

Final Evaluation Report

Your Details	
Full Name	Mauro Ignacio Schiaffini
Project Title	Cats at the end of the world: enhancing the knowledge of the smallest felid of America, the enigmatic kodkod in Los Alerces National Park
Application ID	34575-1
Date of this Report	September 9, 2022

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>Characterization of guignas densities, habitat use and activity patterns in the southernmost Protected Area (PA) of Argentina where they are present.</p>				<p>For the first objective we have installed several camera traps in the study area. For points "a" and "b" we started with five camera traps bought with personal funds, while for point "c" we counted with camera traps (CTs) acquired with Rufford funds.</p> <p>a) CTs in Frey River. On February 27, 2021, we set five CTs along the Frey River, which links Futalaufquen Lake with Amutui Quimei reservoir, within Los Alerces National Park (LANP). Near these points, a kodkod has been previously found dead in 2019 (see Guerisoli et al., 2020). Traps were baited with commercial tuna and left to work for 2 months. One of the cameras malfunctioned and was not subsequently used. Although we did not find kodkod on the pictures, we saw other carnivores (see first report of this project).</p> <p>b) CTs in Krugger Lake trail, LANP. On July 5, 2021, we set four CTs along a trail near Futalaufquen lake and left them to work for 2 months. This trail has severe modified vegetation following a wildfire in 2015. Instead of the typical tall forest cover of Andean Forest, there are many dead trees still standing, and low understorey. We did not capture kodkod here, but we captured other carnivores, including the lesser grison <i>Galictis cuja</i> (rarely captured in Los Alerces National Park), and an example of interactions between the Andean fox <i>Lycalopex culpaeus</i> and the introduced wild boar <i>Sus scrofa</i> (see first report of this project).</p> <p>c) CTs on Menéndez Lake, LANP. On November 10, 2021, we set 14 CTs using rechargeable batteries and 32gb memory disks, all bought with Rufford funds, in</p>

		<p>Menéndez Lake. This lake holds a particularly restricted category of conservation within LANP and thus it's challenging to access this area. We were able of control the CTs only by mid-March 2022, and the pictures are still being processed. Of the 14 CTs, two malfunctioned - one did not take any pictures, while the other activated continuously and ran out of batteries in just a couple of days. During the control, we replaced all batteries and memories with new ones, and left the CTs in the same locations, except for some minor changes due to differences in water level. We have captured several pictures of guignas, mostly at night. We also got information on the vulnerable <i>Pudu pudu</i> (one of the smallest deer species of the world), <i>Puma concolor</i>, Andean fox <i>Lycalopex culpaeus</i>, and introduced American mink <i>Neogale vison</i>, among others (see second report of this project). These CTs are still installed in the study area and will be collected in October 2022 and moved to another area of the LANP to continue monitoring guigna's population.</p>
<p>Collection of knowledge and perception of local communities toward this species.</p>		<p>We released an online interview to search for knowledge on fauna from north-western Chubut province, Argentina. We asked people about different species present in the area and particularly if they knew the kodkod <i>Leopardus guigna</i>. We completed this task by the end of 2021, obtaining a total of 212 answers. These are some details of the results allowing a general characterisation of those who answered, and the level of knowledge about the local fauna. Regarding sex, 60% women and 40% men answered. Regarding ages, only the 1.4% were under 15 years, 12.2% were 16-25, 23.6% 26-35, 28.3% 36-45, 19.8% 46-55, 9.9% 56-65 and 3.3% were over 66, while the 1.4% of the sample did not answer. Regarding education, 2.8% had finished elementary school, 23.11% finished high school, 24% finished associate degrees, 43.86% had bachelor's degrees, and 6.13% did not answer. Finally, 9.43%</p>

		<p>had lived in the region for less than 5 years, 11.8% 6-10 years, 36.32% over 10 years, and 42.45% had lived in the region their entire life.</p> <p>Regarding knowledge of local fauna, only 40% identified the kodkod as a member of local fauna, while almost 90% identified the introduced wild boar <i>Sus scrofa</i>. Interestingly, when we asked particularly if they knew the kodkod, 50% answered that they did. When we asked what kind of animal, they thought a kodkod was, 66% answered a "cat", while 29% answered a "bird" and almost a 2% a "lizard". Of 50% of the people that claimed to know the kodkod, 52% correctly identified it from pictures, while almost 30% confused it with Geoffroy's cat <i>Leopardus geoffroyi</i>, almost 15% with the pampas cat <i>Leopardus colocolo</i> and 1.4% with both a domestic cat <i>Felis catus</i> and with <i>Puma concolor</i>. By December 2021, we were involved in a short section of a radio programme "La Aristogracia" (from Radio Nacional Esquel), where we talked about the interview.</p>
<p>Design and writing of a graphic novel that will integrate local information of guignas (Generated with products 1 & 2) and scientific knowledge.</p>		<p>Collaboration of Nilda Bulzomi, the pedagogue, Irene Negri, the artist, and Mauro Schiaffini and Maria de las Mercedes Guerisoli, as editors and scientific consultants.</p> <p>This book tells the story of a young girl and boy who are camping in LANP and one morning they play hide and seek. During the game, they found several species that inhabit the protected area. Eventually, they cross paths with two biologists, and continuing playing with them. While searching for the remaining animals, they found a guigna and begin to explore about the knowledge of this poorly known cat. They search for the differences with the domestic cat, and with another felid species that occur in the area, the Geoffroy's cat (<i>Leopardus geoffroyi</i>). They continue talking and finding out the main characteristics of the species (e.g., size, habits, distribution) and their main threats. The online version can be found at: https://www.researchgate.net/publication/</p>

			363184969_Piedra_libre_huinita. Besides the online (PDF format) version, which is freely accessible for everyone, we have also made 50 hard copies (Figure 2) which will be distributed in the main educational centres of the study area. This last task will be completed in October 2022. We have registered both the printed and the online version with an International Standard Book Number (ISBN): 978-987-88-5536-3 for the printed version and 978-987-88-6020-6 for the online version
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2. Describe the three most important outcomes of your project.

- a).** Confirmation of the presence of kodkod in many areas of LANP, including the first analysis of temporal ecology. Also, with "by-catch" data we confirmed the presence of another vulnerable species, the pudu.
- b).** First assessment of the knowledge of general population regarding the existence and the habits of the kodkod in the study area.
- c).** Production of a graphic novel in electronic and hard copy formats, to be made freely available to everyone.

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

Regarding the acquisition of the camera traps, we bought two sets of 15 CTs each time. We wanted to highlight that we spent \$500 on the first occasion, and then \$1,000 on the second order to get the devices to Argentina. This is a sad and frustrating situation, since this money could have been useful to achieve other activities of the project. However, these expenses are due to taxes and cannot be avoided. To carry out scientific projects in undeveloped countries, habituate us as researchers dealing with many extra-scientific issues, such as management of funds in an extremely volatile financial situation. Without Rufford funds, we would not have been able to begin our study of one of the least known felids of the world.

During the last part of 2021, some Covid-19 restrictions were applied in our study area, making the logistic arrangements (field surveys) more difficult.

Finally, the devaluation of the Argentine currency makes hard to project into the future, and sometimes the budget that we acquire are only valid for a couple of days.

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

In this first stage, local communities were involved through interviews (see point 1). The general knowledge about the local fauna was assessed, and many were asked if they were available for a second stage of the interview, to deepen the questions. Almost all of them answered yes, and they will be contacted in a nearby future.

5. Are there any plans to continue this work?

We aim to translate the graphic novel in a nearby future, from Spanish to English, to broaden its scope. At the end of the book, a form that can be completed, and a QR code are also provided, driving directly to the project on The Rufford Foundation webpage.

Also, we aim to develop the next aspects:

- November 2022: we will present the project on the XIII Jornadas Argentinas de Mastozoología as an oral presentation. The abstract can be found in Supplementary Material I.
- October-December 2022: we will check the CTs in Menéndez Lake and move them to another sector of LANP. Additionally, we will deliver the printed copies of the graphic novel to the main educational centres of the study area. We will participate on a radio program in Esquel to talk about the graphic novel. We will apply for a Second Rufford Small Grant. We have so much in mind to continue!
- First part of 2023: we will request the necessary permits to set camera traps in Lago Puelo National Park while continue the work in LANP. We wish to expand the results and the scope of the project to other areas, to better understand the biology of guignas, but also to build bridges between scientific knowledge and the rest of society.

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

As explained in point 1, the results of the project are available through many sources. The academic results will be presented in an international scientific conference (see below), and eventually a paper will be written and published, acknowledging The Rufford Foundation.

The graphic novel is already available in online version (free access), and hard copies will be sent to educational establishments in the study area. The logo of Rufford can be seen in all versions (see below).

Also, we aim to participate again in radio talks to continuing communicating our results, and the importance of biodiversity conservation.

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

We are very happy with the obtained results, and as explained in detail in point 6, there are still many goals to pursue. We aim to apply for a 2nd Rufford Small Grant.

We feel that the project has still many outputs to give, and a great potential for deepening both scientific and communication aspects. Regarding the first, we aim to expand our project to nearby national parks, while continuing the field surveys in LANP. Regarding the second, we would love to print more copies of Piedra libre huiñita, to reach all educational establishments of the study area, adjacent zones, and other national parks as well. Complementarily, other communication activities, as a formal presentation of the book, radio talks, and semi-structured talks in schools are foreseen.

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, as can be seen in point 6, the logo was used for the graphic novel, printed in large size in the first page (Figure 2). Also, as explained in point 1, during the radio programme in which we were involved, we explicitly mentioned that the project was able to exist, given a grant from The Rufford Foundation.

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

Mauro I. Schiaffini. Director of the project.

María de las Mercedes Guerisoli. She acted as co-director of the project, in charge of many logistic features, discussion of equipment and budget, field surveys, design and analysis of interviews, and editor of “Piedra libre huiñita”.

Gabriel G. Bauer. He was the link between us and Administración de Parques Nacionales, granting access to field surveys.

Delia N. Bulzomi. She was the pedagogue in charge of writing “Piedra libre huiñita”, combining grammar and the scientific knowledge provided by MIS and MMG.

Irene Negri. She acted as the artist who made all the draws for “Piedra libre huiñita”.

10. Any other comments?

Following next, Figures referred in point 1, and the abstract to be presented in XXXIII JAM.

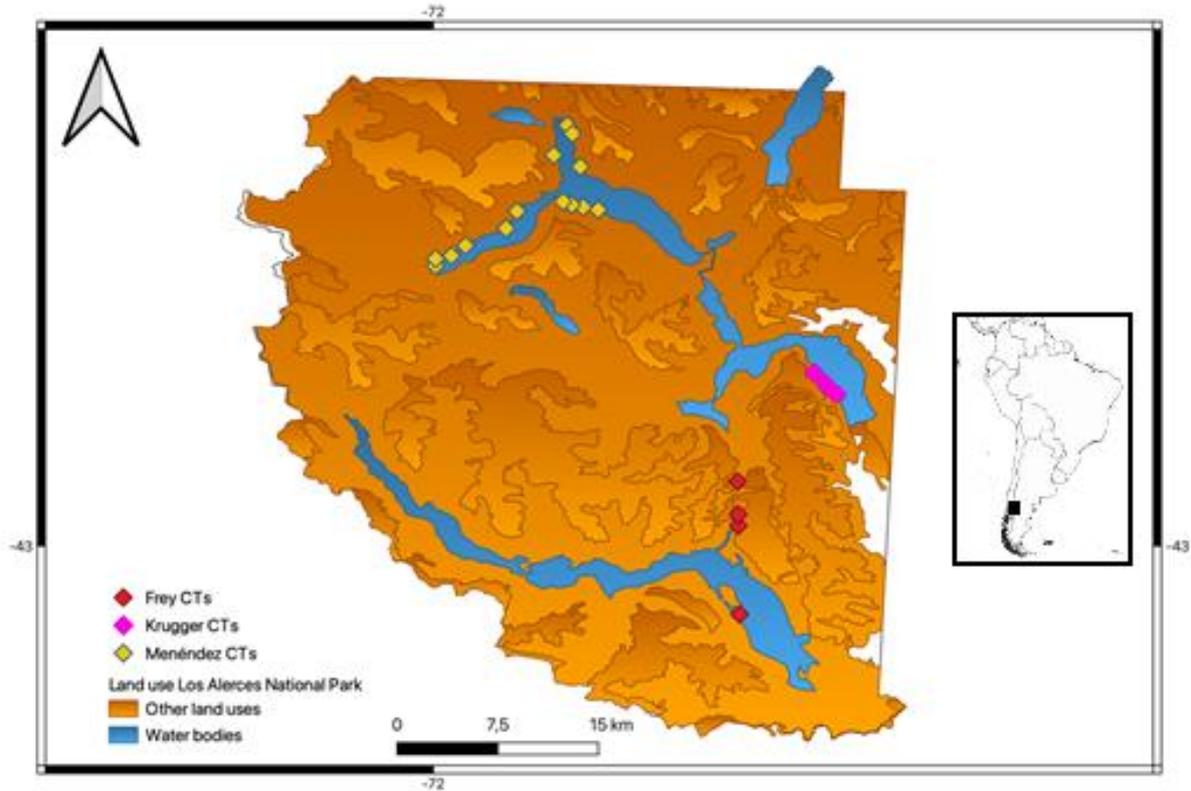


Figure 1. Map of Los Alerces National Park (light and dark green) showing the restricted area (dark green). Each square represents the location where a CT was deployed: red (Frey River), purple (Krugger trail), green (Menéndez Lake).

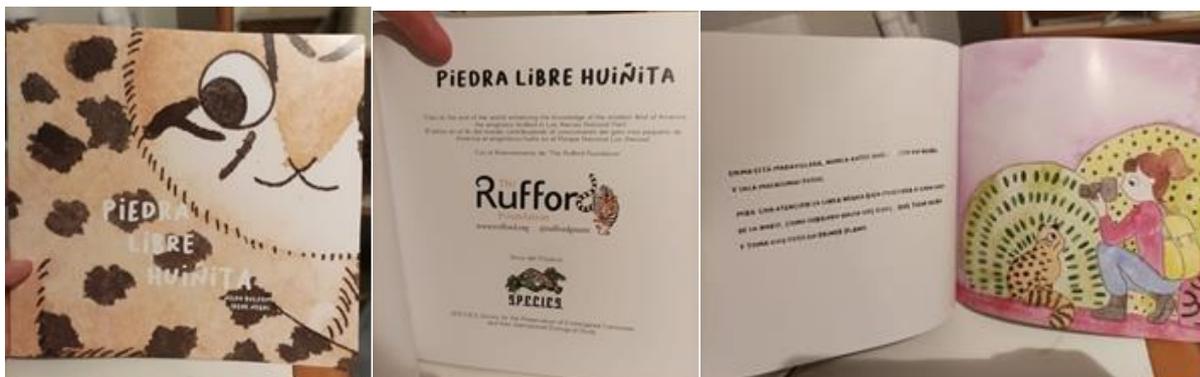


Figure 2. Some captions of the printed book "Piedra libre huiñita".

Abstract

Descubriendo al “gato más chico” en el noroeste de la provincia de Chubut: el guiña *Leopardus guigna* en el Parque Nacional Los Alerces y zonas aledañas.

Guerisoli, M. (1), Bulzomi, N. (2), Negri, I. (3), Bartolucci, C. (4), Bauer, G. (5), Giordano, A. (6), Schiaffini, M. (7).

(1) Fauna-tizate, Ciudad Autónoma de Buenos Aires, Argentina. (2) Integrante de Secretarías de ambiente y educación de la Asamblea Permanente por los Derechos Humanos. (3) Universidad Nacional de la Plata, La Plata, provincia de Buenos Aires, Argentina. (4) Universidad Nacional de la Patagonia San Juan Bosco, sede Esquel, Chubut, Argentina. (5) Departamento de Conservación y Educación Ambiental, División Conservación y Manejo, Parque Nacional Los Alerces, Parques Nacionales. (6) S.P.E.C.I.E.S., Ventura, California, USA. (7) Centro de Investigación Esquel de Montaña y Estepa Patagónica (CIEMEP, CONICET-UNPSJB), Laboratorio de Investigaciones en Evolución y Biodiversidad (LIEB, FCNyCS), Esquel, Chubut NPSJB Sede Esquel, FCN y Cs.de la Salud mariadelasmercedesguerisoli@gmail.com

El guiña, habitante de bosques y hábil trepador, representa el gato de menor tamaño de América. En Argentina, parte de su distribución comprende el noroeste de la provincia del Chubut, incluyendo el Parque Nacional Los Alerces (PNLA) y zonas aledañas. Este trabajo se propuso abordar la información vinculada al guiña a través de una caracterización ecológica, social y educativa. Se completaron de forma virtual 212 encuestas a personas de las comunidades locales del noroeste del Chubut. Se instalaron 14 cámaras trampa (CTs) en el Lago Menéndez del PNLA. Además, los investigadores, junto con una ilustradora y una pedagoga, se completó un cuento didáctico para niños con el guiña como protagonista. Las encuestas determinaron que sólo la mitad de los encuestados “conoce” al guiña. De la mitad restante, más del 30% lo identificó como un ave. De la mitad que lo conoce, sólo el 52% logró identificarlo correctamente en una fotografía. En relación a las CTs, se obtuvieron un total de 36 eventos independientes (i.e., toda fotografía tomada cada una hora) de guiña en 10 sitios, mientras que dos CTs no obtuvieron registros de guiña, y dos no funcionaron correctamente. La especie mostró una leve preferencia hacia horas nocturnas (Índice de Jacob (IJ)=0,39) y una leve evitación de las horas del amanecer (IJ=-0,2) y del día (IJ=-0,36). El cuento se titula “Piedra libre huiñita” y narra la historia de dos niños que se encuentran con un guiña en el PNLA, recorriendo los principales aspectos biológicos de la especie, como también sus principales amenazas. El cuento será impreso y distribuido gratuitamente en instituciones educativas de la región. También se continuarán los muestreos a campo para poder obtener mayor información sobre esta especie elusiva y poco conocida.

Subsidiado por: The Rufford Foundation.