

Control of the invasive alien species *Lampropeltis getula californiae* on the island of Gran Canaria.

Project objectives:

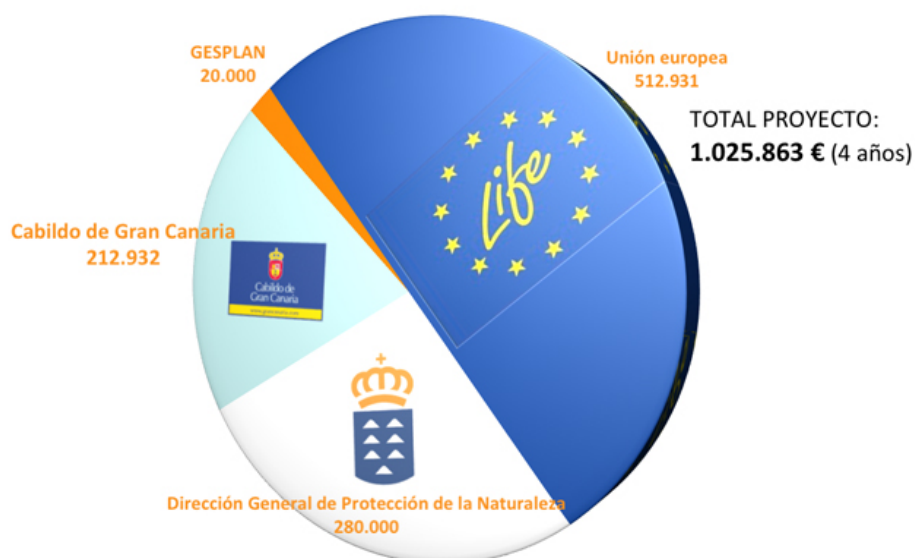
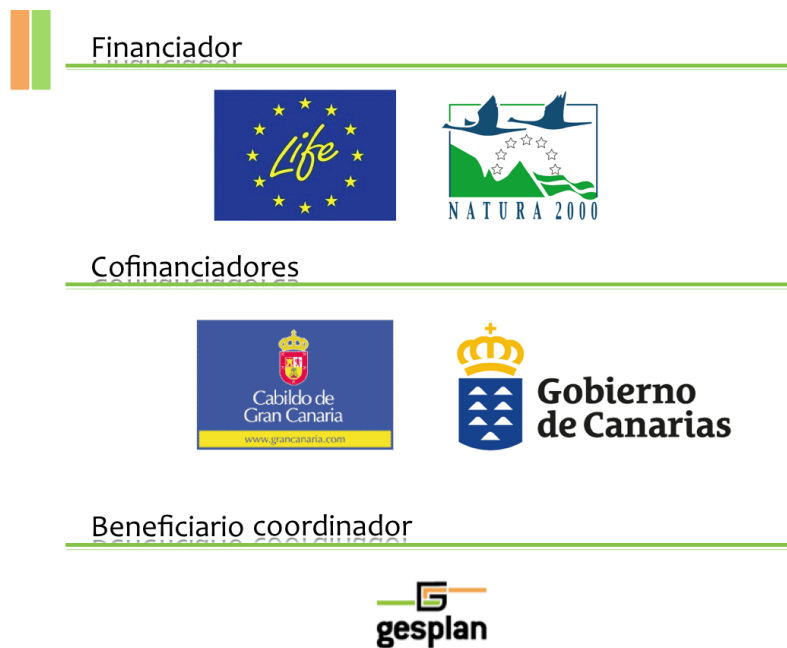
The main objective of this project is to control and reduce the population of the introduced California Kingsnake *Lampropeltis getula californiae* on the island of Gran Canaria, so as to minimize its impact on native biodiversity.

In order to achieve this, specific objectives framed within the fight against invasive alien species are to be followed:

- Improve knowledge of the species and its behaviour as an alien invasive species on islands.
- The implementation of proven techniques for the detection and capture of exotic invasive snakes introduced onto other islands.
- Raise awareness and encourage involvement of all pertinent community sectors, by convincing them of the magnitude of the problem, the need to establish preventive measures to limit the introduction and settling of alien species, and to highlight the importance of protecting existing habitats and native species.
- Share knowledge gained through implementing the project within the framework of EU LIFE-Biodiversity, for combating vertebrate exotic invasive species in island habitats.
- Provide relevant public authorities with tools for managing and preventing alien vertebrate species from gaining a foothold on local island habitats.

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PARTICIPATING ENTITIES AND FUNDING.



Actions and Resources

• **Population control of *Lampropeltis getula californiae*:** In order to effectively control the population of the said species a set of integrated management techniques will be implemented, according to their efficiency and selectivity:

- Manual capture of specimens
- Comparison of trapping methodologies and their implementation
- Capture of specimens through the use of other trained animals

• **Improving knowledge on the species to control the invasive population:** The knowledge of the biology and particularly the ecology of the species is crucial in understanding its behaviour as an invasive species adapting to the natural environment of Gran Canaria. Therefore, measures will be enacted upon to identify and establish biological and ecological parameters that will optimize control, and determine the implications for the effective management of the risk at hand:

- Development of tools for delimiting the geographical distribution of the species.
- Environmental characterization of its distribution area.
- Genetic analysis of captured specimens.
- Analysis of population density from prey.
- Identify/establish biological parameters from caught specimens.
- Identify/establish ecological parameters through Radio Tracking techniques.

• **Prevention of further introductions of invasive alien species:** As suggested by all international legislative bodies, in relation to alien invasive species, prevention is the most effective means of combating this threat. In the course of this project, additional measures will be tested for subsequent implementation in controlling the entry of exotic animals onto the island territory, and in doing so, attaining greater international cooperation and exchange of information with other geographic regions affected by similar environmental problems. The following objectives are set out below:

- To create a list of invasive alien vertebrates species on oceanic islands.
- Risk Analysis of trade in exotic vertebrates.
- An international seminar on the management of invasive alien species.
- An information-sharing network to share experiences with participants on similar projects.

• **Raise awareness and promote community involvement in the fight against invasive alien species:** Given the socio-economic implications of this type of phenomena, it is necessary to raise awareness of the harmful effects that this and other invasive species can cause, through recognition of the natural heritage values that are affected. The active involvement of the population will be of great help in the monitoring process. Thus the project also includes establishing the following measures:

- Detection and Early Warning Systems to elicit public participation.
- A Best Practices Handbook for the sale and possession of exotic species.
- Public education and advertising campaigns to heighten environmental awareness over a broad social spectrum.

EXPECTED RESULTS.

- The reduction of density and the abundance of the California Kingsnake *Lampropeltis getula californiae* on Gran Canaria Island to allow the containment of the population and its gradual eradication. It is anticipated that the distribution of the invasive species will be reduced by up to 50% in the case of Gáldar, in the north of the island, and to contain the inhabited areas in Telde/Valsequillo, in the North East of the island, stopping further migration of the species as was occurring prior to the start of this project.
- The consolidation of international networks of contacts and work involved in the fight against invasive alien species.
- A Risk Analysis Manual in the trade of exotic vertebrates.
- A list of invasive alien vertebrate species to facilitate their management on the island territory.
- A handbook of best practice for the possession and trade of alien species.
- An early warning system to involve the community at large in the control process of the California Kingsnake *Lampropeltis getula californiae*.

SPECIES, HABITATS AND BIODIVERSITY.

The diet of this species is quite varied, including rodents, small mammals, birds, reptiles, amphibians and even eggs. They detect prey by sensing movement and smell, looking for them along the ground, under rocks and bushes. Generally, they capture and swallow their prey alive, using two methods: pushing their victims against rocks or walls of a burrow to immobilize them, or by constriction, coiling themselves around their prey, causing death by suffocation.

The Kingsnake is oviparous, the size of the egg clutch usually ranges from 3-24, after a gestation period of between 45 to 65 days post-mating. Sexual maturity is reached at age 2.

The California Kingsnake is among the most common snakes in North America, and very popular amongst people who keep this type of animal as a pet. They are generally shy animals, docile and non-poisonous. *Lampropeltis* can have different colored patterns, alternating banded pattern or striped pattern. In nature, the color pattern is black with white or cream-colored bands. There are actually more than 70 recurring pattern and color combinations, but many of these basic patterns are extremely variable within their own parameters.

The introduction on Gran Canaria, was anthropogenic, namely as a result of human activity, and thanks to the great capacity of adaptation and colonization of the species, together with the fact that there are no natural predators on the island, all came to mean that the population was able to survive and increase its numbers without hindrance on the island.

CONSERVATION, BIODIVERSITY PROBLEMS AND THREATS

The first indication of the presence of the species dates back to 1998, even though the naturalization of the population on the island is not observed until 2004. By then it was a stable population in the middle of the Solana / San Roque region of the island, so presumably its introduction occurred years earlier.

In 2010, autopsies performed indicated that the diet was made up of 94% reptiles, 3% small mammals and 3% small birds. In the case of reptiles, *Gallotia stehlini*, Gran Canaria Giant Lizard appeared in 51% of the cases studied, *Chalcides sexlineatus*, Gran Canaria Skink, in 30% and *Tarentola boetgeri*, Canary Island Wall Gecko, in 13%.

The data obtained shows that the specimens maintain a similar body fat percentage throughout the year (average rate of 7.12% of total body weight), with no significant differences between sexes. This demonstrates the good physiological state of the snakes, and shows they have no problem in finding food throughout the year. The above, coupled with the reproductive success observed in 2009 and 2010, which found a high percentage of females with eggs (25% in 2009 and 85% in 2010) and a high average number of eggs (16.8), makes us conclude that the expansion of the snake will quite possibly impact the local reptilian population to the point where we see their total disappearance, especially in the areas with higher population density of the exotic snake.

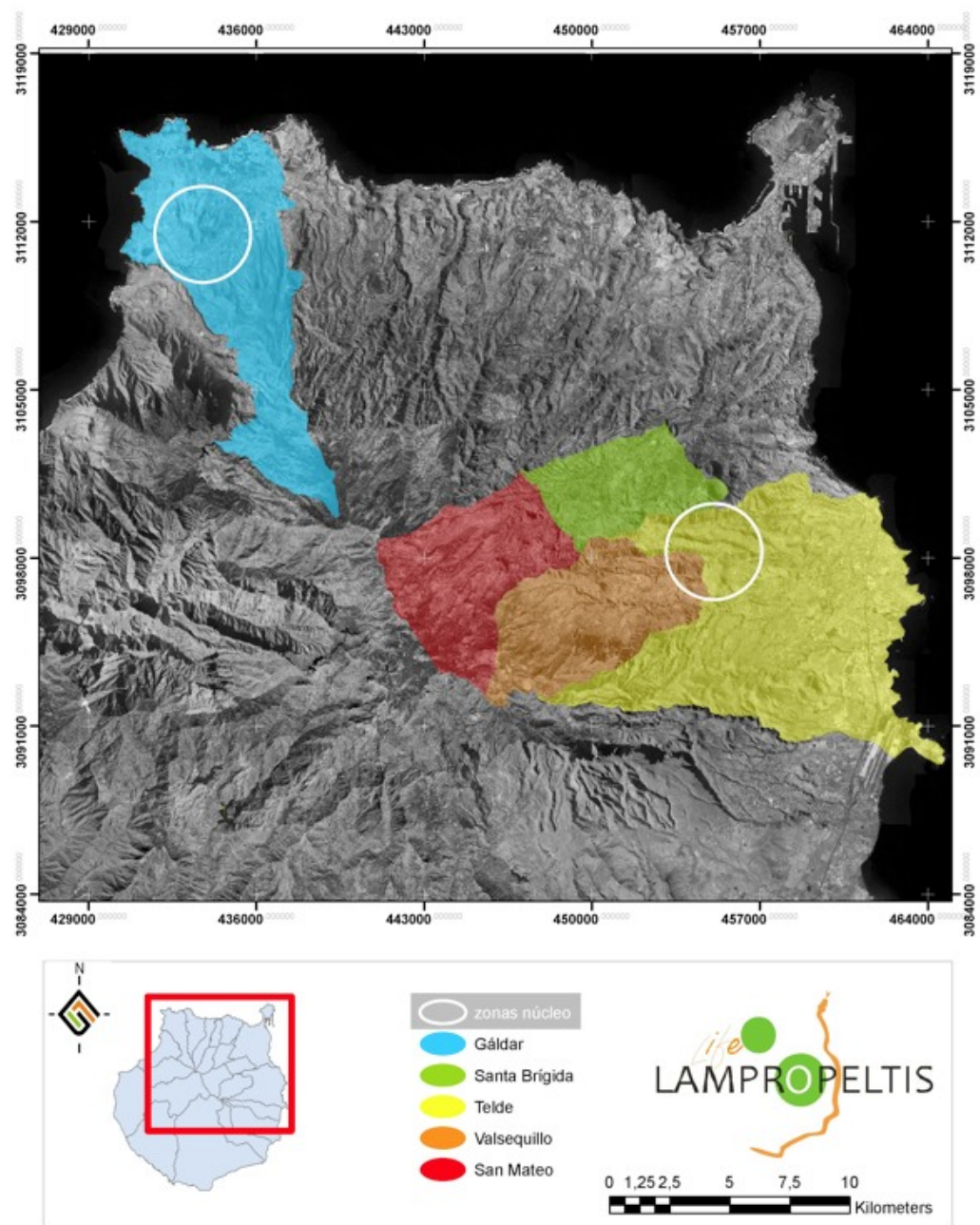
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Given the ability of adaptation and acclimatization of the species and its food spectrum, the process of expanding to the rest of the island is more than likely, which could pose a serious threat to other species already under threat of extinction.

In addition to the direct impact it has on native fauna, we cannot forget other environmental problems arising from the introduction of an exotic species with these characteristics, such as trophic and spatial competition with other native fauna.

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MAIN FIELDWORK AREAS.



PRIMARY FIELDWORK AREA.

Municipalities

The main centre of activity is located in the municipalities of Telde, Santa Brigida, Valsequillo and San Mateo.

Surface Area

The surface distribution area calculated for 2011 ranges between 40 km squared and about 80km squared, depending on the method of calculation used to estimate the range of the species.

Protection

The main centre of activity of the project located between the towns of Telde and Valsequillo located near the LIC ES7010012 Bandama, in part sharing boundries with the Monumento Natural de Bandama (C-14) and the Paisaje Protegido de Tafira (C-24) , both declared under the Legislative Decree of 8 May 2000 as protected nature reserves. “Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias (B.O.C. nº 60, de 15 de mayo de 2000)”.

Zoning

The main centre of activity takes place on land which is approximately 25% urban, 50% agricultural, 5% livestock with the remaining 20% designated as protected natural reserve. The land is about 35% privately owned and 65% publicly owned.

Scientific Description

The core area of activity in the municipality of Telde, represents a typical microclimate related to a pseudo interior cliff-side mountain system, with high solar radiation and very dry soil (70% of year) except on the bed of the ravine. From the zoological point of view, the area is home to species endemic to the island of Gran Canaria, like the Gran Canaria lizard *Gallotia stehlini*, Mullet *Chalcides sexlineatus* and the Canary Island Wall Gecko *Tarentola boettgeri*, listed in Annex III and IV of the Habitats Directive. Birds include several Macaronesian and Canary Island endemics such as common chiffchaff *Phylloscopus collybita*, the Berthelot’s pipit *Anthus*

berthelotii, the Canary *Serinus canaria* and the Common Kestrel *Falco tinnunculus canariensis*.

Importance

The project action area has been selected from the information provided thus far as a result of trappings and observations made by local community members and government officials. According to this data it has been determined that the core zone of the invading population corresponds to the neighbourhoods of La Solana, in Telde, San Roque, in the municipality of Valsequillo, both of which are located on the North Eastern side of the island of Gran Canaria.

This is where the highest concentration of individuals and reproductive activity has been detected. However, the information gathered also indicates the presence of the California Kingsnake in the neighbouring inland towns of San Mateo and Santa Brigida which in turn will also require a containment and eradication plan.

SECONDARY FIELDWORK AREA.

Municipality

The secondary area is the township of Gáldar, on the North Coast of the island.

Surface

The affected surface distribution area is calculated to be, for 2011, at approximately 11 km².

Protection

The secondary epicentre is located near the LIC ES7010011 Amagro, whose boundaries coincide with the Monumento Natural de Amagro (C-13), protected nature reserve, declared under Legislative Decree of 8 May, which approves “Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias (B.O.C. nº 60, de 15 de mayo de 2000)”.

Zoning

The main centre of activity takes place on land which is approximately 10% urban, 50% agricultural, 10% livestock with the remaining 30% designated as protected natural reserve. The land is about 40% privately owned and 60% publicly owned.

Scientific Description

The secondary fieldwork area, in the municipality of Galdar, represents a typical warm steppe climate with average annual temperatures of around 18 ° C to 22 ° C and an irregular rainfall pattern, with annual rainfall around 100-200 mm per year.

Importance

The secondary fieldwork area has been selected from the information provided thus far as a result of trappings and observations made by local community members and government officials. Based on this data we have also been able to determine the presence of the California Kingsnake *Lampropeltis getula californiae* on the Northwest sector of the island, coinciding with the municipality of Galdar, hence establishing here the second area of action, even though it has a lower activity rate than the one located on the Eastern area of the island.

A. PREPARATORY ACTIONS.

A1. Development of Protocols for the Systematization of Capture and Data Collection Work.

Description.

Development of a master document to serve as a protocol to give structure to, define and develop the necessary procedures to carry out the effective capture of the invasive species , including data collection, storage, analysis and representation.

Reasons why this action is required.

To optimize the task of capturing and data collection it is necessary to develop a protocol to give structure to, define and develop the necessary procedures to carry out the actions of individual capture, data collection, storage, analysis and representation. This approach is intended to systematize procedures, avoiding the loss of information from the outset.

Expected results.

It is expected to serve as a document for the development of protocol actions regarding capture and define the process of storage, analysis and representation of the information collected.

A2. Development of Tools for Defining the Geographic Range of the Invasive Species.

Description.

Analysis of information collected to date in terms of catches and sightings (date, time, location, geo-location, biometrics, sex, results of necropsy) to study the distribution of the species in the environment, through appropriate graphic tools (maps, Georeferenced Orthophotos, GIS). Predicting the maximum area of expansion of the said species and location of the epicentre of the invasion. Also, based on geo-data, searching for correlations between the presence of individuals in different ecological niches, in order to identify possible routes of expansion and possible new areas with snakes.

Reasons why this action is required.

The first sighting in the natural habitat of the invasive species occurred 14 years ago, the snake has had time to find a suitable niche and form a stable breeding population. It has also initiated a process of natural dispersion in which we can not rule out active or passive participation of human beings.

Expected results.

With the development of this action we expect to identify the maximum possible expansion area of the species and to locate the kernel source of the invasion, and to determine possible routes of expansion, new areas of settlement and patterns of nomadic and sedentary life.

A3. Environmental Characterization Range of *Lampropeltis getula californiae* on the island of Gran Canaria.

Description.

Based on information provided by portable weather stations spread over different representative points in the core area, which search for micro-level differences between local ecological niches and in turn analyzing climatic parameters of temperature, relative humidity, solar radiation and barometric pressure.

Reasons why this action is required.

Knowing that the island of Gran Canaria has no clear seasonal differencing, but contains a lot of microclimates over a small land area, and the fact that the species has not been dispersed throughout the island in a homogeneous way, we are forced to ask what factors affect biological and climatic adaptability and biological activity of the species.

Expected results.

The results of this action will serve to study correlations with biological parameters that provide a deeper understanding of the biological activity as an invasive species in their adaptation to the environment of the island and accurate information to operate direct control measures.

A4. Genetic Analysis of Specimens Caught between 2007 & 2010.

Description.

Genetic analysis based on molecular markers with the intention of determining the number of animals originally introduced, the effective size of natural populations and the genetic variability in the population and, therefore, their potential to adapt to their new environment.

There are currently no specific microsatellite markers for the California Kingsnake. Therefore, the need to develop a library of microsatellite markers specific for this species is evident.

Reasons why this action is required.

The application of molecular techniques, specifically those based on the use of microsatellite markers, provides an effective means to resolve issues such as:

- Determining the number of individuals from which the invading population has descended.
- Actual size of the invading population today, and the relationship of individuals.
- Analysis of genetic variability of invading populations and therefore their potential to adapt.
- Dispersal of the invasive species.
- Role of genetic diversity in determining the success of the invasion.

Expected results.

With the development of this action it is expected to have an effective research tool implemented with which to respond to issues of greater involvement in the successful control of *Lampropeltis getula californiae*.

A5. Analysis of Population Density of *Gallotia stehlini*.

Description.

This action aims to assess the impact caused by the introduction of *Lampropeltis getula californiae* on native fauna by assessing the current population density of the native lizard *Gallotia stehlini*.

Estimations of population size in two samples of the population of *Gallotia stehlini* in Gran Canaria, with one sample being located within the range of *Lampropeltis getula* and the other in an area of similar ecological characteristics, but without the presence of the snakes.

Reasons why this action is required.

The information available thus far, indicates that the main nutritional supply of the snake *Lampropeltis getula* where present, are other reptiles: Gran Canaria Giant Lizard, Canary Island Wall Gecko and Gran Canaria Skink. All of them are endemic. The Gran Canaria Giant Lizard clearly stands out as the favoured choice in the diet of the snake. This action will provide estimated population densities of lizards located in two separate selected study plots to compare the effects of snake predation on the native lizards.

Expected results.

It is expected to determine not only the impact on the population of Gran Canaria Giant Lizard, but also the populations of other native lizards sharing habitat with the California Kingsnake.

C. CONSERVATION ACTIONS.

C1. Manual Capture of Specimens of *Lampropeltis getula californiae*.

Description.

The implementation of this action is linked to the previously developed protocol, which sets the standards for tracking and capture, providing data collection and analysis of the studied populations.

Reasons why this Action is Required

Based on information gathered to date, on foot transect work, by field workers has proven to be the most effective method of capture so far.

Expected Results

We expect to gradually reduce the number of copies of *Lampropeltis getula californiae* throughout the EU LIFE+ project, in order to minimize their environmental impact on the island of Gran Canaria.

C2. Implementation of Comparative Trapping Methodologies.

Description.

It has a number of traps in the area of occupancy of the species, as a complementary method of capture, and experimental.

Reasons why this Action is Required

The use of traps specifically designed to capture specimens in action areas is considered an effective additional measure to manual control and provides an effective contingency plan, particularly in highly sensitive areas.

Expected Results

As a result of this action there will be a large number of traps distributed at strategic points in the core areas where the species is found, which will help as

additional support to manual capture and also serve as a contingency plan should the species appear in highly sensitive areas.

C3. Use of Other Trained Animals to Capture Invasive Species.

Description.

In order to develop another useful tool for the detection and capture of the Kingsnake, it is proposed that dogs and birds of prey be trained to effectively carry out this task.

Reasons why this Action is Required

This proposal is seen as a reinforcement to the aforementioned activity of search and capture method by fieldworkers, it is favoured due to the fact that large areas may be combed very quickly and very effectively.

Expected results

With the development of this action it is hoped that an effective tool will be added in support of the work done by fieldworkers, yielding more captures than with fieldworkers alone.

C4. Obtaining Biological Parameters.

Description.

Many of the individuals captured are necropsied and studied to obtain biological parameters, such as biometrics, analysis of diet, sex determination, reproductive parameters, age and body fat percentage.

Reasons why this Action is Required

Obtaining all these parameters is essential in order to understand the biology of the invasive species which has adapted to the island ecosystem and environment, and to optimize the controlling of the species.

Expected Results

Along with the ecological study based on radio tracking, it will allow us to gain in depth knowledge about the behaviour, habits and other characteristics of their biology which are as yet unknown, enabling the effective and optimal application of the necessary resources needed to control the species.

C5. Obtaining Ecological Parameters by Radio Tracking.

Description.

To hold a population study of *Lampropeltis getula californiae* on the island of Gran Canaria based on Radio Tracking techniques. The basic principle of this methodology is the study of the behaviour of certain individuals in order to characterize the behaviour of the entire population, and in doing so, contribute to the overall improvement of applying adopted measures.

Reasons why this Action is Required

Radio Tracking is a very useful tool in obtaining information on the spatial ecology of populations, this being vital information in order to respond to an invasive process. The need to know biorhythms, peak times of activity for the species, distances travelled, areas most visited and areas most frequented seeking shelter, are just some of the examples that the data tracking system can provide.

Expected Results

- Understand the dynamics of dispersal followed by each of the different populations.
- Characterize seasonal activity.
- Establish a record of activity rhythms (day / night).
- Detect and identify the locations and microhabitats used as a refuge.
- Learn about possible migration to sites selected for hibernation, reproduction and egg laying, facilitating the removal of breeding adults and their offspring.
- Different habitat use between males and females.
- Assess the degree of interaction with the various species of favoured prey.

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- Assess the likelihood of survival of the species in other geographical areas on the island.

C6. Detection and Early Warning System.

Description.

A mechanism is in place for prevention and early action, based on information provided by community members on a voluntary basis through this website:

<http://www.lifelampropeltis.es/index.php/colabora>

or by directly contacting local government authorities (CECOPIN) Telephone +34 (928) 353 443

Should the sighting have been made in the Telde, Valsequillo, Santa Brígida o San Mateo areas you can also contact the project by calling mobile number +34 608 098 296 or if the sighting was made in Gáldar, mobile number +34 645 041 733.

Reasons why this Action is Required

As has been demonstrated in previous experiences, the active role of the community at large to help control the spread of an invasion is of great help. It is for this reason that tools have been provided for citizens to voluntarily cooperate in the capture of this exotic animal and contribute to, and feel a part of, the overall success of the eradication process.

Expected Results

Through this action we expect to have an effective tool at our disposal to facilitate communication between community members and Project staff, to optimize the overall effect of the Project and to obtain a higher degree of community participation than in the past.

C7. Manual for Risk Analysis in the Trade of Exotic Vertebrates.

Description.

To produce a Risk Analysis Manual on exotic vertebrate species to be sold or to be kept in animal enclosures, for whatever reason, on the Canary Islands, allowing the study of whether such animals would be able to survive in case of voluntary or involuntary release, and their effect on native biodiversity.

Reasons why this Action is Required

Due to the complexity of such possible situations and the limited resources available to deal with them, it is considered necessary to develop mechanisms to evaluate the possibility of a species becoming problematic when introduced to a new ecosystem, and to determine appropriate courses of action. These tools focus on the implementation of preventive actions to avert the establishment of invaders in nature.

Expected results.

It is anticipated that a document be produced to systematize the procedure for conducting a Risk Analysis in the trade of exotic vertebrates on the island of Gran Canaria.

D. PUBLIC AWARENESS & DISSEMINATION OF RESULTS.

D1. Community Awareness workshops.

Description.

Community workshops on the topic dealt with by the project: The problem of biological invasions on islands. The case of *Lampropeltis getula californiae* in Gran Canaria.

Reasons why this Action is Required

Given the environmental and sociocultural implications of the project it is necessary to keep the public well informed about the development of the Project and the problem being addressed. That is, promote awareness of the heritage value of wildlife on the islands and to publicize the harmful effects caused by the species *Lampropeltis getula* in the wild.

Expected Results

We expect to give approximately 250 workshops for the following sectors and social groups:

- Public Environmental Authorities
- Owners of exotic pets
- General population
- Importers of exotic species
- Schools
- Animal Shelters Associations
- Pro-environmental groups
- Pet shops
- Professional Associations (biologists, veterinarians etc.)

D2. Development and Publication of two Documentaries on Alien Species.

Description.

The production of two documentaries aimed at raising the awareness of the audience about the effects that an alien species can cause, through the recognition of heritage values that are affected.

Reasons why this Section is Required

Given the environmental and sociocultural implications of the project it is necessary to keep the public well informed about environmental and socio-cultural issues being addressed. That is, raising awareness of the heritage value of wildlife on the islands and to publicize the harmful effects caused by alien invasive species in general and more specifically by the *Lampropeltis getula californiae* on the island of Gran Canaria.

Expected Results

The objective is to produce an audio visual tool to raise awareness and relay to the largest possible audience the effects that can be caused by invasive alien species.

This product is to be shown on television channels, especially the short-documentary version, during advertising spots and to support activities in the public awareness workshops. The documentary will be released also in DVD format. A total of 1,000 copies will be distributed among local and regional governments, schools and environmental groups.

D3. Information leaflet on *Lampropeltis getula californiae* on the island of Gran Canaria.

Description.

To publish a brochure on the species *Lampropeltis getula californiae* on the island of Gran Canaria. The booklet delivers in a clear and concise way pertinent information, which is structured as follows:

- Identification of the species and basic biological parameters.
- Threats posed to island ecosystems.
- Recommendations on what to do if you come across a specimen of the California Kingsnake in the wild.



Pamphlet published by the project to control the California Kingsnake, prior to the implementation of the EU LIFE + Project *Lampropeltis*.

Reasons why this Action is Required

Given the environmental and sociocultural implications of the project, it is necessary to have informative tools that bring to the attention of the community the problems posed by the presence of *Lampropeltis getula californiae* on the island of Gran Canaria and to encourage public involvement in the general management of the invasion.

Expected Results

The publication (4,000 copies) of this pamphlet is aimed at providing the general public with clear, accurate and up to date information on the target species and the threats posed to island ecosystems, and to recommend a series of practices and approaches to assist in the fight against the exotic invader.

D4. Website.

Description.

To create a specific LIFE project website, reporting and elaborating on its own content.

Reasons why this Action is Required

Amongst the vast array of communication tools used to give steam to this project, The Internet is undoubtedly the most effective method we have at our disposal. The website will allow quick and easy access, to important information, to anyone who may be interested, while also serving to promote networking and working with other LIFE projects and administrations to develop similar projects.

Expected Results

This website aims to keep people informed about project objectives and the actions undertaken, while at the same time developing public awareness efforts focused on the problems posed by invasive alien species.

D5. Layman's Report

Description.

It is a report in electronic and paper format. The report is written in both Spanish and English with no scientific jargon used in order to inform the public at large.

Reasons why this Action is Required

This approach is intended to well publicize the project and all its inherent value, upon completion of the proposed objectives, and to encourage their possible application in other Spanish regions and other countries not only in the EU, but also further afield.

Expected Results

The final project report will endeavour to connect with the community at large and will also serve as a tool to strengthen the collaboration between different public authorities, scientific, etc., In order to share experiences and information gathering.

D6. Information Panels.

Description.

Information panels will be produced in Spanish and English, including a presentation of the environmental issues addressed by the project, the introduction of invasive species *Lampropeltis getula californiae* on the island of Gran Canaria. This presentation is accompanied by an explanatory text about the work carried out, its objectives and expected results.

Reasons why this Action is Required

The use of information boards is an excellent way to inform local people and visitors about the activities carried out by the EU LIFE + Programme in the area, as it will bring to the attention of the local community and visitors what in fact is taking place, allowing them to quickly understand what the project is working towards.

Expected Results

Nine information boards will be installed in order to inform local people and visitors about the activities carried out by LIFE + Programme in the area.

D7. International Seminar on the Management of Invasive Alien Reptiles.

Description.

Hosting of an International Seminar on the Management of Invasive Alien Reptiles. The main objectives pursued with the realisation of the event will be the dissemination of project results, the raising of public awareness to control invasive alien species, knowledge sharing and networking amongst participants.

Reasons why this Action is Required

It is an opportunity to exchange information with experts so as to encourage knowledge sharing of lessons learnt during the development of the project with a view to applying such findings to similar situations in other geographical settings.

It will also provide a unique opportunity to present the results of work carried out and to generate public interest in the project and the activities undertaken by the EU LIFE+ program.

In addition, with government and local authorities present it could also serve as an important tool to further develop relationships which would ensure the overall success of the projects long term objectives.

Expected Results

It is hoped that the opportunity will be taken advantage of to disseminate results by exchanging information with other people and /or government officials conducting or developing similar projects in the field.

D8. Creating a List of Invasive Alien Species of Vertebrates on Oceanic Islands.

Description.

The creation of an *a priori* tool to reduce the entrance of invasive alien vertebrate species while at the same time maintaining compatibility with both economic trade and development. With this in mind, the creation of an Exotic Species List is of the utmost importance.

Reasons why this Action is Required

There is now a legal vacuum on issues regarding possession, sale or transfer of exotic vertebrate species likely to cause negative impacts on natural ecosystems of the islands in case of invasion. It is for this reason that this project hopes to promote the development of a tool which would enable relevant authorities to act proactively in the management and control of these species, facilitating the development and enforcement, as well as coordination between the authorities concerned.

Expected results

As a result of this initiative we aim to produce a document which will enable relevant authorities to act upon preventative measures regarding management and control of invasive alien species.

D9. Best Practices Manual for trade in Exotic Species.

Description.

Development of a **Best Practices Manual** for exotic pet owners with the aim of disseminating good practice to reduce the risk of expansion, prevent the occurrence of such introductions and to minimize the potential damage of an invasive species.

Reasons why this Action is Required

It is necessary to inform traders and customers alike of the risks posed by the introduction into the wild of a potentially invasive alien species, preventative measures must also be taken to avert these situations from occurring.

The **Best Practices Manual** is to be distributed to the traders related to the sale of exotic animals recorded on the island of Gran Canaria. The objective is that the trader will distribute the document to their clients or prospective clients and then report back on the possible consequences of poor practice outcomes on the islands.

Expected Results

The goal is to produce a document (2,000 copies) which lays out a series of recommendations for the correct keeping of potentially invasive exotic pets.