

Informative Guide

Flora & Fauna of Central Chile

Cascada de las Ánimas Nature Sanctuary





Editorial

This informative guide is a summary of the flora and fauna one can find within the Cascada de las Animas Nature Sanctuary. It can, however, be used for the entire higher Mediterranean Andes region.

It has been created with the intention to contribute to the environmental education of all who visit the sanctuary.

We invite you to enjoy and share this book.

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All the pictures have been taken within the Nature Sanctuary of Cascada de las Animas.



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History



Eduardo Astorga Barriga and Eugenia Moreno de Astorga

During the age of conquest a lot of land was given to **Rodrigo de Quiroga** and **Ines de Suarez**.
The old books indicate that the extent of their lands reached until 'El Cruce de las Animas,' within Cajon del Maipo'. Over time these lands were inherited through financial deals until Don **Eduardo Astorga Barriga** acquired these lands and conserved its name as a legacy.

For many years the land was used for agricultural and lumber production. Its natural beauty, however, conquered the hearts of the owners of the place – the **Astorga Family**- and that is how, in 1980, the initiative to create a touristic center was born. In 1996, at the request of the owners, the board of national monuments declared a large part of the territory (roughly 3.600 Hectares) as the

Nature Sanctuary of Cascada de las Animas, thus providing the land with the highest category of protection accessible for private lands at the time

In conjunction with the development of this sanctuary, the Cascada de las Animas Touristic Center also grew. Its aim is bringing people closer to nature and encouraging them to protect it, simultaneously realizing that sustainable ecotourism is one of the best tools for environmental education and the conservation of different ecosystems.

Currently the center is also used for different scientific investigations related to climate change and the flora and fauna of this area. These help us improve the conservation of the threatened ecosystems.

Glossary:

Native: Species originating in a geographic region.

Endemic: The distribution of a species is restricted to a limited geographical area and does not exist naturally anywhere else in the world

Sexual dimorphism: The existence of physical differences between male and female of the same animal species.

Oviparous reproduction: Animals that reproduce laving eggs in the environment.

Viviparous reproduction: Animals that reproduce keeping the embryo in the body of the female until birth.

Annual Life Cycle: Organisms that are born, grow, reproduce and die in a year.

Perennial Life Cycle: Plants that have a life cycle of more than a year and produce seeds more than once.

Evergreen Foliage: Plants that keep their foliage throughout the vear.

Deciduous Foliage: Plants bounce sheet for part of the year. They lose their leaves in dry or cold weather.

Herbaceous perennials: Herbaceous plants that live part of the year as bulbous or thickened roots underground.

Symbology:

1) Distribution Map:



2)Origin:





Native

3) Number of offspring:



4) Sexual dimorphism:



in the species

5) Conservation status according to IUCN (International Union for Conservation of Nature and Natural Resources) or by the Chilean Government















The flora and many of the animals in the guide have not been classified by the IUCN. Some of them that are in fact under threat are indicated by an

Ecosystem • ①

As it is surrounded by natural barriers that prevent direct contact with other areas, Continental Chile is considered a **bio-geographical island**. To the north we find the giant and arid Atacama Desert, in the east the great Andean mountain range, to the west the Pacific Ocean and south we find vast, impenetrable ice fields. This has generated a high level of endemic species, which means that Chile has many plant and animal species that do not naturally occur anywhere else in the world.

Moreover, being a country that expands across many latitudes Chile has a wide variety of climates, from extremely arid to very rainy sub-Antarctic climate.

Cascada de las Animas is embedded in a **Mediterranean-type ecosystem**, it is one of the few places in the world that has this kind of weather. It is



characterized by very distinct seasons: Mild, rainy winters, with an average rainfall of 300 mm per year and very dry, warm summers with long and dry periods that can last up to 8 months.

The Mediterranean ecosystems in the world are seriously threatened by urbanization, agriculture and climate change, this is mainly because these areas tend to concentrate large human populations. Continued global change has generated large ecosystem changes in this area, with an emphasis on water resources. Each year the drought is more intense, which strongly affects the biodiversity of central Chile and also increases the incidence of wildfires.

Currently the Maipo River Basin is directly threatened by a hydroelectric high impact project. It could irreversibly affect the ecosystem of the central region.

Flora · 🗇

The **Mediterranean climate** generates intense pressure on the flora of the area. The dry period can last up to eight months, so plants must adapt to the prolonged lack of water and a couple of very rainy winter months.

Due to the strong environmental pressure, the dominant vegetation of the area is categorized as **Sclerophyllous scrub** or "hard leaf", meaning trees and shrubs thicken their leaves to avoid losing water through evaporation.

The flora of the Maipo River basin contains about 600 species of vascular plants, of which about a **150 are endemic** to the area. It is also common to see **spinal areas** which are pastures dominated mainly by Roman Cassies (Acacia caven). This vegetation type is generated in areas that have been

heavily altered by livestock or forest fires

Sclerophyllous scrub and forest are very threatened by change in land use in the central region, so its protection is essential to preserve this natural heritage.







Quillay E Quillaja saponaria

Evergreen tree that lives on sun-exposed, dry slopes. When it flowers, multiple pollinators pay a visit. The fruit is star-shaped and contains winged seeds which are dispersed by the wind.

Due to the large amount of **Saponin** (component that serves as detergent) contained in its bark it has been used as shampoo, toothpaste, soap, medicines, vaccines, etc. other potential uses are still being discovered.



Small **evergreen tree** related to the Quillay. Inhabits exposed and dry soils.

Common in woods and sclerophyll shrubbery.

Its leaves have been used medicinally to induce vomiting and function as a laxative, but in larger amounts they can be poisonous.







Colligüay **E**

Colliquaja odorifera

Evergreen shrub found in arid and exposed sclerophyllous forests.

When it blossoms you can hear a loud sound coming from the capsules as they open with great force, this in order to disperse their seed as wide as possible.



Lithraea caustica

Evergreen tree that can be found frequently in shrub shape, depending on the habitat.

It frequents areas which are very exposed to the sun and with little precipitation, as well as moist ravine areas.

It is known to cause allergies due to a component present in the resin. Its flowering attracts many pollinators and its fruit serves as food for birds. rodents and foxes.



Roman Cassie N

Acacia caven

Deciduous tree that inhabits very dry sun-exposed areas with poor soil, it's able to live in badly eroded areas.

In the central region there is an ecosystem of **Espinal**, mainly in places that have been altered by human activity and livestock. During its flowering it attracts many pollinators and it decorates the place it lives with its abundant yellow flowers.

2 - 4 mt

This species has been heavily exploited for the excellent quality of the coal it produces when hurned

Quisco **E**

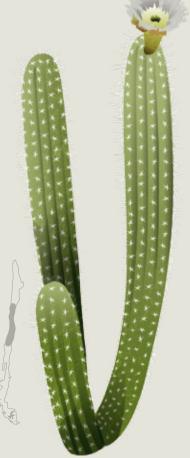


Echinopsis chiloensis

An endemic species of cactus that lives mainly on arid slopes exposed to the north. Its leaves are transformed into thorns which cover it completely and form a big, white flower which is pollinated by a wide variety of insects. The cactus then produces an edible fruit which feeds insects and mammals alike, including humans.







Turquoise puya 🗈 👽

Puya berteroniana

Herbaceous plant that lives mainly on rocky and dry slopes exposed to the north. Very little is known about this plant, but it has been seen to bloom some years and not on others.

Its abundant and attractive flowers attract a variety of insects and hummingbirds which feed on its sweet nectar. The cluster of flowers (inflorescence) can reach up to a meter high and they are supported by a wooden stem.



Guayacán 🗈

Porlieria chilensis

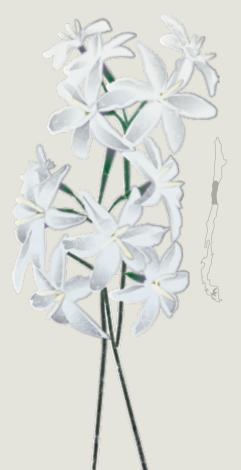
An evergreen tree which frequents dry and rough areas, with a high ornamental value for its unusual shape.

It has small violet flowers that are visited by different pollinators. Its population has been heavily exploited because of the strength and beauty of its wood, making it difficult to find big individuals.









Glory of the Sun 🗈

Leucocoryne ixiodes

Perennial herb that is distributed in Central Chile in arid locations with sun exposure; especially on northern-exposed slopes.

You can find flowers that range in color all the way to violet.

Its stem forms an underground bulb that allows it to live through the winter.





Climbing shrub that covers different trees and shrubs in the area, it prefers slopes with northern exposure.

Its leaves end in tendrils that allow them to climb.

Gazanias inhabit the area in great number, providing strong colors in flowering time. Its fruit is dispersed by wind.

It has also been used to produce honey from its pollen.



Orchid Lengua de Loro

Chloraea bletioides

Perennial herb that lives from the foothills of the Andean mountains to the sea, in areas with high sun exposure.

Its structure mimics the shape of an insect, which attracts them, thereby increasing their chance of pollination.





Tropaeolum tricolor

Creeping perennial herb that lives entangled in different shrubs and trees, which gets its name because of the "perfect row" arrangement of its flowers.

During its flowering the color red covers most of the area's bushes, even crawling onto the ground.

Its flowers are visited by many hummingbirds.



Painted Tongue Plant N

Salpiglossis sinuata

Perennial herb that produces flowers with a large variety of colors that cover a range of white, red, purple and blue and has sticky leaves and stems.

Lives in very dry and sun-exposed areas.

This plant has been used for its ornamental value for gardens around



Añañuca amaryllis (E)

Famatina cisandina

Herbaceous perennial with an underground bulb that lives within bushes, yet exposed to sunlight. Its flowers are visited by pollinators such as the White-sided Hillstar hummingbird.

The flower's common name comes from an old legend about a man who falls in love with a heautiful woman named Añañuca and then abandons her to look for a gold mine. When she dies during a rainy day, the next dawn the field is suddenly covered with these beautiful red flowers. That is how they were named after the young lady Añañuca.



Native fauna

The fauna of this region finds itself highly threatened by the introduction of exotic species, attacks by domestic dogs, destruction of habitat and illegal poaching. This generates an urgent need to protect these places and acquire more information about the situation in which they find themselves in order to support their conservation.



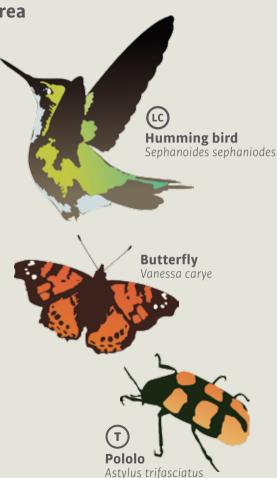
Typical Pollinators of the area

Chile has a large quantity of native and endemic pollinators, which take upon themselves the important role of fertilizing the flowers of the country.

The majority of these pollinators are highly threatened by the introduction of invasive species

that were imported to Chile for agricultural purposes yet now they are found to be replacing the native ones. One of the invaders is the Wasp (Vespula germanica) and the European Bee (Bombus terrestris).





Amphibians

Chile knows 63 species of amphibians, of which about 60% are endemic to Chile. In Chile's central zone one can find about 15% of the country's total species.

The amphibians present in Chile belong to the Anura order (toads and frogs), with complex reproductive strategies. During their development they pass through an aquatic larval stage, the well known 'tadpoles' or amphibian larvae are easy to spot within water bodies. They then undergo a **metamorphosis** to reach their adult form and become frogs or toads.

In breeding season amphibians usually have very characteristic songs or vocalizations, especially at dusk and at night. If you're vigilant and silent you can hear them during the day.

This is the group of vertebrates that is the most vulnerable of all, as they are very sensitive to climate change, habitat destruction, disease (such as **Chytrid fungus**) and pollutants such as sunscreen. When animals breathe through their skin, it is of great importance not to touch them. because the cosmetic products we use may kill them.

Arriero Toad Months





Alsodes nodosus

Also called "Popeye Toad" because of the thick forearms males present during breeding season. They live in sclerophyllous forest, always near water bodies, where they feed on insects and larvae. In breeding season, the male makes a "carrying whistle" to attract the female. They lay their eggs under large stones in streams.









Reptiles

In the central zone we find 39% of the reptiles in Chile.

Reptiles have a thick and impermeable skin that allows them to live in arid areas. Their bodies are covered with **keratin scales**, so when they increase in size they are able to produce a **new skin**. During this process the reptiles are very sensitive and if they are uncomfortable or touched they may go blind, so it is important to be respectful with them, especially in this period.

In winter it is very difficult to see reptiles, as most of them enter hibernation. In spring and summer they go out to eat and reproduce. They reproduction is **oviparous**, meaning they lay eggs.



Culebra long tail Culebra long tail



Philodryas chamissonis

One of five species of snakes living in the country. It is a great, natural pest controller because adults feed on small vertebrates like rodents by injecting poison with their rear fangs or by strangulation.

Despite their bad reputation, Chilean snakes are not poisonous to humans and the position of their fangs make it difficult to get bitten. In some cases the poison can cause allergy.

All species of Chilean snakes serve the same ecological role.



Chilean lizard (E) (T)







Liolaemus tenuis

A common "Colored Lizard" that lives in the Mediterranean and temperate forests as well as in urban areas, it is the most common lizard to see and recognize.

Generally, each couple takes over a tree to live and feed on insects, where the male is responsible for defending their territory. The female lays eggs several times a year in sheltered places and then leaves.





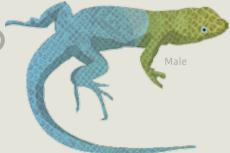
Newborns are not cared for by their





parents.





Birds

Birds are the **most diverse group of land vertebrates in the world** and due to their high mobility, they can travel long distances and migrate to different places to breed and feed. There are, however, also birds that limit their habitat to specific areas and may be endemic to a country.

All birds are oviparous reproducers and when mating season arrives they adopt different behavior; Unique songs, heightened colors and different courtship dances.

Of the approximate 450 birds native to Chile, in the central region we find around 200. Many of these species have conservation problems due to habitat loss and the introduction of exotic species.











Striped No Woodpecker

Veniliornis lignarius

Smallest woodpecker in Chile. It lives in forests and thickets and uses its beak to forage or crack the trunks of trees, feeding on worms, larvae and insects.

With its peak it makes holes in trees to create a filling nest from sawdust where it lays its eggs.

Southern No House Wren

Troglodytes aedon

It is one of the most common and smallest birds in the central region and is easily recognized by its distinctive song.

It is a particularly adaptable and opportunistic bird, that can live anywhere with shrubs and bushes where it finds shelter and food like larvae and insects.





Grassland Yellow-Fich N@



Sicalis luteola

One of the most typical native birds, commonly sighted during spring, they move around in big groups feeding on seeds in open fields.









Grey-hooded № [©] Sierra-Finch

Phrygilus gayi

Lives in central Chile but sometimes **migrates** to Patagonia during the summer. If it decides to stay it will go up to the Andes in search of broad valleys to nest and when winter falls it will move back to the foothills and coast.





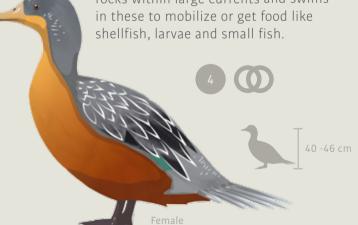
Torrent Duck No



Merganetta armata

This species is one of the best kept secrets of the Maipo River. They are difficult to observe, because their home range is limited to the near-shore waters. With a bit of luck you can see them from bridges or while rafting down the river.

Usually lives as a couple or family on rocks within large currents and swims





Patagona gigas

Migrates in spring from arid areas of South America and Chile to the central forests.

It is the world's largest

hummingbird and feeds mainly on nectar from flowers. It builds a small nest relative to its size and after raising its chicks, it goes back to the north.







Chilean Flicker N @

Colaptes pitius

Lives in open woods, fields and thickets, feeding mainly on ants and other insects.

Often it is seen with its partner. Unlike other woodpeckers, it nests making a hole on the bottom of ravines and hillsides.

Its Spanish name comes from the characteristic call it performs.



Tufted Tit-Tyrant №©

Anairetes parulus

One of the country's smaller birds. It inhabits valleys, hills, fields and gardens, feeding on insects and seeds

It breeds in late winter, laying an egg that it will lay again if lost or broken.

Uses lichens, roots and feathers to form a nest.







Black-chested Buzzard-Eagle N ©

Geranoaetus melanoleucus

One of the largest and majestic hirds that can be seen in the sanctuary; usually solitary or in pairs.

It is frequently found on mountain slopes, feeding on small mammals, reptiles and birds that it catches by swooping down rapidly on them with its strong claws.

They are a good **population** controller of rabbits and hares introduced to the area.





Harris' Hawk 📭 😉

Parabuteo unicinctus

Solitary bird that lives in open fields, coastal hills, and the foothills of mountain ranges. It feeds on rabbits, mice, small birds and domesticated birds; resulting in conflicts with farmers, even though it plays a role in pest control.



Magellanic Horned Owl № ©

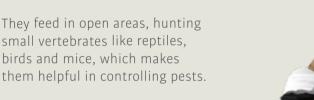
Bubo magellanicus

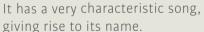
Nocturnal bird found in various



45 cm

habitats, yet prefers woodlands and mountain ridges, using trees or cliffs to rest during the day.







Andean Condor No

Vultur gryphus

The condor is the largest land bird of Chile and is present in the national emblem.

They are scavengers, meaning they feed on decaying, dead animals; sometimes they also eat newborn babies and dying animals.

It is bareheaded which protects it from infections caused by eating dead meat. They have very long reproductive cycles, with bi-parental care where the couple has young every two years.

Condors have been known to live up to 50 years.





Mammals

Mammals are a group of animals characterized by regulating their own body temperature, having their bodies covered by hair and feeding on breast milk

Their reproduction is mainly viviparous.

Despite being a group with fewer species than other vertebrate groups, they have managed to diversify into different shapes, sizes and functions and colonize most environments on Earth.

In Chile there are 166 species of native mammals of which 20 are marine.

In the metropolitan region there are 26 species of native mammals that are seriously threatened by the introduction of exotic species, the presence of dogs in rural areas, poaching and habitat loss.





Culpeo Fox No



Lycalopex culpaeus

Being one of three fox species living in the country, this fox is the largest and widest in distribution. It is capable of living in many types of habitats such as forests, bushes, valleys, deserts and mountains

In the Sanctuary it shares its habitat, food and ecological function with the Chilla Fox.

Chilean foxes are opportunistic and can feed on various types of animals; especially rodents, lizards, arthropods and birds, but also consume some fruits like the fruit of the Litre and Quisco.

During walks in the Sanctuary it is common to find feces indicating their permanent presence and activity.

Lesser Grison N (G) Galictis cuia

Similar to a badger, the Lesser Grison is a carnivore that feeds mainly on small mammals such as rodents and rabbits. therefore being a good controller of **introduced species**. It is an excellent digger that builds long burrows under hushes where it hides

It can be seen alone, in pairs or in family, moving through the brush rows. When threatened the Lesser Grison does not flee but faces his threat, which is how it got a reputation for having quite a nasty temper.









Mountain Lion No.

Puma concolor

It is the country's largest carnivorous **mammal**, although its size varies greatly according to their habitat. In the central region they weigh about 50 kg. In Patagonia, however, individuals of a 100 Kg can be found.

Its 100% carnivorous diet varies depending on where it lives but it feeds mainly on mammals like Pudú, guanaco and rodents. Their native prey, however,

have greatly reduced in number due to human action and the puma now tends to hunt domestic cattle, resulting in major conflicts with farmers and ranchers.





9-13 + 12-14 cm

Elegant Fat-tailed Mouse Opossum 🗈 😉

Thylamys elegans

It is one of the **four marsupials** that exist in the country.

It is **nocturnal**, lives mainly in forests or dense thickets and generally remains on trees eating insects, small vertebrates, seeds and fruits. Its tail helps in its movement and also functions as an energy reservoir (it stores its fat there) for the months of little available food.







The Animal Refuge



Since the origin of the Nature Sanctuary of Cascada de las Animas, we have been protecting the local flora and fauna. We receive wounded or captured local animals in order to offer them (temporary) shelter and provide veterinarian care.

In the year **2003** we joined forces with the SAG (Agricultural and Livestock Service) to form the current **Animal Refuge**, which main focus is native fauna. The healthy ones are set free again, and the animals that need longer or permanent care stay.

This partnership allowed the creation of a **Rehabilitation and Re-release Center** that receives native animals for rehabilitation and general care. They will be reintroduced as long as they are healthy. Their release will help to re-populate the areas that have been affected by illegal captivity, poaching, loss of habitat, etc.

Next to the Rehabilitation Center there is an **Exhibition Center** which maintains those individuals that cannot be released due to their physical or psychological limitations.

Those who cannot be released belong to the permanent family of the Refuge, and their existence allows the creation of environmental education programs; in this way, the Refuge creates awareness for the native fauna of the country.







Culpeo Fox in rehabilitation

Animals in captivity

Huilo

In the **year 2004**, a baby mountain lion of merely a month old arrived at the Refuge.

He was born in captivity and was in need of a home. At the Refuge he received a home composed of humans, dogs, cats, parrots and a wide array of native recuperating animals. For the first few years of his life, Huilo lived freely, enjoying daily walks around the sanctuary, bathing in its rivers and roaming the rugged mountains; all the while maintaining a social relationship with its inhabitants. Due to Huilo's solitary and predatory nature, a time arrived in which his wild instincts became too hard to control, and dangerous situations started occurring more frequently. It became necessary to provide Huilo with an adequate habitat to occupy within the Refuge. Therefore, he was offered the biggest Puma enclosure in Chile. This project was financed by Cascada de las Animas







Animals in captivity

Maqui

Maqui arrived on 2013 to the Refuge in a very mysterious way. The refuge volunteers where told there was a baby mountain lion roaming around El Toyo, who was very hungry and had lost his mother in the mountains. The volunteers started a three-day search around the area but couldn't find him; the search was about to be abandoned. The next day, right at the Refuge's doorstep, the little Puma had showed up all by itself, probably attracted by the smell and calls of Huilo. He was close to starvation and highly anxious, but with care, food and love the volunteers managed to raise a happy and confident mountain lion who keeps Huilo company.







Animals in captivity

Choroy, Tricahue and Cachaña Parrots

Many native Choroy, Tricahue and Cachaña parrots live in the Refuge. The majority of the parrots have been **illegally kept** as pets in different parts of the country, **resulting in too much dependence on humans and, consequently, stress disorders**. The refuge works constantly for their rehabilitation. Unfortunately, this process is very slow because they are animals that need to form large flocks before they can be released. Additionally, each member needs to be rehabilitated physically as well as socially. Some of them can never be liberated and at the Refuge they receive the love and care they need.

Eagles

Many eagles have been received and released by the Refuge over the years. Three of them remain in need of permanent care. They now keep a watchful eye on the entrance of the Nature Sanctuary. The eagles live within the Center due to physical injury caused by humans trying to hunt them. Unfortunately their wounds do not permit them to live in the wild; therefore they've lived permanently at the Refuge for many years, receiving love and care.





Refugio Animal Cascada

The Animal Refuge's interest is **not** to hoard animals for display, but to release all those individuals who are able to live in freedom and in good health. The Refuge works constantly to release the animals in appropriate places and in the best way possible. To date, the shelter has received about six hundred animals, of which the vast majority has been released. Unfortunately, many also die due to the poor conditions in which they arrive.

This refuge was created as a nonprofit and, as a result, everyone working on this initiative does so without any financial gain. The motivation is simply to provide care to the animals with which we coexist.

Financial aid is **much needed**, and the center has various means to achieve this. One can help by buying the Refuge's products or by sponsoring or donating to the animals

For more information go to www.refugioanimalcascada.cl or write to contacto@refugioanimalcascada.cl





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S. Teillier, A. Marticorena, H. M. Niemeyer. 2011

Check-list:

lora		Fauna	
	Quillay		Arriero Toad
Ю	Bollén	\Box	Chilean Tree Iguana
Ю	Colligüay	\Box	Chilean Lizard
Ю	Litre	\Box	Culebra Long Tail
\Box	Roman Cassie		Striped Woodpecker
	Quisco	\Box	Southern House Wren
\Box	Turquoise Puya	\Box	Grassland Yellow-Fich
\Box	Guayacán		Grey-hooded Sierra-Finch
Ю	Glory of the Sun		Torrent Duck
	Chilean Climbing Gazania		Giant Hummingbird
Ю	Orchid Lengua de Loro		Chilean Flicker
\Box	Tree-coloured Indian Cress	\Box	Tufted Tit-Tyrant
	Painted Tongue Plant		Black-chested Buzzard-Eagle
4	Añañuca Amaryllis		Harris' Hawk











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