

GALAPAGOS REPORT 2011-2012

TOURISM

SIMAVIS: RESULTS OF MONITORING VARIOUS INDICATORS AT VISITOR SITES IN THE GALAPAGOS NATIONAL PARK

EDDY ARAUJO, INGRID JARAMILLO, JORGE FLORES, JOAN SOTOMAYOR, MARISELA GALLARDO AND SILVIA ARISCADO

How to cite this document

GNPS, GCREG, CDF, and GC. 2013. Galapagos Report 2011-2012. Puerto Ayora, Galapagos, Ecuador.

How to cite this article

Araujo E, I Jaramillo, J Flores, J Sotomayor, M Gallardo and S Ariscado. 2013. SIMAVIS: Results of monitoring various indicators at visitor sites in the Galapagos National Park. Pp. 104-108. In: Galapagos Report 2011-2012. GNPS, GCREG, CDF and GC. Puerto Ayora, Galapagos, Ecuador.

Sources must be cited in all cases. Sections of the publication may be translated and reproduced without permission as long as the source is cited.

The authors of each article are responsible for the contents and opinions expressed.

*The **Galapagos National Park Service** has its headquarters in Puerto Ayora, Santa Cruz Island, Galapagos and is the Ecuadorian governmental institution responsible for the administration and management of the protected areas of Galapagos.*

*The **Governing Council of Galapagos** has its headquarters in Puerto Baquerizo Moreno, San Cristóbal Island, and is the Ecuadorian governmental institution responsible for planning and the administration of the province.*

*The **Charles Darwin Foundation**, an international non-profit organization registered in Belgium, operates the Charles Darwin Research Station in Puerto Ayora, Santa Cruz Island, Galapagos.*

***Galapagos Conservancy**, based in Fairfax, Virginia USA, is the only US non-profit organization focused exclusively on the long-term protection of the Galapagos Archipelago.*



Walking in Bartolomé

Photograph: Richard Bates

SIMAVIS: Results of monitoring various indicators at visitor sites in the Galapagos National Park

Eddy Araujo, Ingrid Jaramillo, Jorge Flores, Joan Sotomayor, Marisela Gallardo and Silvia Ariscado

Galapagos National Park Service

Introduction

The Galapagos National Park Service (GNPS) implemented the Visitor Management System (SIMAVIS, for its initials in Spanish) in order to integrate various tools needed to better manage visitors and the impacts of tourism activities at public ecotourism sites (Reck *et al.*, 2010). The goal of SIMAVIS is not only to maintain or improve the conservation status of the visitor sites, but also to ensure optimal social conditions during the tourist's visit (Figure 1). In 2010, the GNPS applied one of the main recommendations of SIMAVIS, the establishment of 15-day itineraries for the modality of tourism operations – navigable tours – in order to better distribute the tourist boats throughout the network of Public Use Ecotourism Sites in order to reduce overcrowding and congestion in the iconic visitor sites of Galapagos.

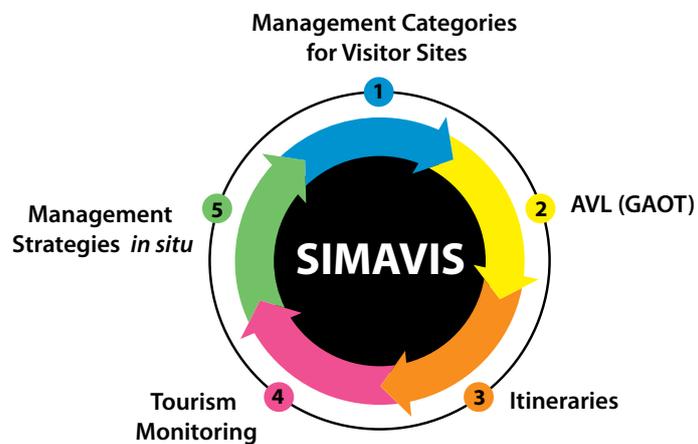


Figure 1. Principle components of SIMAVIS; AVL = Acceptable Visitor Load measured as the number of Groups at any One Time (GAOT); Reck *et al.*, 2010).

Tourism monitoring is an essential component of SIMAVIS; it aims to detect impacts on ecosystems and the quality of the visitor experience. The goal is to identify the causes of these impacts and to eliminate and/or minimize their effects through direct and indirect management actions, in order to ensure ecosystem conservation and a visitor experience that is consistent with the principles of nature tourism in a protected area. Tourism monitoring is also used to detect weaknesses in other components of SIMAVIS.

Methodology

Potential participants in data collection are identified by the type of information to be recorded. For example, four key players were identified as potential collaborators for monitoring visitor sites in the Galapagos National Park (GNP; Table 1). In addition to the reports prepared by GNPS technicians and park rangers, naturalist guides submit trip reports at the end of each trip that include a number of simple and relevant indicators. In addition, local students and volunteers collaborate with the GNPS; after receiving training, they participate in data collection in the most visited sites. Tourists also help by responding to interviews and surveys related to the quality of the tourist experience. The frequency with which monitoring is performed depends on the participants.

The methodology begins with the establishment of indicators and standards for the collection of information at visitor sites. These include:

1. **Physical indicators:** Erosion, trail width, appearance of alternative trails, formation of gullies, vegetative cover, presence of trash, remnants of fires and graffiti.

2. **Biological indicators:** Presence of introduced species and diversity of biological attractions.
3. **Social and management indicators:** Number of encounters between tourist groups, behavior, occurrence of accidents and condition of the tourism infrastructure.

The data obtained in the field is compared with previously defined standards. Indicators at each site, including the number of visitors, are evaluated over time to detect any changes or trends.

The last phase of monitoring is the decision-making process. Depending on the results of the monitoring, this phase involves the application *in situ* of direct and indirect intervention measures.

Any measures that require changes to zoning, regulations or similar norms involve an additional step in the decision-making process. Such decisions are made by the Technical Council of the GNPS, the Participatory Management Board (PMB), the Inter-institutional Management Authority (IMA), or the Ministry of Environment (ME) (Figure 2).

Table 1. Frequency of and personnel involved in monitoring activities in the visitor sites.

Data Collectors	Frequency
GNPS – park rangers	Daily
GNPS – naturalist guides	Every two weeks
GNPS – public use technicians	6 months
Volunteers, students, tourists	6 months

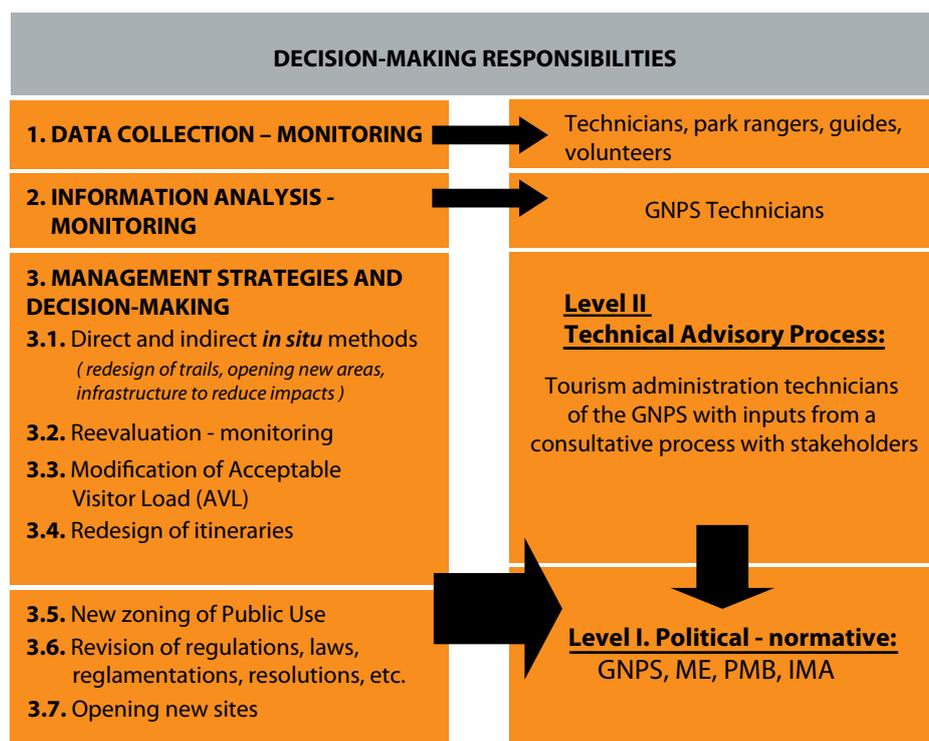


Figure 2. Management decision-making system based on the results of SIMAVIS.

Results for 2009–2011

Trash. Trash is one indicator consistently found at visitor sites. The presence of trash generates a strong visual impact and naturally detracts from the visit; it can also cause a behavioral change in visitors, leading them to follow the same pattern of littering. At remote sites, the

presence of trash is uncommon and when it does exist it is usually due to the influence of currents and tides that carry waste from other parts of the ocean. In visitor sites near towns (Near Intensive sites and Recreational and Cultural-educational sites), the presence of trash is common, due to the intensity of use and frequency of visitation (Table 2).

Table 2. Frequency of registering trash at the visitor sites included in SIMAVIS from 2009 to 2011.

Island	Visitor Site	Frequency per Year			Type of Trash				
		2009	2010	2011	Plastic	Glass	Organic	Wood	Metal
Isabela	Concha Perla	12	13	15	x	x	x		
	Sierra Negra	6	8	12	x		x		
San Cristóbal	Cerro Tijeretas	5	4	8	x		x		
	Punta Carola	3	4	3	x		x		
Bartolomé	Bartolomé	5	2	5	x				
Genovesa	Bahía Darwin	3		3				x	
Santa Cruz	C.C. Fausto Llerena	3	6	3	x				
Seymour Norte	Seymour Norte	2	1	2				x	
Santa Fe	Santa Fe	2	1						x
Santa Cruz	Las Grietas	5	6	12	x				x
	Tortuga Bay	8	10	12	x	x	x		

Introduced species. Introduced species are a major threat to the conservation of the ecological integrity and biodiversity of the archipelago. For visitor sites, the most commonly observed species include anis, rats, mice, ants and wasps. Cats and goats are seen much less frequently. The most commonly reported introduced plant species

are blackberry, guava and supirrosa, which at some sites have started to occupy the niche of native and endemic vegetation. The visitor sites with the highest frequency of recorded introduced species are mainly found on inhabited islands (Table 3).

Table 3. Frequency of observing introduced species in the visitor sites included in SIMAVIS.

Island	Visitor Site	Frequency per Year			Type of Introduced Species						
		2009	2010	2011	Cats	Wasps	Anis	Goats	Ants	Blackberry	Aphid
Floreana	Punta Cormorant	15	13	2	x	x	x				
Santa Cruz	Cerro Dragón	6	5	5	x	x	x	x			
Santiago	Puerto Egas	5	3	2		x	x				
Isabela	Bahía Urbina	5	4	4	x	x					
Santa Cruz	Los Gemelos	3	3	0			x		x	x	
Genovesa	El Barranco	2	0	0			x				x
San Cristóbal	Puerto Pitt	1	0	0	x						
Santa Cruz	El Chato	0	2	0	x	x			x		

Intensity of use or acceptable visitor load (AVL). In terms of intensity of use, visitor sites fall into two different groups. On the one hand there are sites with clear overuse, such as Punta Suárez, Gardner Bay, North Seymour and Punta Cormorant, while other visitor sites, such as Punta Pitt, Cerro Brujo, Jardín de las Opuntias (all in San Cristóbal) and El Chato and El Puntudo in Santa Cruz, are

underutilized. For example, at Cerro Brujo the acceptable load (limit) is five groups per day. This number is exceeded only on Wednesdays, while very few groups or no groups visit the site during the rest of the week (Figure 3).

The implementation of the new system of 15-day cruise itineraries has contributed enormously to matching

visitation with the acceptable visitor load at each site. This change has been dramatic at some of the previously overused sites such as Española Island. Until 2009 Española

was consistently overused; since the implementation of the 15-day itineraries in 2010, only two days in each 15-day period show a slight overuse of the site (Figure 4).

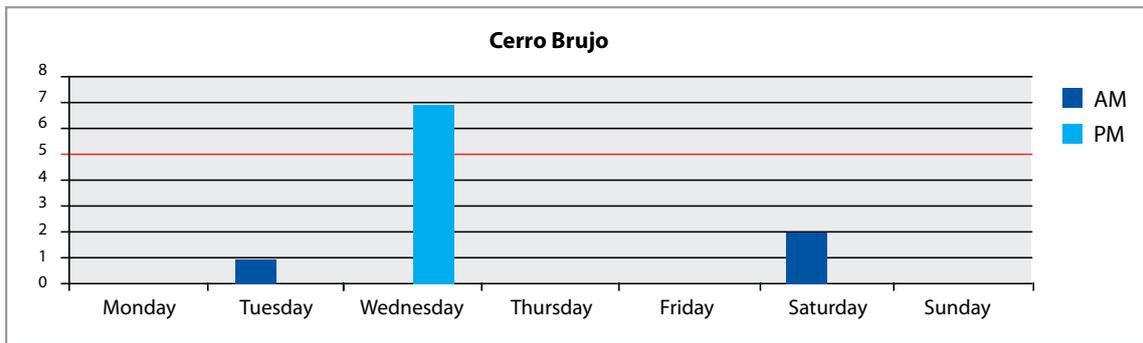


Figure 3. Number of groups visiting per day at Cerro Brujo in San Cristóbal in 2010.

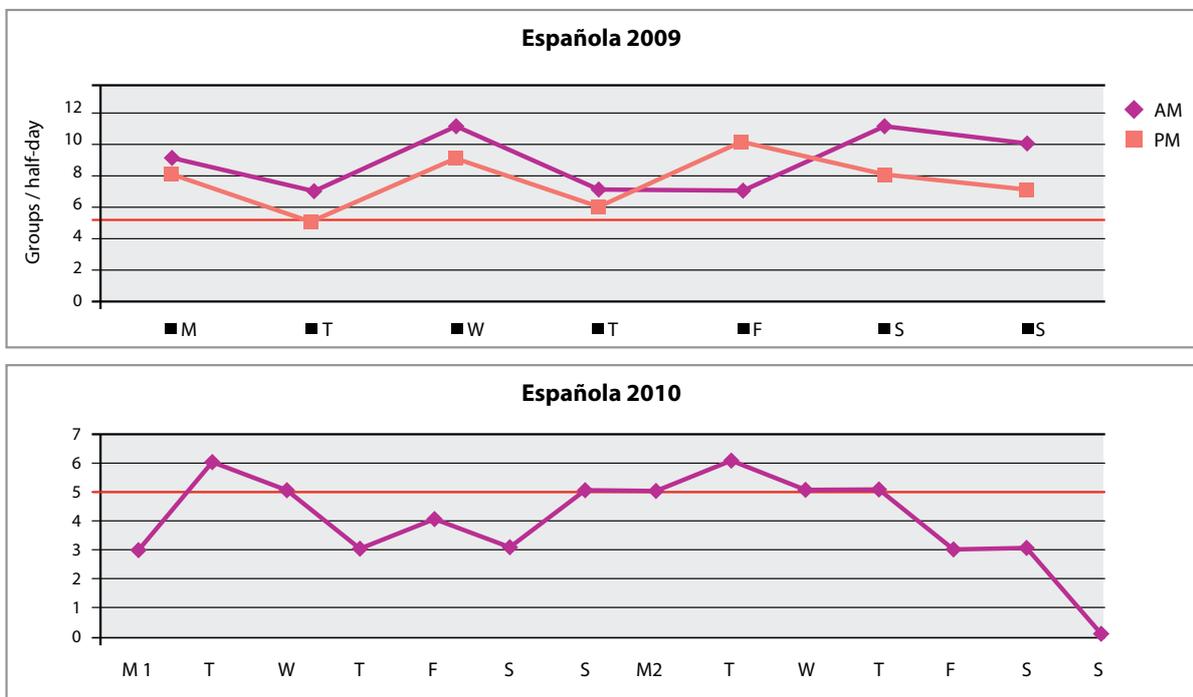


Figure 4. Comparison between the intensity of use at the visitor sites of Española Island (number of groups per day) without (2009) and with (2010) the establishment of 15-day itineraries; the red line indicates the Acceptable Visitor Load for Española of 5 groups per day.

Conclusions

SIMAVIS makes it possible to measure various elements related to tourism management in Galapagos. This report focuses only on the results of monitoring indicators at visitor sites within the protected areas of the national park. Based on the results presented, the GNPS applied management measures to mitigate the impacts detected. These included the control and monitoring of visitor sites, eradication programs for introduced species, and corrective and preventive maintenance of infrastructure and equipment at visitor sites.

Although trash and introduced species are recorded on a recurring basis at visitor sites near towns, overall the Network of Ecotourism Public Use Sites of the GNP is in

good condition and the integrity and resilience of the ecosystems are being maintained.

The implementation of the monitoring components of SIMAVIS provides an evaluation of visitor site management and the impacts generated by tourism. Specifically it identifies impacts that require additional management actions, often related to other programs of the GNPS (for example, control and eradication programs). Management actions also often require support of the visitors to the sites (Galapagos residents and national and foreign tourists), and should help to provide greater awareness and understanding of their role in the long-term protection of Galapagos.



Photograph: Linda Cayot

References

Reck G, M Casafont, E Naula y M Oviedo. 2010. SIMAVIS: Sistema de Manejo de Visitantes del Parque Nacional Galápagos. Pp. 93-104 en: Informe Galápagos 2009-2010. Puerto Ayora, Galapagos, Ecuador.