

**A Summary  
of the  
Environmental Impact Statement  
for the  
Revised Land and Resource Management Plan**

**Caribbean National Forest  
Luquillo Experimental Forest  
Puerto Rico**



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# **Caribbean National Forest Luquillo Experimental Forest**

## **A Summary of the Environmental Impact Statement for the Revised Land and Resource Management Plan**

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# **A Summary of the Environmental Impact Statement**

## **Introduction**

The Final Environmental Impact Statement (EIS) presents five alternatives for revising the Forest Plan for the Caribbean National Forest/Luquillo Experimental Forest. All alternatives are feasible ways of managing the Forest over the next 10 to 15 years. These alternatives were developed to address major public issues. This summary describes the alternatives and some major conclusions.

## **Purpose**

The purpose of the Revised Forest Plan is to provide broad direction for the management of the land and resources of the Forest.

## **Need for Change**

Since 1976, federal law (the National Forest Management Act) requires that each national forest be managed under a forest plan. Forest plans--or land management plans--direct all resource management activities in the national forests.

The Forest Plan for the Caribbean National Forest/Luquillo Experimental Forest was approved by Regional Forester John E. Alcock in February 1986. The Plan was subsequently appealed by 12 Puerto Rican and North American mainland environmental and outdoor recreation organizations.

After a prolonged attempt to resolve the questions raised in the appeals, Forest Service Chief F. Dale Robertson directed the Regional Forester to revise the Plan.

A Draft EIS and Proposed Revised Forest Plan were prepared and submitted to the public for review. The public comment period extended from March 17, 1995 to July 17, 1995. Comments received have been used to develop this Final EIS and Revised Plan.

## **Issues Guide the Revision**

Significant public and agency concerns and appeal issues are reflected in the 9 issues that are guiding the direction of the Forest Plan Revision. The topics addressed by the issues are:

- Issue 1 Timber Demonstration
- Issue 2 Wilderness
- Issue 3: Wild and Scenic Rivers
- Issue 4: Primary Forest
- Issue 5 Recreation
- Issue 6 Wildlife
- Issue 7. Water
- Issue 8· Roads
- Issue 9 Research

In addition to these issues, the public has expressed concern about the effects of Hurricane Hugo on the Forest. The Interdisciplinary Team determined that these concerns could be best addressed by discussing effects on each of the Forest's resources. Effects and recovery since the hurricane in 1989 are presented in Chapter III of this EIS.

Background discussions of each of the issues follows.

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**Issue 1  
Timber  
Demonstration**

**Timber  
Demonstration  
Controversial  
Issue**

Throughout the planning process, the public has indicated that any proposal to cut trees on the Forest will be controversial. The demonstration of sustainable timber production would include cutting trees, and that makes it controversial.

Discussion of this issue often involves many technical terms not familiar to the general public. Definitions are provided in the box on page 4.

**Why Do  
Timber  
Demonstration?**

Most of the Forest is not suited for timber production because of steep slopes, unstable and/or unproductive soils. Primary forest has ecological, research and wildlife habitat values that are irreplaceable, at least with our current knowledge. The Forest could supply only an insignificant amount of the wood consumed in Puerto Rico. So the obvious question is, "Why even consider doing timber demonstration on the Forest?"

## Technical Terms

|                                      |  |
|--------------------------------------|--|
| <b>Sustainable Timber Production</b> | Wood grown and harvested at a rate and using techniques that can be sustained indefinitely into the future.  |
| <b>Demonstration</b>                 | A technique or concept developed through research is applied on a small, usually less than economically efficient scale, so that the technology may be shared with other forest managers and the public.   |
| <b>Commercial Timber Sales</b>       | Designated trees on a specific area sold for harvest through an auction to the highest bidder.   |
| <b>Suitable</b>                      | Land ecologically and economically suited to growing timber for commercial sale  |
| <b>MBF, MCF</b>                      | Measures of wood volume, MBF is 1000 board feet--each board foot is 1 inch X 1 foot X 1 foot, MCF is 1000 cubic feet   |
| <b>Primary Forest</b>                | Tropical forests essentially unchanged by human intervention; the tropical equivalent of temperate forest old growth.  |
| <b>Secondary Forest</b>              | Forests that have been altered by human intervention. The term here refers both to partially cutover stands, and to acres that have been cleared and which have subsequently grown back naturally, or have been re-planted.  |
| <b>Silviculture</b>                  | The art and science of growing trees for specified objectives; often the objective is wood production for lumber, paper or fuelwood, but objectives could include watershed protection or wildlife habitat improvement, etc  |
| <b>Liberation</b>                    | Partial cutting of secondary stands designed to provide more growing room for trees with the best potential for future growth and value. As this technique will be applied on the Forest, no more than one third of the canopy forming trees would be removed in any one treatment. It is expected that the canopy would be at least as dense again within 15 years, and thinning would be repeated. |
| <b>Timber Stand Improvement</b>      | Cutting vines and trees in young plantations or native secondary forest to promote the growth of trees with the best potential for growth and value  |

**Secondary Forests  
- A Key to Tropical  
Forest Protection  
and Management**

Prior to 1930, much of the lower slopes of what is now the Caribbean National Forest was cleared for agriculture, or had its biggest, most valuable trees harvested. The same things are happening today to vast areas of tropical forests around the world.

Since the 1930's, Forest Service tree planting and natural regeneration have converted the cleared and cutover lands of the Forest to new secondary forest. Throughout the tropics the processes of re-growth on abandoned slash-and-burn farms, and partial logging of primary forests, make secondary forests an ever-larger proportion of the world's tropical forests. These secondary forests are generally viewed as having little or no economic value, and so are often cleared for livestock grazing, crop production, and other uses.

Silvicultural techniques developed on the Forest over 50 years of research and management experience demonstrate that highly valuable timber products can be produced in plantations and in secondary tropical forests with appropriate silvicultural treatments. These managed stands include plantations of non-native species such as mahogany, native stands including species such as tabonuco and ausubo, and mixed stands of native and non-native species.

The perception of value in secondary forests could be a powerful incentive to their management and protection, and help reduce or reverse tropical deforestation. Timber production in managed secondary forests could also help reduce exploitation pressures on primary forests, and help meet increasing future demand for wood.

**Sustainability  
Key**

Most timber harvest of tropical forests is viewed as a sort of tree mining--one time only removal of commercially valuable trees from primary forests. Such use is inherently unsustainable. It is commonly recognized that sound economic development must be ecologically and socially sustainable.

The Forest can demonstrate, at a very small scale, sustainable timber production from secondary forests. Applied at larger scales in other tropical countries, sustainable timber production in secondary forests could contribute to economic development that encourages protection and management of forests.

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## **Issue 2 Wilderness**

Wildernesses are areas of national forests where natural processes are predominant, and where the presence and effects of humans manifestations are minimal. Wilderness, unlike other management areas, must be designated by Congress

The Forest currently has no designated Wilderness. Two roadless areas, potentially suitable for Wilderness, have been identified. Together they include 85% of the Forest.

Recommendation for Wilderness designation was considered a facet of the recreation issue in the 1986 Forest Plan. In response to public comment, Wilderness is considered a separate issue in this Plan revision process.

Designation of Wilderness on the Forest would be particularly significant because it would be the only tropical forest in the National Forest Wilderness System, and would contribute toward the national goal of a more diverse wilderness preservation system.

The 1986 Plan proposed that 5,254 acres of the 9,561 acre El Toro Roadless Area be allocated for further Wilderness study. Many comments from individuals and environmental groups have been received advocating the allocation of more area to Wilderness.

Some concern has also been expressed that wilderness designation would invite increased recreation use into areas of the Forest currently receiving very little visitation, and that this increased use could adversely affect primary forests.

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### **Issue 3**

#### **Wild and Scenic Rivers**

Wild and Scenic River designation preserves selected rivers or river sections in their natural, free-flowing condition. To be eligible for designation, rivers must possess outstandingly remarkable scenic, recreational or other natural values. Wild and Scenic River designation also requires Congressional action.

The Forest currently has no designated Wild, Scenic or Recreation Rivers. Sections of six of the Forest's rivers has been identified as suitable for Wild, Scenic or Recreation River designation.

Recommendations for Wild and Scenic Rivers designation was considered part of the Wilderness issue in the 1986 Forest Plan.

The Revised Plan provides an opportunity to consider river segments on the Forest for recommendation for Congressional designation as Wild, Scenic, or Recreation Rivers.

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### **Issue 4**

#### **Primary Forests**

Most of Puerto Rico was cleared for agriculture between 1500 and 1900. By the late 1930's less than 1% of the forests of Puerto Rico remained in their original, or "primary", condition. Primary refers to tropical forests essentially unchanged by human intervention--the tropical equivalent of temperate forest old growth. The largest block of such lands is in the Caribbean National Forest, an area of approximately 13,700 acres.

Public comment has revealed broad support for the protection of the Forest's unique ecosystems. Concern has been expressed that the primary forest might be adversely impacted by timber demonstration, recreation use and development, or road construction.

Another facet of this issue is the question of which Management Area(s) designations--Wilderness, Research Natural Area, or Primary Forest--and what standards and guidelines, would best protect primary forest.

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## Issue 5 Recreation

The Caribbean National Forest is one of the most popular recreation areas in Puerto Rico. The recreation opportunities provided by the Forest's picnic areas, scenic vistas, trails and streams are scarce valuable resources, just as are the Forest's biological wonders.

The population of Puerto Rico increased by 9% from 1980 to 1990  
Tourist visitation of Puerto Rico increased by 71% from 1982 to 1990  
The number of people visiting the Forest is estimated to have increased from 290,000 in 1975 to 635,000 in 1988

The Forest has the potential to provide more recreation opportunities  
The Forest has a small amount of recreation site development in comparison to demand, and most sites are concentrated in a small part of the Forest. The results are overcrowding of favorite sites, traffic congestion and parking problems

The trail system is also limited in comparison to demand. Secure trailhead parking is lacking for most trails. This has limited recreation use of the Forest's trails and back-country. Nonetheless, trail hiking is a popular activity. The potential exists to offer more

Public comment has revealed the desire for more interpretation and environmental education, and for more developed recreation facilities for picnicking and water play. Concern has also been expressed that the development and increased use of recreation sites and trails may adversely impact the unique natural qualities of the Forest. Concern was expressed that trail construction would increase public access to parts of the Forest which currently receive minimal human disturbance, adversely affecting wildlife and primary forests

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## **Issue 6 Wildlife**

The 1986 Forest Plan identified a wildlife issue. Public comment has confirmed that the protection of the Forest's diverse wildlife and vegetation remains a concern of many individuals and organizations. Comments indicate that threatened, endangered and sensitive (TES) species, especially the endangered Puerto Rican Parrot, are particular concerns. The main focus of this issue is how timber demonstration, road and trail construction, recreation use and development, and research might affect these species.

The Interdisciplinary Team determined that effects on wildlife can be divided into physical habitat change, and disturbance. Disturbance extends beyond the area of physical change. Different species and even individuals vary in their reaction to disturbance by humans. The ID Team found that calculating the area of the Forest within 0.5 kilometers of roads and developments was a useful index of disturbance to compare alternatives.

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## **Issue 7 Water**

The municipalities surrounding the Forest, and many individual households near the Forest, get some or all of their water from Forest watersheds. It is expected that this demand will increase as population and water consumption increase in communities around the Forest.

The 1986 Forest Plan identified a water issue. Public comment has confirmed that any activity that could affect the quantity or quality of water flowing from the Forest remains a concern of many people. The effects of water consumption on the Forest's fish, shrimp and other aquatic life, is another facet of this issue. Consumptive use has the potential to affect aquatic life by reducing stream flow, and by impeding migration of aquatic organisms.

The Revised Plan presents an opportunity to address the need to balance consumptive use and aquatic ecosystem protection through the establishment of instream flows. Instream flow is water left flowing in a stream (not removed for human use or consumption) to protect values such as fisheries, visual quality, and recreation.

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## Issue 8 Roads

Many comments have been received which favor limiting new road construction. Opposition was expressed to the construction of the Sonadora Road, which would have connected PR 191 and PR 186 on the northwest side of the Forest. Many comments have been received opposing the reopening of PR 191 on the south side of the Forest. A number of commentors, particularly from the community of Naguabo, favor the re-opening of PR 191. These commentors believe through traffic on PR 191 would improve economic opportunity in their community, and make access to recreation facilities on the north side of the Forest easier for residents of south side communities. Additionally, commentors are concerned that road construction could contribute to soil erosion and stream sedimentation.

PR 191 crosses the Forest from north to south. It is the main route into the Forest and has the heaviest traffic of any road in the system. During the 1970's a section of the road was destroyed by landslides, closing it to through traffic. The Puerto Rico Department of Transportation and the U.S. Department of Transportation Federal Highway Administration have proposed projects to re-open PR 191. During 1991-92 a re-opening project was the subject of a suit by local and U.S. mainland environmental groups. The U.S. Federal District Court directed the USDOT Federal Highway Administration and/or USDA Forest Service to develop an environmental impact statement before proceeding with the re-opening project, or any related action.

Re-opening PR 191 is not proposed in any of the alternatives considered in this EIS. All alternatives in this EIS estimate effects based on Highway 191 in its current condition: closed from Km 13.3 to Km 21.0.

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## **Issue 9 Research**

Research conducted on the Caribbean National Forest (which is also the Luquillo Experimental Forest) has made a significant contribution to the management and conservation of tropical forests worldwide. With the current global concern for tropical deforestation, the role that the Forest can play in improving the understanding of tropical forests biology and management is more important than ever.

Public comment has demonstrated strong support in the scientific community and the general public for a continued research program on the Forest. Some concern has been expressed that treatment vs. control research (as opposed to strictly observational research) could adversely affect natural values, such as primary forest and wildlife. The scientific community has also expressed concern that management activities, such as recreation development, could adversely affect ongoing and potential future research.

## **Decisions to be Made**

The Regional Forester makes decisions on the following policies and publishes them in a Record of Decision document at the conclusion of this revision effort

- Determination of the multiple-use goals, objectives, and desired future conditions for the Forest
- Allocation of the Forest to management areas, and determination of management area prescriptions
- Determination of standards and guidelines for management of the Forest.
- Identification of land that is suitable for timber production, and amount (if any) of commercial timber sale volume
- Determination of area(s) to be recommended for wilderness designation
- Determination of river segments to be recommended for Wild, Scenic, or Recreation designation
- Determination of monitoring and evaluation requirements

## **Public Involvement**

The public is very involved in the revision of the Forest Plan. The Interdisciplinary Team analyzed public comments expressed in letters, meetings and appeals, and the concerns of other Forest Service professionals, to clarify issues and formulate alternatives.

The public has played a key role in helping decide how the Proposed Revised Plan responds to the issues, and what needs to be changed in the approved Revised Plan.

## Alternative Ways to Manage the Forest

This section describes alternative ways that the Forest might be managed. The National Forest Management Act requires that each alternative be implementable and address major public issues. It also requires that one alternative continue current management direction into the future (Alternative A).

The alternatives were developed by an interdisciplinary team. The alternatives combine compatible ways of meeting the need to change management direction, and of addressing the significant issues. The alternatives are products of interaction among the public, various organizations, state and federal agencies, and the Forest Service.

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### **Alternative A (Current Direction)**

This alternative would continue the direction provided in the current (1986) Forest Plan. Under National Forest planning regulations for plan revisions, current Plan direction must be one of the alternatives considered. It would include the commercial timber sale program that was suspended after the current Plan was appealed.

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### **Alternatives B, C, C-mod and D Respond to Need for Change**

Alternatives B, C, C-mod and D each comprise an integrated set of proposed changes to the Forest Plan. They respond to the need for change and significant issues by:

- Reducing the amount of timber harvesting, and eliminating commercial sales
- Recommending more area for wilderness designation,
- Recommending stream segments for Wild/Scenic River designation,
- Providing increased protection for primary forest,
- Proposing different mixes of recreation opportunities,
- Providing specific protection measures for threatened and endangered species such as the Puerto Rican Parrot and their habitats,
- Providing increased protection of aquatic ecosystems
- Permitting less road and trail construction

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**Alternative B**      Alternative B would emphasize Wilderness designation, and increase recreation opportunities

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**Alternative C**      Alternative C would emphasize protection of primary forests, while providing for a mix of other uses including timber demonstration and recreation.

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**Alternative C-mod**      Alternative C-mod is similar to Alternative C, but incorporates modifications based on comments on the Draft EIS and Proposed Revised Forest Plan .

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**Alternative D**      Alternative D would emphasize primary forest protection and research, while providing for modest levels of other uses including timber demonstration and recreation.

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**Alternative Eliminated from Detailed Study**      The ID Team considered the possibility of developing a "custodial" management alternative. This alternative would maintain the Forest as it exists now. No new recreation sites, trailheads, roads, or trails would be constructed. Existing facilities would be maintained, but not enlarged or improved. No areas would be recommended for wilderness designation. No rivers would be recommended for wild/scenic designation. No timber demonstration program would be developed. The ID Team concluded that this alternative did not satisfactorily address enough of the need for change and significant issues to merit detailed study

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**The Preferred Alternative**      Alternative C-mod has been identified as the Forest Service selected alternative in this environmental impact statement. The selected alternative is defined as being the one that the Forest Service identifies as maximizing net public benefits and best accomplishing the mission of managing the Forest

As the selected alternative, Alternative C-mod has been developed into the Revised Forest Plan and has been sent to the public, organizations, and agencies.

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**Comparison of Alternatives**

This section compares the 5 alternatives. The information presented here is intended to highlight the major differences among the alternatives.

Table 1 displays how much land would be allocated to the different management areas in each alternative. Table 2 provides a brief summary of how the alternatives respond to each of the issues. Following Table 2 are discussions, tables and charts that display key comparisons in more detail.

**Table 1: Management Area Acreages**

*Alternatives B, C, C-mod and D respond to the "need for change" by increasing management areas with emphasis on protection, and by decreasing management areas with emphasis on use.*

| Management Area | Description                      | Acres by Alternatives |               |               |               |               |
|-----------------|----------------------------------|-----------------------|---------------|---------------|---------------|---------------|
|                 |                                  | A                     | B             | C             | C-mod         | D*            |
| 1               | Administrative Sites             | 0                     | 334           | 320           | 204           | 204           |
| 2               | Developed Recreation             | 1,290                 | 2,514         | 865           | 1,158         | 843           |
| 3               | Communication Sites              | 70                    | 44            | 80            | 196           | 80            |
| 4**             | Integrated                       | 0                     | 5,150         | 8,420         | 6,216         | 8,390         |
| 5               | Wilderness                       | 3,688                 | 16,892        | 10,363        | 10,363        | 3,295         |
| 6               | Research                         | 3,714                 | 784           | 1,450         | 919           | 1,450         |
| 7               | Research Natural Area(RNA)       | 3,508                 | 2,172         | 5,146         | 6,372         | 5,086         |
| 8**             | Timber Demonstration             | 0                     | 0             | 0             | 1,167         | 0             |
| 9               | Scenic/Recreation River Corridor | 0                     | 0             | 0             | 1,295         | 0             |
| 10              | Dispersed Recreation             | 8,140                 | 0             | 0             | 0             | 0             |
| 11              | Timber Management                | 7,480                 | 0             | 0             | 0             | 0             |
| 12              | Primary Forest                   | 0                     | 0             | 1,246         | 0             | 1,412         |
| 5/7*            | Wilderness / (RNA)               | 0                     | 0             | 0             | 0             | 1,430         |
| 5/12*           | Wilderness / Primary Forest      | 0                     | 0             | 0             | 0             | 5,700         |
| <b>TOTAL</b>    |                                  | <b>27,890</b>         | <b>27,890</b> | <b>27,890</b> | <b>27,890</b> | <b>27,890</b> |

*\* Alternative D includes areas with dual management area (MA) allocations*

*\*\* Alternatives C and D would allocate 1,500 acres with Management Area 4 to the demonstration of sustainable timber production. In Alternative C-mod timber demonstration would occur in MA 8 (Timber Demonstration) Alternative B would not demonstrate sustainable timber production. Only Alternative A would include commercial timber sales.*

| <b>Table 2. Alternative Comparison Summary</b>   |              |                   |  |          |          |              |          |
|--|--------------|-------------------|--|----------|----------|--------------|----------|
| <b>Outputs/Effects</b>   | <b>Unit*</b> | <b>Existing**</b> | <b>(Average Annual Unless Otherwise Noted)</b> |          |          |              |          |
|  |              |                   | <b>Alternatives</b>                            |          |          |              |          |
|  |              |                   | <b>A</b>                                       | <b>B</b> | <b>C</b> | <b>C-mod</b> | <b>D</b> |
| <b>Issue 1 - Timber Demonstration</b>  |              |                   |  |          |          |              |          |
| <b>Timber Demonstration</b>  |              |                   |  |          |          |              |          |
| Commercial Sales   | Yes/No       | No                | Yes  | No       | No       | No           | No       |
| Area Classified Suitable   | Acres        | 5,833             | 5,833  | 0        | 0        | 0            | 0        |
| Sustainable Timber Production Demonstrated   | Yes/No       | No                | Yes  | No       | Yes      | Yes          | Yes      |
| Total Area Allocated to Demonstration of Sustainability  | Acres        | 5,833             | 5,833  | 0        | 1,500    | 1,167        | 1,500    |
| Timber Demonstration Treatments (First Decade)   | Acres/Yr.    | 0                 | 257  | 0        | 22       | 22           | 22       |
| <b>Issue 2 - Wilderness</b>  |              |                   |  |          |          |              |          |
| Area Recommended for Designation   | Acres        | 0                 | 3,688  | 16,892   | 10,363   | 10,363       | 10,425   |
| Percent of Forest Recommended  | Percent      | 0                 | 13   | 60       | 37       | 37           | 37       |
| <b>Issue 3 - Wild/Scenic Rivers</b>  |              |                   |  |          |          |              |          |
| Segments Recommended Wild  | Number       | 0                 | 0  | 4        | 1        | 1            | 0        |
| Segments Recommended Scenic  | Number       | 0                 | 0  | 4        | 3        | 3            | 2        |
| Segments Recommended Recreation  | Number       | 0                 | 0  | 4        | 2        | 2            | 1        |
| <b>Issue 4 - Primary Forest</b>  |              |                   |  |          |          |              |          |
| Percent of Primary Forest Allocated to Wilderness, RNA and Primary Forest MA's   | Percent      | 45                | 45   | 95       | 100      | 100          | 100      |
| New Trail Construction in Primary Forest   | Miles        | 5.3               | 6.4  | 4.4      | 0        | 0            | 0        |
| Trail Reconstruction in Primary Forest   | Miles        |                   | 2.5  | 2.5      | 2.5      | 2.5          | 0        |
| * Units: PAOT means people at one time, a measure of recreation site capacity; Ac Ft./Yr. means acre feet per year, a measure of streamflow  |              |                   |  |          |          |              |          |
| ** Existing: Refers to actual conditions or features of the Forest at the time of the writing of this Final Environmental Impact Statement. For example, there are currently 50 miles of roads on the Forest, and 24.3 miles of trails |              |                   |  |          |          |              |          |

| <b>Table 2 - Alternative Comparison Summary</b>   |                                 |                   |  |          |          |              |          |
|---|---------------------------------|-------------------|--|----------|----------|--------------|----------|
| <b>Outputs/Effects</b>  | <b>Unit*</b>                    | <b>Existing**</b> | <b>(Average Annual Unless Otherwise Noted)</b> |          |          |              |          |
|   |                                 |                   | <b>Alternatives</b>                            |          |          |              |          |
|   |                                 |                   | <b>A</b>                                       | <b>B</b> | <b>C</b> | <b>C-mod</b> | <b>D</b> |
| <b>Issue 5 - Recreation</b>   |                                 |                   |  |          |          |              |          |
| <b>Recreation Facilities</b>  |                                 |                   |  |          |          |              |          |
| Interpretation  | No.                             | 3                 | 4  | 10       | 9        | 9            | 8        |
|   | PAOT                            | 60                | 860  | 1080     | 1020     | 1020         | 990      |
| Picnic  | No.                             | 4                 | 9  | 9        | 7        | 7            | 6        |
|   | PAOT                            | 600               | 1904   | 1704     | 1534     | 1534         | 1470     |
| Observation   | No                              | 9                 | 7  | 9        | 9        | 9            | 9        |
|   | PAOT                            | 290               | 265  | 290      | 290      | 290          | 290      |
| Camping   | No                              | 0                 | 4  | 2        | 1        | 1            | 1        |
|   | PAOT                            | 0                 | 160  | 52       | 40       | 40           | 40       |
| Trailheads  | No.                             | 3                 | 4  | 12       | 10       | 10           | 9        |
|   | PAOT                            | 136               | 93   | 188      | 160      | 160          | 140      |
| Trail Construction<br>(Total in 50 Yrs )  | Miles                           | 24                | 15   | 16       | 7        | 10           | 7        |
| Trail Reconstruction<br>(Total in 50 Yrs )  | Miles                           |                   | 8  | 8        | 7        | 7            | 4        |
| <b>Issue 6 - Wildlife</b>   |                                 |                   |  |          |          |              |          |
| Habitat Modified by Timber<br>Harvest, Recreation and Other<br>Development                          | Percent<br>of Forest            | 1                 | 23   | 4        | 6        | 5            | 6        |
| Area of Forest within 1/2 Km of<br>Roads, Trails and Other<br>Development.                          | Percent<br>of Forest            | 49                | 68   | 70       | 52       | 52           | 52       |
| <b>Issue 7 - Watershed</b>  |                                 |                   |  |          |          |              |          |
| Municipal Watershed<br>Designation  | Yes/No                          | No                | No   | Yes      | Yes      | No           | Yes      |
| Water Yield   | Ac Ft./Yr                       |                   | 226,000  | 226,000  | 226,000  | 226,000      | 226,000  |
| Sediment Delivery from Timber<br>Harvest, Road and Trail<br>Construction, Recreation<br>Development | Tons/Yr<br>Decade 1<br>Decade 5 |                   | 648  | 87       | 125      | 128          | 123      |
|   |                                 |                   | 664  | 0        | 162      | 104          | 162      |
| <b>Issue 8 - Road Construction</b>  |                                 |                   |  |          |          |              |          |
| Total for Timber Demonstration  | Miles                           |                   | 22   | 0        | 2        | 2            | 2        |
| Total for Recreation  | Miles                           |                   | 1  | 1        | 1        | 1            | 1        |
| Total for General Access  | Miles                           |                   | 2  | 0        | 0        | 0            | 0        |
| Total for all uses  | Miles                           | 50                | 25   | 1        | 3        | 3            | 3        |
| <b>Issue 9 - Research</b>   |                                 |                   |  |          |          |              |          |
| Research Natural Areas<br>Management Areas Where<br>Treatment vs. Control Research<br>Is Permitted  | Acres                           | 3,508             | 3,508  | 2,172    | 5,146    | 6,372        | 6,516    |
|   |                                 | 11,194            | 11,194   | 5,934    | 9,870    | 9,793        | 9,840    |

## Issue 1. Timber Demonstration

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### Alternative A

Alternative A would continue the direction of the current (1986) Forest Plan. This plan was appealed, and the timber demonstration program was a significant point in the appeal. Pending resolution of the appeal, the Regional Forester directed the Forest not to implement this program.

Sustainable timber production would be demonstrated on about 5,800 acres (21% of the Forest). Timber harvest would be accomplished through commercial sales. Approximately 257 acres of secondary forest would be partially cut per year during the first decade. These acreages and the resulting volumes would gradually increase after the 10th year, as these secondary forests become more mature with larger trees.

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### Alternative B

Alternative B would not demonstrate sustainable timber production. It would provide small roadside areas demonstrating techniques and concepts for timber production that have been developed on the Forest over 50 years of research. A total of 120 acres would be used to demonstrate and interpret primary forest vs secondary forest, successful reforestation, and silvicultural techniques.

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### Alternatives C and D

These alternatives would include a scaled down demonstration of sustainable timber production, and the roadside demonstration areas of Alternative B. An area of 1,500 acres (about 5% of the Forest) would be used to demonstrate sustainability.

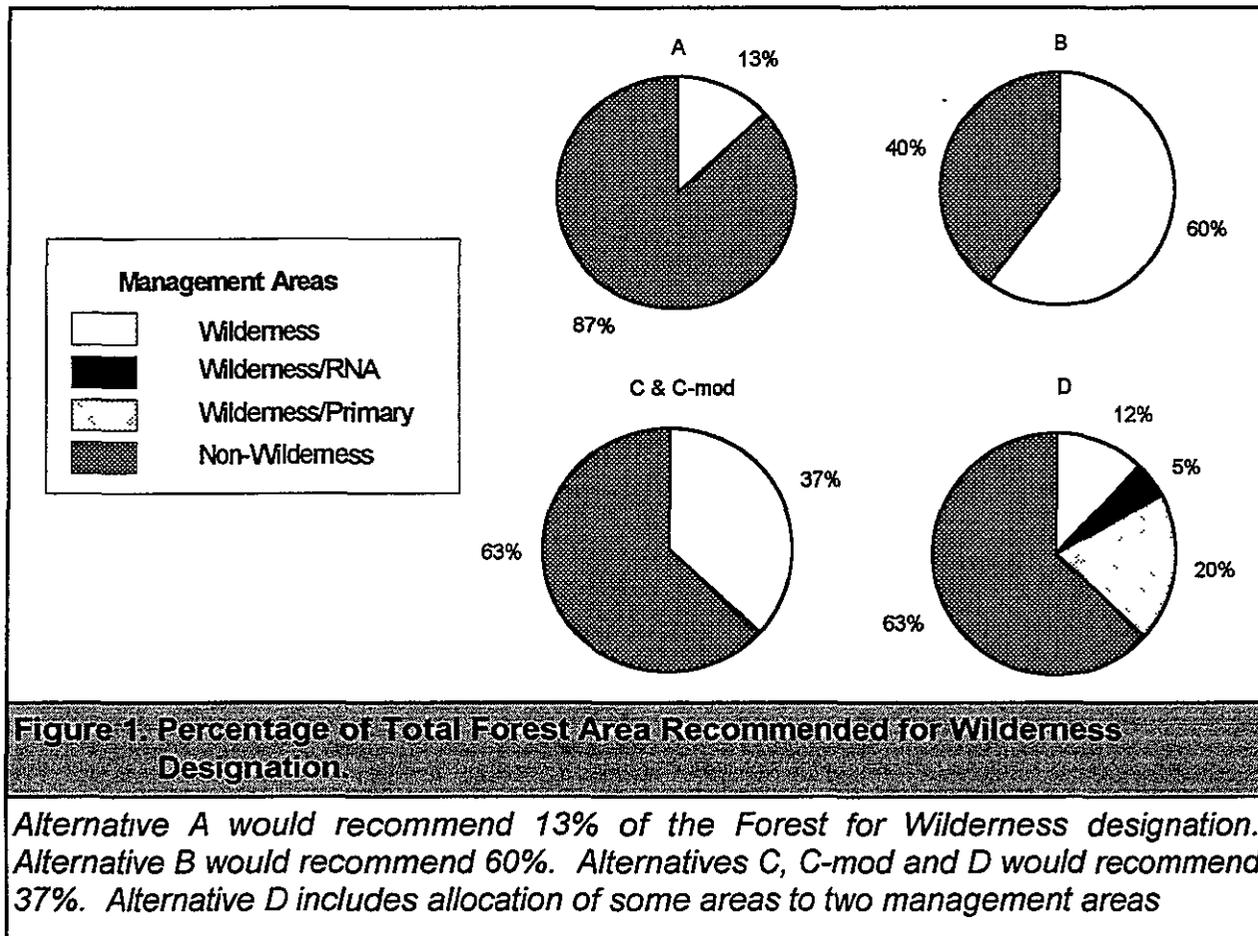
Commercial sales would not be used to accomplish timber harvest. Timber harvested would be administratively transferred to the Puerto Rico Department of Natural and Environmental Resources (DNER) for milling. The Forest would work with DNER and other Commonwealth agencies to use the wood produced to stimulate the development of local artisan and wood craft businesses.

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### Alternative C-mod

Alternative C-mod is similar to alternative C, but would allocate 1,167 acres (4% of the Forest) to the demonstration of sustainable timber production.

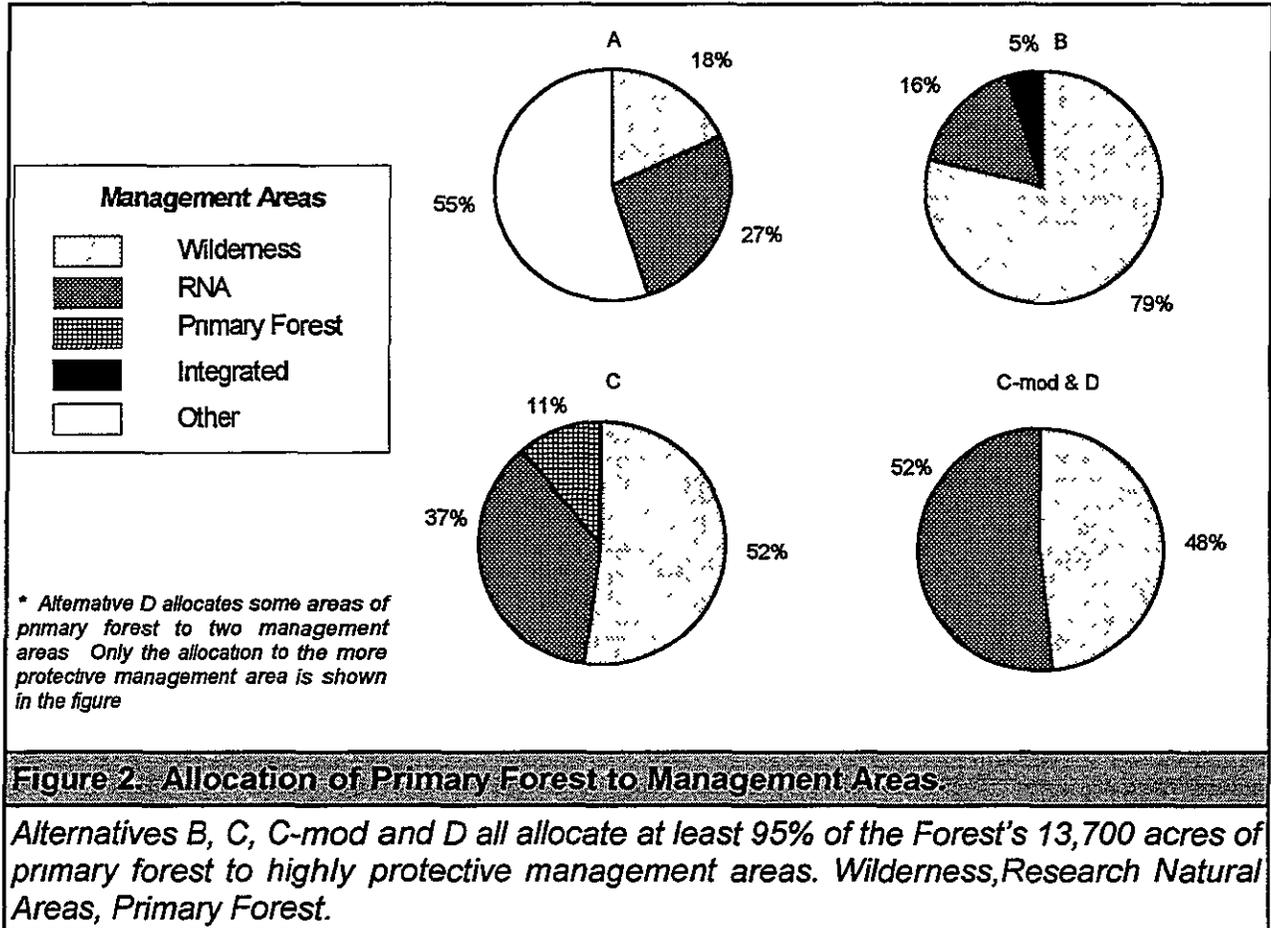
## Issue 2. Wilderness



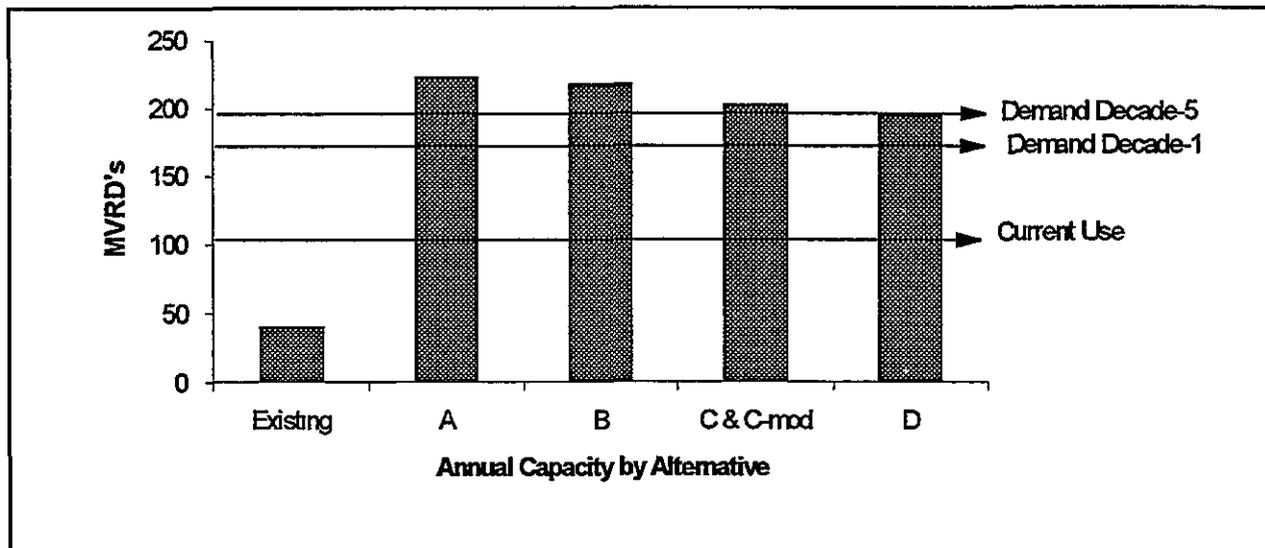
## Issue 3. Wild and Scenic Rivers

| <b>Table 3. Wild, Scenic and Recreation River Recommendations</b>  |                  |              |             |   |           |   |
|--|------------------|--------------|-------------|---|-----------|---|
| <i>Alternative B recommends all eligible river segments for designation. Alternative A recommends none. Alternatives C, C-mod and D recommend some of the eligible segments.</i> |                  |              |             |   |           |   |
| River  | Eligible Segment | Length Miles | Alternative |   |           |   |
|  |                  |              | A           | B | C & C-mod | D |
| Río Espiritu Santo/<br>Quebrada Sonadora   | Wild             | 2.9          |             | X |           |   |
|  | Scenic           | 0.8          |             | X |           |   |
|  | Recreation       | 2.2          |             | X |           |   |
| Río Mameyes  | Wild             | 2.1          |             | X | X         |   |
|  | Scenic           | 1.4          |             | X | X         | X |
|  | Recreation       | 0.9          |             | X | X         | X |
| Río de la Mina   | Scenic           | 1.2          |             | X | X         |   |
|  | Recreation       | 0.9          |             | X | X         |   |
| Río Fajardo  | Wild             | 3.4          |             | X |           |   |
| Río Icacos   | Scenic           | 2.3          |             | X | X         | X |
| Río Sabana   | Wild             | 2.3          |             | X |           |   |
|  | Recreation       | 0.3          |             | X |           |   |

## Issue 4. Primary Forest

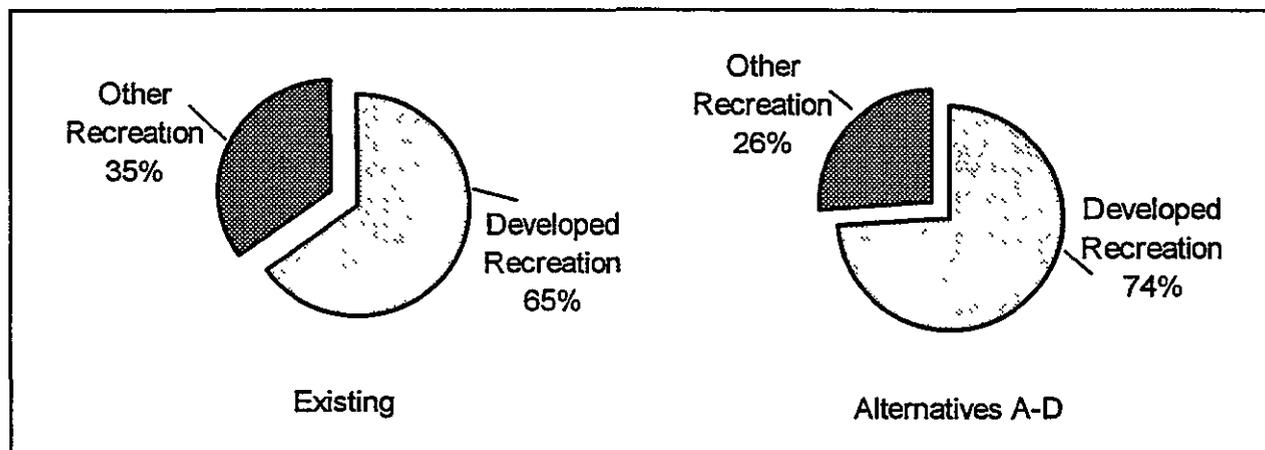


## Issue 5. Recreation



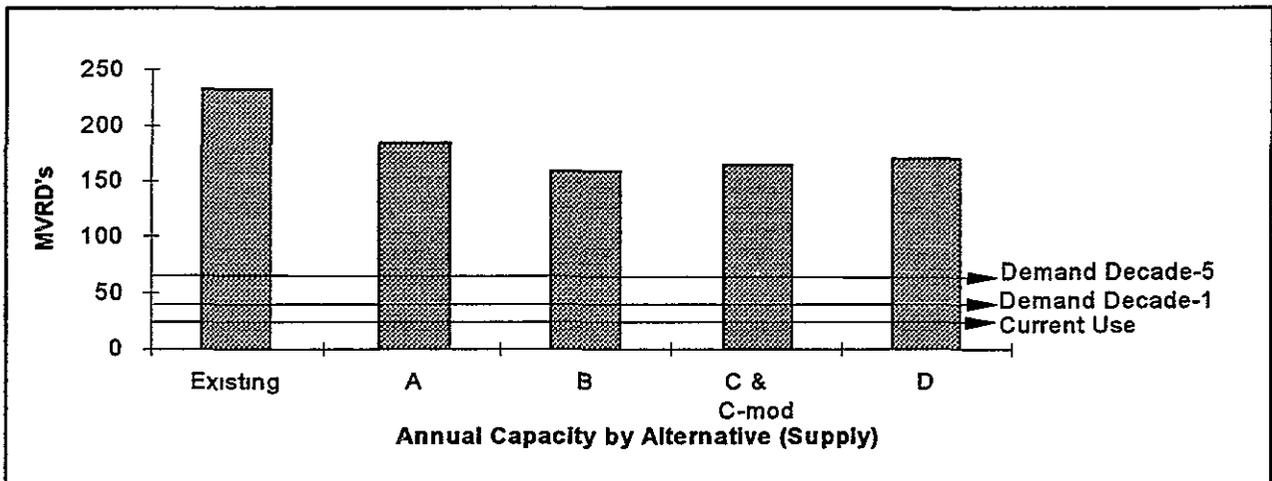
**Figure 3a. Developed Recreation Supply vs. Demand.**

*Demand for developed recreation far exceeds existing capacity. Alternatives will increase developed recreation capacity by expanding parking at existing facilities, and by building new facilities. Demand is much greater than current use because a shortage of developed facilities is suppressing demand. Once facilities are expanded, more developed recreation use is expected.*



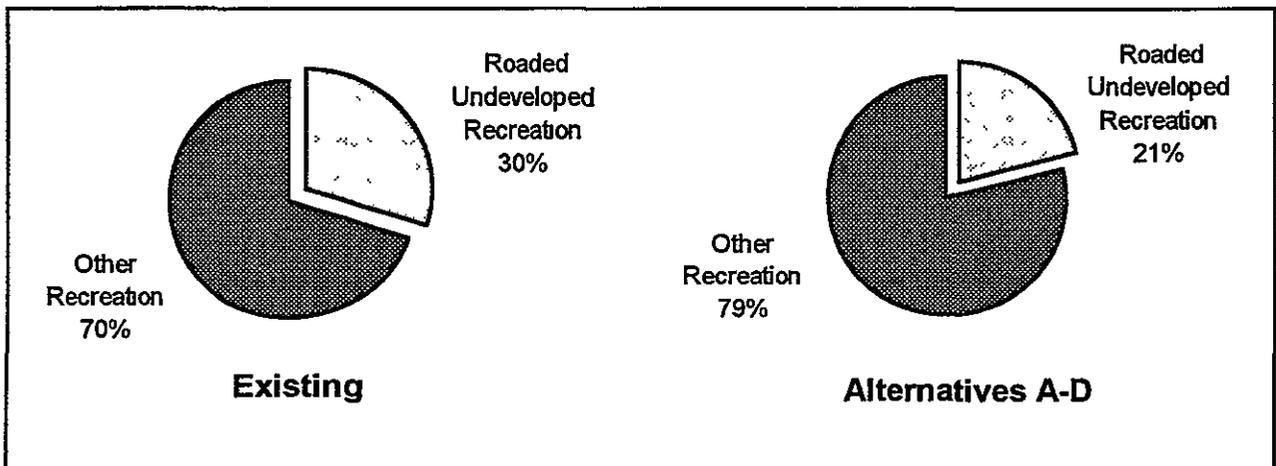
**Figure 3b. Developed Recreation's Contribution to Total Recreation Use.**

*Developed sites currently receive 65% of total recreation use on the Forest. This proportion will increase under all alternatives to about 74% because of the increased capacity provided by El Portal Tropical Forest Center, and the conversion of some heavily used undeveloped sites to developed sites.*



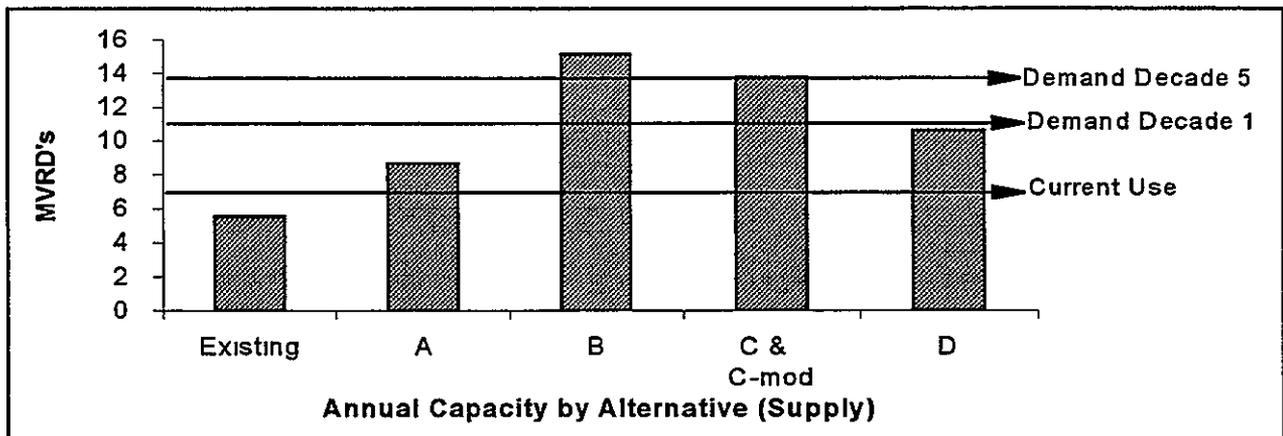
**Figure 4a- Roded Undeveloped Recreation Supply vs- Demand.**

The Forest's capacity to provide roded undeveloped recreation — scenic driving, bus touring, roadside picnicking and water play — far exceeds demand. However, capacity is regularly exceeded at popular spots such as Puente Roto. Crowding, chaotic parking and traffic jams result. All alternatives reduce roded undeveloped supply by providing development where concentrated use indicates a demand for it.



**Figure 4b. Roded Undeveloped's Contribution to Total Recreation Use.**

Roded undeveloped areas currently receive 30% of total recreation use on the Forest. This will decrease to about 24% under all alternatives as undeveloped sites, such as Puente Roto, are developed.

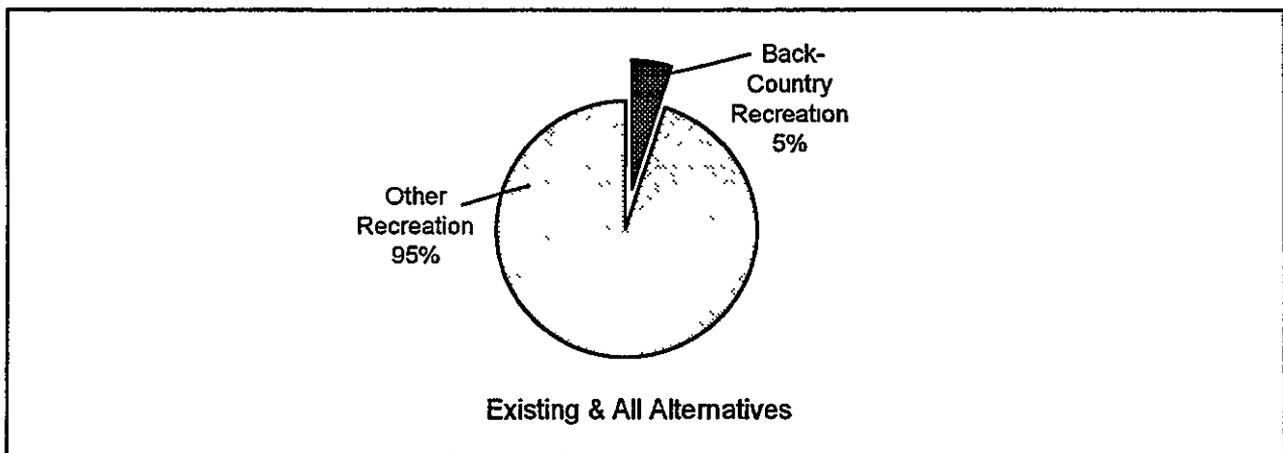


**Figure 5a: Back-Country Recreation Supply vs. Demand.**

*This type of recreation opportunity is very limited in Puerto Rico outside the Forest.*

*Demand is greater than current use because lack of facilities—safe trailhead parking, trail information, and a trail network with a range of hiking experiences—is suppressing demand. Back-country use will increase in response to improved facilities, the attraction of more potential users by El Portal Tropical Forest Center, and the rising global interest in nature-based tourism.*

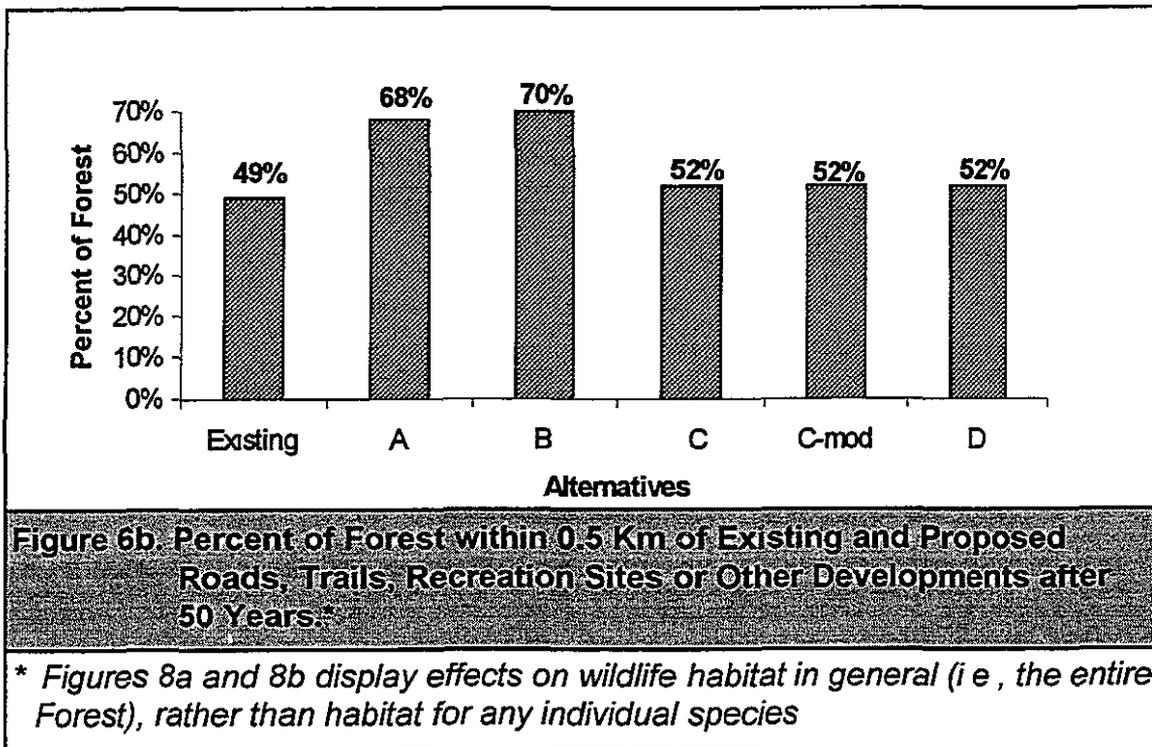
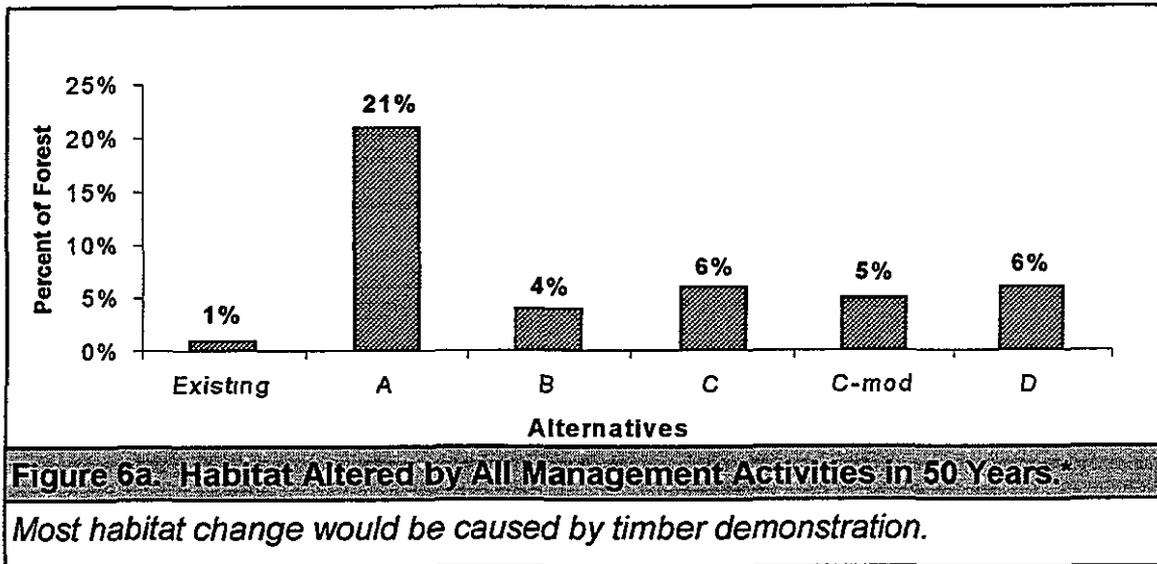
*Alternative B provides the most back-country recreation with its large Wilderness allocation and greater amount of trail construction. All alternatives increase supply by providing trailheads and improved parking for trails that access the Forest's back-country. Alternative D provides fewer trails and trailheads than Alternatives B, C and C-mod, therefore supplying less back-country recreation.*

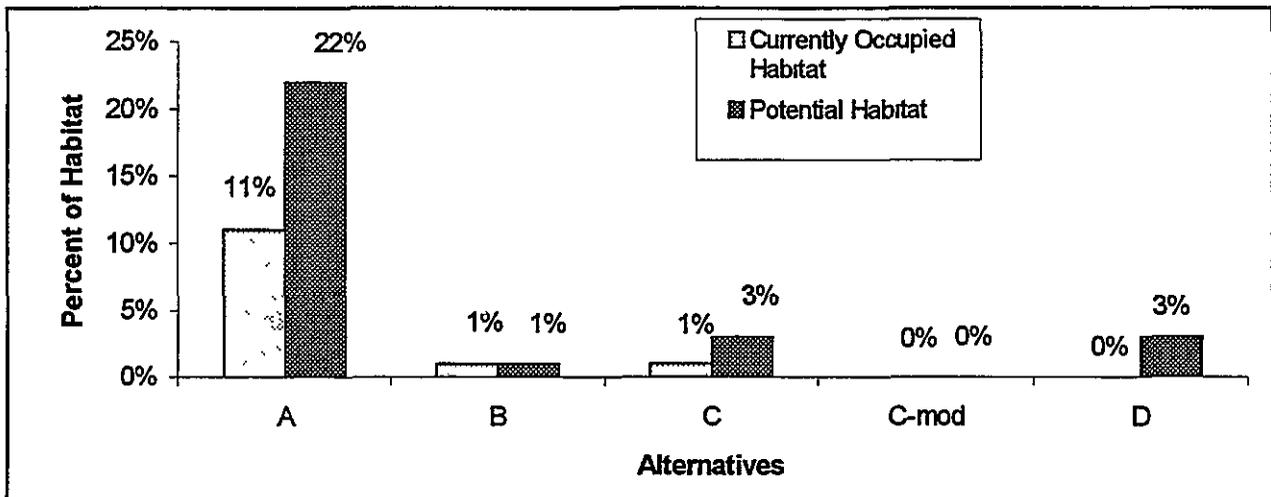


**Figure 5b: Back-Country's Contribution to Total Recreation Use.**

*The Forest's back-country currently receives only about 5% of total recreation use. This proportion is not expected to change under any of the alternatives.*

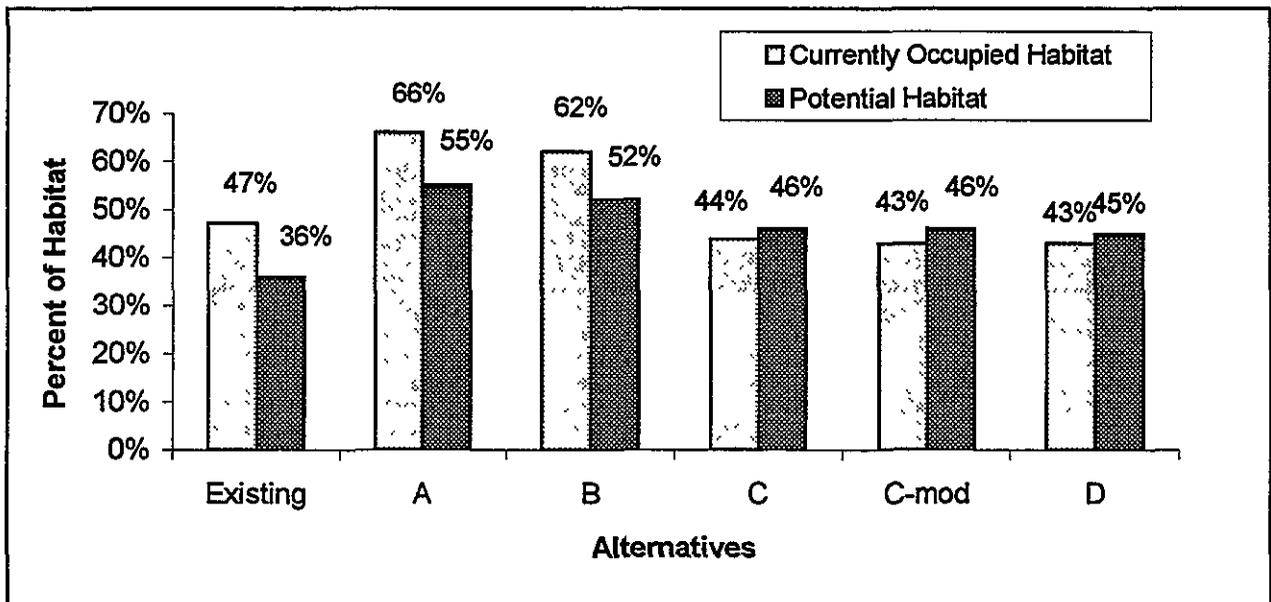
## Issue 6. Wildlife





**Figure 7a. Puerto Rican Parrot Habitat Altered by All Management Activities in 50 Years.**

*Alternative A would change more occupied and potential Puerto Rico Parrot habitat than the other alternatives, because of its larger sustainable timber production demonstration program.*



**Figure 7b. Puerto Rican Parrot Habitat within 0.5 Km of Existing and Proposed Roads, Trails, Recreation Sites or Other Developments after 50 Years.**

*Alternatives A and B propose new trails within currently occupied Puerto Rican Parrot habitat; Alternatives C and D do not. All alternatives propose some new trail construction in potential habitat.*



## More Information



If you have specific questions, or would like more information than is provided in this summary, write or call the Forest Planner at:

Caribbean National Forest  
Forest Plan Revision Team  
PO Box 490  
Palmer, PR 00721

(787) 888-1880

You may mail this page to request copies of the full Environmental Impact Statement, Revised Forest Plan, or Alternative Management Area Maps. Check off the document you need, provide the needed information on opposite side of this sheet, then cut on dotted line. Then fold and mail request.

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