

**Date of most recent on-site evaluation:** April 2001

**Date posted:** May 2002

**Location:** Carora Depression, Lara State, Venezuela

**Year created:** 1989

**Area:** 32,294 ha

**Ecoregion:** Lara-Falcón dry forest

**Habitat:** Deciduous and semideciduous scrub, xerophytic vegetation



## Summary

### *Description*

Cerro Saroche National Park is located in the vast arid region of the central-western zone of Lara State. Created in 1989, the park's purpose was to protect a xerophytic ecosystem that constitutes 3% of the whole Venezuelan country. Before the creation of Cerro Saroche, the Venezuelan system of national parks did not include xerophytic habitats. Despite efforts employed in the creation of Cerro Saroche, the park is still threatened, mainly by human populations established within its limits, and because of the lack of administration and management, both seriously endangering the biological integrity of the park.

### *Biodiversity*

Cerro Saroche represents a xerophytic habitat, with low diversity but with numerous organismal adaptations to extreme environmental conditions. The park harbors about 87 species of trees, representing half the native species of Venezuela that live in arid zones. However, it is necessary to increase biological inventories in the park to determine the biological diversity of other taxa.

### *Threats*

Cerro Saroche National Park is considered [critically threatened](#), which means that there is a very high risk that the park may fail to protect and maintain the biological diversity in the short run. This is the reason why the park requires the implementation of urgent solutions that could modify its current condition. The following threats are among the most important that endanger the ecological integrity of Cerro Saroche: ignorance of the existence of the park; lack of personnel, infrastructure, and signs; human presence; agriculture and introduced species; and delinquency.

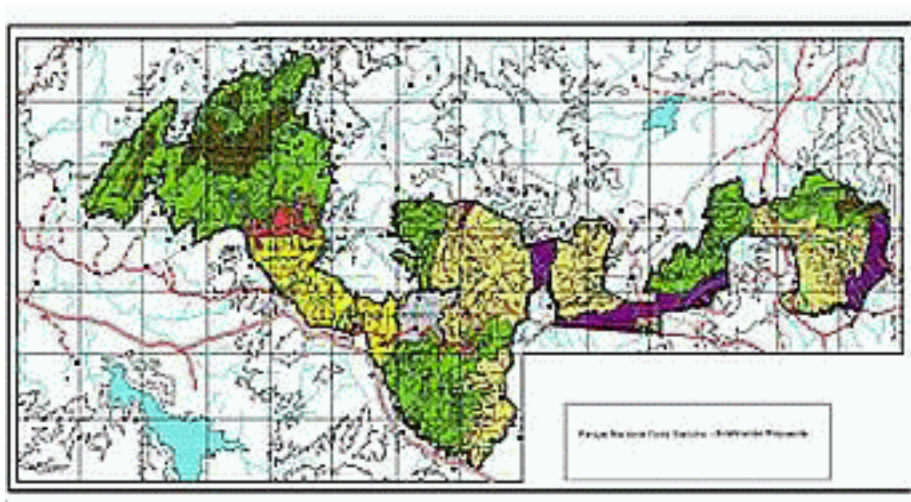


*View of the park with Cerro Saroche in the background*

## **Description**

### *Physical Description*

Cerro Saroche National Park is found in the state of Lara in the flat xerophytic areas of the Carora Depression, north of the mountainous ridges of the Cordillera Andina. The park comprises approximately 32,294 ha and is located between 69°27' and 69°51'W, and 10°00' and 10°15'N (see map).



*Zonified map of Cerro Saroche*

Its topography includes hillocks, plains, and mountains that range in altitude from 500 to 1,280 m.a. s.l. Vegetation consists mainly of spiny xerophytic bushes, distributed in a very arid landscape.

The weather in Cerro Saroche is warm, with an average temperature of 27 °C and annual precipitation that ranges between 300 and 600 mm, peaking between the months of July and September. Cerro Saroche contains several intermittent rivers that dry up in the dry season, with gallery forests that run along their edges.



*Foothill xerophytic forest. During rainy season, water gets accumulated in the foothills. Telecommunication antenna in the top of the hill.*

### *Biodiversity*

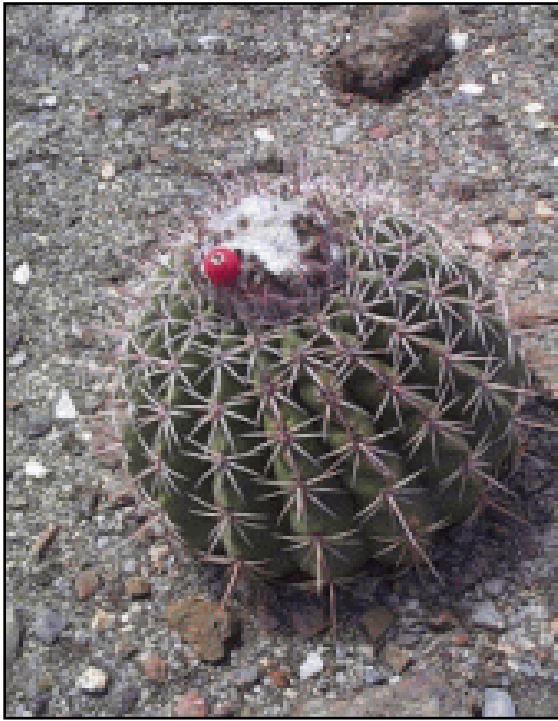
Cerro Saroche's biological diversity has been poorly studied. Yet those few studies that have been made demonstrate that the park's vegetation harbors typical species found in xerophytic environments. These environments are typically low in biological diversity but abundant in organismal adaptations to extreme conditions.

The flora is dominated by *cujíes* (*Calliandra minutifolia*, *Prosopis jiliflora*), *cardones* (*Cereus* sp., *Stenocereus* sp.) and prickly pears (*Opuntia* sp.). There are about 69 woody species including about 18 legumes in the park. The total number of woody species represents half the number of species of perennial trees and bushes native to the arid zones in Venezuela. Thus, we can affirm that Cerro Saroche harbors a significant representation of the arid and semiarid vegetation of the country (Smith y Laskowski, 1992). Some of the most common trees found in the landscape of Saroche are the *cotoperíz* (*Thalisia olivaeformis*) with edible fruits, the *curarí* (*Tabebuia serratifolia*), *vera* (*Bulnesia arborea*) with hard wood, *yabo* (*Cercidium praecox*), *trompillo* (*Jaquina aciculata*), *guayacán* (*Guaiacum officinale*), *cují* (*Calliandra minutifolia*), and *cují yuque* (*Prosopis jiliflora*).

Cacti are very well represented in the park. The most common species belong to the genera *Melocactus* and *Opuntia*, the latter including *Opuntia caracasana*, *O. caribaea*, *O. eliator*, *O.*



*Wentiana*, and other species as *Pereskia guamacho*, *Pilosocereus lanuginosus*, *Stenocereus ottonis*, *S. griseus*, and *Cereus repandus*, among others. The Papaveracea *Argemone mexicana* is commonly used in popular medicine.



*Melocactus sp.* Mainly cacti and other xerophitic species compose the local vegetation.



*Prickly pears, cujies and cardones* as part of the dominant vegetation found in the park.

Based on comments by people that live in the park, we know that several species of animals are associated to the scrubby region of the park, including areas beyond its borders. For instance, among the most common birds in the area are the troupial (*Icterus icterus*), which is the national symbol of Venezuela; the orange-crowned oriole (*Icterus auricapillus*); and the common ground-dove (*Columba passerina*). The red siskin (*Carduellis cucullatus*), a globally and nationally threatened species, also lives inside the park.

A large list of native mammal species includes the cottontail (*Sylvilagus floridanus*) and the paca (*Agouti paca*), which are now very rare due to hunting. Other mammals frequently observed by locals include the gray brocket deer (*Mazama guazoubira*) and white-tailed deer (*Odocoileus virginianus*), fox (*Cerdocyon thous*), wild cats such as the ocelot (*Leopardus pardalis*) and jaguarundi (*Herpilurus yaguarundi*), and the striped hog-nosed skunk (*Conepatus semistriatus*). Also, conspicuous are the iguana (*Iguana iguana*) among the reptiles (strongly hunted), and the beetle *Tapinocomus relictus*, which is endemic to the arid regions of Venezuela.

It is thus necessary to increase efforts of doing biological inventories in the park to obtain accurate figures of its biological diversity. These inventories are the very first step necessary to promote

ecological studies related to the functioning and the maintenance of this peculiar dry forest. The results of these studies will then determine the prospects of applying future management and conservation programs to the area.

### *Management*

The management and administration of this and all other national parks of Venezuela are controlled by the National Institute of Parks (INPARQUES).

Cerro Saroche was declared a national park in December 7th, 1989. Unfortunately, the park does not have a management plan that determines which uses and activities are permitted, regulated and prohibited inside the park. However, officials from INPARQUES have recently elaborated a draft of the [Zonification and Use Regulation Plan](#) , which is presently in public hearings for its implementation.

The park is not actively patrolled, and its personnel include only a single superintendent who administrates in a small house along the access road to the park. There are no ranger posts, and only a small house - from where the superintendent administrates - acts as a guard post. The park lacks transportation (vehicles) and communication tools (radios).



*The superintendent headquarters are without personnel since 2001.*

The boundaries of the park are not defined in the field and it is impossible to recognize them. No signs advise the existence of a park; ParksWatch observed only two park signs, but both located only 100 m from the superintendent's office.

### *Human influence*

Since its creation, the park has not been legally demarcated and none of its inhabitants have been relocated. Numerous villages and small towns lie scattered within the park, many of them with fewer than 100 inhabitants. A town called Pozo Salado, perhaps the largest and most conspicuous of the area, contains 104 inhabitants and preserves an almost destroyed colonial church and house. Cerro Saroche has 900 inhabitants according to some preliminary estimates made by INPARQUES in the year 2000 (SPNCS 2000). However, due to the ambiguity of park boundaries, it is very likely that the number of inhabitants in the park could be more than 900. For more than 100 years, the local inhabitants of Saroche have been dedicated to goat breeding, and recently they have begun planting fruits and vegetables, irrigating their croplands with water from wells and small artificial lakes. Basic services are meager, although since 1992, they have electricity from cable lines that cross the park and lead toward the city of Barquisimeto.

The old, main Carora-Barquisimeto highway crosses the park in several sectors. Two secondary highways, partially paved, split off from the main highway in the direction of Pozo Salado and Bobare, crossing the park in many other areas. Additionally, numerous dirt roads allow vehicles to penetrate the park. The inhabitants and farmers of the region use dry creeks and streams for transportation. The absence of dense vegetation in these creeks facilitates the opening of new roads in almost any part of the Park's territory.

### *Conservation and research*

Only one research project is presently being carried out in Cerro Saroche. This project studies the agroecology of two typical species of cactus living in the park: the cardon dato (*Stenocereus griseus*) and the cardon lefaria (*Cereus repandus*). The project seeks to study the natural regeneration of these species as well as its fruit production and its exploitation for commercial purposes. The principal investigator of this endeavor is [Dr. Jafet M. Nassar](#), a scientist at the Center of Ecology of [IVIC](#). Simultaneously, Dr. Nassar is also managing another similar project in the Médanos de Coro, another Venezuelan national park. The project encompasses three aspects:

- a) Agroecological and socioeconomic aspects: This part of the project will produce derived products (wines and jam) from the fruits of cardón dato and lefaria, employing technologies of low cost and of simple use in the field. These practices open the possibility to develop small industries to process derived products and to organize local communities for the use of those resources.
- b) Ecological aspects: The study will define the annual pattern of flower and fruit production and thus the temporal availability of important food resources for the animal community (insects, reptiles, birds, and mammals) associated to arid and semiarid zones of the country.
- c) Conservation: By exploring and giving rise to sustainable programs of exploitation of native plants, scientists will provide potential commercial values to species that have been disregarded and frequently cut down - a valuable alternative against landscape deterioration and agriculture. In this way, native vegetation gets protected and biodiversity is maintained. Furthermore, it will produce goods for human populations. Estimated values of fruit and seed production in columnar

cactuses will also show and emphasize the importance of each species in maintaining arid ecosystems.

These integral projects are needed to promote other similar projects - ones that offer solutions to various problems. These should consider aspects of ecology and social reality.

## **Threats**

Cerro Saroche National Park is threatened by:

- Ignorance of the existence of the park
- Lack of personnel, infrastructure, and signs
- Human presence
- Pollution
- Agriculture and introduced species
- Crime

### *Ignorance of the existence of the park*

During our visit to the park, it was extremely difficult to recognize whether we were outside or inside the park. No signs, neither at its boundaries nor inside it, indicated the existence of a national park.

The park is completely unknown by people living inside it and in villages nearby. The inhabitants of the numerous towns visited by PW-V did not recognize the name Cerro Saroche, even if they were within the limits of the park. In one occasion, a farmer recognized the existence of a national park, but admitted to ignore whether his property was within the park or not, despite the map indicating just that.

Due to its recent creation and its low popularity (not enough publicity made by INPARQUES), Cerro Saroche is unknown by its own inhabitants, its neighbors, and worse, the whole Venezuelan community. Besides the lack of signs and INPARQUES' deficient personnel, ignorance of the park's existence is probably the most dangerous threat that Cerro Saroche confronts, mainly because existing regulations are easily ignored.

### *Lack of personnel, infrastructure, and signs*

The entire 32,294 ha of the park is absolutely unprotected. Informational or recreational facilities are nonexistent. The infrastructure of the park is limited to a small facility used by the superintendent. The park lacks personnel, and no park rangers have been hired. The only official worker is the superintendent, who has not lived in the park since June 2001 because crime affected him directly (see crime). Patrolling is thus nonexistent. It is obvious that without personnel the



security of the park is uncertain.

The boundaries of Cerro Saroche are not demarcated in situ. The park's landscape is not different from its adjacent areas, and due to its complex perimeter it is very difficult to notice if one is inside or outside the park. INPARQUES should implement its presence by patrolling the park, posting signs, and building infrastructure to host park rangers during their stay.

Human presence inside the park calls for the construction of an information center to assist the inhabitants of Cerro Saroche.



*Sign posted by INPARQUES, indicating the park boundaries. Only two signs were seen in the park.*

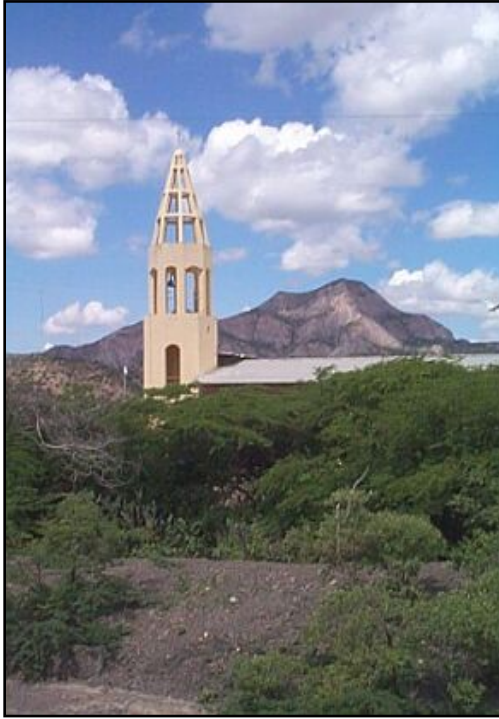
### *Human presence*

Cerro Saroche has been inhabited for a long time. For instance, Pozo Salado, a small town located outside the park, harbors colonial constructions. However, the great majority of shantytowns now present in the park are of recent origin because migrations seem to be frequent. INPARQUES estimates that the human population inside Cerro Saroche is approximately 900 people, but the number could be larger.

Besides the lack of signs and personnel from INPARQUES, two other factors have promoted colonization of the park - electric energy and a paved highway. Since 1995 two electric cables from EDELCA have run across and along the boundaries of the park, taking electricity to areas in the state of Lara. The electric cables are used legally and illegally, promoting colonization because areas adjacent to the park lack electricity. The offer of electric energy inside the park is a serious threat because it attracts potential land squatters. Colonization has also been promoted through a



paved highway that, although in bad shape and little used, allows free access to the park from different sectors. Also, dry creeks and streams promote access to the park as "highways" during the dry season.



*View of church and Cerro Saroche in the background. The existing Cerro Saroche National Park has been inhabited since colonial times.*

### *Pollution*

A consequence of the presence of people within the park is the great amount of garbage accumulated inside the park. People from populated centers inside and outside of Cerro Saroche also use the highway as a dumping area. Strong winds in the area drag out plastic garbage that gets trapped in tree branches, which notably affects the view.



*Garbage on the road crossing the park. Many people from surrounding towns use this nearly abandoned road as a garbage disposal area.*

#### Agriculture and introduction of alien species

The main economic activity is goat breeding, having a devastating effect on the natural vegetation of the park. Another activity is poultry raising, used for subsistence and commercialization. Dogs are also abundant inside the park, which may attack and eat native fauna.

*Goats are introduced species inside the park. Cerro Saroche has a long history of goat breeding. (Foto: José Voglar)*



Subsistence hunting is a common practice, affecting species like the iguana (*Iguana iguana*) and

the cottontail (*Sylvilagus* sp.). Many families possess small holdings where they grow pineapples (*Ananas* sp.) and even vegetables. During our visit only one person out of 20 knew about the park. This farmer owns paprika (*Capsicum annuum*) and melon (*Cucumis melo*) plantations, which he irrigates with water from a small artificial lake.

This farmer declared that officials from INPARQUES and the Venezuelan National Guard had informed him that his property was inside the park. However, he has not received any offer to negotiate a price for his property. Furthermore, the farmer informed us of the existence of a larger pineapple plantation (about 1,000 ha), which was totally or partially included within the limits of Cerro Saroche - information that was corroborated by superintendent Luis Briceño of Cerro Saroche.

An Asian species introduced in the Americas, *Calotropis procera*, is very common in the park. This bush was accidentally introduced and has now become a plague due to its invasive character. Its spread has extended mainly in the depressions of Carora and Zulia and in the Venezuelan Llanos. Methods to eradicate it have not been found yet (Ojasti et al. 2001).

*Calotropis procera*, native species from Asia and Africa, but introduced in the Americas, is common in the park. In its natural habitat this species grows in several terrains, therefore it is a potential dangerous plague for Cerro Saroche. (Foto: José Voglar)



### *Crime*

The lack of vigilance has made Cerro Saroche open to crime. We were informed that at night the zone is frequented by car thieves who take advantage of the solitude of the place to dismantle and disarm cars in the city of Barquisimeto. During our visit, the superintendent has just been kidnapped and threatened with gunfire by two unknown individuals, who also robbed his car. Regretfully, these cases seem to be common inside the park and in its outskirts.

According to one farmer in the area, conflicts over acquisition of land are common. On certain occasions these disputes may involve the use of gunfire and acts of vandalism.

### **Recommended solutions**

### *Crime, lack of personnel, infrastructure, signposting*

The greatest problems in Cerro Saroche are related to INPARQUES' absence within the park and its outskirts. To this date, no signposting advises the visitor, or the potential colonist, of the presence of a national park. INPARQUES should make an effort to build recreation areas, information centers, post guards, signposting, and to hire personnel that could patrol the park. Even if this is a major building investment, it is also possible to establish partnerships with regional private enterprises that could fund and provide tools. An alternative is to include this project in the program [Sobremarcha Ecológica](#), a plan administered by the [Environmental Ministry](#) who has invested 60 million Bolívares in construction in many national parks. Partnerships with the Venezuelan [National Guard](#) (which protects the environment) and the police are important to counteract crime.

### *Existence of the park is unknown*

As relocation of people from the park takes place, it is necessary to inform these people about the park and its rules, and thus reduce damage to the ecosystem. The organization of workshops and information meetings would be a big help to effectively educate people about the park and its resources. The existence of the park needs to be advertised among the communities of the state of Lara, through mass media and educational programs. Sustainable use of non-woody resources in the area could be used as a connection between people and the natural riches of the area. Ecotourism is a good option in Cerro Saroche; its highways are ideal for the establishment of bicycle routes for nationals and foreigners.

The Ministry of the Environment is currently developing the National Strategy for Biological Diversity, a well-funded long-term program destined to generate tools for the protection and conservation of biodiversity in Venezuela. This program could fund biological inventories for areas like Cerro Saroche, which would encourage further research. Funding of scientific research and producing and advertising results is a way to get partners for the conservation of the park, while at the same time generating useful information for management.

### *Human presence, agriculture and introduction of alien species*

Cerro Saroche suffers from a high level of human intervention. Goat overgrazing dates back 100 years, with devastating consequences for the vegetation. Preserving the park will require the relocation of its current population. An expensive project like this might be properly included in current government plans to generate a law of land distribution. Cerro Saroche population could then be relocated outside the park at a very low cost for INPARQUES.





*House on edge of the old road. Human presence in Cerro Saroche generates several problems in the park.*

Cerro Saroche serves as an access road to several towns, villages, and plantations established within the park. Its physiographic characteristics ease access through different creeks and dirt roads, with illegal poachers and robbers taking advantage of them. One plausible solution is to fence the park, a feasible and potentially effective prospect for Cerro Saroche.

Cerro Saroche is polluted, with no waste management policies for locals to follow. Close to the park, family wastes are deposited in a dumping area exposed to the air, with strong winds pushing this garbage inside the park. Many other families do not use the dumping area, throwing their waste directly inside the park.

## **Conclusions**

Cerro Saroche National Park is under major human pressure that includes 100 years of goat breeding and agriculture at a medium scale. The biological integrity of the xerophytic ecosystem in Cerro Saroche is seriously threatened not only because of human influence, but also because officials from INPARQUES are not present and because of the ignorance about the existence of a national park. The development of a management plan is extremely urgent, and it should include the short-term relocation of communities established inside the park. This situation makes Cerro Saroche National Park Critically Threatened.

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