Birds

of

The National Parks of Haiti

by

Charles A. Woods

and

Jose A. Ottenwalder

THE BIRDS OF PARC NATIONAL LA VISITE AND PARC NATIONAL PIC MACAYA HAITI

by

Charles A. Woods, Ph.D.
Department of Natural Sciences
Florida State Museum
University of Florida
Gainesville, Florida, USA

and

Jose A. Ottenwalder*
Florida State Museum and
School of Forest Resources and Conservation
University of Florida
Gainesville, Florida, USA

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*Permanent Address: Parque Zoologico Nacional, Santo Domingo, Republica Dominicana.

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A. Photograph of the "Kat Je Sid" or Oiseau Quatre Yeux du Sud, Phaenicophilus poliocephalus. We recommend that this species be designated as the National Bird of Haiti. It is the only bird species to be only found within the boundaries of the Republic of Haiti.

B. Photograph of the "Mizisyen" or Oiseau Musicien, Myadestes genibarbis. This species is restricted to areas of mesic forest and is characteristic of well forested regions of Hispaniola. It is one of the best known bird species of Haiti because of its very melodious song. The "Mizisyen" is especially abundant on Pic Macaya.


A


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INTRODUCTION

A. Background Information

The birds of the Morne la Visite and Pic Macaya areas have previously been reviewed by Alexander Wetmore of the U.S. National Museum in his monographs on The Birds of Haiti and the Dominican Republic (Wetmore and Swales, 1931; Wetmore and Lincoln, 1933). Dr. Wetmore worked in the La Visite area between April 9-17, 1927 and was the first to collect and describe the robin-like thrush inhabiting the region, which he named the La Selle Thrush, Turdus swalesi. Wetmore also mounted an expedition to the top of Pic Macaya which he climbed from the north and west side between April 10-23, 1931. The accounts of the birds of the regions that were compiled by Wetmore provide a basic understanding the nature of the before the habitat was dramatically destruction of the forest cover in many areas of the mountains, and the spread of people, gardens, ajupas, dogs, cats, rats and the mongoose into areas now included within the boundaries of the national parks.

In his publications and field notes Wetmore (Wetmore and Swales, 1931; Wetmore and Lincoln, 1933; Wetmore, unpublished field notes) provides fine descriptions of the status of the habitat in the regions of Morne La Visite and

Pic Macaya and while it is clear that human disturbance was widespread over 50 years ago, both areas were much less altered then than they are now.

Erik Ekman, a Swedish botanist living and working in Haiti during the period just before Wetmore's fieldwork also provided excellent baseline data on the nature of the forest in the regions of the national parks, and collected a number of birds which he sent to the well known ornithologist James Bond for identification and evaluation (Ekman, 1926; 1928; Unpublished catalog). While Wetmore and Ekman did not study the distribution and abundance of the birds of the regions in relation to habitat type nor investigate the seasonal changes in the composition of the avifauna, Wetmore especially was a close observer of the habits of the birds of the region. The observations in Wetmore's monographs on the presence or absence of the species in a particular region or habitat can be relied upon as good base line data on which to make comparisons concerning the effects of changing land use on the status of avian species.

In 1983 we published a preliminary account of the montane birds of Haiti, with an emphasis on the birds of the regions of Morne La Visite, Pic Formon, Pic Macaya, and the national historical park at the Citadelle La Ferriere in northern Haiti (Woods and Ottenwalder, 1983). That account is the foundation of the present report, which has been expanded by the addition of data on the distribution and

abundance of birds along transects through specific habitats, and information gathered by capturing birds with mist nets. The purpose of this report is to provide information on the status of all the birds found in each national park, as well as to determine the habitat types that are most important for each bird species. These data are used to provide an index of what species are in need of protection, and to document which habitat types are most essential to the well being of birds in the area of Parc National La Visite and Parc National Pic Macaya.

The island of Hispaniola has 73 species of resident land birds, the largest number of any island in the Greater Antilles (Lack, 1976). Of these, 20 species (28% of the total land birds) are endemic to Hispaniola (Table 1). Cuba, which is closer to the mainland of the United States and is 30% larger in area has 68 species of resident land birds while Jamaica, with only 14% of the land area of Hispaniola, has 66 resident land birds. The large number of avian species per unit area in Jamaica and the high number of endemics (27 species, 41%) are an indication of the importance of heterogenous habitats to the diversity of birds. In his analysis of the birds of Jamaica and the West Indies, David Lack (1976) noted that 25 species of Hispaniolan land birds are absent from Jamaica and Cuba. Nine of these have close relatives on one or both of the other islands but 16 are without close relatives in either

Jamaica or Cuba. Some of these species are associated with montane pine forests of Hispaniola, a habitat that is missing in both Cuba and Jamaica. Of the 25 species of Hispaniolan birds absent from Jamaica and Cuba 3 species are totally restricted to areas of pines (Pine Warbler; White-winged Crossbill; Antillean Siskin). Another group of seven species is found in dense broadleaved forest (called "Rak Bwa" in Haiti) that is generally above 1500 meters elevation and often in close association with the pine forest (La Selle Thrush; Narrow-billed Tody; Ground Warbler; White-winged Warbler; Emerald Hummingbird; Chat Tanager; Rufous-collared Sparrow). This habitat is more abundant on Hispaniola than in Cuba or Jamaica. Therefore, of the 24 species of land birds that are found in Hispaniola (Table 1) 10 are often associated with elevations above 1000 meters and pine forests. Another 8 species are present, among other habitats, in mixed broadleaved and pine forest (Hispaniolan Woodpecker; Hispaniolan Parrot; Hispaniolan Parakeet; Antillean Piculet; Hispaniolan Lizard Cuckoo; Hispaniolan Trogon, Black-crowned Palm Tanager; Grey-crowned Palm Tanager). The ecological importance of the high elevation (above 1000 meters) broadleaved and pine forests to the avifauna of Hispaniola is very clear. Eighteen of the 25 land birds found in Hispaniola but not in Jamaica or Cuba are frequently associated with these habitats. In the list (Table 1) of 20 "endemic" land birds of Hispaniola

(found only in Hispaniola as opposed to some species that occur only in Hispaniola within the Antilles but which also occur in mainland areas, such as the Pine Warbler and the White-winged Crossbill from North America and the Rufous-collared Sparrow from South America) 75% are associated (although not exclusively so) with high altitude pine and broadleaved forests and are discussed above.

The pine and broadleaved forests found within the boundaries of the parks need to be protected from deforestation if an attempt is going to be made to preserve the endemic bird fauna of Haiti. Land is a limited resource in any island nation. Haiti needs to increase its capacity to grow food and establish resource bases in timber and agribusiness. It is therefore important to document what specific habitats are most essential to manage and preserve,and to clearly document the relationships of these habitats to the preservation of the birds of Haiti, especially the endemic species that are part of the natural patrimony of the nation. We have classified the regions of the parks into major habitat groups, and gathered data on the distribution and abundance of each bird species within each of these habitat types. The major habitats surveyed in both Parc National La Visite and Parc National Macaya are described and defined below.

B. Habitats of Parc National La Visite

The area within Parc National La Visite is all above 1600 meters elevation and the forest type has been well described by Holdridge (1947) in his doctoral dissertation on the pine forests of Haiti based on an analysis of the Morne des Commissaires area to the eastof the park boundary, and by Walter Judd (1986) in the present investigation. Two main types of forest occur in the park, subtropical montane moist forest and subtropical montane wet forest. These ideal forest types grade into one another based on local conditions of soil, exposure, topography, and previous land use, and there is considerable overlap in plant species. Therefore, rather than discuss the status of birds in each of the above overlapping forest types we have chosen to subdivide the park into six habitat types based on the successional status of the forest and local conditions of topography and soil. Three additional specialized features can be identified within the boundaries if the parks, and are treated as distinct subunits.

The six main habitats are: 1) mature pine forest; 2) successional pine forest; 3)mature broad-leaved forest; 4) successional broad-leaved forest, usually present in small patches; 5) open fields dominated by grasses or fern sand only occasional isolated trees; 6) gardens, either small

cultivated patches of vegetables or extensive areas of corn. The specialized features of the park are: a) the cliffs along the north face of the massif; b) the cool, moist , dark environments of caves and sinkholes; c) the streams of the Riviere Blanche watershed, and the Riviere Blanche with its deep ravine and significant waterfalls.

The characteristics and local nomenclature of each area are discussed below.

Main Habitats

1. Bwapen

The mature pine forest is referred to by local inhabitants as "Bwapen". According to the descriptions by Ekman (1926, Catalog), Wetmore (Unpublished field notes), Wetmore and Swales (1931) as well as Holdridge's (1947) description of the pine forest of Morne La Commissaires it is clear that the area of Morne La Visite once contained solid stands of mature pine which towered above scrubby to open understory vegetation and produced large crops of seeds. Pine is an unusual forest tree in the West Indies, and only in Eastern Cuba, Haiti and the Dominican Republic are pines (Pinus occidentalis) found in upland areas. It is not clear what maintains the stands of pine in the face of

strong competition from broad-leaved tropical vegetation or how long pine has been present in Hispaniola. Holdridge discussed the pine forest in great detail and concluded that climate, and most specifically temperature, was the single most important factor in explaining the persistence of Pinus occidentalis in Hispaniola. The presence or absence of either forest type in a particular site is also probably influenced by differences in soil quality and history of disturbance. Several bird species have become closely associated with the pine forests and are of North American origin. These species are the White-winged Crossbill and Pine Warbler, both of which are also found in temperate North America, and the Antillean Siskin, which is endemic to Hispaniola but closely related to the American Goldfinch.

Pines are quite fire-hardy except when young and produce abundant seeds and therefore the pine forest probably expanded its range in Haiti during historical times as clearing for gardens and occasional fires began the process of pushing back the competing hardwoods. At the present time large seed producing pines have become reduced in numbers in the Morne La Visite area because of extensive logging operations in the region of the park that culminated in the late 1970's when massive numbers of pines were cut and a sawmill existed in the center of the area now designated as Parc National La Visite (CAW, personal observation in 1977). The stumps of these trees are readily

observed throughout the park. The areas of mature pine are probably now more limited in distribution than at any time in the past several million years.

2. Bwapen Raje

The succesional pine forest forms an important ecological zone in the park, and is characterized by dense stands of young pines between 1 and 7 meters tall. The stands exclude most understory vegetation and there is a thick carpet of pine needles on the forest floor that is very vulnerable to fire. The edge of the succesional pine forest is frequently dominated by dense shrubby vegetation that includes blackberries and flowers frequented by several species of birds. The pines grow very quickly, and this transitional habitat is not very stable. The soil surface below the pine litter is often blackened indicating that a fire initiated this stage by killing all of the broadleaf vegetation and smaller pines, leaving only a few sentinal pines (older pines are very resistent to fire). We are not aware of a local name for this habitat type, but will refer to it as "Bwapen Raje".

3. Rak Bwa

The broad-leaved forest is an important ecological zone of the park and occurs in areas where mesic conditions predominate, such as ravines, depressions, exposures of limestone (called "kas dans" in the region), along streams and rivers and at the mouths of caves and sinkholes. This habitat is composed mainly of the subtropical montane wet forest of Holdridge (1947). At one time the habitat formed an extensive band of dense vegetation that graded into the more open pine forest so that there was a nearly complete covering of vegetation in the park. The local name for this habitat is "Rak Bwa", which within the boundaries of Parc National La Visite is now restricted to patches of low, dense forest as a result of long continued clearing and burning but is much more extensive on Morne d'Enfer to the West of La Visite. Holdridge (1947) described this forest in great detail, however he noted that "even in the most isolated and rough sections of the remaining hardwood stands, the presence of pits where wild yams have been dug out shows that man has been active in all parts of the forest. Thus, there are no remaining areas which could definitely be called virgin forest, and it is also difficult to select any one area as typical of the hardwood forest." The forest is beautiful, and after passing through a thick

"edge" of climbing bamboo, vines and border shrubs the interior is characterized by numerous mosses, lichens, ferns, tree ferns, peperomias and orchids. The diversity of trees and shrubs is remarkable (see the list in Holdridge, 1947:69-77 and in Walter Judd's report). Many of these trees and shrubs are endemic to Hispaniola and some are endemic to the Massif de La Selle. The flowers and fruits are frequented by the Emerald Hummingbird and other species that favor these mesic woodlands such as the La Selle Thrush, Chat Tanager and Hispaniolan Trogon. In transects (see methods section) the largest number of individual birds and greatest diversity of species occur in the patches of broad-leaved forest.

Because the broad-leaved forest grows in mesic areas where conditions favor gardens and agriculture, and because the vegetation of the broad-leaved forest is so sensitive to fire, the habitat has been severely reduced in extent in historical times and the rate of loss has accelerated in recent decades. In the nine years we have been monitoring the flora and fauna of the region there has been a marked decrease in this habitat within the area of the park because of the expansion of local gardens and the cutting of "poles" (trunks of broad-leaved trees that are 8-15 cm in diameter and 3-4 meters long) which are used in the construction of houses and ajupas. The largest area of Rak Bwa that is left within the boundaries of the park occurs on the north face

of the massif between Morne La Visite and Tete Opaque. The extensive Rak Bwa that occurred near Tete Opaque on the plateau was also characterized by thick stands of Juniper (Juniperus ekmanii), probably the most endangered woody plant in the park. Most of the forest cover in the Tete Opaque area has been cut and burned. Large stands of Raw Bwa still occur to the west of the park along the ridges and basins leading to and including the plateau and slopes of Morne d'Enfer which is an important reservoir of biological diversity and should be included within the boundaries of Parc National La Visite.

4. Bwa Raje

The broad-leaved forest grows in some isolated areas that have been protected from exploitation because they are unsuitable for agriculture (such as around sinkholes, steep ravines, the steep north face of the massif and karst rich areas where numerous blocks of limestone make even walking difficult), or have been less damaged by fire (such as along the bottoms of ravines and beside streams and the Riviere Blanche). Many species of broad-leaved trees and shrubs also sprout back from their trunks after they are cut or burned by a fast moving fire that is not too hot, so that the forest can regenerate quickly in selected pockets where

the conditions are suitable and exploitation has not been too severe. This has resulted in the presence of patches of broad-leaved forest that are either too small to retain the plant species diversity of a true Rak Bwa, or that have been severely altered by clearing and the composition skewed to colonizing species or that regenerate easily and are of a more even age. These patches and blocks of mesic habitat covered by "altered" broad-leaved forest that is undergoing succession are refuges in the large tracts of open and ruinate habitat that characterize most sections of the park. This habitat is where many bird species such as the Hispaniolan Ground Warbler and the numerous species of migrant Warblers find food, shelter and nesting sites. Unlike the Bwapen Raje, which is a rapidly changing successional stage with little plant diversity, the patches of altered broad-leaved forest are undergoing slow succession and have greater stability. Many species that characterize this habitat (and which regenerate easily such as Persea anomala) are heavily utilized by the La Selle Thrush, Rufous-throated Solitaire and the endemic mammal Plagiodontia aedium.

The local name for this habitat is "Bwa Raje".

5. Raje

Areas that have been severely altered by continued burning, cutting, overgrazing or erosion no longer are able to support a broad-leaved forest. Pines can and generally do move into these areas in time (making them Bwapen Raje) by seeds blowing or being carried in from mature pines. During the intervening period, however, the areas are open grasslands or dense stands of bracken fern (Pteridium arachnoideum) and blackberries such as Rubus selleanus and R. domingensis. Holdridge (1947:52) notes that bracken ferns are killed by frosts, which frequent all upper sections of the park and are especially common in low lying pockets and ravines below the windswept ridge of the massif. These dead parts of brackens are tender dry and easily burned. This widespread ruinate habitat of grasses, braken and Rubus quickly takes over when gardens are abandoned or horses, goats, sheep and cattle are removed from grazing areas. It is an important habitat for some species such as the Killdeer and Bobwhite Quail (grasslands) and warblers and grassquits (ferns and Rubus). Because fires and grazing have been common features in the park this habitat has become one of the most abundant zones, and grades into the open stands of Pinus occidentalis where all but a few individual trees have been cut in recent decades. The robin-like La Selle Thrush often feeds along the edge of this habitat when a "Bwa Rage" or "Rak Bwa" are nearby.

The local name for this habitat in "Raje".

6. Jadin

Agricultural areas in the park are either small gardens planted in cabbages, carrots, corn or beets, or huge expanses that have been planted in corn. These artificial habitats have been a factor in the park for a long period of time and have become an important attractant to a number of bird species. The large corn fields are used by Hispaniolan Parakeets which feed on the corn and by large numbers of warblers which feed on insects or seeds and fruits of weeds growing along with the corn. I have seen mixed flocks of warblers (Palm, Yellow-rumped and Cape-May) numbering in the thousands of individuals feeding in the dry corn stalks in February. Bob-white quail are common in these corn fields as are grassquits. The gardens and cornfields contain numerous weed species because no herbicides are used, and a number of bird species feed on the seeds of these species, most notably the Antillean Siskin which can be found in large flocks feeding on the ground and in the weeds. In the open cultivated gardens near Rak Bwa or Bwa Raje areas the La Selle Thrush feeds on the ground among the vegetables as it searches for earthworms and arthropods.

The local name for this habitat is "Jadin".

Special Features

1. Nan Nway

The north face of the Massif de la Selle between Morne d'Enfer and Tete Opaque, and beyond has eroded away from the hard limestone cap on the massif to the south,producing a series of steep cliffs (La Selle Escarpment). These cliffs are a special habitat that is found in few other areas of the West Indies, and other than in the Massif de La Selle of Hispaniola can only be found at several locations in the Sierra de Baoruco of the Dominican Republic west of Pic La Selle. This habitat is unique because it is so mesic and is at such a high elevation. Clouds collect along the north face of the massif and bathe the vegetation in moisture. The frequent cloud cover and northern exposure of the habitat prevents extensive evaporative water loss. The steep nature of the cliffs and slopes has prevented extensive exploitation of the region for gardens until recent times, and the lack of pine trees in most areas has reduced forestry. The region between Morne La Visite and Morne Cabaio is especially significant because a basin exists that supports a luxuriant Rak Bwa.

The luxuriant Rak Bwa in the basin and along the northern side of the massif is the most significant region of broad-leaved forest left in the park. It is characterized by most of the La Selle Thrushes observed in

the park, as well as most of the Chat Tanagers. The habitat also supports a breeding colony of Black-capped Petrels that feed at sea and return to these high cliffs to nest and breed during the winter months.

We have chosen to call this habitat and region "Nan Nway" or place of the clouds.

2. Gwo Tou La Selle

The semi-plateau to the south of the ridge between Morne La Visite and Tete Opaque is characterized by abundant rainfall (2500 mm/year). The resulting groundwater drains south into the basin of the Riviere Blanche. In many areas precipitation collects into streams or has eroded away hillsides and created ravines. Because of the karst topography the water often creates caves at some point along the ravine, and these caves are surrounded by dense growths of broad-leaved forest because of the cool moist environment. Along the course of the moving water, and in other areas where water has percolated directly down into the limestone, sinkholes are formed. These sinkholes invariably have a perimeter of broad-leaved vegetation around them. The phenomenon of the caves and sinkholes, therefore, has created a special environment where a Rak Bwa or a Bwa Raje habitat exists in a location that is unusually mesic and heterogeneous. Birds often make use of these rich

environments. Emerald Hummingbirds frequently nest along the edge of the sinkholes and feed on flowering plants growing at the entrances to caves and at the edge of sinkholes where sunlight is abundant. The dense patches of Rak Bwa at the base of ravines and around the entrances to caves are sometimes an hectare or more in extent and are rich in birdlife such as Hispaniolan Trogons, Ruffous-throated Solitaires, Chat-Tanagers, Narrow-billed Todies, La Selle Thrushes, Ground Warblers. Other birds that characterize the mesic broad-leaved forest also feed and nest in these areas. In the caves themselves Barn owls nest and roost during the daylight hours, and fast flying and far ranging Collard Swifts nest.

We have chosen to call this habitat "Gwo Tou La Selle", or large hole of La Selle.

3. Nan Dlo

Abundant rainfall in the area of the park and the basin-like topography that drains into the Riviere Blanche has created a habitat that is unique in Hispaniola. Within the boundaries of the park are numerous flowing streams that drain southward off of the ridge of the massif. Some of these streams emerge from springs within 100 meters of the ridge. Few other areas of Hispaniola have so many flowing streams at high elevations. Along the edge of these

streams, and of the Riviere Blanche ("Riparian" habitat) a thick band of forest and shrubs grows. This rich vegetation supports many bird species.

We have chosen to call this habitat "Nan Dlo" or place of water.

C. Habitats of Parc National Pic Macaya

The area within Parc National Pic Macaya is more diverse than that of Parc National La Visite, and is less well known botanically. The area was visited by Erik Ekman and Henry Barker (Ekman, 1926, 1928), but the only complete list of the plants of the region or of the plant associations found in the report by Walter Judd (1986). The park is dominated by the high peaks of Formon (2219 meters) and Macaya (2347 meters), the well forested ridges orientated along the east-west axis, the deep ravine of the Riviere Ravine du Sud and the moderatly high Plain of Formon with its rich basins and extensive areas of exposed karst forming karst domes or even entire hillsides of karst. The elevation of the park ranges from 950 meters along the edge of the Plain of Formon to 2347 meters at the top of Pic Macaya. The land is so irregular that the amount of evaporation and precipitation varies considerably and influences the vegetation. We have characterized the park

into eight main habitats and five specialized features. The main habitats are: 1) mature pine forest; 2) successional pine forest; 3) broad-leaved forest above 1300 meters elevation; 4) patchy disturbed broad-leaved forest above 1300 meters elevation; 5) open areas of fields, slopes or badly eroded zones; 6) broad-leaved forest covering karst domes or hills; 7) disturbed patches and small blocks of broad-leaved forest covering karst domes and hills; 8) gardens, either as small local gardens on hillsides in the karst hills or foothills of the Massif de la Hotte or expansive gardens on the Plain of Formon. The special features of the park that combine more than one of the above habitats and warrent special consideration are:
a) the tops of Pic Formon and Pic Macaya; b) the ravine of the Riviere Ravine du Sud; c) the small ponds on the Plain of Formon; d) the sinkholes on the Plain of Formon and in the karst hills of "Bwa Formon".

The characteristics and local nomenclature of each area are discussed below.

Main Habitats

1. Bwapen

The mature pine forest, or Bwapen of Parc National Pic Macaya is more difficult to describe than that of La Visite because it is more limited in extent and because it grades

into the broad-leaved forest more completely. Because most areas of Macaya receive more rainfall than La Visite and because there has been less disturbance, the broad-leaved forest has pushed into areas once occupied by pines, and a forest of giant old pines towers above a typical Rak Bwa. For this reason typical birds of the pine forest are more limited in numbers and diversity. There are a few Pine Warblers in Macaya, but not nearly the number that exist within La Visite. The endemic Antillean Siskin, which is so abundant in the Massif de la Selle, is extremely rare in the Massif de la Hotte. White-winged Crossbills appear to be irregular visitors (or only recently established) in the region. No crossbills were observed in 1975 and 1982, but crossbills were common in 1983, 1984 and 1985.

2. Bwapen Raje

The successional pine forest is restricted to areas where extensive disturbance has occured in the past. These areas, usually caused by fires, are found on the southwest slope of Pic Macaya and within the Ravine du Sud. Recent fires and deforestation for gardens on the southwest slopes of the Formon mountains are also resulting in the regeneration of pines. In most areas, however, the loss of pines has been via selective cutting of giant old pines by peasants or disturbances in more mesic locations, which do

not produce the kind of large scale regeneration of pines that result in successional pine forests (even-age stands of pines). Where towering old pines are cut a few scattered young pines may take hold, but are often crowded out by the surrounding broad-leaved vegetation. Following disturbances in mesic areas broad-leaved shrubs, trees and bamboo quickly regenerate.

3. Rak Bwa

The broad-leaved forest of the upper slopes of the Formon and Macaya mountains forms a thick cover that is characterized by scattered huge spreading Didymopanax tremulum trees. These trees, called "Bwa Tranble" trees by local inhabitants support numerous epiphytes and are excellent spots to observe birds which feed along their branches. There are numerous flowering shrubs and trees that produce fruits that are attractive to birds, such as cherries (Prunus occidentalis) and wild avocados (Persea anomala). In areas that have been slightly disturbed by wind, fires or human activities a common medium sized tree takes hold, Brunellia comocladifolia. Birds are attracted to this tree, especially Stripe-headed Tanagers. This forest type is still present in extensive stands above 1300 meters in mesic areas of both Formon and Macaya, and is best

preserved along the crest of the ridge of Formon from Pic Formon itself eastward along the crown of the ridge.

This broad-leaved forest is called "Rak Bwa" in local terminology, as it is in the La Visite area.

4. Bwa Raje

The broad-leaved forest of the upper slopes of both Formon and Macaya has been badly disturbed in recent years as Cohen (1984) has documented. This alteration has resulted from a variety of activities and events that have become more significant as people have moved higher and higher into the mountains. Intentional and escaped fires have damaged the sensive broad-leaved vegetation as they raced up the mountain slopes from below. There is also significant damage to the vegetation when a huge pine tree is cut down and a clearing made to saw the trunk into planks. Local garden patches have also been created. Where the land is open goats and sheep have been grazed. Among the most damaging phenomena of all, however, have been hurricanes and bad storms which have altered the forest significantly by blowing down large old trees and opening large areas to sunlight. As less and less forest cover is left to buffer the forest against the winds associated with these storms, the damage from each storm becomes more extensive and significant. Major hurricanes past over this

area in 1900, 1909, 1954 (Hazel), 1964 (Ciro) and 1967 (Beulah). The result is a successional forest that is very altered from the typical Rak Bwa described above. Only occassional Didymopanax tremulum trees remain and the dominant tree becomes Brunellia comocladifolia. Because the area is so cloudy and moist tree ferns survive. However the most characteristic feature of this altered forest is the carpet of climbing bamboo that grows up and over all of the shrubs and even grows into the branches of small to medium sized trees. This growth forms a thick wall that is nearly impenetrable. The growth characterized many areas of both Formon and Macaya. Some birds make use of this habitat. It is the habitat where one is most likely to find Yellow-throat Warblers, and Chat Tanagers. Emerald Hummingbirds and many species of migrant warblers also frequent this habitat.

5. Raje

On drier hillsides or where disturbances via fire or overgrazing are especially severe no forest cover occurs and the habitat is described as a Raje. In these areas, such as the southern foothills and slopes of the ridges of Pic Formon above the settlement of Formon, the northern foothills and slopes of Pic Macaya across from the settlement of Des Barriers and above Les Anglais on the

Riviere Tordieu and the upper area of the Ravine du Sud the vegetation has been reduced to weeds, scrubby thickets and patches of grass, braken fern and exposed soil. This habitat is maintained by overgrazing by sheep and goats, by cutting of the new growth and in steep areas by rock slides and shifting soils. The north and south slopes of Pic Macaya are now dominated by this habitat type. Lowland birds, especially grassquits, bananaquits and even mockinbirds are expanding there ranges upward on the mountain slopes as the true mesic forest is becoming reduced to refugial crowns of forest on the tops of the mountains.

There are few permanent gardens or settlements within the boundaries of the parks in the upper mountain area, and so no true gardens are discussed in this area. Most gardens are abandoned, or are of such rough nature that they are best described as Rajes rather than gardens. Gardens do exist along the two trails that cross the ridge of Formon from the Plain of Formon, especially the more easterly trail that crosses the ridge 2 km east of Pic Formon and descends into the Ravine du Sud at 1000 meters in the region known as "Des Glaces". New gardens are being made (February 1985) along this trail at 1650 meters on the south side, in the basin just east of the trail at 1500 meters and in the ravine at 1000 meters. These gardens were not surveyed in the transect because they did not exist during the initial stages of fieldwork, however gardens could become an

important element of the ecosystem of the high mountains of Formon/Macaya unless the use of the land by local peasants is regulated.

6. Rak Bwa Woch

The broad-leaved forest covering the karst domes and foothills along the southern and western margins of the Plain of Formon at 1000 meters elevation is very distinct from the Rak Bwa and Bwa Rage of the ridges and peaks of the Massif de la Hotte. Most trees in this habitat are low in stature and less than 20 cm in diameter. Larger trees grow in the pockets of deep soil in the depressions and valleys between the domes and hills. This habitat is mesic enough to support all important bird species of the La Hotte region. In addition it serves as a refuge for parrots which do not now occure in the disturbed forests on the windswept harsher slopes of Formon or Macaya. The area is rugged, and this Rak Bwa has been largely protected from exploitation until recent times because it is difficult to turn into productive agriculture land. It contains the largest diversity of species of plants and animals of the park. As is the Didymopanax dominated broad-leaved forest of the mountain slopes above, this habitat is described as a Rak Bwa. To differentiate the habitat, we will refer to it as a

karst influenced broad-leaved forest, or in local terms, a "Rak Bwa Woch".

7. Bwa Raje Woch

When gardens are cut in the valleys between the karst domes and the big trees are killed by fire, the extensive Rak Bwa Woch forest that stretches from the settlement of Sous Bois in the SE to Morne Cavalier below Pic Formon is broken up into small blocks or woodlots. These patches of vegetation are further altered by selective cutting for poles and lumber to build houses. The resulting patches of forest become reduced in diversity and are characterized by dense scrubby vegetation. Because the terrain is so rugged and difficult to cultivate much of it remains in forest cover, however, and we will refer to these semi-ruinate patches of forest as a "Bwa Raje Woch". As the settlement of Sous Bois and Formon grow and as the road from Les Platons is completed, the Rak Bwa Woch will be even further reduced. This is an important habitat because it is semi-protected by its rugged terrain from complete destruction and has enough diversity to support many birds as well as populations of Plagiodontia aedium (the endemic mammal known as the "Zagouti") even in very close proximity to human settlements.

8. Jadin des Platon

The area around Kay Formon has been extremely modified for agricultural purposes, and large gardens are found on the Plain of Formon, in the vallies of the karst hills between Portal Formon and Sous Bois and in the foothills of the Formon mountains to the north. These gardens are one of the most significant ecosystems in the region because they break up the natural vegetation into patches creating an edge effect and because so many weed species occur in and around the gardens. We will refer to this habitat as "Jadin des Platon" or gardens of the plateau to indicate that these gardens are different from the montane gardens of the Massif de la Hotte and the garden habitats of the Massif de la Selle (La Visite).

Special Features

1. Bwapen Tet Mon

The peaks of both Formon and Macaya are unique habitats that warrent special consideration and description. Both areas are characterized by a combination of abundant rainfall, frequent cloud cover, remote locations, isolated status (because they emerge as peaks from very different ecological zones on the steep slopes below, and neither is extensive in area). The peaks are also subject to damage

from wind and fire. The result has been a unique forest cover that is old (characterized by large trees) and a combination of pines and broad-leaved forests. It is not rich in diversity (either floristically or faunally) and the habitat is difficult to describe in any of the typical categories. We will call this habitat "Bwapen Tet Mon".

2. Gran Ravin

The ravine of the Riviere Ravine du Sud is so significant that it is often referred to as the "Gran Ravin". The slopes of both the ridge of Formon and the ridge of Macaya drain into the ravine, which is very steep. The western terminus of the watershed and ravine is the connecting ridge between Pic Formon and Pic Macaya that rises to 1900 meters elevation. The Ravine du Sud, therefore is like a box canyon or protected watershed that has an enormous natural diversity because of the steep margins, constant water supply, variable exposures and influences of the adjacent forest communities occupying in bands on the steep slopes rising to the peaks Formon and Macaya towering above. The ravine has elements of all of the ecosystems of the park. The habitat has been badly damaged by human activities and overgrazing, and is very degraded at an increasing rate. We will refer to this habitat collectively because it has so many different

individual components in such a limited geographical area. The term we shall use for this ecosystem is "Gran Ravin".

3. Nan Dlo Formon

The Plain of Formon is inhabited and significantly altered and cut over. There are several small ponds that occur in the area, however, that represent natural sources of water for plants and animals, and important habitats in themselves. The ponds have been so damaged that they are now muddy basins where cattle wallow and drink, and where gardens have been planted right up to their edges. Even so, birds such as the rare Least Grebe were observed in the ponds, and these important sources of water should be protected and restored to their natural state. We will refer to these habitats as Nan Dlo Formon or Formon place of the water.

4. Gwo Tou La Hotte

The area of the Plain of Formon and the adjacent karst hills as well as the north slope of the upper Ravine du Sud are characterized by caves and sinkholes. The large caves on the north side of the Ravine du Sud have water emerging from them, and are confirmed nesting and roosting sites for Collared Swifts and Barn Owls. The caves are not nearly as extensive or as associated with mesic habitat as are the caves within the Parc National La Visite, but they warrent special consideration and will be referred to as "Gwo Tou La Hotte".

MATERIALS AND METHODS

A. Terminology.

The spelling of Creole names is based on Valdman's Dictionary of Haitian Creole (Valdman, 1981). While there may be objections to the usage in certain cases, the spelling is always based on this standard source Creole names are used throughout the text unless there is a standard French name with official status, such as a place name on a published map.

The names of the birds are presented in the discussion section as: 1) English name and scientific nomenclature follows the current checklist by the American Ornithologist Union (AOU,1983); 2) Haitian Creole name as determined by

our own fieldwork and the work of Nelson (1979), and with the spelling as presented in Valdman's Dictionary of Haitian Creole; 3) French name as stated in Bond's Birds of the West Indies; 4) Spanish name as determined from the list of Aves de la Republica Dominicana prepared by La Sociedad Dominicana de Ornitologia.

The status of each species is defined as a percent figure for each habitat. The overall status in the park is defined as: 1) Common (readily encountered during any week of observations of a particular season); 2) Uncommon (encountered more than once but less than 5 times during any week of observations of a particular season); 3) Rare (not encountered on a regular basis but recorded as present). In addition, the term threatened is used to designate birds that are in danger of being reduced in numbers or eliminated by conditions that are found in the park even though the birds current status may be common or uncommon. The term endangered is used to designate birds that are uncommon or rare that are likely to be eliminated from the park unless immediate action is taken to alter current land use practices or affirmative action is taken to protect the species in some manner. In the case of species designated as threatened or endangered specific recommendations are presented to suggest ways that the status of the species can be improved.

The organizations working together on this project will be abbreviated in the course of the discussion for clarity and simplicity. These organizations and their acronyms are:

1) Florida State Museum (FSM).

The Florida State Museum is part of the University of Florida, and some participants were graduate students or faculty members of other departments of the University. However, since the project was coordinated by the museum, all University of Florida personnel are considered part of the Florida State Museum.

2) Ministere de l'Agriculture des Ressources Naturelles et du Developpement Rural (MARNDR).

3) Institut National Haitien de la Culture et des Arts (INAHCA).

4) University of Vermont (UVM).

5) Organization of American States (OAS).

6) U.S. Agency for International Development (AID)

B. Bird Census Techniques

1. Daily lists. Data were collected on a daily basis as to: 1) what species were observed; 2) how many individual birds of each species were seen or heard; 3) what habitat each species was observed in; 4) any noteworthy information on habits, vocalizations, associations or densities. These daily notes were summarized and analyzed on a weekly basis,

and used to make decisions as to where to set up transects and mist nets as well as provide basic information on the avifauna of each park.

2.Mist nets. In appropiate habitats mist nets were set up and monitored from dawn to dark. Birds captured in these mist nets were evaluated as to species, sex and reproductive status. Photographs were taken of all species, and for species of special concern a series of photographs were taken for later analysis. For example the waterthrush observed on La Visite which appears to have the streaked throat and yellowish coloration of a Northern Waterthrush. However a close comparison of our series of photographs taken of several individuals with a large series of specimens in the collections of the Florida State Museum indicated that the birds were probably Louisiana Waterthrushs (see species account). Mist nets were set up and monitored at the same location in each park for at least a week, and repeated at different seasons and in subsequent years.

Mist nets were set in locations such as ravines or along riparian habitats where observation of birds was difficult because of the thick vegetation and secretive habits of certain species. Some bird species were frequently captured in mist nets but not located in transects or via regular observations. When unusual birds were encountered in our transects mist nets were used to

attempt to capture them so that it would be possible to confirm the status of the species (i.e. the presence of Lincoln Sparrows in Parc National La Visite, the possibility that Black-crowned and Gray-crowned Palm Tanagers are hybridizing in Parc National La Visite, the presence of White-winged Warblers in Parc National Macaya).

When individual birds were accidentally killed in the nets in the course of the study they were preserved and deposited in the collections of the Florida State Museum.

3.Transects. In order to obtain quantitative information for analysis and to determine habitat associations of each species, transects were established through specific regions of each park and run on a daily basis. Each major transect was run for at least 7 days and during two subsequent seasons over a two year period. The route of each transect was carefully selected to pass through each of the habitats discussed in the Introduction, and to traverse each habitat in the approximate percentage that the habitat occurs in the park.

Transects were conducted following the technique of Emlen (1977). One or two observers walked the transect for a four hour period beginning at 0600 hrs. On the transect, species were identified by either visual contact or by song, call or note. Data were recorded on a standardized sheet in a field notebook as to: 1) species; 2) number of

individuals; 3) time; 4) habitat; 5) type of observation (visual, auditory); 6) distance from observer.

4.Special Counts. The habits of some species do not allow for an accurate analysis via mist nets or transects. Data on these species, therefore, were compiled as a separate category and treated on an individual basis. These species and the technique used to census them are listed below.

1. Parrots and parakeets were recorded as numbers of individuals in flocks, and where the flocks were feeding or roosting.

2. Hawks and Collared Swifts were recorded as numbers of flying individuals observed. Efforts were made to locate nests of Collared Swifts in caves. Swifts feces were used to determine the utilization of caves by this species.

3. Barn owls were counted as the number of vocalizations per night. We also sought them in caves where they roost and were able to directly census them by observations in caves.

4. Black-capped Petrels were identified by locating the area of their vocalization at night. The number of individual birds was determined by counting the number of complete distinct vocalizations per minute over a ten minute period and then averaging these data (Table 7). Where possible, more than one individual was used to count the vocalizations and several different observers counted

petrels at different locations to establish the locations of the areas where the nesting burrows were located and the directions the birds were coming from as they returned from the sea in the early evening hours.

5. Analysis. The data were compiled into tables to list what species were present. All observations were tallied by habitat to produce a count of the number of times each species was encountered in each habitat, and then these data were converted to a percentage figure. This was done in total as well as by the separate categories of observation, transect or mist net. The data were further broken down as total number of individual birds per sample period, total number of species and average number of individual birds encountered per day (by separate observation period).

6. Data. The data are discussed for each species in the "Species Accounts" section that follows. In addition, data are summarized in seven tables presented at the end of the text. Table 1 lists endemic species. Table 2 lists the birds of Parc National Pic Macaya. Table 3 lists the birds of Pic Macaya. Table 4 lists the birds of Parc National La Visite. Table 5 lists the habitat preferences for the birds of Parc National La Visite by season. Table 6 compares the habitat preference for each specific habitat. Table 7 compares vocalization data on Black-capped Petrels.

C. Itinerary.

Initial fieldwork was done in the Pic Macaya area in May of 1975 when an expedition from the University of Vermont sponsored by the National Geographic Society explored the north side of Pic Macaya between May 16 and 29. The route taken departed the town of Beaumont on the Les Cayes to Jeremie road and passed through the local settlements of Des Barriers at 1000 elevation north of the peak, down to the Riviere Tordeau (called Riviere Guinaudee on some maps) and the settlement of Les Anglaise at 700 meters and up the north side of Macaya to a cluster of houses known as Zapoti, at 1216 meters. Mist nets and transects were run in the forestal mountain side above Zapoti, and a daily log was maintained including data from a trip to near the top of Pic Macaya. Fieldwork was continued in January of 1983 when a team from the Florida State Museum departed Les Platons and passed through Sous Bois and Portal Formon on the way up the ridge of Formon to a mountain camp at Kay Ogile at 1650 meters elevation. A trail was begun along the ridge of Formon. Additional fieldwork undertaken in January 1984 via the same route when a large team from the Florida State Museum surveyed the same area and worked with local peasants to establish a new trail along the ridge of Formon from 1850 meters above Kay Ogile westward across the peak at 2200 meters known as Le Ciel ("Le Syel" in

Creole) and along the narrow connecting ridge to the top of Pic Formon. The trail then followed the narrow steep ridge connecting Pic Formon to Pic Macaya, although it was necessary to establish the final leg of the trail by a separate team climbing up Macaya from the headwall of the Ravine du Sud. A base camp was established on the top of Pic Macaya in February 1984. Fieldwork was done in the same area in May of 1984 by a team from the Florida State Museum, and in January and February of 1985 by a joint expedition from the Florida State Museum and the University of Vermont which was assisted by National Parks personnel from MARNDR and INAHCA of the Government of Haiti. A final period of fieldwork was completed in Parc National Pic Macaya in November 1985.

Initial fieldwork in the Morne La Visite area was undertaken in September of 1977 when CAW worked within the boundaries of what is now the park, and visited Morne La Visite. The route passed through Seguin and along the road to a large sawmill that is now the site of the park headquarters and on the Morne La Visite and Morne Cabaio. Subsequent work in the area was undertaken March 1982 when a small group from the Florida State Museum traveled with Paul Paryski to Morne La Visite by way of the new road from Furcy via Kay Jacques. A larger team from the Florida State Museum surveyed birds in the park in May 1982, December 1983, and May 1984. A large joint expedition from the

Florida State Museum and the University of Vermont with assistance from National Parks personnel from MARNDR and INAHCA worked in the park in January 1985 and completed the survey of birds presented in this analysis. All of these expeditions followed the same route to the park from Furcy, and made camps at the park headquarters at La Scierie as well as at an established base camp below Morne La Visite. An additional base camp was established on Tete Opaque and used in January 1985 to survey birds in the eastern areas of the park and conduct counts for Black-capped Petrels.

SPECIES ACCOUNTS

Tachybaptus dominicus — LEAST GREBE

Ti Plonjon or Ti Koule

Petit Plongeon

Tigua

Description: One of only two species of grebes known to occur in Hispaniola, this little aquatic bird is found in fresh water lakes, ponds and slow moving rivers and feeds on aquatic insects crustaceans and small fish. It is small in size, and lacks a distinct tail. The slender beak is grey, the eyes are yellow and the feet are green. There is a white patch on its wings.

Habitat Distribution: The species was not observed in Parc National La Visite and the only suitable habitat would be in the pool below the large waterfall on the southwestern boundary of the park. In Parc National Macaya the species was observed in the small pond near Kay Formon. Because the Least Grebe requires ponds or slow moving rivers it would not occur anywhere else in the Macaya Park.

Seasonal Status: Presumably year round resident.

Status in Parks: Unknown in La Visite; uncommon and endangered in Macaya.

Recommendation: The small ponds (Nan Dlo la Hotte) on the Plain of Formon should be protected by allowing a band of vegetation at least 30 meters thick to grow around them. No gardens should be allowed adjacent to the ponds and no cattle, goats or sheep should be allowed access. Trails to the ponds can allow limited access for a few people to make use of the water.

Special Comments: This species is shy and difficult to observe. There are few records in Haiti, coming mainly from Etang Miragoane and near Port-de-Paix. Dod (1981) classified it as rare and endangered in the Dominican Republic. This species flies more readily than most grebes and may be adapted to utilizing temporary ponds.

Pterodroma hasitata — BLACK-CAPPED PETREL

Chanrouan Lasel

Chat-huant

Diablotin

Description: This seabird is about the size of a crow (38 cms) and is grey-black on the wings and back above and white below on the body. The neck and base of the tail are white and there is a distinct black cap on the head. The beak is dark in color, hooked at the tip and has a pair of external tubular nostrils. They fly very fast and are observed over land in Haiti only at night when they return to their breeding areas in the high mountains. They are best identified by their distinctive vocalizations which can be heard off the cliffs where they breed. The vocalization resembles a "hum" with a distinct sharp note (tick-ek). Wingate (1964) described 3 distinct vocalizations by courting birds, all of which we heard and identified. These vocalizations are: 1) "a long drawn out aaa-aw ending abruptly with eek, repeated several times in succession..."; 2) "a long drawn out ooow ending abruptly in uk, repreated several times in succession..."; 3) "...a series of ... whines and yelps like a hurt puppy - week-week-week-cueek cu-u-cek cu-u-eeck".

Habitat Distribution: The species nests on forested cliffs in mountainous areas, which in Haiti are above 1500 meters in elevation. They excavate burrows that are 1-3 meters deep or utilize rock crevices on the face of cliffs. In Parc National La Visite the species has been known to occur on the north face of the Massif between 1500 and 2000 meters elevation since 1963 when Wingate (1964) reported their presence and described their status. Wingate reported two colonies between Morne La Visite and Morne Cabaio, two colonies between Cabaio and Tete Opaque, and one colony on the southwest boundary of the park. In total, he estimated the existance of 11 colonies along the Massif de la Selle, each colony containing a minimum of 50 pairs.

In Parc National Macaya there is comparable habitat on upper slopes of both Pic Formon and Pic Macaya above 1500 meters elevation. In 1975 we searched the north slope of Pic Macaya for petrels without success. In 1982 Wingate and Paul Paryski searched the south areas of Pic Formon without success. In 1984 Paul Paryski and CAW located and evaluated the status of a colony of petrels on the south facing cliffs of Pic Macaya above 2000 meters elevation. In 1985 we documented the probable presence of a colony of petrels on the north facing cliffs of Pic Formon.

Seasonal status: The Black-capped Petrel arrives at its breeding site in the mountains of Haiti (and a few sites in

the Dominican Republic) beginning in late September and continuing until November. Peak breeding occurs in late December, January and February. Eggs are laid during January and February. The young are fledged in the spring and vocalizations are no longer heard after late April. From May until late September (5 months) the birds are presumably away from their breeding grounds in Haiti.

Status in Parks: In Park National La Visite Wingate estimated that in 1963 there were 5 colonies of 50 pairs of petrels (500 birds). Our estimate is that there are now fewer colonies within the boundaries of the park. The colony still exists on Morne La Visite and there are two colonies in the Tete Opaque area within the boundaries of the Park. By Wingate's standard of 50 pairs per colony, the park would contain 300 birds (a 40% reduction in 20 years). We are not familiar with Wingate's census technique which is based on his experiences with known populations of the closely related Cahow from Bermuda, so we are not able to accurately relate our estimate of the number of birds in each colony to Wingate's estimate. Our estimate is based on the number of complete vocalizations (see description of vocalizations in the Methods section above) recorded per minute, and are presented in Table 7.

In Parc National Macaya a significant breeding colony of Petrels occurs on the south face of Pic Macaya. The

colony is concentrated above 2000 meters elevation west of the ridge connecting Pic Formon with Pic Macaya. A second group of birds can be heard from the south side of Pic Macaya that is vocalizing south and west of the above colony. We feel that this colony is located on the northwest face of Pic Formon. However, our efforts to document the exact location of a colony on Pic Formon were unsuccessful because of repeated bad weather (high winds and rain). Our studies of petrel populations on Pic Macaya and Morne La Visite indicate that on nights with high wind and rain no vocalizations can be heard even at sites with large colonies. For this reason we feel that the colony on Formon exists even though we did not find the exact location of the birds that could be heard in the distance SW of Pic Macaya.

In both Parc National La Visite and Parc National Macaya the Black-capped Petrel is common and threatened.

Recommendations: The Black-capped Petrel is vulnerable to exploitation, predation and habitat destruction. Haitians have been documented to feed on petrels. By lighting a fire on a cliff top above a colony of petrels on a foggy moonless night birds can be easily captured as they fly near the fires and crash into the fire or nearby vegetation (Wingate, 1964). This technique, called "sen sel", works only when the species is breeding between January and March and when the fires are set above the colony. No fires should be

allowed on the peaks of the mountains during the winter months, and no peasants should be allowed to capture petrels. Additional documented problems for petrels occur when trails or gardens are located near petrel habitats. We have documented dogs digging petrels from their burrows (CAW) and we suspect petrels are also vulnerable to predation by cats. We recommend that all dogs and cats in the park be killed and that no gardens or trails be allowed anywhere on the north face (Nan Nway) of the massif within the boundaries of the park.

The habitat of the petrel depends upon vegetation to protect the burrows and rock crevices. This habitat is easily destroyed by the fires that sweep up the mountainside from below. We recommend that no gardens or fires be allowed in a buffer zone that extends down to an elevation of at least 1400 meters elevation below the cliffs within each park. This buffer zone should extend all the way to the base of the mountains and the flat areas below (i.e. along the Nan Nway region of the massif between La Visite and Tete Opaque. In the Formon-Macaya area it should include all of the "Gran Ravin" of the Riviere Ravine du Sud and headwaters of the Riviere Port-a-Piment and Riviere des Roseaux to the SW of Macaya. The latter area is currently under the jurisdiction of a private coffee cooperative (UNICORS). The region of this private inholding within the boundaries of the park that is above 1600 meters elevation

is extremely important to the petrels and should be protected. This area should not be planted in coffee nor utilized for gardens since it will damage the habitat for petrels.

The effects of the mongoose and Rattus on the Black-capped Petrel is undocumented. Rats may destroy petrel eggs and can easily kill young birds. Bell and Keith (1983) concluded that rats could affect the reproduction of Dark-rumped Petrels in the Galapagos Islands, and that "even though the facts are not clear...rat control should be undertaken in petrel colonies". We do not recommend the control of rats in Parc National La Visite until a way can be found to guarantee the security of the populations of Plagiodontia aedium that occur in close proximity to the colonies of petrels all along the ridge of La Visite (Nan Nway region).

The mongoose, introduced in Haiti in 1907 is now widespread up to even high elevations of the Massif de la Selle and Massif de la Hotte. It occurs above 2000 meters in both ranges, and therefore is found clearly within the area of all known breeding colonies of petrels). The effect of the mongoose on Black-capped Petrels needs to be studied, since the animal is now common in La Visite.

We recommend that a study of the effects of Black rats, Norway rats and the mongoose be undertaken to determine the

effects of these animals on the reproductive success of petrels.

We recommend that goats and sheep be removed from both national parks since they are capable of destroying valuable forest cover and disturbing nesting petrels.

Special Comments: The Black-capped Petrel lays a single egg, and like the two extant mammals Plagiodontia aedium and Solenodon paradoxus which only have one young, the growth potential for a population of petrels is limited. Before 1850 the species was known to occur in the higher mountains of Martinique, Dominica, Guadeloupe and Jamaica as well as Hispaniola (and presumed to have occured in Cuba). They were presumed to have become extinct in Dominica by 1881, although they were reported on Diablotin Mountain in 1977 (Bond, pers.comm.). They disappeared from Martinique and Guadeloupe in the 1840's, in Jamaica sometime in the late 1800. The only known localities where Black-capped Petrels are documented to still breed are Pic Macaya (and presumably Pic Formon), the Massif de La Selle of Haiti, and two small colonies in the nearby Sierra de Baoruco Mountains of the Dominican Republic. The petrels also occur and probably breed in the Sierra Maestra mountains of Cuba (Bond, 1978). The status of the Black-capped Petrel in Haiti, therefore is critical to the well being of the

species in general, and measures should be taken to protect the petrel habitat in both national parks.

Accipiter striatus SHARP-SHINNED HAWK

Malfini Mouch

Emouchet or Petit Malfini

Guaraguaico de Sierra

Description: This small hawk is about the size of a Sparrow Hawk (Gri Gri) but differs in having shorter more rounded wings and a longer tail that has black and white bands instead of black and chestnut. The female is considerably larger than the male. It flies rapidly and directly, often just above the treetops in the early morning, but can be observed soaring high in the sky at midday.

Habitat Distribution: This species inhabits forested areas in the mountains. In Parc National La Visite it occurs in thick stands of pines and in ravines with Rak Bwa or Bwa Raje vegetation. In Parc National Macaya it occurs in the Rak Bwa and Rak Bwapen of the high ridges and on the peaks of both Macaya and Formon, as well as in the Rak Bwa Woch on the Plain of Formon.

Seasonal status: Year round resident.

Status in Parks: Uncommon in both national parks and threatened.

Recommendations: This hawk requires large blocks of forested habitat. It should benefit from forest

conservation practices in the national parks and the buffer zones surrounding the parks.

Special Comments: This hawk is secretive and difficult to observe. Wetmore and Swales (1931) observed that the species was "...little known and until recently few have been taken". They refer to the species as locally common and an inhabitant of wilder sections of the forested hills of the interior. Dod (1981) refers to this hawk as rare in the Dominican Republic.

Buteo jamaicensis RED-TAILED HAWK

Malfini or Malfini Ke Wouj

Gros Malfini or Buse

Guaraguao

Description: This large broad-winged hawk has a broad, round tail that is rufous-red on the upper side. The bird frequently soars high in the sky and is observed circling over open areas, or soaring along the ridges of the high mountains in each park, and can be heard making a rasping scream (Keeer-r-r). The somewhat similar Ridgway's Hawk, which is endemic to Hispaniola, is much smaller in size and darker in coloration, and is found at lower elevation. Ridgway's Hawk was not observed in either of the parks, but has been recorded from areas near each park in low elevations.

Habitat Distribution: The Red-tailed Hawk does well in open areas with some forest stands, and is well suited for the environments of both national parks.

Seasonal Status: Year round resident.

Status in Parks: Common in both national parks.

Special Comments: This hawk is easily observed and is most common in mountainous areas such as the parks. It can feed on birds, bats and reptiles and may kill some valuable

endemics such as parrots. It also feeds on rats and mice, which in some areas make up a significant part of the diet of Red-tailed Hawks.

Falco peregrinus PEREGRINE FALCON

(No local Creole name in Haiti)

Faucon

Halcon de Patos

Description: The largest of the falcons of the West Indies, it has long pointed wings and a narrow tail. The coloration is slaty black on the upper parts and white below, with a clear slaty black streak on the side of the head and throat (ear region).

Habitat Distribution: This species is usually reported to inhabit lagoons and small rocky islets where it feeds on shorebirds. We have one report of this species in the national parks where it was observed flying over the Rak Bwa of Formon, probably in route elsewhere.

Seasonal Status: Winter visitor

Status in Parks: Rare

Recommendation: This species and all raptors should be protected by law in all regions of Haiti.

Falco sparverius — SPARROW HAWK

Gri Gri or Ti Malfini

Grigri or Vers Mouchette

Cuyaya or Cernicalo

Description: This small falcon with a rufous back and tail is often seen perched in tne open on a pole, dead tree or tall spike of a royal palm tree. It often hovers over one spot as it searches for food. Its often heard vocalization is a high pitched "klee, klee, klee" or "killy killy killy" which is so noticeable that it is the reason for the local names for the species.

Habitat Distribution: The species is characteristic mainly of open country. Wetmore and Swales (1931) noted that it does not occur amid "dense rain forest jungles" and is more abundant in semi-arid sections than elsewhere. The open areas of both national parks provide suitable habitat.

Seasonal Status: Year round resident.

Status in Parks: The GriGri is very common in La Visite where it occurs throughout the park. The bird is uncommon in Parc National Macaya where it was only observed in open areas of the Plain of Formon.

Recommendations: This species is not a natural inhabitant of the regions of the national parks, and its presence is an

indication of the disturbed status of the environment caused by clearing the forest. No special effort should be made to maintain the open habitats in the parks, but because the species is now so common in upland areas throughout Haiti we suspect that this small falcon will always occur in both parks.

Special Comments: The Gri Gri has become much more common in Haiti in the last several decades, and we have observed many more individuals in montane areas in the last 10 years. The reason for the increase in numbers of the species are unclear, but is undoubtedly related to the loss of forested habitats in mountain areas as a result of poor land use practices.

Colinus virginianus — COMMON BOBWHITE

Kay

Caille

Codorniz

Description: This small chicken-like bird has a white stripe over the eye and a short dark colored tail. It is frequently seen in covies or in pairs and is most easily identified by its vocalizations, a clear, whistled "bob-white" or "bob-bob-white".

Habitat Distribution: The species is found in fields and open pine woodlands, a habitat that occurs in both parks.

Seasonal Status: Year round resident. (INTRODUCED)

Status in Parks: Common in Parc National La Visite; uncommon in Parc National Macaya where only a few were heard on the Plain of Formon.

Recommendations: This is an introduced species, and no special recommendations are made to encourage its presence in either national park.

Special Comments: The Bobwhite was introduced into Haiti during colonial times, and was known from the Leogane area in the late 1700's. The Bobwhite was described by Moreau de Saint-Mery (1797). It is especially common in sections of

La Visite where it occurs in open pine savannahs and among the dried corn stalks of mature corn fields. It is curious that it is not more common on the Plain of Formon, but this area may have been isolated from surrounding open areas by regions of Rak Bwa which are unsuitable for the Bobwhite. Mongoose and cats prey upon Bobwhite, and because the species nests on the ground the eggs and young are succeptible to predation by these mammals as well as rats, which will probably limit its numbers.

Numida meleagris — COMMON GUINEA-FOWL

Pintad Mawon

Pintade Marronne

Guinea

Description: This grayish-black chicken-like species is profusely spotted with white and has a bony red colored crest on the top of the head. Its loud distinctive vocalization, "pi-trac, pi-trac, pi-trac" is the best way to locate this secretive species.

Habitat Description: The habitat of this introduced species is thorny scrub, semi-arid regions and areas of cultivation. Bond (1928) found them ranging up to 750 meters in the Massif de La Selle but in general Guinea-fowl are more common at lower elevations. They are often kept as domestic fowl and it is hard to distinguish between domestic and "wild" (=feral) birds.

Seasonal Status: Year round resident. (INTRODUCED)

Status in Parks: Unknown, since it is difficult to determine if an individual or flock is domestic or free living. Peasants do keep pintad in areas around and in the parks. In both parks, however, the pintad mawon is uncommon and was not observed in regular transects. Wild flocks are

generally difficult to see and are more often detected by their calls and soil-bath tracks.

Special Comments: The pintad was introduced into Hispaniola early in colonial times about (1508) and was widespread in the early 1700's. In lowland areas they were once extremely abundant, but their numbers have been significantly reduced, presumably by the mongoose. The bird is relevant in the history of Haiti and is of great economic importance to the Haitian people. However, the species is vulnerable to predation by feral and introduced animals because it nests on the ground, and it is unlikely the Pintad will ever become an abundant species in the parks because of the presence of the mongoose and the unsuitability of high montane environments, especially well forested regions.

Aramus guarauna LIMPKIN

Gran Kola or Poul Joli

Grand Colas or Poule-a-Jolie

Carrao

Description: A brown colored bird, streaked with white, with long dark legs and a long decurved bill. It is quite terrestrial and secretive, and is difficult to observe but easily identified by its vocalization which is a piercing, often repeated wailing "gua-re-ao" or "Ca-r-ra-ao". When disturbed it utters a short "kwaouk".

Habitat Description: The limpkin is principaly a lowland species but can be found in dense, humid forests (Rak Bwa) were they feed on land snails. The Limpkin is found in the Rak Bwa Woch of the Plain of Formon and in the Rak Bwa of the mountains of both Parc National La Visite and Parc National Macaya.

Seasonal Status: Year round resident.

Status in Parks: The limpkin was not encountered in our regular transects, but was heard at dusk in both parks. We would classify the Limpkin as rare and threatened (by habitat destruction and perhaps predation by the mongoose) in both parks.

Recommendations: The preservation of large tracks of Rak Bwa is essential to the survival of the limkin.

Special Comments: It is not known why this species is becoming so rare. Even Wetmore and Swales (1931) noted that "it is probably less common now than formerly" and even though it was described to Wetmore as occurying both in upland areas and along the coastal plain, he never observed or heard a limpkin during his investigations of the birds of Haiti.

Charadrius vociferus — KILLDEER

Kolie Doub

Collier

Ti-ito or Fraile

Description: This ground dwelling plover is brown with a white breast that has two black bands across it. In flight it has a golden-red rump and a long tail. It is easily identified by its vocalization, a loud "kill-deer" or "kill-deeah" which is frequently repeated.

Habitat Distribution: The killdeer, (Kolie Doub) is found in open meadows, such as the open savannahs below Morne La Visite and the Plain of Formon.

Seasonal Status: Year round resident.

Status in Parks: Common in Parc National La Visite; uncommon in Parc National Macaya.

Special Comments: The killdeer nests on the ground, and is vulnerable to predation by the mongoose, feral cats and rats. Verrill and Hyatt reported it common in 1909 in a number of locations but Wetmore and Swales (1931) found it less abundant. We believe we have noticed a decline in the numbers of killdeer in Parc National La Visite since 1977. The mongoose, which is now common in the park may be

responsible for the reduction in the numbers of the killdeer in La Visite.

Actitis macularia — SPOTTED SANDPIPER

Bekasin Zel Tranble

Chevalier branlequeue

Playerito Manchado

Description: Brownish above, white below with black spots. Always alone (never in flocks). Constantly bobs or teeters up and down between steps. Its vocalization is a loud "peet-weet".

Habitat Distribution: The spotted sandpiper is always found near water, and in the parks along the edges of rivers such as the Riviere Blanche in La Visite and the Riviere Ravine du Sud in Macaya.

Seasonal Status: Winter visitor.

Status in Parks: Not recorded in our transects but observed in both parks in suitable habitats on the rivers. We classify the species as common on the Riviere Blanche and Ravine du Sud.

Columba squamosa — RED-NECKED PIGEON

Ranmye Kou Wouj

Ramier Cou-rouge or Ramereau

Paloma Torcaza or Paloma Turca

Description: Dark slate-grey in color with the hindneck chestnut and metalic purple. In the male the skin around the eye is reddish (yellow in females). The feet and base of the bill are red. The vocalization is a loud "croo-cru-cru-crooo".

Habitat Distribution: The Ranmye Kou Wouj or Ranmye as it is frequently called is found in dense stands of Rak Bwa. On Macaya, 84% of the observations were in Rak Bwa and 16% in Bwa Raje. On La Visite 50% of the observations were in Rak Bwa habitat.

Seasonal Status: Year round resident.

Status in Parks: In both parks the species is common in Rak Bwa habitats, but uncommon otherwise. On La Visite 100% of the observations were in Rak Bwa habitat, but since this habitat is limited on La Visite few birds were seen (seven). In Macaya 84% of the observations were in montane Rak Bwa, and on the Plain of Formon 52% of the observations were in Rak Bwa Woch and 48% in Bwa Raje Woch. In summary we believe the Red-necked Pigeon is uncommon and threatened in

Parc National La Visite because of the loss of Rak Bwa habitats, and common in Parc National Macaya.

Recommendations: This large pigeon is an important element of the mesic broad-leaved forests of the parks, which must be preserved if this species is to survive.

Special Comments: Wetmore and Swales (1931) noted that in Haiti the birds were abundant in forested areas, but not found elsewhere. They observed them regularly in the Massif de La Selle. Dod (1981) reports that there numbers are very reduced in the Dominican Republic. Quantitative data from our transects indicate that while the species can occure in mature pine forests (Bwapen) it is closely associated with mesic sections of this forest, and with mature stands of broad-leaved forest. This species usually was observed singly or in pairs, and we never observed large flocks.

Zenaida macroura — MOURNING DOVE

Toutrel Ke Fin

Tourterelle Queue-fine

Tortola, Fifi, Rabiche

Description: The dove is smaller and slimmer than the Red-necked Pigeon and has a long pointed tail which has large white spots visible when the bird flies. The wings produce a whistling sound when the Mourning Dove flies. The vocalization is very characteristic and an easy way to identify the species, a repeated and mournful "ooah, cooo, cooo, coo" or "cua, cu, cu, cu".

Habitat Distribution: The Mourning Dove inhabits open country such as fields, pastures, glades in woodlands and open pine forest such as Rak Bwa, but can be found in Bwa Raje. Therefore areas of the parks that are characterized by open Bwapen or disturbed Raje are most suitable for the Mourning Dove. This habitat is abundant in Parc National La Visite and less abundant in Macaya.

Seasonal Status: Year round resident.

Status in Parks: The Mourning Dove is very common in La Visite. In December 47% of the observations were in the Bwa Pin, 25% in the Bwa Raje, 20% in Jadins and 10% along the edge of Rak Bwa. In May 42% of the observations were in

Jadens with the other observations scattered throughout all habitats in the park. In Parc National Macaya the Mourning Dove was not observed on the upper mountain, while a few were seen on the Plain of Formon along the edge of the Rak Bwa Woch. We believe the status in the parks to be: La Visite - very common; Macaya - uncommon.

Special Comments: The common status of the Mourning Dove in La Visite is an indication of the disturbed nature of the habitat as well as more suitable conditions in open pine lands of La Visite as opposed to the thicker forests of Macaya where there is more abundant rainfall.

Amazona ventralis HISPANIOLAN PARROT

Jako

Jacquot

Cotorra

Description: This species is bright green in coloration with a short tail. There is a white spot on the forehead above the bill. The abdomen is red. The crown, sides of head and wings are blue. Parrots are very noisy and call while flying as well as when perched in a tree. The song is a continuous series of screems and screeches. Any one of three main series can be heard, but only one series is heard at a time. One series is "keeek, keeek, keeek, keeek", and is often heard from flying birds. Another series is "che-week, che-week, che-week", and a third series is "weeek, weeek, weeek, weeek". Any one series can be repeated on and on, and be very loud.

Habitat Distribution: The Jako feeds on wild fruits and nests in cavities in large old forest trees. The habitat of the species therefore is mature Rak Bwa. This habitat occurs naturally in both parks, although it is more abundant in Parc National Macaya.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: The Jako should be abundant in both parks. We observed large numbers of this species in flocks of up to 80 individuals in the Massif de la Hotte in the past (1975) and Wetmore and Swales (1931) noted that parrots ranged to the top of Pic Macaya. Both Bond and Wetmore record significant numbers of parrots on the ridge of La Selle. We have observed parrots in numbers in the Sierra de Baoruco mountains of the Dominican Republic, near the Haitian frontier, at nearly the same elevation as Parc National La Visite. However, during the course of the study we found the Jako to be almost missing from La Visite, and common in the Rak Bwa Roch forest of the Plain of Formon where small flocks are easily observed. No large flocks were seen during the course of the study in the Formon area except for one flock of 24 birds in November 1985 near Bwa Deron. No parrots were seen on the upper slopes of either Pic Formon or Pic Macaya.

The status of the Jako in La Visite is rare and endangered. In Macaya the species is rare and endangered in the upper mountains, and common but threatened on the Plain of Formon.

Recommendations: One problem for the Jako is that it is a favorite household pet in Haiti, and young birds are easily taken from their nests. The keeping of Jakos as pets in Haiti must be stopped and all selling or trading of Jakos in

market places must be prevented. Jakos found for sale in market places or by private individuals should be confiscated although it would be too controversial and damaging to the public image of the conservation program to confiscate pet parrots from households. Forest practices, especially in the parks and surrounding buffer zones should preserve and promote Rak Bwa habitats. We recommend placing artificial nest boxes in the parks to promote breeding in these cavity nesting birds.

Special Comments: The Jako is becoming much less abundant. Dod (1981) refers to the species as reduced in numbers and on the way to extinction in the Dominican Republic. Only 50 years ago there were large flocks of Jakos in the mountains of Haiti. Loud screeching calls invariably announced the coming of a flock amid the forests clotning the great ridges or in the broad open valleys in times gone by. An active conservation program must be initiated if this species is to be saved from extinction. It is important to develop and enforce legislation to prevent exploitation of the species as a household pet and item of commercial value as well as to protect its habitat in the region of the national parks.

Parrots are more common in the mountains than in lowland areas, but can be found in dry lowland habitats. They are known to nest on Isla Cabritos in Lago Enriquillo

(Ottenwalder, 1978) which is in the Cul-de-sac Plain of the Dominican Republic.

Aratinga chloroptera — HISPANIOLAN PARAKEET

Perich

Perruche, Maitresse

Perico, Periquito

Description: This species is entirely green except for red under the wing, and has a long pointed tail. These characteristics distinguish it readily from the square tailed Hispaniolan Parrot which is similar in size and also flies in large flocks over similar habitats. The song of the Perich is similar to that of the Jako but is less harsh and less varied. The most common song is "cheeeet, cheeeet, cheeeet, cheeeet" repeated over and over.

Habitat Distribution: Like the Hispaniolan Parrot (Jako) the Perich is a cavity nesting species that feeds on wild fruits and seeds, and requires large tracks of Rak Bwa habitat with mature trees. This important habitat of forested mountains is present in both national parks. The Perich appears to range more widely than the Jako, and flocks descend to lowland areas of the Cul-de-sac and can occur in drier, more open areas of the mountains if food is available.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: The Perich was found in La Visite at all times of the year. Almost 50% of all observations were in the Bwapen habitats, although parakeets were seen in all regions of the park, and sometimes were observed feeding on corn in agricultural areas. The Periche roosts in trees near the park headquarters and flies in small flocks of 5-8 individuals across the park towards Morne La Visite and beyond. Rarely a flock of up to 30 birds was seen, usually in January feeding in corn fields.

The Periche was not observed in Parc National Macaya. Wetmore and Swales (1931) also observed that the Periche were missing from the Massif de La Hotte area and observed that "apparently our record of this species between Trouin and Jacmel marks the western point on the Tiburon Peninsula at which it has been reported, though there has been extensive field work in the region beyond".

Therefore, the status in the parks is: Parc National La Visite: common; Parc National Macaya: absent.

Recommendations: The same as for the Hispaniolan Parrot. No hunting or commercial trade should be allowed. The bird must not be killed by peasants or farmers who sometimes perceive it to be an agricultural pest.

Special Comments: This beautiful species is uncommon elsewhere in Haiti except for the Massif de La Selle and adjacent lowland areas, and so the population within the

boundaries of the park is especially important. The species ranges widely as it feeds during the day and so it must be protected throughout the entire region if it is going to be preserved in the park. This is one of the most beautiful birds of Haiti.

Saurothera longirostris HISPANIOLAN LIZARD CUCKOO

Tako

Tacot

Pajaro Bobo, Taco

Description: This dramatic bird is dark grey above, pale grey to white below with chestnut on the wings and a long flowing tail with white spots beneath. The bare skin around the eye is red. Its vocalization is very characteristic "Tak-ka-ka-ka-ka-ka-ka-ka-kau-kau-ko-ko". It also makes a guttered "tick cwuh-h-h" sound as a "tchk". The Tako is far easier to hear than see since it is quite secretive, and stays close to the ground.

Habitat Distribution: This widespread species occurs whenever there are woods or thickets. It is more common at intermediate elevations than in high dense forests or in open pine forests.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: The Tako is common in lower areas, but was not common above 1700 meters. In I Visite it was observed near the park headquarters and in the Bwapen with scrubby undergrowth near the road. It was never observed near the ridge of the massif in spite of suitable habitat. In Macaya it was never observed in the upper montane areas in spite of

suitable habitat although it was very common in the forests along the edge of the Plain of Formon (54% in Rak Bwa Woch; 47% in Bwa Raje Woch). The Tako is uncommon in La Visite; in Macaya it is uncommon on Pic Formon and Pic Macaya, but common in the forests over the karst domes and hills of the Plain of Formon and in the Gran Ravin.

Special Comments: Wetmore found the Tako up to 1700 meters elevation on La Hotte and observed that the specimens taken there were "decidedly darker brown on the throat and darker grey on the crown than any others seen from elsewhere in Hispaniola...". This attractive bird seems secure in the natural history repertoire of Haiti.

Crotophaga ani SMOOTH-BILLED ANI

Boustabak

Bouts Tabac, Perroquet Noir, Ami des Savannes

Judio

Description: This unusual bird is black, with a slender body and a long tail. The bill is very compressed and arched so that the top is a thin plate. It is a slow flier and glides between flaps of the wings. Its characteristic vocalization is a loud, shrill "wev-ik, wev-ik".

Habitat Distribution: The Boustabak is a bird of pastures, gardens, disturbed areas and brushy second growth forests. These habitats abound in both parks, but since the Boustabak is usually found in low or intermediate elevations it rarely is found in areas of the park. La Visite is too high to provide suitable habitat except at the lowest margins of the park. No Boustabak were observed in La Visite. In Parc National Macaya, the Boustabak is found on the Plain of Formon and in the lowest areas of the Gran Ravin.

Seasonal Status: Year round resident.

Status in Parks: Absent from La Visite. Uncommon in Parc National Macaya except on Plain of Formon where it is common in agricultural areas.

Special Comments: The presence of the species in Macaya is an indicator of disturbed and ruinate habitats and is a sign that the Plain of Formon has been severely altered from its natural state. Wetmore and Swales (1931) note that the ani is "absent from heavily forested areas".

Tyto alba — BARN OWL

Frize

Effraies (Frezaie)

Lechuza

Description: The Frize is variable in coloration and body size in Hispaniola, and according to Bond (1984) the status of this species is questionable (i.e. there may be two species: a large white owl = T. alba and a smaller dark owl = T. glaucops). The owl is either white or dusky brown. Its face is formed by a disk of grey (or white) feathers that give it a monkey-faced appearance. Its vocalization, often heard at night, is a hissing scream.

Habitat Distribution: This owl inhabits caves, sinkholes and dense forests. It is found at all elevations. It is rarely seen during the day unless disturbed or discovered in its roost in a cave. The Frize is frequently heard as it hunts over open areas at night (twilight or early morning hours most commonly).

Seasonal Status: Year round resident.

Status in Parks: Heard at night in both parks in habitats from the lowest areas to the tops of the peaks of Macaya and Formon and the ridge of La Visite.

Recommendations: Caves should be protected from exploitation such as digging soil and fertilizer from the cave floors, the building of fires inside caves or the cutting of the forest cover near the entrances to caves. It is important to note that caves and the environment of the cave entrance are important for other species as well, such as the Collard Swifts, bats and even the "Zagouti" (Plagiodontia aedium).

Special Comments: The taxonomic status of the barn owl of Hispaniola is controversial and in need of careful investigation. There appear to be more than one form (species or subspecies) of barn owl in Hispaniola (see discussion in Bond, 1980,1982). The barn owl is an important part of the natural avifauna of the parks, and has the added benefit of feeding on rats and mice and helping to control the numbers of these harmful introduced mammals.

Streptoprocne zonaris — COLLARED SWIFT

Zowazo Lapli Kou Blan

Oiseau de la Pluie

Vencejo de Collar

Description: This large black bird has a white ring around the neck and flies exceedingly fast in a flock. The birds make a "whish" noise as they fly rapidly overhead, often right over the tree tops. Their vocalization is a loud, shrill "screee-screee".

Habitat Distribution: The habitat of this species is high mountain regions with towering cliffs and steep sided precipices. It flies fast and feeds over a wide area, and so it can be seen almost anywhere in the parks and beyond. However, it needs caves (often near water) in order to nest. These habitats occur along the Riviere Blanche in La Visite and in the upper regions of the Gran Ravin of Parc National Macaya. Collared Swifts were observed in both of these regions, and nests were found in caves in each national park indicating that breeding populations occur in both La Visite and Macaya.

Seasonal Status: The Collared Swift was observed in the parks in March, April, May, September, December, January and February, and is therefore considered to be a year round resident.

Status in Parks: The Collared Swift is known to nest in both parks since recent nests were found in a cave at 1040 meters in the Grand Ravin below Pic Macaya and birds sitting on nests were observed inside the cave with the spring emerging from it on the Riviere Blanche of La Visite. The nests are constructed of mud and located on a ledge one to two meters above the cave floor and two to five meters inside the cave. A large pile of insect parts is often found below another ledge near the nest. The species is common in La Visite; uncommon in Macaya.

Recommendations: Cave environments should be protected (see recommendations under Barn Owl).

Special Comments: This species was known as the Antillean Cloud Swift to Wetmore and Swales (1931). They noted that Zwazo Lapli are irregular in occurance, and that sometimes none were observed for a period of a week in areas where they are known to occur. Wetmore found the species to be especially abundant near the Riviere Blanche and in April 1927 observed thirty or forty circling over a valley opposite the tremendous cliffs that mark the north face (Nan Nway) of Morne La Visite. We rarely saw flocks of more than 10 birds in the area, and the species appears to be less abundant now than in 1927.

Cypseloides niger BLACK SWIFT

Zowazo Lapli Frans

Oiseau de la Pluie or Hirondelle Noire

Vencejo Negro

Description: This species is smaller than the Collared Swift and is sooty black in coloration. There is a white area on the forehead. Its vocalization is a soft "chip-chip".

Habitat Distribution: The species occurs in forested mountains and nests in colonies on the face of cliffs. This habitat is more abundant in La Visite than in Macaya.

Seasonal Status: Year round resident.

Status in Parks: Uncommon in Parc National La Visite; not observed in Parc National Macaya.

Recommendations: Protect the faces of steep cliffs from being burned via fires which get out of control when peasants burn areas below cliffs to make gardens, clear fields or burn stubble after gardens have been harvested.

Special Comments: There are few records of this bird in Haiti, and the species appears to be more common in the Cordillera Central of the Dominican Republic. Wetmore did not observe the species in La Visite, however Bond (1928)

did at an elevation of 1800 meters. Wetmore (Wetmore and Lincoln, 1933) did observe Black Swifts as he climbed Pic Macaya and on the top of the mountain.

Chlorostilbon swainsonii — HISPANIOLAN EMERALD HUMINGBIRD

Wanga Neges Mon

Ouanga Negresse, Colibri

Zumbador Verde

Description: This species is the intermediate sized hummingbird of Hispaniola. The male is brilliant green with a long forked tail and a velvety black patch on the throat and breast. The lower mandible is pinkish. The female is similar with a duskier tail and lacking the black patch on the breast.

Habitat Distribution: This species is most numerous at higher elevations in well forested habitats. The forest type where the Wanga Neges Mon is most abundant in La Visite is Bwa Raje (63%) with all other observations spread about equally among the various habitats. In Macaya 50% of the observations were in Rak Bwa habitats while 20% were in Bwa Raje. The Wanga Neges Mon is least common in Raje and Jadin areas.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Very common in both parks, and the most abundant species of bird in the mountains of Parc National Macaya.

Recommendations: This species is dependent on mesic forest, and Rak Bwa habitats must be protected to guarantee the preservation of this endemic species.

Special Comments: Wetmore (Wetmore and Swales, 1931) comments that "the emerald hummer is found mainly in heavy forest in the hills and is most common in regions of considerable rainfall". The species is common above an elevation of 1500 meters. When the Mango Humingbird is found in areas above 1500 meters,as it is on La Visite, it is a sign of habitat degradation.

Anthracothorax dominicus ANTILLEAN MANGO HUMMINGBIRD

Wanga Neges Fran

Ouanga Negresse, Colibri

Zumbador Grande

Description: This hummingbird is larger and more robust than the Emerald. The male is also bright green but differs in having a black ventor (rather than throat patch) and an uniformly colored dark bill. The female is green above, grey below with the outer tail feathers chestnut in color. The tail is tipped in white.

Habitat Distribution: This species is more abundant in semi-arid regions and disturbed habitats than in mesic montane areas and is the most abundant hummingbird of Haiti. It is found in a wide range of habitats, but rarely is found at upper elevations (above 1000 meters) unless the habitat is altered by gardens and deforestation. Wetmore found it on the north side of Macaya up to 1250 meters elevation where the Rak Bwa began. We found the Wanga Neges Fran to be abundant in the Bwa Raje Woch of the Plain of Formon. A few were seen in the Raje covered mountainsides of Formon and a pair were seen in the Raje (open meadow beginning to seed in with scrubby vegetation and young pines surrounded by large pines) on Pic Le Ciel (2170 meters) adjacent to Pic

Formon. The Wanga Neges Fran was not observed in Parc National La Visite.

Seasonal Status: Year round resident.

Status in Parks: Not known from La Visite, but should be present in low elevations (1500 meters) on the north and south boundaries. Uncommon in Parc National Macaya on the slopes of Formon and Macaya. Common on the Plain of Formon and the Gran Ravin.

Recommendations: Since this is not the characteristic species of the parks, no special habitat management is necessary or recommended.

Special Comments: Where the Wanga Neges Fran occurs in the park it is sympatric with the Wanga Neges Mon. If the remaining habitats of the high mountains are further modified by deforestation it is possible that the Wanga Neges Fran might outnumber and perhaps eventually replace the endemic Wanga Neges Mon in montane areas of Haiti.

Mellisuga minima — VERVAIN HUMMINGBIRD

Zwazo Mouch

Oiseau Mouche

Zumbadorcito

Description: This minute hummingbird is dull green above and whitish below and is barely larger than an insect. The female has white on the outer tail feathers. The spotted throat and uniformly colored bill distinguish the Zwazo Mouch from the immature Wanga Neges Mon which can also appear to be quite delicate and small. The Zwazo Mouch frequently sits on the tip of a dead branch and makes a very loud vocalization that resembles a metalic squeaking.

Habitat Distribution: The Zouazo Mouch is well known to local peasants because of its conspicuous habits and loud vocalization, and is easily observed. It occurs in a wide range of habitats up into the high mountains, but is rarely found in dense Rak Bwa, or during the winter months on the peaks of the highest mountains. In Parc National La Visite a few were found in protected areas below the ridges of the massif in January, and in Macaya it was found up to 1600 meters on the south side of the ridge of Formon during the winter.

Seasonal Status: Year round resident.

Recommendations: This species is ocassionaly hunted by young boys with slingshots because of its habit of sitting on the tip of a dead branch and vocalizing. This practice should be discouraged by local officials of the parks and by military, VSN and MARNDR representatives as part of an educational program on the importance of Haitian plants and animals.

Special Comments: This species, which occurs in Hispaniola and Jamaica is one of the smallest birds of the world. It is closely related to and only slightly larger than Mellisuga helenae, the Pajaro Mosca of Cuba in which the male is the smallest known bird in the world.

Priotelus roseigaster HISPANIOLAN TROGON

Kalson Wouj

Calecon Rouge, Dame Anglaise, Pic de Montagne

Papagayo or Cotorrita de Sierra

Description: This is one of the most dramatic and attractive of birds in Hispaniola. The head, back and tail are bright green while the throat and chest are grey. The belly and rump are bright red and the long flowing tail has white spots on the underside. The short bill is bright yellow and the eyes are bright orange. The vocalization, a loud but mellow "krack-kaow" or "cuh-kwao", is very characteristic and can be heard from a great distance.

Habitat Distribution: This species nests in cavities in trees, often an abandoned nest-hole of a Hispaniolan Woodpecker. It can be found in a variety of habitats including Bwapen and Rak Bwa, but prefers well forested regions in the mountains where it feeds on wild fruits. In Macaya on the high mountains 85% of our observations were from Rak Bwa habitats with the remaining sightings being in Bwapen (8%) and Bwa Raje (8%). On the Plain of Formon 100% of the observations were in Rak Bwa Woch. In Parc National La Visite 100% of the observations were in Rak Bwa habitats in diverse locations from the north face of the Massif to

lower elevation ravines and even stands of Rak Bwa near the park headquarters.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: The Kalson Wouj is more common in Macaya than La Visite, probably because more Rak Bwa remains in the area. We classify the Kalson Wouj as common in all sections of Parc National Macaya; uncommon in La Visite. Because this species is so dependant on mature trees to nest in and diverse stands of Rak Bwa for shelter and food, it is "vulnerable". In the La Visite area so much of this type of habitat has been cut down that we would classify the Kalson Wouj as threatened in Parc National La Visite.

Recommendations: Preserve the large stands of Rak Bwa that are so important to the preservation of this species. Artificial nest boxes should be considered as a method of encouraging breeding.

Special Comments: Wetmore noted that in 1931 Trogons were common up to the summit of Pic Macaya, and were especially numerous among the great pines of higher altitudes. They were observed daily in the trees around their camp at 1275 meters elevation. Our survey did not find them nearly as abundant in these regions, and we conclude that the Kalson is reduced in numbers in the region because of habitat destruction.

Todus angustirostris NARROW-BILLED TODY

Kolobri Mon

Colibri, Chicorette

Barrancoli, Chi-cui

Description: This tiny, vivid green bird has a bright red throat, pink sides and yellow under the tail. The under side of the bill is black at the tip. The vocalization is very characteristic, and the bird's heard much more often than it is seen. It makes a loud, harsh "tick-cherek" or "chic-cui", which is very different from the song of the very similar Broad-billed Tody which sings "terp-terp-terp-terp...".

Habitat Distribution: This species is found in dense Rak Bwa and Bwa Raje habitats in the higher mountains. The species does well in Bwa Raje habitats, but is rarely found in Raje habitats. Along with the Wanga Neges Mon, it is one of the most common species of wet areas and thick cover on the tops of the highest mountains of both parks. In Macaya it was most abundant in Rak Bwa (43%) followed by Bwa Rage (36%), Bwapen (16%). Few individuals were present in Bwapen Raje or Raje. On the Plain of Formon 65% of observations of the species were in Rak Bwa Woch and 35% in Bwa Rage Woch. The Narrow-billed Tody is the only tody present above 1200 meters elevation, but is sympatric with the Broad-billed

Tody at 1000 meters. Narrow-billed Todies do not occur below 900 meters elevation in the Macaya region. Within Parc National La Visite many more observations were in Bwa Raje habitats because of the highly disturbed nature of the vegetation there. In La Visite 75% of the observations of Kolobri Mons were in Rak Bwa Raje, 25% in Rak Bwa.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Common in both parks.

Recommendations: The species is closely associated with Rak Bwa habitats, and would benefit from the conservation of the wet broad-leaved forest in the park and buffer zone.

Special Comments: The Narrow-billed Tody (Kolobri Mon) is a bird of wet montane areas in Haiti and is often sympatric with the Broad-billed Tody (Kolobri) which occurs in more lowland areas and in more open environments. In the Dominican Republic both species are locally sympatric, and T. angustirostris has been recorded from the lowlands, even at sea level (Bond, 1982; JAO pers.obser.). Wetmore and Swales (1931) reported that todies were sympatric only on and near the Samana Peninsula of the Dominican Republic.

Kepler (1977) reported another area of overlap (sympatry) in "dry lower montane forest" which occurs in ravines on the north side of the Sierra de Baoruco range of the Dominican Republic at about 1000 meters elevation. It

is Kepler's view (1977:19) that sympatry may be more common than previously believed in areas where transitional forest dominated by the sumac-like Brunellia comocladifolia grades into drier lowland forest and mesic montane forest. This transition is most often between 900 and 1100 meters. Narrow-bills are almost never found below 800 meters, and broad-bills rarely are found above 1070 meters.

The karst hills of the Plain of Formon adjacent to the Massif de la Hotte lie along the edge of a steep escarpment at approximately 1000 meters elevation. Because so much of the area is characterized by karst it is not well suited for gardens and large areas of natural forest still remain. It is one of the few areas in Haiti where natural areas of drier lowland forest come into contact with wet montane forests. The karst hills region of Parc National Pic Macaya is important because of the large number of endemic species found there (see conclusions). It is also one of the few areas of Haiti where both species of tody can be found together, which further indicates the need to preserve the forest cover in the region.

Todus sublatus BROAD-BILLED TODY

Kolobri Fran

Colibri, Perroquet de Terre

Barrancoli, Barranquero, Pichui

Description: This species is larger and more robust than the Kolobri Mon, but is similar in coloration. It can be distinguished from the latter by its darker underpants and lower bill which is entirely reddish in color rather than black-tipped. The best field character is its vocalization which is a sad, continuous "terp, terp, terp..." rather than a clear, crisp "chic-cui".

Habitat Distribution: The Broad-billed Tody or Kolobri is not found in dense Rak Bwa or Bwa Kaje, but [illegible] species of open areas and thi[illegible] lower elevations. In the pa[illegible] Kolobri only in highly disturbed [illegible] of the boundaries. Wetmore found the species at [illegible] elevation on the north slope of the Massif of La Visite below Morne Cabaio, and in the La Hotte region only as far as Camp Perrin. We observed the Kolobri in the karst topography (karst hills) of the Plain of Formon at 900-1000 meters elevation. We did not encounter the species in our transects in Parc National La Visite.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Rare in Parc National Macaya and restricted to Bwa Raje and Jadins on the margin of the Plain of Formon. Not observed (and presumably absent) in Parc National La Visite.

Recommendations: Since the natural range of this species does not include most sections of the national parks, no general recommendations are called for. The region of the karst domes and mesic broad-leaved forest on the Plain of Formon is important because it is one of the few areas in Haiti where the two species of Tody coexist, and the area should receive maximum protection from deforestation.

Special Comments: (see Narrow-billed Tody).

Nesoctites micromegas — ANTILLEAN PICULET

Chapantie Bwa

Charpentier Bois, Pic

Carpintero de Sierra

Description: This woodpecker looks and acts quite unlike a woodpecker. It is greenish in color on the back and whitish (or yellowish) on the belly streaked with black. The top of the head is yellow. The bill is short, as is the tail (which is soft and not used as a brace in climbing). The Chapantie Bwa climbs about on the bark of trees more like a nuthatch than a woodpecker. It is secretive and very difficult to observe. The best field characteristic is its vocalization, a loud, rapid "kuk-ki-ki-ki-ke-ku-kuk" or "tu-tu-tu-lo-feo". The male and female often answer each other (duet singing).

Habitat Distribution: The Chapantie Bwa is found in a variety of habitats. In the mountains of Haiti it is most common in humid Pak Bwa environments and intermediate elevations. We did not hear its characteristic vocalizations in the La Visite area, perhaps because the Rak Bwa habitats are so fragmented. The Chapantie Bwa was widely observed in the La Hotte region. We found it to be common in the Rak Bwa Woch (17%) and Bwa Raje Woch (35%) habitats of the karst hills of the Plain of Formon. In the

higher mountains the Chapantie Bwa was abundant in the basin on the slopes of Formon at 1700 meters (67% in Rak Bwa, 33% in Bwa Raje) but was not observed on the peaks. It was observed on the Gran Ravin.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Common in specific mesic habitats up to 1700 meters in Parc National Macaya. Not observed in Parc National La Visite.

Recommendations: Inside the parks, the preservation of this species depends upon the existance of mesic broad-leaved forest.

Special Comments: This is one of the most unusual birds of Hispaniola. It is locally abundant and should be more appreciated. It is not an agricultural pest as is the Hispaniolan Woodpecker.

Melanerpes striatus HISPANIOLAN WOODPECKER

Chapantie Fran

Charpentier, Pic

Carpintero

Description: This species is a large, robust woodpecker that is yellowish green on the upperparts. The back is heavily barred with black, as are the wings. The rump, nape of neck and crown of head are bright red. The tail is black and stiff. This woodpecker is very vocal and can be heard from great distances.

Habitat Distribution: Chapantie is widespread and is found in all habitats where there are trees. Saint-Mery (1797) mentions that it was observed on the top of La Selle in 1788 and Wetmore found it on the summits of La Selle and Macaya (1931, 1933). We found it in all habitats of both parks, although in the national parks the Chapantie is most frequently encountered in the La Visite area in Bwapen habitats (95% of the time in September, 64% in May, 54% in January). In montane areas of Macaya the Chapantie as also most frequently observed in Bwapen habitats (48%) followed by Rak Bwa (32%), Bwa Raje (16%), Bwa Pin Raje (4%) and Raje (2%). In lowland areas on the Plain of Formon 60% of the observations were in Rak Bwa Woch and 40% in Bwa Raje Woch.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Very common in both parks.

Special Comments: The Chapantie has been common in Haiti throughout the historic period and there are frequent references to the Hispaniolan Woodpecker in early works from Oviedo on (reprint in 1851 of original accounts made between 1515 and 1555). This woodpecker is frequently associated with damage to crops, especially corn and cacao. Roberts, (1983) reports a density of 60 woodpeckers/40 hectares at Damien near Port-au-Prince (considered a minimum estimate), while in the Bwapen at Kenskoff the density was 8/40 hectares (considered maximum estimate). In order to counter the damage done by woodpeckers to crops Roberts (1983) recommends various direct and indirect methods of controlling the densities of the Hispaniolan Woodpecker. We do not recommend employing any of these methods in or near the National Parks. The Hispaniolan Woodpecker is not a problem species in the parks, and benefits other bird species by creating cavities in trees that are used as nest sites. Our observations that Hispaniolan Woodpeckers prefer pine woodlands in the national parks appears to differ from the analysis by Roberts (1983) that "woodpecker densities appear to be significantly lower in remnant pine forests in Haiti than in broadleaved forests". We concur that Hispaniolan Woodpecker densities are lower in the semi-natural environments of the pine forests above Kenskoff (and

the national parks) than they are in lowland areas where woodpeckers are feeding in large numbers on crops and nesting in palm trees. We also concur that the "niche gestalt" (habitat preference for a bird species) includes "relatively tall trees". We feel, however, that the niche gestalt of the Hispaniolan Woodpecker does not preferentially prefer broad-leaved trees over pines in natural environments where both pine and broad-leaved trees are available. Our transect data suggest that Hispaniolan Woodpeckers are more frequently encountered in pines than in broad-leaved trees in the higher mountains of Haiti. The possible reasons for this preference are 1): Woodpeckers are more easily observed in open pine areas than in dense Rak Bwa; 2) pine beetles are an important food item for the woodpecker; 3) pines are a conspicuous canopy tree over broad-leaved and even disturbed garden habitats, and so our transect data are artificially biased toward pines. One reason the Hispaniolan Woodpecker is so widespread is that it is omnivorous, as most species in the genus Melanerpes.

Sphyrapicus varius YELLOW-BELLIED SAPSUCKER

Chapantie Nwa

Charpentier, Pic Americain

Carpintero de Paso

Description: This migratory woodpecker is slightly smaller than the Hispaniolan Woodpecker and is largely black and white in color with a broad band of white on the shoulder (across the wing-coverts) and a red forehead patch. The throat is red in males. The underparts are yellow. The voice is a squeaking cat-like note that is quite undistinctive, but the drumming of this woodpecker is very distinctive, several rapid thumps that are followed by much slower ones so that the bird seems to be loosing energy.

Habitat Distribution: This species is usually restricted to forested regions. There are very few records of this species in Haiti. Wetmore and Swales (1931) reported four accounts from Haiti and one from the Dominican Republic, and Dod (1981) mentioned receiving five reports in 12 years.

Seasonal Status: Winter migrant from North America.

Status in Parks: Rare; observed only in the Rak Bwa Woch of the Parc National Macaya.

Recommendations: The preservation of forest cover would benefit this species, as it would many other bird species in

Haiti. The Rak Bwa Roch of the Plain of Formon is the most important natural habitat remaining in Haiti in terms of diversity of plants and animals, and the presence of this rare migrant there is another indication of why the area should be included in the national park.

Tyrannus caudifasciatus LOGGERHEAD KINGBIRD

Pipirit Tet Lapolis, Pipirit Chandel

Pipirite Chandel

Manjuila

Description: This montane kingbird resembles the well known Grey Kingbird (Pipirit) of lowland areas, but is smaller, more brown in coloration, crown patch yellow instead of orange and the tail is not notched. The vocalization is very distinct and different from the true Pipirit, being a loud rolling chatter.

Habitat Distribution: This species is secretive and lives in well forested areas of the mountains. It is rarely observed, and there are few reports of its habitat or distribution. It is easily overlooked unless one is familiar with its vocalization, which is an excellent field character. We did not record the Loggerhead Kingbird in our transects in high montane areas of either park, however we frequently encountered the species in Rak Bwa Woch (27%) and Bwa Raje Woch (67%) habitats in the karst hills of the Plain of Formon.

Seasonal Status: Year round resident.

Status in Parks: Unknown in montane areas of either park, but probably present and rare. Common in the karst hills of the Plain of Formon of Parc National Macaya.

Special Comments: The presence of this species in abundance in the karst hills of the Plain of Formon is another reason to include this region within the boundaries of Parc National Macaya, and to prevent further deforestation of important Rak Bwa Woch habitat.

Myiarchus stolidus STOLID FLYCATCHER

Pipirit Gro-tet

Pipirite Gros-tete, Alouette Huppee

Manuelito

Description: This is a large flycatcher that is olive-grey above and greyish white below. The tail is chestnut brown in color. The vocalization is a whistled "whee-ee" or "oo-ee" or "e-oo-ee".

Habitat Distribution: This is a species of low to intermediate elevations in semi-open habitats and woodlands. It is more frequently observed at elevations below that of the national parks. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) noted that they did not observe it in the La Selle or La Hotte regions. We also did not find it in the massif of the Parc National La Visite nor in the higher mountains of Macaya, although we did encounter Stolid Flycatchers in the Bwa Raje Woch (100% occurance) of the karst hills of the Plain of Formon.

Seasonal Status: Year round resident.

Status in Parks: Not present at high elevations of the parks (above 1500 meters). Common at 1000 meters in the karst hills of the Plain of Formon and in the Gran Ravin at 1000 meters elevation.

Special Comments: This species nests in cavities in trees. Its presence in the karst hills of Formon is another indication of the "transitional" nature of this habitat between lowland and montane conditions.

Contopus caribaeus GREATER ANTILLEAN PEWEE

Pipirit Tet Fou

Pipirite Tete-Fou

Maroita

Description: This species is a small olive-grey colored flycatcher. It quivers its tail after perching. The vocalization is very characteristic, usually a deliberate "we-we-we-we-we" which is a fine field character.

Habitat Distribution: Widespread, but usually in the mountains in or near forested areas. It is usually near thickets where it perches in open areas usually within 3 meters of the ground. In La Visite it occurs most frequently in Bwa Raje habitats (62%) followed by Bwapen (16%) and Raje (16%) areas. In Macaya it is less abundant, but found in all habitats from the Plain of Formon up to the higher mountains. It was not observed on Pic Formon or Pic Macaya. Dod (1981) considers the pewee to be most abundant in areas of pines in the Dominican Republic.

Seasonal Status: Year round resident.

Status in Parks: Common in La Visite; uncommon in Macaya.

Special Comments: The type specimen of this species was collected in the Petionville area in 1866.

Elaenia fallax GREATER ANTILLEAN ELAENIA

Ti Chit Sara

Petite Chitte Sara

Maroita Canosa

Description: This small flycatcher is similar to the pewee but can be distinguished from that species by its shorter, narrower bill, the presence of two wing bars on the shoulder (wings) and it habit of not quivering its tail. There is a more or less concealed patch of white on the crown of the head. The vocalization is very different than that of the pewee, being a harsh "che-eup" or "wsii-ip" sometimes followed by "wi-wi-eup".

Habitat Distribution: The species is most abundant in well forested areas of the higher mountains, especially areas with pines. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found the Elaenia to be common in the Rak Bwa below Morne Cabaio as well as in the Bwapen of the massif of La Visite and in the La Hotte region up to 1700 meters where the birds were in larger forest shrubs beneath pines. We encountered the Ti Chit Sara in both national parks. In La Visite it was observed most frequently at the edge of Rwa Rage (58%) followed by areas of mature Bwapen (36%). It is less frequently found in Rak Bwa areas (8%). In the Macaya area the Ti Chit Sara was found on the top of Pic Macaya

and in adjacent pine forests (33% of the observations) as well as Rak Bwa areas (33%) and Bwa Raje (33%). On the Plain of Formon it was found in Bwa Raje Woch (100%).

Seasonal Status: Year round resident.

Status in parks: Common in La Visite; uncommon in Macaya.

Special Comments: Because the Elaenia is most frequent in high montane areas it has been seen by few naturalists. The Elaenia does well in disturbed areas, and its status has not been damaged by the habitat destruction in La Visite, and in fact it is probably more abundant now than in previous times.

Kalochelidon euchrysea — GOLDEN SWALLOW

Iwondel Vet

Hirondelle

Golondrina Verde

Description: This gracecul swallow is metalic green in color (glossed with blue and gold) and pure white below. The tail is long and notched. The voice is an insignificant "chi-weet" or "chu-chu" given on the wing and repeated constantly.

Habitat Distribution: This species is most often found in the high mountains where it occurs over the ridges. It inhabits well forested areas as well as open regions. It nests in cavities of trees (or in protected places, such as the caves of a house or a ledge). Open pine lands are especially abundant in the Massif de la Selle and Massif de la Hotte, where Bond (1928) found a nest of the Iwondel in a woodpecker hole on June 5. Wetmore found them nesting in late April. We found the Iwondel in the parks throughout the year. In La Visite they were most commonly observed swooping over open Raje areas (38% of the time in December, 81% of the time in May). They were observed in all other habitats (Bwa Raje 31%, Rak Bwa 14%, Bwapen 12%, Jadins 9%). In Parc National Macaya the Iwondel is less frequently observed over open areas, (which occur at lower elevations

there), and was not observed on the Plain of Formon. 100% of the observations were in Rak Bwa habitats, especially over the saddle (1900 meters) between Pic Macaya and Pic Formon.

Seasonal Status: Year round resident.

Status in Parks: Very common in Parc National La Visite. Uncommon in low areas of Macaya, but common on the high ridges.

Recommendations: This species has done well and is not in need of special consideration.

Special Comments: The Golden Swallow or Iwondel is truly a species of the high mountains. Verrill and Hyatt (1909) did not find the species below 550 meters elevation. Wetmore and Swales (1931) observed that swallows probably nest in the high mountains in the spring and summer and come down into the lowlands during the late summer and fall. Since we found the Iwondel to be abundant during May and January in La Visite, but did not observe the species in September, it is likely that the species does move to lower areas with their young following the breeding season, but return in December and January to their high mountain habitat.

Progne subis — PURPLE MARTIN

Iwondel Nwa

Hirondelle a Ventre Blanc

Golondrina Grande

Description: This large swallow is violet blue (appearing black) in color except for a white streak on the belly.

Habitat Distribution: Purple Martins are most frequently seen in lowland areas near the sea or in open habitats. They have rarely been reported in the mountains. Wetmore and Swales (1931) observed them on the north slope of Morne Cabaio at 1500 meters elevations and near Furcy. The Purple Martin was most abundant in May in La Visite where it was observed over Raje areas 100% of the time. We did not ever observe it in the Macaya area, nor did Wetmore (Wetmore and Lincoln, 1933).

Seasonal Status: Year round resident. Purple Martins from North America occur as transients in the spring and fall.

Status in Parks: Uncommon in La Visite. Not found in Macaya.

Recommendations: Since the Purple Martin appears to be a regular and natural inhabitant of La Visite (as oppossed to Macaya) it is appropiate to place Purple Martin houses in

Corvus palmarum — PALM CROW

Ti Kaou

Cao, Corbeau

Cao

Description: This entirely black crow is similar to the somewhat larger white-necked crow (C. leucognaphalus or "Corneille"), but can be easily told apart by its vocalization. The White-necked Crow makes a loud "Culik-calow-calow" and is most often found in lowland areas. The vocalization of the Palm Crow, is a harsh "craa-craa".

Habitat Distribution: This crow is found in forested areas, and is most common in pine forest habitats. Wetmore observed them in the Massif La Selle, but not the Massif La Hotte. We observed many Palm Crows in La Visite but none in Macaya, supporting the theory that the species requires open pine forests at a high elevation. In Parc National La Visite in May 54% of the observations were in Jadins while 10% were in mature Bwapen. In September 59% were in Jadins and 41% Bwapen, while in December 82% were in Bwapen and 18% in Jadins.

Seasonal Status: Year round resident. They nested in La Visite in May.

Status in Parks: Extremely common in La Visite. Not found in Macaya.

Recommendations: The Palm Crow or "Ti Kaou" exists in tremendous numbers in Parc National La Visite. They feed in gardens where they are a pest, and on lizards, snails, insects, fruit and seeds. They may also eat the eggs of other species of birds. Wetmore and Swales (1931) observed a "little flock" of Palm Crows on La Visite in 1927. Today the Palm Crow is present in tremendous numbers in the park, and has benefitted enormeously by the presence of gardens and open habitat in the area. A study is necessary to determine if Palm Crows are damaging the status of other birds and endemic animals in the area. At this time, however, we do not recommend controlling the numbers of Palm Crows by shooting, and expect their numbers to balance out when agriculture is reduced within the parks and a buffer zone is established.

Special Comments: All of the records of this species in Haiti are from east of the Jacmel-Fauche depression and in Northern Haiti. The absence of this species from the pine forests of La Hotte, and from Parc National Macaya is interesting and worth further study.

Status in Parks: Extremely common in La Visite. Not found in Macaya.

Recommendations: The Palm Crow or "Ti Kaou" exists in tremendous numbers in Parc National La Visite. They feed in gardens where they are a pest, and on lizards, snails, insects, fruit and seeds. They may also eat the eggs of other species of birds. Wetmore and Swales (1931) observed a "little flock" of Palm Crows on La Visite in 1927. Today the Palm Crow is present in tremendous numbers in the park, and has benefitted enormeously by the presence of gardens and open habitat in the area. A study is necessary to determine if Palm Crows are damaging the status of other birds and endemic animals in the area. At this time, however, we do not recommend controlling the numbers of Palm Crows by shooting, and expect their numbers to balance out when agriculture is reduced within the parks and a buffer zone is established.

Special Comments: All of the records of this species in Haiti are from east of the Jacmel-Fauche depression and in Northern Haiti. The absence of this species from the pine forests of La Hotte, and from Parc National Macaya is interesting and worth further study.

Mimus polyglottos NORTHERN MOCKINGBIRD

Woziyol or Resinyol

Rossignol

Ruisenor

Description: This slender bird is grey above, white below with black wings and tail. There is a prominent band of white on the wings. The vocalization is a loud series of phrases that are very melodious. This is one of the best known species in Haiti.

Habitat Distribution: The Northern mockingbird or "Woziyol" lives in many different habitats, most often at lower elevations and in open country. Dod (1981) reports it is always found below 450 meters. Wetmore and Swales (1931) observed it on the north slope of the ridge of La Visite up to 1600 meters, but did not observe it on the "high summit of the range". Wetmore and Lincoln (1933) did not observe mockingbirds in La Hotte. We observed one mockingbird on the ridge of La Visite in Raje habitat. We did not observe the species on Macaya.

Seasonal Status: Year round resident.

Status in Parks: Rare in La Visite. Unrecorded from Macaya.

Special Comments: The mockingbird should expand its range with increased clearing for cultivation. It is interesting that it is not more common in disturbed sections of La Visite, where even in 1927 it was found up to 1700 meters and within the boundaries of the park. It is also interesting that the species has not spread upward from the Camp Perrin area, where it is abundant, into the Plain of Formon. Except for the La Visite area, the mockingbird seems to be confined to areas below 500 meters elevation in Haiti.

Turdus swalesi — LA SELLE THRUSH

Kouet kouet Nwa

Ouete Ouete Noir

Chu-cho

Description: The head and all upperparts are black. On the underside the throat has traces of white, the chest is dusky and the belly and abdomen are chestnut colored. There is a distinctive median streak of white on the belly from the base of the tail to the breast that is variable in size and shape (sometimes dividing into several parts) so that it is possible to identify individual birds. The bill of this thrush is bright orange, and there is a light orange eye ring. The vocalization is very unusual and beautiful, consisting of 3 or 4 slightly different notes delivered slowly, clearly and with decided intervals between notes, followed by a "zeek". The notes sound like "tu-re-oo" and "cho-ho-cho" (from which it receives its local name in the Dominican Republic). Hardy and Parker (1985) note that the song of the La Selle Thrush is "low-pitched, variable notes so slowly and deliberately spaced that the song is reminiscent of that of the Yellow-breasted Chat, Icteria virens, a Woodwarbler". The alarm note of the thrush is a loud "wheury-wheury-wheury".

Habitat Distribution: Wetmore (Wetmore and Swales,1931) discovered this species in the dense Rak Bwa of Morne La Visite on April 11, 1927, and considered its range to be 1500-2100 meters on the high ridge of La Selle. He did not find the bird anywhere else in Haiti or the Dominican Republic. He saw the bird only in little clearings where the La Selle Thrush or "Kouet Kouet Nwa" spends time on the ground "running with lowered head across little open spaces and then pausing abruptly with head thrown erect" (Wetmore and Swales: 1931:338). In subsequent years the La Selle's Thrush has been discovered in other places in Hispaniola indicating that it has either expanded its range ot that its range was originally more widespread than Wetmore anticipated. It is now known from the Sierra de Baoruco (a continuation of the Massif de La Selle in the Dominican Republic), the Sierra de Neiba (the next mountain range north of the Cul-de-Sac separating southern Hispaniola from the north as well as in the Cordillera Central near Alto Bandera.

The habitat is usually stated to be "dense shrubbery" which we confirm is correct. We observed this thrush most often in areas of Bwa Raje with nearby gardens (42% in December, 50% in May, 100% in September) followed by dense Rak Bwa where it was feeding in trees, especially Persea anomala , (33% in December and May). Thrushes were also observed in Raje (5%), Jadins (25% in December, 10% in May)

and in Riparian habitats (3%). The La Selle Thrush is frequently observed and appears to have expanded its range because it does well where gardens and Rak Bwa (i.e. Bwa Raje by definition) are plentiful. It is possible the La Selle Thrush has expanded its range as the high mountains have become more disturbed, and was originally confined to the Massif La Selle because of the unique combination of dense stands of Rak Bwa adjacent to open Bwapen.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Very common in Parc National La Visite. Not found in Parc National Macaya.

Recommendations: This species is doing well in the park at the present time. However, the patches of Bwa Raje are getting smaller each year, and as more gardens are being planted between Morne La Visite and Morne Cabaio, and in the Tete Opaque areas, the nesting and hiding areas of the La Selle Thrush are being destroyed. All cutting of Rak Bwa and Bwa Raje must be immediately stopped.

Special Comments: This very dramatic endemic thrush is easily observed in the Morne La Visite area, and is one of the most special features (along with the Black-capped Petrels and the combination of Black-crowned and Grey-crowned Palm Tanagers) about Parc National La Visite. These special features along with an account of their

significance should be included in an informational booklet on the parks.

The question on the original range of the species in Hispaniola can only be definitely solved by examining bird remains in caves and sinkholes.

Turdus plumbeus RED-LEGGED THRUSH

Kouet Kouet Fran, Woziyol Mon

Ouete-ouete, Rossignol de Montagne

Chua-chua, Cigua Calandra, Flautero

Description: This thrush known by most Haitians simply as the "Kouet Kouet"is gray with black wings and tail, and a white belly. The tail is broadly tipped with white, which flash when the bird flies, and is an excellent field character. The throat is streaked in black and white. The feet are bright red, the bill orange-red and there is a bright coral red ring about the eye. The voice is very characteristic, a loud "wet-wet" when alarmed (hence the common name for the bird. The song is weaker and more hesitant than that of the La Selle Thrush, but is repeated over and over and is one of the first songs heard in the morning when the bird begins singing long before dawn. The bird is frequently observed in a tree about three meters from the ground.

Habitat Distribution: The Red-legged Thrush or "Kouet Kouet" inhabits well forested areas in the mountains. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found this thrush to be common on the ridge of La Selle and on Macaya "ranging from groves in the cultivated areas near the base to the forests clothing the summit of the peak".

On La Visite we found this thrush in all habitats, but it was most abundant in Bwa Raje (40& in May, 48% in December, 50% in September). The next most common habitat to find the bird in is Rak Bwa (25%) followed by Bwapen (15%). The Red-legged Thrush is often observed in riparian habitats (25% both Rak Bwa and Bwa Raje) and in the dense broad-leaved forest of the entrances to caves. In Macaya we found the Red-legged Thrush most commonly in Rak Bwa (54%) followed by Bwa Raje (27%), Bwapen (8%), Raje (8%) and Bwapen Raje (5%). In the Plain of Formon the thrush was restricted to the Rak Bwa Woch (100%).

Seasonal Status: Year round resident.

Recommendations: The Rak Bwa and Bwa Raje habitats must be protected, and no cutting of the broad-leaved forest in the national parks or buffer zone around the park should be allowed.

Special Comments: Because of the loud and characteristic alarm note of this species, and its habit of being one of the first birds to sing in the morning, it is well known to Haitians and is one of the most noticible species of birds in the park.

Catharus minimus GREY-CHEEKED THRUSH

No name in Haiti

Zorzal Migratorio

Description: This thrush is olive brown above and white below. The throat and breast are spotted with black.

Habitat Distribution: The Grey-cheeked Thrush is found in forested areas. We netted one bird near a Rak Bwa in La Visite and observed two individuals in the Rak Bwa at 1800 meters on the ridge of Formon in Parc National Macaya.

Seasonal Status: Migrant from North America present in Hispaniola from September to May.

Status in Parks: Uncommon in both parks. Based on our findings we designate the species as rare. However it is difficult to observe. Dod (1981) designates the species as common in the Dominican Republic.

Special Comments: This species is mainly a rare transient in the West Indies according to Bond (1980) who observes that a few individuals of the race from Southeastern North America, known as Bicknell's Thrush, overwinter in Hispaniola.

Myadestes genibarbis RUFOUS-THROATED SOLITAIRE

Mizisyen

Oiseau Musicien

Jilguero

Description: The solitaire or "Mizisyen" is grey on the back and white on the chest and belly. The throat and under the tail are rufous red. The lower eyelid and chin at the base of the bill are white, as are the outer tail feathers which flash when the bird flies much like the Red-legged Thrush with which it can be confused in thick brush. The best field character is the beautiful and very diagnostic song, a flute-like, slow, melodeous, often repeated series of notes. The song can be heard during all times of the year, but is most common in May.

Habitat Distribution: This bird is most frequently found in dense stands of Rak Bwa in the mountains. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found it in stands of mesic forest up to the summits of both La Visite and Macaya. We found it so abundant on the north face of Macaya in May that the entire mountain above 1200 meters elevation echoed with its flute-like song. The dense mixed pine and broad-leaved forest on both Pic Formon and Pic Macaya had many individuals, and the solitaire is one of the most abundant species there. The species begins to sing

half an hour or more before dawn and is one of the first birds to sing in the morning. They sang from just over our tents on the summit of Pic Macaya where many where observed together in foraging flocks in January. On La Visite the Solitaire is found only in a few sections of the park because of limited areas of Rak Bwa habitat, and is most frequently heard on the north face of the Massif below the ridge of Morne Cabais. On La Visite we observed the Mizisyen 75% of the time in Rak Bwa in May and 50% in December. The remaining observations were in Bwa Raje, with one observation in Bwapen. On Macaya, where there were 8 times as many individuals counted during the same census period, 69% of the observations were in Rak Bwa habitat, followed by 28% in Bwapen (mixed stands w/broad-leaved vegetation), 6% in Bwa Raje and 2% in Bwapen Raje. On the Plain of Formon, 90% of all observations were in Rak Bwa Woch habitats.

Seasonal Status: Year round resident. Breeding in May.

Status in Parks: Common in a few areas, but generally uncommon in La Visite; Common in Macaya. If the cutting of Rak Bwa in La Visite continues the Solitaire will soon become threatened there. On La Visite the Solitaire is much reduced in numbers since the time of Wetmore's survey in 1927.

Recommendations: The Solitaire is clearly dependant on large stands of Rak Bwa habitat if it is going to survive. All cutting of Rak Bwa and Bwa Raje must be prevented in the parks and surrounding buffer zones.

Special Comments: The Mizisyen is one of the most beautiful birds in Haiti, and is the most beautiful songster. It is beloved by peasants. The following quote by Wetmore (Wetmore and Swales, 1931:343) about the Solitaire in La Visite brings forth the feeling of the bird. "The birds were found principally in the steep-sided ravines below the summit of the long ridge that forms the top of this range. In early morning their clear, flutelike notes came with indescribable purity to the listener resting on the brink of the great precipice that forms the face of Morne La Visite, a marvellously beautiful song and one never to be forgotten".

The type specimen was collected in 1881 by Cory near Fort Jacques above Port-au-Prince.

Bombycilla cedrorum — CEDAR WAXWING

No local name in Haiti or the Dominican Republic

Description: A greyish brown bird with a prominent crest, a black mask and a yellow tipped tail. The voice is a high (barely audible) thin "zeeee" that is very characteristic when heard.

Habitat Distribution: Unknown. The Cedar Waxwing had only been recorded in Hispaniola once previously, in 1926 in the Dominican Republic. We found the Cedar Waxwing to be common in December 1983 along the ridge of La Visite in Rak Bwa and Bwapen habitats. That year we also observed several Cedar Waxwings in the Rak Bwa of Macaya (as well as on Plateau Rochelrois above Miragoane). A few individuals were observed in January 1985, and so the presence of the Cedar Waxwing in Haiti as a winter migrant may be more regular than previously thought.

Seasonal Status: Winter migrant from North America.

Status in Parks: Uncommon in La Visite most years, but common in 1983-84. Rare in Macaya.

Recommendations: Careful records should be kept in order to establish the frequency of this species in the parks during the winter months.

Special Comments: The bird is difficult to observe unless on is familiar with its characteristic lispy call which alerts one to the presence of the Cedar Waxwing.

Dulus dominicus — PALM CHAT

Zwazo Palmis

Oiseau Palmiste

Cigua Palmera

Description: The Palm Chat or "Zwazo Palmis" is one of the best known birds in Haiti. It is olive colored above and yellowish white below, streaked with sooty brown. The presence of the bird is known by its huge nests of sticks in palm trees. Its vocalization is a noisy series of notes and phrases.

Habitat Distribution: The bird is found in open mountain slopes and is closely associated with the range of the royal palm which extends into the mountains to an elevation of approximately 1500 meters. The royal palm is not found in the high mountain areas of either national park, nor on the karst hills of the Plain of Formon. Bond (1928) reported finding the Palm Chat at 1800 meters below Morne La Visite. Wetmore found them at Desbarriere on his route to Macaya, but did not observe Palm Chats in La Hotte. It is curious that the Palm Chat has not expanded its range since the time of Wetmore's survey since there has been so much destruction of the forests and many more open areas exist. We observed Palm Chats below the park at the steep ridges of La Visite on the road from Furcy and in regions at the base of the

park to the south beyond Seguin. However, we did not observe Palm Chats in interior areas of either park.

Seasonal Status: Year round resident: nests from March through June. (ENDEMIC)

Status in Parks: Rare in both national parks, occurying only in lowland areas below 1500 meters.

Special Comments: Because the Zwazo Palmis nests in large colonies and is often found close to houses and in urban areas, it is one of the best known and most popular birds in Haiti.

Vireo altiloquus — BLACK-WHISKERED VIREO

Pias kolet

Petit Panache, Oiseau Canne

Julian Chiri

Description: The upperparts are green and the throat, chest and belly are white. It is yellowish green on the sides and flanks and yellow under the tail. There is a diagnostic white stripe above the eye, and the iris of the eye is reddish. The vocalization is often repeated, loud, monotonous series of short, abrupt phrases usually in 3 syllables, "cheerup, cheweep, cheeup".

Habitat Distribution: The species is widespread in wooded areas from sea level up into the mountains except at highest elevations where there are pines. Wetmore did not observe this species on the ridge of La Visite or on the top of Macaya where he noted that this vireo did not enter the dense rain forest. He found Black-wiskered Vireos up to 1700 meters on the north face of Morne Cabaio, and up to 1300 meters Macaya. We did not encounter the Black-wiskered Vireo in our transects in La Visite, or in the mountains of Macaya, but the bird was regularly heard in the forests of the karst hills of Formon, and the lower Gran Bavin (both at about 1000 meters elevation). 100% of our observations were in Rak Bwa habitats.

Seasonal Status: Year round resident.

Status in Parks: Rare in La Visite. Rare in mountain sections of Macaya (absent above 1500 meters) and uncommon in forested habitats at 1000 meters elevation (Rak Bwa Woch).

Special Comments: This is not normally a high montane bird in Haiti, but rather a species of the broad-leaved forest at low and intermediate elevations. It probably will not expand its range into the parks even if the habitat is further degraded by deforestation and the increase of gardens.

Mniotilta varia — BLACK-AND-WHITE WARBLER

Ti Chit Nwa e Blan

Petit Chit Noir e Blan

Pega Palo

Description: The upperparts of this warbler are streaked in black and white. Underparts are clear white with black streaks. The best field character for this species is its habitat of creeping around on the bark of trees and along branches, frequently upside down as opposed to the habits of most warblers which flit from branch to branch.

Habitat Distribution: Anywhere where there is a forest. Wetmore observed one on the top of Morne La Visite, but did not see Black-and-White Warblers in La Hotte. We found the Warbler throughout both parks commencing on the 20th of September. In La Visite 50% of the observations were in Bwapen, 21% in Bwapen Raje, 17% in Rak Bwa, 6% in Bwa Raje and 6% in Raje. In Macaya 41% of the observations were in Bwa Raje, 37% in Bwapen, 15% in Rak Bwa (most frequently in tree ferns) and 4% in Bwapen Raje and Raje. The species was much more abundant in montane areas than on the Plain of Formon even in well forested regions of the karst hills. Our impression is that the Black-and-White Warbler prefers pine habitats.

Seasonal Status: Winter migrant from North America. Present in the parks on 20 September, but not found on 22 May.

Status in Parks: Common in both parks, especially at high elevations.

Recommendations: Prevent the deforestation of La Visite. The Black-and-White Warbler is twice as abundant in Macaya as it is in La Visite, which may be the result of the availability of more forest habitat in Macaya.

Vermivora ruficapilla — NASHVILLE WARBLER

No local names

Description: A small plain colored warbler. Olive green back, grey head, white eye ring, and yellow throat.

Habitat Distribution: Pine forest.

Seasonal Status: Winter migrant from North America.

Status in parks: Rare in La Visite; unknown in Macaya.

Special Comments: This warbler has previously been recorded from the Bahamas, Cuba and Jamaica, but not Hispaniola. Several individuals were observed in a mixed flock of foraging warblers in the pine forest near the park headquarters during December of 1983.

Vermivora pinus BLUE-WINGED WARBLER

Ti Chit Zel Ble

Petit Chitte Aile Bleu

Ciguita Ala Azul

Description: The upperparts of this warbler are green, with yellow on the forehead and crown of the head and underparts. There are two white wing-bars and a black streak through the crown.

Habitat Distribution: Pine forest.

Seasonal Status: Winter migrant from North America.

Status in Parks: Rare in La Visite; unknown in Macaya.

Special Comments: There were no previous records in Haiti, but the Blue-winged Warbler is know from several records in the Dominican Republic. We observed a number of individuals on several occasions in mixed flocks of foraging warblersin the pine forest near the park headquarters.
In December 1983 and January 1985.

Parula americana — PARULA WARBLER

Ti Chit Ble Pal

Petit Chitte Bleu Pale

Ciguita Parula

Description: This warbler is very small and spends most of its time in trees. The species in winter plumage the upperparts are greenish blue and the underparts yellowish to white (under tail). There are two white wing-bars.

Habitat Distribution: Forested areas at a variety of elevations. Most records are from lowland elevations. We did not observe this warbler in La Visite. We observed the Parula Warbler 84% of the time in Bwa Rage habitats in Macaya, especially on the ridge of Formon at 1700 meters and above, and 16% in Rak Bwa. We also observed Parula Warblers in Rak Bwa Roch habitats on the Plain of Formon.

Seasonal Status: Winter migrant from North America.

Status in Parks: Unknown in La Visite; common in Macaya at upper elevations.

Dendroica tigrina — CAPE MAY WARBLER

Ti Chit Kou Jon

Petit Chitte Cou Jaune

Ciguita Tigrina

Description: This warbler is greenish above with a yellow rump, a yellow breast that is streaked and a long white patch on the wing.

Habitat Distribution: This warbler is extremely common during the winter months in a variety of habitats in Hispaniola, usually open. We recorded it in abundance in both parks. In La Visite 63% of the observations were in Jadins where it was often seen in corn fields feeding on the dried stalks, 31% in Bwa Raje, 6% in Raje. In Macaya 48% were encountered in Bwa Raje, 30% in Raje and 23% in Rak Bwa. Very few were observed in the pine forest on the peaks, or on the Plain of Formon or adjacent karst hills. Therefore, it appears to predominantly be a species of open disturbed habitats at moderate to high elevations in the parks. Wetmore and Swales (1931) found the Cape May Warbler abundant on La Visite in weeds, bracken ferns and other low cover near the ground.

Seasonal Status: Winter migrant from North America.

Status in Parks: Common in both parks.

Special Comments: This species is difficult to observe and is uncommon to rare in its summer range in the spruce and fir forests of Canada and northern New England. Wetmore and Lincoln (1933) observed that it "was a matter of repeated comment" that they heard the songs of this warbler so frequently and noted that "the music of these handsome warblers heard constantly at our camp was in fact one of the features of our work on this island". The striking abundance of this species in Hispaniola is noteworthy. The Cape May Warbler is present in large numbers in the national parks of Haiti.

Dendroica caerulescens BLACK-THROATED BLUE WARBLER

Ti Chit Ble Nwa

Petit Chitte Blue et Noir, Fauvette

Ciguita Garganta Negra

Description: The male and female of this warbler differ in coloration. The male is greyish blue on the back, white on the belly with very pronounced black throat and flanks. The female is dark grey-brown (olive) on the back, dusky yellowish grey on the belly with a small noticeable white wing spot. The note (not song, for they rarely sing during their winter stay in Hispaniola) is a very characteristic loud "check".

Habitat Distribution: This warbler occurs wherever there are trees. In the areas of the parks Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed Black-throated Blue Warblers in La Visite in thickets and also in the low bracken fern that is widespread in Bwapen areas, and in Macaya from 900 meters up to the summit of Pic Macaya. We found the Black-throated Blue Warbler to be abundant in all areas of both parks. In La Visite 58% occured in Bwa Raje, 19% in Rak Bwa, 9% in Bwapen, 7% in Jadins, 4% in Raje and 3% in Bwapen Raje. In Macaya 39% of the observations in montane areas occured in Rak Bwa, 34% in Bwa Raje, 19% in Raje, 9% in Bwapen and 2% in Bwapen Raje.

On the Plain of Formon of Macaya 60% of the observations were in Rak Bwa Woch, 33% in Bwa Raje Woch and 7% in Jadins. The Black-throated Blue Warbler, therefore occurs widely throughout the park, and prefers moist thickets and Rak Bwa habitats.

Seasonal Status: Winter migrant from North America.

Status in Parks: Extremely common in both parks. One of the most common of the North American migrants.

Recommendations: This species, like so many others, is dependent upon the broad-leaved forest in the parks. Areas of Rak Bwa and Bwa Raje should be protected from deforestation and fire.

Special Comments: The distribution of male and female Black-throated Blue Warblers is curious. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed mostly females of this species in both La Visite and Macaya. We observed the same disproportionate distribution of males and females. While male Black-throated Blue Warblers do occur in high montane areas, many more females are observed than males. Woods (1975) discussed this phenomenon and quantified the differences in a paper on migrant warblers in Haiti, and felt that the pattern of distribution might relate to the reduction in available suitable habitat for

this species as mesic broad-leaved forest has disappeared. Further study of this unusual phenomenon is warranted.

Dendroica coronata — YELLOW-RUMPED WARBLER

Ti Chit Mak Jon

Petit Chitte Marque Jaune

Ciquita Mirta

Description: This warbler is greyish brown above and white below. The back is streaked with black, and there is a distinct yellow rump patch. Some birds have yellow patches on the crown of the head and either side of the breast, but this is not true of immature females.

Habitat Distribution: This warbler is found in more open areas, and moves about in large flocks (often mixed with other species). We observed the species in La Visite most frequently feeding in Jadins, especially large areas of corn (56%) and in weeds in Raje areas (38%). No observations occured in Rak Bwa habitats, 5% in Bwa Raje and 1% in Bwapen. In Macaya 70% of the observations were in Bwa Raje, especially abandoned gardens beside the trail on the ridge of Formon and in Raje (30%). The species is far more abundant in montane areas, and very few observations were made on the Plain of Formon, all of these in Bwa Raje. This species, therefore, is characteristic of open disturbed areas of the high mountains.

Seasonal Status: Winter migrant from North America.

Status in Parks: Variable. Some years more abundant than others. In general, very common in La Visite, uncommon in Macaya except in disturbed areas.

Special Comments: Wetmore and Swales (1931) and Wetmore and Lincoln (1933) did not see Yellow-rumped Warblers on either La Visite or Macaya and notes that records of this species in Haiti are comparatively few. Dod (1981) noted that the Yellow-rumped Warbler is not very common in the Dominican Republic. We feel that the species is irregularly distributed in Hispaniola, and is most likely to be found in open disturbed areas of the higher mountains.

Dendroica virens BLACK-THROATED GREEN WARBLER

Ti Chit Fal Nwa

Petit Chitte Bavette Noir

Ciguita Pechinegro

Description: The upperparts are green and the underparts are white. The wings are dark grey-black with two clear wing bars. There is a yellow patch on the side of the face and through the eye. The throat, chest and sides are black in some individuals in winter plumage, and especially in birds in breeding plumage.

Habitat Distribution: This species was not observed in Haiti by Wetmore and Swales (1931) and Wetmore and Lincoln (1933) and is considered uncommon by Dod (1981) who most frequently observed the Black-throated Green Warbler in mountain areas where there are pines. We observed Black-throated Green Warblers in both parks. In La Visite 33% of our observations were in Bwapen, 33% in Rak Bwa and 33% in Bwa Raje. In Macaya 100% of the observations were in Bwa Raje on the high ridge of Formon near stands of Bwapen. Therefore, the species seems to be most closely associated with the high mountain forests of the parks, especially in thickets near pines. Black-throated Green Warblers were not observed on the Plain of Formon or in the adjacent karst hills.

Seasonal Status: Winter migrant from North America.

Status in Parks: Uncommon in both parks.

Dendroica dominica — YELLOW-THROATED WARBLER

Ti Chit Fal Jon

Petit Chitte Bavette Jaune, Chardonneret

Ciguita Garganta Amarilla

Description: The upperparts of this warbler are deep gray and the underparts white. The wings are black with two clear wing bars. There is a white stripe over the eye and a clear yellow throat.

Habitat Distribution: The Yellow-throated Warbler is most common in montane areas with pines. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) did not observe this species in either La Visite or Macaya. We observed the Yellow-throated Warbler in both parks. In La Visite 66% of the observations were in Bwapen and 33% in Raje near pines. In Macaya 50% of the observations were in Raje near pine, 25% in Bwapen and 25% in Bwa Raje. Yellow-throated Warblers were not observed on the Plain of Formon.

Seasonal Status: Winter migrant from North America.

Status in Parks: Uncommon in both parks.

Recommendations: This species is closely linked to pines, and pines should be carefully managed and protected in the parks and surrounding buffer zone to protect this, and many other species that are closely associated with pines.

Special Comments: The type locality of this species is Hispaniola.

Dendroica discolor PRAIRIE WARBLER

Ti Chit Zel Jon

Petit Chitte Aile Jeune

Ciguita de los Prados

Description: This warbler is small in size (among the smallest of the warblers). It is olive yellow above and yellow below with a faint eye stripe and two faint wing bars. It is indistinct in color and difficult to identify by those unfamiliar with the species.

Habitat Distribution: The Prairie Warbler is common in forested areas throughout the island. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed few individuals of this species, all in lowland areas. We observed the Prairie Warbler in both parks. In La Visite it was most often observed in Raje areas (89%) and in Bwapen Raje (11%). In Macaya we observed the Prairie Warbler in the mixed Bwapen/Bwa Raje on the top of Pic Macaya and in the Rak Bwa Woch of the Plain of Formon. Therefore, this species most often occurs in disturbed areas or second growth forest.

Seasonal Status: Winter migrant from North America.

Status in Parks: Uncommon in both parks.

Special Comments: The wing of this species is not yellow and so the name as given in Nelson (1979) is misleading.

Dendroica pinus chrysoleuca — PINE WARBLER

Ti Chit Bwa Pin

Petit Chitte de Bois Pin, Chardonneret

Ciguita del Pinar

Description: The upperparts of this large warbler are yellowish green. The underparts are yellow on the throat and chest, becoming white in the abdomen. There are two clear white wing-bars. There is a faint eye stripe above each eye and white spots on the tail. This warbler spends most of its time high in pine trees and is difficult to observe. It is most easily identified by its characteristic song, a musical trill all in one pitch "chip, chip, chip, chip, chip, chip, chip, chip...". It sounds somewhat like a sewing machine.

Habitat Distribution: The Pine Warbler is found in mature Bwapen, hence is confined to high montane areas in most parts of Hispaniola. Wetmore and Swales (1931) found the Pine Warbler "fairly common" over the high summit of the La Visite area, but did not record them from the Macaya region. Since pine forests are more limited in Haiti than in the Dominican Republic, the Pine Warbler is less well known in Haiti, and Wetmore's specimens from La Visite seem to be the first definite report of the species in Haiti. We found the Pine Warbler in both parks. In La Visite it was present

throughout the year, and in May when it was breeding was found 80% of the time in mature Bwapen, 11% in Bwapen Raje, 6% in Raje (with nearby pine trees) and 3% in Rak Bwa. In December and January when more Pine Warblers were observed (presumably some are migratory birds from North America), individuals and groups were observed 59% of the time in Bwapen, 22% in Jadins (especially large areas of corn) mixed in with large flocks of foraging warblers, 10% in Raje, 5% in Bwa Raje, 2% in Rak Bwa and 2% in Bwapen Raje. In the Macaya area where Pine Warblers are less abundant 80% of the observations were in Bwapen, 12% on Rak Bwa (with mixed pine trees), 6% in Bwapen Raje and 3% in Bwa Raje (with nearby pines). On the Plain of Formon the Pine Warblers were seen (but rarely heard) in Bwa Raje Woch habitat in the karst hills. Therefore, Pine Warblers are closely associated with pines, and one often hears and sees Pine Warblers where only a few scattered pines are present. The birds are more common in great stands of mature pine.

Seasonal Status: The subspecies D.p.chrysoleuca is a year round resident that breeds in the pine forests in April and May. During the winter months migrant Pine Warblers from North America are also found in the parks. (ENDEMIC).

Status in Parks: Very common in La Visite; Common on the higher ridges of Macaya where there are pines. Uncommon to rare on the Plain of Formon.

Recommendations: The Pine Warbler, like several other species, is closely associated with mature pines, and the Bwapen areas of most parks must be carefully protected and managed to insure that large stands of mature pine remain.

Special Comments: The song of the Pine Warbler is one of the most characteristic sounds of the pine forests of Hispaniola, along with the chattering of a flock of crossbills.

Dendroica palmarum — PALM WARBLER

Ti ChiT Palmis, Ti Bon Ami

Petit Chitte Palmiste, Fausse Linote

Ciguita del Palmar

Description: This warbler is more frequently seen near the ground. It is brown above and yellowish below with a faint stripe near the eye. Under the tail (undertail coverts) is yellow. There is a pale yellow rump and white on the tail. The best field character for this somewhat drab warbler is the habit of wagging its tail (constantly twitching it up and down).

Habitat Distribution: The Palm Warbler is found throughout Haiti and its offshore islands during the winter months. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found Palm Warblers on La Visite on the highest summit as well as in the open pinelands, but did not encounter the Palm Warbler in Macaya. We encountered the Palm Warbler in both parks. In La Visite 40% of the observations were in Jadins, 29% in Bwapen Raje, 21% in Bwa Raje, 8% in Raje and 2% in Bwapen habitat. In Macaya, where the species is much less common 100% of the observations were in Bwa Raje in the disturbed area at 1600 meters elevation along the trail from Kay Formon (on the Plain of Formon) to Des Glace (in the Gran Ravin). From these observations we conclude that the

Palm Warbler is most abundant in open areas at higher elevation, especially in disturbed areas.

Seasonal Status: Winter migrant from North America.

Status in Parks: Common in La Visite; rare in Macaya.

Special Comments: This species is most frequently encountered mixed in with large flocks of foraging warblers that range near the plateau of the La Visite area where extensive gardens are planted. It is curious that the Palm Warbler, and these large flocks of foraging warblers are so abundant in the La Visite area, and yet are uncommon on the Plain of Formon.

The type locality of this species is Haiti.

Seiurus aurocapillus — OVENBIRD

Chit Te

Chitte Ter or Fauvette Americaine

Ciguita Saltarina

Description: The upperparts of this ground dwelling warbler are olive brown and the underparts are white and heavily streaked and spotted with black. There is a clear black stripe on the side of the throat and another above the eye just below the orange crown patch. There is a clear white eye ring. It is distinct from all other warblers of Hispaniola except for the Worm-eating Warbler which has a streaked head and is smaller (and found at lower elevations) and the Waterthrush (see next account) which lacks the orange crown patch and white eye ring. The winter vocalization (note) is a loud clear "click" or "chit", somewhat similar to the note of the Black-throated Blue Warbler, but characteristic enough to alert an observer to the presence of this species.

Habitat Distribution: This species is found in thickets and scrubby vegetation throughout Hispaniola at a variety of elevations. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) collected Ovenbirds on the ridge of La Visite as well as the slopes below Morne Cabaio and in Macaya at 1500 meters in the Rak Bwa (="rain forest"). We

observed Ovenbirds in La Visite in Bwa Raje (75%) and Bwapen Raje (25%). In Macaya the Ovenbird was observed in Bwa Raje (45%), Rak Bwa (33%) and Raje (22%). It was not observed on the Plain of Formon or in the karst hills along the edge of the Plain.

Seasonal Status: Winter migrant from North America.

Status in Parks: Common in La Visite, rare in Macaya.

Special Comments: This is another of a series of North American warblers for which the type locality is Hispaniola because they were collected during the winter months in the 18th Century, and the specimens were sent back to Europe where they were described. The type locality of the Ovenbird is "at sea" off the north coast of Hispaniola where it was collected by the late Tho. Stack on his ship lay becalmed "eight to ten leagues distant from Hispaniola" on November of 1751 (in Wetmore and Swales, 1931).

Seiurus motacilla — LOUISIANA WATERTHRUSH

Ti Chit Dlo Dous

Petit Chitte de Eau Doux

Ciguita del Agua

Description: This ground dwelling brown warbler resembles the ovenbird, but lacks the complete eye ring and rufous cap, and has a very conspicuous whitish stripe above the eye. There are two species of waterthrush in Haiti (this species and the smaller more heavily streaked Northern Waterthrush (Ti Chit Mang Lanme) most frequently found at low elevations near the sea). The Louisiana Waterthrush has dark olive brown upperparts and white to yellow white underparts. The chest and belly are heavily streaked with black. Note: the throat is supposed to be clear white (unstreaked) and the eyestripe white in this species. However, most of the individuals observed (and photographed) had streaked throats, a yellowish eyestripe and buffy yellow underparts (see discussion in special comments).

Habitat Distribution: This species is reported to be found principally along freshwater streams during the winter months in Hispaniola. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed the species only among the mangroves and did not see any waterthrushes in either La Visite or Macaya. We observed waterthrushes in both parks.

In La Visite the waterthrush was regularly observed (and mist netted) along the edge of a small stream surrounded by Bwapen Raje and Rak Bwa habitat. The species was seen 100% of the time in this type of habitat, most frequently in the Rak Bwa. It was observed in September and January, but not in May. In Macaya, the waterthrush was not observed on the high ridges, but two were mist netted in an open area near Bwa Rage on the Plain of Formon.

Seasonal Status: Winter migrant from North America.

Status in Parks: Common in La Visite; uncommon in Macaya.

Recommendations: This waterthrush is uncommon even in North America where it is found along brooks, streams, rivers and in wooded swamps. Its presence in such large numbers in La Visite is because of the unique combination of high elevations and flowing streams surrounded by Rak Bwa vegetation. In most areas of the Caribbean this habitat is not present, and in Hispaniola it is vulnerable because the streams will dry up during the dry winter months unless significant forest cover remains. We recommend that all deforestation be prevented in the national parks and surrounding buffer zones, and that the streamside (riparian) habitats be protected from exploitation.

Special Comments: This species is difficult to observe because of its secretive habits, and most of our records come from individuals that were mist netted.

The taxonomic status of this species in the parks, especially La Visite is puzzling. The individuals we observed, mist netted and photographed all had streaked throats, yellow eyestripes and buffy underparts. At first glance these birds were assumed to be Northern Waterthrushes, which they closely resemble. However, all previous accounts of waterthrushes in Hispaniola document the presence of the Northern Waterthrush near the coast in areas of mangrove swamps, and the Louisiana Waterthrush in interior areas near freshwater. We have compared our photographs with a large series of waterthrushes in the collections on the Florida State Museum, and there are some individuals of the series of Louisiana Waterthrushes with streaked throats that resemble the birds we observed in La Visite. Therefore, until a more complete analysis of the color variation of a large series of waterthrushes from the La Visite area is completed we will designate the individuals there as being Louisiana Waterthrushes, but caution the observer to note the confusing field characters such as the streaks on the throat, the color of the eye stripe and the color of the underparts carefully.

Geothlypis trichas COMMON YELLOWTHROAT

Ti Chit Figi Nwa

Petit Chitte Visage Noir

Ciguita Enmascarada

Description: The male of this small secretive warbler is brownish above and whitish below. The throat and chest are yellow and there is a more or less complete broad black mask across the face. The female and immature birds are similar in color, but lack the black mask. The winter vocalization (note) of this species is a loud, harsh "tchep" that is very distinctive and alerts the observer to the presence of this secretive small denizen of thick brush and dense undergrowths.

Habitat Distribution: This warbler lives near the ground in dense growths of vegetation. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed them in patches of weeds and bracken ferns up to 1800 meters along the Massif de La Selle, and in the same habitat below the Rak Bwa ("rain forest") of Macaya. They also observed them on the summit of Pic Macaya in "the great expanse of braken that grew beneath the pines." We observed the Common Yellowthroat in both parks. In La Visite it was found only in Bwa Raje habitats in depressions and ravines on the plateau. In Macaya, where it was much more abundant, it was found in large numbers in

Rak Bwa (66%) on the ridges of Formon, especially in dense thickets characterized by climbing bamboo. It was also found in Bwa Raje (31%) and Bwapen Raje (5%). On the Plain of Formon it was observed in Jadins (77%) and Bwa Raje Woch (23%) habitats. This species, therefore, is found in thickets and areas of dense growth, most often within two meters of the ground.

Seasonal Status: Winter migrant from North America.

Status in Parks: Uncommon in La Visite. Very common in Macaya.

Recommendations: This species requires dense thickets of Rak Bwa. Thesa areas have been severely reduced in the La Visite area. The broad-leaved forest must be allowed to regenerate in mesic areas of La Visite, and deforestation of Macaya must be prevented.

Special Commen's: The Common Yellowthroat is the most common migrant species in the dense Rak Bwa along the ridge of Formon from 1800 meters elevation to the top of Pic Formon (2210 meters).

Setophaga ruticilla AMERICAN REDSTART

Ti Chit Dife

Petit Chitte de Feu

Bijirita

Description: The male of this brightly colored warbler is black with bright orange patches on the sides of the sides, wings and tail, and white on the lower abdomen. The female is similar except the upperparts are greenish grey and the bright spots are yellow instead of orange. This warbler is very active in the branches of trees, and frequently spreads its tail. It is vocal, and its call is a distinctive "chip, chip.... chip" sound.

Habitat Distribution: This species inhabits well forested areas, most frequently at lower and intermediate elevations. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) do not report the species from the La Visite area, nor from above 1500 meters on Macaya, although they give its range as "from coastal thickets to the summits of the mountains, being so general in distribution that there is little object in detailing all the numerous records." We observed the American Redstart in both parks. In La Visite we most often encountered the bird in Rak Bwa (38%) and Bwa Raje (38%) habitats, followed by Bwapen (25%). In Macaya we observed it most frequently in Bwa Raje (47%) followed by Rak Bwa

(39%) and Raje (14%). On the Plain of Formon it was observed in Rak Bwa Woch (58%) and Bwa Raje (43%). The American Redstart requires areas with moderate forest cover, and some large trees.

Seasonal Status: Winter migrant from North America. Dod (1981) reports that it is present in the Dominican Republic in all months of the year. Bond (1980) also notes that it is present throughout the year. We did not observe the American Redstart in our census in May, and have no indication the species breeds in the parks.

Recommendations: The Redstart depends upon forest cover, so deforestation should be prevented.

Special Comments: This is one of the most colorful warblers of the National Parks.

Microligeo palustris — GROUND WARBLER

Ti Chitte Lasel

Petit Chitte La Selle

Ciguita Coliverde

Description: This endemic and very special warbler is greenish in coloration on the wings, back and tail. On the hindneck and crown of the head it is greenish grey. On the chest and belly greyish white, becoming pure white on the abdomen. It has a long tail, and a bright red iris in the eye, surrounded by a broken eye-ring.

Habitat Distribution: This secretive little warbler is found in dense thickets of Rak Bwa and Bwa Raje where it feeds close to the ground. Several times we observed the Ground Warbler feeding in branches in a large tree, but this was the exception. It is widespread in its distribution in the Dominican Republic, but in Haiti it is known only from the Massif de La Selle and nearby mountains above Port-au-Prince near Furcy. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found them abundant in the La Visite region from below Morne Cabaio across the summit to the great ravine of the Riviere Blanche, but did not find them in La Hotte. We found them abundant in La Visite at all times of the year. In January we observed the Ground Warbler in Bwa Raje (55%), Rak Bwa (25%), Bwapen (9%),

Riparian habitats (6%) and in Raje (3%) and Bwapen Raje (2%). In May Ground Warblers were observed in Bwa Raje (59%), Rak Bwa (30%) and in Riparian habitats (12%). In September all observations were in Bwa Raje (80%) or Rak Bwa (20%). It is clear, therefore, that the Ground Warbler is a species of dense broad-leaved growth and is ideally adjusted to the thick, scrubby stands of Rak Bwa that characterize the steep face (Nan Nway) of the Massif de La Selle, and the ravines of the plateau. In Haiti, it is a species that is closely tied to the Massif de la Selle, including Parc National La Visite.

Seasonal Status: Year round resident (ENDEMIC). It nests in May and June.

Status in Parks: Common in La Visite; not present in Macaya. The Ground Warbler is closely associated with broad-leaved vegetation and might be vulnerable to extirpation if its habitat is eliminated. However, it is not threatened at this time.

Recommendations: This is another species that is dependent upon the presence of broad-leaved forest, often in dense stands for its well being. The Rak Bwa habitat of La Visite must be protected from fire and deforestation, especially on the north face (Nan Nway) of the ridge between Morne La Visite and Tete Opaque. No gardens, ajupas, domestic

animals or additional deforestation can be allowed from the base of the ridge to the summits of the mountains.

Special Comments: This is one of the special endemic species of birds of Hispaniola, and of all the species discussed, is the most closely linked to Parc National La Visite. This species probably evolved on the north island of Hispaniola. Since its range extends north and east, but not into suitable habitats to the west on the island.

The Ground Warbler usually feeds alone or in small groups, and is rarely found mixed with foraging flocks of migrant warblers.

Xenoligea montana — WHITE-WINGED WARBLER

Ti Chit Kat Je

Petit Quatre-yeux

Ciguita Aliblanca

Description: This is another species of endemic warbler, and resembles the Ground Warbler. It is greenish above with a grey neck and head. However, the tail is slate grey with the outer tail feathers black-edged in white. There is a prominent white streak on the wing. On the head there is a white stripe in front of the eye, and a white spot below the eye - hence the common name little bird with four eyes or little four eyes in reference to its resemblance of the Palm Tanager which is called four eyes.

Habitat Distribution: This secretive species is most often found in dense stands of broad-leaved vegetation. It is encountered more frequently in trees and open areas than is the Ground Warbler. It is larger and has a much heavier bill than the Ground Warbler, and, according to Wetmore and Swales (1931), seems to combine the mannerisms of a warbler and a vireo. It has been reported by Bond (1928), Wetmore and Swales (1931) and Wetmore and Lincoln (1933) in both the La Visite and Macaya areas, where they found the White-winged Warbler to be fairly common. We did not find this warbler in La Visite, and had difficulty locating it in

Macaya. In Parc National Macaya we most often found it in Bwa Raje (80%) at 1800 meters elevation on Formon, and in the Rak Bwa (20%) habitat along the ridge of Formon at about the same elevation. Wetmore and Austin (1933) also found the White-winged Warbler at intermediate elevations in the Macaya area and observed that they were most common between 1300 and 1800 meters elevation in the broad-leaved forest.

Seasonal Status: Year round resident (endemic). Nests in April-May.

Status in Parks: Very rare and possibly extirpated from La Visite; rare and endangered in Macaya.

Recommendations: This species is dependant on Rak Bwa habitats at intermediate elevations (1200-1800 meters). These habitats on the cliffs of La Visite between Morne La Visite and Tete Opaque must be preserved. In addition, it is recommended that the area west of Morne La Visite all the way to, and including Morne d'Enfer be included in the park. This region has extensive areas of Rak Bwa which is the kind of habitat the White-winged Warbler requires, and is the type of habitat that has been eliminated with the most damage to the endemic flora and fauna in the park and on the plateau of the massif to the south of the park. The broad-leaved forest have been preserved in the Morne d'Enfer area because the area is difficult to reach as a result of

steep cliffs that surround the mountain which can only be reached by a narrow, rocky connecting ridge or by a steep climb from below.

Special Comments: Bond (1928) found this warbler to be common in the Morne Malanga, Morne Tranchant and Crete-a-Piquant areas above Port-au-Prince and on the slopes of the Massif de La Selle where he noted that they were about as common as the Ground Warbler. All of these areas have been severely deforested, and the White-winged Warbler has been nearly (if not completely) extirpated. In Southern Haiti the White-winged Warbler hangs on by a thread, dependent upon thick stands of Rak Bwa between 1300 and 1800 meters elevation. Morne d'Enfer must be added to Parc National La Visite and all cutting of the Rak Bwa above the Plain of Formon and Parc National Macaya must be stopped if this species is to be prevented from becoming extinct in Haiti in the near future.

Coereba flaveola BANANAQUIT or HONEY CREEPER

Kit

Petit Serin

Ciguita

Description: This colorful little bird is closely related to a warbler. It is sooty grey on the back with a bright yellow rump. The head has a decurved bill and a very conspicuous white stripe above the eye. The throat is grey and the chest and belly bright yellow. It is somewhat secretive, and is most easily noticed by its very characteristic vocalization, a wheezy, buzzing "zee-zeeeeee-sweees-te".

Habitat Distribution: This species is widely distributed, and in Haiti is most often encountered in disturbed areas with gardens, flowers and fruit-bearing trees. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) noted that the species is abundant in areas where there is abundant rainfall, and that it ranges to the summits of La Selle and Pic Macaya. We observed the Bananaquit in La Visite in Bwa Raje (54%), Rak Bwa (29%), Bwapen (13%), Bwapen Raje (2%) and Riparian (2%) habitats. In September and May all observations were in Bwa Raje habitats. In Macaya the Bananaquit was found throughout the park from the karst hills on the Plain of Formon to the top of Pic Macaya where

it was abundant. We observed the Bananaquit in dense Rak Bwa (68%), Bwa Raje (13%), Bwapen (12%) and open Raje in the ferns and weeds (7%). On the Plain of Formon most observations were in Bwa Raje Woch near gardens (85%) and in Rak Bwa Woch (15%), the dense forest on the karst domes. The species is clearly doing well in all areas of the parks. It prefers mesic areas with abundant vegetation.

Seasonal Status: Year round resident. Breeds throughout the year with a peak in the spring.

Status in Parks: Very common in both parks.

Recommendations: This species is doing well and does not require any special actions to insure its preservation.

Special Comments: Wetmore and Swales (1931) noted that the Bananaquit was especially abundant in the southwest of Haiti, and observed that it is easily overlooked except by those familiar with its "high-pitched, insect-like song".

Euphonia musica — BLUE-HOODED EUPHONIA

Louido

Louis d'Or or Oiseau Grand-pere

Jilguerillo

Description: This tiny species, among the smallest passerine birds of Haiti, is very secretive and difficult to observe. The male is very colorful, being deep violet blue on the back, wings and tail, light blue on the crown of the head and hindneck and yellow on the rump. The underparts are yellow. The female is green above with a light blue crown and neck and yellow underparts. The bird is almost impossible to observe because of its habit of feeding in the upper limbs of trees, and is most easily recognized by its characteristic vocalization - a plaintive whistle followed rapidly by a soft tuk-tuk so it sounds like "ee-oo-tuk-tuk", or "i-i-i-u-u-...tuk, tuk".

Habitat Distribution: The Blue-hooded Euphonia or "Louido" feeds on the soft fleshy bones of mistletoe, and is common in well forested regions, especially at higher elevation. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) recorded the species at 1500 meters on the north slope of Morne Cabaio, and in Macaya from 900 meters to the summit of the mountain. We did not encounter the Louido in our transects on the ridge and plateau of La Visite, indicating

the species may not occur in open pinelands. We found the species only in dense stands of Rak Bwa in Macaya on the ridges of Formon, and in the Rak Bwa Woch of the karst hills adjacent to the Plain of Formon. The species, therefore, is dependent upon mature Rak Bwa.

Seasonal Status: Year round resident.

Status in Parks: Rare in La Visite, apparently found only in the dense Rak Bwa on the north face of the ridge of the Massif (Nan Nway). Uncommon in Macaya, found in dense Rak Bwa stands.

Recommendations: This species is absolutely dependent upon mature Rak Bwa. All cutting or burning of the Rak Bwa should be restricted.

Special Comments: This species is difficult to census because of its secretive habits, and so we cannot evaluate their abundance relative to historical times in Haiti because the bird was observed by few early naturalists. The first record in Haiti was in 1866. The type locality is "S.Dominici" (= Hispaniola in 1789).

Spindalis zena — STRIPE-HEADED TANAGER

Bannann Mi Mon

Mounedele, Grivelette

Cigua Amarilla

Description: The male of this tanager is one of the most brilliantly colored birds in Haiti. The overall color is bright orange with a black head and black wings. The black head is accentuated by broad stripes over the eyes, under the eyes and a white throat patch. The wings also are streaked with white. The female is olive grey above and paler below with white on the margins of the wings. The vocalizations of the Stripe-headed Tanager are weak and indistinct, but often made as the birds forage amongst the branches of a large tree. The vocalization is best described as a prolonged "szeeeeep". Numerous individuals often forange together in the parks.

Habitat Distribution: The Stripe-headed Tanager is found in forested regions of mountains above 500 meters elevation. It feeds on seeds, berries and fruits and is most often found in second growth and Raje areas as well as dense Rak Bwa (its natural environment). Bond (1928), Wetmore and Swales (1931) and Wetmore and Lincoln (1933) found the species in the La Selle and La Hotte regions right up to the summits of the mountains. We found the Stripe-headed

Tanager in both national parks. In La Visite it was most frequently observed in Rak Bwa (55%) and Bwa Raje (45%), most often on the steep north face of the massif but occasionally in dense thickets on the plateau. In Macaya it was more abundant, and more widely distributed. Most of the observations were in Bwa Raje (54%), especially along the trail from Kay Formon to Des Glace just before the dense Rak Bwa of the top of the ridge and in the Rak Bwa above 1800 meters elevation (32%). It was also observed in Raje (9%), usually above 1500 and in Bwapen (5%). It was even observed in Bwapen Raje (1%) in the Gran Ravin, and was abundant on the top of Pic Macaya. On the Plain of Formon it was common in the Rak Bwa Woch habitata of the karst hills (94%) and along the edge of this habitat in Bwa Raje Woch (6%). Wetmore and Lincoln (1933) observed that this the most abundant species at their camp at 1275 meters on Macaya. We also found the Stripe-headed Tanager to be one of the most abundant species in the higher massif, often foraging in flocks of over a dozen individuals.

Seasonal Status: Year round resident.

Status In Parks: In La Visite it is common in specific habitats of Rak Bwa, but in general uncommon. In Macaya it is very common.

Recommendations: The Stripe-headed Tanager is limited in its distribution in Parc National La Visite because of significant reduction in the Rak Bwa habitat. No cutting of the Rak Bwa should be allowed, and Rak Bwa should be allowed to regenerate in all suitable locations (ravines, depressions, sink holes, karst exposures, spring runs).

Phaenicophilus palmarum BLACK-CROWNED PALM TANAGER

Kat Je No

Oiseau Quatre Yeux du Nord

Cuatro Ojos

Description: This well known bird has an olive (yellowish green) back, wings and tail. The hindneck is grey as are the flanks, with the rest of the underparts white (including the throat). The head is black (crown, sides of face and rear of head) with white spots at the base of the bill (lores) and above and below the eyes. This species is quite similar to the Gray-crowned Palm Tanager from which it can be told by the black on the head extending to the rear of the head, and the broad white throat. The "kat je" is easy to observe and forges in low trees and in open areas, however it is possible to identify the birds by their vocalization alone, a clear, nasal "peee-u".

Habitat Distribution: The Black-crowned Palm Tanager or "Kat Je" is most often found in thickets and along the edge of forest. We found it commonly in well forested areas of La Visite, as well as feeding out in the open. It was most often observed in December and January in Bwa Raje (68%), followed by Rak Bwa (11%), Bwapen (11%), Raje (5%) and Bwapen Raje (5%). In May we found it only in Bwa Raje (72%) and Rak Bwa (28%) areas.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Common in La Visite. The Black-crowned Palm Tanager is not present in Parc National Macaya, and is not known to occure west of the Jacmel-Fauche lowland area (sometim known as "Bonds Line").

Special Comments: The distribution and taxonomic status of this species in reference to the Grey-crowned Palm Tanager is a matter of some concern (see special comments in the following account). This species ranges into lowland areas where it is often paler in coloration. Wetmore and Swales (1931) designated the population on Saona Island as a separate subspecies.

Phaenicophilus poliocephalus GREY-CROWNED PALM TANAGER

Kat Je Sid

Oiseau Quatre Yeux du Sud

Cuatro Ojos

Description: Very similar in coloration to the Black-crowned Palm Tanager, except that the grey on the hindneck extends upward onto the top of the head, reducing the black on the crown to a band across the forehead. Also, the white throat is reduced in extent and seems more contrasting with the dark grey of the chest, so that there is a white band under the black mask, boarded below by the grey of the hindthroat.

Habitat Distribution: The habitat of the Grey-crowned Palm Tanager or "Kat Je Sid" also ranges from sea level up into the high mountains. Wetmore found them to be "fairly common" on the slopes of Macaya from the forest border above their camp at 1275 meters to the summit of Pic Macaya. We also found them on the summit of Pic Macaya, where they were one of the more abundant species. In Parc National Macaya we most frequently observed them in Rak Bwa (43%) followed by Bwa Raje (30%), Bwapen (23%), Raje (4%) and Bwapen Raje (3%). We also found the species in forested areas of the Plain of Formon, most often in Bwa Raje Woch (75%) but also in Jadins (25%). The habitat requirements of this species,

therefore, are close to the habits of the Black-crowned Palm Tanager. Both species forge widely and can be found in dense stands of Rak Bwa as well as in more open areas.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Status uncertain in Parc National La Visite (see below). Very common in Parc National Macaya.

Recommendations: The species is somewhat of a habitat generalist, and appears to be well as long as there are areas of Rak Bwa around. Other than to prevent deforestation of the mountains, no special actions are necessary to protect the status of this species.

Special Comments: This is an important species in Haiti, for it is the only avian species that is found only in Haiti.

The distribution of the Grey-crowned Palm Tanager is west of the lowland area between Jacmel and Fauche ("Bond's Line"), with the Black-crowned Palm Tanager being found east and north of this line (except La Gonave Island, where large pale Grey-crowned Palm Tanagers occur). Wetmore and Swales, (1931:417) noted that it is strange that Grey-crowned Palm Tanagers do not range onto the ridge of La Selle, since the break in the Cul-de-Sac Plain would seem a more natural boundary. We agree, and have looked carefully for the ecological significance of "Bond's Line" and can find none.

We would predict that Grey-crowned Palm Tanagers should occur along the ridge of La Selle further to the east than the Jacmel-Fauche depression, and that it should be possible to find evidence of species in the park (either as distinct representatives of Grey-crowned Palm Tanagers or as hybrids with Black-crowned Palm Tanagers). We have several observations of birds that are intermediate in morphology between the two forms (including photographs of mist netted birds) that we feel indicate that the two forms are hybridizing in the area of Morne La Visite. Final confirmation of our hypothesis must await a close examination of a large series of individuals for the La Visite area as well as biochemical analysis (currently underway by a graduate student from the University of FLorida, Mara McDonald).

There has been discussion of establishing the Grey-crowned Palm Tanager as the national bird of Haiti because it is the only bird species in Hispaniola to be found only in Haiti. We believe that this idea has much merit. The bird is widely known in Haiti and is easy to observe in a wide range of habitats. We recommend that the "Oiseau Quatre Yeux" du Sud" be designated as the national bird of Haiti. The species can survive in a wide variety of habitats and is truly a species all Haitians can take pleasure in.

Calyptophilus frugivorus — CHAT TANAGER

Konichon

Cornichon

Chirri, Patico

Description: This very secretive bird is largely terrestrial in habits. It is olive-brown above and white below with a yellow spot in front of the eye (loris) and on the bend of the wing. It is most frequently identified by its vocalizations, which are loud and very diagnostic. The song is a clear, ringing "chip-chip-swerp-swerp-swerp" or a "swerp-swerp-chip-chip-chip". The same bird can give both songs. The song can be heard throughout the year, but is most common in spring. The Chat Tanager can also be located in its thick, brushy habitat by its note, a distinctive, loud "tic".

Habitat Distribution: This species is associated with remote areas, and dense, wet thickets of Rak Bwa. Dod (1981) notes that it is not found below 1650 meters elevation in the Dominican Republic, but we found it down to 1000 meters in the wetter areas of Macaya and La Visite. Wetmore and Swales (1931) did not find the species in the La Visite area, but did encounter one individual at 1000 meters on Macaya. We found the bird to be much more common than did Wetmore. In La Visite we found the bird in Rak Bwa

(75%) and Bwa Raje (25%) areas. It was common on the steep face of the massif (Nan Nway) and in dense stands of Rak Bwa, such as the forest behind the park headquarters. It is always in areas that are wet and densily forested. In Macaya we encountered Chat Tanagers in Rak Bwa (75%), Bwa Raje (15%) and Bwapen (10%). It was most common in the Rak Bwa underneath the towering pines on the peak of Macaya. On the Plain of Formon we encountered Chat Tanagers in Rak Bwa Woch (75%) and Bwa Raje (25%) habitats.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Common in mesic Rak Bwa in both parks. Because it is only found in these wild wet places, we considered the species to be vulnerable and classify it as threatened.

Recommendations: All cutting and burning of the forest must be stopped, and Rak Bwa habitats must be protected.

Special Comments: Because this species is confined to areas of mesic broad-leaved vegetation (La Hotte, La Selle, Cordillera Central, Sierra de Neiba as well as La Gonave Island) that are surrounded by drier lowland regions where Chat Tanagers do not occur there are at least 5 distinct and widely separated populations of this species. The Chat Tanagers in each of these regions differ from one another. In general they range from individuals that are paler in

coloration and have more basic vocalizations in the east to larger, darker birds with long complex vocalizations in the west. Wetmore and Swales (1931) noted four forms (designated as subspecies) and Bond and Dod (1977) described a fifth one from the Sierra de Neiba. The two populations that apply to the parks are:

Calyptophilus frugivorus tertius from the Massif de la Hotte, and therefore Parc National Macaya.

Calyptophilus frugivorus selleanus from the Massif de La Selle and nearby Morne Malanga, Morne Tranchart, Morne Brouet and Crete a Piquants. This form has long been considered a synonym of C. f. tertius (dating from 1936, see Bond and Dod, 1977).

The status of these local populations and the validity of the various subspecies is in need of review. We believe that the birds from the La Hotte area are noticebly larger and darker in coloration with more dramatic yellow lores than the Chat Tanagers on La Visite, and that their vocalizations are more elaborate; b) that it is questionable to lump the La Selle and La Hotte (South Island) populations together as C. f. tertius; c) that the La Hotte and La Selle populations should be regarded as distinct subspecies, and that further study of this problem is warrented.

Quiscalus niger GREATER ANTILLEAN GRACKLE

Mel

Merle Diable

Chinchilin

Description: This species is black in coloration with glossy violet or steel-blue sheen. The iris of the eye is pale yellow. The vocalization is a characteristic "chin-chin-chi-lin" or a ringing bell-like "whees-see-ee" note. They are usually together in a large flock of 20 or more individuals.

Habitat Distribution: The Greater Antillean Grackle or "Mel" is widely distributed in Haiti, especially n open areas. It is usually near water. Bond (1928) and Wetmore and Swales (1931) report finding them up to the summit of the Massif de La Selle in the La Visite area. Wetmore and Lincoln (1933) recorded them from valleys with rivers as he approached Macaya from the north side, but did not find the Mel on the mountain. We recorded the Mel in both parks. In La Visite it could be heard and seen regularly in the area of the park headquarters where large flocks roosted in the nearby trees. During the day flocks of 20-40 birds fly westward at an elevation of about 1800 meters, rarely passing as high as the ridges of the massif. Most observations were in open areas, or areas with pines (Bwapen

Raje 62%, Jadins 18%, Bwapen 13%, Rak Bwa 7%. In the Macaya area no Mel were seen on the slopes of Macaya or Formon, however they were regularly recorded on the Plain of Formon in the Rak Bwa Woch (100%). The species, is rarely found in the higher areas of either park, but is a common sight in open (pinelands or Raje) areas near water.

Seasonal Status: Year round resident.

Status in Parks: Common in La Visite; uncommon in Macaya.

Special Comments: This species is well known in Haiti and ranges from sea level to the high mountains.

Carduelis dominicensis ANTILLEAN SISKIN

Ti Serin

Petit Serin

Canario

Description: The male of this colorful species is yellow green on the back and bright yellow on the breast. The head and wings are black, and the bill is yellow. The female is olive green on the back and whitish below. It frequently flies in large flocks, and emits a characteristic "e-see-zip" vocalization, often given as the bird flies.

Habitat Distribution: The Antillean Siskin or "Ti Serin" inhabits high, open pine forests where it feeds in the trees and on weeds near the ground. Bond (1928), Wetmore and Swales (1931) and Wetmore and Lincoln (1933) observed them in the La Visite area, but not in Macaya. We observed large numbers of the species in La Visite. We most frequently encountered Ti Serins in open Bwapen (37%) and Bwa Raje near gardens (24%) followed by open Raje (17%), Rak Bwa (12%), Jadins (8%) and Bwapen Raje (2%). In May Ti Serins were encountered more frequently in Bwapen (50%) and open rage (26%). In Macaya, where the pines are mixed in with broad leaved vegetation and there are no open pinelands, the Ti Serin does not occur in numbers. There is one record for the Ti Serin from near Jeremie (in 1917, Wetmore and Swales,

1931:440), and we heard several siskins over a 3 year period on Macaya suggesting that some individuals might be found in the area of Pic Macaya. It is probable that there are stray birds from the east, however, and that the Ti Serin does not breed on Macaya.

Seasonal Status: Year round resident. (ENDEMIC)

Status in Parks: Common in La Visite; presumably a rare vagrant in Macaya.

Recommendations: This species is doing well in the La Visite area, but depends upon mature stands of Bwapen, which should be protected from exploitation.

Special Comments: This species continues to be restricted as a breeding bird to the Massif de La Selle and eastward in the Dominican Republic. It is curious that it has not taken advantage of chance introductions (see above) into the Macaya region to establish a breeding population there. The only explanation for this is that the area in Macaya is not sufficiently "open" for the habitat requirements of the Antillean Siskin.

The type specimen for the Antillean Siskin was collected on June 3, 1866 in the pine forests of the mountains above Port-au-Prince, near Petionville.

Loxia leucoptera — WHITE-WINGED CROSSBILL

Bek Kwaze

Bec-Croiser, Gros Bec

Pico Cruzado, Turquesa

Description: This species is distinguished from all other birds in Hispaniola by its bill, which overlaps above and below. The male is rosy red in coloration with black wings and tail. The wings have two white wing bars. The female is yellow-green in coloration and streaked with brown. It also has wing bars. The species spends most of its time on the top of tall pines and is difficult to observe unless one is familiar with the vocalizations a dry "chif-chif" or "shik-shik" chat is repeated on and on.

Habitat Distribution: The White-winged Crossbill or "Bek Kwaze" is confined to the pine forests, where it feeds on the cones of mature pines. Wetmore and Swales (1931) found crossbills to be abundant on the Morne La Visite area, but did not find it in Macaya. We found crossbills in both La Visite and Macaya. In La Visite 100% of the observations were in forests or open areas of mature Bwapen. In Macaya the birds were more widespread (probably because there are few pure stands of Bwapen). We found crossbills most often in Bwapen mixed with Rak Bwa (93%), especially in the top of Pic Macaya, and in open Bwa Raje (7%).

Seasonal Status: Year round resident.

Status in Parks: Common in both parks.

Recommendations: This species is dependent upon large areas of mature pines. No pines should be cut in the park, and large areas of pine should be planted and allowed to reach mature size in the buffer zone.

Special Comments: The White-winged Crossbill had never previously been reported from Haiti west of La Selle, and we did not observe the species in Macaya until 1984. We found two flocks of 12-15 birds each on the top of Pic Macaya in January of 1984 and 1985 suggesting that the species has been expanding its former range (CAW). Crossbills were also present on Macaya in November [illegible] on a flock of 12-15 birds [illegible] Pic Formon and in the saddle between [illegible] whether the extent of pines on Macaya [illegible] support a breeding population of the White-winged Crossbill is questionable and unresolved. It is extremely important to note, however, that the cutting of all mature pine trees in the Macaya/Formon region must be stopped if there is going to be any chance for crossbills to establish themselves successfully in the Parc National Macaya.

The White-winged Crossbill is a species of the northern conifer forests, and within the Antilles is found only in Hispaniola.

Loxigilla violacea GREATER ANTILLEAN BULLFINCH

Ti Kok

Petit Coq

Gallito, Gallito Prieto

Description: This secretive bird is all black in coloration with a chestnut stripe above the eye, a bright chestnut colored throat patch and chestnut under the tail (tail coverts) in the male. The female has similar markings in chestnut, but the overall coloration is more slate colored. Immature birds are dark olive-grey with rufous markings as in the adult. The vocalization, which is heard more often than the bird is seen, is a harsh, loud "wichi-wichi-wichi" "screeee".

Habitat Distribution: The Greater Antillean Bullfinch or "Ti Kok" is a dark colored heavy bodied finch that spends its time in thickets or dense Rak Bwa. It is widespread from sea level to high montane regions. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) reported the bullfinch from both La Visite and Macaya regions. In Macaya they noted that the species was abundant from lowland areas to the summit of the mountain. We encountered the Ti Kok in both parks. In La Visite we most commonly encountered the species in Bois Raje (64% in December, 91% in May) followed by Rak Bwa (27% in December, 9% in May). The Ti Kok was

also encountered in the Bwapen, but dense stands of Rak Bwa and patches of broad-leaved vegetation is its favored habitat. In Macaya the Ti Kok was once again most commonly found in Rak Bwa (57%) followed by disturbed Raje areas in the high mountains (43%). On the Plain of Formon we once again most often encountered the Ti Kok in Bwa Raje Woch (70%) followed by Rak Bwa Woch (20%) and Jadins (10%). The species is, therefore, most closely associated in both parks with the broad-leaved forest, but does well in patchy habitats with some disturbance and in second growth regions. It is a bird of dense thickets and the edges of the forest, no matter how big or small the patches of vegetation might be.

Seasonal Status: Year round resident; breeds in April and May.

Status in Parks: Common in both parks.

Recommendations: This species is doing well in both parks, and should do even better as Rak Bwa areas are allowed to return to their natural state.

Special Comments: Wetmore and Lincoln (1933:66) notes that the Ti Kok was breeding when he was in the La Hotte region in April 1931, and that "its pleasant, whistled song, in tone and utterance suggesting of the Cardinal of the Southern United States, was heard regularly and was in fact

the earliest bird voice of the morning that frequently aroused us at daybreak when we were camped in the forest, or in native huts surrounded by shrubbery. The song was continued for an hour or more in early morning and was heard occasionally during the day, being especially attractive in an area where comparatively few birds were pleasing songsters." This vivid account indicates the importance of the Ti Kok to the overall ambiance of the parks, and indicates why birds are so important to protect and preserve in the national parks and the country as a whole.

Tiaris olivacea — YELLOW-FACED GRASSQUIT

Ti Zeb

Petit des Herbes

Ciguita de Hierba

Description: The male of this tiny species is greyish green on the back and grey below. There is a clear yellow stripe above the eye and on the lower eyelid, and the chin and throat are bright yellow contrasting markedly with a large black patch on the foreneck and chest (making the face appear to be yellow). The female lacks the black chest patch and has only faint yellow face markings, and so does not appear yellow-faced. The species is common in open areas and easy to observe, but is also readily identified by its song a rapidly uttered trill that sounds like a sewing machine "ze ze ze ze ze ze ze." The song is often uttered from a prominent perch (telephone lines in urban areas).

Habitat Distribution: The Ti Zeb is a species of open areas and is never found in forested areas. It is most often encountered in the lowlands. Wetmore and Swales (1931) and Wetmore and Lincoln (1933) reports it from the La Visite area where they were found feeding in weedy areas of abandoned gardens and in bracken ferns of the open Bwapen and from the lower areas around Macaya, but not from the mountain itself. We encountered the Ti Zeb in both parks.

In La Visite we encountered the Ti Zeb most often in open Raje areas (71%) and Jadins (24%) in January, but in Bwa Raje (43%) and Raje (33%) in May. In Macaya they were only encountered in Raje along the trail above Kay Formon, except on the Plain of Formon where they were extremely common in Jadins (100%). The species is characteristic of disturbed, open grassy and shrubby areas in lowlands, and its presence in higher elevations of both parks is a sign of habitat destruction and disturbance.

Seasonal Status: Year round resident.

Status in Parks: Common in La Visite, uncommon in Macaya except open areas of the Plain of Formon.

Recommendations: The presence of Yellow-faced Grassquits in the parks is an unfortunate indication of ruinate conditions. As the forest cover returns the number of Ti Zeb in each park should decline. However, the Ti Zeb will probably always be found in the open pinelands of La Visite.

Special Comments: This common species was one of the first known birds from Hispaniola, and was described by Linnaeus in 1766.

Tiaris bicolor BLACK-FACED GRASSQUIT

Si Si Zeb

Petit des Herbes

Juana Maruca

Description: This small ground dwelling bird is similar to the Ti Zeb, but is darker in coloration. There are no yellow markings on the head, and the face, throat and chest are black. The female is paler, and closely resembles the female Yellow-faced Grassquit. The vocalization is very different from that of the closely related Yellow-faced Grassquit, being a loud buzzing "Buzzzzzzzz" or "tik-zeeeeeeee".

Habitat Distribution: This species is similar in habitat requirements to the Ti Zeb, but is more frequently encountered in montane areas. Wetmore and Swales (1931) observed Si Si Zeb in the La Visite area, but not in the Macaya area (Wetmore and Lincoln, 1933). We encountered the Si Si Zeb in both parks. In La Visite they were especially common in September, and were found in Bwa Raje (43%) and Jadin (41%) habitats as well as Raje (10%) and riparian (6%) regions. We did not record any Si Si Zeb in May. In December and January they were most abundant in Bwa Raje (92%) and Raje (8%). The Black-faced Grassquit was much more abundant in the Macaya area. We encountered the

species in the mountains in Raje areas (51%) as well as in Bwa Raje (39%) and Bwapen Raje (10%). One individual was observed in dense Rak Bwa. On the Plain of Formon the Si Si Zeb was common in Jadins (100%). This species, therefore, is found in more forested habitats than is the Ti Zeb and is more likely to be encountered in natural areas in the high mountains.

Seasonal Status: Year round resident.

Status in Parks: Very common in both parks, where it is far more abundant than the closely related Yellow-faced Grassquit.

Recommendations: This species is doing well in both parks. Its status should not change markedly as the vegetation in the parks became more forested and as Rak Bwa returns and spreads to areas that have been deforested. No special action are necessary to secure the status of the Si Si Zeb.

Special Comments: This species is less well known than the Yellow-faced Grassquit in Haiti, probably because it is more characteristic of the less frequented mountain regions. The parks are an important habitat for the species.

Melospiza lincolnii — LINCOLN'S SPARROW

No common names in Haiti or the Dominican Republic

Description: This small migratory sparrow is brown above and white below with a streaked buff colored breast.

Habitat Distribution: This secretive species is found in scrubby vegetation in the mountains. We encountered the Lincoln's Sparrow in La Visite in Bwa Raje (75%) and in bracken fern in Raje (25%). In Macaya we found the sparrow in Bwa Raje (100%) at 1800 meters on the ridges of Formon.

Seasonal Status: Winter migrant from North America.

Status in Parks: Rare in both parks.

Special Comments: This species is considered a vagrant by Bond (1980) who records the Lincoln's Sparrow from the Bahama Islands, Cuba, Jamaica and Puerto Rico. It has never previously been recorded from Hispaniola. In the winter of 1984 Lincoln's Sparrows were encountered in both national parks (as was another vagrant, the Cedar Waxwing). It could be that unusual numbers of migratory birds overwintered in Hispaniolan during the winter of 1984. However, it should be noted that the Lincoln's Sparrow is extremely secretive and shy, and is difficult to observe. It is possible that

the species is a regular winter visitor to the mountains of Hispaniola.

Summary

The diversity of birds in the region of the national parks of Haiti in the Massif de la Hotte and Massif de la Selle is greaten than we estimated in our discussion of the montane avifauna of Haiti in 1983 (Woods and Ottenwalder, 1983). Species richness is similar for both parks. Our present data indicate that 67 species (41 residents, 26 winter migrants) occur in Parc National La Visite, and 65 species (46 residents, 19 winter migrants) occur in Parc National Pic Macaya.

The number of individual birds is much greater in Parc National La Visite (242 observed per day in January) than in either region of Parc National Pic Macaya (116 in the mountains; 151 on the Plain of Formon). The reason for these differences relates to the number of migrant warblers that occur in huge flocks in the agricultural areas within Parc National La Visite. It is common to observe flocks of 300 or more individual warblers of several species (Cape May Warbler, Palm Warbler, Yellow-rumped Warbler) foraging together in these areas on La Visite whereas this phenomenon was never observed on the Plain of Formon. The extensive open stands of pines also were suitable for large flocks of Antillean Siskins. This habitat is not present in Parc National Pic Macaya, nor are large flocks of siskins present

there. The proportion of the habitat that is open and severely altered by deforestation and agricultural practices is much greater in Parc National La Visite than in Parc National Pic Macaya. Large flocks of Yellow-faced Grassquits and other species utilize these ruinate areas (Raje and Jardin habitats) in La Visite, further increasing the number of individual birds in La Visite. The large count of individual birds in La Visite is not necessarily an encouraging observation but rather may be an indication of habitat disruption.

Black-capped Petrels are common in each park. We have presented the number of vocalizations recorded by a team of trained observers for specific locations in ea park so that data from future census periods can be compared with the specific data we obtained (Table 7). In general we can state that Black-capped Petrels are located in discrete colonies in each park. These colonies are on steep hillsides near the highest areas of the mountains at approximately 2000 meters elevation. We estimate that there is one colony of moderate size (x 12 vocalizations/min) on the south face of Pic Macaya slightly west of the southfacing shoulder of the mountain. Vocalizations were heard from our position on this shoulder that appeared to come from birds located over one hundred meters southwest suggesting that another colony of Petrels may exist on the

northwestern face of Pic Formon. Within Parc National La Visite a moderate colony exists on Morne La Visite (about 12 vocalizations/min), a small colony on Morne Cabaio (about 5 vocalizations/min) and a very large colony exists off the eatern head of Tete Opaque (about 20 vocalization/min). We are unable to estimate the number of birds represented in these colonies. We feel that the number of Black-capped Petrels is very reduced from the time of Wingate's survey in 1963. We feel that the main reasons for the reduction in the size of the petrel colonies in La Visite area is associated with the continued destruction of forest cover on the north face of the Massif (Nan Nway) and the existance of dogs, cats, mongoose and rats in close association with the petrel burrows.

The endemic species of Haiti are often associated with specific habitats and vulnerable to extirpation. This is especially true for species that require montane broad-leaved forests for shelter, food and nest sites. Of the 20 endemic species of land birds known to occur in Haiti 19 occur in one or the other of the two national parks, which is a measure of the importance of the ecosystems associated with Parc National La Visite and Parc National Pic Macaya. Thirteen species occur in both parks. The figure of "special" birds known to occ r in the parks is even greater when unique subspecies such as the Pine Warbler

or species found elsewhere but restricted to Hispaniola within the Caribbean area such as the White-winged Crossbill are included. In terms of the endemic and special avifauna of Haiti the preservation of the natural ecosystem as it remains in the parks and the management of the parks in such a way as to encourage the return of specific types of habitats are essential if certain species are to survive.

The most endangered species to be found in the parks is the White-winged Warbler. This species requires extensive stands of broad-leaved forest (Rak Bwa). The Hispaniolan Parrot is also endangered in Haiti, and is now very rare even in the areas of the national parks. Some species are still relatively common locally but are threatened because of the rapid destruction of their habitats. These species include the Black-capped Petrel, Rufous-throated Solitaire, and Chat Tanager.

We (Woods and Ottenwalder, 1983) have previously reported that seven species found in the Massif de la Selle, and specifically in the Morne La Visite region were missing from the Massif de la Hotte. These species were: Black-capped Petrel, Palm Crow, La Selle Thrush, Ground Warbler, Black-crowned Palm Tanager, Antillean Siskin and White-winged Crossbill. To this list we should have added the Hispaniolan Parakeet. These eight species all appear (or appeared) to be restricted to east of the Jacmel-Fauche depression (Bond's line). The only species that appear to

be limited to the west of this line is the Gray-crowned Palm Tanager.

Subsequent work and the present analysis indicates that this list needs to be modified. Black-caped Petrels and White-winged Crossbills are now present in the area of Pic Macaya. Some Antillean Siskins were observed during the past five years in Macaya within the boundaries of Parc National Pic Macaya. Therefore, the list of birds restricted to La Visite must be reduced from eight to five (Palm Crow, La Selle Thrush, Ground Warbler, Black-crowned Palm Tanager and Hispaniolan Parakeet). In the case of birds restricted to southwestern Haiti, we now believe that the Gray-crowned Palm Tanager is found east of Bond's line and within the boundaries of Parc National La Visite. It may be hybridizing with Black-crowned Palm Tanagers in the La Visite area. In Haiti, the Turkey Vulture has also been expanding its range eastward. It is now regularly observed on the Plateau Rochelrois near Miragoane, and we have observed it as far east as the Plain of Leogane. The species is common in the eastern, central and northern portion of the Dominican Republic.

Conclusions

The analysis and discussion of the birds of the national parks of Haiti indicate that many species are widespread and difficult to discuss as being specifically associated with a particular habitat type or region. Some species, however, most frequently the Hispaniolan endemics, are largely associated to very specific habitat types. Some of these habitats, such as the open fine forests of the mountains, are able to persist under even moderate exploitation, and the species in this ecosystem continue to do well. Birds such as the White-wing Crossbill, Antillean Siskin and Pine Warbler are able to range about in the pinelands and find suitable habitat and the pine forest grows quickly and reseeds naturally. This is the reason that the bird species most closely associated with the pine forest continue to do well even in face of rather extensive exploitation of the pinelands, especially in the Massif de la Selle.

Other habitats, such as the mesic broad-leaved forest, are much more vulnerable for exploitation. These habitats, described as either Rak Bwa or Bwa Raje local units are easily destroyed and often vulnerable because they grow in mesic regions that are suitable for agricultural usage. The

species that are most closely associated with dense, diverse and mature "Rak Bwa" habitats, such as the Chat Tanager, White-wing Warbler and Rufous-throated Solitaire are very vulnerable. As the mesic broad-leaved forest disappears these species become much more restricted in their distribution and vulnerable to extinction. This is especially true in the case of the White-wing Warbler, which we believe is the most endangered species of bird in Haiti.

A synthesis of the data in the text of this report is presented below as a series of recommendations and comments.

1. The mesic broad-leaved forest is the habitat in the national parks that is most closely associated with the largest number of endemic species. The forest will return to a Rak Bwa from the fragmented Bwa Raje habitats if recently cut or burned regions are protected from future exploitation. In extreme cases, however, some management will be necessary such as reforestation with selected species of broad-leaved vegetation that are especially suited for birdlife (such as Persea anomola) or clearing of climbing bamboo from regions where it is preventing forest regeneration.

Each park has nearby reservoir pockets or extensive areas of mesic broad-leaved forest which should be protected and connected to the main body of the parks by corridors that will allow the movement of bird species back into the

parks and serve as avenues to allow the biological diversity (both plant and animal) to return to the parks.

A. One center of diversity is the plateau of Morne d'Enfer west of La Visite. This entire mountain should be included into Parc National La Visite and connected to it by a wide corridor.

B. Another center of diversity is the karst dome habitat between 800 and 1000 meters in elevation on the southwestern margin of the Plain of Formon. This habitat is especially rich in birdlife and in endemic plants and animals. It should be connected to Morne Cavalier, Pic Le Ciel and Pic Formon by a wide corridor along the western margin of the Plain of Formon.

2. The mesic broad-leaved forest in the karst dome country on the Plain of Formon is the most important region of Parc National Pic Macaya. It is the habitat that supports all of the remaining Parrots of the area, and is the only area in Haiti where both species of Tody are known to co-exist. A large block of land in this region must be set aside as a protected zone and no exploitation within this zone should be allowed.

3. The steep face of the massif along the ridge of La Selle, which we call Nan Nway because it is often cloated in dense cloud cover, should be protected. This zone is the

last extensive zone of mesic forest in Parc National La Visite and in the region where Black-capped Petrels nest in burrows on the steep mountain side. The burrows are easily damaged if the forest cover is removed (by fire or cutting of the trees to make gardens). This can cause the burrow to be abandoned by the petrels and also expose the petrels to predation by dogs and cats which w. have been searching for prey on the steep hillsides where gardens have been established (even in very steep areas).

4. The steep zone near the southern flank of Pic Macaya and the northwestern flank of Pic Formon must be protected from fire and deforestation. Black-capped Petrels nest in these areas (confirmed in Macaya, suspected on Formon). It is especially important that the activities of the coffee cooperative, which holds private land extensively up to the western ridge of Pic Formon, be restricted so that no fires or deforestation of any kind is allowed above 1500 meters elevation in this area.

5. All dogs and cats should be removed from both parks.

6. It is not clear if the mongoose and rats are damaging ground nesting birds in the parks. This is especially important in the case of the Black-capped Petrel for which the impact of rats and mongoose on breeding sucess is not known. Studies on the impact of these introduced

mammals should be undertaken with an eye on the possibility of controling the numbers of rats and mongoose.

7. Special pockets of enriched habitat should be created to protect the status of certain species which are especially important and vulnerable. We suggest undertaking the following activities.

a. Placing nest boxes out for Hispaniolan Parrots and for Hispaniolan Trogons

b. Placing Purple Martin houses out in selected regions of Parc National La Visite.

c. Preventing <u>all</u> agriculture from a 50 meter zone around each of the small ponds on the Plain of Formon (Parc National Pic Macaya). This will protect the Least Grebes that make use of this habitat on the Plain of Formon.

d. Preventing all agriculture within 50 meters of any sinkhole and 100 meters of any cave. This will allow Rak Bwa habitat to regenerate in the region and the maintenance of diverse mesic microhabit that will benefit species such as the White-winged Warbler, Chat-Tanager and Rufous-throated Solitaire.

8. An education campaign should be iniciated to promote the status of the birds of Haiti. The major feature of this campaign should include:

a. The creation of an attractive exhibit at MUPANAH on the birds of Haiti with an emphasis on the endemic species.

b. The publishing of a book on Haitian birds (with photographs). This book should be in French and English and would be available to Haitians and tourists alike and increase the awareness of people about the birds of Haiti. Birds are one of the main features that can be enjoyed by visitors to the parks if they have the proper information as to which bird species are present and where they should go to see them.

c. A series of postage stamps should be issued illustrating the endemic birds of Haiti. At a minimum these series should include: 1) Black-capped Petrel; 2) Gray-crowned Palm Tanager; 3) Chat-Tanager; 4) Hispaniolan Trogon; 5) Hispaniolan Parrot;

d. INAHCA and MARNDR should designate the Gray-crowned Palm Tanager the national bird of Haiti. This action should be given a lot of publicity in

the newspapers, on television, on the radio and via a special public relations campaign that could be asociated with the issuance of a postage stamp.

e. Local artists should be encouraged to include images of the birds of Haiti in their paintings. This could have a very beneficial effort in increasing the awareness of the Haitian avifauna.

f. The newly created Societe Audubon d'Haiti pour la Protection de l'Environnement (SAHPE) should take on the popularization of the birds of Haiti to Haitians and tourists alike via lectures, articles in the newspapers (on a regular basis), and by sponsoring regular outings to specific regions of Haiti (both in the national parks and elsewhere) in order to observe and discuss birds. While there is no tradition of this among Haitians at the moment and the activities may at times seem only appealing to resident foreigners from North America or Europe, the long term benefits of such activities could be substantiated and increase the publics awareness of the natural patrimony of Haiti and the national parks.

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TABLE 1. Bird species that are endemic (E) or restricted (R) to Hispaniola. Species endemic only to Haiti (E*); once found in Puerto Rico (extirpated) but now confined to Hispaniola (R-PR); restricted to Hispaniola in the Antilles but also occurring in North America (R-NA) or South America (R-SA).

SPECIES	STATUS
LAND BIRDS	
Cuculidae	
Saurothera longirostris	E
Hyetornis rufigularis	E
Caprimulgidae	
Siphonorhis brewsteri	E
Trochilidae	
Chlorostilbon swansonii	E
Psittacidae	
Amazona ventralis	E
Aratinga chloroptera	E
Trogonidae	
Priotelus roseigaster	E
Todidae	
Todus subulatus	E
Todus angustirostris	E
Picidae	
Melanerpes striatus	E
Nesoctites micromegas	E
Corvidae	
Corvus leucognaphalus	R-PR
Muscicapidae (Turdinae)	
Turdus swalesi	E
Dulidae	
Dulus dominicus	E
Vireonidae	
Vireo nanus	E

TABLE 1.- CONTINUED

SPECIES	STATUS
Emberizidae (Parulinae)	
Dendroica pinus	R-NA
Microligea palustris	E
Xenoligea montana	E
Emberizidae (Thraupinae)	
Phaenicophilus palmarum	E
Phaenicophilus paliocephalus	E*
Calyptophilus frugivorus	E
Fringillidae	
Carduelis dominicensis	E
Loxia leucoptera	R-NA
Zonotrichia capensis	R-SA
NON-LAND BIRDS	
Accipitridae	
Buteo ridgwayi	E

Nomenclature follows the American Ornithologists Union Check-list (1983).

Table 2. List of bird species of Parc National Pic Macaya indicating major habitat preferences for each species (% of observations within favored habitat in parentheses) and status within the park. All data are from December-February censuses.

SPECIES	MOUNTAINS >1300 m	FORMON PLAIN	MOUNTAINS	PLAIN	STATUS
Least Grebe	-	+		ND(100)	U/E
Black-capped Petrel	+	-	MC		C/T
Sharp-shinned Hawk	+	+	RB(100)	RBW(100)	U/T
Red-tailed Hawk	+	+	RB(100)	RBW(100)	C
American Kestrel	-	+		J(100)	C
Peregrine Falcon	+	-			R/M
Common Bobwhite	-	+		J(100)	U/I
Common Guinea-fowl	-	+		J(100)	U/I
Limpkin	+	+	RB(100)	RBW(100)	R/T
Killdeer	-	+		J(100)	U
Spotted Sandpiper	+	-	RR		C/M
Red-necked Pigeon	+	+	RB(84)	RBW(52)	C
Mourning Dove	-	+		RBW(100)	U
Hispaniolan Parrot	-	+		RBW(100	C/T
Hispaniolan Lizard Cuckoo	-	+		RBW(54)	C
Smooth-billed Ani	-	+		J(100)	C
Barn Owl	+	+	RB(100)	RBW(100)	C
Collard Swift	+	-	GR(100)		U
Hispaniolan Emerald	+	+	RB(50)	RBW(41)	C
Antillean Mango	+	+	R(67)	BRW(100)	C
Vervain Hummingbird	+	+	BR(100)	BRW(80)	C

TABLE 2. CONTINUED

SPECIES	MOUNTAIN >1300 m	FORMON PLAIN	MOUNTAIN	PLAIN	STATUS
Hispaniolan Trogon	+	+	RB(85)	RBW(100)	C
Narrow-billed Tody	+	+	RB(43)	RBW(65)	C
Broad-billed Tody	-	+		RBW(100)	R/M
Antillean Piculet	+	+	RB(67)	RBW(67)	C
Hispaniolan Woodpecker	+	+	Bp(48)	RB(60)	C
Yellow-bellied Sapsucker	-	+		RBW(100)	R/M
Loggerhead Kingbird	-	+		BRW(67)	C
Stolid Flycatcher	-	+		BRW(100)	C
Greater Antillean Pewee	+	+	BR(50)	BRW(50)	U
G. Antillean Elaenia	+	+	BR(33)	BRW(100)	U
Golden Swallow	+	-	RB(100)		C
Northern Mockingbird	-	+		BRW(100)	R
Red-legged Thrush	+	+	RB(54)	RBW(100)	C
Grey-cheeked Thrush	+	-	RB(100)		R/M
Rufous-throated Solitaire	+	+	RB(69)	RBW(90)	C
Palm Chat	-	+		J(100)	
Black-whiskered Vireo	-	+		RBW(100)	U
Black and White Warbler	+	+	BR(41)	RBW(50)	C/M
Parula Warbler	+	+	BR(84)	RBW(100)	C/M
Cape May Warbler	+	+	BR(48)	RBW(100)	C/M
Black-throated Blue W.	+	+	RB(39)	RBW(60)	C/M
Yellow-rumped Warbler	+	+	BR(71)	BRW(100)	U/M

TABLE 2. CONTINUED

SPECIES	MOUNTAIN >1300 M	FORMON PLAIN	MOUNTAIN	PLAIN	STATUS
Black-throated Green W.	+	-	BR(100)		U/M
Yellow-throated Warbler	+	-	R(50)		U/M
Prairie Warbler	+	+	Bp(100)	RBW(100)	U/M
Pine Warbler	+	+	Bp(80)	BRW(100)	C
Palm Warbler	+	-	BR(100)		R/M
Ovenbird	+	-	BR(45)		U/M
Louisiana Waterthrush	-	+		BRW(100)	U/M
Common Yellowthroat	+	+	RB(66)	J(77)	C/M
White-winged Warbler	+	-	BR(80)		R/E
American Redstart	+	+	BR(47)	RBW(58)	C/M
Bananaquit	+	+	RB(68)	BRW(85)	C
Blue-hooded Euphonia	+	+	RB(100)	RBW(100)	U
Stripe-headed Tanager	+	+	BR(54)	RBW(94)	C
Grey-crowned Palm T.	+	+	RB(43)	BRW(75)	C
Chat Tanager	+	+	RB(75)	RBW(75)	C/T
Greater Antillean Grackle	-	+		RBW(100)	U
Antillean Siskin	+	-	BpR(100)		R
White-winged Crossbill	+	-	Bp(93)		C
G. Antillean Bullfinch	+	+	BR(57)	BRW(70)	C
Black-faced Grassquit	+	+	R(51)	J(100)	C
Yellow-faced Grassquit	+	+	R(100)	J(100)	C
Lincoln's Sparrow	+	-	BR(100)		R/M

TABLE 2. CONTINUED

Number of species in each region	47	51	
Total number of species for Park (January)		65	
Total number of species for Park (May)		46	

Habitat: (Bp) Bwapen; (BpR) Bwapen Raje; (BR) Bwa Raje; (BRW) Bwa Raje Woch; (GR) Gran Ravine; (J) Jadin; (MC) Mountain Cliff; (ND) Nan Dlo; (RB) Rak Bwa; (RBW) Rak Bwa Woch; (RR) Riviere Ravine du Sud.
Status: (C) Common; (E) Endangered; (I) Introduced; (M) Migrant; (R) Rare; (T) Threatened; (U) Uncommon.

Table 3. List of bird species recorded on the summit of Pic Macaya during January (above 2200) meters. The species are listed in order of abundance, with their abundance based on percent of total observations. Based on 12 days data (December 1983 - January 1984).

White-winged Crossbill	22%
Rufous-throated Solitaire	20%
Emerald Hummingbird	16%
Pine Warbler	9%
Chat Tanager	6%
Narrow-billed Tody	5%
Hispaniolan Woodpecker	5%
Red-legged Thrush	5%
Grey-crowned Palm Tanager	4%
Stripe-headed Tanager	3%
Red-tailed Hawk	2%
Greater Antillean Elaenia	1%
Barn Owl	1%
American Redstart	1%

Table 4. List of the birds of Parc National La Visite indicating major habitat preferences for each species (% of observations within favored habitat in parentheses) and status in park.

SPECIES	SEASON		HABITAT		STATUS
	Summer	Winter	May	December	
Black-capped Petrel	-	+	RB		C/T
Sharp-shinned Hawk	-	+	Bp(100)		U
Red-tailed Hawk	+	+	R(100)	BR(66)	C
American Kestrel	+	+	Bp(100)	R(38)	C
Common Bobwhite	+	+	J(76)	J(100)	C/I
Common Guinea Fowl	+	+	J(100)	J(100)	U/I
Limpkin	+	+	RB(100)	RB(100)	R/T
Killdeer	+	+	R(100)	R(100)	C
Spotted Sandpiper	-	+		ND(100)	C/M
Red-necked Pigeon	+	+	RB(50)	RB(100)	C
Mourning Dove	+	+	J(42)	Bp(47)	C
Hispaniolan Parrot	-	+		B(100)	R/ E
Hispaniolan Parakeet	+	+	Bp(100)	Bp(100)	C
Hispaniolan Lizard Cuckoo	+	+	BpR(100)	Bpr(100)	C
Barn Owl	+	+	RB(100)	RB(100)	C
Collard Swift	+	+		RB(60)	C
Black Swift	+	-	Bp(87)		U
Hispaniolan Emerald	+	+	BR(63)	BR(65)	C
Antillean Mango	-	+		J(100)	R
Vervain Hummingbird	-	+		BR(100)	U
Hispaniolan Trogon	+	+	RB(100)	BR(100)	U/T
Narrow-billed Tody	+	+	BR(79)	BR(79)	C

TABLE 4. CONTINUED

SPECIES	SEASON		HABITAT		STATUS
	Summer	Winter	May	December	
Hispaniolan Woodpecker	+	+	Bp(64)	Bp(54)	C
Loggerhead Kingbird	-	+		BR(100)	R
Greater Antillean Pewee	+	+	BR(56)	BR(62)	C
G. Antillean Elaenia	+	+	BR(32)	BR(58)	C
Golden Swallow	+	+	R(81)	R(38)	C
Purple Martin	+	+	R(100)	RB(100)	U
Palm Crow	+	+	J(54)	Bp(82)	C
Northern Mockingbird	+	-	R(100)		R
La Selle's Thrush	+	+	BR(50)	BR(42)	C
Red-legged Thrush	+	+	BR(40)	BR(48)	C
Gray-cheeked Thrush	-	+		RB(100)	U
Rufous-throated Solitaire	+	+	RB(75)	RB(50)	U
Cedar Waxwing	-	+		BpR(60)	R/M
Palm Chat	+	+	L	L	R/P
Black-wiskered Vireo	+	+	L	L	R/P
Black and White Warbler	-	+		Bp(50)	C
Nashville Warbler	-	+		Bp(100)	R/M
Blue-winged Warbler	-	+		Bp(100)	R/M
Cape May Warbler	-	+		J(63)	C/M
Black-throated Blue W.	-	+		BR(58)	C/M
Yellow-rumped Warbler	-	+		J(56)	C/M
Black-throated Green W.	-	+		RB(33)	U/M

TABLE 4. CONTINUED

SPECIES	SEASON		HABITAT		STATUS
	Summer	Winter	May	December	
Yellow-throated Warbler	-	+		Bp(66)	U/M
Prairie Warbler	-	+		R(89)	U/M
Pine Warbler	+	+	Bp(80)	Bp(59)	C
Palm Warbler	-	+		J(40)	C/M
Ovenbird	-	+		BR(75)	C/M
Louisiana Waterthrush	-	+		ND(100)	C/M
Common Yellowthroat	-	+		BR(100)	U/M
Ground Warbler	+	+	BR(59)	BR(55)	C
White-winged Warbler	+	-	RB(100)		R/E
American Redstart	-	+		RB(38)	C/M
Bananaquit	+	+	BR(100)	BR(54)	C
Blue-hooded Euphonia	+	+	RB(100)	RB(100)	R
Stripped-headed Tanager	+	+	RB(50)	RB(55)	C
Black-crowned Palm T.	+	+	BR(72)	BR(68)	C
Grey-crowned Palm T.	-	(?)		BR(100)	
Chat Tanager	+	+	RB(75)	RB(66)	C/T
Greater Antillean Grackle	+	+	Bp(100)	BpR(62)	C
Antillean Siskin	+	+	Bp(50)	Bp(37)	C
White-winged Crossbill	+	+	Bp(100)	Bp(100)	C
G. Antillean Bullfinch	+	+	BR(91)	BR(64)	C
Black-faced Grassquit	+	+	BR(60)	BR(100)	C
Yellow-faced Grassquit	+	+	BR(43)	R(71)	C
Lincoln's Sparrow	-	+		BR(75)	R/M

TABLE 4. CONTINUED

No. species/season	41	62
Total number species	67	

Habitat: (Bp) Bwapen; (BpR) Bwapen Raje; (BR) Bwa Raje; (J) Jadin; (L) Lowlands; (ND) Nan Dlo; (R) Raje; (RB) Rak Bwa.
Status: (C) Common; (E) Endangered; (I) Introduced; (In) Indetermined; (M) Migrant; (R) Rare; (T) Threatened; (U) Uncommon.

Table 5. Comparison of Winter (December) and Summer (May) birds in each major habitat within Parc National La Visite. Data are based on eight census days in each season during 1982.

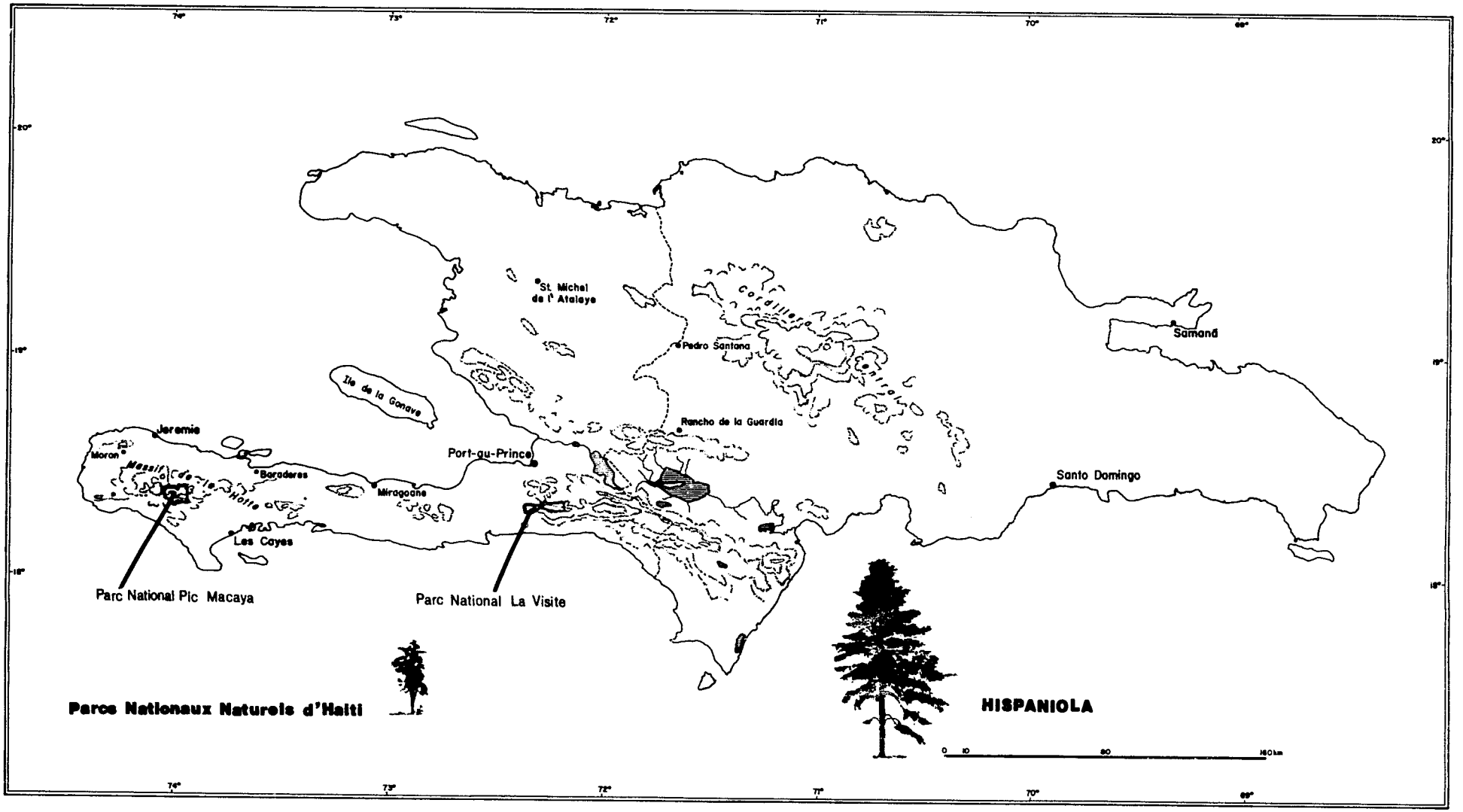
	May	December
Bwapen	34%	23%
Bwapen Raje	5%	4%
Rak Bwa	12%	12%
Bwa Raje	19%	26%
Raje	16%	13%
Jadin	11%	21%
Nan Dlo	3%	1%
Total # observations	897	1932
Average # birds per day	112	242
Total # of species	41	62

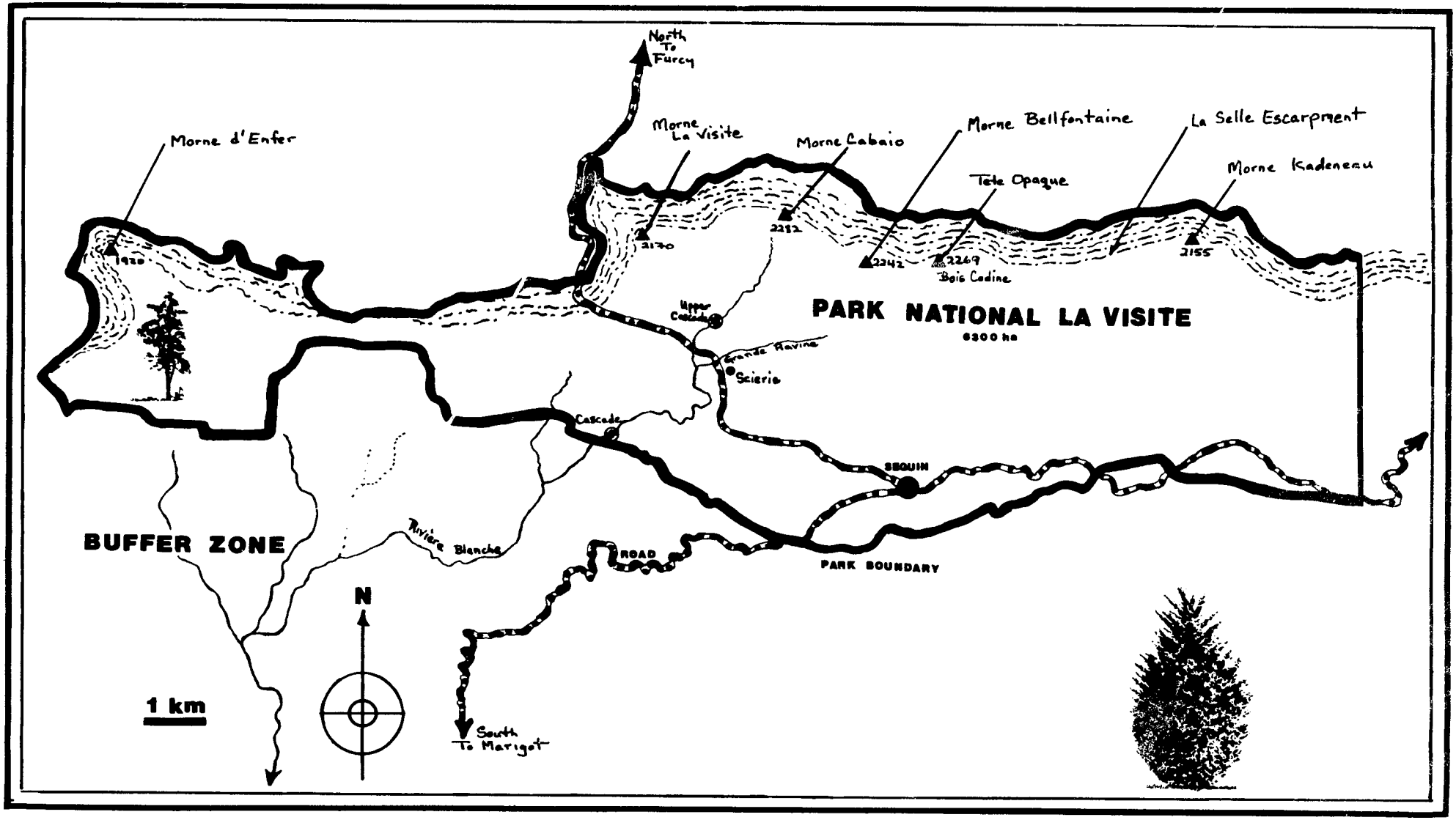
Table 6. Percentage of birds in each major habitat within Parc National La Visite and Parc National Pic Macaya during January.

HABITAT	LA VISITE	MACAYA	
		Massif	Plain Formon
Bwapen	23%	17%	-
Bwapen Raje	4%	4%	-
Rak Bwa	12%	40%	-
Bwa Raje	26%	30%	-
Raje	13%	11%	-
Jadin	21%	-	-
Rak Bwa Woch	-	-	50%
Bwa Raje Woch	-	-	37%
Jadin Formon	-	-	14%
Total # observations	1932	1397	433
Total # species	62	47	51
Combined total no. of species for both regions of Parc National Pic Macaya		65	
Average of birds/day	242	116	151

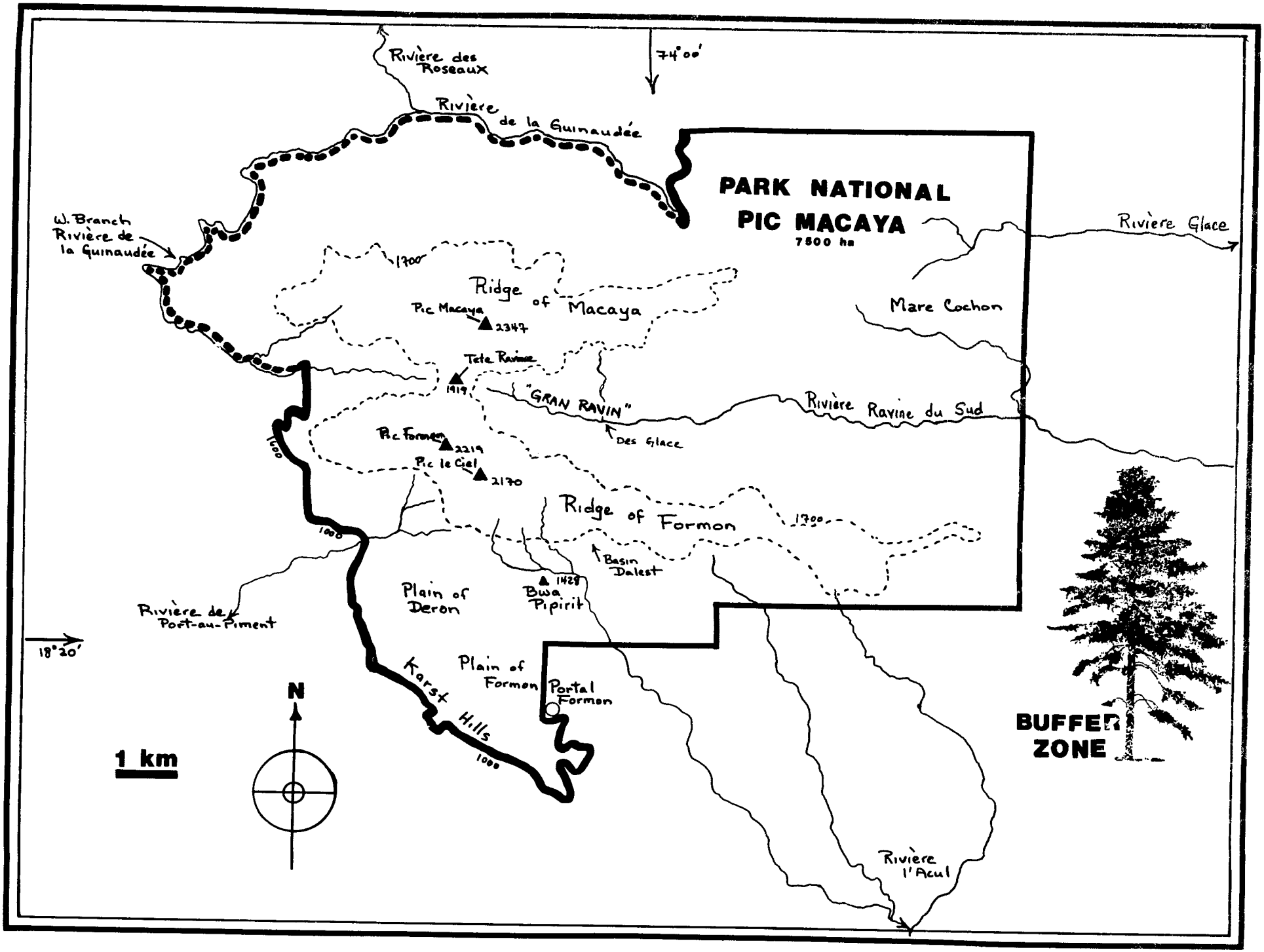
Table 7. Vocalizations of Black-capped Petrels. Recorded as number of complete vocalizations/minute over 10 one minute intervals and are averaged from all observers at a specific site (2-5 observers).

LOCATION	NO.VOCALIZATIONS 2000 hrs.	2100 hrs
Parc National La Visite		
Morne La Visite		
Jan.15	14.54	9.06
Jan.16	10.73	10.60
Morne Cabaio		
Jan.15	3.57	6.35
Tete Opaque (West Head)		
Jan 16	14.07	14.70
Tete Opaque (East Head)		
Jan 15	20.43	15.60
Parc National Pic Macaya		
East of Peak		
Jan 25	10.0	-
South of Peak on S. ridge		
Jan 27	8.8	-
West of Peak (50 meters)		
Jan 25	12.27	-
Jan 27	12.80	-
West of Peak (300 meters)		
Jan 25	9.95	-


St. Michel de l' Atalaye
Pedro Santana
Samana
Ile de la Gonave
Jeremie
Moron
Baraderes
Port-au-Prince
Rancho de la Guardia
Santo Domingo
Miragoane
Les Cayes
Parc National Pic Macaya
Parc National La Visite
Parcs Nationaux Naturels d'Haiti
HISPANIOLA
0 10 80 160 km


North To Furcy
Morne d'Enfer
Morne La Visite
Morne Cabaio
Morne Bellfontaine
La Selle Escarpment
Morne Kadeneau
Tete Opaque
1920
2170
2282
2242
2269
Bois Cadine
2155
Upper Cascade
Grande Ravine
Scierie
PARK NATIONAL LA VISITE
6300 ha
Cascade
SEQUIN
BUFFER ZONE
Riviere Blanche
ROAD
PARK BOUNDARY
N
1 km
South To Marigot

oh2


Rivière des Roseaux
Rivière de la Guinaudée
74°00'
PARK NATIONAL
PIC MACAYA
7500 ha
W. Branch
Rivière de
la Guinaudée
Rivière Glace
1700
Ridge of Macaya
Pic Macaya
2347
Mare Cochon
Tete Ravine
1919
"GRAN RAVIN"
Des Glace
Rivière Ravine du Sud
Pic Formon
2219
Pic le Ciel
2170
1400
1000
Ridge of Formon
1700
Basin Dalest
1428
Bwa Pipirit
Plain of Deron
Rivière de
Port-au-Piment
18°20'
Plain of
Formon
Portal
Formon
Karst Hills
1000
N
1 km
BUFFER
ZONE
Rivière
l'Acul