

Executive Summary
of
Stewardship Plan
for
The National Parks of Haiti

by

Charles A. Woods



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EXECUTIVE SUMMARY

A Plan For
The National Parks of Haiti

by

Charles A. Woods
Florida State Museum
University of Florida
Gainesville, Florida
32611

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EXECUTIVE SUMMARY

1. Background

The concept of protecting the natural areas of Haiti goes back at least to the law of 17 August 1955. The official creation of "Parcs Nationaux Naturels" was a decree published on 23 June 1983, which set aside "Morne La Visite du Massif de la Selle" (2000 hectares) and "Morne Macaya du Massif de La Hotte" (2000 hectares) in addition to eight sites selected as "Parcs Nationaux" and "Sites Naturels" in the decret of 18 March 1968. These ten sites, but most especially Parc National La Visite and Parc National Pic Macaya represent the components of the national parks of Haiti. Since 1983 the Florida State Museum has worked on a contract with USAID to complete an inventory of Parc National La Visite and Parc National Pic Macaya, and to develop a management plan for each park, as well as for the national parks program. Since 1983 the parks have been under the joint administration of the Institut National Haitien de la Culture et des Arts (INAHCA) and the Ministere de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR).

A. Location

The area now designated as Parc National La Visite is located 22 kilometers south of Port-au-Prince in the Massif

de la Selle in the area of latitude 18 20'30" N and longitude 72 20' W. The park is situated along the crest of the Massif de la Selle between Morne d'Enfer (1900 meters) and Morne Kadeneau (2155 meters). The highest spot in the park is Morne Cabaio (2282 meters) on which there is a benchmark. The boundaries of the park have not been officially designated. The official (by decree) size of the park is 2000 hectares. The natural boundaries of the plateau area of the park and the steep cliffs north of the La Selle Escarpment enclose an area of 4500 hectares. The region of Morne d'Enfer is a natural extension of the park that includes uninhabited areas to the west of Morne La Visite and the existing boundary of the park along the mountain road from Furcy. This area should be included in the park because it serves as a reservoir for species and habitats that have been severely degraded in the eastern areas of the park. The combined area of Morne d'Enfer to Morne Kadeneau is an area of 6300 hectares.

Access to Parc National La Visite is via the mountain highway from Port-au-Prince via Furcy and Ca Jacques. An alternative access route departs Port-au-Prince and follows the route to the south and the road to Jacmel. Beyond Jacmel the route passes through Marigot before ascending the southern slope of the Massif de la Selle to Marche Seguin which is near the southern boundary of the park. The route from Furcy passes through the park to join the route via

Jacmel at Marche Seguin. The route via Furcy is 55 km between Port-au-Prince and Parc National La Visite and normally takes four hours to drive while the route via Jacmel is 150 km and over six hours driving time. Both routes are rough and the unpaved mountain sections frequently are damaged by heavy rains. The grade on the route via Furcy is abnormally steep. Improvements will have to be made to both of these routes before safe and regular access to the parks by visitors will be possible.

The area now designated as Parc National Pic Macaya is located 36 km NW of Les Cayes and 195 km W of Port-au-Prince at latitude 18 21' N and 74 01' W. The park is situated around the two dominant mountains of the region, Pic Formon (2219 meters) and Pic Macaya (2347 meters) and includes the large and deep ravine between these two mountains that serves as the headwaters of the Riviere Ravine du Sud. The plain south of Pic Formon (Plaine de Formon and Plaine de Deron) are also included in the park as are the rocky (karst) hills along the southern boundaries of these plains.

The two high peaks tower above the surrounding plains (which are between 1000 and 1500 meters in elevation) and a series of mountain ridges and receive moist air blowing inland from the Golfe de la Gonave to the north (via the northeast trade winds) or the Caribbean to the south (via sea breezes). The result is an area of extremely high rainfall (in excess of 3000 mm/year). Parc National Pic

Macaya is the source of four major rivers of southern Haiti (Riviere de Port-au-Piment, Riviere des Roseaux, Riviere Ravine du Sud and Riviere l'Acul). Extreme deforestation in the area the stability of these rivers, and the rich agricultural lands below (Cohen, 1984; Lowenstein, 1984). Parc National Pic Macaya serves the dual role of conservation of the national patrimony in protecting numerous endemic species of plants and animals and protecting the watersheds of four of the most important rivers of Haiti that spread outwards from the park like the spokes of a wheel.

Access to Parc National La Visite is difficult. The journey is via the route to the south from Port-au-Prince passing through Les Cayes 196 kms west. Beyond Les Cayes the route is via a gravel road to Le Duc and then a rough dirt road to Le Pretre that crosses the Riviere l'Acul. Beyond Le Pretre the route ascends to the plateau of the Plaine de Formon by a series of sharp switchbacks to the town of Les Platons. The entire trip from Port-au-Prince is 129 kms, although the 33 kms from Les Cayes to Les Platons are the most difficult. Beyond Les Platons it is necessary to hike for 10 kms across the southern edge of the Plaine de Formon to the location of the park headquarters at 1428 meters elevation. A road is presently under construction by local residents from the Catholic church at Les Platons in the direction of Marche Sous Bois. As of November 1985 the

road was passable on a jeep for a distance of 1.5 kms. Because access to the park is so difficult and the location is so distant from Port-au-Prince we recommend that an area of the upper Plaine de Formon be leveled for a grass landing strip for small airplanes after the park is underway.

B. Purpose

The purpose of the national parks has never been clearly stated. The law of 17 August 1955 regulated cutting, transporting and selling wood, and the Rural Code of Francois Duvalier (28 May 1962, strictly controlled forest resources and activities in forest reserves. The decree of 23 June 1983 creating "Parcs Nationaux" lists eight park related activities that can be summarized as: 1) studying the characteristics of endemic species in relation to geology, soils, climate, etc.; 2) undertaking an inventory of the parks; 3) studying the characteristics of endemic species in relation to geology, soils, climate, etc.; 4) identifying areas having important ecological characters; 5) preserving national parks from physical deterioration; 6) supervising and working with the scientific community in studies in the parks and natural sites; 7) diffusing information concerning the parks and sites; 8) making the facilities of the parks available to visitors.

We have synthesized these statements, as well as our many conversations with personnel from the governmental and

private sectors into the following list which we believe represents the purpose of the Parcs Nationaux Naturels program in Haiti.

1. The protection of natural ecological conditions and processes. The two most important consequences of these actions are : 1) the preservation of watersheds, thereby improving the quality of life for all inhabitants of Haiti in areas adjacent to or under the influence of national parks; 2) the preservation of natural species diversity and therefore the national natural patrimony.

2. The promotion of the national natural patrimony. The two most important consequences of this activity are: 1) the education of the citizens of Haiti about the unique features of their country that make Haiti special; 2) the increased possibility that wise decisions of long range importance can be made concerning the utilization and development of the natural resources of Haiti.

3. The development of a recreation and tourism program that will take advantage of the unique physical location and beauty of the parks as well as the special features of the flora, fauna or geology. We believe that it is possible for the citizens of Haiti to benefit from the parks at both the local and national levels without damaging the quality of

the parks if a careful management plan is developed and implemented.

2. Resources

The geological and biological resources have been surveyed and are discussed in detail in the reports presented as companion volumes to the Stewardship Plan. These reports are: 1) Geological setting; 2) Floristic study; 3) Butterflies; 4) Malacology; 5) Herpetofauna; 6) Birds; 7) Recent and extinct mammals. In summary, these reports indicate that the national parks are of great importance because they have so many unique features. The geology of both parks reveals details about the past of Haiti when it was more than one island and when the tops of the mountains were shallow marine environments. The great ravine of the Riviere Ravine du Sud between Pic Formon and Pic Macaya is part of an enormous fault that cuts across the southern peninsula of Haiti from Tiburon to the Cul-de-Sac plain. The floristic features indicate that Parc Macaya has 69 vascular plants that are endemic species and Parc La Visite has 36 endemic vascular plants. The total vascular plant flora of Macaya includes 130 species that are endemic to Hispaniola, which is 28 percent of the flora of the park. Among flowering plants the degree of endemism of Parc Macaya is even greater with 124 species endemic to Hispaniola (34

percent of total) and 68 endemic to the park itself, which is 19 percent of the flowering plants of the park. In La Visite among the flowering plants 85 species are endemic to Hispaniola (34 percent of total) and 35 species are endemic to the park itself which is 14 percent of the flowering plants of the park. In terms of endemism Macaya is more important than La Visite. The importance of Macaya is even more dramatically pointed out when just orchids are analyzed (orchids are not included in the previous lists). Of the 133 species of orchids known to occur in Parc Macaya, 38 are endemic to the Massif de La Hotte itself. Only twelve species of orchids were collected in Parc La Visite.

There are 67 species of birds recorded from Parc La Visite. Seventeen of these are endemic to Haiti, so 81 percent of the endemic birds of the country are found in La Visite. There are 65 species of birds recorded from Parc Macaya. Four important endemic species are missing from Macaya, so Parc Macaya is more limited in importance in terms of the preservation of endemic species than is Parc La Visite. Both parks have significant populations of the Black-capped Petrel. The most endangered species in both parks is the White-winged Warbler, Xenoligea montana.

There has been a great loss of mammals in Parc La Visite. Of the 17 species of endemic terrestrial mammals known to occur in the parks within the last 3000 years, 16 (94%) have become extinct. The bats have fared almost as

poorly. Eight bat species are known to have occurred in Parc La Visite, but only four still occur within the boundaries of the park, a 50% loss. In Parc Macaya 17 species of endemic terrestrial mammals are known, but 15 have become extinct (88%). Nine bat species still occur in the park. Five species of bats of the Macaya fauna are vulnerable to extinction if caves are disturbed and habitat is destroyed (Morgan and Woods, 1986). The loss of endemic mammals in both parks is dramatic, but is not unique. The average loss of endemic species throughout the Caribbean during the past 3000 years has been 88% (Woods, et al., 1986). It is clear, however, that the loss in Parc La Visite is greater than the loss in Parc Macaya, and that La Visite is a very disturbed area. One species of mammal (a non-described and now extinct genus and species) is restricted to Parc Macaya. An intense effort to find additional new species of mammals in the Macaya and La Visite areas was unsuccessful, but it is likely that five species became extinct in the last 30 years (Woods, et al. 1986), which is the period of greatest habitat loss in the Macaya area (Cohen, 1984).

3. Management

We have presented a detailed outline of our recommendations for the management of each park (a

"Stewardship Plan"). We prefer the term stewardship rather than management since we believe the latter concept implies an active state of manipulation and alteration. Stewardship can be passive and allow the ecosystem to recover and maintain itself without extensive manipulation. Both parks are highly disturbed areas, however, and in the initial stages of creating the parks an active program will be necessary.

A. Zones.

The zones of each park fall into two categories, each of which is divided into three areas. One zone is associated with specific activities, and requires constant attention and an active role by national park personnel and visitors alike. This zone is called the "Designated Use Zone", and it is subdivided into the following areas. 1) "Recreation Areas" are where visitors can camp, hike, observe scenic vistas and enjoy special features of the parks. These areas are designated for each park on the maps and text of the "Stewardship Plan". 2) "Education Areas" are where national parks personnel have created a special enriched environment to educate visitors about the special features of the parks. These areas include nature trails, special signs at designated locations, the site exhibits and the public areas of the Park Headquarters. 3) "Maintenance and Service Areas" are where national parks personnel work

and store equipment and supplies that are necessary to improve the quality of the park. These areas include the work areas near the Park Headquarters, the depots where equipment is stored, the security areas where guards work, the living quarters of the Park Headquarters, the stables and facilities for horses, mules and donkeys used in the functions of the park (tourism included), the garages and shops associated with the vehicles and machines.

The second zone of the parks is associated with restricted activities, and is called the "Limited Visitation Zone". The primary goal of activities in this zone is conservation of the soil, water, flora and fauna. The largest and most important region of this zone is the "Biological Preserve Area". No exploitation of any kind should be allowed in areas so designated. When areas are of potential importance to the conservation of specific organisms, soils or watersheds, but currently degraded, then an active role is required to restore the habitat to a condition where it can be regarded as a Biological Preserve Area. These areas, each of which will be designated as a "Restoration Area", are where active management is necessary with the long range goal of improving their quality so that future management will not be necessary. The last area of the Limited Visitation Zone is where research is permitted on a limited and carefully controlled basis. This area

should be distinct from Biological Preserve Areas, and is designated as a "Research Area".

All of these zones and areas are discussed in the text of the Stewardship Plan and identified on the maps of each park.

B. Construction Controls

The construction of all structures, trails and signs should be supervised by a central office of the national parks program where a record is kept of all construction activities. A central file in the Park Headquarters should contain work plans, information on costs and photographs of completed projects. A routine inspection of all projects in the parks should be completed by the Director at least once a year, and on a regular basis by each Park Supervisor.

Until a parks program is in place and trained personnel are able to take on this role a single person should be designated to assume this responsibility. We recommend that Paul Paryski serve in this capacity on an interim basis, and continue to do so until MARNDR, INAHCA, and USAID agree that a suitable program has been implemented.

C. Roads

The existing roads to the parks are discussed in section 1A under access to the parks. Clearly, access to the parks is an important feature, and these roads must be maintained and improved before an active tourism program is

possible. In Macaya this will require continuing the construction of the rough road from Les Platons to Portal Formon via Sous Bois. Beyond Portal Formon the road can continue on to the Park Headquarters at "Bwa Pipirite". This road is designated on the map in the Stewardship Plan. Great care must be taken in the construction of this road, however, since it will open the region up and remove the last barrier to the exploitation of the interior of the Massif de La Hotte, its isolated location. We do not recommend the completion of this road until an active national parks program is in place with personnel committed to the supervision of all activities in Parc National Pic Macaya.

The existing road to and through Parc National La Visite is adequate for the present (but should eventually be improved). Additional roads are necessary to the camping facility and Park Headquarters. This road can follow an existing rough trail and old logging road. The old logging road should be upgraded to allow vehicles to pass to Tete Opaque. No roads should be constructed to Morne d'Enfer.

4. Administration

A. Suggested Annual Budget

The total budget for the national parks program over a five year program includes: 1) set up costs for the Central

Office in Port-au-Prince; 2) set up costs for each park; 3) signs; 4) exhibits; 5) publications; 6) training personnel; 7) research; 8) operating the Central Office in Port-au-Prince; 9) operating parks; 10) operating vehicles; 11) salaries in the Central Office; 12) salaries in parks. The total for these items over a five year period is \$2,117,440. The annual budget for the first year (\$519,350) is very high because of the expenses of purchasing equipment. The annual budget for each year after the first is approximately \$400,000. The exact costs are outlined in the summary (Fig.5). The justification for all budget items are discussed in the Stewardship Plan. In summary, the four largest items are: 1) operating the Central Office (10% of total cost); 2) operating the parks (14% of total); 3) salaries for Director and other Central Office staff (27% of total); 4) salaries for Park Supervisor and personnel in parks (24% of total). These four items account for 75 percent of the total budget. The cost of setting up the parks and Central Office is six percent. The cost of training personnel is three percent. We believe that research is a very important component of the implementation of a national parks program. The cost of the research package proposed is \$250,000 or ten percent of the total budget. We believe that personnel from the staff of the national parks program should work closely with all researchers, and that this should serve as an important part

of the training process for all national parks personnel during the first five years. The staff should also participate in the publication process of the results of the research. The results of the initial inventory should be published in 1986. The results of the five year research program would be published in 1990.

B. Routine Maintenance Schedule

A regular schedule should be established to insure communication between the parks and the central office in Port-au-Prince. The Park Supervisors should spend three weeks in the parks and one week in the central office. Within the parks a regular schedule should be established for the following components.

1. Access Roads - A work crew should be assigned to improving the quality of the access road to each park. After the roads are in suitable condition to allow safe and routine access to the parks, they should be "maintained" on a monthly basis to remove fallen rocks and insure proper drainage.

2. Trails - The trails through the areas of each park where vegetation is dense, and especially in Parc Macaya where trails become overgrown with cutting bamboo Arthrostylidium haitiense and sharp spined blackberrys Rubus spp., should be cleared every six months. In steep areas

care should be taken to landscape the trails at the same time to prevent erosion.

3. Park Headquarters - The Park Supervisor should develop a checklist for regular maintenance of the toilet, sinks, septic tank, cisterns, stove, refrigerator, propane gas and public quarters.

4. Central Office - The Director should develop a checklist for regular maintenance of all equipment, supplies and the building. The Director should delegate this authority to the Assistant Director for Administration.

5. Vehicles - The Director should develop a schedule where all vehicles are maintained on a regular basis. Each vehicle should receive a thorough inspection every three months. The Director should delegate this authority to the Assistant Director for Administration.

C. Infrastructure

The national parks "program" should be organized as a discrete unit with the ability to make decisions on policy, management and budget. All aspects of the park should be under the direct control of the Director.

The location of the national parks program within the structure of the GOH has never been clearly designated. We believe the best solution is to name the program Parcs Haiti and make no reference to a department, service or institute. Parcs Haiti should be a free standing unit of the GOH under

the supervision of a board of trustees designated as the National Park Authority. The organization of the program is diagramed below.

National Parks Authority

Director of INAHCA or ISPAN

Director of Direction des Ressources Naturelles,
(MARNDR)

Director of Office of Tourism

Director Societe Audubon d'Haiti (SAHPE)

Prominent Private Citizen

International Representative

"Parcs Haiti"

Central Office

Component Parks and Natural Sites

The National Parks Authority would be responsible for meeting with the Director of Parcs Haiti on a regular basis, and assisting the Director to improve funding, develop long range goals and resolve points of conflict.

The actual administration of all aspects of national parks in Haiti should be the responsibility of the Director of Parcs Haiti.

The organization of Parcs Haiti can be accomplished in any one of three ways. We recommend creating a new program

within Haiti. During the first year a Director and Assistant Director for Administration should be hired as well as a complete staff for each park (Park Supervisor, seven park guards, 15 park workers) and a complete office staff. The additional two positions (Assistant Director for Education and Recreation; Assistant Director for Conservation and Research) are important to the development of the parks and parks program, and require some technical abilities. If individuals with the interest and training for these positions do not exist in Haiti, then international personnel could be used to fill the positions on an interim basis (two to five years). The University of Florida, IUCN, Parks Canada, U.S. National Parks Service and World Wildlife Fund should be consulted for advice as to whom to hire. The University of Florida-Florida State Museum would be willing to coordinate this process.

The second possibility is to contract out the complete operation of Parcs Haiti to an international organization concerned with conservation and national parks. This concept has the advantage of being able to draw upon the experiences of the group in other countries and the high level of expertise of the group. It has the disadvantage of being new and inexperienced in Haiti (so there will be a significant loss of momentum) and being temporary and foreign. On the balance we feel that this is a good idea and should be implemented if our primary recommendation is

not possible. This organization should be under the supervision of the same National Parks Authority discussed above. The IUCN is a logical choice for this group. The University of Florida-Florida State Museum would also be willing to serve in this capacity.

The third possibility is to continue the existing program jointly supervised by MARNDR and INAHCA. If this method of administering the parks is selected then it is imperative that changes be made in the way the program is currently organized. We recommend the following changes.

1. Designate a single administrative head to the program.
2. Create a staff committed to the parks that is drawn from both INAHCA and MARNDR. Two individuals from each organization should be designated.
3. This group of five individuals would be responsible for the parks. The Director and two assistants would be assigned to the Central Office in Port-au-Prince. The other two individuals would be assigned to the parks (one in each park as a Park Supervisor).
4. This group of five would receive training in Haiti on parks techniques and natural science (see discussion below under "Training Programs").
5. This group should be given a new name. We recommend Parcs Haiti.

6. The single administrative head of Parcs Haiti should should be given complete control of the budget of the parks.

7. The group should have a separate office that is not a part of either MARNDR (at Damien) or INAHCA (at MUPANAH) so that it will have an identity of its own.

8. The group will still be supervised by the Directors of INAHCA and Ressources Naturelles in MARNDR. Since these two individuals are part of the proposed National Parks Authority we recommend the creation of this authority even if the third possibility for creating a program is selected.

Our primary recommendation for the creation of a national parks program in Haiti is the creation of a new Parcs Haiti authority, although we believe that either of the alternative possibilities would be able to accomplish the same goal of implementing a national parks program.

The decision on which program to follow should be made by March 1, 1986. The decision should be made by a majority vote of the seven individuals discussed as the National Parks Authority which can meet on a one time basis to make this decision or become a permanent group advising the national parks program (Parcs Haiti).

D. Personnel

The organization of Parcs Haiti is diagramed below.

PARCS HAITI

Director

Assistant Director for Administration

Assistant Director for Education and Recreation

Assistant Director for Conservation and Research

Central Office

Secretary

Librarian-Secretary

Chauffer

Commissar

Office Guardian

Parc National La Visite

Park Supervisor

Guardian Headquarters

Cook

Park Guards (7)

Park Workers (15)

Parc National Pic Macaya

Park Supervisor

Guardian Headquarters

Cook

Park Guards (7)

Park Workers (15)

E. Logistics

The Central Office in Port-au-Prince would coordinate all aspects of the program in national parks. All files, plans, publications, correspondence and budget information should be maintained there. The Director would interact upward with the National Parks Authority, laterally with other programs and supervise all activities of Parcs Haiti. The Assistant Directors will work with the Director and regularly tour the parks and make reports. The Park Supervisors will implement the directions from the Central Office and supervise the personnel in each park. The Park Supervisors should spend one week each month in Port-au-Prince working with the Central Office staff and planning. A radio communication network should exist between the Central Office and each park, and there should be regular discussions between the Park Supervisors and a designated person in the Central Office.

The Director of Parcs Haiti should meet with the National Parks Authority at least twice a year.

5. Interpretation and Research

The programs in interpretation and research are two of the most important elements of the national parks program. Interpretation is the responsibility of the Assistant Director for Education and Research. Research is the

responsability of the Assistant Director for Conservation and Research.

A. Interpretation

We recommend the following as part of a program in interpretation.

1. A series of temporary exhibits in Central Office (year one).
2. Informative signs at entrance to each park (year one).
3. A brochure on the parks that promotes the most important features, provides a species list of important organisms, discusses the rules of the park and the purpose and concepts of the parks (year one).
4. Four exhibits in the Park Headquarters at Morne La Visite (year two).
5. Two exhibits in the Park Headquarters at Macaya (year two).
6. Two permanent exhibits in the Central Office Park Headquarters (year two).
7. Nature trails with educational signs in each park as designated on the maps in the Stewardship Plan (year two).
8. Information signs at designated locations off the road beyond Furcy and along the road to Jacmel (year two).
9. Training the Park Supervisors to be interpretive naturalists (continual).

10. Developing a slide-tape presentation (French, Creole, and English versions) for use in informing the public of the national natural patrimony and the value of the parks (year one).

11. Designating national species, and promoting a better understanding of these species. We recommend the following.

- a. Plagiodontia aedium - National Mammal
- b. Phaenicophilus poliocephalus
(Grey-crowned Palm Tanager) - National Bird
- c. Didymopanax tremulum - National Tree
- d. Fuchsia pringsheimii - National Flower
- e. Karst topography - National Geological Feature

These features can be promoted in postage stamps, newspaper articles and posters. They can also be topics of discussion in schools.

12. There should be a regular weekly newspaper feature on the national parks written by the Director of Parcs Haiti or by special contributors. This feature should be in a prominent place in at least one newspaper, and should also be featured in the English language Haiti News.

13. Writing booklets on the special features of each park based on scientific results from inventories and ongoing research projects (year two and three).

B. Research

Research is one of the most important elements of the development process for the national parks program. An active research program will generate data on which management decisions must be based. The research program will also provide data on the national natural patrimony (endemic species, many of which will be new). A third and very important aspect of the research program is that by actively involving the staff of Parcs Haiti in the research activities (field work, analysis, publications) one of the most important and difficult aspects of the training program is completed (i.e. training in specific topics) at the same time that data and publications are being generated. Research personnel can also be required to lead training sessions while they are in Haiti. The most important research goals are outlined below. The costs of these programs are listed in the budget sheet and in the Stewardship Plan.

1. Publication of previous data from inventory (year one).
2. Research on the composition and requirements of the major plant communities. (five year study)
3. Research on the basic biology of the endemic mammals (endangered species). (five year study)
4. Biology of the Black-capped Petrel (three year study)
5. Regular inventories of avifauna (five year study)

6. Meteorological studies (five year study)
7. Invertebrate faunal studies (five year study)
8. Habitat requirements of herpetofauna (three year study)
9. Publication of the above data in 1990 (year five)

6. Park Headquarters and Stations

The facilities of the parks program are very important because they not only provide a working environment for Parcs Haiti personnel and colleagues, but also signal the existence of a viable parks program. This is especially important within the boundaries of Parc National Pic Macaya and Parc National La Visite where the Parc Headquarters buildings, depots and outposts demonstrate that the parks are official and that authority exists in the region. The parks facilities should be constructed at the earliest possible date (with existing funds, or in the first year of the new five year budget).

A. Location

1) Central Office This structure should be distinct from either MUPANAH or Damien. It can be located in Port-au-Prince or Petionville. We feel it would be desirable to build a facility for the parks at the designated National Botanical Garden. The existing plans for the Park Headquarters (see below) could be

modified as plans for the Central Office.

2) Park Headquarters at Parc National La Visite

This structure (see figure below) is to be located near the cascade in the central part of the park above the campground. This location is in an attractive wooded area (Bois Cascade) and is central to all activities in the park.

3) Depots and maintenance areas for Parc National La Visite will be in the existing buildings at the Scierie.

4) An existing caye can be rented or purchased at Tete Opaque as an outpost.

5) Park Headquarters at Parc National Pic Macaya

This structure is to be of the same plan as the La Visite facility and is to be built in "Bois Pipirite" at 1428 meters two kms north of Portal Formon (Madame Robert's house) and two kms SE of Pic Formon (year one).

6. Depots and maintenance facilities should be located near Portal Formon. The road will eventually be constructed to this area, and since the area is flat it is suitable for construction of a landing strip. An existing caye can be rented or purchased, such as the

caye of Madame Robert's that has been used by the inventory team (year one).

7. An inexpensive caye should be constructed at 1000 meters elevation in the ravine of the Riviere Ravine du Sud as an outpost. It should be modeled after Madame Robert's caye that the inventory team used (year two).

8. An inexpensive caye should be located on the north side of the park near 700 meters beside the Riviere La Guinaudee. An existing caye can be rented or purchased. This caye would serve as an outpost.

B. Type and construction

The plans for a Park Headquarters have been drawn and are available (submitted to INAHCA, MARNDR, and USAID on 17 December 1985). The plans call for a basic stone or cement block structure with a large front porch and central room for public meetings. There are four rooms around the central room to serve as office, laboratory, living and depot space. In the rear of the building are rooms for cooking, eating and a bathroom. The water supply for the headquarters is via two 300 gallon cisters that gather rainwater off of the rear roof of the building. This design is very flexible, and the function of rooms can change as the program grows. There is a loft for sleeping or storage.

The Park Headquarters would provide office space for the Park Supervisor, a work room, a sleeping room for the Park Supervisor, sleeping space for visiting scientists and technicians, and a guest room for visitors from the Central Office.

The building is to be constructed out of rock or cement. Wood is used for the interior supports. The roof is metal. All materials are available at the site or in Port-au-Prince. A materials list is provided with the plans.

7. Integration of the Parks with region

Parcs Haiti should make a special effort to improve the quality of life in the region around the parks in the Massif de la Selle and Massif de la Hotte. If the parks are going to be successful they must be viewed as being of local importance as well as in the national interest.

A. Jobs

The Personnel from the parks should be hired from the region. The available jobs associated with each park are listed below. Regular jobs = R; Occassional jobs = I.

	<u>Number positions</u>
1. Park Guards	7 (R)
2. Park Workers	15 (R)

3. Headquarters Cook	1	(R)
4. Headquarters Guardian	1	(R)
5. Other building guardians	3	(R)
6. Guides (estimate)	10	(I)
7. Special project workers (estimate)	10	(I)

Twenty seven jobs will be generated in each region by the permanent staff of the parks. Additional jobs will be available as the Park Headquarters is being constructed, and during phases of reforestation. Jobs will also be generated as recreation and tourism increases. Some of the jobs will be as guides, while others will be associated with renting horses and donkeys to visitors and selling supplies. The amount of money in the region will increase because of regular salaries being paid to Parcs Haiti personnel, and more money means an increased need for supplies. This will provide more jobs in the service sector of the region (store owners, farmers).

B. Watershed Management

One of the main goals of the park is to improve the quality of the environment and of the associated watersheds. This will have some impact on residents on the plains and along the rivers below the parks. More water will be available for human consumption and irrigation. The quality

of the water will improve. The rate of soil erosion will decrease. The danger of flooding to inhabitants living near rivers will decrease. All of these will be possible because major reforestation projects will be undertaken in each region.

C. Model Programs

The following model programs are proposed for the region of each park in association with Parcs Haiti.

1. Communal Firewood Forest Project.
2. Reforestation and Fruit Tree Propagation Program in cooperation with MARNDR and PVOS in region.
3. Technical Assistance Program coordinated by the Park Supervisors.
4. Local artisan, handicraft and recreation program coordinated by the Assistant Director for Education and Recreation.

8. Recommended Training Programs

Since there has not been a tradition of natural science, conservation or national parks in Haiti it is necessary and important to implement an active training program for all national parks personnel. After careful reflection we believe that the most cost effective and

appropriate training program is for seminars and workshops to be conducted in Haiti. Each workshop or training session should last about two weeks and be conducted by a carefully chosen international individual or group. There should be four training sessions per year (every three months). These training sessions should take place in the Central Office and within the parks. There could be more frequent training sessions during the first year of the program, and fewer as the program develops. A possible training program is outlined in Fig.6.

A. Individuals

Everybody associated with the parks should receive training of some kind. The nature and duration of the training are listed in the following table.

B. Location and Training

With the exception of the Director, who should be encouraged to participate in the international parks seminar, all training should be in Haiti. In this way specific training is possible and all staff of the Parcs Haiti program can receive some benefit from the instructors and training sessions. In addition, research biologists can be involved in the training sessions. This is good economy and encourages individuals to focus their training on the Parcs Haiti program rather than use the training as a stepping stone to a higher position in Haiti or to leave

Haiti. It is important to create as much long term stability in the Parcs Haiti program as possible.

C. Specific Courses and Topics

The need for specific topics will be identified with greater precision as the staff is hired and the background of the Parcs Haiti staff are known. At the initial stage we can identify the following topics which are of major concern.

National Parks Topics

1. History of National Parks and National Parks Policy
2. Biosphere Reserves
3. Administration of National Parks
4. Personnel Management and Decision Making
5. Financial Accounting and Data Management
6. Public Relations and Advertising
7. Museum Studies and Interpretation
8. Principles of Recreation and Tourism

Research and Conservation Topics

1. Biological and Geological History of Haiti

2. Collecting Techniques - Botanical
3. Collecting Techniques - Zoological
4. Ecological Methods
5. Cartography, Photo Interpretation and Remote Sensing
6. Major Features of Haiti - Botanical
7. Major Features of Haiti - Zoological
8. Major Features of Haiti - Geological, Hydrological, Meteorological
9. Analysis of Data, Statistical Techniques and Publication Techniques

Some of these 16 topics can be combined into one training session, while others (such as "major features of Haiti") represent more than one training session. The training sessions can be organized as distinct one to two week workshops and seminars. All research staff should be required to present training sessions as part of their research activities, and to include selected Parcs Haiti personnel in specific aspects of their research activities.

9. Concluding Comments on Parcs Haiti and Biosphere Preserves

The concept of a "Biosphere Reserve" has been approved by UNESCO under the Man and the Biosphere Program (MAB). Biosphere reserves are examples of the major landscapes of the world complete with characteristic landforms, flora and fauna as well as the various patterns of human use and adaptation of the region. The concept of a biosphere reserve is intended to promote a balanced relationship between people and the natural environment. The emphasis in biosphere reserves is demonstrating the value and need for conservation and the link between wise land use policies and conservation and sustainable development. We believe that the concept of a biosphere reserve is very well suited to the nature of the national parks in Haiti, and we encourage Parcs Haiti to proceed with the implementation of a biosphere reserve program.

Biosphere reserves consist of core areas, which are lands already under some form of protection. In the case of Parcs Haiti, the core areas are Parc National Pic Macaya, Parc National La Visite (and the various sites listed in the decree of 23 June 1983). In biosphere reserves core areas are surrounded by zones of cooperation, in which a variety of resource uses may take place, such as forestry, ranching, farming or tourism. In these zones solutions to man-environment problems are sought by involving local people. This is often done by including selected local residents in the discussion process, often via a committee

made up of Parks personnel and local residents. The zone of cooperation is analogous to the "Buffer Zone".

The concept of a national park surrounded by a buffer zone, as discussed in the Stewardship Plan lends itself well to the principles of a biosphere reserve, especially considering the complicated land use practices in and around the national parks and the need to resolve the problems of land use and land tenure in the region. We also believe that the habitats of Parc National La Visite and Parc National Pic Macaya are unique and worthy of inclusion in the biosphere reserve program of the world's major landscapes. In 1985 there are 243 biosphere reserves in 65 countries. Parcs Haiti should begin from its conception to organize the national parks program and especially the two great national parks of Haiti as biosphere reserves.

Acknowledgements

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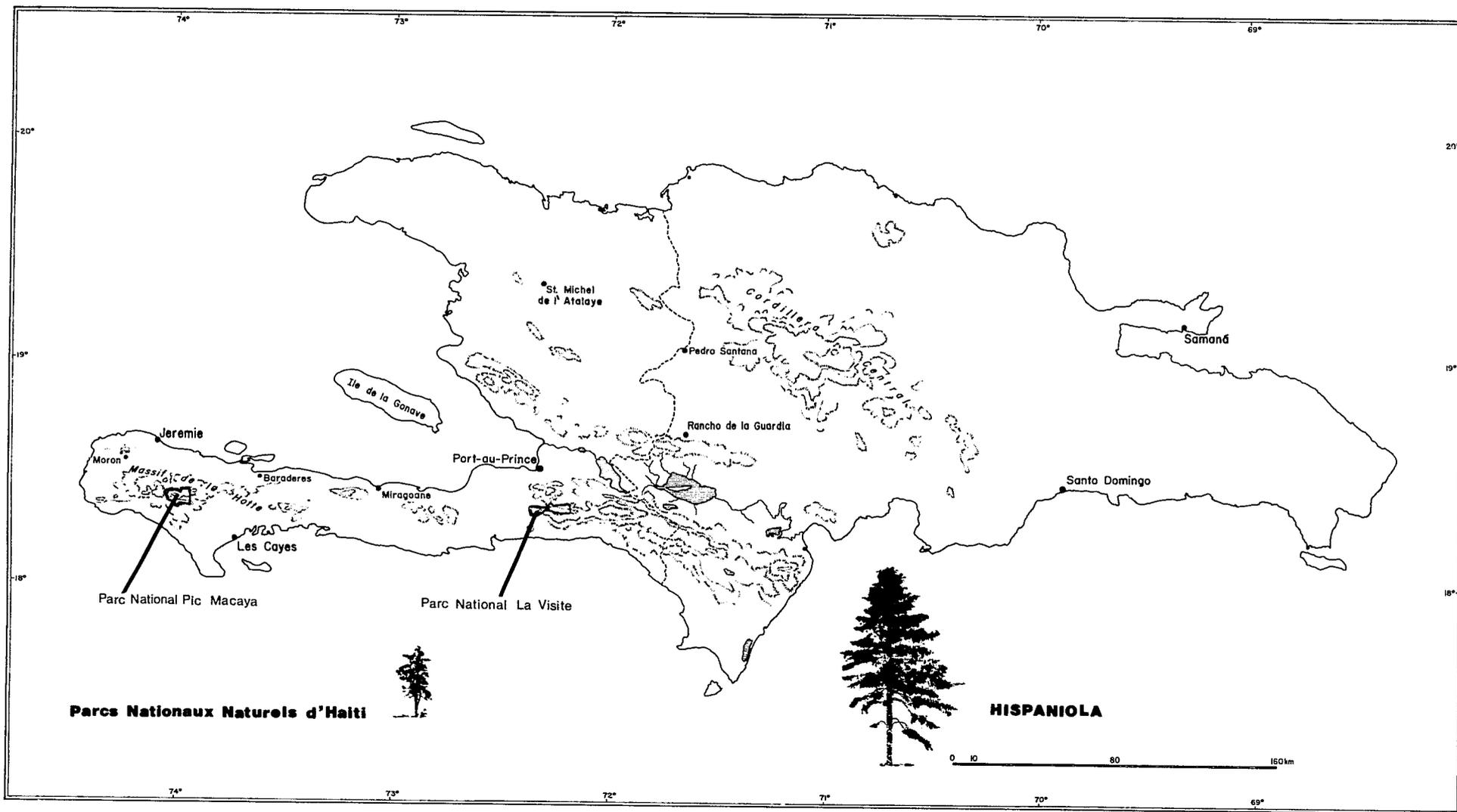
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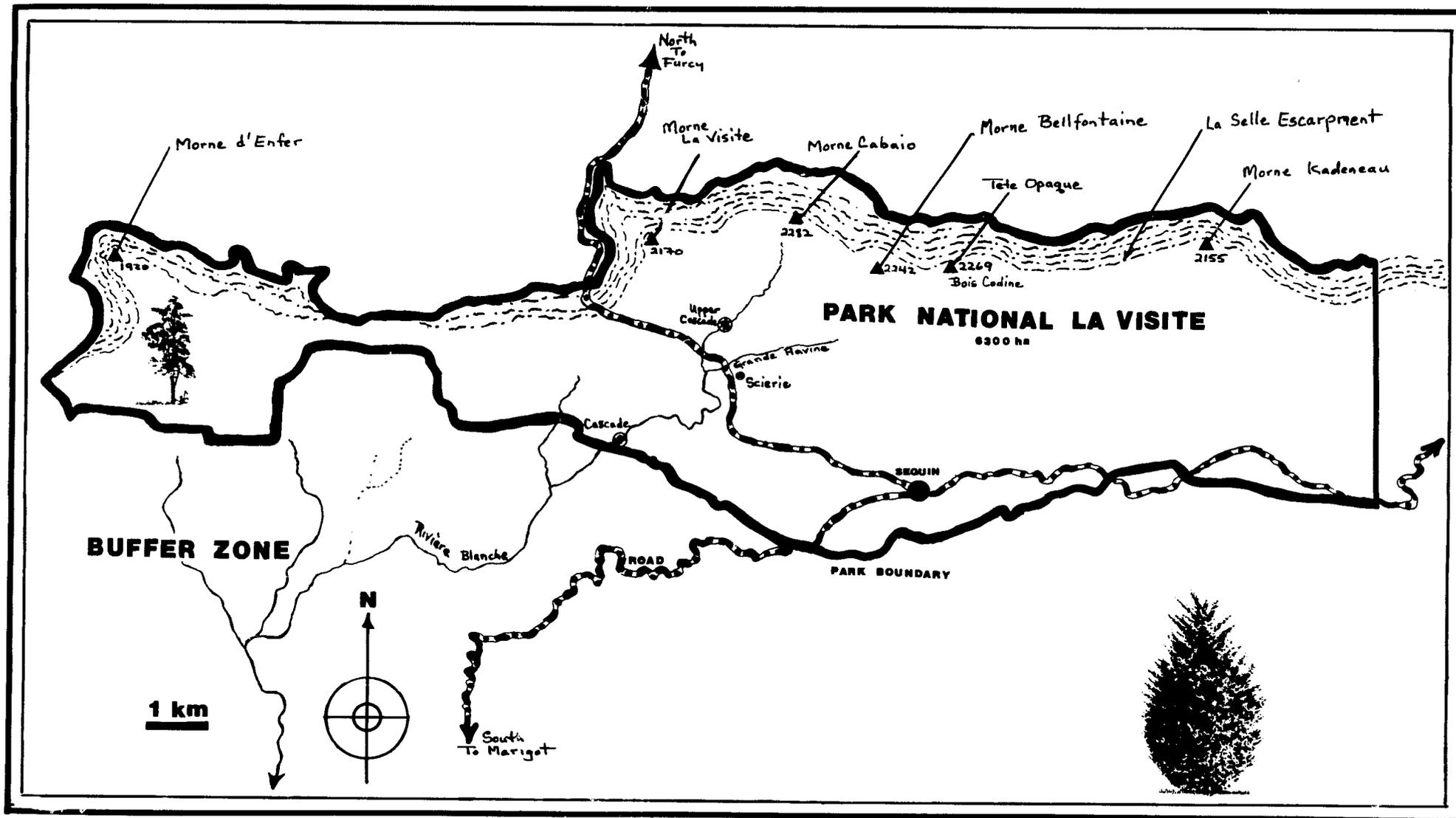
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Mammals of the Antilles. Dodo (Jersey Wildlife Pres.
Trust). 22:

Maps, Figures and Photographs

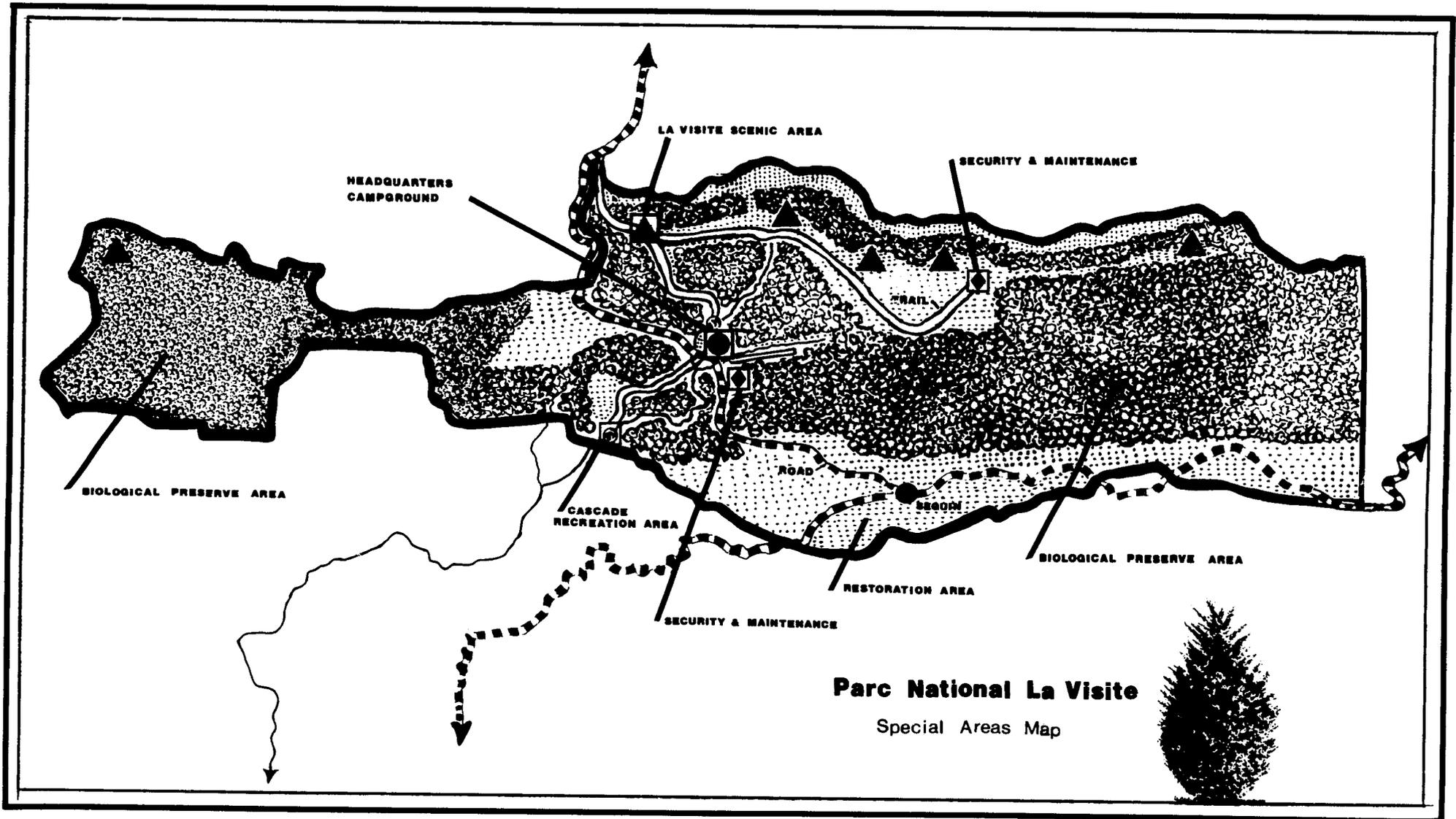
1. Map of Hispaniola with Parks
2. General Map of Parc National La Visite
3. Specific Map of Parc National La Visite
4. General Map of Parc National Pic Macaya
5. Specific Map of Parc National Pic Macaya
6. Drawing of proposed Park Headquarters
7. Table of Budget (labeled Figure 5)
8. Table of Training Program (labeled Figure 6)
9. Photograph from air of Parc National La Visite
10. Photograph of Pic Macaya and Pic Formon
11. Photograph of the Plain of Formon of Parc National Pic Macaya



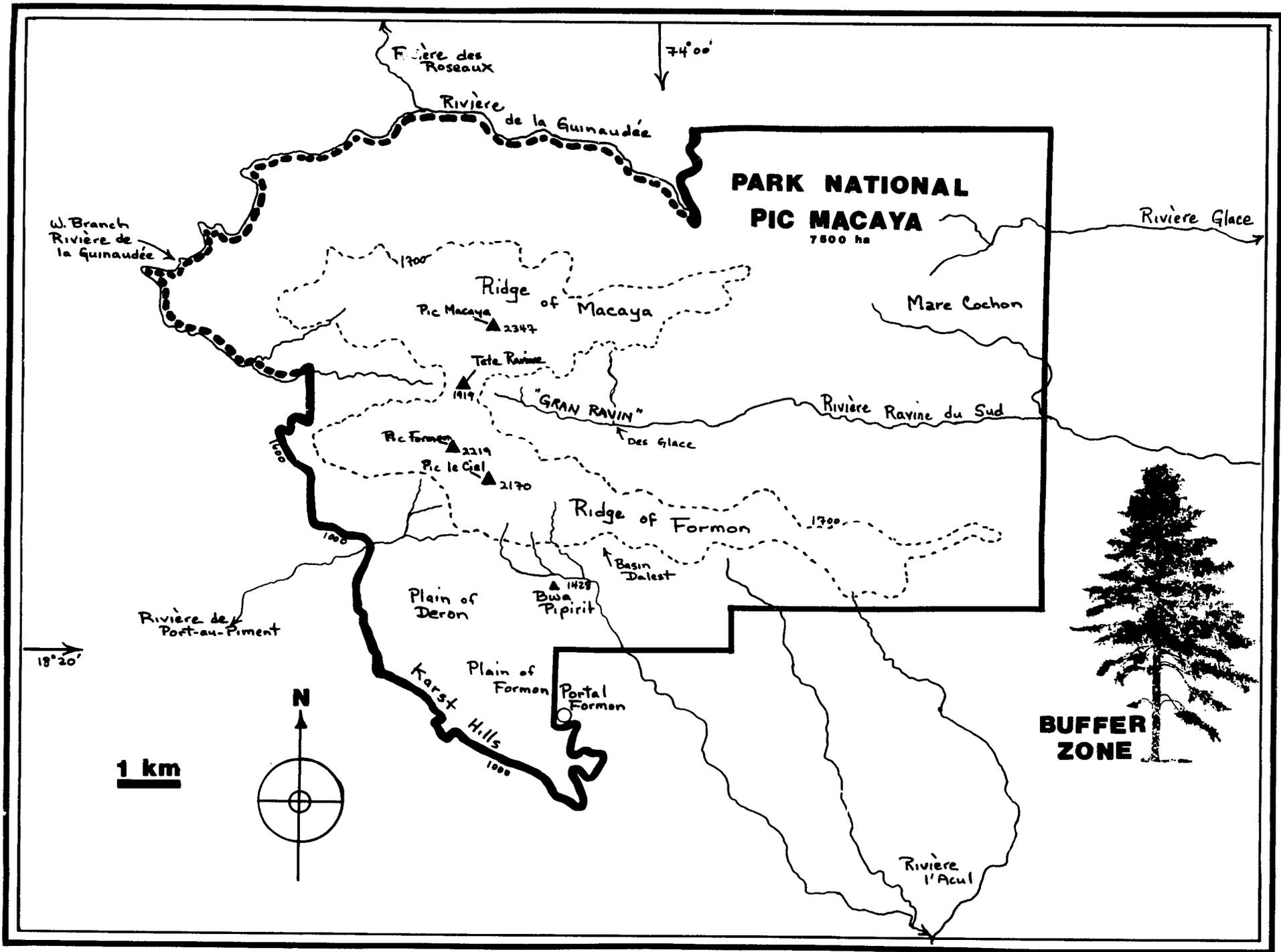
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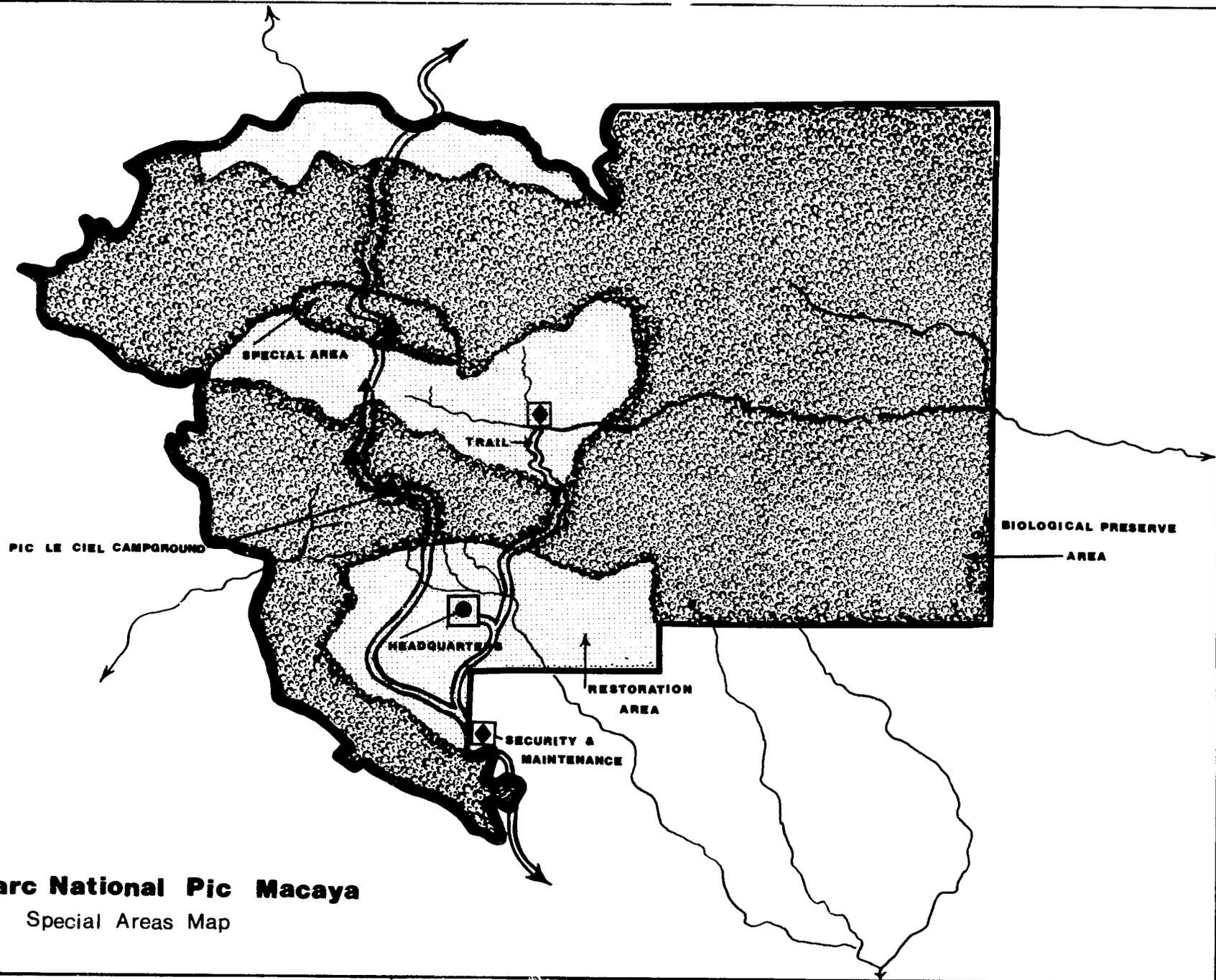
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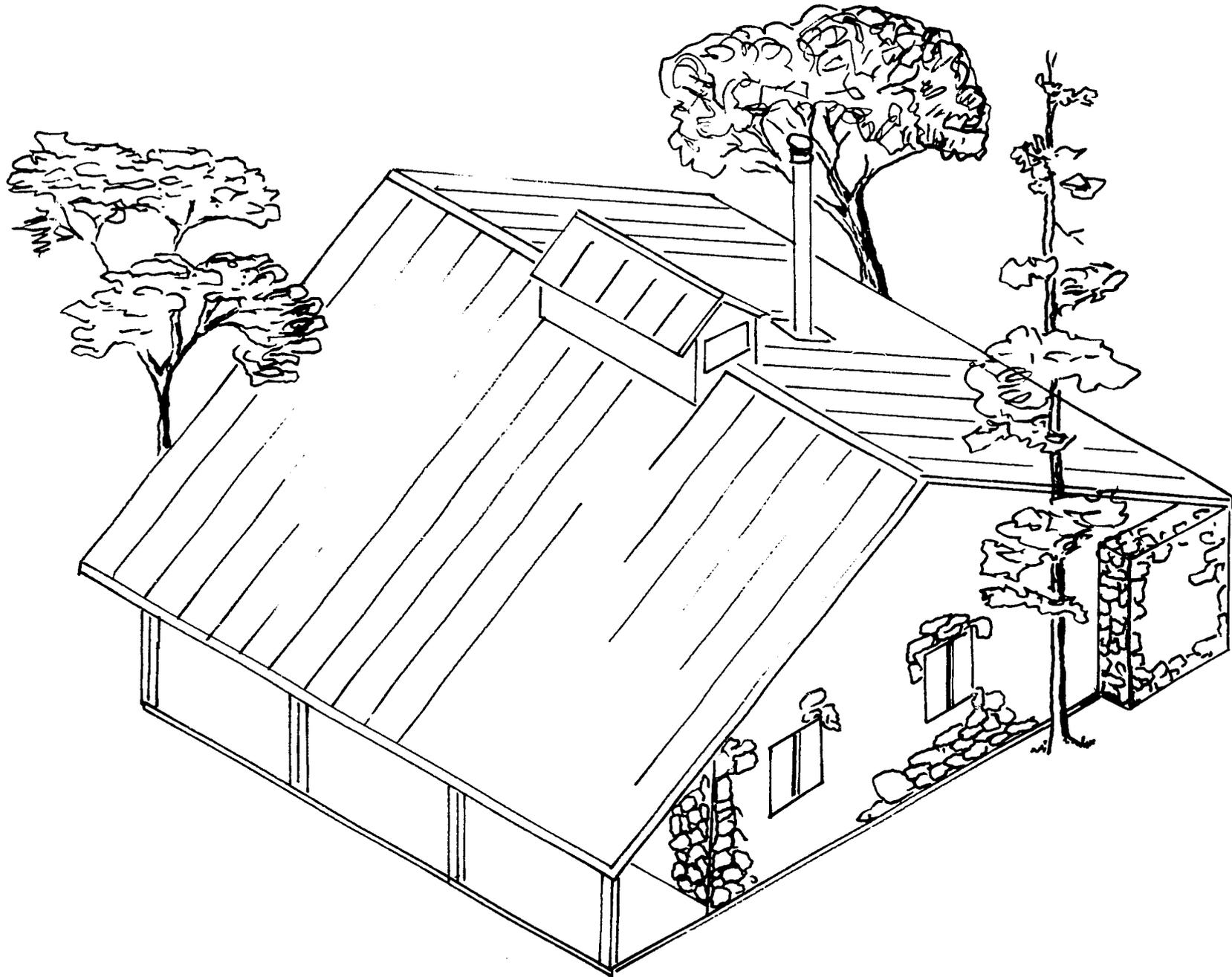
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Parc National Pic Macaya
Special Areas Map

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Figure 6



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Figure 5

National Parks of Haiti

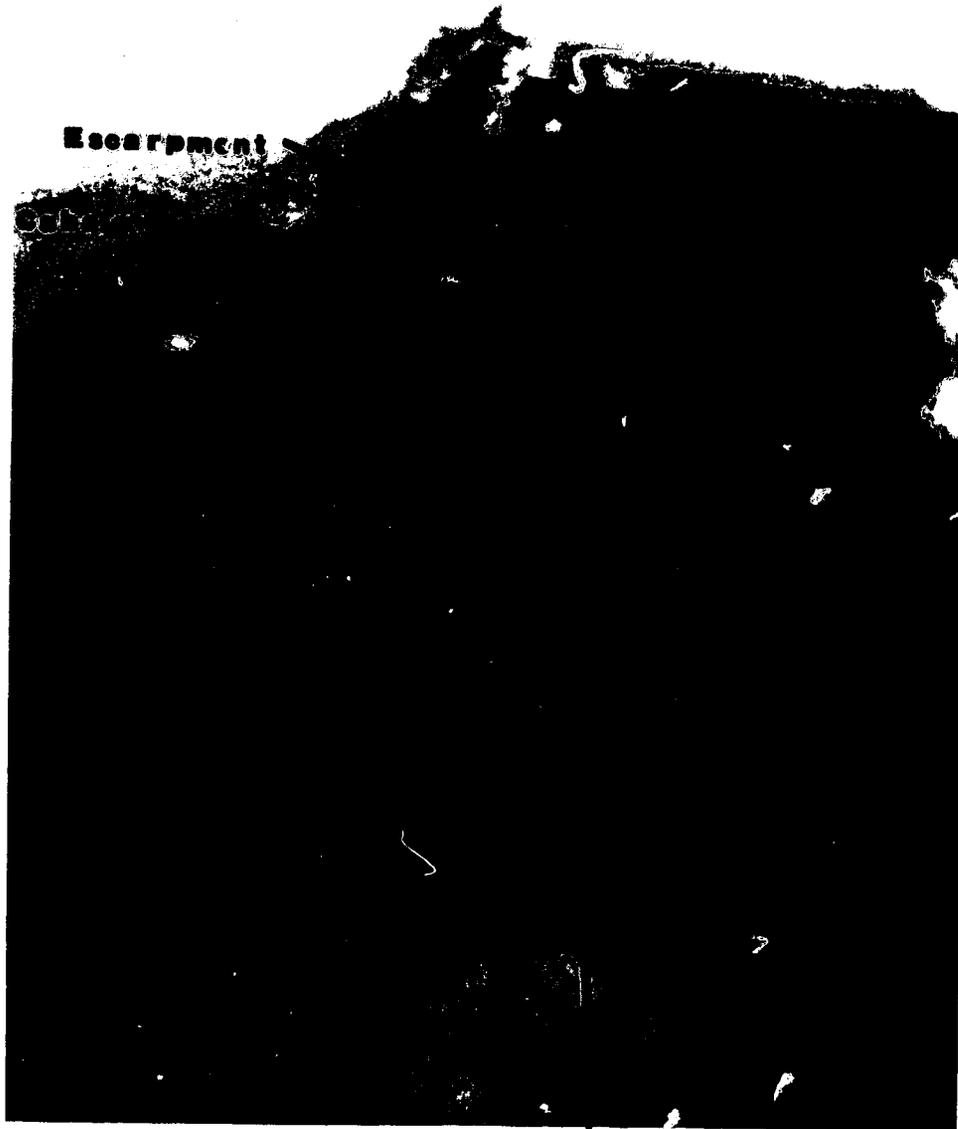
<u>Item</u>	<u>Year</u>					<u>Total</u>
	1 (1986)	2 (1987)	3 (1988)	4 (1989)	5 (1990)	
Set up office	72,400	-	-	-	-	72,400
Set up Parc La Visite	26,750	-	-	-	-	26,750
Set up Parc Macaya	26,750	-	-	-	-	26,750
Signs	2,000	-	1,000	-	-	3,000
Exhibits	-	8,000	-	-	-	8,000
Publications	25,000	5,000	5,000	-	20,000	55,000
Training Personnel	12,000	17,000	12,000	12,000	12,000	65,000
Research	43,000	63,000	43,000	28,000	28,000	205,000
Overhead	6,450	9,450	6,450	4,200	4,200	30,750
Operating Office	41,000	41,000	41,000	41,000	41,000	205,500
Operating parks	56,900	56,900	56,900	56,900	56,900	284,500
Operating vehicles	14,400	14,400	14,400	14,400	14,400	72,000
Salaries Office	100,200	105,210	110,170	115,993	121,793	553,666
Salaries Parks	<u>92,400</u>	<u>97,020</u>	<u>101,640</u>	<u>106,491</u>	<u>111,573</u>	<u>509,124</u>
Totals	519,350	417,080	391,960	379,084	409,966	2,117,440

Figure 6

TRAINING PROGRAMS

Individuals	Topic	When	Location	Duration	Instructors
1. Director Parcs Haiti Assistant Director Park Supervisors	Orientation Design Program	Spring 1986	PAP	One week	Raoul Pierre-Louis, Gaston Hermantin, Paul Paryski, Bob Wilson, Charles Woods
2. Office Staff	Orientation	Spring 1986	PAP	One day	Director
3. Park Staff	Orientation	Spring 1986	Parks	Two days	Park Supervisor
4. Director, Asst. Directors, Park Supervisors	Training programs on Parks	Spring-Fall 1986-1990	PAP	Two weeks	International Parks Representative
5. Director, Asst. Directors, Park Supervisors	Interpretation of park features, flora and fauna plus field tech- niques	Summer-Winter 1986-1990	PAP + Parks	Two weeks	UF/FSM Staff and Researchers
6. Park Guards	Park features	Summer-Winter 1986-1990	Parks	Two days	UF/FSM Staff and Researchers
7. Director	National Parks Seminar	Summer 1986	USA/ CANADA	Two weeks	Univ. of Michigan Parks Canada, USNPS

La Selle



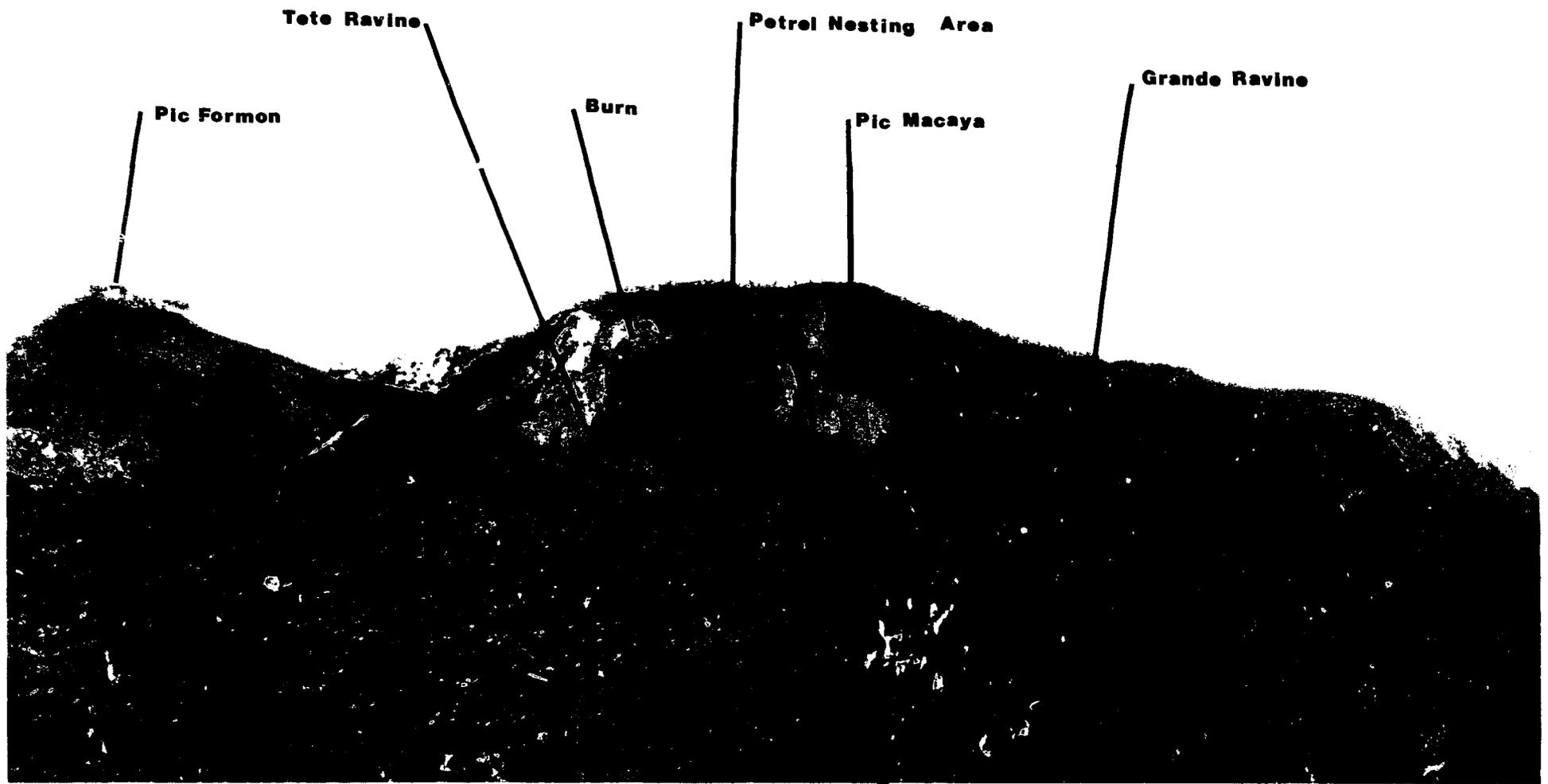
La Visite

1983

Parc La Visite

50

PARC MACAYA



View From Pic Le Ciel Campground

1985

PARC MACAYA

Sous Bois

Bwa Formon

Bwa Deron

Karst Hills



Portal Formon

1985

Plain Deron

Plain Formon

10