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Tourism and Conservation in the Galapagos Islands

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ABSTRACT

The Galapagos Islands are well known for their natural beauty and unique wildlife (60% of all organisms are endemic). As on most oceanic islands the native animals show little or no fear of man. These features make the archipelago very attractive for tourism and since 1970 many people have come to see this 'last paradise'. Initially the flow of visitors caused few problems. Since 1979, however, the pressure on the fragile ecosystems has increased rapidly and there is great danger that the archipelago will become another 'lost paradise'.

Based on observations made during a two-year stay in the Galapagos Islands, the major threatening developments are discussed. After a brief introduction, the effects on the environment are exemplified and suggestions to deal with the problems are made.

The article concludes that unless decisive action is taken soon, Galapagos will become another example of man's dangerous habit of preferring short-term economic gains over long-term ecological and economic interests.

The Galapagos Archipelago lies in the Pacific Ocean, approximately 1000 km west of continental Ecuador. It covers a total land surface of about 8000 km² and measures from northwest to southeast 341 km. There

are approximately 45 islands (15 major and 30 minor) plus scores of smaller islets and rocks (Fig. 1). Purely volcanic in origin, the islands are considered to be oceanic, i.e. having never been connected with the South American continent. The main volcanoes are huge basaltic shields with large summit calderas formed by collapse. Situated approximately 1600 km east of the East Pacific Rise, the archipelago contains the most active group of volcanoes in the Pacific Ocean.

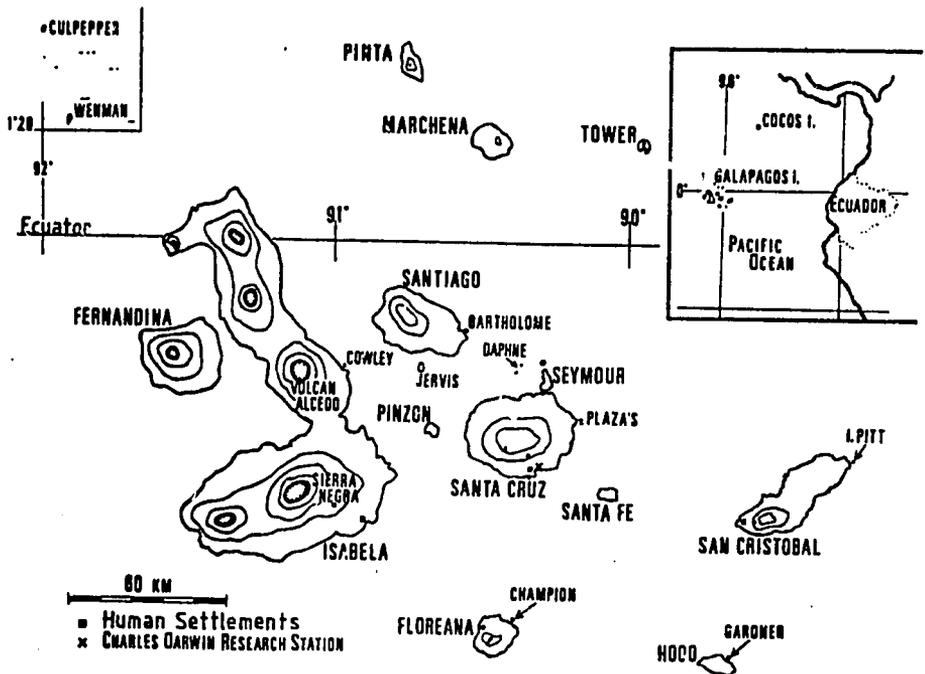


Fig. 1. The islands of the Galapagos archipelago.

I worked in Galapagos from August 1978 to June 1980. After acting during the first year as a Naturalist Guide, I then conducted a ten-month research project on the only two owl species occurring in the Islands (de Groot, *in press*).

The history of the Galapagos Islands has much in common with that of Hawaii, with one major difference: Galapagos became inhabited by man much later. The reasons, besides good fortune, were probably isolation in combination with the virtual absence of fresh water. These two factors also had their impact on the flora and fauna, which developed a high degree of endemism. Only a few groups of animals managed to reach the islands: among the most successful were seabirds and reptiles. An

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important aspect is the near absence of native land mammals. Today only two species of endemic rice rats *Oryzomys* and two species of bats are found in Galapagos. Five species of endemic rats have become extinct. The absence of large mammalian predators causes most of the animals in Galapagos to be practically fearless of man.

An environment like this is extremely vulnerable to sudden changes of flora and fauna. Although nature is itself sometimes the cause of these changes, it is man who has developed a dubious reputation in this respect. Since the discovery of Galapagos in 1535, first pirates and buccaneers, then whalers left their marks in the archipelago. Until late in the 19th century, sea turtles, land tortoises and fur seals were killed in tens of thousands. In exchange for this food supply these first visitors left behind goats, rats and dogs on several of the islands.

It was not until approximately 1900 that four of the 15 major islands became permanently inhabited. As a result, the number of introduced animals increased to about 11 species, including pigs, cattle and cats. New plant species such as palm trees, papaya, and banana, were also introduced adding a total of 250 species to a native flora of only 700 species; by 1960, 14 islands had one or more introduced organisms threatening the native flora and fauna.

In 1959, 90% of the land area in Galapagos was declared a National Park. The remaining 10% was given to the people living in Galapagos at that time, who were restricted in their movements and had to abide by the Park regulations. Such a sudden change could not be brought about without some guidance and enforcement, and on the initiative of UNESCO, the Charles Darwin Research Station was established on the centrally situated Santa Cruz Island in 1960.

The first task of the Research Station was to eliminate the goats on the smaller island. In addition to their devastating impact on the vegetation, these animals compete with the remaining populations of the giant tortoise *Geochelone elephantopus* on various islands. Surprisingly, other than the five species of endemic rats, no extinctions at the species level have occurred since the arrival of man in Galapagos. Only a number of island populations of the giant tortoise and the land iguana *Conolophus subcristatus* have disappeared. Specimens of both species are kept in pens at the Research Station for breeding. Once the young are old enough they are released on their island of origin. Although the success of this breeding programme fluctuates, most remaining populations are considered safe from extinction.

In 1968, the Ecuadorian government installed its own National Park Service, which has since taken over the direct conservation work of the Darwin Station. With the combined effort of these two organisations, goats have been eradicated on several smaller islands and some others cleared of ants and black rats. At present only five islands are still badly affected by introduced plants and animals. These are the four inhabited islands, Isabela, Santa Cruz, San Cristobal and Floreana (total population 5500 people) and Santiago, which once served as a pirate hideout and briefly supported a small settlement (1924–1930). On most other islands the situation is under control and practically all native species and subspecies are considered safe from extinction, providing the Research Station and the Park Service can continue their conservation work.

An increasing problem is tourism. Before 1970 tourism in Galapagos was uncontrolled and incidental. Since it became organised, this industry has grown rapidly to approximately 12 000 visitors in 1979, 18 000 in 1980 and 20 000 in 1981. People visit the islands aboard large cruise ships (maximum 90 passengers) or in smaller boats for 6–12 passengers.

There was early acknowledgement of the necessity to regulate the number and behaviour of the visitors in order to minimise their impact on the fragile Galapagos environment. In theory, Galapagos is one of the most strictly controlled National Parks in the world. The archipelago is divided into five zones, two of which admit tourists. Parts of some islands are designated as Intensive Visitor Zones, where a maximum of 90 people at a time are allowed on shore. The Extensive Visitor Zones are only open to groups of no more than 12 people. Once on land the people have to adhere to many rules designed to minimise the disturbance. It is forbidden to go on shore without the presence of a licensed guide and there are marked trails, approximately $1\frac{1}{2}$ m wide. No venturing off these trails is allowed without permission. If one were allowed to roam about on the islands, the animals would soon develop fright reactions and begin to avoid the visitors. Mainly due to the trails, man and the native organisms have their own place on the islands and most animals are still as fearless as they were before man discovered the archipelago.

Other protective regulations state that nothing may be taken from the islands (shells, rocks, etc.) and nothing may be left behind (litter). It is also forbidden to feed or touch the animals.

In theory, this seems an ideal situation. However, it is clear that not all visitors will voluntarily submit themselves to all these regulations.

Therefore, the position of the guide is of crucial importance to the success of such a visitor system. To ensure the quality of the guides, the Research Station and the National Park Service have an intensive one-month training programme. The participants must pass an examination before obtaining their licence as a Naturalist Guide. With this licence, a guide is allowed to accompany groups of up to 30 people. In addition to this Naturalist course, the National Park Service offers a shorter course for local residents to obtain an Auxiliary Licence, which allows guides to accompany groups of no more than 12 people. During this training some attention is given to natural sciences but no understanding of basic ecological principles is required.

THE BREAKDOWN OF TOURIST CONTROL

Until recently the system described above worked well. But, during my two-year stay in Galapagos I observed several developments which cause concern.

Mass tourism

The Master Plan of the Galapagos National Park calls for a maximum of 12 000 visitors per year. However, no suggestions were made on how to achieve this. Both the government and the tourist companies naturally favour as many people as possible visiting the islands. As a result, the desired number has been increasingly exceeded since 1979. So far, no active policy has been designed to control the number of visitors in the future. Instead, the small propellor plane that operated between Galapagos and the mainland was replaced by a Boeing in 1980 and there are plans to increase the number of officially registered large cruise ships from three to four. With the present number of approximately 20 Intensive and 15 Extensive Visitor Sites, this would greatly exceed the Park capacity. During the last few months I was in Galapagos, I increasingly observed more than 90 people ashore at certain visitor sites. The length of the trails, usually not more than $2\frac{1}{2}$ km, does not allow for more than 90 people without a considerable increase of disturbance to the area. Additionally, people complained when they found themselves with large groups in such a small area. Both the Galapagos environment and the individual tourist suffer from mass tourism.

Attitude of some navy officials

Other than the three official cruise ships which have a fixed itinerary, there are two more large tourist vessels operating irregularly in Galapagos. Both are owned by Ecuadorian navy officials. These two ships may arrive at a disembarkation site soon after one of the three others. In such events, that arriving last should keep its passengers aboard until the first ship leaves. However, the captains of the navy vessels usually disembark regardless of the circumstances. Thus, I sometimes observed more than 150 people walking around a small island. To make matters worse, the number and quality of the guides on these two vessels is far below the required standards. As a result, their passengers often break virtually every existing regulation. During an encounter I had with one of these vessels, people were throwing rocks at land iguanas to make them move; they walked all over the island, and the entire visitor area was littered with food remains and paper. When I attempted to talk to the highest ranking officer on shore, I was told that as a foreigner it was not up to me to criticise their behaviour. 'Galapagos is part of our territory', he said, 'and we can do with it as we please.' Of course not all Ecuadorians feel this way and after the military Junta was replaced by a civilian government in 1979, much changed for the better. In general, the native people resent foreign interference in the field of nature conservation, possibly because it was introduced to them undiplomatically in the past. It is a sensitive problem which should be dealt with carefully.

Small tourist boats

One of the biggest threats to Galapagos is the rapidly increasing number of small tourist boats (6-12 passengers). The local people are understandably changing their traditional livelihood of fishing to tourism by converting their fishing boats into small tourist vessels or building new ones. It is, of course, a sensible policy to enable local people to benefit from the profitable tourist industry, but these little boats present special problems:

- (1) Only one crew member or the captain is required to have an Auxiliary Licence. In general, the Auxiliary Guide has little or no understanding of the fragile Galapagos environment. Therefore, many do not comprehend the vital importance of enforcing the park rules upon their passengers.

- (2) The language barrier. Most Auxiliary Guides only speak Spanish, which makes it even more difficult to explain and enforce the rules.
- (3) The guide-passenger relationship on a small boat is a delicate one. The close-quarter situation makes it difficult for the guide to be strict on the islands towards his passengers. This is particularly true in a situation where the captain is also acting as guide.
- (4) These small boats have no fixed itinerary and often arrive at the landing site at the same time as one of the large ships. It is very likely that after a long sail, the captain of a small boat is not willing to keep his passengers on board if there are already 90 people on the island.

Control by the Park Service of these small boats is extremely difficult. The National Park has only a few slow patrol boats and often the crew is related to the captains of the converted tourist boats.

Private yachts

During my stay in Galapagos I spoke with several owners of private yachts, mainly from Europe and the USA. Their similar complaint was that it is extremely difficult to obtain information about regulations for entry into Galapagos waters and the National Park. Neither the Ecuadorian Embassy, their own embassy in Ecuador nor the Panama Canal officials provided sufficient information. These travellers often prepare their voyages years in advance and sail thousands of miles. Therefore, in spite of insufficient information they still visit Galapagos. Once in Galapagos, they discover it is forbidden to visit the National Park with their own boat, even if they are willing to take a licensed guide on board. After entering the harbour of Santa Cruz they are required to leave Galapagos within 72 hours or pay high harbour fees. This creates frustration, causing yacht owners to visit the Islands illegally before or after entering the harbour. Due to regular radio contact between the private ships, they make each other aware of the problems and are able to avoid patrolling boats. All this confusion regarding the official regulations causes these people, often unwillingly, to become a threat to the National Park. I was told, for example, that the crew of one private yacht visiting Pinta, an island without visiting sites, tried to plant pineapple seeds.

The effects of lack of tourist control

The problems and observations described above cause a gradual increase in disturbance of the Galapagos environment, as follows:

- (1) Mass tourism causes an increased disturbance of the animal and plant life near the trails due to intensive use by large numbers of visitors. Ultimately this may cause the animals to avoid the trails.
- (2) Crews of private yachts and passengers of the small tourist boats often venture outside the marked trails and create illegal trails. Also touching and feeding animals is more likely with these poorly controlled groups, as well as collecting of shells, rocks and plants.
- (3) During the time I was in Galapagos I observed a significant increase in the amount of litter on the islands. Also, garbage, both organic and non-organic, dumped close to the shore by small and large tourist boats was often washed up onto the beaches.

All this may lead to serious damage of the natural environment in the entire archipelago, including the introduction of new organisms.

SUGGESTIONS FOR IMPROVING THE PRESENT SITUATION

- (1) One of the most important factors in the conservation of the Galapagos National Park is the quality of the guides. Instead of the present system with two types of licences, I believe it would be better to have one course of three to four weeks emphasising an understanding of the special qualities of the Galapagos environment and the reasons for the strict regulations. All participants should be required to have a basic knowledge of Spanish and English to ensure communication between guides, tourists and local people. The combination of captain-guide should be prohibited.
- (2) The general control of tourism should be improved. The number and quality of patrol boats should be increased and more attention should be paid to the observations and reports of guides. During my own period as a guide I found it extremely frustrating to conduct large groups of visitors in a responsible manner while I knew passengers of small ships repeatedly violated park rules without their guide or captain being called for an explanation.
- (3) Steps should be taken to ensure that not more than 90 people are on

shore at any one time on any Intensive Visitor Site. An increasing number of ships are cruising the Galapagos waters, and to avoid accumulations of people it will become increasingly important in the future for all ships to follow a fixed schedule. The large ships have always operated in this manner but with the continuous increase in the number of small boats these should also be included in the scheduling. Fines for violations must be introduced together with increased control by National Park guards and guides.

(4) The total number of visitors is still increasing—in 1981, 20 000 people visited Galapagos. Somehow the total must be kept under control to ensure that the carrying capacity of the natural environment will not be exceeded. Possibly this could be done by restricting the number and capacity of all tourist vessels operating in the Islands, i.e. *including* the small boats.

(5) A clearer policy is needed regarding visits by private yachts. Some suggestions to improve the present situation are more adequately informed embassies and information available at the Panama Canal. There is a need for an Information Centre in Galapagos which would provide information about Park rules, guides and itineraries. A solution might be found in a system whereby the yacht owners are allowed to hire licensed guides in Puerto Ayora to accompany them with their own boats, after submitting an itinerary to the National Park Service.

(6) The regulations pertaining to litter and garbage disposal should be enforced more effectively and control of the smuggling of shells, rocks and plants is needed at the airport on Seymour Island.

I believe the next few years will prove to be very important to the future of Galapagos. Many things are changing. Since 1979 the islands have been under pressure due to rapidly increasing tourism. The infrastructure of the colonised area is developing rapidly since the Ecuadorian government installed the Institut Nacional de Galapagos (INGALA) in 1980. The construction of a second airport on Isabela Island is well underway. Some important decisions will have to be made soon and unless a clear policy is established and enforced, I fear irreparable damage will result.

The Charles Darwin Research Station and the National Park Service have accomplished a great deal with respect to the control of introduced organisms and the protection of threatened native organisms. However, I believe the potential danger of mass tourism to the islands, particularly through the small, relatively uncontrolled tourist boats, is being gravely

underestimated. I realise that control of this aspect of tourism is difficult since it deals with the interests of the local people. Ironically, it is exactly the interests of these people that is at stake. By allowing too many visitors at a time, the carrying capacity of the fragile Galapagos ecosystems will be exceeded. The resulting environmental damage will reduce the attractiveness of the islands and tourism will eventually decrease, causing economic damage as well.

Not only in Galapagos, but also elsewhere in the world, people are degrading their natural heritage. By doing so they destroy an important long-term potential of national income from sensibly organised tourism and other benefits derived from a balanced environment. Hopefully, the Ecuadorian government will recognise this in time and will not let short-term economic interests prevail over the long-term future of these islands. Unfortunately, history does not give much hope in this respect. Most governments still seem unable to look beyond the political time horizon of four to six years. Maybe Galapagos can set a positive example and make a beginning in changing this attitude. The recent acquisition of World Heritage Site status was a first step, but more international pressure will probably be needed to conserve these islands for future generations.

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