciences
Social Sciences / Political Science

Leaders.

Alberto Cimadamore, National Scientific and Technical Research Council (CONICET, in Spanish).

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Citizen Collaboration in the Design and Evaluation of Sustainable Urban Drainage (COINCIDE: DPLUS)

Technical and diagnostic assessment on urban floods



Objectives

Overall goal: Conduct assessments on urban floods, by directly engaging the affected community in data collection and in the proposal of joint solutions incorporating their experience and needs.

Specific goals:

- Perform a diagnostic assessment of the problem, identifying the different hazards to which the community is exposed by zones, depending on its place of residence.
- Work with students at all educational levels and residents in recording and characterizing the rainfall events affecting the community (determine the rainfall level that causes flooding).
- Gauge the amount of stormwater runoff on streets using videos and photographs recorded by the residents previously trained.

Description of citizen participation

The community offers valuable insight into the basin behavior, which is combined with the technical expertise of the research team to produce a conceptual model of the system operation. Both hydrometeorological (rainfall) and hydrological data (flows draining through the streets) must be recorded for this. Additionally, citizens collaborate to define pertinent locations for collecting hydrological data. Different solutions are also proposed in collaboration, working on their sustainability and feasibility, both to be presented to the corresponding governmental institution and to be applied by the community. The research team in charge of the project receives the records created by the community. Reports are created, published, and sent to the community following the record validation.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- School of Exact, Physical and Natural Sciences (FCEFYN), National University of Córdoba (UNC)/National Scientific and Technical Research Council (CONICET) in Argentina, with the support from affiliated institutions.
- Research teams and people who receive scholarships.
- Members of community organizations (neighborhood centers).
- Overall residents.

Status. In progress.

Time frame. 01/08/2019 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Local (city, province).

Geographic scope. Barrio Villa Páez, City of Córdoba, province of Córdoba

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation

- Problem identification.
 - Data collection.
 - Data analysis.
 - Phenomenon monitoring.
 - Solution design.
 - Solution implementation.
- Citizens are involved in the entire process.

Technological device/tool required.

- Rain gauge: to measure rainfall occurring in the catchment area
- Cell phone/camera: to record surface water levels, as well as to capture videos to be later processed.
- Materialized scales in the basin for recording levels.

Recruitment methods. Through an approach made by the community (neighborhood association) to the research team. Then, it is consolidated with periodical visits to the area.

Replicability. It is being implemented in another neighborhood in the city of Córdoba and in the city of Villa Carlos Paz.

Scalability. A great interaction with residents was accomplished and the ties with the community were strengthened day by day. New proposals have been made by the community to conduct research on sewage effluents or urban waste issues.

Open access to data. Reports are shared with the community through a WhatsApp group after each rainfall event recorded. Rainfall data are openly shared. Regarding video and photographic records, a georeferenced database is being developed so it may be freely accessed through the Internet. A water level sensor sends real-time data to a website.

Feedback. Following each rainfall event, crowdsourced data are received, and technical reports are made describing the relevant catchment behavior. Periodical meetings are also held (online due to the pandemic) to discuss future advances and ideas.

Linkage with state agency/government.

It has partnered with:

- National Water Institute
- National Meteorological Service
- Provincial Administration of Water Resources of Córdoba
- Neighborhood center of Villa Páez

Institutional funds. Research projects conducted by the National University of Córdoba (UNC, in Spanish).

Awards/distinctions. Do not know/do not answer

Classification of knowledge areas (OECD).

Ingenierías y Tecnologías / Ingeniería Civil.
Ingenierías y Tecnologías / Ingeniería del Medio Ambiente.

Project leaders.

- Carlos Marcelo García Rodríguez, Faculty of Exact, Physical and Natural Sciences (FCEFYN) – UNC, National Scientific and Technical Research Council (CONICET, in Spanish).
- Sebastián López, FCEFYN / UNC and CONICET.
- José Manuel Díaz Lozada, FCEFYN/UNC and CONICET.

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Ciudadanos por el Ambiente Costero (CiuPAC)

(Citizens for the Coastal Environment) - Coastal environmental monitoring.



Objectives

Overall goal:

- Analyze the environmental dynamics of coasts in the province of Buenos Aires.
- Create a solid database that is sustained over time in which local stakeholders participate and play a major role in different complex issues, such as erosion, sedimentation, storm effects, and landscape changes.

Specific goals:

- Implement an environmental data monitoring system that is continuous and sustained over time throughout the coast of the province of Buenos Aires.
- Analyze the impact of extreme weather events, its year-over-year and seasonal variation and tendency on beaches of the province of Buenos Aires.
- Based on citizen participation, create a database of socio-environmental dynamics in each study town.
- Establish coastal erosion risk levels due to natural and anthropic actions.
- Strengthen the links among research institutions, civil society organizations, and decision-makers.

Description of citizen participation

Citizen participation starts by defining the coastal area to be measured based on the social or environmental issues citizens note or perceive on their own. After the area is defined, participants collect data every month (type of breaker, wave height and period, longshore drift speed and direction, sediment size, and beach profile) using measurement techniques learned in previous training sessions. Finally, the collected data is sent digitally to the project's email.

After a storm, data is also sent with photos and/or videos and pre-designed forms completed with citizens' perceptions of the storm's effects on their towns.

In June 2024, the project plans to organize participatory workshops in which citizens will be encouraged to think about possible solutions for the perceived issues and whether it is attainable to carry out some of them, for example, the decision and implementation of garbage bins.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Department of Geography and Tourism at National University of the South (UNS in Spanish) (Bahía Blanca, Buenos Aires).
- Argentine Institute of Oceanography (IADO in Spanish)/National University of the South (UNS)/National Scientific and Technical Research Council (CONICET in Spanish).
- Asamblea Regional en Defensa del Ambiente Costero (Regional Assembly in Defense of the Coastal Environment) (AREDAC in Spanish).

Status. In progress.

Time frame. 1/6/2021 - 4/11/2025

Frequency of project execution. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. 18 coastal towns of the province of Buenos Aires where AREDAC meetings are held.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Problem definition
- Data collection
- Phenomenon monitoring
- Solution planning
- Solution deployment

Technological device/tool required.

- Monitoring cameras
- Weather stations
- Rain gauges
- RTK GPS
- Mobile phone (camera and stopwatch)

Recruitment methods. The project has held training sessions and in-person meetings and carried out virtual surveys. In a few months, it plans to begin with the organization of participatory workshops and conferences where citizens can share their experiences.

Replicability. A complementary project was launched to replicate the experience in Australia and Mexico together with the University of Colombia.

Scalability. Originally, the project was carried out in 15 towns. By July 2022, it is present in 18 towns. The addition of more coastal towns to the project is expected.

Open access to data. Data will be uploaded to the website, which is currently being created.

Feedback. Results will be published on the website and the activities will also be shared on social media.

Linkage with state agency/government. No.

Institutional funds. Investigación, Desarrollo e Innovación en Ciencias del Mar program [Research, Development and Innovation in Ocean Sciences program] from Pampa Azul Initiative.

Awards/distinctions. No.

Comments. The creation of this project began in 2021, but the actual launch was on April 11, 2022.

Knowledge areas/disciplines (OECD)

NATURAL AND EXACT SCIENCES / Earth and Environmental Sciences
SOCIAL SCIENCES / Economic and Social Geography
SOCIAL SCIENCES / Other Social Sciences

Leaders.

Maria Luján Bustos, Instituto Argentino de Oceanografía (IADO)/Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)-Universidad Nacional del Sur (UNS).

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CoAct. Ciencia Ciudadana para la Justicia Ambiental en la Cuenca Matanza Riachuelo (Science for Environmental Justice in the Matanza Riachuelo Basin)

Environmental justice; sanitation.



Objectives

Overall goal

Organize, systematize, and share the knowledge acquired over the years about the basin.

Specific goals

Contribute towards environmental justice, which is defined as the equitable distribution of environmental burdens and benefits by promoting citizen participation in decision-making on environmental issues.

Description of citizen participation

An online platform is developed on the basis of new insights and ideas contributed by the communities living in the Matanza Riachuelo basin and by other stakeholders from the scientific and public policy fields.

Through the development of key definitions, data collection and subsequent analysis by the communities this platform will enable the following:

- Build knowledge to find solutions to these issues.
- Give visibility to their significance for different community groups.
- Facilitate specific actions for transformation.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process

Participating parties.

- Research Center for Transformation (CENIT, in Spanish) of the National University of San Martín (UNSAM, in Spanish).
- Environment and Natural Resources Foundation (FARN, in Spanish).

Status. In progress.

Time frame. 01/04/2020 - 01/01/2023

Frequency of project execution. Over the 3 years of the project, a digital platform will be co-designed together with the communities to generate citizen data that will function permanently to record the experiences and knowledge of the people on three environmental justice issues. See map.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. Matanza Riachuelo basin Buenos Aires Metropolitan Area (for its national and environmental chapter).

Project development members. Collaboration between members of the academic community, civil society organizations, and communities of the

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Data collection.
- Data analysis.
- Phenomenon monitoring.
- Design of the citizen science tool.

Technological device/tool required. Electronic devices with Internet connection (mobile or not).

Recruitment methods. Convening through personal contact and through the networks of participating social organizations.

Replicability. The co-designed tool is open source and can be reused for other initiatives.

Scalability. As of July 2022, the use of the tool depends on the social media of those who participated in co-designing. It is expected to be scaled up to other areas of the basin.

Open access to data. The data generated in the platform are open access and available in Zenodo. They can be downloaded in formats that allow their use, modification, and redistribution.

Feedback. At the current stage of development, feedback is provided at each stage of co-design and implementation with its participants.

Linkage with state agency/government.

- Matanza Riachuelo Basin Authority [ACUMAR, in Spanish].
- Provincial and municipal officials.
- Towards the end of the project, a workshop for public policy actors will be organized.



Institutional funds. They have been obtained from Horizon 2020, the European Union's programme that provides monetary support for the development of science, innovation, and technology.

Awards/distinctions. The project has won an international competition within the framework of the European Commission's Horizon 2020 Programme.

Comments. The platform that is co-designed under this project (CoAct) is a re-launch of the platform ¿Qué Pasa, Riachuelo? [What's up, Riachuelo?] (QPR, in Spanish); this project is also part of the mapping and co-designed with a social citizen science approach.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences

Social Sciences / Sociology

Social Sciences / Law

Social Sciences / Political Science

Leaders.

- Valeria Arza, Research Center for Transformation (CENIT)/National University of San Martín (UNSAM)
- Guillermina Actis, CENIT/UNSAM
- Leticia Castro, CENIT/UNSAM
- Santiago Cane, Environment and Natural Resources Foundation (FARN)
- Pía Marchegiani, FARN
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Colisiones viales en Chacabuco (Road Collisions in Chacabuco)

Road accidents.

[EiCh]
Equipo de Investigación Chacabuco



Objectives

Overall goal

Survey the number and type of road accidents that occurred in the city of Chacabuco, Buenos Aires, Argentina, between 2006 and 2011.

Specific goals

Evaluate the effects of Chacabuco's traffic layout design on the road accidents surveyed and develop proposals for improvement.

Description of citizen participation

Participants -professionals from different disciplines and areas- collected local documentary sources, specifically from the ViveChacabuco website, where detailed information on the different road accidents was provided daily. In addition, the project's leader developed and conducted interviews to local stakeholders to better understand the problem.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

Chacabuco Research Team, Vivechacabuco.

Status. Finished.

Time frame. 04/14/2007- 12/31/2016.

Frequency of project execution. Uninterruptedly while the project was in progress.

Participation period. Sustained over time during the specified period but with participation at specific times on a case-by-case basis.

Scope of the initiative. Local (city, province).

Geographic scope. Chacabuco, Buenos Aires, Argentina.

Project development members. Entirely developed by participants without formal scientific training.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Data analysis.
- Solution planning.

Technological device/tool required.

- Computers.

Recruitment methods. The initial recruitment of students and regular recruitment concerning a variety of topics (traffic, suicides, parks, etc.) were made through local print newspapers (Chacabuco and De Hoy) and the city's emerging electronic media (Vivechacabuco, El Chacabuco, Chacabuco website, among others).

Replicability. Collection experiences were replicated in the same town.

Scalability. It has not been upscaled yet.

Open access to data. The findings and proposals are available to the public on the project's blog and were published in the following magazines and digital media: CAPBA 22 Magazine (Association of Architects of the Province of Buenos Aires), Vial Magazine and Plataforma Urbana website.

Feedback. Findings were published on the project's blog and in journals and digital media as the research progressed.

Linkage with state agency/government. Findings and proposals were submitted to the National Road Safety Agency in 2015 and 2016 (File: 85.992/16).

Institutional funds. Project's own funding sources.

Awards/distinctions. -

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Mathematics
Natural and Exact Sciences / Other Natural and Exact Sciences

Leaders.

Sebastián Inacio, Chacabuco Research Team.

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Composting: Organics

Home and community composting in the City of Buenos Aires.



Credit: Eduardo Paoloni.

Objectives

Overall goal:

- To provide technical assistance and effective tools to overcome the barriers that citizens face in composting, and to encourage more and more people to participate in this experience

Specific goals:

- Composting: Organics examines the participant's profile who decides to compost their organic waste and gathers information about how they carry out this process, what challenges they face, and how they overcome them. It also suggests finding out why there are citizens who are not interested or find it difficult to compost, either at home or in the community.
- Composting: Organics aims at assessing the quality of the product developed (compost) by composters and, then, to determine its benefits.

Description of citizen participation

Citizens answer a survey regarding the compost they produce, and then they are asked to bring samples of their finished compost for laboratory analysis. When the analyses are finished, they are invited to explain the findings, discuss them, and come up with solutions if there are any issues with the final product quality. This provides a foundation for sharing answers to common issues experienced by various urban composters.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- School of Agricultural Studies at the University of Buenos Aires (FAUBA in Spanish), through members of the Citizen lab (teachers and students who have already graduated from FAUBA, and current students from that University).
- Neighbors from the Autonomous City of Buenos Aires.

Status. In progress.

Time frame. 08/01/2021 - N/A.

Frequency of project execution. According to the demands or approaches to the community/communities.

Participation period. Composting is a process that takes about 6 months. Proposals and data analysis are performed in 1-2 days (2 hours).

Scope of the initiative. Local (city, province).

Geographic scope. The Autonomous City of Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Data collection
- Data analysis
- Phenomenon monitoring
- Solution planning
- Solution deployment

Technological device/tool required.

- Composter bin or a place suitable for composting.

Recruitment methods. Promotion is done through social media. Recruitment is done first through surveys. A request is then issued to a smaller group of volunteers who exhibit specific traits (for instance, in accordance with the composting process issue they identified as the main problem) to provide a sample of their compost. Due to budget-related constraints, not all of the survey participants—there are currently more than 160—can analyze the compost they create. Those who send their sample will be contacted by email. If they do not reply or do not wish to participate, another volunteer will be contacted.

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. Although data have not yet been disclosed, results will eventually be available to participants and posted on the labciudadano.net website.



Feedback. No.

Linkage with state agency/government. No.

Institutional funds. School of Agricultural Studies at the University of Buenos Aires (UBA).

Awards/distinctions. No.

Comments.

- The project began in August 2021 with the promotion of surveys. In July 2022, contacts to donate a sample of the compost started.
- Participants have not yet received feedback because they are responding to two ongoing theses, but data will be available afterwards.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Agricultural Sciences / Agriculture, Forestry and Fisheries

Leaders.

- Verónica Pierini, School of Agricultural Studies/University of Buenos Aires (UBA)
- María Semmartin, School of Agricultural Studies/UBA

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Conservar Tiburones en Argentina (Shark Conservation in Argentina)

Management and conservation of coastal shark populations



Objectives

Promote recreational fishing with catch and release of coastal sharks, including conventional tagging.

Description of citizen participation

This Program involves anglers and local fishing communities that take part in scientific research by tagging sharks with the aim to collect key information for their conservation. Tagging consists in placing a yellow dart tag containing the data required for identification below the shark's dorsal fin. This information allows researchers to determine the migration patterns, days of release, body size growth, post-release survival, and tagging site fidelity of recaptured sharks, among other data. It also enables the identification of significant areas, the number of female sharks and of specimens close to parturition, and their conservation category according to the International Union for Conservation of Nature (IUCN), among other aspects.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- National University of La Plata (UNLP, in Spanish)
- Wildlife Conservation Society Argentina (WCS)
- Anglers
- Shore/boat fishing guides
- Angling clubs

Status. In progress.

Time frame. 1/10/2010 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation

- Data collection.
- Solution design.
- Solution implementation.
- Other/s: Dissemination, awareness raising, incentivization, and motivation of anglers so they become involved and take part in the initiative.

Technological device/tool required.

- Tags: to identify each shark
- Applicator: to place tags
- Photographic camera or cell phone: to take a photograph of the tagged individual
- Centimeter: to measure the tagged individual
- Circle hooks: to facilitate release without injuring the specimens caught

Recruitment methods. Through social media and communications within the fishing community.

Replicability. An initiative was carried out by some colleagues from the province of Chubut involving an angler in San Antonio Este, province of Río Negro, in the summer of 2021. The angler was spotted tagging and releasing the sharks captured.

Scalability. More participants are joining the initiative every year, on average 8 persons per year. It has been proven that the number of sharks tagged increases as the number of citizens involved rises.

Open access to data. Only partial and brief data are available.

Feedback. The information on tagged individuals, recaptured specimens, and project findings is shared through social media.

Linkage with state agency/government.

- Argentine Museum of Natural Sciences (MACN, in Spanish) – National Scientific and Technical Research Council (CONICET, in Spanish).
- Natural Protected Areas System of the province of Santa Cruz.
- Office of the Superintendent of Marino Makenke Interjurisdictional Park (National Parks Administration).
- Secretariat of Fisheries and Aquaculture of the province of Santa Cruz, Argentine Ministry of Environment.
- National Ministry of the Environment.

Institutional funds. Project's own funding sources. Financing granted as a result of international cooperation.

Awards/distinctions. –

Comments.

- During project execution, 150 anglers from four provinces (Buenos Aires, Río Negro, Chubut, and Santa Cruz) were trained and equipped with tagging instruments (dart tags, applicators and circle hooks). Until today, anglers have tagged 868 sharks of different species, mainly: bronze whalers, tope sharks, broadnose sevengill sharks, sand tiger sharks, angular angel sharks, spiny dogfish, and hammerheads.
- This program is a relaunch of Dr. Gustavo E. Chiaramonte 2008 and 2013 project, "Assessment and Conservation of a Nursery Ground for Threatened Sharks in Argentina."

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
NATURAL SCIENCES / Biological sciences
SOCIAL SCIENCES / Educational sciences

Project leaders.

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Cosecheros de granizo Córdoba (Hailstone Collectors from Córdoba, Argentina)

Hailstorm record and collection of hailstones; environmental monitoring.



Universidad Nacional de Córdoba



Facultad de Matemática, Astronomía, Física y Computación



Objectives

Overall goal

Record hailstorms, collect hailstones and produce severe hailstorm data for forecasting programs.

Specific goals

- To disseminate scientific information about severe storms in the region and the importance of scientific collaboration of citizens in the study of the phenomenon.
- In the app 'Cosecheros de Granizos Córdoba' (Hailstone Collectors from Córdoba, Argentina) citizens register the geolocation and time of hailstorms as accurately as possible. They can attach photographs and/or save hailstone samples at home, which will later be collected in an annual hailstone collection campaign. Hailstones should be stored in the freezer inside closed plastic bags with as little air as possible, at a temperature of -13 °C or lower.
- Open data: For the general public. (Please, request data from granizoscba@gmail.com).

Description of citizen participation

In the app "Cosecheros de Granizos Córdoba" (Hailstone Collectors from Córdoba, Argentina) citizens register the geolocation and time of hailstorms as accurately as possible. They may attach photographs and/or save hailstone samples at home, which will later be collected in an annual hail collection campaign.

Hailstones should be stored in the freezer in closed plastic bags with as little air as possible, at a temperature of -13°C or lower.

Type of citizen science project

- Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Researchers from the Atmospheric Physics Group, School of Mathematics, Astronomy, Physics and Computer Studies, National University of Córdoba (FAMAF-UNC, by its initials in Spanish).
- Ministry of Science and Technology (MINCYT, by its initials in Spanish), Province of Córdoba.
- Volunteers and students of all educational levels.

Status. Finished.

Time frame. 10/1/2018-31/ 3/ 2021

Frequency of project execution. Uninterruptedly.

Participation period. Only a few minutes of dedication after each hailstorm.

Scope of the initiative. Local (city, province).

Geographic scope. Córdoba.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Others: analysis of the app's design and operation; dissemination of the hailstorm issue.

Technological device/tool required.

- Mobile phone to take pictures.
- Hail ruler to take pictures of hailstones or a yardstick (ruler, credit card, etc.) for measuring reference. Behind the hail ruler, there are explanations on how to store hailstones at home.

Recruitment methods. Through talks in schools and non-governmental entities in 2018-2019.

Replicability. Don't know/No answer.

Scalability. Cosecheros de Eventos Meteorológicos Extremos (Extreme Weather Event Collectors) app (hail, frost, agrochemical drift, crop status, etc.). Cosecheros de Eventos Meteorológicos is a new program soon to be shared which includes Cosecheros de Granizo Córdoba. The video <https://youtu.be/ywI0IZFRUvc> can help understand the scope of this new program which, in addition to including new events, has immediate user feedback tools such as an event map and forecast information.

Open access to data. For the general public. (Please request data from granizoscba@gmail.com).



Feedback. Non-research scientific users have not explicitly requested information; however, all data are available.

Linkage with state agency/government. Joint work was carried out between FAMAF -UNC and MINCYT in 2018-2019 and between FAMAF-UNC and the Hydro-Meteorological Observatory of Córdoba (OHMC, by its initials in Spanish) in 2020-2021.

Institutional funds. Ministry of Science and Technology of the province of Córdoba to disseminate the program, promote it in schools in the province of Córdoba and prepare the hail rulers.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Engineering and Technology / Environment Engineering
Agricultural Sciences / Other Agricultural Sciences

Leaders.

Lucía Elizabeth Arena, Atmospheric Physics Group, School of Mathematics, Astronomy, Physics and Computer Studies (FAMAF) / National University of Córdoba (UNC) and the Hydro-Meteorological Observatory of Córdoba (OHMC).

Contact information.

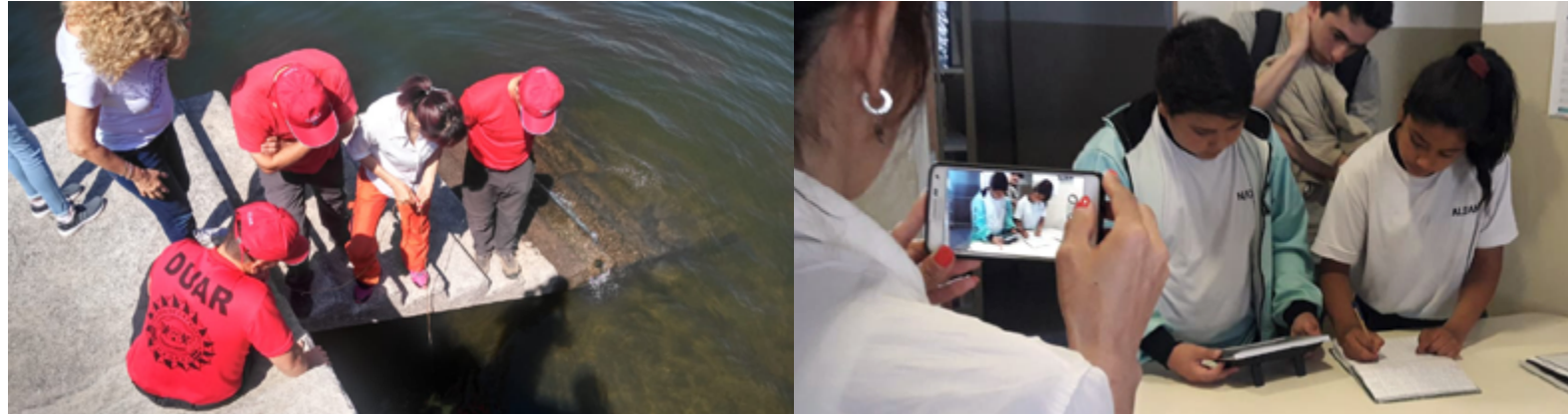
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Cyano

Cyanobacteria and water bodies eutrophication



Objectives

Overall goal: Address surface waterbodies eutrophication in relation to their catchment, different water uses and the Cianosemáforo (Cyanosignal), as a tool for preventing risks in recreational waters

Specific goals:

- Systematize and share the knowledge gathered from applied research during the monitoring of water quality.
- Raise awareness in society on the impact of the issue of eutrophication, cyanobacteria and their consequences on health.
- Promote visual monitoring of waterbodies through citizen participation.
- Establish partnerships and create contact networks among stakeholders.

Description of citizen participation

The Cianosemáforo is the sharpest instrument for risk prevention at the reservoirs of the province. It was created by the Ministry of Health of Argentina and adapted for the visual identification of four water status levels, depending on the amount of cyanobacteria present.

Citizen participation includes workshops, visual monitoring, data interpretation and communication. The Spanish acronym stands for the following:

- **Control:** Monitoring of cyanobacteria and other ELM water quality aspects, with systematized measures and adequate space-time resolution.
- **Y (and):** The nexus involving citizens, research teaching staff, and students of FCEyN-UNC.
- **Alerta (alert):** After processing field data, supplemented with lab data, the risk levels associated to cyanobacteria exposure are informed to schools, decision-makers, and society.
- **Niveles (levels):** A risk level is assigned, and recommendations are made for different water uses.
- **Observados (observed):** Personnel from the Search and Rescue Group of Calamuchita and citizens perform visual monitoring at ELM.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Members from the School of Exact, Physical and Natural Sciences (FCEyN).
- National University of Córdoba (UNC).
- Alfonsina Storni Rural School in Potrero de Garay.
- Juan Ingeniero Maggi Rural School in Villa Ciudad Parque.
- Dr. Ricardo Lutti Elementary School in Villa Ciudad Parque.
- Gustavo Riemann Provincial Institute of Technical Education No. 76 in Villa Rumpal.
- Special Rescue Group (GERS) of Calamuchita.
- Municipality of Villa Ciudad Parque.
- Technical staff from the Provincial Administration of Water Resources (APRHI).

Status. In progress.

Time frame. 12/05/2018 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Local (city, province).

Geographic scope. Reservoirs in the province of Córdoba.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation

- Problem identification.
 - Data collection.
 - Data analysis.
 - Phenomenon monitoring.
 - Solution design.
 - Solution implementation.
- La ciudadanía participa en todo el proceso.

Technological device/tool required.

- Cell phone: to take photographs.
- Survey form for visual monitoring and citizen participation.

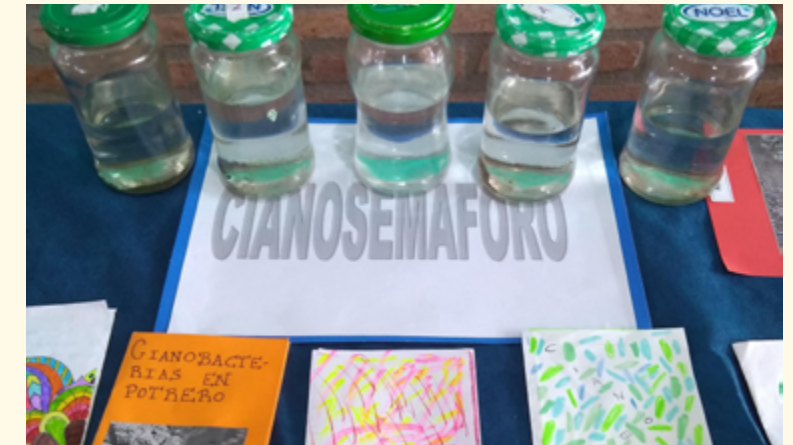
Recruitment methods. Through social media and visits to communities.

Replicability. The project is being replicated in Ingeniero Maggi and Dr. Ricardo Lutti elementary schools. During 2022, it is intended to replicate the project in secondary schools IPEM 385 Los Reartes and IPEM 385 Valle de Los Reartes, Anexo Villa Ciudad Parque.

Scalability. During 2022, the project is expected to upscale at a regional level, incorporating other waterbodies in the province of Buenos Aires and El Chocón.

Open access to data. Processed data, photographs and relevant information are shared through social media. Also, publications have been made on specialized magazines and events have been held for scientific information dissemination and diffusion.

Feedback. Citizens receive their feedback by phone or via messages in connection with data collection and sampling (if necessary). They are also informed of the status of the Cianosemáforo and given appropriate recommendations.



Linkage with state agency/government. Actions are coordinated with the following provincial institutions: Maritime Security Force, Fire Department, APRHI

Institutional funds. In 2019, funds have been obtained from funding granted by FCEyN-UNC to Social Student Involvement projects. In addition, there is support from the Provincial Administration of Water Resources (APRHI in Spanish).

Awards/distinctions. The CYANO project was chosen at the Conference on Comprehensive Management of Eutrophication and Cyanobacteria in Reservoirs (Jornada de gestión integral de Eutrofización y Cianobacterias en Embalse, JECE 2019) to publish the research presented in the INNOTEC Magazine of LATU (Technological Laboratory of Uruguay).

In 2021 it was chosen, together with two other projects, as the winner of the 15th edition of the La Nación Foundation Award for Education, which acknowledges innovative projects that aim at pedagogical continuity and educational quality in the context of a pandemic.

Knowledge areas/disciplines (OECD)

NATURAL SCIENCES / Earth and related Environmental sciences
ENGINEERING AND TECHNOLOGY / Environmental engineering
SOCIAL SCIENCES / Educational sciences

Project leaders.

Raquel Bazán, School of Exact, Physical and Natural Sciences (FCEyN)/National University of Córdoba (UNC).

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Instagram: instagram.com/proyecto_cyano

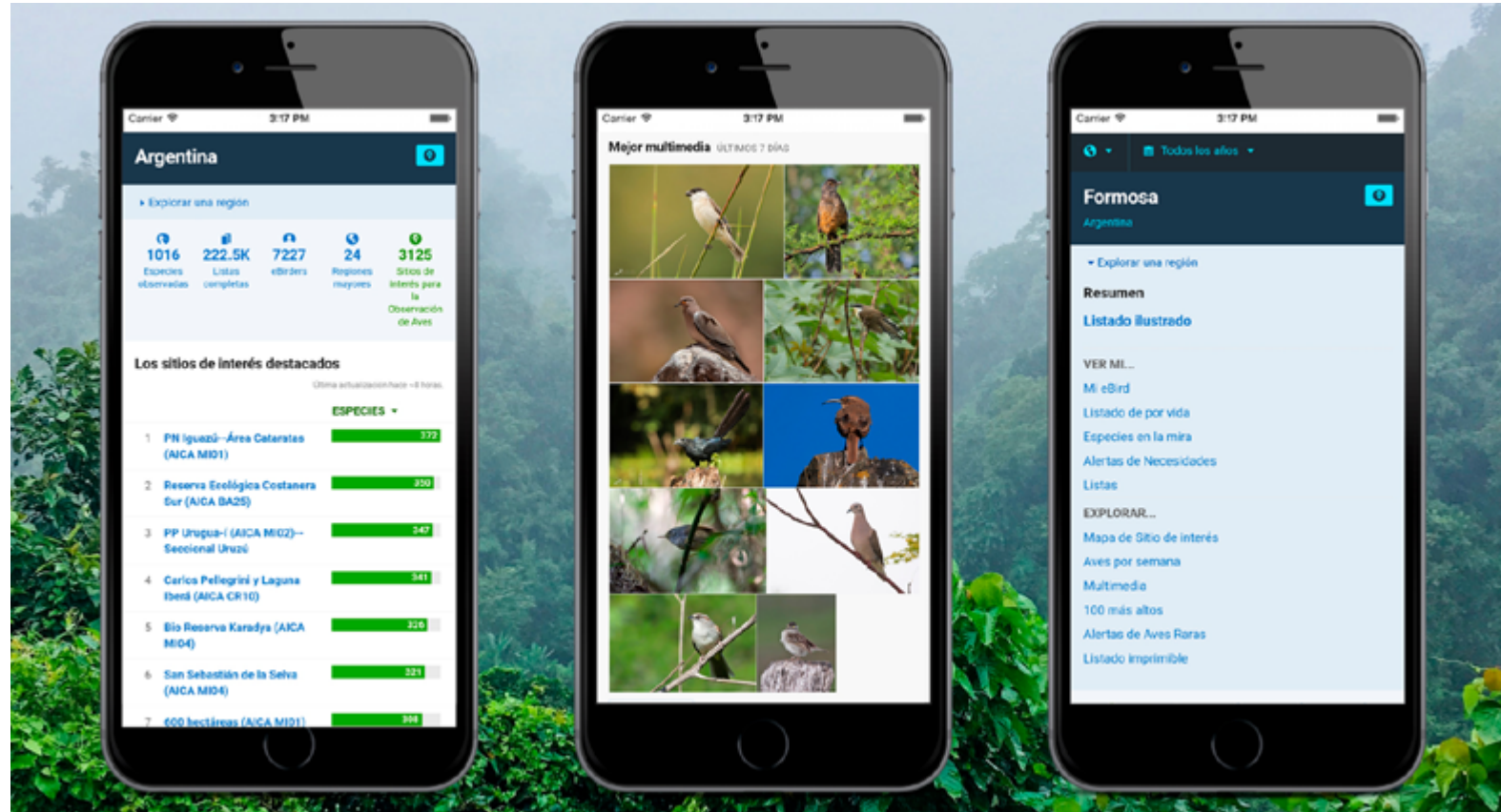




eBird Argentina

Monitoring bird biodiversity and population trends

eBird
Argentina



Objectives

- Collect real-time bird sightings, photographs and sounds to be used in scientific studies.
- Contribute towards knowledge of distribution and abundance of different species and facilitate their care and conservation.

Description of citizen participation

It works as a reference database to quickly view how birds are distributed and in which seasons they may be found in Argentina, learn about their abundance, see photographs and listen to their sounds. It is the most complete database on bird distribution records of Argentina.

Bird sightings may be entered by any person on the website and/or app. The database harnesses the power of citizen sighting and photography, and each potential birdwatcher is encouraged to collect information on the presence or absence of species and their abundances (number of individuals identified in each sighting).

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

Locally managed by *Aves Argentinas* (Argentine Birding Association), in association with The Cornell Lab of Ornithology. The following institutions collaborated with and supported this project:

- Ministry of Science, Technology and Innovation (MINCYT, in Spanish)
- National System of Biological Data (SNDB, in Spanish)
- A network of 80 Birding Clubs (COA, in Spanish)

Status. In progress.

Time frame. 2013 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis. To date (2021), the database contains at least 133,000 hours of citizen sampling, and covers a minimum distance of 200,000 kilometers.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation Data collection.

Technological device/tool required.

- Binoculars.
- Photographic camera, cell phone or voice recorder.

Recruitment methods. Through social media, the website, courses and congresses.

Replicability. -

Scalability. It has experienced sustained growth since its inception.

Open access to data. Data may be freely accessed and are shared with the Global Biodiversity Information Facility (GBIF). There are no download restrictions, except for sensitive or critically endangered species, in which case information on data use and the requesting project must be provided (to guarantee proper and safe use of data on these species).

Feedback. The platform works as a repository for users' bird sightings, photographs and sound recordings. The information collected by participants may also be browsed using the web interface and the eBird Mobile app. This encompasses different data visualization tools, such as: a multimedia browser, a record browser, species range maps, checklists containing target species or species of interest for a certain region, checklists of regional species, birder rankings, etc. It also features a personal profile summarizing all data entered by the user, with an interactive visualization of their map of participation.

Linkage with state agency/government. It has been launched in collaboration with MINCYT.

Institutional funds. Funding requested by Aves Argentinas to MINCYT for the localization and launch of the web portal.

Awards/distinctions. -

Comments. This is an online platform that was developed in the United States in 2002 by The Cornell Lab of Ornithology, which then expanded its scope to include local partners in different countries. In Argentina, eBird was launched in 2013 by *Aves Argentinas* at the XV *Reunión Argentina de Ornitología* (Ornithology Meeting in Argentina, 15th edition) (RAO, in Spanish).

Knowledge areas/disciplines (OECD)
NATURAL SCIENCES / Biological sciences

Project leaders.

Fabrizio Gorleri, eBird Argentina.

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Twitter: twitter.com/ebirdarg

YouTube: youtube.com/c/eBirdArgentina





ECOFAM - *Equipo Costero de Observadores de Fauna y Ambiente*

(Coastal Team of Marine Fauna and Environment Observers) - Marine fauna monitoring.



Objectives

Overall goal

Build quality scientific knowledge on Argentina's coastal zone environmental health by collecting data using marine species as indicators.

Specific goals

- Train volunteers to identify turtles, birds, and marine mammals.
- Count, identify and record dead individuals on the beach, belonging to the aforementioned groups of marine fauna.
- Provide information to the local population on the characteristics, life history and conservation status of the species recorded.
- Use technology as an educational, communicational, and analytical tool.
- Evaluate the abundance and diversity of carcasses.
- Gather baseline information to detect space-time patterns over time and identify unusual mortality events.
- Produce scientific information available to the community.

Description of citizen participation

Citizens voluntarily participate in the project by periodically visiting the beach. During field trips, they count and identify turtle, bird, and marine mammal carcasses they find on the beach. In addition, they take photographs of the carcass and place a biodegradable mark to avoid double counting. Finally, they record their observations on the ArgentiNat platform (iNaturalist Argentina).

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Aves Argentinas
- Hydrobiological Station, Quequén Port
- "Bernardino Rivadavia" Argentine Museum of Natural Sciences.

Status. In progress.

Time frame. 02/03/2020 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. Volunteers spend a minimum of 4 hours per month, and ideally, they should be available for about 8 hours per month.

Scope of the initiative. Local (city, province).

Geographic scope. Province of Buenos Aires. Volunteer nodes in Mar del Plata/Miramar, Necochea/Quequén, Claromecó, Nueva Atlantis and Punta Lara.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

• Mobile phone to record observations on the ArgentiNat platform. During fieldwork, no Internet connection is required as the records are automatically uploaded when connected.

Recruitment methods. Through social media, press campaigns, during open talks held with the target audience, etcetera.

Replicability. A project that took place a few years ago in the area of Villa Gesell including several elements that resemble ECOFAM. This was after the first stage of the program (2007-2009).

Scalability. In these two years of work, the number of active volunteers has increased and new towns where the project is being carried out have joined.

Open access to data. Records are available at ArgentiNat. Main findings through social media and publications.

Feedback. Periodically, feedback is provided to citizens on the progress of the program, results, and new developments.

Linkage with state agency/government. Municipality of Necochea, Municipality of Tres Arroyos, Municipal Delegation of Claromecó.

Institutional funds. National Geographic Society for conservation projects



Awards/distinctions. No.

Comments. The first stage of ECOFAM took place between 2007 and 2009 as a result of the concern of local residents from Necochea and Quequén, who were worried about a large number of dead Magellanic penguins on the beach. The area covered by the volunteers included the coastal area between Miramar and Reta beach resort. During that period, 30 volunteers obtained almost 700 records corresponding to 28 species of turtles, birds, and marine mammals.

https://www.conservationleadershipprogramme.org/media/2014/11/020407F_Argentina_FinalReport_Project-Seabirds.pdf

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Natural and Exact Sciences / Biology

Leaders.

- Leandro L. Tamini, Aves Argentinas.
- Gustavo E. Chiaramonte, Hydrobiological Station, Quequén Port and "Bernardino Rivadavia" Argentine Museum of Natural Sciences.
- Leandro L. Tamini, Aves Argentinas.

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Twitter: twitter.com/AvesArgentinas
Instagram: [instagram.com/avesargentinas/](https://www.instagram.com/avesargentinas/)
YouTube: [youtube.com/user/AvesArgentinasAOP](https://www.youtube.com/user/AvesArgentinasAOP)
Facebook Estación Hidrobiológica de Puerto Quequén: [facebook.com/Estacion-Hidrobiologica-de-Puerto-Quequen-1678927482344758/](https://www.facebook.com/Estacion-Hidrobiologica-de-Puerto-Quequen-1678927482344758/)





EcoRegistros

Geographic record of living organisms



Objectives

Overall goals:

- Identify species.
- Create species datasheets.
- Disseminate the findings of scientific research.
- Perform a leisure activity.

Specific goals:

- Mapping and determining the geographic distribution of different species on the basis of the data recorded by the community, considering three options:
 - All records, including those which are not supported by evidence. This implies that more data will be displayed on datasheets and maps. This is very useful for easily identified species.
 - Only records supported by evidence. This means that datasheets and maps will contain more reliable data, which may be easily validated. This is very useful for species which are harder to identify.
 - Only such records containing reproduction information. This requires knowledge on species reproduction, and all geographic data which are not relevant to this topic will be discarded.
- Generate lists of species for each country, province and district.
- Record nature-related events.
- Generate personal statistics for each user regarding the species recorded, the number of records entered, and the areas visited.

Description of citizen participation

Citizens take part in recording species by providing accurate coordinates and dates, photographs, video or audio recordings.

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Naturalists
- Biologists
- Nature photographers
- Persons interested in recording data on living organisms

Status. In progress.

Time frame 07/02/2011 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. International (two or more countries).

Geographic scope. Argentina and other countries.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation

- Data collection.
- Data analysis.

Technological device/tool required.

- Cell phone
- Photographic camera
- Binoculars
- Telescope
- Audio recorder
- Video camera
- Laptop

Recruitment methods. Through social media dissemination campaigns.

Replicability. Don't know/No answer.

Scalability. The project originated in Argentina but has a global reach.

Open access to data. Professionals usually request species datasets for their research. The articles published on *EcoRegistros Revista* are shared, and they are cited in other publications. All records, maps and lists posted on the website are available for use under the relevant terms and conditions.

Feedback. Project findings are published on the magazine, the monthly newsletter, and social media. Alerts are also sent with news on the geographic location of relevant species.

Linkage with state agency/government. –

Institutional funds. Project's own funding sources.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
NATURAL SCIENCES / Biological sciences

Project leaders.

Jorge La Grotteria.

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Instagram: instagram.com/ecoregistros





El Veril del Banco de Afuera (Outer Bank Reef)

Integrated monitoring for the evaluation of any potential changes related to ocean acidification in the coastal area of Mar del Plata.



Objectives

Assess ocean acidification in the coastal area of Mar del Plata.

Description of citizen participation

The idea behind “El Veril” lies in the collaboration between INIDEP and CASE diving club in collecting information on the marine environment in order to coordinate an integrated monitoring effort towards the evaluation of possible changes linked to ocean acidification in the coastal site of Mar del Plata.

CASE scuba divers collect seawater samples (for the analysis of pH levels and total alkalinity, salinity, dissolved oxygen, chlorophyll-a, phytoplankton and bacterioplankton abundance) during their recreational outings to “El Veril” (a coastal site visited by divers due to its good visibility and variety of marine species) on a monthly basis. They also record the metadata required at the sampling site (GPS coordinates, date and time, sampling depth, the dive computer temperature profiles, and sea conditions).

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- National Institute for Fisheries Research and Development (INIDEP, in Spanish) (research team).
- *Centro de Actividades Submarinas Escualo* (“Escualo” Underwater Activities Center, CASE in Spanish) (citizen scientists).
- NF-POGO Alumni Network for the Ocean (NANO) (international organization), as part of the international NANO-DOAP project (“A global study of coastal Deoxygenation, Ocean Acidification and Productivity at selected sites”), which provides a framework for the project within an international setting comprising 16 countries and financial support for the purchase of supplies and small equipment.
- *Red Latinoamericana de Acidificación de los Océanos* (Latin America Ocean Acidification Network) (LAOCA, in Spanish).

Status. In progress.

Time frame. 12/18/2018 – N/A

Frequency of project execution. Ideally, it is executed on a semi-monthly to monthly basis.

Participation period. Sampling takes about an hour and is ideally performed on a semi-monthly basis.

Scope of the initiative. Local (city, province).

Geographic scope. Mar del Plata, Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 1 to 50.

Action/s involving citizen participation

- Data collection.
- Solution design.
- Solution implementation.

Technological device/tool required.

The following elements are used for sampling:

- Boats
- Scuba diving equipment
- Cell phones
- Sampling bottles
- Dive computers
- GPS
- Sampling entails no risk for scuba divers but demands training for a proper sample collection and transportation, in order to meet the quality required to obtain accurate results.

Scientists use varied equipment for sample analysis:

- Spectrophotometer: to analyze pH samples
- Automatic titrator: to perform total alkalinity and dissolved oxygen measurements
- Salinometer: to measure salinity
- Spectrofluorometer: to analyze chlorophyll-a samples
- Fluorescence microscope: to determine the abundance and diversity of phytoplankton and bacterioplankton
- FlowCam: to study the abundance and diversity of phytoplankton
- Autoanalyzer: for nutrient analysis.

Recruitment methods. In 2018, several meetings were held, and an agreement was signed by INIDEP and CASE to perform the relevant activities. Then, scientists held several meetings with the citizen divers involved in the project to train them on sampling. Also, subsequent meetings are held every six months to assess improvements and present the scientific findings obtained.

Replicability. It may be replicated in other sites with other scuba diving clubs.

Scalability. Don't know/No answer.

Open access to data. Data are shared with the NANO-DOAP project and every 6 months dissemination activities are conducted (popular science articles and/or webinars).

Feedback. In 2019, through a series of webinars sponsored by the Argentinian Federation of Underwater Activities (FAAS), the ongoing activities were openly presented to the community of Argentina and Latin America. Additionally, seminars are offered with members of the CASE club to assess the progress of the activities and the results of the project through discussion and an engaging visual design resource. In January 2020, scientists from INIDEP and citizen divers from the CASE club joined the international virtual event “Ocean Acidification Day of Action”, which was sponsored by the international organization “The Ocean Foundation”, through a brief documentary in which citizen divers from CASE, who collect ocean acidification samples in “El Veril”, provided details of their experience (<https://www.youtube.com/watch?v=J-TYBaHGNY>). The scientific team and CASE divers presented the project initial academic and citizen science findings at the National Marine Science Conference (Jornadas Nacionales de Ciencias del Mar) held in Comodoro Rivadavia in March 2022 (<http://www.edupa.unp.edu.ar/wp-content/uploads/2022/07/Libro-XI-JNCM-con-ISBN-corregido.pdf>).

Linkage with state agency/government. Do not know / do not answer.

Institutional funds. INIDEP (at a national level). NANO-NF-POGO (at an international level).

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences

Project leaders.

- Carla F. Berghoff, National Institute for Fisheries Research and Development (INIDEP, in Spanish).
- Lucía Epherra, INIDEP / National Scientific and Technical Research Council (CONICET, in Spanish).

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¿Es Araña o Escorpión? (Spider or Scorpion?)

Identification of spiders and scorpions found by the community



Acciones	Detalle de la captura
Ver fotografía	Identificador interno: 9677-60cc1f58ce8735-02405190
Ver en el mapa	Recolector: daniel.xxxx@hotmail.com
Exportar	Estado: RESPONDIDA
Eliminar	Visibilidad: --Ningún grupo--
Cambiar visibilidad	Fecha de registro: 18/06/2021 1:21
Volver	Fecha de envío: 18/06/2021 1:21
	Ubicación: ""Galpon""
	Latitud: -45.8428112
	Longitud: -67.5147572
	Lugar: En el exterior de la vivienda.
	Notas: ""
	Fecha de la respuesta: 18/06/2021 9:09
	Respondida por: giambelluca@cepave.edu.ar
	Grupo: Escorpión
	Especie: Bothriurus sp.



Objectives

- Engage in dialogue with the entire community to answer the queries made by citizens when an arachnid is found, and, simultaneously, receive updated information about the species distribution and the likelihood of encountering them.
- Resolve citizens' doubts as to spiders and scorpions.
- Generate a positive exchange of information between researchers and other citizens as to any issues which might arise from finding arachnids.
- Contribute to the conservation of arachnids by sending data to the research team.
- Make prevention and control measures available to the community in case species relevant to human health are found.

Description of citizen participation

Participants are required to provide photographs and supplementary data on the spiders and/or scorpions found. Such photographs and data are sent by citizens by means of an app downloaded on their cell phones.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Teaching staff
- Research team
- IT professionals

Status. Finalizado.

Time frame. 12/21/2017 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina, to be expanded to foreign countries.

Project development members. It has been entirely developed by people with formal scientific training.

Number of participants.

Over 1001

Action/s involving citizen participation

- Data collection.

Technological device/tool required.

- Android phones
- App

Recruitment methods. Through its dissemination in mass media.

Replicability. The initiative has been replicated in Mexico.

Scalability. It has been upscaled exponentially.

Open access to data. Data have been shared with the researchers involved in processing citizens' input.

Feedback. Feedback is sent to the citizens involved by the app and via e-mail to the e-mail address entered during sign-up.

Linkage with state agency/government. -

Institutional funds. No special funding has been obtained for project implementation yet.

Awards/distinctions. -

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Biological sciences.



Project leaders.

Alda González, Centre for Parasitological and Vector Studies (CEPAVE)/National Scientific and Technical Research Council (CONICET)-National University of La Plata (UNLP).

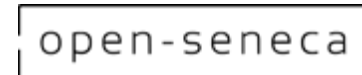
Contact information.

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Experimento participativo de Monitoreo de Calidad del Aire (Participatory Air Quality Monitoring Experiment)



Objectives

Overall goal: Assess air quality, humidity and temperature in different cities of Argentina.

Specific goals:

- Map the air pollution affecting the population and learn about the changes in pollution levels.
- Design corridors for climate change mitigation across urban areas, defining a strategy to understand the scope and limitations of measurements.
- Provide technical and educational evidence for citizens to access information that will allow them to know the quality of the air they breathe, and the relation between pollution, climate change and urban dynamics.

Description of citizen participation

It involves the development of low-cost sensors by students from public universities at workshops organized by MAYDS and UNDP. Each sensor weighs 500 grams and measures different variables, such as the levels of particles suspended in the air, humidity, and temperature.

Once assembled, the sensors are delivered and fixed to the bikes and backpacks of the volunteers selected. Volunteer selection is based on frequency of circulation and daily commutes across urban and adjoining areas.

After a certain number of weeks, sensor data are collected to create air pollution maps. Volunteers can see the level of pollution they are exposed to along their daily commutes, and they may provide solutions to reduce their own emissions.

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- The United Nations Development Programme (UNDP), within the framework of the Memorandum of Understanding in place with the Argentine Ministry of Environment and Sustainable Development (MAYDS, in Spanish).
- Open-Seneca initiative of the University of Cambridge.
- Governments of different jurisdictions within Argentina.

Status. In progress.

Time frame. 04/29/2019 – N/A

Frequency of project execution.

Based on demand or community outreach. Uninterruptedly.

Participation period. 1-2 months.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Autonomous City of Buenos Aires (CABA, in Spanish), Tucumán and Córdoba.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation

- Data collection.
- Phenomenon monitoring.
- Solution design.

Technological device/tool required.

- Particulate matter sensor: PM2.5
- Temperature and humidity sensor
- Computer: to transfer data from the sensor to the data platform

Recruitment methods. Through social media, universities, and by direct contact among participants.

Replicability. Air quality sensing has been replicated at a national level in CABA (May 2019, June 2020), Mendoza (September 2019), and Córdoba (November 2020). Tucumán and Rosario will join soon. The open-seneca initiative from the University of Cambridge, whose purpose is to measure air quality powered by citizen science, operates worldwide and has replicated this approach in Nairobi, Kenya (May 2020), Lisbon, Portugal (May 2021), Stockholm, Sweden (May 2021) and Phnom Penh, Cambodia (May 2021).

Scalability. The number of cities using these sensors to monitor air quality has increased in Argentina.

Open access to data. Participating citizens have access to the data they collect along their daily commutes. Individual routes are not published so as to protect the privacy of participants. Data are anonymously entered at city level and publicly released. The purpose is to inform environmental policies, raise citizens' awareness, and drive behavioral changes to reduce individual emissions.

Feedback. Citizens may view the air quality data gathered during data collection, and, once this process has been completed, they can access the data relevant to their city.

Linkage with state agency/government. It has been implemented in collaboration with MAYDS and local governments including CABA, Mendoza, Córdoba, and Tucumán.

Institutional funds. University of Cambridge through UK-Canada Post-doctoral funding. UK Research and Innovation (UKRI). Accelerator Lab, UNDP.

Awards/distinctions. In the United Kingdom, the open-seneca initiative won the Vice-Chancellor's Award for the projects conducted in Argentina and Nairobi.

Comments. Air quality monitoring is one of the many experiences developed by the open-seneca team at the University of Cambridge in Argentina, Kenya, Cambodia, Portugal and Sweden, among other locations.

Knowledge areas/disciplines (OECD)

ENGINEERING AND TECHNOLOGY / Electrical engineering, Electronic engineering, Information engineering
ENGINEERING AND TECHNOLOGY / Environmental engineering
SOCIAL SCIENCES / Educational sciences

Project leaders.

- María Eugenia Di Paola, UNDP Accelerator Lab in Argentina.
- Lorena Gordillo Dagallier, UNDP Accelerator Lab in Argentina.

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Fresh Air Alert, National University of General Sarmiento (UNGS):



Participatory Science for Landfill Odor Monitoring and Warning in the Great Buenos Aires Area - Birds - Short-eared Owl (*Asio flammeus*)



Objectives

Overall goal:

Monitor odors from landfills and other polluting sources.

Specific goals:

- Develop a mobile application for reporting odor nuisance.
- Geolocate reports from citizens.
- Build up a long-term database.
- Study and analyze the reporting database cross-referenced with meteorological databases.

Description of citizen participation

Citizen participation consists of data collection. At this stage, upon identifying a disturbing odor, users can log in to the mobile application and report it by filling out a standardized form, where the probable source of the odor, basic descriptors and perceived intensity are recorded. The application will capture this data and record the mobile device's location.

The data will be stored in an open database that can then be cross-referenced with meteorological databases. This helps to correlate citizen detection and warning of nuisance odors linked to wind, temperature, humidity, and pressure conditions, for subsequent analysis (source identification, frequency of disturbance occurrence among the population, etc.).

Type of citizen science project

- Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Researchers from the Institute of Sciences, National University of General Sarmiento (ICI-UNGS).
- Developers and technical staff from ICI-UNGS and the Information Systems and Technologies Program of the National University of General Sarmiento (PSyTI-UNGS).
- Environmental activists.

Status. Under design.

Time frame. -

Design start date. November 2021

Probable application launch date. November 2022

Frequency. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. Northwest of the Great Buenos Aires area (municipalities of Malvinas Argentinas, San Miguel, Moreno, Morón, Tres de Febrero, Hurlingham, José C. Paz, Ituzaingó, Merlo and San Martín).

Project development members. It has been developed with the collaboration of both scientists and participants without formal training

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Phenomenon monitoring.

Technological device/tool required

- Mobile phone with Internet connection for the downloadable application, data upload and device geolocation.

Recruitment methods. Through social media, instant messaging, and mailing lists (e-mail distribution lists and instant messaging lists).

Replicability. Don't know/No answer.

Scalability. It has not been upscaled yet.

Open access to data. Using Google maps and database.

Feedback. Application messaging and redirection to Google maps.

Linkage with state agency/government. No.

Institutional funds. National University of General Sarmiento (UNGS).

Awards/distinctions No.



Comments. Initiative under design from the Institute of Sciences (ICI-UNGS) in collaboration with the General Department of Information Systems and Technology (DGSYTI-UNGS).

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences

Project leaders.

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FjordPhyto

Phytoplankton (microalgae) monitoring in the Antarctic Peninsula.



Objectives

Overall goal:

- Study how melting glaciers affect phytoplankton communities in the west of the Antarctic Peninsula.

Specific goals:

- Analyze phytoplankton biodiversity and dynamics in coastal areas, which are not so broadly studied in the west of the Antarctic Peninsula.
- Raise awareness among visitors as regards the importance of microalgae communities in Antarctic ecosystems.

Description of citizen participation

Participants with no formal training arrive at the points of interest by tourist ships and disembark in Zodiac-type boats together with a polar guide, who was previously trained by the researchers of the project. They take different water samples (tap, bottle, and meltwater samples), make environmental measurements (conductivity, temperature, and depth measures [CTD], and the Secchi disk) with tools provided by the project team, and duly record data in spreadsheets. At the end of the season, data and samples are collected and sent to the researchers in order to be analyzed.

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Scripps Institution of Oceanography.
- University of California San Diego.
- Department of Phycology of the Natural Science School and Museum at the National University of La Plata (UNLP in Spanish)
- The Polar Citizen Science Collective.
- International Association of Antarctica Tour Operators (IAATO).

Status. In progress.

Time frame. 11/16/2016 - N/A.

Frequency of project execution. Seasonal (in summer).

Participation period. From days to weeks.

Scope of the initiative. International (two or more countries).

Geographic scope. Antarctic Peninsula

Project development members. It has been developed with the collaboration of scientists and participants, both with formal training and without it.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Data collection.

Technological device/tool required.

- CTD*, plankton net, water filtration kit, microscope, bottle, fixatives, scissors, filters, tubes. All these elements are included in a kit provided by the project team.

*A CTD (conductivity, temperature, and depth) is a tool to measure the temperature, the conductivity, and the depth of water by means of sensors placed in an opening inside the tool where the water flows through.

Recruitment methods. Through the project's social media and website, promotion by the International Association of Antarctica Tour Operators (IAATO) and The Polar Citizen Science Collective.

Replicability. It has not been replicated yet.

Scalability. The project grows year after year thanks to the addition of new stakeholders who want to collaborate.

Open access to data. Data can be downloaded from the website in a semi-open format. There is also an online map to localize the sampling sites. Data will be available from the repository of the University of California San Diego.

Feedback. Participants can still follow the project development through social media and the website (<https://fjordphyto.ucsd.edu/publications/>). At the same time, annual reports are emailed to our collaborators.

Linkage with state agency/government. No.

Institutional funds. National Aeronautics and Space Administration (NASA), United States. National Science Foundation (NSF), United States. Hurtigruten Foundation. Anonymous donations.

Awards/distinctions. No.

Comments. The methodology proposed worldwide by conservation charity JUST ONE OCEAN is used to make the results internationally comparable.

The information is compiled in <https://microplasticsurvey.org/results>.

Knowledge areas/disciplines (OECD)
Natural and Exact Sciences / Biology

Leaders.

- Maria Vernet, Scripps Institution of Oceanography/Universidad de California en San Diego (UCSD)
- Allison Cusick, Scripps Institution of Oceanography/UCSD
- Martina Mascioni, Department of Phycology, Natural Science School and Museum (UNLP)/National University of La Plata (UNLP)
- Rick Reynolds, Scripps Institution of Oceanography/UCSD
- Gastón O. Almandoz, Department of Phycology/FCNYM/UNLP

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Gaviota Cangrejera (Olrog's Gull)

Monitoring of the marine-coastal ecosystem from the crab gull.



Crédit: Hugo Gribman.

Objectives

Overall goals: Contribute to the conservation and management of Olrog's Gulls (*Larus atlanticus*) considering their habitats and their behavioral flexibility in the event of any potential changes in the conditions of the area they inhabit. The ultimate goal of this project is to contribute to the implementation of ecosystem policies in the management of the marine and coastal environment.

Specific goals:

- Determine the migration movements of Olrog's Gull specimens using citizens' reports on ringed birds.
- Study habitat selection by this species during the non-breeding season in areas exposed to different anthropic impacts and link such information with the data collected on their individual condition and behavioral patterns.

Description of citizen participation

During field research, Olrog's Gull specimens are caught for ringing. As part of the monitoring process, individuals are ringed and samples of blood are taken. Additionally, behavioral tests are conducted to determine their personality traits and flexibility. The information gathered may be compared with the reports on ringed birds found in different coastal areas in the south of the continent. Citizens record ringed birds and report the number on their ring by sending a photo and the location of the bird (georeferencing).

Type of citizen science project

Contributory project: Citizens participate in data collection and analysis.

Participating parties.

- Researchers and doctoral fellows of the Vertebrate Group of the Institute of Marine and Coastal Research (Faculty of Exact and Natural Sciences [FCEyN, in Spanish]).
- University of Mar del Plata [UNMDP, in Spanish].
- The National Scientific and Technical Research Council [CONICET] centered in the city of Mar del Plata.

Status. In progress.

Time frame. 02/04/2016 - N/A

Frequency of project execution. Field research and the request for reports on sightings of ringed birds take place mainly between April and August, as this species is present in the northern Argentine and Uruguayan coasts only in these months. However, during the whole year, sightings of ringed birds are reported throughout their geographical area of distribution.

Participation period. On a sustained basis. There are birdwatchers who have been reporting banded birds for more than 5 years.

Scope of the initiative. International (two or more countries).

Geographic scope. The initiative conducts field research in Reserva de Biosfera Parque Atlántico Mar Chiquito (Parque Atlántico Mar Chiquito Biosphere Reserve), on the coast of Mar del Plata and its surroundings. Also, the residents of coastal areas in Argentina and Uruguay are requested to report sightings of ringed birds.

Project development members. It has been entirely developed by people with formal scientific training.

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Data collection.
- Data analysis.

Technological device/tool required.

The data to be recorded may be seen with the naked eye. However, as a general rule, the following instruments are used:

- Binoculars
- Photographic cameras

Recruitment methods. Through social media (Instagram, Twitter and Facebook groups). Also, a flyer is sent every year in April by WhatsApp, with the aim to create a snowball effect.

Replicability. Do not know/do not answer

Scalability. Between 2019 and 2022, the number of records per year increased. During these years, almost 50 people were registered, who reported hundreds of tagged individuals visiting the areas of Bahía San Blas, Bahía Blanca, Mar del Plata, Necochea, Santa Clara del Mar, La Caleta, Mar de Cobo, Mar Chiquita, Laguna José Ignacio, Rocha Uruguay, etc.

Open access to data. The data collected will be presented at scientific meetings and will be reported in a document available to the relevant communities.

Feedback. Immediately after reporting a ringed bird, the citizen receives details on such bird in particular. The details shared include sex, ringing date, age (if known) and any other interesting data.

Linkage with state agency/ government. Annual reports are submitted to the Provincial Agency for Sustainable Development (OPDS, in Spanish) and the Directorate of Flora and Fauna of the province of Buenos Aires.

Institutional funds. National Agency for the Promotion of Research, Technological Development and Innovation (Agencia I+D+i, in Spanish). National Scientific and Technical Research Council (CONICET, in Spanish). National University of Mar del Plata (UNMDP, in Spanish).

Awards/distinctions. Do not know/do not answer

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
NATURAL SCIENCES / Biological sciences
SOCIAL SCIENCES / Sociology

Project leaders.

Germán García, Institute of Marine and Coastal Research (IIMYC, in Spanish) / National Scientific and Technical Research Council (CONICET, in Spanish)-National University of Mar del Plata (UNMDP, in Spanish).

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Geckos Forasteros en tu Casa, ¿Estás Seguro?

(Non-native Geckos at Home, Are you Sure?) Monitoring exotic species of geckos existing in Argentina



Objectives

- Assess the current knowledge of the exotic gecko invasion occurring in Argentine soil.
- Establish the geographic distribution of each species within Argentina.
- Raise awareness on the study of invasive species and the importance of citizen involvement for their conservation and research.

Description of citizen participation

Citizens provide data on some species of exotic geckos present in their own homes. To this end, they must fill out an online form or contact project members directly through social media or via e-mail.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Research team of the National Scientific and Technical Research Council (CONICET, in Spanish) of Argentina
- Foreign researchers
- Postgraduate students pursuing a doctorate from the National University of Córdoba (UNC, in Spanish)
- Undergraduates about to receive a university degree (in Biology) from UNC
- Biology professors
- Science communicators

Status. In progress.

Time frame. -

Frequency of project execution. Only once.

Participation period. 1 year.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation

- Data collection.
- Phenomenon monitoring.

Technological device/tool required. Cell phone to record the observation (on a photograph or on video) and internet access to send the information through an online form

Recruitment methods. Through social media, the press, websites and face-to-face to direct contacts.

Replicability. Don't know/No answer.

Scalability. It has not been upscaled yet.

Open access to data. Preliminary findings are shared through social media and on the project website. Final findings will be published on scientific journals and science magazines.

Feedback. All participants receive feedback on the species identification, its biological traits, the significance of the record within the context of biological invasions, and the measures to be adopted (and avoided) in each case. It is sent in the form of personal text messages through social media.

Linkage with state agency/government. -



Institutional funds. Project's own funding sources.

Awards/distinctions. -

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Biological Sciences

Project leaders.

Nicolás Pelegrin, Institute of Animal Diversity and Ecology (IDEA)/ National Scientific and Technical Research Council (CONICET)-National University of Córdoba (UNC).

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GeoVin

Study on vector-borne diseases (transmitted by animals)



Objectives

- Provide non-specialized users with interactive, educational, recreational and free tools to make contributions to address the issue of kissing bugs throughout the country.
- Raise awareness on the health issue related to Chagas disease, involving citizens in vector monitoring.

Description of citizen participation

Through the project's social media or by a digital, educational and free app, citizens are invited to participate in the monitoring of kissing bugs, mainly of the species related to Chagas disease.

Using this app, citizen scientists can report the presence of kissing bugs, by submitting photographs and sharing the location detected by their mobile devices. A panel of expert reviewers helps users to identify the species and determine whether it is a potential disease vector. Then, citizen scientists are informed of such determination. If it is a potential insect vector, the user is referred to the nearest health care centers for insect analysis.

The photographs provided by citizen scientists are used to develop a neural network to automatically identify kissing bugs in pictures taken with mobile devices.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Centre for Parasitological and Vector Studies (CEPAVE, in Spanish).
- National Scientific and Technical Research Council (CONICET, in Spanish).
- National University of La Plata (UNLP, in Spanish).

Status. In progress.

Time frame. 05/01/2018 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been entirely developed by people with formal scientific training.

Number of participants. Over 1001.

Action/s involving citizen participation Data collection.

Technological device/tool required.

- Cell phone, tablet or computer with Internet access.
- App.

Recruitment methods. -

Replicability. It has not been replicated yet.

Scalability. Don't know/No answer.

Open access to data. All the information collected is made available to the public at large for free on the project website.

Feedback. Participants received their feedback through social media, by the app and/or via e-mail.

Linkage with state agency/government.

- Zoonosis, South Programmatic Area, Ministry of Health of the province of Chubut.
- Vector and Environment Operating Unit (UnOVE), CeNDIE - ANLIS Malbrán.
- Zoonosis Department, Ministry of Health of the province of Río Negro.

Institutional funds. Project's own funding sources. National Agency for the Promotion of Science and Technology (ANPCyT, in Spanish) (PICT Project No. 2018-1545).

Awards/distinctions: -



Comments. The GeoVin database consists of citizens' contributions and the historical bibliographic reports of the country published on:
• Ceccarelli S. et al. 2018 DataTri: a database of American triatomine species occurrence. Scientific Data 5:180071. DOI: 10.1038/sdata.2018.71.
• Ceccarelli S. et al. 2022. American triatomine species occurrence: updates and novelties in the DataTri database. GigaByte <https://doi.org/10.46471/gigabyte.62>.

Knowledge areas/disciplines (OECD)

NATURAL SCIENCES / Biological sciences
MEDICAL AND HEALTH SCIENCES / Basic medicine

Project leaders.

- Gerardo Aníbal Marti, Centre for Parasitological and Vector Studies (CEPAVE)/National Scientific and Technical Research Council (CONICET)-National University of La Plata (UNLP).
- Soledad Ceccarelli, CEPAVE/CONICET-UNLP.
- Agustín Balsalobre, CEPAVE/CONICET-UNLP.
- Joaquín Cochero, Institute of Limnology "Raúl A. Ringuelet" (IL-PLA)/CONICET-UNLP and the Natural Science School and Museum (FCNYM)/UNLP.

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Gigante de las Pampas (The Giant of the Pampas)

Monitoring of the Argentine horned frog (*Ceratophrys ornata*).



Credit: Matias Scincha.

Objectives

Overall goal

Learn about the current and historical geographic distribution of the Argentine horned frog (*Ceratophrys ornata*) in Argentina, Uruguay, and Brazil, and encourage the participation of local communities in its conservation.

Specific goals

- Monitor the species collaboratively to detect it in real time.
- Use this information to guide actions for conservation and handling.
- Disseminate the conservation issues of the Argentine horned frog in particular and amphibians in general.

Description of citizen participation

Citizens participate by sharing records on the Argentine horned frog. There are three ways of participation:

- 1) By filling in a Google form available on the project's social media. There, participants can upload a photo and add a GPS coordinate, date, time, and weather and environmental data associated with the record.
- 2) By downloading the Escuerzo: Gigante de las Pampas App available for Android on Google Play Store. Through the app, the user can sign up and, by just taking a photo, the record is sent with the associated information.
- 3) Through in-person surveys at locations where Internet connectivity is low or is not available. For this purpose, the Gigante de las Pampas team visits towns and conducts surveys in person. Records can be current or from several years back, but in all cases, they should include a photo or go through a validation process.

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Conservación de Anfibios en Argentina (COANA) [Amphibian Conservation in Argentina] Initiative
- Institute of Ecology, Genetics, and Evolution of Buenos Aires (IEGEB-BA in Spanish)/ University of Buenos Aires (UBA)-National Scientific and Technical Research Council (CONICET in Spanish)
- Gabriela Agostini, Researcher, CONICET
- Camila Deutsch, PhD Scholarship Recipient, CONICET
- David Bilenca, Researcher, CONICET and Faculty of Exact and Natural Sciences (FCEN in Spanish)/UBA

Status. In progress.

Time frame. 09/15/2015 - N/A.

Frequency of project execution. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. International (two or more countries).

Geographic scope. Argentina (Provinces of Buenos Aires, La Pampa, Córdoba, and Santa Fe), Uruguay, and Brazil.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation.

- Data collection.

Technological device/tool required.

- Device for taking photos (mobile phone or camera).
- Internet connection (not essential).
- Mobile phone and/or phone (not essential).

Recruitment methods. Flyers are posted on the initiative's social media to invite people to participate, especially in spring and summer. Through educational activities at schools, regional parties, science fairs, and conferences.

Replicability. In Brazil and Uruguay in 2018.

Scalability. The development of the mobile app was an advance, allowing the addition of more participants to the initiative. Moreover, the project adopted a communication strategy, used on social media, developed currently by specialists in science communication. This strategy considerably improved the exchange with the citizen science program participants and increased to a great extent the number of received records.

Open access to data. All publications and products obtained from the initiative are available to the public on the web.

Feedback. Each participant is contacted personally. Moreover, audiovisual material and multimedia content is produced for social media.



Linkage with state agency/government. No.

Institutional funds. Project's own funding sources. National Scientific and Technical Research Council (CONICET). Scientific and Technological Research Projects (PICT in Spanish). Neotropical Grassland Conservancy. The Rufford Foundation. National Geographic Society.

Awards/distinctions. Rufford Small Grant, National Geographic Grant (awards that provide funding).

Comments. Gigante de las Pampas is within the framework of the COANA (Amphibian Conservation in Argentina) initiative gathering amphibian conservation projects in different regions of Argentina. This initiative's launch promoted the creation of other citizen science projects, such as Geckos Forasteros en tu Casa [Non-native Geckos at Home] which is also part of the mapping.

Knowledge areas/disciplines (OECD)
Natural and Exact Sciences / Biology

Leaders.

- Gabriela Agostini, Institute of Ecology, Genetics, and Evolution of Buenos Aires (IEGEB-BA)/ University of Buenos Aires (UBA)-National Scientific and Technical Research Council (CONICET) and the Amphibian Conservation in Argentina (COANA) Initiative
- Camila Deutsch, IEGEB-BA/UBA-CONICET and COANA Initiative

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Grupo CoSensores – Sensores Comunitarios (CoSensores Group - Community Sensors)

Development and application of accessible tools for social and environmental assessments to be made by the community



Objectives

Develop technologies that allow organized community groups to perform social and environmental assessments in a simple and affordable way, and therefore contribute to the implementation of restoration procedures or actions leading to material improvements in their quality of life.

Description of citizen participation

CoSensores is an interdisciplinary group which works horizontally with community groups organized around social and environmental issues, by jointly posing and answering questions that will contribute to their resolution. Collaboration results from the specific knowledge and possibilities of academia and territory, by making consensual decisions and undertaking tasks and responsibilities collectively. The intervention strategy chosen is based on the concept of Participatory Action Research for knowledge co-production. The work methodology used consists in holding two workshops. In the first workshop, the issue is collectively identified, and the relevant trials are conducted. In the second one, the results, advantages and limitations of the methods used are shared, as well as any potential strategies for solving the specific issues detected.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Grupo CoSensores.
- Community-based organizations (comprising students, teaching staff, researchers and holders of fellowships at national universities).

Status. In progress.

Time frame. 01/02/2013 – N/A

Frequency of project execution. Based on demand or community outreach.

Participation period. It may take days or months, depending on the project.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants.
Over 1001.

Action/s involving citizen participation

- Problem identification.
 - Data collection.
 - Data analysis.
 - Phenomenon monitoring.
 - Solution design.
 - Solution implementation.
- Citizens are involved in the entire process.

Technological device/tool required.

- Different tools are required for each project:
- Cell phones
 - Lab and mapping techniques
 - Measurement devices using Arduino sensors, among others

Recruitment methods. Through social media and at gatherings organized with the communities involved.

Replicability. It has been replicated with different organizations and in different locations and settings, e.g., in Santiago del Estero, from 2013 to 2016, and in Delta del Tigre (Buenos Aires) from 2016 to date.

Scalability. It has been upscaled in a diverse and non-centralized way.

Open access to data. The means to access information was decided collectively with the community involved in collecting data. In some cases, such data was made available to the public through social networks, community media and/or academic presentations.

Feedback. Each activity includes a stage where information is shared.

Linkage with state agency/government. Actions are coordinated with public educational institutions at different levels.

Institutional funds. Funding for university research, development and extension.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Computer and information sciences
NATURAL SCIENCES / Earth and related Environmental sciences
SOCIAL SCIENCES / Educational sciences

Project leaders.

No project leaders, horizontal research group.

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Hornero (Ovenbird)

Birds- Ovenbird.



Objectives

Overall goal

Collect and analyze observations of ovenbird nests (*Furnarius rufus*) from southern South America with a mobile application to learn more about this typical bird.

Specific goals

- Explain the asymmetries in the nests of southern South American ovenbirds.
- Explain nest building behaviors and nest structures among southern South American ovenbirds.

Description of citizen participation

Using a mobile application, citizens are asked to report the observed nests, their location and some of their characteristics; in addition, they are asked to share photos. Data collection is simple and dynamic. Data can be uploaded in urban, rural, or natural areas.

Type of citizen science project

- Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

Max Planck Institute for Ornithology.

Status. Finished.

Time frame. 10/24/2019 - 10/24/2020

Frequency of project execution. Uninterruptedly.

Participation period. 3 minutes per record.

Scope of the initiative. International (two or more countries).

Geographic scope. Argentina, Uruguay, Brasil, Bolivia y Paraguay.

Project development members. It has been developed with the collaboration of both scientist and participants without formal training.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Data collection.

Technological device/tool required.

- Mobile phone.

Recruitment methods. Through social media.

Replicability. It has not been replicated yet.

Scalability. More and more people became involved in the project. More than 13,000 people contributed data.

Open access to data.

- The data are in open databases uploaded to Mendeley Data with a 1-year embargo (<https://data.mendeley.com/datasets/9745v8tj9h/1>)
- Publications.

Feedback. Participants are informed about the progress and results through social media feeds and emails to the accounts with which they registered in the mobile application.

Linkage with state agency/government. No.

Institutional funds. Project's own funding sources. International sources (Max Planck Institute).

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Biology
Agricultural Sciences / Agricultural biotechnology
Social Sciences / Communication and media

Leaders.

- Lucia Mentasana, Max Planck Institute for Ornithology.
- Nicolas Adreani, University of Vienna & Max Planck Institute for Ornithology.

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Inundaciones: ¿qué podemos hacer? (Floods: What Can We Do?) Collaborative Technologies in Risk Management

Flood and waterlogging risk management.



Objectives

Overall goal

Enhance social stakeholders' knowledge in southwestern Buenos Aires, Argentina, with respect to the risk of heavy rains, overflows, and floods, and encourage their participation in flood risk management processes.

Specific goals

- Determine the population's perception and knowledge of flood and waterlogging hazards.
- Produce data and information and promote actions for flood risk management together with citizens and with the collaboration of different stakeholders.
- Raise flood hazard awareness by stressing the importance of knowledge and information regarding risks and their management.
- Encourage debate and reflection based on the perceptions and experiences of local stakeholders on flooding events.
- Add new features to InundApp which will enhance its use for flood risk management purposes.
- Promote InundApp as a technological tool that integrates the culture of prevention in the population's everyday life.
- Foster cooperation among participating organizations by defining coordination mechanisms in the event of actual or potential flooding events.

Description of citizen participation

Citizens participate mainly in:
1) Defining scenarios and building knowledge related to flood and waterlogging risks in the area, through two types of interactive participatory workshops: institutional (including specific activities aimed at some of the stakeholders in relation to their risk management role) and inter-institutional (aimed at members of all participating organizations with different risk management roles, which favors experience sharing). Activities are planned in two phases, in agreement with disaster risk management. The first stage involves knowledge and awareness of flood issues. The second stage consists of implementing techniques with a Participatory Action Research approach.

2) Producing data and phenomenon monitoring using a free mobile phone application (InundApp) easily installed and used. Thus, citizens can quickly report hydrometeorological events and affected elements in their immediate surroundings (collaborative mapping), by uploading text and capturing photographs. The application can be used to indicate which phenomenon is occurring and its effects.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.



Participating parties.

Education and scientific institutions:

- Escuela de Educación Secundaria N.º 6 (Secondary School No. 6), Paraje El Relincho (Coronel Suárez, Buenos Aires, Argentina).
- Instituto Superior de Formación Docente N.º 160 (Teacher Training Institute No. 160), (Coronel Suárez, Buenos Aires, Argentina).
- Agencia de Extensión Rural (AER) (Rural Outreach Agency) Coronel Suárez, Buenos Aires, Argentina, of the Bordenave Agricultural Experiment Station of the National Institute of Agricultural Technology (INTA, by its initials in Spanish).

Emergency institution:

- Coronel Suárez Volunteer Fire Department.

Agricultural institutions:

- Cooperativa Agropecuaria General San Martín, Coronel Suárez Ltda. (Agricultural Cooperative of Coronel Suárez).
- Sociedad Rural de Coronel Suárez. (Rural Society of Coronel Suárez).

Status. In progress.

Time frame. 5/26/2017 - N/A.

Frequency of project execution. Uninterruptedly.

Participation period. Sustained over time, with two frequencies. 1) On a quarterly or so basis (conducting participatory workshops) and 2) Random (associated with the use of InundApp, based on rainfall, overflows, and floods).

Scope of the initiative. Local (city, province).

Geographic scope. Southwest of the province of Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

- Mobile phones and tablets to: 1) record and monitor rainfall, overflows and floods and 2) develop collaborative maps for data collection and community alerts.

Recruitment methods. Through social media (project's own and institutional - National University of the South (UNS) and the National Scientific and Technical Research Council (CONICET)-) and media (TV, print and digital press, radio), specific brochures, e-mail.

Replicability. It has not been replicated yet.

Scalability. Increase in the number of institutions, people involved, quantity and diversity of activities, and InundApp features.

Open access to data. All the information collected is made available to members of participating institutions and colleagues.



Feedback. Participants receive their feedback through workshops, social media, press and scientific publications.

Linkage with state agency/government. AER INTA Coronel Suárez participated in the workshops and promoted the application.

Institutional funds. Through a University Outreach Project (PEU) funded by the National University of the South (UNS).

Awards/distinctions. No.

Comments. 2020: Conference at the International Seminar "Advances in Early Warning Systems: Lessons learned, and challenges". Colombia. 2019: Conference as part of the panel "Innovation in climate change adaptation systems: preparedness, early warning and community participation", organized by the Inter-American Development Bank (IDB) Costa Rica. 2019: Mention in "Balance CONICET 2018: achievements of the CONICET community in the last year". (<https://www.conicet.gov.ar/balance-2018-logros-de-la-comunidad-conicet-en-el-ultimo-ano>)

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences

Leaders.

- Jorge Osvaldo Gentili, National University of the South (UNS) and the National Scientific and Technical Research Council (CONICET).
- María Eugenia Fernández, UNS and CONICET.
- Belén Moretto, UNS and CONICET.

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Los anfibios de la Ciudad Autónoma de Buenos Aires (The Amphibians of the Autonomous City of Buenos Aires)

Amphibian monitoring and biological research.



Objectives

Overall goal

Make a record and inventory of the amphibian species living in the Autonomous City of Buenos Aires through citizen participation, helping the community get close to nature and becoming a potential management tool for environments identified as important sites for amphibians.

Specific goals

- Promote citizen participation in research projects to enhance the value of the amphibian fauna in the Autonomous City of Buenos Aires and surrounding areas.
- Identify the important sites for amphibian conservation in the City of Buenos Aires.
- Promote and combine the inventory-making and monitoring of amphibians at the important sites previously identified.

Description of citizen participation

Anyone can upload records (photo or audio) which will be validated by the project's technical team and other users from the community, using a user profile in the iNaturalist (Argentinat) citizen science platform. The project leaders will upload these records when the citizens cannot do it on their own. Citizens should send them to the SAVE THE FROGS! Buenos Aires email. Through these records, contact is established with local citizens at places where a systematic field survey is needed, encouraging the rest of the citizens to monitor records and observe phenomena of interest (disappearance of water bodies or green spaces, etc.) as well as provide training in the territory to enhance and increase the number of records in the platform. Moreover, upon request of the relevant permissions, the photos or audio recordings sent to the project will be used to share educational content through the project's social media, thus creating feedback.

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

SAVE THE FROGS! Buenos Aires.

Status. In progress.

Time frame. 03/14/2017 - N/A.

Frequency. Uninterruptedly.

Participation period. Participation is occasional and involves taking a photo or recording audio of an amphibian and uploading it to the platform. It only takes a few minutes. However, citizens' participation tends to be steady over time.

Scope of the initiative. Local (city, province).

Geographic scope. The Autonomous City of Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants with formal training and without it.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Other/s. Local contact for specific surveys.

Technological device/tool required.

- Mobile phones to upload observations (photo or audio) of amphibians (dead or alive) in different stages.
- Computer to upload observations (photo or audio) of amphibians (dead or alive) in different stages.
- Camera.

Recruitment methods. Project's social media. Internal communications through the citizen science platform. Training sessions, and invitations to go on outings and do volunteer work.

Replicability. The project has been replicated using the same platform and adapting the methodology to different audiences and contexts. A similar project is currently being carried out for the entire province of Buenos Aires.

Scalability. There has been an increase in the number of participants and records over the months and years.

Open access to data. Data is shared on the open-access platform and the project's social media posts.

Feedback. Using a database of the users who had uploaded records, feedback is given by email, newsletter, and the citizen science platform's newspaper. It is also posted on the project SAVE THE FROGS! Buenos Aires social media and shared through the telegram channel.

It informs participants about the project's progress or news (species or sites that still need to be recorded or relevant findings) and invites them to actively participate to upload more records and go on the scheduled outings, among other activities.

Linkage with state agency/government. No.

Institutional funds. No.

Awards/distinctions No.

Knowledge areas/disciplines (OECD)

Natural And Exact Sciences / Earth and Environmental Sciences.

Natural And Exact Sciences / Biology.

Natural And Exact Sciences / Other Natural and Exact Sciences .

Project leaders.

- Natalia Maruscak, SAVE THE FROGS! Buenos Aires.
- Rocío Rudak, SAVE THE FROGS! Buenos Aires.

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Instagram: instagram.com/buenosairesstf/

Facebook: facebook.com/buenosairesstf/

Twitter: twitter.com/buenosairesstf

Blog: stfbuenosaires.blogspot.com/

Telegram channel: t.me/buenosairesstf





MASARE - Sustainable Aggregates Management in Rivers and Reservoirs

Environmental monitoring and development of public policy tools



Universidad Nacional de Córdoba



Objective

Overall goal

Make progress in the spatial and temporal characterization of sediment transport dynamics in bodies of water in the area of the Río Cuarto (Cuarto River) (Chocancharava), province of Córdoba, Argentina.

Specific goals:

- Determine quantity, quality and size of sediments transported in bodies of water.
- Characterize spatial and temporal variation in the size of bottom sediment transported in bodies of water.
- Estimate the rate of bottom sediment transport and suspension in the study area.
- Transfer the information obtained and the tools developed to sand mine representatives to improve their commercial activities and optimize aggregates extraction.
- Transfer the information obtained and the tools developed to management agencies to adopt measures to mitigate the impacts of erosion and/or sedimentation generated by inadequate sediment management.

Description of citizen participation

Operators of mechanical sand mines installed on the Río Cuarto riverbed in the province of Córdoba, Argentina, are participating in this project on behalf of the community.

The work methodology is defined in a co-creative process based on continuous feedback, which includes all stakeholders (representatives of the community, management agencies and academic and research institutions).

Furthermore, sand mine operators, with extensive experience in the system under study, make significant technical and scientific contributions related to the evolution over time of the different processes to be studied (hydrology, hydraulics, sediment transport, etc.). More specifically, every month, sand mine operators take bed and suspended sediment samples and repeat this procedure after major flood events.

Additionally, operators report rainfall using instrumentation located in each sand mine to correlate the evolution of sediment transport characteristics with existing hydrometeorological conditions.

Representatives of academic and research institutions process the samples. The results are then transferred to the community and management agencies for analysis, and to jointly define and evaluate public policies.

Type of citizen science project

- Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

It is promoted by the School of Exact, Physical and Natural Sciences (FCEfYN), National University of Córdoba (UNC), along with the participation of the following institutions:

- Provincial Administration of Water Resources, Province of Córdoba (APRHi)
- National University of Río Cuarto (UNRC)
- National Scientific and Technical Research Council (CONICET)

Status. In progress.

Time frame. 10/01/2021 - N/A

Frequency. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. Province of Córdoba, Argentina.

Project development members. Representatives of the community and mechanical sand mine operators located on the course of the Río Cuarto.

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Problem definition.
- Data collection.
- Data analysis.
- Phenomenon monitoring.
- Solution planning.
- Solution deployment.

Citizens participate in all stages of the process.

Technological device/tool required.

- Shovels for extraction of sediment samples from the river bottom.
- Containers for storing bottom and suspended sediment samples.
- Forms to report observations, experiences and comments.
- Rain gauges installed to correlate samples to a hydrometeorological situation.
- Stopwatch and measuring tape to estimate flow rates.

Recruitment methods. Through management agencies, in particular through APRHi, Río Cuarto delegation.

Replicability. Work has already begun on Río San Antonio (San Antonio River), one of the main tributaries of the San Roque reservoir, and on Río Xanaes (Xanaes River) (Río Segundo).

Scalability. Non-mechanical sand mines will be added in the project, which are low-tech but have a large number of participants, with a significant social impact. The rest of the community will join in later. Therefore, the number of participants as well as the project's spatial coverage are expected to increase annually.

Open access to data. Knowledge and results are transferred to sand miners through reports. In addition, information is transmitted to the rest of society through social media as well as the reports prepared by the people who participate in this project.

Feedback. Sand mine operators receive detailed information on the quality of the sediment they obtain and its spatial and temporal variability. This information will enable them to improve their commercial and extractive activities.

Linkage with state agency/government. Institutional support is provided by:

- Ministry of Public Services of the Government of the Province of Córdoba.
- APRHi.

The data generated in this project are transferred directly to the management agencies in charge of monitoring water resources in the province of Córdoba.

Institutional funds. The outreach departments of the universities in charge of this initiative. Ministry of Public Services, of the Government of the Province of Córdoba. APRHi, Córdoba. CONICET.

Awards/distinctions -

Knowledge areas/disciplines (OECD)

Natural And Exact Sciences / Earth and Environmental Sciences.
Engineering and Technology / Civil Engineering.

Project leaders.

- Carlos Marcelo García Rodríguez, School of Exact, Physical and Natural Sciences (FCEfYN), National University of Córdoba (UNC) and the National Scientific and Technical Research Council (CONICET) in Argentina.
- Rocío Bianchi, Institute of Advanced Studies in Engineering and Technology (IDIT), CONICET.

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MATTEO

Educational linkage, interinstitutional integration and environmental monitoring



Objectives

Overall goals:

- Highlight the importance of crowdsourcing data which may be later used for optimal water resource management.
- Promote interinstitutional and intra-institutional work, by encouraging the partaking of students at different educational levels.
- Promote citizen participation in scientific projects
- Foster the involvement of public and private schools of any kind.
- Plan the participation of residents in recording hydrometeorological data.

Specific goals:

- Record and analyze weather data to characterize particular physical phenomena (for example, heavy storms) occurring in the area; also, contribute to the determination of certain methodological aspects and to instrumentation making.
- Establish ties at every educational level between public and private educational establishments.
- Crowdfund data to co-create knowledge with the aim to mitigate the effects of environmental hazards (floods, droughts, wildfires, pollution, etc.).

Description of citizen participation

Children and young people carry out hydrological and hydrometeorological measurements and build their own low-cost instruments. These instruments are validated by comparison with official instruments (for example, the instruments are installed in the National Weather Service educational experimental fields). Additionally, the students are promoters of what they have learned, applying it to their daily environment. Private residents have been incorporated to collaborate with data recording, giving rise to MATTEO R., where the R in the last name (Ravagli) refers to Residents. Today, schools from the MATTEO project are currently participating in international scientific projects such as PREVENIR project, funded by the Science Agency of Japan.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Faculty of Exact, Physical and Natural Sciences (FCEyN, in Spanish) of the National University of Córdoba (UNC, in Spanish).
- National Scientific and Technical Research Council (CONICET, in Spanish) of Argentina with the support of allied institutions.

Status. In progress.

Time frame. 01/03/2018 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. International (two or more countries).

Geographic scope. In the province of Córdoba, other provinces (Salta, Tucumán, San Luis, Chubut), and foreign countries (Perú, United States, Colombia).

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation Problem identification. Data collection. Data analysis. Phenomenon monitoring. Solution design. Solution implementation. Citizens are involved in the entire process.

Technological device/tool required.

- Low-cost automated commercial weather stations.
- Low-cost temperature and humidity sensors.
- Beaufort scale.
- Commercial rain gauges and eco-rain gauges (built with recyclable material).
- Other low-cost weather instruments built by the students, faculty and families in each educational community.

Recruitment methods. Educational institutions joined the initiative as a result of the interest of both students and the teaching staff. Specific collaboration agreements have been signed with several educational institutions and the Directorate of Technical Schools of the Province of Córdoba to incorporate this project into the curricula recommended by said directorate.

Replicability. The current network comprises over 50 educational establishments situated in the province of Córdoba. The project is being replicated in the province of Salta by Universidad Católica de Salta (Catholic University of Salta) (UCASAL, in Spanish), and in Tucumán by the Faculty of Exact Sciences and Technology of the National University of Tucumán and INFINOA (CCT CONICET – Tucumán), as well as in the provinces of Chubut and San Luis. It is also being implemented in Colombia (Institución Educativa El Salado [Educational Institution El Salado], Envigado) and in the United States (Lincoln Trail Elementary – Mahomet, Illinois).

Scalability. Every year, the number of participants increases significantly.

Open access to data. The findings and the knowledge are disseminated through social media and by means of the reports created by project members. The data collected by citizens is published in <https://matteo.aprhi.gob.ar/> of public access.

Feedback. Students, teaching staff and residents prepare a set of guidelines which are incorporated into the new stages of the project.

Linkage with state agency/government.

- Ministry of Public Services of the Province of Córdoba.
- Provincial Administration of Water Resources of Córdoba.
- Ministry of Education of the Province of Córdoba.
- National Weather Service (SMN) in the Subregional Semiarid Region Center of the National Water Institute.

The data generated in this project are transferred directly to the government agencies responsible for monitoring the water resources of the province of Córdoba.

Institutional funds. They have been obtained from the extension secretariats of the universities leading this initiative. Besides, financial support and donations were provided by the following entities: the Ministry of Public Services of the Province of Córdoba; the Provincial Administration of Water Resources of Córdoba, the Department of Atmospheric Sciences of the University of Illinois at Urbana-Champaign; the Semi-arid Region Deputy Management of the National Water Institute, the Municipality of Villa Carlos Paz, and CONICET.

Awards/distinctions. It has been declared a project of legislative interest at a local level in the city of Villa Carlos Paz (Declaration No. 025/2019-202) and by the Municipality of Sinsacate (Ordinance No. 1108/2021).

Classification of knowledge areas (OECD).

Natural Sciences / Earth and related Environmental sciences
Engineering and Technology/ Civil Engineering
Agricultural Sciences/Other agricultural sciences

Project leaders.

- Carlos Marcelo García Rodríguez, Physical and Natural Sciences (FCEyN, in Spanish) of the National University of Córdoba (UNC, in Spanish) / National Scientific and Technical Research Council (CONICET, in Spanish) of Argentina.
- José Manuel Díaz Losada, FCEyN / UNC y CONICET.

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Mi Hábitat: observando con lupa mi barrio (My Habitat: observing my neighborhood through a magnifying glass) Sanitation and waste management; vector-borne diseases (transmitted by animals)



Objectives

- Raise awareness among young people and families on the health risks posed to their communities by dumping sites, rodents and parasites.
- Together with the education community, encourage the most vulnerable neighborhoods (due to this type of pollution) to trigger actions that will improve their quality of life.

Description of citizen participation

Workshops were conducted to identify potential sanitation issues existing in participants' neighborhoods. Based on such issues, an app was adapted, and possible preventive measures were discussed. At said workshops, the following main issues were identified:

- Dumping sites
- Reuse of certain materials
- Compost made from organic waste

Within 15 days, young people grouped in work teams sent—using the app— images showing areas of their neighborhood, mostly photos of dumping sites and rodents, which pose potential health risks to their communities. Once neighborhood mapping was completed by the work teams, workshops were conducted to discuss findings and possible management actions.

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

Research team of the National Scientific and Technical Research Council (CONICET, in Spanish).

Status. Completed.

Time frame. 03/01/2017 – 10/30/2017

Frequency of project execution. Based on demand or community outreach.

Participation period. –

Scope of the initiative. Local (city, province).

Geographic scope. Barrio El Carmen, La Plata, Buenos Aires.

Project development members. It was developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation

- Problem identification.
- Data collection.
- Data analysis.

Technological device/tool required.

- Cell phone.
- App.

Recruitment methods. Through visits to two educational facilities.

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. After the project was completed, the data collected by participants was removed due to lack of funding for the website.

Feedback. Students and teachers contributed towards the development of this project, and several workshops were conducted during its execution.

Linkage with state agency/government. –

Institutional funds. Project's own funding sources.

Awards/distinctions. –

Knowledge areas/disciplines (OECD)

NATURAL SCIENCES / Earth and related Environmental sciences
MEDICAL AND HEALTH SCIENCES / Basic medicine



Project leaders.

- Rosario Robles, Centre for Parasitological and Vector Studies (CEPAVE)/National Scientific and Technical Research Council (CONICET)-National University of La Plata (UNLP)
- Bruno Fitte, CEPAVE/CONICET-UNLP
- Joaquín Cochero, CONICET y UNLP

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Monitoreo nacional de microplásticos costeros (National monitoring of coastal microplastics)

Environmental monitoring of microplastics, reduction of plastic use.



Objectives

Overall goal

Conduct a collaborative study across Argentina, on the coasts of the sea, rivers and lakes, to analyze the presence, amount and composition of microplastics through a systematic and massive survey.

Specific goals

- Study plastic items between 1 mm and 25 mm in size and disclose the results to society as a whole in order to provide crucial information that serves to measure the issue and find solutions.
- Compare data with the rest of the world using The Big Microplastic Survey project undertaken by conservation charity Just One Ocean. The purpose of this study is to gather global information on the most frequent microplastics found in the coastal sites of seas, lakes and rivers, to promote comprehensive conservation on the planet.

Description of citizen participation

Students or anyone interested can participate in the project, and after receiving information or with the coordination of a sampling supervisor, they are in charge of recording the data and analyzing the samples.

Following a simple and systematic scientific sampling protocol, they collect information from those plastic items ranging in size from 1 mm to 25 mm found in coastal sites of seas, lakes and rivers, and report the results. Citizens are responsible for classifying samples into primary and secondary microplastics, type and size of plastics, amount and presence of other components (e.g., cigarette butts) in the samples, if any.

Samples are collected along the shoreline, parallel to the water. The position (GPS coordinates) of part of the sample, which is recorded as the position, should be captured.

Type of citizen science project

- Collaborative Project: Citizens participate in data collection and analysis.

Participating parties.

- Whale Conservation Institute in Argentina (ICB).
- Beach cleanup initiatives suggested as part of the activities in the Patagonia Eco Film Fest (PEFF).
- Science Club and summer camps in the city of Puerto Madryn.
- Researcher at the National Scientific and Technical Research Council (CONICET) in Argentina.
- Students of all educational levels from schools in Puerto Madryn, Comodoro Rivadavia y Río Grande.
- Global Penguin Society.

Status. In progress.

Time frame. 01/11/2019 - N/A

Frequency of project execution. According to the demands or approaches to the community/communities.

Participation period. On a sustained basis.

Scope of the initiative. National (two or more provinces).

Geographic scope. Samples taken—or intended to be taken—in the Argentinian provinces of Tierra del Fuego, Santa Cruz, Chubut, Río Negro, Córdoba, Buenos Aires and Misiones (with headquarters in Chubut).

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Data collection.
- Data analysis.
- Phenomenon monitoring.

Technological device/tool required.

- Two buckets.
- A 4 m rope, 4 stakes (or similar).
- A 1 mm mesh sieve or strainer (common kitchen sieve).
- A mobile phone with GPS to record the latitude and longitude of the sampling site, and to capture images of the results and of the sampling process (the latter is optional).

Participants must then classify their results according to the microplastic tables downloaded from the web and submit the results.

Recruitment methods. Through social media, teachers from local schools (Puerto Madryn) or from other regions (e.g., Río Grande) who get in touch to include the issue in the curricula or as a free proposal, and students who take their concerns to the classrooms.

Replicability. It has not been replicated yet.

Scalability. The program is scalable in terms of increased activity and sites to be evaluated/sampled. It is expected that by the end of 2022 the program will be active throughout the country.

Open access to data. Online, accessible, but the Spanish website is still under construction (currently in English).

Feedback. Within “permanent” sites (from one to three monthly samplings for at least one year). A meeting is to be organized with the coordinators to brief them on the results.

The general documents and partial results of all the samples will be disseminated through social media and the Foundation’s website. In addition, they are openly online (in English) on the project’s global site.

Linkage with state agency/government. No.

Institutional funds. ProyectoSub Foundation’s own funding sources. NGO Wildlife Conservation Society (WCS). Avène Eau Thermale.

Awards/distinctions. No.

Comments. The methodology proposed worldwide by conservation charity JUST ONE OCEAN is used to make the results internationally comparable.

The information is compiled in <https://microplasticsurvey.org/results>.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Natural and Exact Sciences / Biology

Leaders.

- Martín Brogger, Institute of Marine Organisms Biology (IBIOMAR)/ Patagonian National Research Center (CENPAT)/National Scientific and Technical Research Council (CONICET) in Argentina and ProyectoSub Foundation.
- María Florencia Ríos, Institute of Marine Systems Biology (IBIOMAR)/ Patagonian National Research Center (CENPAT)/National Scientific and Technical Research Council (CONICET) in Argentina and ProyectoSub Foundation.
- Melisa Gatti, ProyectoSub Foundation.

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Web: www.proyectosub.org.ar/microplasticos-costeros/





Nodos (Nodes)

Collaborative platform of Performing Arts.



Objectives

Overall goal:

- Promote, create, and preserve a thorough collaborative knowledge base of performing acts, artists, cultural groups and spaces, plays, seasons, and festivals, among other events in the province of Buenos Aires.

Specific goals:

- Build thorough and dynamic knowledge of artists, cultural groups and spaces, plays, seasons, and festivals in the province of Buenos Aires, among other events. This knowledge is created by the input of the platform users.
- Contribute to the Intangible Cultural Heritage of the Province of Buenos Aires, allowing to obtain firsthand and fully updated information not available in other resources.

Description of citizen participation

Through their own productions, people involved in the Performing Arts scene write posts, upload information, and edit collaboratively articles on plays, performers, actors, dancers, groups of artists, and all kinds of information relating to the Performing Arts.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Grupo de Estudio sobre Cuerpo/Centro Interdisciplinario Cuerpo, Educación y Sociedad [Study Group on Body/Interdisciplinary Center for Body, Education, and Society] (CICES in Spanish)/Instituto de Investigaciones en Humanidades y Ciencias Sociales [Institute for Research in Humanities and Social Sciences] (IdIHCS in Spanish)/National University of La Plata (UNLP in Spanish)-National Scientific and Technical Research Council (CONICET in Spanish).
- Cientópolis/Laboratorio de Investigación y Formación en Informática Avanzada [Advanced Information Technology Research and Training Laboratory] (LIFIA in Spanish)/National University of La Plata (UNLP)-Scientific Research Commission of the Province of Buenos Aires (CIC in Spanish).

Status. In progress.

Time frame. 02/2016 - N/A.

Frequency of project execution. Uninterruptedly.

Participation period. Uploading information requires only a few minutes of dedication.

Scope of the initiative. Local (city, province).

Geographic scope. Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 501 to 1000.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

- Mobile phone and Internet connection to upload photos to the online platform.

Recruitment methods. Social media, meetings, workshops, uploading sessions.

Replicability. It has not been replicated yet.

Scalability. There is a continuous increase in the number of participants.

Open access to data. All the information is uploaded to the online platform (Plataforma NODOS).

Feedback. Online platform, social media.

Linkage with state agency/government. -

Institutional funds. Project's own funding sources. Institutional funds:

- 2022: Subsidies from the Provincial Council of Independent Theater (CPTI in Spanish).
- 2019: Subsidies from the Provincial Council of Independent Theater (CPTI).

Awards/distinctions. -

Comments. -

Knowledge areas/disciplines (OECD)

Humanities / Language and Literature
Humanities / Art

Leaders.

- Mariana del Mármol, Institute for Research in Humanities and Social Sciences (IdIHCS)/National University of La Plata (UNLP)-National Scientific and Technical Research Council (CONICET).
- Mariana Sáez, Escuela de Teatro de La Plata [La Plata School of Theater](ETLP in Spanish).
- Diego Torres, Advanced Information Technology Research and Training Laboratory (LIFIA)/National University of La Plata (UNLP).
- Florencia Riafrecha.

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Observa-Residuos (Waste Watch)

Urban solid waste / household waste



Objectives

- Determine the amount and composition of household waste generated by CABA residents, engaging citizens in such process.
- Learn about current waste management habits of households and their willingness to change.
- Have useful and necessary evidence available to design proposals for waste management improvement in the city.
- Engage citizens so that, by having in-depth knowledge of the amount of waste generated by them, they may take better-informed decisions about consumption and waste management.

Description of citizen participation

CABA residents are invited to participate in sorting and weighing daily-generated household waste. Participants receive a scale to weigh the waste generated over one week, to be sorted into:

- Paper and cardboard (including Tetra Brik packages)
- Plastics
- Other recyclables (glass, metals and fabrics)
- Organic materials
- Others (e.g., diapers, cat litter, dirty packaging, boxes or other containers which may not be cleaned)

Waste in the first three categories must be clean, dry, and weighed at the end of the week, while waste in the remaining categories may be weighed once a week or more often before its disposal. The activity is completed once participants have entered the data and answered a brief survey through a web app on the platform of Lab Ciudadano. Arrangements are then made for scale pickup.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Lab Ciudadano (Citizen Lab)
- School of Agriculture, University of Buenos Aires (UBA)

Status. In progress.

Time frame. 03/16/2019 – N/A

Frequency of project execution. Uninterruptedly.

Participation period. Weighing takes 7 days.

Scope of the initiative. Local (city, province).

Geographic scope. Autonomous City of Buenos Aires (CABA, in Spanish)

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation

- Data collection.

Technological device/tool required.

- Scale provided by the Lab Ciudadano team: to weigh waste
- Device with Internet connection: to sign up, enter data, make inquiries to the Lab Ciudadano team, and request scale pickup.

Recruitment methods. By making direct contact with citizens at their workplaces, networking at fairs, parks or community events, through social media, by word of mouth, projects at schools and other institutions.

Replicability. Replicated in the municipality of Quilmes, province of Buenos Aires.

Scalability. The project then scaled to another city, but the data are analyzed independently and are not part of the Citizen lab.

Open access to data. General conclusions are shared on the website for consultation by the public at large. The complete database is not yet publicly available, though it is currently being developed.

Feedback. Once participants have completed data entry, two graphs are displayed to them on the web app. One graph compares the amount of daily waste generated per capita by residents throughout the City until then with the waste generated by the volunteer household. The other graph shows such household's waste composition. The updated results obtained using participants' data (i.e., a map of daily waste generation per capita as per neighborhood, volunteer households and participants, total kilograms of weighed waste) are available on the website. For schools, feedback involves analyzing the data provided by the participating courses,

jointly with students at a virtual or face-to-face meeting. A scientific article titled Waste generation and pro-environmental behaviors at household level: A citizen science study in Buenos Aires (Argentina) was published on Resources, Conservation & Recycling sharing the findings and tools with the entire scientific community, at a local, regional and global level.

Linkage with state agency/government. This project was created under the linkage agreement signed by the School of Agriculture (UBA) and the Ministry of Public Space and Urban Hygiene of CABA. All data and analyses have been referred to the Institution to be used in different public policies.

Institutional funds. They have been obtained from the Urban Hygiene Observatory of the City under the agreement signed by the School of Agriculture (UBA) and the Ministry of Public Space and Urban Hygiene of CABA.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
SOCIAL SCIENCES / Educational sciences

Project leaders.

- María Semmartin, School of Agriculture, UBA
- Verónica Pierini, School of Agriculture, UBA

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Peces de la Puna Argentina (Fish of the Argentine Puna)

Invasive exotic fish and native aquatic fauna



Objectives

Overall goal

- Learn more about fish and water quality in the Puna, thanks to the knowledge and experiences of the Indigenous Peoples, nearby schools, and other participants.
- Develop and disseminate natural history biological approaches on each species present in the Puna and on aquatic ecosystems.

Specific goals

- Monitor the invasion of exotic fish in the Puna.
- Assess the importance of fish for local communities and for Indigenous Peoples in the Puna.

Description of citizen participation

Citizens are responsible for:

- 1- Surveying in the field various natural pools and geothermal springs with the names provided by citizens and translated into geo-referenced data.
- 2- Categorizing these sites according to water usage (agricultural-livestock, domestic, etc.).
- 3- Identifying springs with and without fish using illustrated species guides.
- 4- Loading the information into a database using different fields, such as town, coordinates, fish species and density, date and time, environmental characteristics, and water usage. In this way, the local population will help to gain a real understanding of the distribution and natural history of the fish in the Puna. This knowledge will not only be a valuable scientific contribution from a different perspective but will also be a tool for the people of the Puna to argue in the future, based on hard data, about the impact caused by certain anthropogenic activities and, in particular, inadequately regulated extractive activities. In addition, it will eventually be possible to relate them to global climate change, especially in these fragile high-altitude wetland ecosystems whose aquifers depend on glacier water contributions during spring and summer.

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Andean Ichthyological Center (CIA)
- National University of Catamarca (UNCA)
- National Scientific and Technical Research Council (CONICET).

Status. Ongoing.

Time frame. 07/08/2016 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. National (two or more provinces).

Geographic scope. Departments of Antofagasta Sierra, Belén, Tinogasta, Los Andes, Vinchina, Famatina, Susques, Rinconada, Santa Catalina.

Project development members. Entirely developed by participants with formal scientific training.

Number of participants. From 1 to 50.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Solution deployment.

Technological device/tool required. Mobile phone (optional to record the stream to be sampled and monitored).

Recruitment methods. Meetings at locations near monitoring sites.

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. The information obtained is shared on site with the local population. Schools and cooperatives of the Puna are meeting places where information can be exchanged, workshops can be scheduled and dissemination activities can be carried out using brochures and videos, as well as social media.

Feedback. By visits to the study sites and meetings with communities that provide information.

Linkage with state agency/government. No.

Institutional funds. Project's own funding sources.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

- Natural and Exact Sciences /** Earth and Environmental Sciences
- Natural and Exact Sciences /** Biology
- Natural and Exact Sciences /** Other Natural and Exact Sciences

Leaders.

- Guadalupe Contreras, Andean Ichthyological Center (CIA)/National University of Catamarca (UNCA)
- Julieta Andreoli, CIA/UNCA
- Luis Fernández, National Scientific and Technical Research Council (CONICET) and CIA/UNCA

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Youtube: www.youtube.com/watch?v=4dXiMH9mqnc





Playas Sostenibles de Mar del Plata

(Sustainable Beaches in Mar del Plata) - Beach monitoring



Objectives

Overall goals:

- Develop a set of reliable indicators for monitoring and evaluating environmental conditions in coastal areas.
- Create a manual that will enable reliable and systematic data collection to contribute to the formulation of a sustainable beach management plan for both public and private recreational beaches in Mar del Plata, with the aim to obtain an environmental certification.

Specific goals:

- Conduct an assessment of the characteristics of the coastal area on different scales for beach use classification.
- Develop an instrument suitable for the monitoring and evaluation of public and private recreational beaches.
- Train students, managers, and the personnel employed at beach facilities on how to implement procedures for recording the data to be collected at beach sites.
- Select, develop, and put into practice the most adequate indicators.
- Create an appropriate quality index.
- Monitor the environmental quality of beach sites over a year, for the purposes of field index calibration and technical data collection for decision-makers.
- Devise a management plan enabling the application of the most adequate environmental strategies for each type of beach site, based on its natural characteristics and use.
- Generate dissemination material and recreational strategies to communicate risk management measures in order to raise awareness among visitors on the natural characteristics and conservation of beach sites.
- Collaborate with the formulation of a management plan for the short, medium, and long term enabling the implementation of a consensual development strategy for the seashore of Mar del Plata.
- Create a procedural manual for devising a management plan and recording data to determine beach environmental quality indicators associated to risk maps.

Description of citizen participation

Citizens participate in the identification of the problem, data collection, and they might contribute to their dissemination.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.



Participating parties.

Red Mar del Plata Entre Todos (Mar del Plata Collaborative Network) (MdPET, in Spanish) serves as a means to coordinate the participation of the members comprising the following institutions:

- The research team of the National University of Mar del Plata (UNMdP, in Spanish) and the Mar del Plata Regional School of the National Technological University (UTN, in Spanish).
- Cámara de Empresarios de Balnearios, Restaurantes y Afines (Association of Owners of Beach Facilities, Restaurants and Similar Businesses) (CEBRA, in Spanish).
- Red Iberoamericana Proplayas (Beach Management and Certification Network of Ibero-America)
- Citizens

Status. In progress.

Time frame. 01/09/2019 – 01/08/2021

Frequency of project execution. Once, to be continued.

Participation period. Data were collected from December 15, 2019 to March 15, 2020. Other forms of involvement have not been assessed yet.

Scope of the initiative. Local (city, province).

Geographic scope. Mar del Plata, Buenos Aires.

Project development members. It has been developed with the collaboration of both scientists and participants with “formal training.”

Number of participants. From 51 to 100.

Action/s involving citizen participation. Problem identification. Data collection. Solution design

Technological device/tool required. Cameras, thermometers, cell phones, photographs and measurements of environmental variables.

Recruitment methods. Through the participating universities.

Replicability. It has not been replicated yet.

Scalability. It has not been upscaled yet.

Open access to data. Data will be available for consultation by the public at large through the participating institutions.

Feedback. Project findings are included in a publication that will be available for all citizens free of charge.

Linkage with state agency/government. –

Institutional funds. National University of Mar del Plata (UNMdP, in Spanish) and the Secretariat of University Policies (VT42-UM-DP11687 - Playas de Mar del Plata [Mar del Plata Beach Sites]), Universidades Agregando Valor 2018 (2018 Universities Adding Value) program, CEBRA and MdPET.

Awards/distinctions. –

Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences

Project leaders.

Eduardo Vallarino, Faculty of Exact and Natural Sciences (FCEyN, in Spanish) of the National University of Mar del Plata (UNMdP, in Spanish).

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The final document will be available in a digital format at MdPET’s website and the digital repositories of participating universities. It will also be published by the publishing house of the National University of Mar del Plata (EUEM, in Spanish).

Web: www.mardelplataentretodos.org





Proyecto Vaquitas (Lady Beetles)

Monitoring the diversity and distribution of Lady Beetles (*Coleoptera, Coccinellidae*)



Objectives

Overall goal: Identify species of Lady Beetles existing in Argentina, determine their geographical distribution, and assess the potential impact of an invasive species, specifically the Asian Lady Beetle (*Harmoinia axyridis*) and eventually of any other exotic species on native ones.

Specific goals:

- Monitor the spread of the Asian Lady Beetle across Argentina.
- Assess the degree of spatial coexistence of said invasive species with other conspicuous native species (i.e., obvious to the eye) of the same family, in order to identify the most threatened species.

Description of citizen participation

Citizens send photos indicating the date and the geographic location where said insects have been observed.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Research teams, researchers, scholarship holders and support personnel from the National Scientific and Technical Research Council (CONICET, in Spanish).
- Educators
- Students

Status. In progress.

Time frame. 7/12/2019 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. Involvement (taking the photograph and sending it) takes no more than a few minutes. However, citizens tend to engage on a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Argentina.

Project development members. It has been entirely developed by people with formal scientific training.

Number of participants. Over 1001.

Action/s involving citizen participation

- Data collection.

Technological device/tool required.

- Cell phone/photographic camera.
- Internet access.

Recruitment methods. Through institutions, social media and the press.

Replicability. Don't know/No answer.

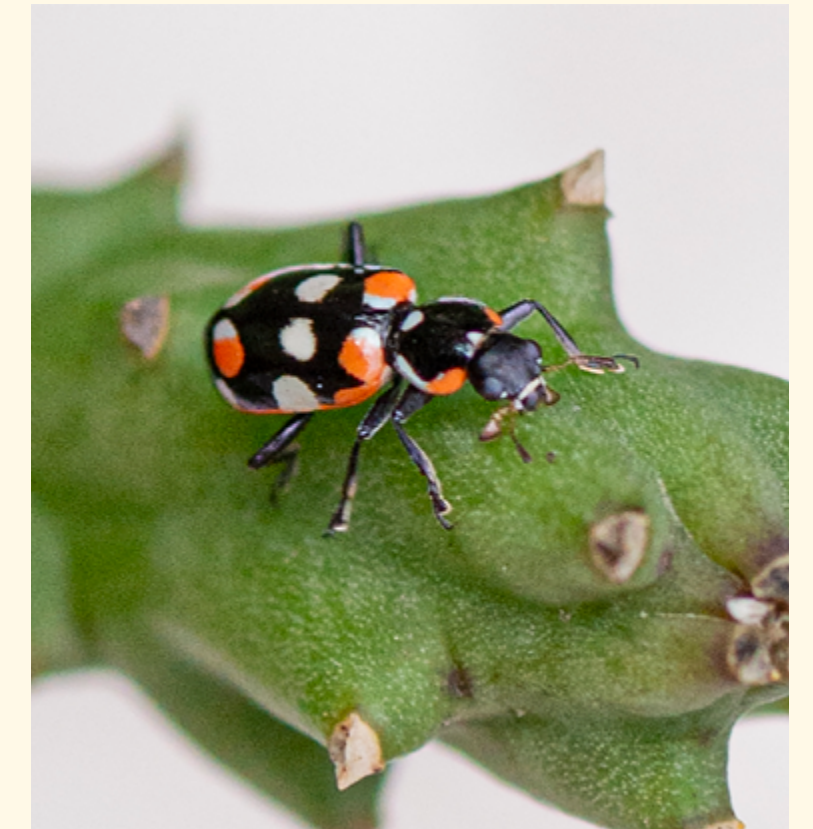
Scalability. Don't know/No answer.

Open access to data. Part of the initiative is developed through ArgentiNat, where the data recorded are shared automatically. In addition, the records can be accessed through the project web page (<https://proyectovaquitas.com.ar/>).

Feedback. Species identification and detailed information are provided, and all queries made by citizens are answered.

Linkage with state agency/government. -

Institutional funds. At the beginning of the project, there was no funding available to carry out the project. Later, it received funding from the National Agency for Scientific and Technological Promotion and the National Geographic Society.



Awards/distinctions. -

Classification of knowledge areas (OECD).
NATURAL SCIENCES / Biological Sciences

Project leaders.

Victoria Werenkraut, CONICET Researcher. National Scientific and Technical Research Council (CONICET, in Spanish).

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Twitter: twitter.com/pvaquitas





¿Qué Pasa Riachuelo? (What's up, Riachuelo? (QPR, in Spanish))

Environmental monitoring



Objectives

Overall goals:

- Promote informed citizen participation.
- Contribute towards the supervision and monitoring of the Riachuelo Sanitation Plan.
- Enhance the level of protection of natural areas with significant ecosystemic value.
- Modify economic activities with a high negative impact.
- Improve the quality of life of people living in the Matanza-Riachuelo basin, especially of vulnerable inhabitants.

Specific goals:

- Strengthen social monitoring capabilities and the resulting influence of citizens on the public policies implemented in the territory.
- Improve the speed and effectiveness of the complaint mechanisms available to people living in the basin to enable mainstreaming issues into the solutions required for each case.

Description of citizen participation

It involved a virtual space constituted by a network of civil society organizations. As an environmental platform, it promoted online monitoring by way of citizen supervision and reporting, classified into 4 thematic areas:

- Industries with legal and environmental risk rates
- Open dumping sites
- Slums and settlements
- Territorial alerts

A photojournalism contest for hobbyists was held in 2013. To participate, neighborhood groups and residents living in the basin had to send images showing its condition, considering the Sanitation Plan established by the Supreme Court of Justice.

Type of citizen science project

Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Environment and Natural Resources Foundation (FARN, in Spanish).
- Fundación Ciudad (Ciudad Foundation).
- Foro de Periodismo Argentino (Forum for Argentine Journalism) (FOPEA, in Spanish).

Status. Completed.

Time frame. 1/10/2011 – 2015

Frequency of project execution. Uninterruptedly.

Participation period. On a sustained basis.

Scope of the initiative. Local (city, province).

Geographic scope. Matanza-Riachuelo basin. Autonomous City of Buenos Aires (CABA, in Spanish)

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation

- Data collection.
- Phenomenon monitoring.

Technological device/tool required. Digital platform.

Recruitment methods. By visiting communities.

Replicability. The platform that is being co-designed within the sphere of CoAct, a project that is also part of this mapping, will be a relaunch of QPR.

Scalability. Monitoring functions were added to the second version launched in 2012. Tools were designed to boost the involvement of neighborhood groups through the granting of Response Funds to be directly applied to such activities, which were reported to the platform. Also, the documentary titled "La vuelta al Río" (Back to the River) was made, as part of the process for promoting citizen involvement.

Open access to data. Data were downloadable in CSV format.

Feedback. –

Linkage with state agency/government. Mainly with the Matanza – Riachuelo Basin Authority (ACUMAR, in Spanish).

Institutional funds. European Union.

Awards/distinctions. –



Classification of knowledge areas (OECD).

NATURAL SCIENCES / Earth and related Environmental sciences
SOCIAL SCIENCES / Sociology
SOCIAL SCIENCES / Law

Project leaders.

Andrés Nápoli, Environment and Natural Resources Foundation (FARN in Spanish).

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Restaura (Restore)

Native forest ecological restoration.



Objectives

Overall goal

- Create collaborative networks and connect different knowledge sources to promote the restoration of native forests.
- Study the phenology and standardization of Celtis tala employing collaborative tools within an open science framework.

Specific goals

- Learn about the different life cycles of the Tala (flowering, fructification, etc.) to plan when to collect seeds needed for the restoration projects.
- Determine the optimal planting date of Tala by conducting a collaborative experiment throughout its distribution in Argentina to locally adjust restoration strategies.
- Create collaborative tools for the restoration of native forests in different ecoregions through the replication of these activities with other species.
- Define the weak points of invasive exotic species in order to control them.

Description of citizen participation

In the first part of the project, to learn about the different stages of the Tala's life cycle, the participants follow the same tree through its different stages of development, and report their results through a web app. In the second part, in order to determine the optimal planting date for the Tala, citizens simultaneously carry out a collaborative germination experiment in their homes or nurseries. In this context, monthly meetings are held in which preliminary results are informed and discussed and, in turn, participants help with the creation of future protocols. In future editions, in which stages 1 and 2 will be repeated, the aim is to let participants decide which species they want to continue working with according to the country's ecoregion.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Mariela Lacoretz, Biologist, Postdoctoral Fellowship Recipient of the National Scientific and Technical Research Council (CONICET), Professor at the Faculty of Exact and Natural Sciences (FCEN in Spanish)/University of Buenos Aires (UBA).
- Pedro Tognetti, Agronomist, CONICET Researcher, Professor at the School of Agriculture (FA in Spanish)/UBA.
- Mariano Fressoli, Sociologist, CONICET Researcher. Research Center for Transformation, (CENIT in Spanish)/National University of San Martín (UNSAM in Spanish).
- Natalia Rodriguez, Environmental Scientist, CONICET PhD Scholarship Recipient, Professor at FA/UBA.
- Débora Chamarro, Agronomist, Professor at National University of Rosario (UNR in Spanish).
- Cristian Malavert, Agronomist, CONICET Postdoctoral Fellowship Recipient, Professor at FA/UBA.
- Evelyn Schibber, Biologist and Programmer, Member of the Support Staff for Research and Development Career (CPA in Spanish)/Agricultural Physiology and Ecology Research Institute (IFEVA in Spanish)/UBA-CONICET.
- Cecilia Molina, Environmental Scientist, Professor at FA/UBA and the Provincial University of Ezeiza.
- Rocío Contestin, Biological Sciences student at UBA.

Status. In progress.

Time frame. 02/26/2021 - N/A.

Frequency of project execution. Uninterruptedly.

Participation period. From a few hours to several months, according to the participant.

Scope of the initiative. National (two or more provinces).

Geographic scope. Provinces of Buenos Aires, Entre Ríos, Santa Fe, Córdoba, San Luis, La Rioja, Tucumán, Salta.

Project development members. It has been developed with the collaboration of scientists and participants both with formal training and without it.

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Problem definition
- Data collection
- Data analysis
- Phenomenon monitoring
- Solution planning

Technological device/tool required.

- Mobile phone for georeferencing and taking photos.
- Internet connection to upload data on the web app.
- Pots and gardening tools for germination.

Recruitment methods. Through social media, mainly Facebook and Instagram, using specific flyers. Recruitment was made so far to conduct collaborative germination experiments, report photos of the Tala's different phenological stages, and inform of meetings about results and protocols.

Replicability. It has not been replicated yet.

Scalability. A larger number of participants is expected for future recruitment.

Open access to data. The analyzed results have been shared with the participants. Open access to information is expected in the future.

Feedback. Results were communicated by email and during meetings.

Linkage with state agency/government. No.

Institutional funds. The CONICET postdoctoral fellowship of the initiative's General Coordinator, Mariela Veronica Lacoretz.

Awards/distinctions. No.

Comments.

- The project Tala was the first RESTAURA initiative. As RESTAURA grows, the aim is to include new projects with other key species for forest restoration.
- A specific web app was developed for this project. Through the app, participants can access with their usernames and passwords and upload data easily. The app also shows the preliminary results of all participants as data is uploaded. In September 2022, a new recruitment campaign will be launched to test its operation. The RESTAURA project seeks to foster links between different social stakeholders, connecting people, projects, and their natural environments, to promote the appreciation of our natural heritage and its contribution to our cultural identity.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Natural and Exact Sciences / Biology

Leaders.

Mariela Lacoretz. Institute of Ecology, Genetics, and Evolution of Buenos Aires (IEGEBIA in Spanish)/National Scientific and Technical Research Council (CONICET), Faculty of Exact and Natural Sciences (FCEN)/University of Buenos Aires (UBA).

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Web app: www.restaura.com.ar/app/login.php
Instagram: [instagram.com/restaura.com.ar](https://www.instagram.com/restaura.com.ar)





Territories in Action

Collaborative mapping of social organizations in Argentina



Objectives

Overall goal

- Highlight the participation of civil society organizations in the social development of the different territories in Argentina by means of a collaborative process of building public and open knowledge.

Specific goals

- Create and maintain a web platform of the project, which collects and disseminates information about the actions carried out by the Argentine civil society organizations.
- Elaborate an interactive MAP and DATABASE at a national level to be permanently updated with the participation of the organizations in knowledge building as regards their actions throughout the country.
- Systematize and analyze the collected data and share the results publicly, openly and through user-friendly formats.
- Foster the development of discussions on the role of the Argentine civil society by generating environments of exchange between activists and experts.

Description of citizen participation

Citizens can participate in the project in two ways: a) voluntary contribution of the civil society organizations (CSO) as regards information about their actions in the territory by completing a form; b) participation of CSO members or experts on the topic in discussions, talks, reporting based on the analysis of the results, and other activities to disseminate their initiatives or by means of the different networks which are part of the mapping.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- Great Buenos Aires area Observatory of the National University of General Sarmiento (UNGS).
- CSO Program of the Latin American Faculty of Social Sciences (FLACSO) in Argentina.
- Urban and Regional Studies Center (CEUR)/National Scientific and Technical Research Council (CONICET).

Status. In progress.

Time frame. 02/05/2020 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. The participation of the citizens is permanent as collaborative mapping, document production based on analyzed results and the scheduling of discussions are fundamental activities for the project, which last over time.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. All provinces in Argentina.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. Over 1001.

Action/s involving citizen participation.

- Data collection.
- Data analysis

Technological device/tool required.

- Geolocation and mapping software used by the Project Technical Team to upload data
- Web platform for data publication

Recruitment methods. Through social media and graphic and audiovisual media (TV Pública, Radio 750, Página12, Tercer Sector magazine, Télam, Futurock, Agencia Paco Urondo, and more).

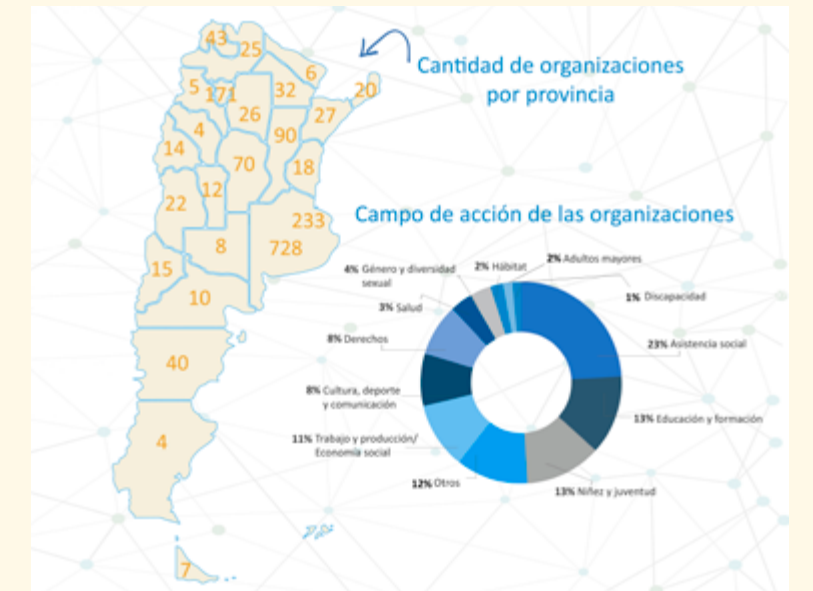
Replicability. It has not been replicated yet.

Scalability. The project aims to significantly increase its coverage in order to include a greater number of Argentine CSOs. To this effect, different communication strategies will be used with the CSOs, social media and other institutions related to this field.

Open access to data. The collaborative and interactive mapping and the database are published on the web and are open-source.

Feedback. Regular newsletters including the results and progress of the research are sent.

Linkage with state agency/government. Office of Social Information of the Argentine Ministry of Social Development



Institutional funds. Initial subsidies from the UNDP Argentina Accelerator Lab. Subsidies of the Argentine Ministry of Social Development in 2021 - 2022. Institutional contributions from the FLACSO.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

Social Sciences / Sociology
Social Sciences / Political science
Social Sciences / Economic and Social Geography

Leaders.

- Agustina Gradin, FLACSO Argentina.
- Paula Rosa, Urban and Regional Studies Center (CEUR)/National Scientific and Technical Research Council (CONICET).
- Adriana Rofman, National University of General Sarmiento (UNGS).

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The Challenge of Water

Water quality monitoring.



Objectives

Overall goal:

- Promote the knowledge of variables for water quality monitoring.
- Raise awareness on the importance of protecting this resource.

Specific goals:

- Learn about the water quality of bodies of water (sea and lakes) in the area of San Jorge Gulf in the province of Chubut.

Description of citizen participation

Young people from 12 to 21 years old participated in the project for 3 days.

- On the first day, they participated in online training sessions on the use of equipment and supplies provided by the project.
- On the second day, an in-person meeting was held, where material for measuring physicochemical water variables was given.
- On the last day, participants reflected in person about the collected results, the environmental issues impacting bodies of water, and the possibility to generate alternatives for improvement in water management.

Afterward, in a self-managed manner and together with a youth leader of the foundation, each participant uploaded the data to a section of the EarthEcho International's website, where there are more than 1.5 million records from all over the world, to share with the whole community.

Moreover, participants collaborated later with data analysis, phenomenon monitoring, and solution planning in meetings with activity coordinators of the organization EarthEcho International and the Coastal Development Institute Dr. Héctor Zaixso (National University of Patagonia San Juan Bosco [UNPSJB]).

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.



Participating parties.

- Organization EarthEcho International
- Coastal Development Institute Dr. Héctor Zaixso /National University of Patagonia San Juan Bosco (UNPSJB)
- Sean Russel, Project Director, EarthEcho International
- Javier Tolosano, Local Coordinator, Coastal Development Institute Dr. Héctor Zaixso/UNPSJB
- Damian Gaspar Gil, Local Co-coordinator Participant, Coastal Development Institute Dr. Héctor Zaixso/UNPSJB
- Romina Verga, Local Participant, Coastal Development Institute Héctor Zaixso/UNPSJB
- Paula Stoyanoff, Local Participant, Coastal Development Institute Héctor Zaixso/UNPSJB

Status. Finished.

Time frame. 10/01/2020 - 09/04/2021.

Frequency of project execution. According to the demands or approaches to the community/communities.

Participation period. 3 days per group.

Scope of the initiative. Local (city, province).

Geographic scope. Comodoro Rivadavia, Sarmiento, Rada Tilly, and Caleta Olivia.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation.

- Data collection
- Data analysis
- Phenomenon monitoring
- Solution planning

Technological device/tool required.

- Tablet reagents to determine physicochemical parameters of water such as dissolved oxygen and turbidity, pH test strips, a test tube, and a Secchi disk to measure water transparency.

Recruitment methods. Through social media and local media.

Replicability. In two groups of around 40 young people.

Scalability. In other projects of scientific dissemination such as La Playa de tu barrio [Your neighborhood's beach], which is currently being developed in the city of Comodoro Rivadavia and has been thoroughly approved by the public.

Open access to data. Data is uploaded to the platform and is shared with the whole community. The administrators of the EarthEcho International's website check this information.

Feedback. Through social media and the organization's website.

Linkage with state agency/government. Municipality of Comodoro Rivadavia.

Institutional funds. EarthEcho International. National University of Patagonia San Juan Bosco.

Awards/distinctions. No.

Comments. This initiative is a focal point for the international organization EarthEcho International, in which the Coastal Development Institute provides its professionals, logistics, and dissemination to carry it out.

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences

Leaders.

Javier Tolosano, Coastal Development Institute Dr. Héctor Zaixso /National University of Patagonia San Juan Bosco.

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Twitter: twitter.com/earthecho

YouTube: [youtube.com/c/EarthEcho](https://www.youtube.com/c/EarthEcho)





Tucanes en mi Jujuy (Toucans in my Jujuy)

Monitoring presence, use of habitat and ecology of Toco Toucans (*Ramphastos toco*) in urban environments



Objectives

Overall: Use Toco Toucans as flagship species to raise public awareness about biodiversity conservation in SSJ and contribute to environmentally sustainable urban planning.

Specific:

- Understand habitat use and selection patterns, seasonal migration, diet composition and reproductive habits of Toco Toucans in the city of SSJ;
- Determine the link between toucan populations and different urban structural features;
- Engage society in reporting the presence of toucans in different parts of the city and monitoring nest boxes, as a way of raising awareness about the value and protection of this bird and biodiversity in general;
- Offer talks and workshops in academic institutions aimed at students and faculty to promote environmental education;
- Prepare a diagnosis of the current situation of Toco Toucans in SSJ, identifying actual and potential threats affecting them, as well as beneficial actions and urban features for these species.

Description of citizen participation

Anyone can participate by reporting toucan sightings in different parts of the city, through social media, website and/or mobile app. Although submitting photos and videos is not mandatory, these contributions are also encouraged.

In addition, citizens also participate in placing and monitoring nest boxes to assess whether toucans are breeding in the city.

Type of citizen science project

Contributory project: It is designed by scientists, and citizens participate in data collection.

Participating parties.

- Andean Ecoregion Institute (INECOA).
- National University of Jujuy, School of Agricultural Sciences (UNJu).
- Department of Environmental Promotion at the Municipality of San Salvador de Jujuy.

Status. In progress.

Time frame. 05/03/2021 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. Uninterruptedly throughout the year, reporting sightings that take no more than 3 minutes each.

Scope of the initiative. Local (city, province).

Geographic scope. San Salvador de Jujuy (SSJ), province of Jujuy

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 101 to 500.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.
- Solution implementation.

Technological device/tool required.

- Mobile phone with Internet access to report date, time, location, number of individuals, whether they are adults or young, and the activity of the animals when sighted.
- Nest boxes made of PVC pipes placed at a height of no less than 7 m, using climbing equipment. They are then monitored using telescopic poles to which wireless cameras with viewfinders are attached.
- Binoculars to complement reports with standardized sampling.

Recruitment methods. No specific approach was implemented; anyone who is interested can participate.

Replicability. It has not been replicated yet.

Scalability. As the project grows in popularity, more citizen contributions are being incorporated into the project. Additionally, more local media are interested in learning about the details.

Open access to data. All the knowledge acquired is disseminated through social media, local media, presentations for academic institutions, workshops and congresses.

Feedback. Project findings are included in a publication that will be available for all citizens free of charge.

Linkage with state agency/government. Agreement with the Municipality of SSJ, Department of Environmental Management. This department is responsible for issuing and applying fines to those who capture, damage, kill or trade Toucans. It also helps to disseminate the project on social media and to design material such as brochures and banners.

Comments: Toco Toucans have the potential to become “umbrella species”, since preserving certain features of the urban landscape necessary for them to be present, indirectly helps to protect several other species in their surroundings. For example, parrot species currently under conservation threat: Blue-fronted parrot (*Amazona aestiva*) and Alder Parrot (*Amazona tucumana*).

Institutional funds. Project’s own funding sources. INECOA.

Awards/distinctions. No.

Classification of knowledge areas (OECD).

NATURAL AND EXACT SCIENCES/ Earth and Environmental Sciences.
NATURAL AND EXACT SCIENCES/ Biology.

Project leaders.

- Román Ruggera, National Scientific and Technical Research Council (CONICET, in Spanish) and National University of Jujuy (UNJu, in Spanish)
- Alejandro Schaaf, CONICET
- Noelia Gonzalez, CONICET
- Agustina Yapura, UNJu
- Natalia Chocobar, UNJu

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Vi un abejorro (I saw a bumblebee)

Monitoring and conservation of native and exotic bumblebees.



Objectives

Overall goal

- Contribute to knowledge through citizen monitoring of the population status of the 8 native species of bumblebees in Argentina.
- Study the advance of two invasive species in Argentina.

Specific goals

- Study the population status of the species *B. dahlbomii* (endangered).
- Record abundance, associated flowers, and occurrence of different bumblebee species in Argentina.
- Promote society engagement in the scientific process and to communicate the potential problems of biological invasions.

Description of citizen participation

Participants send photos of the bumblebees they see and report how many they saw, the date, the place (city/province), and on what flowers in the different platforms of the project (Instagram, Twitter and Facebook), via WhatsApp or through the website, where they can complete a sighting form according to the region of the country they are.

Type of citizen science project

- **Contributory project:** It is designed by scientists, and citizens participate in data collection.



Participating parties.

Pollination Ecology Group from the National University of Comahue, Argentina, which includes faculty and researchers from the Argentina National Scientific and Technical Research Council (CONICET, in Spanish). Its main participants are Eduardo Zattara, Marina Arbetman, Carolina Morales (all three are CONICET researchers, doctors, and faculty) and Victoria Campopiano Robinson (a student at the University).

Status. In progress.

Time frame. 05/20/2021 - N/A

Frequency of project execution. Uninterruptedly.

Participation period. Timely participation (taking and sending the picture) does not take more than a few minutes. However, citizens' participation tends to be steady over time.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. All provinces in Argentina.

Project development members. Entirely developed by participants with formal scientific training.

Number of participants. Over 1001.

Action/s involving citizen participation.

- Data collection.
- Phenomenon monitoring.

Technological device/tool required.

- Cell phones or cameras.
- Computers for data analysis.

Recruitment methods. Informative talks, both virtual and in person, are held in different facilities of the National Parks Administration of Argentina.

Replicability. It has not been replicated yet.

Scalability. The number of records obtained throughout the year has been steadily increasing, as have the mapped geographic areas.

Open access to data. Publication in social media of the images sent by the participants. Public interactive maps with the data are currently under development and are expected to be completed by the end of 2022.

Feedback. The progress of the project is repeatedly published on social media, using photos sent by citizens and details of species or places that were recorded for the first time. In addition, the exchange with the participants takes place in a personal way, answering all kinds of doubts/curiosities.

Linkage with state agency/government. National Parks Administration of Argentina.

Institutional funds. Project's own funding sources. International project SURPASS2. International grant awarded by Mohamed bin Zayed Species Conservation Fund.

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

Natural and Exact Sciences / Earth and Environmental Sciences
Natural and Exact Sciences / Biology

Leaders.

- Victoria Campopiano Robinson, National University of Comahue (UNCOMA, Argentina).
- Eduardo Zattara, Biodiversity and Environment Research Institute, (INIBIOMA in Spanish) / National Council for Scientific and Technical Research (CONICET in Spanish) - UNCOMA.
- Marina Arbetman, INIBIOMA / CONICET - National University of Comahue, Argentina.

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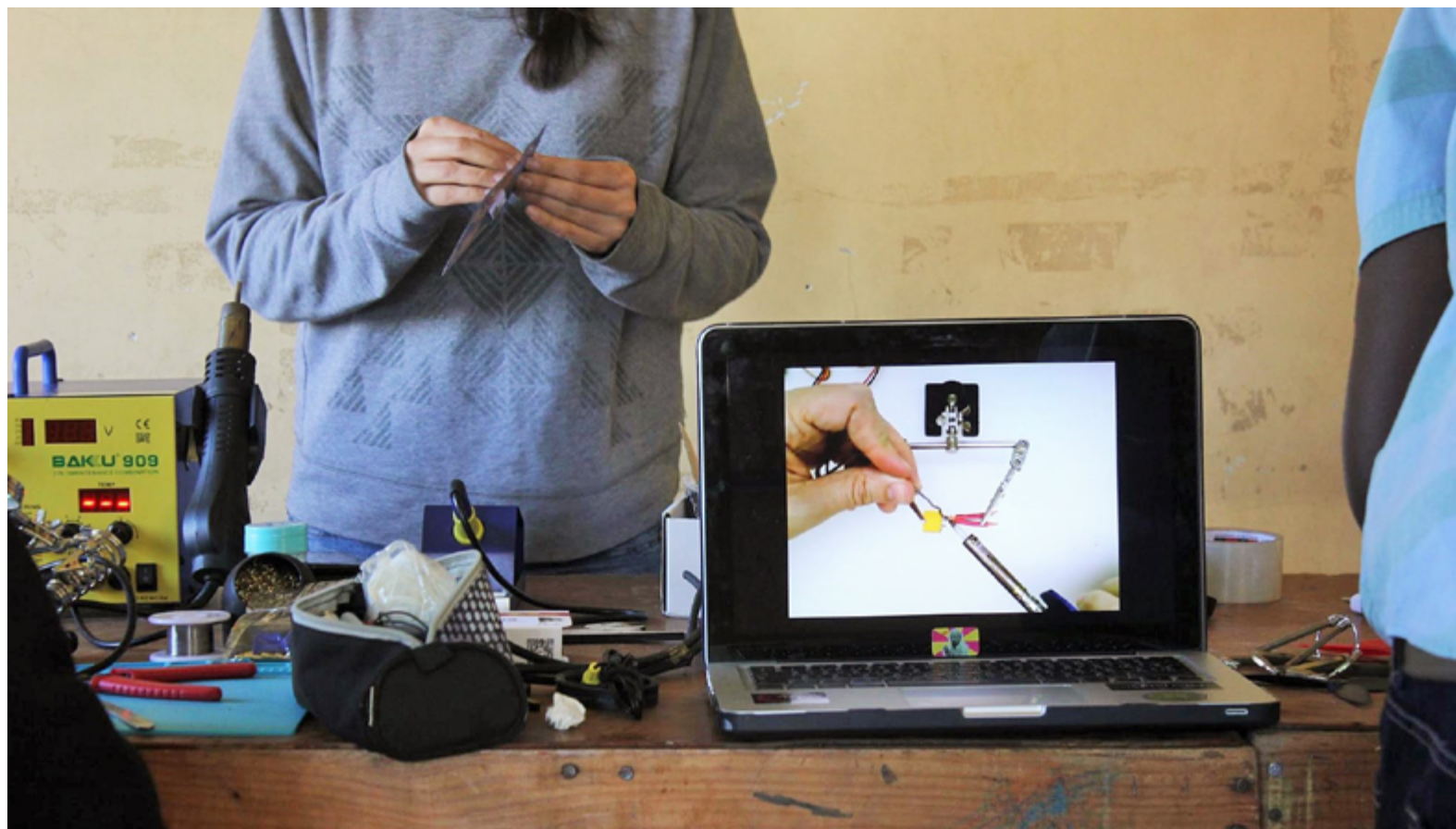
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Vuela (Fly)

Open science with drones



Objectives

Develop scientific tools that can be useful for groups or communities tackling local and locally-defined problems, and therefore promote their participation in science.

Description of citizen participation

A toolkit for open science with drones has been collaboratively prototyped to be equally accessible to marginal communities, activists or researchers. It is useful for studies or measurements for which this technology is already used but is dominated by closed-source tools.

Type of citizen science project

Co-created project: Citizens participate in all stages of the scientific process.

Participating parties.

- Hobbyists, civil society activists, researchers, neighbors, students and developers.
- Gathering for Open Science Hardware (GOSH).
- Knowledge/Culture/Ecologies Conference, 2017 edition (Santiago, Chile).
- Mozilla Foundation.
- Shuttleworth Foundation.
- Cooperative Programme for the Technological Development of Agriculture in the Southern Cone (PROCISUR, in Spanish).

Status. In progress.

Time frame. 2017 – N/A

Frequency of project execution. Based on demand or community outreach.

Participation period. On a sustained basis.

Scope of the initiative. Argentina (two or more provinces).

Geographic scope. Global; in-person activities carried out in Argentina, Brazil, Chile, Paraguay and Uruguay.

Project development members. It has been developed with the collaboration of both scientists and participants without formal training.

Number of participants. From 51 to 100.

Action/s involving citizen participation

- Problem identification.
 - Data collection.
 - Data analysis.
 - Phenomenon monitoring.
 - Solution design.
 - Solution implementation.
- Citizens are involved in the entire process.

Technological device/tool required.

The main tool is the OVLI drone, which was made, modified and adapted by participants. The following basic items and tools are required for drone assembly:

- Screwdriver
- Wood glue
- Tin welding machine
- Voltage meter

The following instruments are required for drone configuration and operation:

- Laptop
- Battery charger
- Drone camera, etc.

The full list of components and tools can be found in the OVLI Assembly Guide (Manual de Construcción/fabricación del OVLI) available at: www.vuela.cc

Recruitment methods. By contacting community-based organizations, community leaders, persons responsible for community organization, and placing posters in key locations of neighborhoods or institutions (for instance, at the National Institute of Agricultural Technology, INTA, in Spanish). Workshop attendees were informed of new workshops via WhatsApp.

Replicability. Don't know/No answer.

Scalability. It has not been upscaled yet.

Open access to data. All project information is available at vuela.cc, in English and Spanish only. The information is not available for visually impaired users.

Feedback. N/A

Linkage with state agency/government. In the final stage of the project, actions were coordinated with INTA from Argentina and with similar institutions from neighboring countries (through PROCISUR).

Institutional funds. Mozilla, PROCISUR, the Knowledge/Culture/Ecologies Conference (Santiago, 2017 edition) and Shuttleworth Foundation. No funding is available at present.

Awards/distinctions. N/A

Classification of knowledge areas (OECD).

ENGINEERING AND TECHNOLOGY / Other engineering and technologies
AGRICULTURAL SCIENCES / Agriculture, Forestry, and Fisheries
SOCIAL SCIENCES / Other social sciences: science and technology

Project leaders.

- Paz Bernaldo.
- Gustavo Pereyra Irujo, National Institute of Agricultural Technology (INTA in Spanish), National Scientific and Technical Research Council (CONICET, in Spanish)

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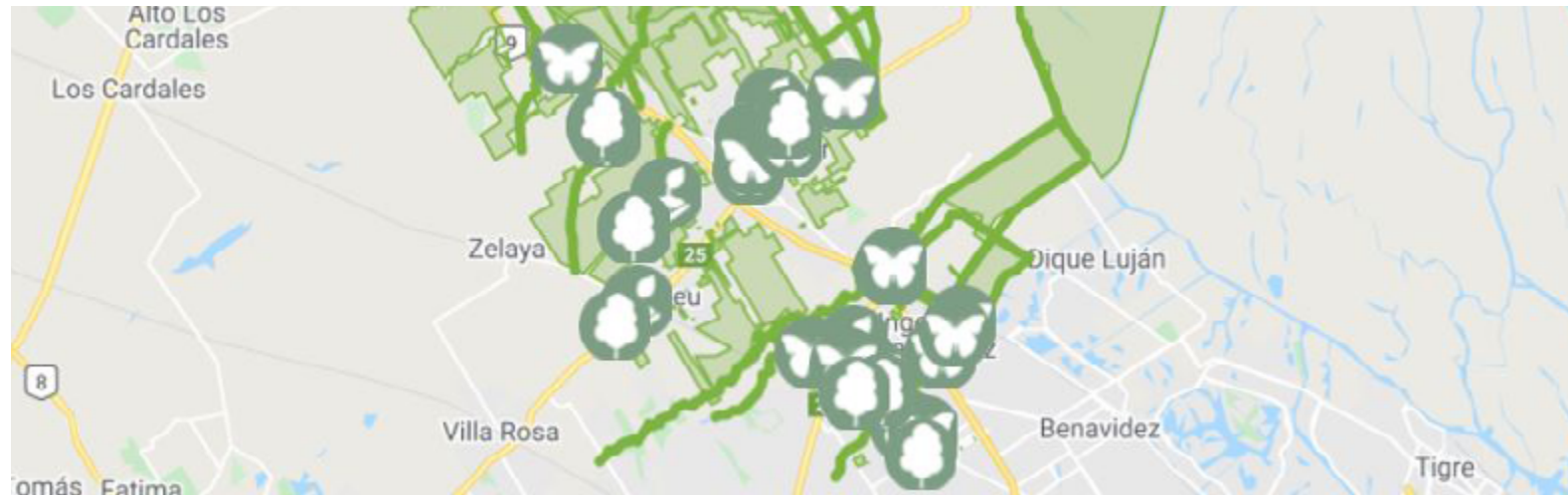
Web: vuela.cc





Wildlife corridors

Environmental restoration of Escobar district in Buenos Aires.



Objectives

Overall goal:

- Restore and reconnect wildlife corridors in Escobar district to give food and shelter to pollinators.

Specific goals:

- Create wildlife corridors in all the towns of the Escobar district and add the community's gardens with native plants in an online collaborative map with georeferencing, photos, and descriptions.
- Improve large spaces of biodiversity and pollinators' capacity to pollinate the big municipal agroecological vegetable gardens of the district.

Description of citizen participation

Citizen participation consists of many tasks. Citizens receive training every month on topics related to wildlife corridors, native species, and environmental restoration. Citizen participation also consists of seed collection and exchange among neighbors for the creation of seedlings in different garden centers of native species around Escobar. In the same way, butterfly gardens and tiny native forests are created in the public squares of the district, the port of Escobar on the Paraná Delta, and every sidewalk where there are urban trees. By taking part in these activities organized by the municipality, citizens can take the following things to their homes: seedlings they made from native plants, butterfly shelters with native plants, native trees, seeds for agroecological gardening, aromatic plants for insects, compost made with pruning waste done at the municipality, pots made with processed ecobricks, or plantable pencils, that is, everything allowing citizens to grow and take care of species at their gardens at home. Thus, another instance of citizen participation involves identifying and georeferencing native species at private home gardens, contributing to the creation of a collaborative map on which urban wildlife corridors are rebuilt.

Type of citizen science project

- Collaborative project: Citizens participate in data collection and analysis.

Participating parties.

- University professors
- Researchers
- Activists
- Argentine Ministry of Social Development
- Argentine Ministry of Environment and Sustainable Development
- University of Buenos Aires (UBA)
- National Institute of Agricultural Technology (INTA in Spanish)
- Ciervo de los Pantanos National Park
- Fundación Temaikèn [Temaikèn Foundation]

Status. In progress.

Time frame. 08/13/2021 - N/A.

Frequency of project execution. Uninterruptedly.

Participation period. Sustained over time.

Scope of the initiative. Local (city, province).

Geographic scope. Escobar district (Buenos Aires).

Project development members. It has been developed with the collaboration of both scientist and participants without formal training.

Number of participants. From 1001 onwards.

Action/s involving citizen participation.

- Data collection
- Phenomenon monitoring
- Solution planning
- Solution deployment

Technological device/tool required.

- Mobile phone for georeferencing of native plants.

Recruitment methods. Through social media, mass media, and mailing.

Replicability. The model was developed in the municipality of Escobar and Ciervo de los Pantanos National Park in Campana, Buenos Aires. The project was launched at the Argentine Ministry of Environment and Sustainable Development as a model to be replicated under forest fire emergencies in the provinces of Misiones and Corrientes, together with Parque Nacional and Fundación Temaikèn.

Scalability. Continuous; more and more neighbors participate by helping with native plant cultivation and tree sponsorship; schools are helping by having their wildlife corridors at their institutions; environmental activists take part by exchanging seeds, among other things. As of August 2022, more than 140 schools enrolled in the program have had butterfly gardens at their establishments. Other citizen science activities are also being carried out at Reserva Natural Educativa [Educational Nature Reserve] in Ingeniero Mashwitz, Buenos Aires.

Open access to data. On the Escobar district website: www.escobar.gob.ar/biocorredores.

Feedback. The creation of wildlife corridors can be followed in real time as they appear on the collaborative map.

Linkage with state agency/government.

- National Scientific and Technical Research Council (CONICET in Spanish)
- School of Agriculture / University of Buenos Aires (UBA)
- National Institute of Agricultural Technology (INTA in Spanish)
- Ciervo de los Pantanos National Park

Institutional funds. Project's own funding sources. INTA. Parque Nacional de los Pantanos. Fundación Temaikèn [Temaikèn Foundation].

Awards/distinctions. No.

Comments. -

Knowledge areas/disciplines (OECD)

NATURAL AND EXACT SCIENCES / Biology
AGRICULTURAL SCIENCES / Agricultural biotechnology
SOCIAL SCIENCES / Communication and media

Leaders.

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