

BIOLOGICAL ASSESSMENT
for the
CARIBBEAN NATIONAL FOREST
REVISED LAND AND RESOURCE MANAGEMENT PLAN

I. INTRODUCTION

The purpose of this analysis is to assess effects on federally designated threatened or endangered species that occur or could occur within the Caribbean National Forest (CNF) or could be affected by management proposed in the Revised Land and Resource Management Plan (Revised Plan). The planning area includes all federal land managed or administered by the CNF in northeastern Puerto Rico (approximately 28,000 acres). This document is a Programmatic Biological Assessment (BA) that evaluates the effects of management under the Selected Alternative (C-mod) for the Revised Plan. Project-specific analysis is still conducted at the time of a project proposal to determine site-specific effects.

This BA was prepared in accordance with Forest Service Manual 2671.44 and 2672.42 and regulations set forth in Section 7(a)(2) of the Endangered Species Act. Determinations of effect by species are made based on best available information. As significant new information becomes available through inventory, monitoring and research, a revision of this assessment will be done through consultation with the U.S. Fish and Wildlife Service (USFWS) as appropriate.

The objectives of this assessment are to:

1. Document the occurrence or possibility of occurrence of Federally listed species within the planning area of the CNF Revised Plan.
2. Determine the effects of implementing Revised Plan direction on Federally listed species at the programmatic level.
3. Ensure that Forest Service actions do not contribute to loss of viability of any plant or animal species, or promote downward population trends which would lead towards Federal listing of any species.
4. Comply with the Endangered Species Act requirement that actions of Federal agencies not jeopardize or adversely modify critical habitat for Federally listed species.
5. Provide processes and standards which ensure that threatened and endangered species receive full consideration in the decision making process.

II. PROPOSED ACTION

Implementation of the CNF Revised Plan is the proposed action. The Revised Plan represents the preferred alternative, a modification of Alternative C from the 1995 Draft Proposed Revised Land and Resource Management Plan and Draft Environmental Impact Statement (DEIS). The preferred alternative is the most environmentally sensitive of the alternatives considered, and involves the least human-induced change to the natural environment. It emphasizes protection of primary forests, wildlife, fisheries, rare plants, and other forest resources while providing a mix of other uses including timber demonstration, research and recreation.

In response to comments received on the Draft Proposed Revised Plan and DEIS, the following changes were incorporated into the final:

1. The total area and number of sites allocated to timber demonstration was reduced (to 1,167 acres or 4% of the Forest) in order to reduce the potential for habitat fragmentation and impacts on the Puerto Rican Parrot, Broad-winged Hawk, and Sharp-shinned Hawk, and their habitats.
2. Management Standards and Guidelines were strengthened to ensure protection at the project planning level for threatened and endangered species such as Broad-winged and Sharp-shinned Hawks, and rare plants.
3. A new management area where timber demonstration would occur was created, rather than including timber demonstration in the Integrated Management Area.
4. A new management area for protection of Scenic and Recreation River corridors was created, to protect portions of these rivers not within Wilderness or Research Natural Area Management Areas.
5. The proposed expansion of the Quebrada Grande Picnic Area was eliminated, as was the proposal to construct the Espiritu Santo Trail and Trailhead, in order to reduce the potential for chronic human disturbances in the north and western portions of the Forest where Puerto Rican Parrots and endangered birds of prey are known to occur. Replacement recreation sites and trails were designated in less conflicting areas outside of known occupied habitats.
6. The Primary Forest Management Area was eliminated, and all primary forest was allocated to either Wilderness or Research Natural Area.
7. The proposal to designate the entire Forest as a municipal water supply watershed was dropped.

Planning Area

The planning area lies in the northeastern portion of Puerto Rico, the easternmost island of the Greater Antilles. With the exception of several private inclusions, the planning area pertains to all lands within Caribbean National Forest property boundaries. The Forest contains portions of eight municipalities: Canovanas, Ceiba, Fajardo, Juncos, Las Piedras, Luquillo, Naguabo, and Río Grande.

III. EFFECTS ON SPECIES AND HABITAT:

Thirteen federally endangered species and one threatened species either occur now or could potentially occur in the future within the administrative boundaries of the Caribbean National Forest (Table 1). No critical habitat for any of these species has been designated or proposed within the planning area.

Table 1. Occurrence and status of listed species for the Caribbean National Forest.

<u>Species</u>	<u>Status and Occurrence</u>
Puerto Rican Parrot	Endangered Year-round Resident Bird
Puerto Rican Sharp-shinned Hawk	Endangered Year-round Resident Bird
Puerto Rican Broad-winged Hawk	Endangered Year-round Resident Bird
Peregrine Falcon	Endangered Winter Migrant Bird
White-necked Crow	Endangered Bird Extinct on Puerto Rico
Puerto Rican Boa	Endangered Year-round Resident Reptile
<u>Callicarpa ampla</u>	Endangered Tree
<u>Eugenia haematocarpa</u>	Endangered Tree
<u>Ilex sintenisii</u>	Endangered Tree
<u>Lepanthes eltoroensis</u>	Endangered Orchid
<u>Pleodendron macranthum</u>	Endangered Tree
<u>Styrax portoricensis</u>	Endangered Tree
<u>Ternstroemia subsessilis</u>	Endangered Tree
<u>Ternstroemia luquillensis</u>	Endangered Tree

The following discussion addresses the effects of implementing the Revised Plan to these species. Of the 14 listed species known from the CNF, all presently occur on the Forest except for the White-necked Crow. This species occurred on the CNF prior to becoming extirpated from the island of Puerto Rico. Of the species which now occur on the Forest, all are permanent residents except for the Peregrine Falcon which is an uncommon winter migrant. Therefore, the disclosure of effects for the White-necked crow and Peregrine Falcon will be related to the effects of Plan implementation on their potential habitats rather than to populations.

The Revised Plan is a programmatic document that provides management direction for the next 10 years. The disclosure of effects of the Revised Plan to the listed species will relate then to the effects of probable activities on individual species and to the measures designed to avoid the effects of probable activities. These mitigating measures can be found in Chapter 4 of the Revised Plan: Forest Standards and Guidelines.

The Revised Plan also directs the Forest to follow Threatened and Endangered Species Recovery Plans during Forest Plan implementation. Recovery Plans present the most effective measures of promoting listed species recovery. They also address the effects of resource management activities and other threats on individual species. When probable research and management activities presented in the Revised Plan are actually proposed, they will undergo site specific environmental analysis, and must also adhere to recovery plans. They will therefore incorporate best management practices, will undergo USFWS consultation as needed, and are thus not likely to be implemented if they have potential to adversely effect listed species. As new recovery plans are developed, Forest Standards and Guidelines will be amended to incorporate new mitigation.

The following is a brief discussion for each of the listed species with regards to the effects of implementation of the Revised Plan and the how implementation relates to each species.

Puerto Rican Parrot (Amazona vittata vittata): The revised species recovery plan (USFWS 1987) is currently undergoing a second revision. It states that parrot recovery will be achieved through a combination of habitat protection and management, pest control, captive-breeding, establishment of second wild population, research directed at parrot ecology and appropriate management techniques, and protection from adverse human influences. Immediate factors which can potentially affect parrot recovery include human disturbances resulting from recreation or other activities which introduce noise or human presence to parrot habitats, and any physical disturbances which can affect the availability of food, nests, or other habitat components.

The Forest Service's contribution to the recovery effort focuses on habitat protection, management and enhancement; population monitoring; pest control; and research. Specific recovery activities in which the CNF is involved include nest augmentation, protection and maintenance; development and maintenance of the above-canopy network of platforms used to conduct census; management of enemies such as bees, rats, and thrashers; and enforcement of public access restrictions into sensitive areas.

Beyond the general requirements of the Recovery Plan, the CNF developed and put into use the Puerto Rican Parrot Management Situation Concept (García 1991). This project planning tool underwent USFWS consultation, is updated annually, and was incorporated into the Revised Plan as Standards and Guidelines which direct Forest research and management activities towards the achievement of recovery goals. Each proposed project undergoes site specific environmental analysis, biological assessment, and if necessary, USFWS consultation, prior to implementation.

Changes were made in the Revised Plan to add further support to the parrot recovery effort. Partly in response to USFWS recommendations, one plantation in occupied habitat and 8 additional plantations in unoccupied but potential parrot habitats were deleted from the proposed Timber Demonstration program.

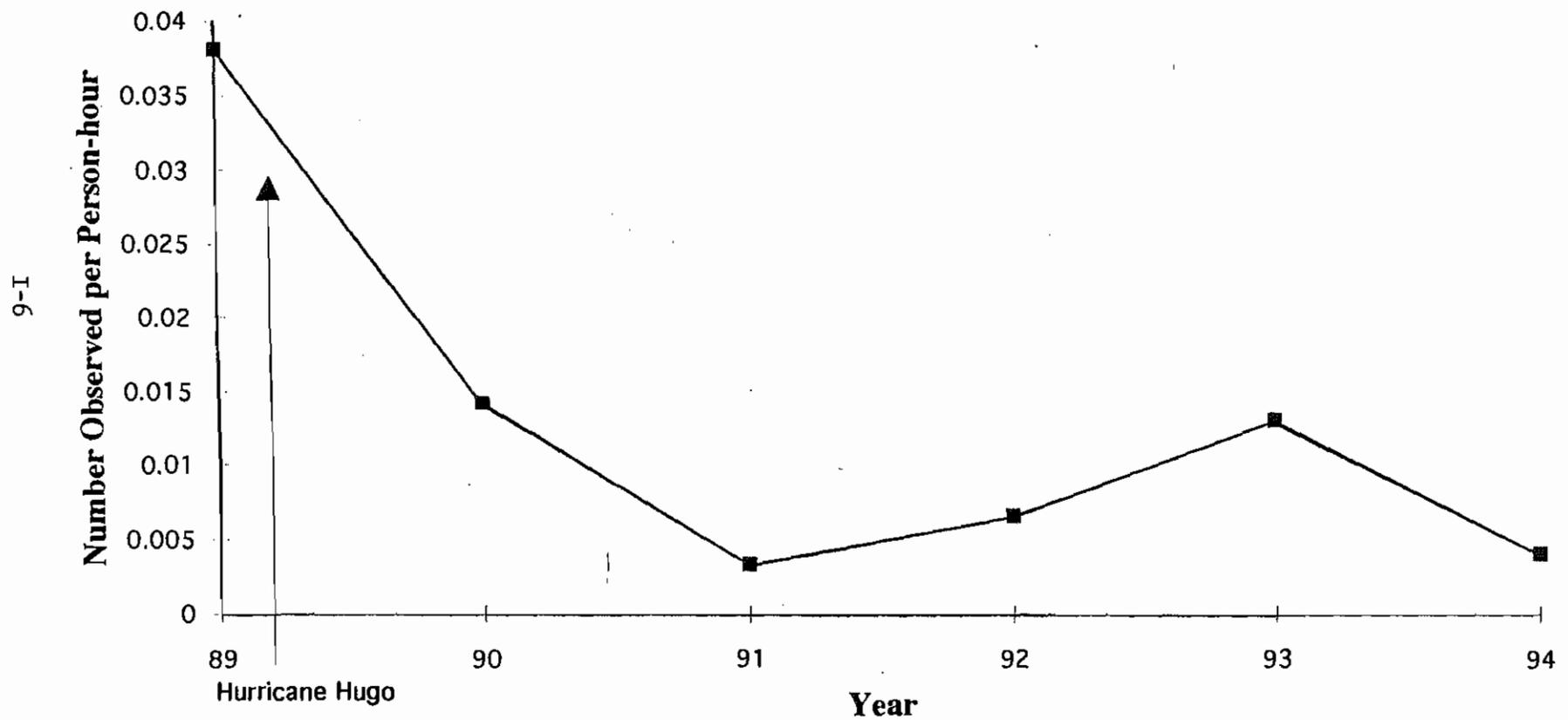
In other unoccupied parts of the Forest, silvicultural activities and the demonstration program can be used as a research tool to create stand conditions favorable to parrots and other endangered species. All currently occupied parrot habitat now occurs under the Revised Plan allocations of Research Natural Area or Wilderness. The Revised Plan also includes changes in recreation projects which might have potentially affected the parrot. The Quebrada Grande expansion, and the Rio Espiritu Santo trail and trailhead proposals were eliminated from the final Revised Plan. Based on these changes, the strength of the protective Standards and Guidelines, and the fact that any individual project must undergo site-specific analysis and biological assessment, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the Puerto Rican Parrot on the CNF.

Puerto Rican Sharp-shinned Hawk (Accipiter striatus venator): At present, few individuals and no nest sites are known to occur on the CNF. As recommended in the draft species recovery plan (USFWS 1996), Sharp-shinned Hawk surveys are conducted annually, during periods of epigamic activity, to establish population indices and to locate potential nesting areas. Such indices, plotted using CNF observation data since Hurricane Hugo, suggest a dramatic decline (Figure 1.).

The Revised Plan emphasizes continued inventory, monitoring, and habitat protection as a means of supporting recovery. Changes made in the Revised Plan to promote recovery of this species include the deletion of 9 plantation areas from the proposed timber demonstration program. These plantations, located in the northern and western parts of the Forest, were identified as potentially occupied or especially valuable to this species, and were recommended for elimination by USFWS. The deletion of these plantations resulted in an overall reduction in the total timber demonstration program, and a consolidation of demonstration areas which will reduce the likelihood of habitat fragmentation. In other areas where timber demonstration would occur, silvicultural activities can be used to promote recovery objectives by drawing from research findings to promote stand composition and structure favorable to this species.

The Revised Plan was also changed by significantly strengthening the protective Standards and Guidelines to ensure that research or management activities do not adversely affect this species or its habitat. Expert references were used in the development of these guidelines to ensure that the most accurate and current research findings were incorporated (Santana 1984, Snyder et al. 1987, Delannoy pers. comm.). The Standards and Guidelines require thorough inventory of proposed project areas for species presence prior to the implementation of any project. No activities of any kind would be allowed to occur within 150 m of any nest or roost site. No activities with potential to affect habitat quality would be allowed to occur within 500 m of any nest or roost site.

Figure I-1. Number of Sharp-Shinned Hawks Observed in the CNF/LEF per Person-Hour of Effort



Activities deemed compatible with recovery goals would occur no closer than 350 m from a nest site, or timed outside the nest selection and breeding seasons. Timber demonstration activities planned outside but near nest or roost areas would be designed to promote stand conditions favorable to Sharp-shins. The USFWS will be consulted on any proposed project capable of affecting this species or its habitat.

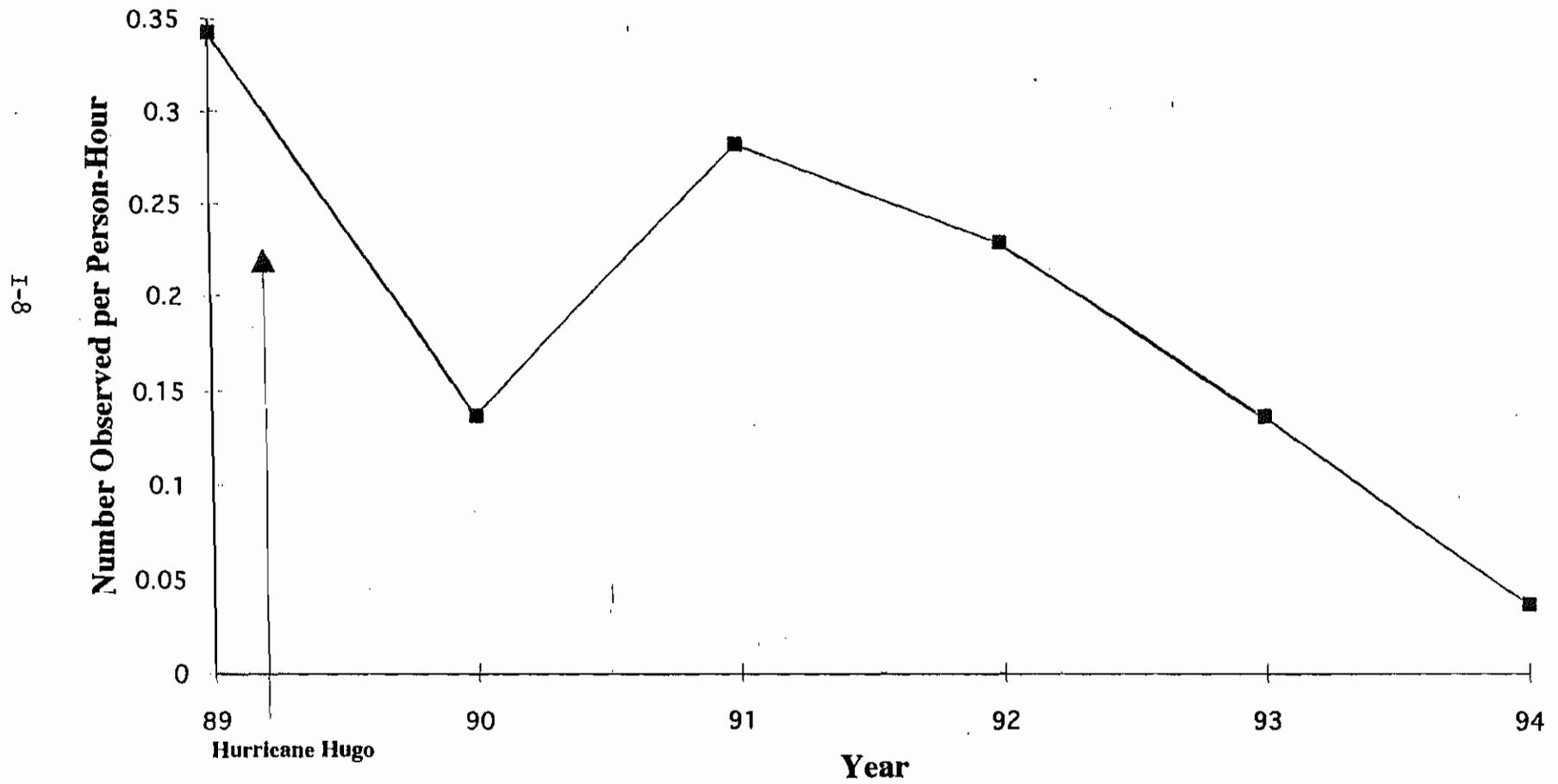
Because all proposed projects will undergo site specific environmental analysis, biological assessment, and if necessary, USFWS consultation, prior to implementation to insure no impacts to this species or its habitat, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the Sharp-shinned Hawk on the CNF.

Puerto Rican Broad-winged Hawk (Buteo platypterus brunnescens): A population estimate of 124 individuals was generated for the CNF (Delannoy 1992). While this number suggests that the status of the Broad-winged Hawk is more secure on the Forest than that of the Sharp-shinned Hawk, it still represents a decline apparent throughout the island in recent times. This decline is also evident on the Forest, based on survey and observational data (Figure 2).

As in the case of the Sharp-shinned Hawk, inventory, monitoring, and habitat protection are identified in the Revised Plan as a means of promoting recovery. The Standards and Guidelines which offer protection to the Broad-wing and other listed raptors were revised to more effectively protect and promote recovery of these species. All proposed research or management activities and project areas must be thoroughly assessed for potential effects and species presence prior to implementation. No activities of any kind would be allowed to occur within 150 m of any nest or roost site. No activities with potential to affect habitat quality would be allowed to occur within 500 m of any nest or roost site. Activities deemed compatible with recovery goals would occur no closer than 350 m from a nest site during the nest selection and breeding seasons, or they would be timed outside the reproductive period. Timber demonstration or silvicultural activities planned near nest or roost areas would be designed to promote stand conditions favorable to Broad-wings. The USFWS will be consulted on any proposed project capable of affecting this species or its habitat.

Several plantation areas in the northern part of the Forest were dropped from the proposed timber demonstration program due to their potential value to the Broad-winged Hawk. Many of these plantations and the natural second growth forests south and east of them (in occupied parrot habitat) are characterized by stand structure and species composition (e.g. maria, mahogany, teak, mahoe, guaraguao) associated with Broad-wing nesting habitat (see Delannoy 1992). Besides reducing the total acreage of the timber demonstration program, the deletion of these plantations consolidated the areas available for demonstration, promoting greater habitat contiguity outside of these areas. In the unoccupied areas where timber demonstration would occur, silvicultural prescriptions can be designed to promote the optimal stand conditions associated with this species.

Figure I-2. Number of Broad-Winged Hawks Observed in the CNF/LEF per Person-Hour of Effort



Any proposed project will undergo site specific environmental analysis, biological assessment, and if necessary, USFWS consultation, prior to implementation to insure no impacts to this species or its habitat. It is therefore determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the Broad-winged Hawk on the CNF.

Peregrine Falcon (Falco peregrinus tundrinus): As with other listed raptors on the CNF, surveys for this species are also conducted annually to determine occurrence. The Peregrine does not nest on the Forest and occurs only as an infrequent winter visitor. It has been seen flying over the Forest at various times with no regularity; no traditional use areas have been identified.

The Revised Plan emphasizes continued inventory, monitoring, and habitat protection as a means of supporting recovery. Standards and Guidelines for raptors were strengthened significantly to ensure that research or management activities do not adversely affect this species or its habitat. All proposed project areas will be thoroughly assessed for presence prior to implementation. No activities of any kind would be allowed to occur within 150 m of any established roost site. No activities with potential to affect habitat quality would be allowed to occur within 500 m of any roost site. Activities deemed compatible with recovery goals would occur no closer than 350 m from a roost site or timed outside the winter period of use. The USFWS will be consulted on any proposed project capable of affecting this species or its habitat.

Any proposed project will undergo site specific environmental analysis, biological assessment, and if necessary, USFWS consultation, prior to implementation to insure no impacts to this species or its habitat. Therefore, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the Peregrine Falcon on the CNF.

White-necked Crow (Corvus leucognaphalus): This species occurred on the CNF, but was last seen on the island of Puerto Rico in 1967 (R. Perez, pers. comm). Remnant populations still remain on the neighboring island of the Dominican Republic, which may serve as an eventual source for species re-introduction. The CNF would be one of the likely candidate sites for re-establishment once its ecology, habitat requirements, and factors leading to its extirpation, are better understood (J. Wiley, pers. comm). A wide variety of forested habitats on the CNF were apparently suitable for this species; there is some speculation as to the influence that another forest species, the Pearly-eyed Thrasher (Margarops fuscatus), may have had in its demise, and may yet have on the success of its reintroduction (W. Arendt, pers. comm.).

Given its absence from the Forest, the large amount of potential habitat which will remain undisturbed under the preferred alternative, and the fact that all probable activities are required to have site-specific environmental analyses prior to implementation, the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the White-necked Crow.

Puerto Rican Boa (Epicratis inornatus): The species recovery plan identifies research, the determination of status, protection, and environmental education as the means to effect recovery (USFWS 1986). The reasons specified for its decline were collections for medicinal purposes, prejudicial eradication, habitat destruction, and possible influences of the mongoose.

Based on sightings reported, the boa occurs in greater abundance and in wider distribution than once thought on the CNF (CNF observation records) and elsewhere (Moreno 1991). It has been found in all forest types within the Forest, but is most commonly encountered in the lower elevation Tabonuco type, in addition to the highly modified forested areas which surround the Forest (Moreno 1991).

The Tabonuco type is the most extensive forest type, comprising 49% of the Forest, and is where most timber demonstration activities are planned. Such activities can occur on a total of 8% of the Tabonuco type (4% of the Forest) over the 10-year planning period. The demonstration of forest management will result in some habitat changes which could favor or disfavor the boa, depending on the nature and significance of the changes on the site involved, and the habitat requirements of this species.

The absolute effect of tree removal and forest management on the boa cannot be determined until specific projects are proposed. However, the likelihood of the overall demonstration program adversely affecting the recovery of this species is remote, given its broad distribution and the fact that over the 10-year life of the Plan, the maximum area which could be affected is less than 2% of the Tabonuco type, and less than 1% of the Forest. Also, given our knowledge of the diverse habitats used by the boa, and as we learn more about the specific habitat requirements of this species, it is very possible that silvicultural prescriptions can be developed that would produce habitat conditions favorable to the boa, and help implement recovery objectives.

Until recently, boa recovery activities within the CNF have been limited to protection, project coordination, and presence surveys. Forest Service efforts now include a research project, and an environmental education program which presents the boa as a historically maligned and harmless species.

The current study uses radio-marked individuals to yield information on boa habitat use, home range size, and movement (Wunderle et al. 1994). Such information is prerequisite to the understanding of habitat relationships and the implications of management activities on boa ecology. The ability to inventory and protect boas and their habitats, and to coordinate activities to promote recovery both on and off the CNF will be enhanced by the results of this study.

The Standards and Guidelines presented in the Revised Plan specify that the implementation of Forest research and management activities will be preceded by inventories for endangered species such as the boa, and undergo site specific environmental analyses, biological assessments, and when appropriate, USFWS consultation to minimize any possibility that adverse effects will occur.

Based on these factors, the wide distribution of this species, the relatively small amount of boa habitat which will potentially be disturbed as a result of Forest management activities, and the fact that overall effects to this species may be beneficial or insignificant, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" the Puerto Rican Boa on the CNF.

Capa Rosa (Callicarpa ampla): The draft species recovery plan identifies restricted distribution and vulnerability to habitat disturbances as being major threats and factors contributing to the endangered status of this endemic species (USFWS 1993). The plan further defines the requirements for recovery as: the prevention of further habitat loss and population decline, continued research and monitoring, and the establishment of new populations. The recovery plan calls for the development of management plans, in cooperation with USFWS, which would document the measures to protect populations and their habitats, and provide for long-term monitoring.

The Revised Plan directs that management actions tier to recovery plans. Standards and Guidelines require that all proposed research or management projects are designed to ensure no impact to listed species. This is accomplished through thorough site inventory of proposed project areas and coordination of all projects to avoid any listed plant sites. CNF is also now in the process of compiling the information needed to develop a species management plan as called for in the recovery plan. Other recovery activities include the monitoring of the 5 known populations of this species, which occur in the Palo Colorado forest type; searching for new populations in occupied or potentially occupied habitats in previously unexplored parts of the Forest; and determining phenology.

One of the concerns raised in the draft recovery plan was related to the potential threats posed to Callicarpa ampla by the reconstruction of PR 191 South. The Revised Plan has proposed not to re-open this road to vehicle traffic, and instead to consider alternative means of non-motorized access such as a foot or bike trail.

Other specific concerns raised were illegal collecting, plantation maintenance and selective cutting, trail maintenance, & shelter construction. The two populations which occur along PR 191 South consist of adequately large trees, located on steep slopes, surrounded by chronically saturated soils. They are consequently not likely to be vulnerable to either collection or vandalism.

One of these two populations, however, does appear to be threatened by overstory shading. CNF will informally consult with USFWS on possible management actions to remedy the situation. Two other of the known populations occur near plantations which were designated for inclusion in the Timber Demonstration program, these have been dropped in the Revised Plan. The remaining population is the only one which occurs near an existing recreation trail. It is topographically isolated from the trail and not threatened by maintenance activities. No shelters will be constructed near any of the known populations of this species.

Future recovery activities include a collaborative effort with USFWS to establish new populations using seed germination, the outplanting of seedlings, or other means of artificial propagation. One successful transplanting of a Callicarpa ampla sapling to the El Portal area in the mid-1980's suggests the viability of vegetative propagation for this species. All propagation activities will be planned after benefit of informal consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Callicarpa ampla on the Forest.

Uvillo (Eugenia haematocarpa): In the Federal Register Proposal for Listing (USFWS 1993b), limited distribution and abundance, and vulnerability to habitat disturbances are identified as principle reasons for the decline of this species. Endemic to Puerto Rico, all but one of its 6 known populations occurs on the CNF. One of the CNF populations was only discovered this year while conducting USFWS-funded rare plant inventories.

The direction presented in the Revised Plan is designed to prevent further habitat loss or population decline of listed species. The Plan directs that Forest Service activities promote or be compatible with the recovery of threatened and endangered species, and that all proposed research or management projects receive thorough site-specific inventory and project coordination to avoid adverse effects to listed species. CNF is also now in the process of developing species management plans for all listed species.

Other recovery activities include the monitoring the known populations of this species; searching for additional populations in less accessible parts of the Forest; and determining the phenology of this species. Potential threats to the species, as identified in the Proposal for Listing, include collecting and forest management practices.

The Revised Plan land allocations which contain the CNF populations are Research, Research Natural Area, Developed Recreation, and Wilderness (2 populations). One of the Wilderness populations and the Developed Recreation population occur along streams which have been used historically for recreation. Although no trails occur or are proposed in these areas, the streams are popular routes used by hikers for exploring. CNF will informally consult with USFWS on the need to consider actions to prevent potential effects of recreational use of these sites. None of the remaining populations occurs in areas which incur significant levels of human use. None of the populations is believed to be vulnerable to collection. None occurs in areas designated for Timber Demonstration.

Future recovery activities include a collaborative effort with USFWS to establish new populations using seed germination, which appears to be a highly viable means of artificial propagation for this species. All propagation activities will be planned after benefit of informal consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Eugenia haematocarpa on the Forest.

Cuero de Sapo (Ilex sintenisii): The draft recovery plan for this species targets low population densities, limited distribution, and vulnerability to habitat disturbances as principle threats to its existence (USFWS 1993). The actions presented in the plan to effect recovery include protection of habitat and existing populations, the establishment of new populations, and continued research and monitoring. The recovery plan also calls for the development of a species management plan, to be prepared in cooperation with USFWS, to identify measures to protect the species and its habitats, and a long-term monitoring plan.

The Revised Plan directs that management actions be compatible with recovery plan goals. Standards and Guidelines require that all proposed research or management projects are designed to ensure no impact to listed species. This is accomplished through thorough site inventory of proposed project areas and coordination of all projects to avoid any listed plant sites. CNF is also now in the process of developing species management plans as called for in the recovery plan. Other recovery activities include the monitoring of the 4 known populations of this species, one of which was discovered recently while conducting USFWS-funded rare plant inventories; searching for additional populations in less accessible parts of the Forest; and determining its phenology.

The Revised Plan allocation for the areas which contain the known populations of this species are Communication Sites and Wilderness. Historically, significant areas of potential habitat for Ilex sintenisii were lost during the establishment of the electronic site access and facilities in the Dwarf Forest areas on and near El Yunque Peak and East Peak. A concern raised in the recovery plan was the potential effect of further expansion of existing facilities and the construction of new ones in this most limited of forest types. The Revised Plan prohibits the expansion of facilities beyond the areas currently under permit and in fact calls for the consolidation of such facilities and the reclamation of dwarf forest areas abandoned. The existing communication sites present no threat to any of the known populations; however the two populations which occur near East Peak, are within only a few meters of the access road. Fortunately, this road is not open to the public and is available only for administrative use.

Collection, forest management practices, trail maintenance, & shelter construction were also identified in the draft recovery plan as potential threats to this species. The most recently discovered population occurs on a peak historically visited by wilderness hikers. Although this population is not along the main path to the summit, it could be threatened by inappropriate recreational uses such as camping or tree cutting. CNF will informally consult with USFWS on possible management actions to remedy the situation. No shelters will be constructed which could threaten this or any other of the known populations of this species. Due to the absence of public access, none of the remaining populations are likely to be vulnerable to either collection or vandalism. Also, none of the known populations occurs near areas designated for timber demonstration.

Future recovery activities include a collaborative effort with USFWS to establish new populations possibly using seed germination as a means of artificial propagation. All propagation activities will be planned after benefit of informal consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Ilex sintenisii on the Forest.

NCN (Lepanthes eltoroensis): The draft species recovery plan identifies destruction and modification of habitat, both human-made and from hurricanes, as the most significant factors affecting the numbers and distribution of this species (USFWS 1995). The plan presents the requirements for recovery as: the prevention of further habitat loss and population decline, continued research and monitoring, and the establishment of new populations. The recovery plan also calls for the development of a management plan, in cooperation with USFWS, which would document the measures needed to protect populations and their habitats, and provide for long-term monitoring.

The Revised Plan directs that management actions support endangered species recovery and tier to recovery plans. Standards and Guidelines require that all proposed research or management projects are designed to ensure no impact to listed species. This is accomplished through thorough site inventory of proposed project areas and coordination of all projects to avoid any listed plant sites. CNF is also compiling the information needed to develop a management plan as called for in the recovery plan. Other recovery activities include the monitoring of the known populations of this species, which occur in the Dwarf Forest, Palm Forest, and Palo Colorado forest type; searching for new populations in occupied or potentially occupied habitats in previously unexplored parts of the Forest; and determining phenology. Recent CNF inventories funded by USFWS have yielded numerous new populations and individuals.

Specific concerns raised in the draft species recovery plan were illegal collecting, plantation maintenance and selective cutting, trail maintenance, & shelter construction. All of the known populations occur in an area allocated in the Revised Plan as Wilderness. Most of these populations occur along a major recreation trail within this wilderness, and could be vulnerable to collection or other forms of human impact. Actions generated by CNF and USFWS discussions on reducing such impacts include improved trail maintenance to encourage recreationists to stay on trails, and a decision not to construct shelters. None of the known populations occur in or near plantations which were designated for inclusion in the Timber Demonstration program.

The Forest Service is willing to collaborate with USFWS in any effort to establish new populations using any means of artificial propagation. All propagation activities would occur only after USFWS consultation.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Lepanthes eltoroensis on the Forest.

Chupacalos (Pleodendron macranthum): In the Federal Register Proposal for Listing (USFWS 1993b), limited distribution and abundance, and vulnerability to habitat disturbances are identified as principle reasons for the decline of this species. Five populations are known for this species which is endemic to Puerto Rico; 3 occur on the CNF.

The Revised Plan, through its stated goals, Standards and Guidelines, directs that Forest management and research activities promote or be compatible with the recovery of threatened and endangered species, and therefore do not contribute to further habitat losses or population declines. It also states that all proposed projects must receive thorough site-specific inventory, and project coordination to avoid adverse effects to listed species. Additionally, species management plans for this and other listed plant species are being developed. Other recovery activities relating to Pleodendron macranthum include the monitoring of the 3 known populations on the Forest; field reconnaissance to discover additional populations; and determining the phenology of this species.

Potential threats to this species identified in the Proposal for Listing include collecting and forest management practices. All three populations occur in the Integrated land allocation, and in long-standing mahogany plantations. Two of these plantations can demonstrate timber production. In order to ensure maintenance of these two populations, CNF will consult with USFWS on any proposed activities within these stands, and mitigate all actions which could otherwise alter habitat or microclimate conditions for this species. Options ranging from the use of buffer zones within specified radii of any population, to complete deferral of any management activities in the surrounding stands, are available for consideration.

One of the populations containing one individual tree lies adjacent to an area which has historically incurred recreational use and which is planned for development. Such development may increase use in the general area, but could be planned to divert what use now occurs near the sensitive area, away from it. Again, planning for any recreational development in this area would proceed under close USFWS consultation. Due to the distance of this tree from the planned use area, its size and inconspicuousness, it is not likely to be collected or vandalized. With regards to the remaining populations, though they occur near private lands, they are also not believed to be vulnerable to collection or vandalism.

Future recovery activities include a collaborative effort with USFWS to establish new populations using seed germination, which appears to be a highly viable means of artificial propagation for Pleodendron. Propagation activities would occur only after consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, the site specific analysis which is mandatory for all proposed projects, and our ability to avoid any potential impacts from management activities, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Pleodendron macranthum on the Forest.

Palo de Jazmin (Styrax portoricensis): Of all plant species present on the CNF, Styrax portoricensis is perhaps the rarest. An endemic to the Forest, it was known prior to Hurricane Hugo from only one site in the Palo Colorado forest type. Its population was composed of only two individuals, one of which was lost as a result of the hurricane. Since then, one seedling was germinated from seed and transplanted into similar habitat in another watershed (Carlos Rodriguez, pers. comm.), bringing the total population again up to two. The draft species recovery plan identifies this extremely small population size, poor distribution, and vulnerability to natural and human-caused habitat disturbances as the major threats to the continued existence of this critically endangered species (USFWS 1993). The efforts recommended in the recovery plan include the prevention of habitat loss and further population decline, research and monitoring, the establishment of new populations, and the preparation of a management plan which would document protective measures and provide a long-term monitoring plan.

The Revised Forest Plan directs that management actions be compatible with species recovery plans. Standards and Guidelines require that all proposed forest management or research activities be designed to ensure no impact to listed species. This is achieved through thorough site assessment of proposed project areas and through the coordination of all projects to avoid impacting listed plants. CNF is also developing a management plan for this species. Other recovery activities include monitoring the one natural population and the one transplanted individual of this species; searching for new populations in similar habitats; and improving our understanding of its phenology.

Aside from the factors mentioned above, other concerns raised in the recovery plan were illegal collecting, plantation maintenance and selective cutting, trail maintenance, & shelter construction. Given its extremely remote location, the natural Styrax site is not threatened by collection or vandalism. The transplanted seedling is within an area closed off to public access, and is also not likely to be vulnerable to collection or vandalism. Neither site coincides with areas where silvicultural activities, trails maintenance, or shelter construction will occur.

Because of its extremely low numbers and limited distribution, and also because of the excellent prognosis for seed germination associated with this species, artificial propagation efforts should be a priority among recovery activities. CNF is interested in participating in any such efforts, with the USFWS and the International Institute of Tropical Forestry (who successfully established the second population). All propagation activities will be planned cooperatively with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Styrax portoricensis on the Forest.

NCN (Ternstroemia subsessilis): This endemic tree now known only from the CNF, occurs in 4 distinct sites on the CNF. The draft recovery plan for this species cites low population densities, limited distribution, and vulnerability to habitat disturbances as principle threats to its existence (USFWS 1993). The actions presented in the plan to effect recovery include protection of habitat and existing populations, the establishment of new populations, continued research and monitoring, and the development of a species management plan to be prepared in cooperation with USFWS.

The Revised Plan directs that management actions be compatible with recovery plan goals. Standards and Guidelines require that all proposed research or management projects are designed to ensure no impact to listed species. This is accomplished through thorough site inventory of proposed project areas and coordination of all projects to avoid any listed plant sites. CNF is also in the process of developing the species management plan. Other recovery activities include the monitoring of the 4 known populations of this species; searching for additional populations; and determining its phenology.

The sites which contain the 4 known populations are allocated in the Revised Plan to Wilderness (2 populations), Research Natural Area, and Wild and Scenic River Corridor. The latter population occurs on a small flat above a steep slope approximately 100 m from PR 191 South. A concern raised in the recovery plan relates to the potential threats posed to this species by the reconstruction of PR 191 South. The Revised Plan has proposed not to re-open this road to vehicle traffic, and instead to consider alternative means of access such as a foot or bike trail. No impacts from this non-motorized alternative are expected.

The recovery plan cites the loss of T. subsessilis populations and habitats during the establishment of the electronic site access and facilities in the Dwarf Forest areas on and near El Yunque Peak. Another concern raised in the recovery plan was the potential impact of further expansion or new construction of facilities in this sensitive and limited forest type. The Revised Plan prohibits the expansion of facilities beyond the areas currently under permit and calls for the consolidation of facilities that exist today. It also directs the reclamation of dwarf forest areas which are abandoned as a result of this consolidation. The existing communication sites present no threat to any of the known populations since their locations do not coincide.

Hurricanes, construction of forest public facilities, the establishment and maintenance of plantations, and trail maintenance were also identified in the draft recovery plan as potential threats to this species. No new facilities are planned for construction, nor do any plantations occur, near any of the known populations. One population occurs along, but 30 m away from, the El Toro trail. Due to its distance from the trail, no adverse effects from trail maintenance are expected.

With respect to hurricanes, the only means of offsetting the impacts of such catastrophic events is to improve the current distribution of this species. At present, the CNF is aware of no means to artificially propagate this species. However we are interested in collaborating with USFWS to experiment with seed germination or other methods of artificial propagation. All propagation activities would occur after consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Ternstroemia subsessilis on the Forest.

NCN (Ternstroemia luquillensis): Another endemic to the CNF, this tree is known to occur in 5 sites, one of which was discovered in 1996, while conducting USFWS-funded inventories. The draft recovery plan indicates that poor distribution and population density, and further habitat loss are its most serious threats (USFWS 1993). The recovery plan strategy is to protect habitat and existing populations, establish new populations, continue research and monitoring, and develop a species management plan.

Management direction in the Revised Plan indicates that Forest management and research activities must be compatible with recovery plan goals. Standards and Guidelines require that all proposed projects be designed to ensure no impact to listed species. This is accomplished through site-specific assessment of proposed project areas and thorough coordination to ensure no impacts to PETS species. A species management plan will also be prepared. Other CNF recovery activities include the monitoring of the 5 known populations of this species; searching for additional populations; and determining phenology.

The known populations occur in areas allocated in the Revised Plan to Wilderness, Research Natural Area (2 populations), Wild and Scenic River Corridor and Developed Recreation. The population which occurs in Developed Recreation is the one only recently discovered. While this allocation is intended to promote recreational use, the actual site is heavily vegetated and difficult to access. As such, it can be easily avoided during project planning. This site was visited with USFWS personnel in 1996, and any recreational planning for this area would be achieved with full consideration of the sensitivity of this species, and with USFWS participation.

One population occurs about 100 m above PR 191 South. The recovery plan expressed concern over the potential threats posed to this species by the reconstruction of PR 191 South. Due to the distance of this population to the road and the Revised Plan direction not to re-open this road to vehicle traffic, no impacts from this source are expected. The recovery plan also cites the potential threats to this species from expansion or new construction of the electronic site on East Peak. Although one population does occur near this facility, no expansion or new construction is allowed under the Revised Plan. Because this population lies about 10 m below the road which provides restricted access (closed to public use) to the facility, no impacts are anticipated.

Hurricanes, the establishment and maintenance of plantations, and trail maintenance were also identified in the draft recovery plan as potential threats to this species. None of the known populations occur in plantations or in areas where trails maintenance can affect them. As stated for other species which occur in poor distribution or in low abundance, artificial propagation is the only means of offsetting the risk of extirpation from catastrophic events such as hurricanes. See germination may afford a means to artificially propagate this species. CNF would be interested in collaborating with USFWS to develop this or other methods of artificial propagation. All propagation activities would occur after consultation with the USFWS.

Given the protection and measures which are being applied towards the conservation of this species, and the site specific analysis of all proposed projects, it is determined that implementation of the Revised Plan is "NOT LIKELY TO ADVERSELY AFFECT" any populations of Ternstroemia luquillensis on the Forest.

IV. CONSULTATION WITH OTHERS AND REFERENCES:

Persons Consulted:

Dr. Wayne Arendt, USDA Forest Service, International Institute of Tropical Forestry, Rio Piedras, PR

Mr. Marc Bosch, USDA Forest Service, Regional Office, Atlanta GA

Mr. José Chabert, Puerto Rico Department of Natural Resources and the Environment, San Juan, PR

Dr. Carlos Delannoy, University of Puerto Rico, Mayagüez, PR

- Mr. Fernando Núñez-García, USDI Fish & Wildlife Service, Rio Grande, PR
- Mr. Vicente Quevedo, Puerto Rico Department of Natural Resources and the Environment, San Juan, PR
- Ms. Susan Silander, USDI Fish & Wildlife Service, Caribbean Field Office, Boqueron, PR
- Dr. Jim Wiley, USDI National Biological Survey, Grambling State Univ., LA
- Dr. Joseph Wunderle, USDA Forest Service, International Institute of Tropical Forestry, Rio Piedras, PR

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V. CONCLUSION AND DETERMINATION OF EFFECT

Based on the above information, including the implementation of: species' recovery plans, Forest Plan standards and guidelines, existing and continuing inventories, site specific BA and BE analyses at the project level, and the beneficial effects that are an expected result, implementation of the Revised Caribbean National Forest Land & Resource Management Plan and its proposed actions are "NOT LIKELY TO ADVERSELY AFFECT" Federal endangered or threatened species.

This determination of effect is rendered on the basis of additional project level site specific analysis and BA/BE documentation, and consultation with the USFWS.

Prepared by:



ERNESTO GARCÍA
Forest Biologist
Caribbean National Forest



March 28, 1997



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Caribbean Field Office
P.O. Box 491
Boqueron, Puerto Rico 00622

April 14, 1997

Mr. Pablo Cruz
Forest Supervisor
Caribbean National Forest
U.S. Department of Agriculture, Forest Service

Dear Mr. Cruz:

Thank you for your letter of March 31, 1997, concerning the Revised Land and Resource Management Plan for the Caribbean National Forest/Luquillo Experimental Forest and associated Final Environmental Impact Statement (referred to here as Revised Plan). Your letter was accompanied by a Biological Assessment which discusses the potential for impacts on threatened and endangered species from the implementation of this Revised Plan.

The Department of the Interior, in a letter of July 17, 1995, provided comments on the draft revised plan and the draft environmental impact statement. Our comments were related to the need to update the list of threatened and endangered species to reflect more recent additions to this list, concerns over the impacts of timber demonstration plots and trail construction and use on the Puerto Rican parrot (*Amazona vittata vittata*), and concerns over the need to evaluate the impacts of the implementation of the plan on not only the Puerto Rican parrot but on the other 13 threatened and endangered species found in the Forest. In addition, we recommended that, while the Forest Service had stated that biological evaluations would be conducted on individual projects with potential to affect threatened and endangered species, informal consultation be initiated with the Service on the overall Land and Resource Management Plan.

In keeping with the above, the Forest Service met with the Fish and Wildlife Service on February 10, 1997, and again on March 25, 1997, in order to discuss modifications that had been made to the Revised Plan and to present the information provided in the Biological Assessment.

The Revised Plan presents the preferred alternative, a modification of Alternative C described in the 1995 Draft Proposed Revised Land and Resource Management Plan. The Revised Plan establishes a framework for future decision making by

outlining broad general multiple-use programs, projections, or targets for achieving multiple use goals and objectives. It is a strategy for applying general management practices at various intensities to land areas to achieve such goals and objectives. The Revised Plan describes land allocations as follows:

1. Management Area 1 - Administrative Sites (204 acres or 1% of the Forest).
2. Management Area 2 - Developed Recreation (1,158 acres or about 4% of the Forest).
3. Management Area 3 - Communication Sites (196 acres or about 1% of the Forest).
4. Management Area 4 - Integrated or dispersed recreation, research and watershed and wildlife protection (6,216 acres or about 22% of the Forest).
5. Management Area 5 - Wilderness (10,363 acres or about 37% of the Forest).
6. Management Area 6 - Research (919 acres or 3% of the Forest).
7. Management Area 7 - Research Natural Area (6,372 acres or about 23% of the Forest).
8. Management Area 8 - Timber Demonstration (1,167 acres or about 4% of the Forest).
9. Management Area 9 - Wild/Scenic/Recreation River Corridors (1,295 acres or about 5% of the Forest).

The Revised Plan incorporates the following significant modifications:

- Creation of an additional management area where timber demonstration may occur. Previously such demonstration areas were included in the Integrated Management Area.
- In order to avoid possible adverse effects to the Puerto Rican parrot, areas proposed for timber demonstration in the northwestern part of the Forest were dropped and the La Condesa tract in the southwestern portion was added.
- In order to avoid possible adverse effects to the Puerto Rican parrot, proposals to construct the Espiritu Santo Loop Trail and expand the Quebrada Grande Picnic Area were dropped.
- Elimination of the Primary Forest Management Area. All primary forest is allocated to Wilderness or Research Natural Areas.

- Proposals to construct a developed recreation site on PR #9966 and a hiking and/or bicycle trail across the old landslide on PR #191 on the south side of the Forest were added.
- The Río Sabana/Río Blanco Trails were identified as reconstruction rather than new construction.
- The proposal to designate the Forest as a municipal water supply watershed was dropped.
- Direction for integrated pest management was added.
- Direction for management of recreation residence permits was clarified.

The Biological Assessment provided to this office with your letter of March 31, 1997, evaluates the potential for adverse effects on the following threatened and endangered species:

Animals

<i>Amazona vittata vittata</i>	Puerto Rican parrot
<i>Accipiter striatus venator</i>	Puerto Rican sharp-shinned hawk
<i>Buteo platypterus brunnescens</i>	Puerto Rican broad-winged hawk
<i>Falco peregrinus tundrinus</i>	Peregrine falcon
<i>Corvus leucognaphalus</i>	White necked crow
<i>Epicratus inornatus</i>	Puerto Rican boa

Plants

<i>Callicarpa ampla</i>	Capa rosa
<i>Eugenia haematocarpa</i>	Uvillo
<i>Ilex sintenisii</i>	Cuero de sapo
<i>Lepanthes eltoensis</i>	
<i>Pleodendron macranthum</i>	Chupacallos
<i>Styrax portoricensis</i>	Palo de jazmin
<i>Ternstroemia subsessilis</i>	
<i>Ternstroemia luquillensis</i>	

The white-necked crow has been extirpated from the island of Puerto Rico. Of the remaining species, all are permanent residents except for the peregrine falcon which is an uncommon winter migrant.

The Biological Assessment evaluates the potential effects of the implementation of the Revised Plan on each of the above-mentioned species and their habitat. It concludes that it's implementation is not likely to adversely affect these species. Standards and Guidelines designed to ensure that research or management activities do not adversely affect threatened and endangered

species were included in the Revised Plan and discussed in the Assessment. Specific recommendations were made during the meeting of March 25, 1997, to modify certain aspects of the Standards and Guidelines for the Puerto Rican parrot including the designation of the Luquillo Aviary as part of Puerto Rican Parrot Management Area 1 and the extension of the Puerto Rican parrot nest selection period to end on April 15 instead of March 15. It is our understanding, as is stated in your letter of March 31, 1997, that these changes have been incorporated.

The Standards and Guidelines make specific reference to the Puerto Rican parrot (see attachment), the Puerto Rican broad-winged hawk and the Puerto Rican sharp-shinned hawk. With respect to the latter two species a thorough inventory of proposed project areas would be required. No activities of any kind would be allowed to occur within 150 meters of any nest or roost site. No activities with potential to affect habitat quality would be allowed to occur within 500 meters of any nest or roost site. Activities deemed compatible with recovery goals would occur no closer than 350 meters from a nest site during nest selection and breeding seasons or they would be timed outside the reproductive period. These measures were coordinated with Dr. Carlos Delannoy from the University of Puerto Rico, Mayaguez Campus.

In previous conversations with the Forest Service, the Fish and Wildlife Service recommended that the habitat in the timber demonstration area be characterized in order to determine if the area has the characteristics necessary to be potential habitat for the broad-winged and sharp-shinned hawks. This characterization should be conducted as part of the preparation of the biological evaluation for individual projects. If necessary, measures should be incorporated into each project as it is developed to avoid adverse effects to such habitat. Periodic surveys of the hawks should be conducted in order to develop a record of sightings to be used in each particular evaluation of the timber demonstration projects.

The Puerto Rican boa has been found in all forest types, but is most commonly encountered in the tabonuco forest type. The Biological Assessment states that the potential for adverse effects on this species from timber demonstration are minimal, given that over the 10 year life of the Revised Plan the maximum area which would be affected would be approximately 1% of the Forest. Forest Service efforts towards the recovery of the boa currently include a research project utilizing radio telemetry to study habitat use, home range size and movement and an environmental education program. Each individual project proposed under the Revised Plan will be preceded by inventories, environmental analysis, biological assessment and, if necessary, consultation under section 7 of the Endangered Species Act. Part of the consultation should be the development of a protocol for the protection of the boa.

The Biological Assessment evaluates the potential for impacts on threatened and endangered plants. Five populations of *Callicarpa ampla* or *capa rosa* are known from the Forest. Two are located near Road #191, however, the Revised Plan has proposed not to reopen the road to vehicular traffic. Two other known populations occur near plantations that were previously proposed for inclusion in the Timber Demonstration program, but which have been dropped from in the Revised Plan. The remaining population occurs near a recreation trail but is topographically isolated from the trail, not threatened by trail maintenance and no construction of shelters is proposed for the area.

Eugenia haematocarpa is known from five locations within the Forest. These are located in Research, Research Natural Area, Developed Recreation, and Wilderness (2 populations). Only two of the populations, 1 in the Developed Recreation and 1 in wilderness, occur in areas which have significant levels of human use, being located along streams which are popular with hikers. None are in timber demonstration areas.

Ilex sintenisii is located in areas designated as Communication Sites and Wilderness. Historically, significant areas of potential habitat for this species were lost during the establishment of electronic site access and facilities. The Revised Plan prohibits the expansion of facilities beyond the areas currently under permit and recommends the consolidation of such facilities and the restoration of dwarf forest areas. Two populations occur adjacent to the access road, however, the road is not open to the public. The most recently discovered population occurs in a Wilderness area, in an area visited by hikers but is not along the main path. No shelters are proposed for the area. No individuals occur in the timber demonstration area.

All known individuals of the endangered orchid, *Lepanthes eltorensis*, occur in areas designated as Wilderness. While most of the populations occur along a major recreation trail, actions recommended by the Assessment include improved trail maintenance to encourage recreationists to stay on trails and a decision not to construct shelters. Further discussions with the Service on other protective mechanisms are recommended. No individuals are known from the timber demonstration area.

All three known populations of *Pleodendron macranthum* (chupacallos) are located in the Integrated Management land area, in long standing mahogany plantations. The Assessment states that the Forest Service will consult with the Service on any proposed project in the area, but recommendations for protection include the establishment of buffer zones around the known populations.

The palo de jazmin or *Styrax portoricensis* is known from only one area in the Forest. The only known individuals of this species

are located at a remote location, and are not likely to be affected by any management activities.

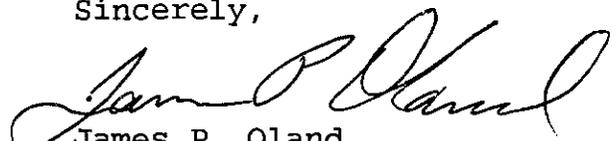
Ternstroemia subsessilis is known from only four locations in the Forest. These are found in the areas designated as Wilderness, Research Natural Area, and Wild and Scenic River Corridor. The latter lies near PR #191, nevertheless, the Revised Plan has proposed not to reopen this road to vehicular traffic. The proposal to utilize the road as foot or bike trail would not affect the species.

Ternstroemia luquillensis occurs in 5 areas within the Forest. These occur in Wilderness, Research Natural Area, the Wild and Scenic River Corridor and Developed Recreation. The latter population has been identified and will not be affected by the development of recreational alternatives. One population lies near PR #191 but as stated above, the Revised Plan does not propose to reopen this road. Another population lies close to a communication facility, nevertheless, no expansion of such facilities is contemplated in the Revised Plan.

The Standards and Guidelines require that a biological evaluation be conducted prior to the implementation of any particular project. The Assessment states that projects will be preceded by species inventories, undergo site specific environmental analyses, biological assessments and, when appropriate, consultation with the Service in order to avoid and minimize adverse effects to species and their habitats.

Based on the above mentioned information and recommendations, the recognition of the need for future consultation, and a review of the Revised Plan and the Biological Assessment, we concur with the Forest Service's determination that the Revised Plan, as a general programmatic document, is not likely to adversely affect threatened and endangered species. This concludes informal consultation, nevertheless, if additional information on impacts to listed species becomes available this office should be contacted. We look forward to working with you in the future in joint efforts to protect such species.

Sincerely,



James P. Oland
Field Supervisor

SS
CC:
FWS, Atlanta
Forest Service, Atlanta

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Informes no Publicados

Lo siguiente son informes no publicados los cuales contienen el análisis realizado del documento por el Equipo ID de Planificación Forestal y otros contribuyentes. Estos informes están disponibles para la revisión pública en la Oficina del Supervisor Forestal ubicada en El Centro Forestal Tropical El Portal, Palmer, Puerto Rico.

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