

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Oscar Damián Baldeón
<b>Project Title</b>	Citizen science for the conservation of high Andean amphibians with school children - "Ciencia ciudaRANA"
<b>Application ID</b>	31291-2
<b>Date of this Report</b>	11 July 2023

**1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>Further development, implementation and expansion of a citizen science network throughout the province of Junín. Specifically, we will focus on increasing local communities scientific knowledge. This will be achieved through the implementation of workshops (learning sessions) in classrooms and in the field. Students and teachers will collect, compile, process and disseminate scientific data on the i- Naturalist platform, acquire field skills and receive a deeper understanding of the scientific method.</p>				<p>During 2021, the programme "Las ranas y yo: Science and citizen empathy to conserve the frogs of the Junín Lake basin" was developed in five Science and Technology Clubs of six educational institutions. At the beginning of the project, there were 66 students enrolled and 37 students from only four of the educational institutions finished. A total of 61 workshops were carried out distributed in 44 virtual workshops, four in person graduation ceremonies in the educational institutions and 13 field trips in the Chacachimpa, Carhuamayo and Ayac rivers of the Junín National Reserve with the application of the biosafety protocol for prevention and control of COVID-19 in Peru.</p> <p>During 2022, the programme was developed in 13 educational institutions. There were 362 high school students and 16 teachers registered in the area of Science and Technology. 10 learning sessions were carried out in two learning experiences according to the pedagogical tool "Las ranas y yo: Ciencia y empatía ciudadana - Manual para educadores" in each educational institution, of nine theoretical-practical virtual workshops, two field trips on monitoring biology of aquatic frogs and one virtual classroom in Google Classroom with access to 18 audiovisual materials on the explanation of the learning sessions and different digital support materials. It was not possible to form a citizen science network; however, the curricular insertion in local formal</p>

			<p>education was achieved through the recognition provided by the Local Educational Management Unit - UGEL Junín, which allowed an increase in the expected scope to the entire first grade of secondary school that will allow the creation of the network to be promoted to future.</p> <p>The use of the i-Naturalist application was implemented in the "Learning Session 01 - Exploring the Junín National Reserve" where they recorded their observations in field trips within the scope of a protected natural area with students and teachers that will promote the creation of registration projects in the application.</p> <p>The scientific data collected were inputs for the elaboration of 10 collaborative scientific investigations that had continuous support until their presentation at the XXXI National School Fair of Science and Technology (FENCYT) Eureka Virtual 2021 and 2022 and obtained the first places in the second stage. UGEL Junin.</p>
<p>Prepare two manuals: a manual for teachers, a manual for students. All manuals will be validated in a participatory manner involving teachers from educational institutions, the Educational Management Unit of the province of Junín (UGEL), and SERNANP - Junín National Reserve and Historic Sanctuary of Chacamarca.</p>			<p>Based on the 3-year experiences of the educational project in the Junín National Reserve, we recognised the importance of continuously strengthening the skills of teachers and providing contextualised tools to the local reality. When carrying out the initial analysis on the elaboration of a manual for teachers and a manual for students, we only concluded to elaborate a manual only for teachers since a predetermined manual for students would not promote the constructivist approach.</p> <p>However, the need arose for that manual to include directed didactic materials for use in the classroom and encourage the use of the field notebook by students. Likewise, due to the structure of the educational system in Peru, it was chosen to start through the regular basic education of the 1st year of secondary school.</p>

			<p>The publication of the pedagogical tool "Las ranas y yo: ciencia y empatía ciudadana - Manual para educadores" in January 2022 in a physical version distributed in the libraries of the Educational Institutions of the UGEL Junín and in a digital version through ResearchGate.</p>
<p>Institutional recognition of the theoretical-practical work manuals by UGEL - Junín. We aim to have these manuals accepted as mandatory curriculum to be used by all educational institutions in the Junín province. These manuals will serve as tools to aid teachers lesson plans, designed to promote student engagement and comprehension.</p>			<p>For the implementation of the 2022 edition, the signing of the "Inter-institutional cooperation agreement between the Junín Local Educational Management Unit and the Grupo RANA Association" was achieved, which aims to establish mutual collaboration links to combine efforts, resources, experiences and capacities, techniques and professionals aimed at encouraging, promoting and executing activities and/or projects that contribute to the development of environmental Andean frogs and their ecosystems, strengthening the development of investigative and research skills in students and teachers of the districts of Ondores, Carhuamayo and Junin; the agreement lasts until 2024.</p> <p>Directorial Resolution No. 00561-2022 UGEL Junín provides guidelines to diversify the science and technology curriculum for the 1st year of secondary education in relation to the programme ratifying the insertion of the project in local formal education.</p> <p>The goals set for the project have been achieved and even exceeded, as evidenced by the fact that in December 2022, it achieved first place in "Category 3: Promotion of innovation and leadership to improve learning in the students" in the National Contest of Good Practices in Educational Management, organised by the Ministry of Education of Peru.</p>
<p>Develop scientific monitoring programs of habitats close to the benefited educational</p>			<p>The field trip corresponding to the wet season took place on June 15, 17 and 18 2021 in the Chacachimpa river, Carhuamayo river and Ayac river of</p>

<p>institutions</p>			<p>the Junín National Reserve. The field trip corresponding to the dry season took place on October 30 2021, in the community of Huarmipuquio, Junín, Peru.</p> <p>On November 7 2021, the development of a BioBlitz was carried out in Huarmipuquio, recording species belonging to the taxonomic groups: birds, amphibians and flora. In the development of the activity, 14 students participated from the Educational Institutions “6 de Agosto” and “Libertador Simón Bolívar”.</p> <p>During 2022, eight field trips were carried out within the scope of the Junín National Reserve with a total of 428 secondary level students and 20 teachers from the science and technology area of 13 educational institutions in the Junín province where monitoring was carried out. Biological analysis of Chinchaycocha frogs through citizen science to determine the presence and absence of the Lake Junin frog.</p> <p>On November 5 and 6 2022, we participated in the First Bi-regional Census of High Andean Frogs carried out in Junín and Pasco in conjunction with Denver Zoo, SERNANP and local organisations.</p>
<p>Disseminate project results and experiences to the Lake Chinchaycocha Environmental Management Committee, the Junín National Reserve Management Committee and the Bi-regional Plenary of the Chinchaycocha Sustainable Environmental Management Plan (designated spaces that public and private</p>			<p>In March 2022, a diagnostic visit was made to the Junín National Reserve with the Executive Commission of the RNJ Management Committee, this space allowed promoting communication and dissemination with strategic allies and local authorities regarding the project and its activities developed in the year 2021. Likewise, the NGO Grupo RANA is an official member of said Executive Commission, which allows it to have a voice and vote within decision making in the field of the protected natural area where the project was included in the Official Management Plan of the Junín National Reserve 2022.</p>

<p>institutions and community members can participate in to plan and implement environmental activities) to ensure future sustainability of the project.</p>			
<p>Promote learning throughout local communities about the current situation of the Junín frogs through a) Participation in fairs, b) Photographic exhibitions and c) Development of infographics, with scientific information, presented through social media and audiovisual media. To generate media interest, this last activity also has the purpose of reaching non-local residents.</p>			<p>To achieve greater dissemination, we have participated in local events such as fairs in the Junín region, national and international events with the purpose of bringing the general population closer to the conservation of high Andean frogs in the Junín National Reserve.</p> <p>A field trip was carried out to share scientific research experiences where the results and conclusions carried out by each educational institution were exchanged in a playful expository way, Carhuamayo fairs at the invitation of the Andean Ecosystems Association - ECOAN where it was disseminated information for attendees on the current situation of high Andean frogs and their conservation in the Junín National Reserve, and fairs in Lima such as Fauna Fest 2022 held at the Faculty of Medicine and Veterinary Medicine of the Universidad Nacional Mayor de San Marcos.</p> <p>The activities and achievements of the execution of the project were published on the social networks of the NGO Grupo RANA, local newspapers such as "La Primicia", broadcasts in the local network "Ondas del Chinchaycocha" locally and nationally.</p> <p>The programme was presented virtually at the Biodiversity COP 15 in Montreal, Canada at the SIDE EVENT "Children and Biodiversity: Youth-led Biodiversity Education Projects for Children".</p>

**2. Describe the three most important outcomes of your project.**

**a).** During 2021, the project "Las ranas y yo: Ciencia y empatía ciudadana para conservar las ranas de la cuenca del lago Junín" managed to prepare four scientific investigations, three of which had continuous monitoring until their presentation to

the XXXI National Science and Technology Eureka Virtual School Fair 2021 and one partial accompaniment. The research obtained the first four places in the second stage UGEL Junín and the scientific research of the Science and Technology Club of the Jorge Chávez Dartnell Educational Institution achieved the pass to the fourth National stage. During 2022, the development of six scientific research was achieved, of which they had continuous monitoring until their presentation at the XXXII National School Fair of Science and Technology Eureka Virtual 2022. The research obtained the first seven positions in the second stage UGEL Junín .

<b>Educational institution</b>	<b>Title</b>	<b>Position</b>
6 de Agosto	Influence of wastewater on the water quality of the frogs' habitat using pH as an indicator	Second Place - UGEL Junín Stage
Libertador Simón Bolívar	Influence of the contamination of the Huarmipuquio river in the population of macroinvertebrates and its affectation to the Lake Junin frog	Third Place - UGEL Junín Stag
	Evaluation of the physicochemical parameters and aquatic macroinvertebrates as indicators of the ecological state of a transect of the Chacachimpa river	First Place - UGEL Junín Stage
	Evaluation of the quality of residual waters emerging from the oxidation pools (Treatment plant) of the Chacachimpa river and management proposal	Third Place - UGEL Junín Stage
La Victoria de Junín	Influence of chuño wells on the habitat of the Junín giant frog in the Huayre river	Sixth Place - UGEL Junín Stage
Santa Rosa	Evaluation of the impact of wastewater from the city of Carhuamayo on a tributary of Lake Chinchaycocha based on physicochemical variables and aquatic macroinvertebrates	Second Place - UGEL Junín Stage
	Identification of fish species that inhabit the Carhuamayo river, Carhuamayo district, Junín province and region	Fourth Place - UGEL Junín Stage
Jorge Chavez Dartnell	Evaluation of water quality in the transects of the Chuiroc, Carhuamayo (upper part) and Huachac rivers based on benthic macroinvertebrates	Fourth Place - UGEL Junín Stage
	Evaluation of water quality in a transect of the Carhuamayo River based on the presence of benthic macroinvertebrates	First Place - UGEL Junín Stage

Andrés Bello López	Comparison of the presence of fish in the Carhuamayo river in the month of August of the years 2021 and 2022	Seventh Place - UGEL Junín Stage
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**b).** The project achieved the curricular insertion in local formal education through the recognition provided by the Local Educational Management Unit - UGEL Junín, allowing 13 educational institutions, 17 teachers and 400 students to be part of the programme in 2022 and 2021. Likewise, the signing of the "Inter-institutional cooperation agreement between the Junín Local Educational Management Unit and the Grupo RANA Association" ensures collaboration with the UGEL Junín to continue the execution of the project for 2 years, strengthening the development of research skills in students and teachers from the districts of Ondores, Carhuamayo, Junín and Ulcumayo (Junin Region). Supporting the achievement of the programme, obtaining first place in Category 3: Promotion of innovation and leadership to improve student learning in the National Contest of Good Practices in Educational Management, organised by the Ministry of Education of Peru .

**c).** The publication of the pedagogical tool "Las ranas y yo: ciencia y empatía ciudadana - Manual para educadores" in January 2022 in a physical version distributed in the libraries of the educational institutions of the UGEL Junín and in a digital version through ResearchGate. This pedagogical tool aimed at teachers in the area of science and technology in the educational institutions of the first grade of secondary school located around the Junín National Reserve, designed in accordance with the Secondary Education Curricular Program approved by Ministerial Resolution No. 649-2016-MINEDU and thus guarantee its institutional insertion in the annual planning. It consolidates the 3 years of the educational project under a constructivist approach and contextualised to the local reality. Additionally, for teachers a colour manual version was printed to deliver copies to the National Library of Peru to complete the registration process in the Legal Deposit and ISBN Code as a public access publication.

**3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

- Due to the health emergency context of COVID-19, it was necessary to redesign the implementation strategies of the project in order to provide access to students and adapt to the change in modality of the educational system to the virtual modality. Under this context, personalised digital literacy was carried out as the first interaction with the enrolled students where they were given advice on the use of digital tools such as Google Meet and the creation of their own Gmail accounts.
- The migration to the virtual modality showed large gaps in the Junín region regarding access to internet services and adequate electronic equipment for the development of learning sessions, for which the student audience was reduced due to these difficulties. Likewise, a record of the conditions of the students' electronic equipment was made to evaluate their situation regarding access to virtual classes, this evaluation allowed providing

accessibility support to students who had economic difficulties regarding access to the Internet.

- Field trips generate more interest in participation and involvement by students and teachers, on the other hand, virtual workshops generate a certain rejection compared to in person meetings. For this reason, the number of in person and virtual events carried out was balanced.
- The implementation of "Las ranas y yo: ciencia y empatía ciudadana - Manual para educadores" as a pedagogical tool was aimed at teachers in the area of science and technology in the educational institutions of the first grade of secondary school located around the Junín National Reserve but this required an accompaniment in its implementation. For this reason, a face-to-face and virtual course was developed for technical assistance and updating for teachers. Which consisted of a virtual classroom in Google Classroom, which details 18 audiovisual materials for the learning sessions and includes sections for receiving evidence, suggestions and experiences on its use. All the information collected is input for feedback and adjustments of the pedagogical tool in future editions. Likewise, to guarantee its institutional insertion in the annual planning, the structure of the manual was based on the didactic planning of the teaching and learning processes of the curricular area of science and technology of first grade of secondary education according to the approved Curricular Program of Secondary Education. with Ministerial Resolution No. 649-2016-MINEDU.
- In 2021, the workshops implemented were led by Grupo RANA staff accompanied by the teachers of the science and technology clubs enrolled in the programme that generated dependency in its execution with the students. For this reason, by 2022, the leadership of the teacher was sought in the execution of the programme that leads to the implementation of a programme to strengthen the research capacities of teachers through nine theoretical-practical virtual workshops, two field trips on the biological monitoring of aquatic frogs and 1 virtual classroom in Google Classroom.

#### **4. Describe the involvement of local communities and how they have benefited from the project.**

##### **Students**

The students of the educational institutions located around the Junín National Reserve are the protagonists and direct beneficiaries of the project, by being participants in workshops carried out, generating identity from the biodiversity of its environment and contributing to the conservation of *Telmatobius macrostomus* and *Telmatobius brachydactylus* in the area of the Junín National Reserve.

The students participating in the participatory biological monitoring of the Chinchaycocha frog are beneficiaries through citizen science for the learning and experiences obtained in the field in order to achieve an approach to the conservation of both high Andean frogs.

In 2021, there were a total of 66 secondary level students from the five science and technology clubs of the educational institutions and, in 2022, there were a total of 362 secondary level students from the 13 educational institutions.

### **Teachers**

In 2021, the advisory teachers of the science and technology clubs at the secondary level of the project were beneficiaries by having continuous accompaniment in the elaboration of a scientific research and presentation at the XXXI National School Fair of Science and Technology (FENCYT) Eureka Virtual 2021.

In 2022, first grade secondary school teachers in the Science and Technology area in the competent educational institutions of the UGEL Junín enrolled in the project ", they were benefited by having continuous accompaniment in the elaboration of their scientific research and presentation at the XXXII National School Fair of Science and Technology (FENCYT) Eureka Virtual 2022.

Likewise, they were direct beneficiaries of "Las ranas y yo: Ciencia y empatía ciudadana - Manual para educadores", being the recipients of the pedagogical tool and protagonists of the implementation of the learning sessions. The development of technical assistance and updating to 16 teachers included field trips to collect information and take samples; and virtual synchronous and asynchronous technical assistance.

The teachers participating in the participatory biological monitoring of the Chinchaycocha frogs are benefited by accompanying their students and learning how to use monitoring equipment in the field for future expeditions in the Junín National Reserve.

### **Junin region agrarian community**

The agrarian community of the Junín region is a beneficiary in general due to the reevaluation of the endemic high Andean frogs of the Junín National Reserve, an increase in the scientific level in the educational level through the project and increased knowledge of the current situation of the Lake Junin frog through the participation of local fairs.

## **5. Are there any plans to continue this work?**

The execution of the project has achieved the curricular insertion in formal basic education, allowing growth in its scope and results for what our team wants to continue with its implementation, in order to cover all the educational grades of the secondary level and curricular areas. For this reason, in the current year 2023, we are in its 4th year of execution of the programme and with the continuous accompaniment of the UGEL Junín. Likewise, year after year the programme receives feedback from the beneficiaries themselves, allowing it to achieve its sustainability and commit local authorities to budget involvement.

Due to the reach, we had with the publications on social networks and presential spaces, we will continue to share this kind of content and manage our participation

in larger local, national and international spaces to share information about the program with the general population and decision makers.

We have identified the interest of educational institutions to continue with the implementation of the programme and highlight the conservation of an emblematic species, *Telmatobius macrostomus*, through collaborative scientific research with students and teachers. This situation motivates the team to continue with the efforts for the execution of the programme with the long-term vision of increasing its geographical scope to the Pasco region, an area that also includes the presence of the species *Telmatobius macrostomus*.

In addition, our allies such as the Denver Zoological Foundation, SERNANP through the Junín National Reserve, UGEL Junín, Electroperú, CAMBIO and others have shown interest in continuing with the programme.

## **6. How do you plan to share the results of your work with others?**

The exchange of experiences, results and lessons learned during the execution of the programme has been carried out and will continue to be carried out through the three different kinds of spaces: local, national and international.

### **Local**

In presential spaces, we participated in various commemorative fairs in Carhuamayo and Junín where information was disseminated on the current situation of high Andean frogs. A field trip was also organised to share scientific research experiences where the results and conclusions of the scientific investigations carried out were exchanged in a playful way, and exhibitions in the Management Committee of the Junín National Reserve as members of the Executive Commission.

In journalistic spaces, the achievement of the scientific research pass of the Science and Technology Club of the Jorge Chávez Dartnell Educational Institution to the fourth National stage of the XXXI National School Fair of Science and Technology (FENCYT) Eureka Virtual 2021 was published.

In radio spaces, many broadcasts were made on the local radio "Ondas del Chinchaycocha" through interviews on the progress of the project within the Junín region. Likewise, promote the dissemination of projects to local actors to encourage their involvement in their execution.

### **National**

In in-person spaces, we participated in various fairs in Lima such as the Fauna Fest 2022 held at the Faculty of Medicine and Veterinary Medicine of the Universidad Nacional Mayor de San Marcos, where conservation activities and programmes were disseminated in favour of the Lake Junin frog.

Poster publications and videos of the activities carried out within the framework of the programme were made through the social networks of the NGO Grupo RANA for dissemination both locally and nationally, also through the social networks of our allies such as the Reserve Junin National.

## **International**

We held a virtual exhibition of the achievements of our programme at the Biodiversity COP 15 in Montreal, Canada, exposing our achievements at the SIDE EVENT "Children and Biodiversity: Youth-led Biodiversity Education Projects for Children".

In 2022, the report "From words to action: the role of young people in climate action" carried out by the Meri Foundation and UNICEF dedicates a block to the presentation of our program as one of the youth initiatives of Latin America and the Caribbean within the framework of climate conservation and action.

## **7. Looking ahead, what do you feel are the important next steps?**

- The continuity of the project has as next steps to achieve the curricular insertion in the 1st year of secondary school with the support of the UGEL Junín throughout 2023 through the monitoring of the implementation and feedback of the manual in the classrooms and advice to the educational institutions that carry out research related to the conservation of Lake Junin frog.
- By the end of 2023, we hope to have at least 12 new collaborative research projects, which in their construction process have allowed the strengthening of the research capacities of teachers, students, as well as the research topic that go further beyond *Telmatobius macrostomus* and its habitats, thus allowing the study of more protected species in the Junín National Reserve to continue promoting their conservation, under an environmental approach that sensitises students and teachers.
- The execution of the project "Las ranas y yo - Edición 2023" as the main protagonist for teachers will allow in the future to generate a new pedagogical tool prepared by the NGO Grupo RANA for future new editions that will include the 2nd year of secondary school.
- By the end of 2025, the project proposes to position itself at the level of the Junín region as a successful citizen science experience with institutional support and sustainability through curricular insertion for the development of collaborative research contextualised to conservation, which has strengthened and will continue to strengthen skills. student and teacher research.

**8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

Yes, in each one of our activities, the generosity of The Rufford Foundation as a fundamental collaborator in the execution of the project was mentioned in local, national and international places. The Rufford Foundation logo was used on publications, banners, presentations and manuals. Below we detail the use of the logo and the estimated reach.

- 20 publications shared on our social networks that have reached more than 40,000 people.
- Presentation at the Universidad Nacional Mayor de San Marcos, presentation before the Management Committee of the Junín National Reserve, presentation with allies such as Electroperú and presentation of the programme on social networks.
- A citizen science banner, which was used throughout the project, as well as in the dissemination of our results during the different events in which we participated. The rough estimate of the reach is more than 4000 people.
- Publication of the pedagogical tool "Las ranas y yo: ciencia y empatía ciudadana - Manual para educadores" in physical version distributed in the libraries of the Educational Institutions of the UGEL Junín and in digital version through ResearchGate reaching more than 4000 people.

**9. Provide a full list of all the members of your team and their role in the project.**

<b>Position held</b>	<b>Project team</b>
President 2022 Project coordinator Junín 2021	Jhusely Danesy Navarro Patiño
Project coordinator Junín 2022 Volunteer assistant 2021	Milagros Gertrudes Rojas Lock
Field assistant 2022 Volunteer assistant 2021	Katherine Celica Taramona Zevallos
Volunteer assistant 2021	Paola Velissa Galarza Barzola
Volunteer assistant 2022 Volunteer 2021	Deysi Tronet Ricapa Morales
Volunteer 2021 y 2022	Karol Adriana Gallardo Rodríguez
Volunteer 2021	Carlos Daniel Roque Rengifo
Project supervisor 2021 y 2022	Oscar Jesús Damian Baldeon
Research advisor 2021 y 2022	Luis Castillo Roque Manuel Silva Poma Lenin Chumbe Nolasco
Specialist in Science and Technology of the UGEL Junín 2021 y 2022	Gustavo Iván Carlos Osorio
Chief of the Junin National Reserve	Ronald Medrano Yanqui
Specialist of the Junin National Reserve	Juan Carlos Hurtado Valerio
Park ranger of the Junin National Reserve	Kuennen Duanne Martinez Cóndor

	Eduardo Elias Nuñez Juan Carlos Cardenas
Graphic designer of Grupo RANA NGO	Margory Sigueñas Tavera

**10. Any other comments?**

The experience of working with The Rufford Foundation has been very rewarding and we appreciate the opportunity provided to our organisation. You have been a very important support for the execution of the programme in its 2021 and 2022 edition within the educational institutions of the Junin National Reserve and thus maintain the continuity of this initiative. Strengthen the realisation of field trips with both teachers and students to promote an experiential education in the local context, support in the development of collaborative research in favour of the conservation of Chinchaycocha frogs and the creation of pedagogical tools to reinforce the research capacities of teachers in high Andean aquatic ecosystems.

We are an organisation with a few years in the field of conservation. We are deeply grateful that you have placed your trust in us, this has meant enormous value not only for our projects but also for our organisation. We hope that our achievements, we give you this report with everything that the project has achieved.



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