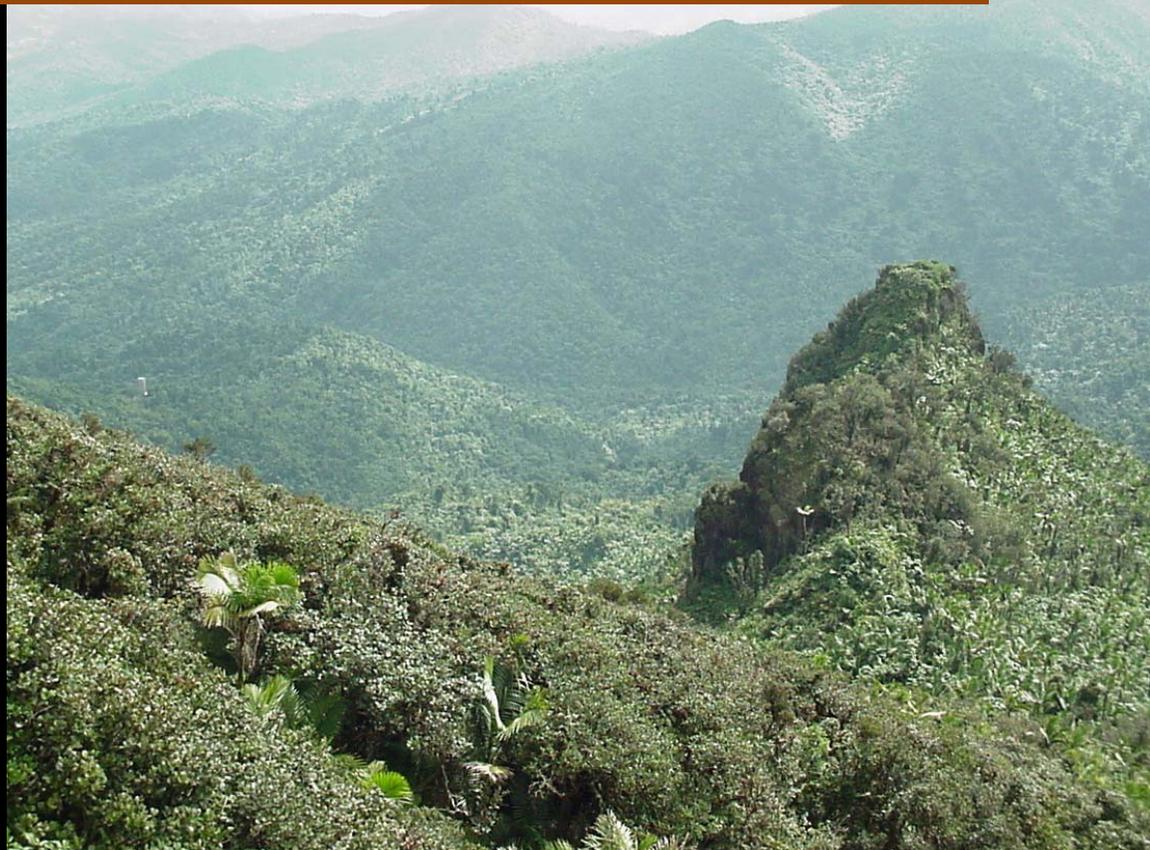


**2009**

**Interpretive and Conservation  
Education Master Plan**



**El Yunque**  
**National Forest**  
January 2009

This plan is dedicated to our one million annual visitors - by continuing to "vote with your feet" you ensure the future development of Interpretation and Conservation Education programs, projects and products in the El Yunque National Forest - a mutually beneficial symbiotic relationship!

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El Toro Wilderness Area  
El Yunque National Forest

## INTRODUCTION

### ***Executive Summary***

The El Yunque National Forest Interpretive/Conservation Education (ICE) Plan is intended to serve as a guide for the future development and implementation of Interpretive Services (IS) on forest nature trails, interpretive sites and visitor center exhibits. It will also outline a consistent approach for the development of forest Conservation Education (CE) programs to be implemented in support of local schools and surrounding communities.

This plan establishes interpretive goals, objectives and themes for the forest, including visitor center exhibit and program design guidelines, interpretive signage inventory and standardization. The recommendations for interpretive media are detailed in the Interpretive/CE Inventory Forms (Appendix A), which present recommendations for the development of existing exhibit improvement/modification plans and the replacement / upgrading of obsolescent interpretive and cultural signage on forest nature trails and interpretive sites. Future development of interpretive media should be consistent with this plan and evaluated against the goals and objectives presented in this document. Recommended priority projects should be implemented through the El Yunque National Forest (EYNF) annual work planning objectives and capital investment process. For details on how this plan was developed, see Appendix B, Proposed Interpretive Planning Process and Design Guidelines.

The El Yunque National Forest's Conservation Education (CE) Plan is focused on developing educational materials and programs for local island schools and communities, stressing forest ecology and how it is impacted by current key issues such as climate change. A vital segment of this plan includes the soliciting of local government and non governmental organization partnerships in support of these programs.

### ***Purpose of Plan***

A successful interpretive program has been in place in the El Yunque National Forest for many years. The 1992 Interpretive Plan for the Caribbean National Forest<sup>1</sup> and the Interpretation and Conservation Education sections contained in Chapter 4 (Recreation) of the Caribbean

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<sup>1</sup> Former name of the El Yunque NF

National Forest Land Management Plan (CNFLMP) include future desired conditions, Interpretation and Conservation Education goals, standards and guidelines. Much of this planning information remains relevant today, and the overall direction contained therein has been implemented when developing new Interpretive and Conservation Education programs. The greatest amount of change has been felt in the overall focus of Conservation Education programs.

This Interpretive/Conservation Education (ICE) Master Plan has been compiled for use as a management tool to aid in the implementation of current forest plan direction in a consistent and coordinated way. This plan tiers with the National Interpretive Services Strategy (Appendix D) and the National Conservation Education Strategic Plan (Appendix E).

The Conservation Education (CE) Program section of the ICE plan serves to support and reinforce a policy of wise stewardship of Federal and Commonwealth of Puerto Rico lands.

Additionally, the combined CE Program and Interpretive Strategic Plans can act as a catalyst by helping to establish specific strategic goals and objectives of the Forest Service such as restoring, sustaining and enhancing the nation's forests and grasslands; providing and sustaining benefits to the American public: conserving open space, providing science-based management and sustaining and enhancing outdoor recreation opportunities.

Interpretive Services (IS) are a key provider of interpretive products (presentations and media, on and off forest lands) focused on increasing the public's awareness of the forest's natural and cultural resources and land management issues. Interpretive Services also play a key role in achieving the education and visitor satisfaction goals of the Forest Service National Recreation Agenda (Appendix F). The IS Strategy tiers with specific areas identified in the recreation agenda and is designed to complement, integrate, and enhance ongoing activities to fulfill the requirements of the recreation agenda and the agency's strategic plan.

### ***Mission***

The mission of the USDA Forest Service is to sustain the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The Forest Service motto is "Caring for the Land and Serving People."



Land snail,  
*Polidontes acutangula*

## Planning Assumptions

This plan is based on a number of considered assumptions regarding the current and anticipated future use and management of the El Yunque National Forest (EYNF). The compilation of an Interpretive/Conservation Education (ICE) Plan was recommended by the El Yunque National Forest's Recreation Strategy, the Southern Region Recreation Alignment and the National Recreation Strategy. The following assumptions serve as a foundation for this plan:

- With over 1 million people visiting the El Yunque National Forest (EYNF) from all over the world each year, the need for quality interpretation and conservation education continues to grow.
- With an increasing number of tourist arrivals each year, Puerto Rico continues to qualify as a premier travel destination. The tourism industry has an economic impact of \$3 billion on Puerto Rico's economy. Conceivably, the demand for increased visitation to EYNF will also grow. This situation requires scientific analysis to determine resource impacts of high use visitation. Based on research results, an evaluation of how much and what type of recreational activities are allowed, when and where should guide the recreation standards established for in the EYNF Land Management Plan for forest visitation to specific areas. Within this framework, the EYNF management is committed to providing a program of quality interpretive services and conservation education.
- The EYNF will continue to work cooperatively with Eastern National, (the forest's interpretive association), recreation concessionaires and associated special use permit holders.
- Current EYNF interpretive services and conservation education efforts focus on providing quality interpretive and educational opportunities, meeting identified demands and considering resource impacts.
- The EYNF will continue working cooperatively with local communities, commonwealth agencies, the Puerto Rico Tourism Company and other partners in developing interpretive/conservation education opportunities.
- There is a perceived need to strengthen the agency's professional image through greater design consistency in signs, bulletin boards, publications and facilities. Interpretation and conservation education will



Bromeliad,  
*Guzmania berteroniana*

be important tools to educate the public about the Forest Service and the natural and cultural resources on the EYNF.

- The EYNF must pursue and acquire consistent and reliable funding to insure that interpretive facilities and services are able to provide quality products to the visiting public.
- The EYNF-ICE Plan is tiered with the Forest Plan, National Interpretive Services Strategy, Southern Region Recreation Alignment and the National Conservation Education (CE) Strategy.
- The EYNF will continue to develop and maintain partnerships, focusing on leverage of available resources.
- The EYNF recognizes the need to reconnect our children with nature and will promote this vital concept through a robust, vibrant “More Kids in the Woods” conservation education effort and process.
- The EYNF recognizes that climate change is a vital current issue impacting the Forest, the island, the nation and the planet, and will focus on providing information about these vital subjects to the visiting public so they can better understand the potential impact on local and global ecosystems.

### ***Definitions/Differences between Interpretation and Conservation Education***

***“Interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource.”***

**National Association for Interpretation (NAI)**

The Interpretive Services Strategy is a roadmap for achieving the outcomes in the National/R8 Recreation Agenda and the National Strategic Plan.

Suggestions include:

- Enhancing visitor recreation objectives as indicated by measurable improvement in satisfaction with services and facilities.
- Improving outreach to youth and local communities as indicated by an increase in the number of high-quality interpretative products delivered to these populations.
- Sustaining outdoor recreation settings, as indicated by reduced property damage and rehabilitation of interpretative venues.



View from Molindero Road  
El Yunque National Forest



Begonia, *Begonia decandra*

- Enhancing benefits to forest-dependent communities, by increasing the number of strategic business partnerships delivering interpretative, recreational, and tourism products and services.
- Accomplishing vital management goals that encourage thoughtful public use and minimize human impact on the Forest.
- Promoting visitor understanding of the Forest Service mission, goals and objectives (FSM 2390).
- Interpretive communications is not simply presenting information, but a specific, theme-driven communication strategy that is used to translate that information for people from the technical language of the expert, to the everyday language of the visitor (see Appendix D).

Conservation Education focuses its specific educational efforts on children (pre-kindergarten through grade 12) and their educators in both classroom and informal settings. However, it also coordinates with other Forest Service educational programs directed toward adults to ensure the continuity and consistent delivery of the conservation education message/materials from childhood on through adulthood (Appendix E).

CE program staff work cooperatively with many internal and external partners to coordinate, develop and deliver educational programs and materials. These partners may include “in-house” program developers, Commonwealth and local agencies, non-profit organizations, and interagency service partnerships between National Park Service, Fish and Wildlife Service and the Forest Service.

**Table 1 - Comparison between Interpretation and Conservation Education**

Interpretation Should:	Conservation Education Should
Help visitors appreciate and understand the natural and cultural Forest resources that they are viewing or experiencing.	Provide a structured series of educational experiences to identified population segments.
Encourage visitors to be thoughtful, conservation-minded co-stewards of the Forest.	Provide teachers with conservation education materials and train them in their use.
Help our visitors understand the Forest Service’s mission, goals and objectives.	Focus on specific school, community or NGO groups as a “captive” audience.
Provide visitors with an agency mission-based message that forges emotional and intellectual connections between their interests and the meanings inherent in our Forest’s resources.	Whenever practical, utilize existing Forest Service educational curricula such as Project Learning Tree when designing educational materials.

## BACKGROUND

### ***Existing Conditions***

Islanders and visitors to Puerto Rico enjoy our many open-space recreational venues. Our forests, beaches and scenic views form an unbeatable combination of visitor attractions. Open spaces also play a significant role in our every day lives; our forests help to regulate our climate, clean our air, and provide an unending source of clean water. Periodic tropical storms provide a service by rejuvenating the Forest's trees, plants and soils.

By providing conservation education and interpretation services, sustainable management and its benefits are highlighted both within the forest and across its boundaries.

A variety of experiences are possible on the El Yunque National Forest. With an extensive recreational area to explore, visitors can experience first-hand the wonders of a biodiverse tropical ecosystem with a fascinating historical heritage. One of the oldest forest reserves (1876) in the western hemisphere it contains a wealth of native and endemic plant and animal species and a huge treasure trove of tropical and migratory birds. It is home to the sole native parrot species remaining in the United States and its territories and it is the only tropical rain forest in the US National Forest System. Despite its small size it boasts more species variety than any temperate forest in the US National Forest system. Considered together, these attractive and exciting attributes make the El Yunque National Forest a consistent drawing card for islanders and off-island visitors alike.

Recent studies document that children are avoiding outdoor experiences and gravitating toward a virtual indoor reality. This disconnect from nature has serious long-term implications for the cognitive, physical, social and emotional well being of our children. It suggests potential difficulties in public land stewardship as well; this disconnect from nature may make professional careers in conservation and public resource management less attractive in the future.

More Kids in the Woods is a Forest Service program that the El Yunque NF both supports and advocates. We believe that it helps address the troubling decline in the mental and physical health of our children. Hopefully, this program will inspire our youth to become our future conservation leaders, who will in turn promote and perpetuate the critical role forests play in preserving our quality of life.



Mt. Britton Tower

## Facilities

There are 50 inventoried sites/facilities within the boundary of the El Yunque National Forest (EYNF) including: 32 highly maintained recreation sites of which 20 are developed recreation areas, 5 are picnic areas and 12 are trails. In addition, there are 18 undeveloped areas that are used by visitors to the forest.<sup>2</sup> Looking across jurisdictional boundaries there are aspects of the ICE Program that will reach beyond forest boundaries.

## Facility Challenges

El Yunque National Forest's most popular and frequently used recreational sites/facilities are located along the PR 191 "Recreational Corridor," which bisects the Forest from North to South for approximately 5.8 miles/9.3 Km (see Map 1). There are four "major" sites interspersed along the corridor; beginning at the Forest's entrance, they include:

The El Portal Rain Forest Center; the Yokahu Tower Interpretive Site; the Palma de Sierra Recreational Area and the Palo Colorado Recreation Area and Interpretive Site. All of these sites are maintained to a high standard; The Palma de Sierra and Palo Colorado sites include developed, heavily-used picnic facilities either on site or nearby, that are open year-round. Quebrada Grande, a less popular picnic facility is located off the PR 191 corridor, off PR # 186, in the western section of the Forest. A new facility, the Río Sabana Picnic Area that will open on the first quarter of FY 2009 is adjacent to the municipality of Naguabo on the southern edge of the Forest. These major sites/facilities provide trailheads and/or convenient access to many of the Forest's most popular nature trails.



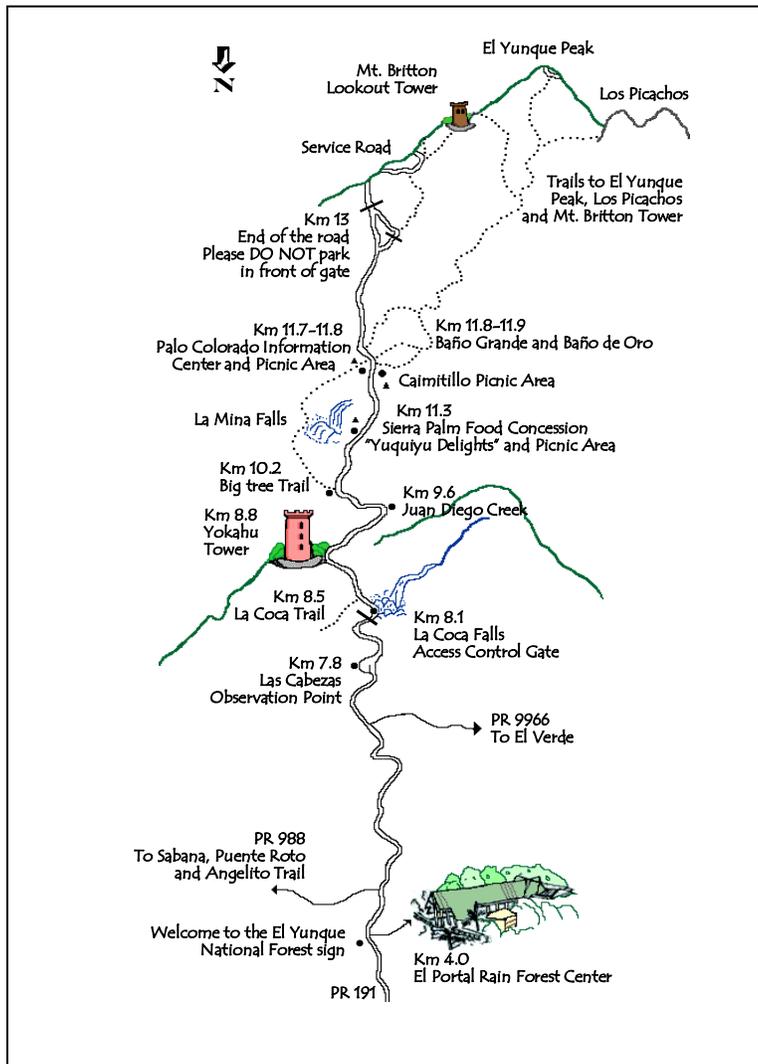
El Portalito



El Portal Rain Forest Center

<sup>2</sup> Complete list of all inventoried developed and undeveloped sites/facilities with actual maintenance level and degree of accessibility can be found in Appendix A.

Figure 1 - PR 191 Recreation Corridor



Philodendron

The following is a listing of perceived needs and challenges to the facilities located along the PR 191 Recreation corridor:

- The exterior information kiosk located at PR 191, Km 4.5 requires extensive updating to ensure that its information displays (map, narrative, etc.) are current, are in-line with Forest safety and health regulations and directives;
- A new exhibit design plan and an interpretive prospectus for the El Portal Rain Forest Center, that reflects perceived needs for changes, updates and revisions to existing features, must be developed and subsequently implemented;
- The Forest’s camping policy must be revised to better reflect current public camping needs and to address group camping issues;

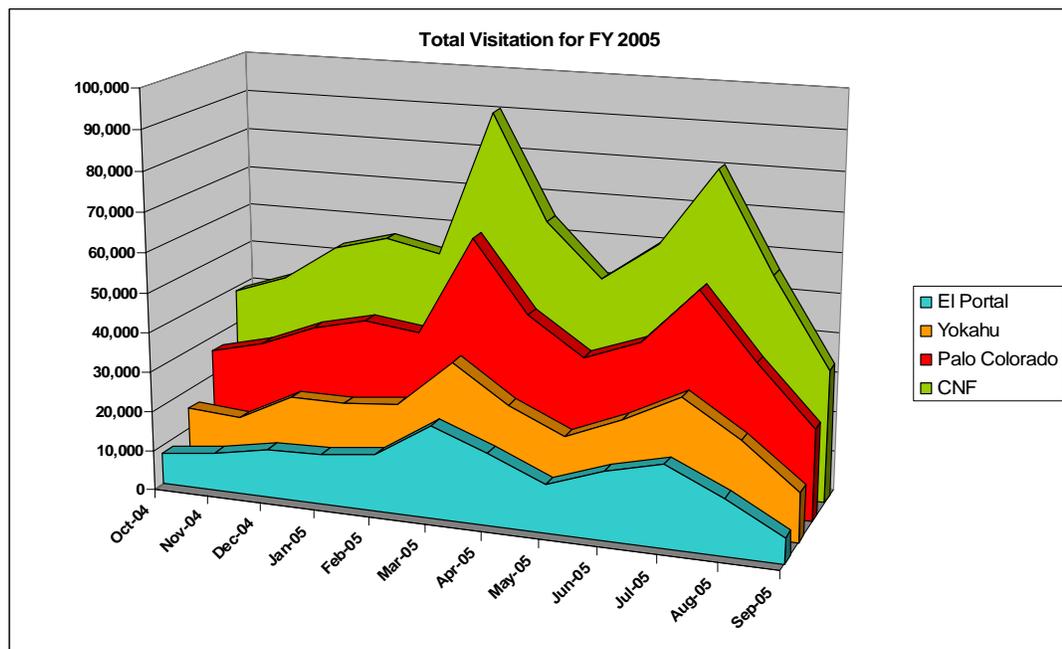
- Forest signs must be replaced and updated as necessary (see “New Interpretation/CE Recommendations.” and Appendix A;
- Forest concessionaires must foster and implement a recycling program that is visible and encouraging to visitors;
- All interpretive exhibits must be entered into INFRA.

**Peak Visitation – Issues and a Proposed Solution**

Forest visitation peaks during identified “high-use” periods. These periods occur predictably in the summer months (May through Labor Day) and are most prevalent over extended local holidays and long weekends. The EYNF has a single, main transportation corridor (PR road 191) that extends from the bordering community of Palmer through the Forest’s north entrance, to its terminus at Km 13 (Map 1). This main artery originally transected the Forest from north (Barrio Barcelona) to south (Naguabo), but has since been closed-off and gated approximately 1 mile from the Palo Colorado site due to recurring land slides and to eliminate division of the PR Parrot habitat. Two lesser used “side roads” (PR 988 from the east, and PR 186 from the west) provide additional ingress to the Forest.

The graph below illustrates peak visitation data for EYNF and the main recreation sites in Fiscal Year 2005.

**Figure 2 - El Yunque National Forest Visitation by Site**



Puerto Rican Tody,  
*Todus mexicanus*

## Proposed Public Transit System

The Forest has a greater capacity for people (picnicking, hiking, sightseeing, etc.) than it has for transiting and parked vehicles. This limitation is most evident on summer days, particularly during holidays and long weekends. Historically, the situation becomes critical over the Federal, July 4 Independence Day holiday weekend and the three extended local Puerto Rican holidays of July 17 (Luis Munoz Rivera birthday), July 19<sup>th</sup> (Jose Celso Barbosa birthday) and July 25 (Puerto Rico Commonwealth anniversary). A Forest “incident” traffic control effort is implemented during these periods to ensure that Forest arteries do not become clogged with improperly parked vehicles.

The EYNF has analyzed traffic congestion and capacity issues through a series of transportation studies done in cooperation with the Puerto Rico Department of Transportation (PR-DOT). The most recent study - *Alternative Analysis for the Provision of a Mass Transportation System for the Caribbean National Forest (El Yunque)*, completed in May 2007, validates recommendations contained in previous studies for the implementation of a “tram-based” public transit system to operate during heavy use days.

A tram is a vehicle similar to a train with the distinction that it has pneumatic tires and travel over paved roads and by-ways. A fully operational system, able to handle the Forest’s peak visitation load, would require 8 tram units, each unit consisting of a power unit and up to three wagons (trailers) running every 7.5 minutes. Each tram unit would have the capacity to move up to 80 people.

Interpretation will be a key value added amenity of the transit system. At a minimum each vehicle should be equipped with an audio system that will provide theme related interpretation synchronized with the passing scenery and key features along the route. Additional environmental protection messages and Forest rules and regulations would also be included. A video system featuring recorded conservation/ecology messages and/or live, personal interpretation by an FS interpreter or outfitter-guide are other possible methods to be considered.

A fully operational system is planned for 2011 with a demonstration project to acquaint visitors with the public transit concept planned for the summer of 2009. The “demo” project will run concurrently with the Environmental Analysis for the full system and will involve acquiring and operating one to two tram units together with private vehicles on Forest roads.



Green Lizard,  
*Anolis evermani*

## Special Interest Areas

### Outstanding features

There are two designated areas within the El Yunque National Forest's boundaries that are unique to the Island of Puerto Rico; the Wild and Scenic Rivers area and the Wilderness area.

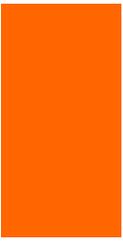
Although the Forest's Wild and Scenic Rivers area offers visitor access limited solely to its recreational segments and designated scenic segments, and the planned visitor usage of the Wilderness area will be ecologically restricted to the primitive El Toro and Trade Winds trails, the development of Interpretative themes, media and Conservation Education materials describing them must be considered an important component of our overall ICE effort. Educating local islanders, visitors from the mainland and from abroad about the vital ecological conservation concerns that caused these areas to be set aside for protection by the federal government should be considered among our primary objectives.

### Wild and Scenic Rivers

The Caribbean National Forest<sup>1</sup> Wild and Scenic Rivers Act of 2002 officially designated portions of the Río Mameyes, Río de la Mina and Río Icacos as a part of the National Wild and Scenic River System. The National Wild and Scenic Rivers Act was passed by Congress in 1968 to ensure that "Rivers of the nation which possess remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or similar values, shall be preserved in free-flowing condition, and that they and their immediate environs shall be protected for the benefit and enjoyment of present and future generations."

These three El Yunque NF rivers are designated as "Wild and Scenic" from their headwaters, in the Forest's upper elevations to where they exit its boundaries. The Río Mameyes and Río de la Mina flow in a northerly direction and they include remarkable biological, historic, scenic and recreation values, while the Río Icacos, which flows in a southerly direction, incorporates memorable scenic, historic, cultural and ecological values.

There are three classification of rivers, or river segments, in the National Wild and Scenic Rivers System – *Wild*, *Scenic* and *Recreational*. Classification is based on the condition of the river and the adjacent lands at the time of designation.



Wild Ginger,  
*Hedychium coronarium*

**Wild river segments** are free of impoundments (reservoirs, etc.); shorelines should be primitive with no evidence of human activity. River area should be inaccessible except by trail. Water quality must meet or exceeds criteria for federal and state approved standard for propagation of fish and wildlife normally adapted to the river.

**Scenic River segments** should also be free impoundments; shoreline should be largely primitive and undeveloped with no evidence of human activity. The river area may be accessible in places by roads or trails. Water quality does not require classification but is monitored.

**Recreation river segments** may have some development with substantial evidence of human activity. The river area may be readily accessible by roads or trails. Water quality does not require classification but is monitored.

The specific classification details for El Yunque’s three designated rivers are shown in the table below:

**Table 2 - Wild, Scenic and Recreational River Designations at El Yunque NF**

	Río Mameyes	Río Icacos	Río de la Mina
<b>Wild river segment</b>	2.1 miles – headwaters in Baño de Oro Natural Area to Río de la Mina crossing		
<b>Scenic river segment</b>	1.4 miles – Río de la Mina crossing to Angelito trail access	2.3 miles – headwaters to EYNF south boundary.	1.2 miles – La Mina Falls to confluence with Río Mameyes.
<b>Recreational segment</b>	Angelito trail to EYNF north boundary.		0.9 miles – headwaters to La Mina Falls.

**El Toro Wilderness Area**

The Caribbean National Forest Act of 2005 designated 10,000 acres within the El Yunque National Forest (EYNF) – Luquillo Experimental Forest (LEF) as a wilderness area. This area is on the western portion of the forest along the Luquillo mountain range and comprises almost one-third of the forest’s 28,000 acres. The area is named after El Toro, the highest peak (3,524 feet / 1074 meters) in the forest. In addition to being the first federally designated wilderness area in a tropical rain forest, it is also the first designated wilderness area on the island of Puerto Rico.



River shrimp, *Xiphocaris, elongata*

The El Toro Wilderness Area is home to the endangered Puerto Rican Parrot (*Amazona Vittata*), one of the most vulnerable species listed under the Endangered Species Act of 1973. Other endangered wildlife species include the Puerto Rican Sharp-shinned and Broad winged Hawks and the Puerto Rican Boa. There are also federally listed endangered plants that grow in the El Toro wilderness, such as the Luquillo Mountain Baby-boot Orchid (*Lepanthes eltoroensis*) and the Palo de Jazmín (*Styrax portoricensis*) as well as several other rare species.

A wilderness area designation by Congress under the Wilderness Act of 1964 is the greatest protection afforded to federally managed areas. The act protects some of the most natural and undisturbed places in America, prohibiting activities such as road construction and the operation of motorized vehicles, while promoting uses that leave no visible human trace on the land.



*Lepanthes eltoroensis*

### **Important features of the El Toro Wilderness Area are:**

- It is an undisturbed nature area, and will remain so for future generations;
- It will be treasured as the only wilderness area on the island;
- It is a habitat for numerous endangered and threatened flora and fauna species;
- It provides the headwaters for numerous rivers.
- The wilderness area is a very delicate ecosystem which requires protection to maintain its wilderness character;
- The flora and fauna that is found in the wilderness area are unique and important elements of the ecosystem;
- Access to the area is limited to two primitive trails, El Toro and Trade winds Nature Trails.

### **Who Are We?**

The world's tropical forests form a green belt that extends north and south from the Equator, covering approximately seven percent of the Earth's surface. Within this belt lies the El Yunque National Forest, the only tropical rain forest in the U.S. National Forest System. The Forest's 28,000 acre size belies its importance; it differs significantly from other U.S. National Forests because of its year-round tropical climate and immense biodiversity.

Visitors from the island and from all over the world come to experience the wonders of this renowned eco-tourism venue. By hiking the Forest's many nature trails they develop a better understanding of its ecological importance. They succumb to El Yunque's serenity while discovering fascinating tropical fauna set in a lush floral setting of flowers, ferns, trees and vines.

- To enhance this experience, the El Yunque National Forest Visitor Interpretive Services (VIS) component has designed and implemented a series of modular, theme-based interpretive programs. These programs are provided to visitors (at a modest fee) by the Forest's highly trained, professional (albeit undersized) VIS staff on a regularly scheduled basis. The EYNF-VIS also provides a similar Interpretive Program to large student groups and to both local and off-island Non-Government Organization (NGO) groups.
- The El Yunque National Forest's Conservation Education (CE) component provides a robust, enthusiastic program effort that has consistently designed and disseminated tropical forest themed conservation education curricula and activity modules to the island's elementary and middle schools, in anticipation of the current agency focus on bringing More Kids into the Woods (MKIW).

### ***Who Is Coming To El Yunque?***

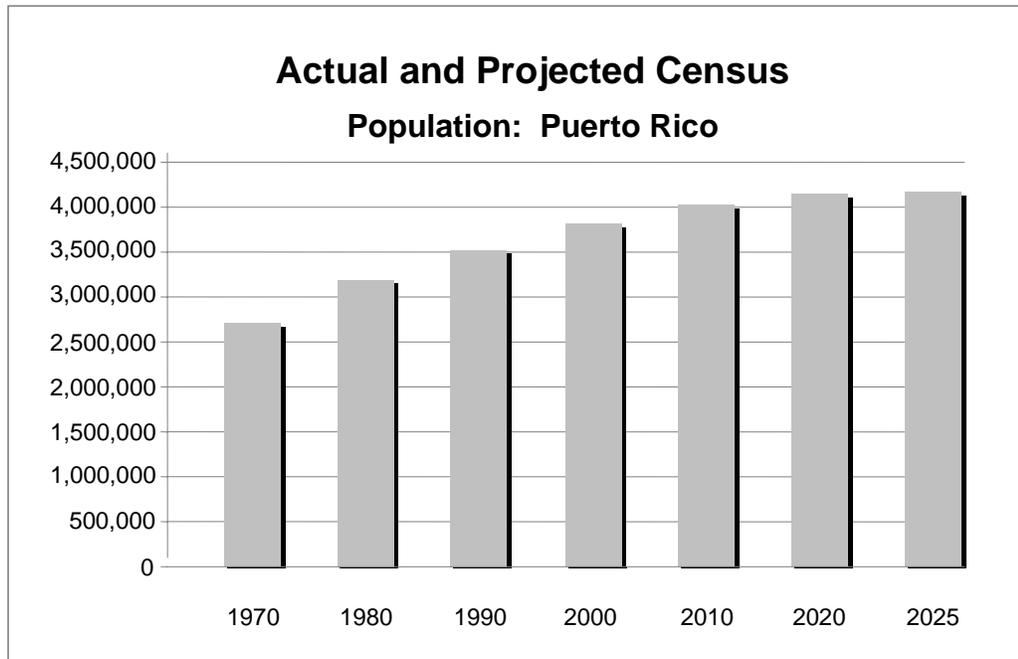
Puerto Rico's population in 2000 was 3,808,610. This number becomes significant when we consider that Puerto Rico is an island with a total land surface of 3256 square miles (8434 Km<sup>2</sup>) that translates to a population density of 1,170 persons/square mile (452/Km<sup>2</sup>), which places us among those areas with the highest population densities in the world.

o this number we must then add the estimated 3,000,000 tourist arrivals 500,000 of whom find their way to El Yunque. Recent population projections from the Puerto Rico Planning Board predict an average 3% annual population growth over the next fifteen years. A holistic view of all of the above figures clearly points to a continuing demand for recreation in the El Yunque National Forest. Resource impacts for such high usage will have inevitable detrimental effects on the conservation of those assets that attract recreationists and tourists alike. Only creative, resourceful and decisive management of our Forest resources and preservation of the already diminished Forest buffer zone will minimize such negative impacts.



Antillean Coqui  
*Eleutherodactylus antillensis*

Figure 3 - Actual and Projected Population in Puerto Rico



Puerto Rican Parrot,  
*Amazona vittata*

Table 3 - Population Change by Counties from 2000 to 2008

County	2000 pop	2008 pop	Change	Rank
Las Piedras	34,485	38,531	11.7%	1
Juncos	36,452	40,203	10.3%	2
Canovanas	43,335	46,952	8.3%	3
Río Grande	52,362	56,296	7.5%	4
Luquillo	19,817	20,738	4.6%	5
Fajardo	40,712	42,580	4.6%	6
Naguabo	23,753	24,740	4.2%	7
Ceiba	18,004	18,552	3.0%	8
<b>EYNF Surrounding Counties Total</b>	<b>268,920</b>	<b>288,592</b>	<b>7.3%</b>	
Toa Alta	63,929	75,926	18.8%	1
Trujillo Alto	75,728	84,089	11.0%	2
Carolina	186,076	192,935	3.7%	3
Bayamon	224,044	227,190	1.4%	4

County	2000 pop	2008 pop	Change	Rank
San Juan	434,374	429,743	-1.1%	5
Cataño	30,071	28,821	-4.2%	6
<b>San Juan Metro Area Total</b>	<b>1,014,222</b>	<b>1,038,704</b>	<b>2.4%</b>	
<b>Other Nearby Counties</b>				
Gurabo	36,743	41,425	12.7%	1
Culebra	1,868	2,005	7.3%	2
Humacao	59,035	62,894	6.5%	3
Caguas	140,502	145,070	3.3%	4
Vieques	9,106	9,353	2.7%	5
<b>Other Nearby Counties Total</b>	<b>247,254</b>	<b>260,747</b>	<b>5.5%</b>	

The National Visitor Use Monitoring program (NVUM) is a statistically reliable, ongoing survey carried out on National Forests to obtain data on visitation. The NVUM provides reliable information at the individual forest level.

The results of the 2006 El Yunque NF NVUM survey revealed a total of 1,189,700 *National Forest Visits*.<sup>3</sup> Data extracted from this survey show an almost even gender distribution (49% female/51% male) and 50% of those who responded classified themselves as either *Hispanic* or *Latino*.

**Table 4 - Race/Ethnicity of El Yunque NF Visitors (NVUM - 2006)**

Category	Total Percent of National Forest Visits
American Indian/Alaska Native	3.7
Asian	2.0
Black/African American	7.8
Native Hawaiian or other Pacific Islander	1.3
White	90.2
Hispanic / Latino	50.2

<sup>3</sup> A *National Forest Visit* is defined as the entry of one person upon a national forest to participate in recreational activities for an unspecified period of time.



Hedrick's Coqui,  
*Eleutherodactylus hedricki*

The age distribution showed 13% to be under 16 years of age, and 61% (the majority) were in the 20 to 49 year age group, with the remaining percentage of those surveyed falling in the 50-69 year age category. It should be noted that, the opinions of many visitors in this last age group are under-represented because they arrive on the Forest in *outfitter guided tour groups*; tours such as these have extremely tight schedules during which they must cover multiple destinations, limiting the time each group spends in the Forest to a maximum of 2 hours. For this reason, outfitter tour group buses do not stop for exit interviews and members of this group are rarely surveyed.

**Table 5 - Age Distribution of El Yunque NF Visitors (NVUM - 2006)**

Age Group	Percent in Group
Under 16	12.8
16-19	4.3
20-29	19.8
30-39	20.9
40-49	19.9
50-59	13.8
60-69	6.6
70 +	1.7

In 2007, outfitter guided tours brought 110,284 visitors to El Yunque representing 10% of total Forest visitation. Studies performed by the University of Puerto Rico (UPR-1995) as well as data collected during the same time period by the Puerto Rico Tourism Company (PRTC) portray this group to be (a) older, with more persons surveyed who were in the 50-69 year age group; (b) educated, with many of the surveyed having greater than 12 years of formal schooling; and (c) most were in a higher income bracket than that of the average local visitor.

Results obtained from NVUM surveys of the El Yunque NF provide a picture of both visitor and travel characteristics:

Annual visitor household income shown as a percentage of national forest visits is displayed in Table 1. Approximately 12% of El Yunque NF visits are made by visitors who have a household income of \$150,000 or more; higher than that of visitors to most national forests, This data is consistent with the reality that 59% of all visitors traveled over 500 miles from their



River shrimp,  
*Macrobrachium faustinum*

homes to reach their destination. A large percentage of these visitors reach the island on a Caribbean cruise ship tour.

**Table 6 - Percentage of El Yunque NF Visits by Household Income (NVUM - 2006)**

Annual Household Income	National Forest Visits (%)
Under \$25,000	10.1
\$25,000 - \$49,999	24.9
\$50,000 - \$74,999	31.2
\$75,000 - \$99,999	13.8
\$100,000 - \$149,999	8.3
\$150,000 and Over	11.8

Nearly half of all recreational visitors are local residents; the remainders are off-island tourists. In the latter category, by far the greater number (80%) arrives from the U.S. mainland, predominantly from the Eastern seaboard states. International visitors represented roughly 21% (PRTC – 2008), with Europe, Canada and South America as the top three points of origin. However, international visitors were seen to be under-represented in NVUM survey data for the same reasons outlined above. A significant 93% of all forest visitors stated that recreation was the sole purpose of their visit. The viewing of natural features and wildlife were the chief activities that visitors engaged in; hiking, driving for pleasure and relaxing were next in order of preference.

**Table 7 - Activity Participation and Primary Activity for the El Yunque NF (NVUM - 2006)**

Activity	Percent Participation	Percent who said it was their primary activity
Hiking / Walking	78.6	54.0
Viewing Natural Features	80.6	20.6
Viewing Wildlife	65.4	6.5
Relaxing	37.7	5.9
Driving for Pleasure	42.0	5.8
Other Non-motorized	11.6	1.9
Nature Center Activities	33.2	1.1
Picnicking	6.7	0.6



Puerto Rican Parrot Chicks



Giant River Shrimp, *Macrobrachium carolinus*

Activity	Percent Participation	Percent who said it was their primary activity
Primitive Camping	0.6	0.4
Visiting Historic Sites	23.0	0.3
Some Other Activity	1.0	0.3
Gathering Forest Products	1.0	0.3
Backpacking	0.4	0.3
Developed Camping	0.5	0.3
Nature Study	14.1	0.0
Fishing	0.1	0.0
OHV Use	0.3	0.0
Non-motorized Water	0.1	0.0
Motorized Trail Activity	0.2	0.0

Developed Day-use venues, such as visitor centers, the food concession and the picnic areas and trails that are adjacent to the upper PR 191 corridor are those most frequented by international visitors who remain on site around an hour (average – 1.2, median – 0.8 hour); local island visitors seem to prefer familiar forest locations and/or undeveloped areas for their activities, spending an average of 2.4 hours on the former and 3.2 hours on the latter.

**Table 8 - Use by Type of Recreational Facility on El Yunque NF (NVUM - 2006)**

Facility/Area Type	Percent who said they used (National Forest visits)
Forest Roads	1.3
Scenic Byway	21.8
Visitor Center or Museum	47.6
Interpretive Displays	13.5
Information Sites	19.2
None of these Facilities	25.5

Local lore holds that the El Yunque National Forest’s Luquillo Mountains held great religious significance to the island’s aboriginal, pre-Columbian Taino people. The absence of prehistoric occupation sites and the

presence of petroglyphs is clear evidence that the Taino and their predecessors considered the peaks to be sacred. Subsequent Spanish colonizers named the high forest peak El Yunque, possibly a corruption of Yuké, which might have been the name used by the Tainos for this mountain. Today and estimated 5% of El Yunque’s visitors enter the forest for un-specified religious reasons (UPR - 1995)

It is significant that when asked where they would go if they could not come to El Yunque, 32% of the respondents said they would come back at a later time.

**Table 9 - Substitute Behavior Choices of Visitors on El Yunque NF (NVUM - 2006)**

Substitute Choice	Percent who would have...
Come back at a later time	32.4
Stayed at Home	9.0
Gone elsewhere for the same activity	12.5
Go elsewhere for a different activity	39.0
Gone to Work	0.0
Had some other substitute	7.0



Giant Anole,  
*Anolis cuvieri*

**Who Should Be Coming To El Yunque?**

***“A nation deprived of its liberty may win it; a nation divided may reunite; but a nation whose natural resources are destroyed must inevitably pay the penalty of poverty, degradation and decay.”***

- Gifford Pinchot

Recent research shows a staggering divide between children and the outdoors which directly links the absence of nature in the lives of today’s “wired” generation to some of the most disturbing childhood trends: the rise of obesity, attention disorders, and depression (Louv, 2006).

The research revealed that a connection with nature needs to be developed early in childhood for it to provide life-enhancing benefits. Vastly increasing the number of children, 16 years of age and under, that come into the Forest to actively engage in exciting, interactive, “hands-on” activities and experiences must become a primary goal of the El Yunque NF. Particular emphasis should be placed on increasing the involvement of elementary school youth. Interactive contacts between children and nature should be implemented through, and provided by, El Yunque’s interpretation and conservation education programs.

El Yunque's many elderly and handicapped visitors must overcome varied levels of challenge before they can fully enjoy a rain forest experience. The elderly are especially well represented in outfitter bus tours, with the more "fit" among them walking the Forest's popular La Mina and Big Tree nature trails, while those with health concerns or infirmities are typically denied these experiences and are limited to walking the shorter and less arduous Caimitillo or El Portal nature trails.

Expanded and/or improved opportunities for the elderly to ensure that they may equally experience the manifold wonders of the rain forest should be considered. Successful implementation of any improved opportunities may require forming partnership agreements with local municipalities or private groups to sponsor individual and/or group visits for this typically low-income visitor segment.

Physically impaired visitors to the Forest are challenged by the difficulties they encounter in securing accessible transportation to the Forest, and again when they arrive on the Forest, as they attempt to obtain information necessary to plan a visit agenda. This group is vastly underserved, especially in the local visitor category. Although it seems reasonable that physically impaired island residents would have adequate transportation opportunities due to shorter transit distances, cultural bias and attitudinal denial of this group's needs severely limits their exposure to outdoor activities.

When physically impaired clients arrive on the forest, their activities are typically limited to the accessible areas of the El Portal Rain Forest Center, the ground level of Yokahú Tower, the food concession and the Eastern National satellite stores and restrooms at the Yokahú and Palo Colorado visitor centers. Few opportunities exist for this group to conveniently experience accessible interpretive or media programs. The El Yunque NF must use this Interpretive and Conservation Education master plan to address this issue with a pragmatic and, comprehensive procedure. Visitation numbers of this client segment will surely grow as the number of local and mainland wheelchair-bound war veterans visiting the forest increases. Visitation numbers can be increased by modifying our marketing strategies to include and attract the physically impaired demographic, with an additional, long-term benefit to the Forest of increasing overall visitation numbers.

El Portal Rainforest Center facilities rental for private and commercial use is another recommended area of expansion. The Forest has begun to implement some artist and artisan related programs on weekends which



Puerto Rican Parrot,  
*Amazona vittata*

have shown impressive visitor response. This format should be encouraged and activities such as evening social/cultural events and the daytime use of unused office and meeting spaces should be encouraged. These activities would provide a more efficient use of the facilities, provide additional income and support the presentation of expanded interpretive and educational services. Additional activities would also conceivably generate further income for our important interpretive partner, the Eastern National Bookstore and certainly increase activity and revenue at the food concession. Prime target segments for these proposed additional activities would typically comprise: individuals, families, hotel concierge personnel and convention event planners for both local and off-island Non Government Organizations (NGOs).

### ***What Factors Influence Our Planning?***

In 1992, the year that the El Yunque National Forest's previous Interpretation and Conservation Education (ICE) plan was written, Caribbean tourism grew by only 3% over the preceding two years, as a result of a recession and the growing Middle East crisis. Two years earlier, in 1989, tourism in the region had grown by 5.5%. The slowed growth was perceived to be a result of difficult economic conditions in the United States, Canada and Britain, coupled with a drop in travel when Iraq invaded Kuwait.

Because the world has changed significantly over the ensuing 26 years, it is useful to consider present global and regional influences and trends that will affect a successful implementation of the current (2008) El Yunque NF ICE Master Plan. At least three dynamic factors are predicted to impact the planning process:

- Global Tourism Trends.
- Regional (U.S. and Canadian) Tourism Trends.
- The Potential Impact of Climate Change Concerns on Global Tourism.

### ***Global Tourism Trends***

International tourist arrivals rose by 32% (4% annually) between 2000 and 2007. By far the largest increase was shown by tourists from the developing countries. During this same period, international tourism arrivals from the 50 least developed countries showed an overall increase of 110%, an impressive average growth of slightly less than 14% per year.



Cricket Coqui,  
*Eleutherodactylus gryllus*

The Asian-Pacific region, Middle East, Africa, Central and South America have shown the greatest investment increase in tourism infrastructure during this same time period. Stronger economies in Europe coupled with emerging economic markets such as India, China, Japan and Brazil are bringing more visitors from these markets to international travel destinations.

Less favorable global economic prospects, soaring oil/fuel costs and the uncertainties of regional stability are predicted to slow overall travel industry growth through 2020. Because of this, the travel industry is expected to be modestly impacted over the near term; continuing to grow, but at a more modest rate.

International travel to the United States and its possessions is on the increase, driven in part by attractive bargain prices resulting from the current decrease in the value of the US dollar. Central and South America have also seen a significant increase in international tourism in this region, while travel to the Caribbean islands has remained steady.

### ***US-Caribbean Tourism Trends***

American families are taking shorter vacations and they are utilizing the internet to research economic “deals” and then to book both travel and accommodations.

Domestic vacation travel by automobile may be slowed by the ever increasing costs of fuel; travelers may become more conservative with their time and money. This trend could provide a slight tourism advantage to Puerto Rico and the Caribbean region by attracting economy-minded vacationers from the eastern seaboard and other U.S. hub markets.

Because they promote value for dollars spent, the cruise-ship industry may be less impacted by the prospect an impending recession than other segments. Presently, this travel industry grouping is doing well with its European and Latin American offerings, but there is a perceived need for diversification of their somewhat “stale” Caribbean destination offerings to experienced cruise vacationers.

### ***Climate Change and Sustainability***

Sustainability, green technology and climate change are rapidly becoming important considerations from a tourist industry standpoint; more vacationers are using “green” criteria when selecting travel destinations and related products and services.



Wild Flower,  
*Isotoma longiflora*

While it seems unlikely that any form of “travel rationing” is a likely near-future scenario, fees and charges that were uncommon or even unthinkable in recent times are already being levied by airlines and it seems likely that other forms of travel (train, ship and motor coach) will certainly follow suit in an effort to offset or mitigate sensitive environmental issues such as fossil fuel consumption and related factors. As additional mergers in the airline industry look less likely, American carriers face a future of making further cuts to survive in an era of soaring jet-fuel prices.

The Tourism Industry is becoming more focused on climate change issues and foresees a need to take such deliberate actions within the tourism sector as:

- Mitigation of greenhouse gas emissions especially those derived from transportation and accommodations;
- Adaptation of tourism businesses and destinations to changing climate conditions;
- Application of both existing and developing technologies to improve energy efficiencies;
- Securing of financial resources to help poorer regions and countries develop and implement such efforts.

A significant, across-the-board increase in the consumption costs of all forms of energy (especially coal and petroleum) is already occurring worldwide. As a result, a national and global migration toward hybrid/electric and fuel cell technology and a renewed interest in mass transit solutions that will reduce vehicle emissions and the number of miles traveled has already begun, and is predicted to continue unabated through the next decades.

Over the short term, airlines will cut-back on the frequency and/or length of their flights as a response to high fuel costs and the weakened dollar. Long-haul destinations such as those in the Caribbean islands that rely heavily on air transportation to bring in tourists will be deeply affected

Customers are becoming more informed about environmental, eco-friendly and green technologies, especially as they relate to their travel choices; they are predicted to utilize these standards more frequently when selecting travel options

Some key climate change issues affecting the Caribbean basin tourism industry are:



Fungii

- Rising sea levels – causing coastal damage and storm surge;
- Coral bleaching – destroying water tourism venues and impacting both commercial and recreational fishing;
- Changing weather patterns -- resulting in flooding and spawning severe hurricanes.
- Increased droughts – making water supplies unreliable and increasing wild land fire risk.

It should be emphasized that the current and potential tourist industry impact scenarios related above are dynamic rather than static. Global and local conditions affecting the industry could change dramatically over the short term, or conversely achieve a median level over the long term. In order for us to anticipate and accommodate these changes, we must stay constantly “tuned-in” to the tourist industry’s heartbeat, and be prepared to alter our recreational strategies accordingly. As a conservation leader, the EYNF must implement positive greening measures in both our facilities and programs. We must then communicate these actions to the public using our interpretation and conservation education programs.

**Tourism and Recreation Trends**

Puerto Rico is the leading tourism destination in the Caribbean, with an advantageous share of business and leisure travelers, a strong supporting infrastructure for air and sea transport and a good endowment of natural, cultural and historical attractions.

Tourism accounts for 24% of the annual 14.3 billion dollar Puerto Rican Service market and represents 14% of the island’s total work force.

**Table 10 - Puerto Rico's Tourism Sector (2006) - Overview**

Strengths	Weaknesses
Puerto Rico's location in the Caribbean makes it a year-round tourism destination near the US and Europe.	Tourist's average length of stay is low with a large share of visitors staying outside the hotel system.
Puerto Rico has a better overall infrastructure and endowment of attractions when compared to the rest of the Caribbean.	Costs in Puerto Rico are high when compared to other Caribbean “Sun & Sand” destinations.
Besides being a major cruise hub for the region, strong air transportation links support tourism and position Puerto Rico as a gateway to the Caribbean.	Puerto Rico lacks the variety of services and attractions to position itself as a “High-end” tourist destination.



La Mina Falls

Strengths	Weaknesses
Puerto Rico enjoys a stable mix of visitors with a strong business segment lowering vulnerability to market shifts.	In this context, tourism in Puerto Rico presents several signals of decreasing competitiveness, losing market share to other Caribbean destinations.

**Opportunities:**

- A better branding strategy and focus could leverage Puerto Rico as an attractive location beyond its high dependency on travelers from the US mainland.
- A focused value proposition based on Puerto Rico’s potential competitive advantage could boost the visitors to the island.

**Threats:**

- Intense competition from Florida for high end lifestyle based tourism and from the Dominican Republic and other Caribbean islands for traditional low-cost tourism.
- A possible end to the Cuban travel ban could alter the dynamics of the Caribbean tourism market.

**Table 11 - Puerto Rico's Recreation Trends (2006) - Overview<sup>4</sup>.**

Strengths	Weaknesses
The good climate allows for recreation activities throughout the year.	Puerto Rico has one of the highest levels of inactivity among adults in all of the US and its territories.
Due to the island’s small size and good infrastructure, Puerto Ricans have easy access to varied recreation activities as they are being developed anywhere on the island.	Puerto Rico faces challenges regarding its current assets vandalism and deficient maintenance.
There are a great number of recreational facilities and NGOs dedicated to the promotion of sports and recreation on the island.	Available recreational facilities on the island are not always built to satisfy community needs.



*Heliconia caribaea*

<sup>4</sup> Puerto Rico 2025 Project 2004

Strengths	Weaknesses
The Commonwealth government's budget for sports and recreation increases yearly.	There is a lack of recreational options for different age groups outside the metropolitan area.
Tourists visiting Puerto Rico have ample recreational opportunities in addition to the traditional "Caribbean Island" and cultural and architectural richness.	Lack of government support for NGOs dedicated to sports and recreation.

**Opportunities:**

- The role of the government is key to making the best use of available resources and in defining policies to support recreation in the island's population.

**INVENTORY OF CURRENT INTERPRETATION AND CONSERVATION EDUCATION EFFORTS**

***Personal and Non-Personal Interpretive Services***

Interpretation has been described as "The complex of personnel and media that tells the story of a forest or park. Interpreters are the specialists who tell that story through tours, lectures, exhibits, publications, films and so on. The *interpreted story* of an area may describe the history of natural phenomena, a culture, a person or an event."

The current El Yunque National Forest Interpretive Program concentrates its content on the natural history and culture of our unique and biodiverse forest; it includes both *personal* and *non-personal* interpretation segments.

*Personal interpretation* is provided by the forest's modest staff of professionally trained, National Association for Interpretation (NAI) certified Interpreter/guides, consisting of a VIS Operations Leader-Trainer and one permanent/full-time Interpreter/guide, During the six-month "high" tourism season, two permanent-seasonal interpreter/guides are added to the IS staff. A majority of the IS staff's efforts are focused upon the *two principal interpretive programs* offered by the forest; the *Forest Adventure Tour (FAT)* and *Rent-a-Ranger (RAR)* programs.



Puerto Rican Screech Owl,  
*Otus nudipes*

Numerous visitors to the El Yunque National Forest are seeking the opportunity to experience a structured, educational, professionally interpreted, guided tour of a forest nature trail. These visitors typically fall into either of two categories; (1) those who wish to obtain interpretive information quickly, due to the limited time that they will spend in the forest, or (2) those who wish to obtain interpretive information from the tour guide that will allow them to retain a better understanding of the forest's natural and cultural resources to apply on subsequent, unaccompanied nature trail hikes. The El Yunque National Forest's *Forest Adventure Tour (FAT) program* was designed to meet the needs of those visitors who wish to tour one of El Yunque's nature trails led by a trained, professional Forest Service interpreter-guide. FAT tours provide them with an opportunity to learn about El Yunque's amazing plant and animal diversity; while simultaneously developing an intellectual and emotional connection with El Yunque's natural and cultural heritage and long history of stewardship and conservation. Through a combination of in-depth training and diligence, the training leader and interpretive staff have developed a catalog of cultural and natural history themes adapting individual small-group expectations to short-term nature trail tours.

*Forest Adventure Tours* are typically one hour long; they are provided on a first-come-first-served basis from 10:30 am until 3:30 pm daily. Visitors can arrange for a tour by speaking to a staff member at the Palo Colorado Interpretive Site located at Km 11.7 on PR Road # 191 in the Forest's recreation area. Participants are asked to pay a small fee for the tour; children and senior citizens pay a reduced fee.

The design and implementation of the El Yunque National Forest's *Rent-A-Ranger Program* was suggested by a perceived need to improve outreach to two demographic segments that have similar interpretive requirements; local schools, and both local and off-island Non-Government Organization (NGO) groups. IS satisfied these needs by delivering a high-quality, affordable interpretive product, that could be tailored to each group's specific needs and interests. The *RAR Program* is designed to flexibly and dynamically meet the individual interpretive desires of varied groups who are amenable to pre-arrange their participation in professionally guided, theme-driven tours of the forest. Each participating school group/organization is guided by an NAI certified, Forest Service Interpreter-Guide on a tour of a predetermined nature trail that fits each group's stated interpretive agenda. Participating school groups/organizations are exposed to the cultural and natural history of El Yunque and experience first-hand the immense diversity of El Yunque's plant and animal life.



Wrinkled Coqui,  
*Eleutherodactylus*  
*wightmanae*

A minimal, agency approved, per-person fee is paid by each participating group member. The fee includes the guided tour and provides entrance to the El Portal Rain Forest Center. The Rent-A-Ranger program is available from Thursday through Saturday throughout the year.

*Non-personal* (exhibit/signage/website/publications) based interpretation is presented through the cultural and natural history signage found at trailheads and nature trails in the forest; the interactive interpretive exhibits and the El Yunque National Forest orientation film featured at the forest's El Portal Rain Forest Center; the natural and cultural history specific pages within the Forest's informative website: [www.fs.fed.us/r8/el\\_yunque](http://www.fs.fed.us/r8/el_yunque); the site guides and other interpretive publications flyers and brochures describing various natural and cultural resource and land management themes (Publication Inventory List - Appendix A).

### **Personal Services Challenges**

The interpretive program was internally evaluated and reviewed by EYNF Visitor Information Service (VIS) managers and staff in February, 2003. Reviewed and discussed at that meeting were such vital considerations as; "Things we are doing well and should continue doing;" Things we are not doing well and should either improve or stop doing;" and "Things we are not doing, and should be doing."

The reviewing group's consideration of the first item was a general consensus that:

- El Yunque's trained professional interpretive staff provides a seamless program of non-reservation, interpretive services seven days a week during high season;
- The natural history and cultural information they provide is up-to-date and accurate, delivered on easy or moderately difficult nature trails for a reasonable fee;
- That this policy encourages return visits and visitor referrals;
- Reservation arrangements for school and other large groups are accomplished professionally and in orderly fashion;
- VIS responds promptly and accurately to requests for information, VIP assistance and filming support.

The review group's consideration of the second item revealed that:



*Miconia foveolata*

- Interpretive Services in the forest lack a good marketing strategy and do not provide adequate publicity for existing recreational, interpretive and Conservation Education services;
- Population/audience target priorities should be re-defined; Audio-visual resources should be critically reviewed and enhanced;
- Year round Interpretive Services should be provided on-demand, with offerings not limited solely to nature trail tours;
- Forest Interpretation programs should be provided to interests outside the forest;
- One-hour nature trail tours are inadequate for client groups with special agendas, and that a single interpreter stationed at Palo Colorado cannot perform effectively when faced with a back-to-back tour schedule.

The group's findings on Item three suggested that:

- VIS should develop outreach programs to take the forest's message to "off-forest" locations and develop alternative interpretive programs that highlight other nature trails such as El Toro/Trade Winds, Mt. Britton, Angelito, Cloud Forest, and El Portal;
- Develop a catalog of inter-related themes for existing nature trails;
- Develop specialized "theme" tours, expanding and highlighting potentially exciting forest attractions such as birds, coquis, fish, shrimp and rivers;
- Develop new interpretive topics/themes such as endemism and biodiversity, the Luquillo Mountains a sacred land to the Taíno, Las Tres C - the Civilian Conservation Corps (CCC) in Puerto Rico, forest types, and so on;
- Offer a pre-paid, day-long, interpretive package to professional groups such as the Sierra Club and National Wildlife Foundation;
- Offer inexpensive Interpretive Service options to socially and economically disadvantaged demographic segments;
- Forest Interpretation should incorporate a clear message describing the agency's mission and the image of our forest as an educational resource to our clients.

In spite of interpretive budget constraints and staffing limitations, a coalition of forest managers, VIS interpreters, support staff and volunteers were able



Icaños River

to creatively implement two of the review group's suggestions in the second category in the four years that have elapsed since this review.

- “El Portal Rain Forest Center should be used for special activities such as lectures, workshops, guided use of interactive exhibits, meetings, and Island crafts shows/displays.” (implementation of most items by EOCY 2006);
- “Develop, advertise and present live tropical forest fauna exhibits at El Portal.” (successfully implemented as a regular summer feature beginning in 2005);

In March, 2008, comments were solicited from the members of the original VIS review team on the currency and validity of their 2003 findings, given the realities of evolving agency policy and focus since they last met. For the most part, the group was in consensus that current events and adjustments in policies and focus have only served to strengthen their original commentary.

### **Conservation Education Programs**

Conservation education is a related, yet distinct program from interpretive services. Its educational goals often overlap interpretive services; however, conservation education delivers the messages to different audiences, using different methods. In general, conservation education efforts are geared to a captive audience in more structured, formal settings. They are often age-specific and provide a structured series of experiences. Examples of conservation education activities include classroom presentations, teacher training and curriculum and media development. Some of the most used national and local conservation education programs include:

**Smokey Bear** – For over 60 years Smokey Bear has delivered an effective wildfire prevention message. He is one of the most memorable public service advertising symbols in U.S. history. His message is extremely timely today and forms the basis for numerous educational efforts.  
[www.smokeybear.com](http://www.smokeybear.com)

**Woodsy Owl** – Woodsy has been America's environmental champion since 1970, and is most recognized for his wise request, “Give a Hoot. Don't Pollute.” Today, Woodsy has a new motto, “Lend a Hand – Care for the Land!” This Forest Service symbol befriends another generation of children and motivates them to form healthy, lasting relationships with nature. The Woodsy Owl program is geared toward the 3-8 year old age group.  
[www.fs.fed.us/spf/woodsdy](http://www.fs.fed.us/spf/woodsdy)



*Marcgravia sintensis*

**Project Learning Tree** – Project Learning Tree (PTL) is an award winning, broad-based environmental education program for educators and students in Pre-kindergarten through grade 12. PLT, a program of the American Forest Foundation, is one of the most widely used environmental education programs in the United States and abroad. The El Yunque National Forest has adapted the PLT methodology in the development and implementation of its “Tropical Forest Trunk” collection of teacher training and classroom activity materials for use in Puerto Rico’s public school system. [www.plt.org](http://www.plt.org)

**Nature Watch** – Nature Watch is a nationally coordinated program to enhance public opportunities for sustainable, low-impact recreation. The program addresses wildlife, fish and plants, includes facility construction, interpretation and education, and is supported by the National Forest System Wildlife, Fish and Rare Plants staff. [www.fs.fed.us/outdoors/naturewatch/default.htm](http://www.fs.fed.us/outdoors/naturewatch/default.htm)

**Partners in Flight** – This partnership program focuses on neo-tropical migratory birds. The Forest Service is also an active participant in the celebration of International Migratory Bird Day through the hosting of festivals, education, tours and bird counts. The El Yunque National Forest cooperates with scientists from the International Institute of Tropical Forestry (IITF) and the Audubon Society to conduct an annual “Christmas Bird Count” of migratory and resident avian species in the northeast portion of the island. [www.fs.fed.us/biology/wildlife/partnersinflight.html](http://www.fs.fed.us/biology/wildlife/partnersinflight.html)

**Leave No Trace, Inc.** – The Leave No Trace (LNT) program was originally initiated by the Forest Service and is now managed as a non-profit organization in cooperation with the National Outdoor Leadership School. It focuses on developing responsible use ethics in people using backcountry and wilderness areas. The El Yunque National Forest highlights the “Leave No Trace” concept in its entire print and electronic media, and this concept is also a vital part of the Forest’s personal interpretive and conservation education message. [www.lnt.org](http://www.lnt.org)

**Passport in Time** – Passport in Time (PIT) is a volunteer archaeology and historic preservation program of the Forest Service. Volunteers work with professional archaeologists and historians on projects such as archaeological excavations, rock art restorations, surveys, archival research, historic structure restoration, gathering oral histories, or writing interpretive brochures. [www.passportintime.com](http://www.passportintime.com)

**The Natural Inquirer** – The Forest Service Research & Development arm also conducts a wide range of educational activities. One of the most recent, nation-wide efforts is *The Natural Inquirer*. This publication is a



Puerto Rican Coqui  
with Eggs,  
*Eleutherodactylus  
portoricensis*

research-based “scientific journal” written for children. Activities and teacher guides are included in each edition. These materials are distributed to participating teachers and local schools and have also been included with the El Yunque NF’s “Tropical Forest Trunk” materials.

[www.naturalinquirer.usda.gov](http://www.naturalinquirer.usda.gov)

**Sustainable Operations/Climate Change** - The El Yunque National Forest has just begun to address the issues of sustainable operations and climate change. We must be involved in the dialog to determine how our finite planet resources will sustain a growing population. In our *New Century of Service*, to be true to our mission we must acknowledge our business operations’ ecological, economic and ethical impact. As part of an agency charged with stewardship and conservation leadership and as a global citizen, the El Yunque National Forest must work to reduce its consumption level and resulting impact on the earth’s increasingly limited resources. In addition, we have a responsibility through interpretation and conservation education to assist our users and local communities by sharing our conservation concerns and programs and by indicating how they can be involved.

**More Kids in the Woods** - There is growing evidence that today’s children have lost interest in experiencing the outdoors, and instead has gravitated toward a virtual indoor reality. This disconnect from nature has serious, long-term implications which can affect their health and well being. More Kids in the Woods (a USDA Forest Service Program) aims to engage children through:

- Outdoor recreation activities designed to increase personal fitness, self-esteem and social skills.
- Nature-based learning that will help to improve academic performance and standardized test scores.

Through conservation education curriculum geared toward improving island student’s academic performances and standardized test scores, the El Yunque National Forest can play a key role in:

- Helping children develop a connection to their natural world;
- Helping children and adults keep fit;
- Uniting family and friends through nature based activities.
- Developing new partnership opportunities with non-profit organizations and local municipalities focused on nature-based youth programs.



Moth

### **Eastern National-EYNF Interpretive Association**

Eastern National (EN) is a vital El Yunque National Forest partner and concessionaire. EN assists the Forest by providing quality mission related, tropical forest themed interpretive media (books, pamphlets, site guides, activity-based materials, games, toys, etc.) for sale in their main El Portal bookstore and at three strategic locations on the Forest. All items sold by EN must contribute to our visitor's understanding, appreciation and enjoyment of their Forest experience and/or enhance their knowledge of the world's rain forests. EN's chief purpose is to "Promote the educational, historic/heritage and scientific values of the El Yunque National Forest."

In July, 2004, EN and the El Yunque NF signed a participation agreement, which expired in December, 2008. A new agreement starting January 2009 will extend this collaboration until December 2014.

In addition to their store personnel, last year EN hired three additional employees who rotate between the El Portal Rain Forest Center Information booth and the Palo Colorado Interpretive Site to augment the Visitor Information Service (VIS) presence at these locations.

## **INTERPRETATION/CONSERVATION EDUCATION OVERVIEW**

### **Statement of Significance and Niche**

Nationally, the tourism industry and public land management agencies such as the USDA Forest Service provide the public with significant opportunities for personal enrichment and recreation. This is particularly true in Puerto Rico; 12% of the island's gross product is directly derived from this sector of the local economy. Community and political leaders have recognized the importance and the potential financial rewards of tourism, while increasing numbers of conservationists and natural resource preservationists are assuming an active leadership role in tourism planning. As a result, recognition of the close linkage between natural resources, public lands and tourism, coupled with a commonly shared belief that each of these components has the potential to benefit the other, has emerged. This attitude prevails, despite recent historical evidence which indicates that the type and scale of tourism development in Puerto Rico has not been in harmony with natural resource conservation policy.



Common Coqui,  
*Eleutherodactylus coqui*

The data suggests that the importance of public lands such as the El Yunque NF to local and international tourism will continue to increase. The drawing card? A robust and growing selection of outdoor recreation activities, featuring alluring scenic landscapes and vibrant natural resources!

To realize our full potential for sustainable growth in this economic sector, public land managers must work in close partnership with state tourism industries to forge policies and develop marketing plans with mutually attainable goals that are focused on sustaining the present high quality of landscape attractions by forming partnerships within the surrounding gateway community infrastructure.

Our partnership efforts should be guided by three basic premises: (1) we must provide a program of top-quality customer service to our visitors; (2) we must then develop, implement and encourage tourism activities that involve local communities with plans that include methods for providing them with rewards and inducements; and (3) we must ensure that these activities fall within the envelope of our sustainable recreation-tourism development goals.

In the first premise, all of our efforts must be focused on supporting and thus ensuring the ultimate success of the total customer experience, from pre-trip planning to post-visit follow-up and analysis. We must consistently strive to achieve the highest possible level of visitor satisfaction. Efforts that do not deliver a quality tourism product, service or experience will certainly fail. In the final analysis, all activities in tourism, recreation and in support of conservation values are (or should be) consumer-driven. The visitor-consumer often arrives with high expectations based on dreams of pleasure and excitement. Historically, the most successful tourism experiences are those that fulfill or exceed the expectations of those dreams and thus provide a maximum of customer satisfaction.

Second, recreation and tourism development must encourage the involvement of local communities and provide them with rewards; where appropriate, public land managers must realign agency mission and policy to ensure that local businesses will profit from tourism programs. Many of the resources and services associated with the natural history and cultural niches exist primarily in the public sector; it makes good sense that a public agency like the Forest Service must be prepared to perform services and/or provide products that are regarded as socially and politically beneficial, rewarding (or profitable) to surrounding communities.



*Anolis occultus*

Finally and most importantly, all tourism development must be predicated upon an encompassing theme of protection and preservation of those very natural and cultural resources that are the basis of the attraction. A viable system of sustainable recreation and tourism development will do much to encourage preservation and careful use of our unique natural, historic and cultural environs.

It is extremely important that we adhere strictly to the primary agency mission when guiding the management and stewardship of public lands. Over-utilization and resource abuse, the antithesis of natural resource conservation, can quickly destroy the very foundations of tourism activity; allowing or encouraging over-utilization of the resource is counter-productive to the business of recreation/tourism. Respect for the values and needs of the residents of communities adjacent to the Forest must be balanced with efforts to preserve and protect natural and cultural resources. Sustainable, long-term tourism benefits cannot be attained without the support of residents living in surrounding “gateway” communities. The public land manager has much to gain through his/her role in the development and judicious management of environmental tourism. Scenic beauty and environmental integrity rank as important considerations when travelers are choosing a potential vacation destination.

Until recently, the Forest Service’s stated mission for national forests has not focused explicitly on tourism and/or recreation programs and products. Instead, the accent has been on other vital issues such as watershed protection and the safeguarding of long-term supplies of natural resources for a growing nation.

Official Commonwealth statistics for Puerto Rico published in 1989 clearly pointed to a significant and sustained growth in both outdoor recreation and tourism, closely tied to an increased demand on “nature-based activities.” Fortunately, shortly after these statistics were published, visionary thinking within the Forest and pressure from a concerned public, combined to highlight the need to build a world class visitor center at the entrance to the Forest. Ever since it opened to the public in June, 1996 the El Portal Rain Forest Center has been very effective in serving the needs of our tourist-visitors, and has become a significant magnet for local recreation and educational interests.

Increased forest visitation throughout the years has been evident and required that we actively manage traffic flow in our peak summer visitation period, and in particular in the month of July. Still, concrete and reliable evidence on the magnitude of the increase in visitation was not available



River Shrimp

until the 2002 National Visitor Use Monitoring (NVUM) survey results were published and the data taken at El Yunque showed 404,000 visits. Even more surprising were the results for the 2006 NVUM survey that indicated that over a million visitors had passed through the forest, representing a phenomenal 60 % increase in only four years!

It seems quite evident that we have arrived at a critical crossroad when the volume of recreational use the Forest is experiencing requires a constant mix of creative management and strong direction to ensure the sustainable use of our natural and cultural resources.

The El Yunque NF is the premier nature destination on the island of Puerto Rico. The results of numerous visitation surveys indicate that supplying nature-based recreation to both local residents and tourist-visitors is our market niche, while we are simultaneously recognized as a chief conservation education leader in Puerto Rico.

The Spanish Crown proclaimed the Luquillo mountains as a forest Reserve in 1876, and thus it became one of the first of such reserves in the Western hemisphere; in 1903 the United States administration designated it as the “Luquillo Forest Reserve; two years later it was incorporated into the National System of Forests as the “Luquillo National Forest.” It was not until the Great Depression of the 1930’s that the Forest became accessible to the public as a recreation area, thanks to the monumental efforts of New Deal Era programs such as the Civilian Conservation Corps (locally referred to as Las Tres C) which constructed most of the roads, trails and recreation sites still in use today. The present day El Yunque NF is the sole tropical rain forest in the Nation’s forest system, and, because of this significant fact, it is perfectly positioned to increase its importance as a key outdoor recreation and nature-based tourism provider, and as a central source for conservation education for our island and the millions who visit us each year. The Forest’s rich biodiversity and privileged location, a short drive from the capital city of San Juan are complemented by our well-maintained recreational facilities, our history of successful tropical forest restoration, and our unique cultural resources. All of these factors are skillfully encapsulated and presented in an exciting interpretive and conservation education message by our bi-lingual and bi-cultural professional staff, placing us in the enviable position of “Puerto Rico’s premier natural attraction.” If we are to retain exclusive title to this unique market niche we must continue to provide a varied and targeted mix of quality recreation and conservation education programs, products and experiences to our consumers; a carefully constructed “package” that serve



Fern

to increase appreciation for our rain forest without adversely affecting the integrity of our precious Forest ecosystems.

If we are to accomplish this mission, we must be financially sustainable; this can be partially achieved by increasing visitation numbers to the El Portal Rain Forest Center during “shoulder” seasons and by creatively maximizing non-mission, fee-based uses of this appealing, world-class facility, by partner assisted marketing of a wide variety of evening events. The conservation education staff has been negatively impacted by staff and budget reductions and by the lack of a suitable location for teacher training and a place to present pre-and-post forest visit “hands-on” experiences for school groups. If staff offices are re-located to the Catalina Service Center, the present office area could easily and economically be converted to support such activities.

These conservation education activities could be self-sustaining if they were implemented with the help of our partners and volunteers.

### ***Interpretation and Conservation Education Vision***

The El Yunque National Forest’s interpretation and conservation education (ICE) programs complement each other, dovetailing to provide a seamless collection of interrelated ecological and historical interpretive themes and conservation education curricula. These varied programs offer opportunities for visitors and students alike to increase their knowledge, appreciation and understanding of the natural and cultural resources of the forest and our island and to sample their relationship to global resources and issues. As a result, the Forest’s natural and cultural resources are recognized, valued and appreciated by present and future generations.

All El Yunque’s interpretive and educational programs and materials are presented in both Spanish and English; they are also designed to be bi-cultural and wherever possible, universally accessible. Advanced media delivery technologies have been incorporated when appropriate to improve program effectiveness and accessibility.

The Forest’s El Portal Rain Forest Center serves as the main hub to disseminate information and provide orientation describing the interpretation and conservation education opportunities available to our clients both on the Forest and on the island. The Forest’s professionally certified ICE program delivery staff provides excellent customer service to a wide range of clients. Facilities are well maintained and a successful recycling program operates in the forest with participation by neighboring communities.



Burrow coqui  
*Eleutherodactylus unicolor*

An extensive network of like-minded associations supports these programs to ensure proper communication and integrated involvement with local and federal agencies and non-government organizations (NGOs) throughout Puerto Rico and the Caribbean basin. Many of these vital networking efforts are enabled through taking maximum advantage of available “state-of-the-art” electronic and communications installations.

### ***El Yunque NF Interpretive/CE Goals, Objectives and Outcomes***

This section provides a general overview of internal goals, objectives and outcomes, while describing in more detail, the external goals, objectives and outcomes of the El Yunque NF Interpretation/CE programs.

Internal goals are general statements of direction for all interpretive/conservation education services. They help define the agency vision and mission. The mission of the USDA Forest Service is based upon the relationship between our nation’s people and their natural and cultural resource heritage. This relationship is founded on the principles of sustaining our natural and cultural resources for future generations, producing programs and products that will encourage personal and community well-being, and providing economic wealth for the nation.

Internal goals are specific to visitors and the agency; they were developed by the Interpretive/CE Core Team, with able assistance from EYNF “Front Liners” and an elite group of community advisors. Measurable objectives help the Forest’s managers determine when the goals of the plan are successful. These objectives also guide the development of the interpretive message and should be used in evaluating the final product upon completion.

External goals describe what the El Yunque National Forest will provide to visitors through interpretive/conservation education services. They will develop programs and products to encourage public appreciation and support for the Forest’s mission.

External Objectives are what planned Interpretation and Conservation Education services the El Yunque NF will provide to local and off-island visitors and to school, community and NGO audiences. The list of goals, objectives and hoped for outcomes shown below are broad in scope; suggestions for further site-specific project refinement and development is described elsewhere in this plan.



Dwarf Forest

**Table 12 - El Yunque NF Interpretive Goals, Objectives and Outcomes**

Goals	Objectives	Desired Outcomes
<p>To promote customer satisfaction by encouraging safe and enjoyable Forest experiences that orient visitors towards services, points of interest and facilities.</p>	<p>To provide personal and non-personal (media) visitor information and interpretative programs at existing natural and cultural sites within the forest; to develop new sites (or refurbish old sites) that highlight the Forest’s natural and cultural resources, to satisfy predicted Forest visitation expansion.</p>	<p>Visitors can easily find desired recreation, natural and cultural areas in the Forest; Visitors observe Forest rules and regulations and actively engage in ethical conservation practices; Visitors are provided with an ample variety of natural, cultural and recreational opportunities.</p>
<p>Promote the wise use and stewardship of the El Yunque NF and all other tropical forests.</p>	<p>To provide interpretive and educational messages that encourage protection of the Forest’s resources and visitor safety.</p>	<p>Visitors and external audiences should show increased interest and participation in Forest-related activities; Visitors and external audiences should demonstrate increasing knowledge of the Forest’s natural and cultural resource issues, when attending public meetings or when providing input to planning efforts: Audiences across jurisdictional lines should be aware that Forest management practices are evolving because of advances in technology, changes in national priorities, the increasing importance of public influence on policy and differing resource requirements.</p>



Baño Grande Dam

Goals	Objectives	Desired Outcomes
<p>To increase visitor awareness of the importance of the EYNF three Wild and Scenic Rivers as both a water source for surrounding communities, and as a habitat for aquatic species.</p>	<p>To highlight the biological, historical, and scenic aspects of these rivers, using both personal and non-personal (media/signage) interpretive methods and programs;</p> <p>To insure that visitors to the recreational segments of the Río Mameyes and Río de la Mina will safely enjoy their experience, while helping to conserve, protect and sustain the rivers and surrounding environment.</p>	<p>Visitors safely enjoy recreational activities at the three wild &amp; scenic rivers while helping us conserve its natural values.</p>
<p>To increase visitor awareness of the El Toro Wilderness Area uniqueness and its vital importance as a protected ecosystem for Puerto Rico and the Caribbean basin.</p>	<p>To insure that visitors to the wilderness area safely enjoy their experience, while helping to conserve, protect and sustain this highly valued environment.</p>	<p>Visitors safely enjoy their visit to the El Toro Wilderness Area while helping to conserve its natural values.</p>
<p>Preserve, protect and interpret the Forest's prehistoric, Spanish Colonial and American Colonial heritage resources.</p>	<p>Expand and refine interpretation of the prehistoric, Spanish colonial and American colonial resources at the El Portal Rain Forest Center.</p> <p>Utilize historic sites and structures as interpretive focal points to provide visitors with tangible evidence of the Forest's cultural legacy.</p>	<p>Heighten visitor awareness of the rich prehistory and history that surrounds them</p> <p>Establish a connection with the past by exploiting the full interpretive potential of the prehistoric petroglyphs, historic archaeological sites and buildings.</p>



Mountain Mullet

Goals	Objectives	Desired Outcomes
<p>Improve visitor and community understanding and appreciation of El Yunque’s biodiversity and cultural heritage while enhancing the public image of the agency.</p>	<p>To create a consistent standard of brand identification for Forest signs and all interpretive and educational materials; To provide interpretative and educational programs and materials that highlight current Forest management practices;</p> <p>To provide conservation education materials which describe the Forest’s environmental footprint and its relationship to climate change on the island; To foster public awareness of the Forest’s focus on sustainability of natural resources and an understanding that when resources are consumed faster than they are produced, the resource is quickly depleted, and if not renewed, is eventually used-up; In the ideal sustainable world, society’s demands upon nature are in balance with nature’s capacity to meet that demand; visitors are made aware of “greening” methods and practices and are shown “real-life” examples of green forest facilities.</p>	<p>The Forest attracts and trains a sizable cadre of volunteers from surrounding island communities, and local partnership opportunities are plentiful; High quality outdoor recreation opportunities are provided, which meet the island’s recreational demands, while continuing to sustain our natural resources; Public awareness of the Forest’s management is focused on multiple use and sustainability with strong ties to the island’s local communities and area initiatives; Impacts from invasive species, including pathogens, plants and pests, are reduced through the implementation of healthy forest initiatives assisted by the cooperation of an informed public.</p>
<p>Build trust in Forest programs and the Forest Service mission; establish credibility of message with neighboring communities and throughout island demographic segments.</p>	<p>To design and implement programs that explain and rationalize the compelling necessities that drive Forest management decisions to the public.</p>	<p>The public will provide valuable and viable inputs to Forest planning efforts and will be effective in their involvement with the Forest across jurisdictional boundaries; External audiences will understand this vital concept; Natural and cultural resources are managed with respect for the past, and concern for the future.</p>



Juan Diego Creek

Goals	Objectives	Desired Outcomes
<p>Create informative programs describing how to use and enjoy public lands while causing minimum impact.</p>	<p>To improve the presentation and management of the Forest's recreational programs and activities; To continually enhance the Forest's website by ensuring the dynamism, currency and compelling, "user-friendly" presentation of information.</p>	<p>The agency's "corporate image" is easily recognized; management of vehicles entering the Forest during periods of peak visitation is improved; public dissemination of a strong, unified message that incorporates current Forest and agency "Hot Button Issues" such as protection of natural resources, promotion of visitor safety and ongoing efforts to minimize conflicts between a variety of uses by encouraging collaborative development; the unique and appealing ecological tourism values of the Forest's Wild and Scenic Rivers and El Toro Wilderness Area are highlighted in future interpretive and educational programs and materials; there continues to be an increase in the popularity and public usage of the Forest's website as it becomes even more current and dynamic in its presentations, promoting increased visitor preparation for their Forest experience and a better understanding of appropriate uses and locations for specific activities prior to their visit.</p>



Baño Grande

***El Yunque NF Interpretation Themes***

The central and supporting interpretive themes shown below are applicable to the total Forest visitor experience -- from the El Portal Rain Forest Center at the entrance to the forest, across the PR 191 recreational corridor, the Forest's interpretive sites, its "satellite" visitor centers and its nature trails.

## Central Theme

“The El Yunque Rain Forest’s rich biodiversity depends on abundant rainfall and mild temperatures; these conditions will be affected by climate change.”

## Supporting Themes

“Only by concerted efforts of all sectors of society will the dangerous changes caused by climate change be reversed or reduced.”

“Since healthy forests help to reduce carbon dioxide content in the atmosphere, we must work to conserve the world’s forests.”

“Water is the driving force of the Forest – No Water – No Forest.”

“Wild and Scenic Rivers are a vital source of water for the Northeast corridor of the island, and provide an important wildlife habitat for aquatic and land plant and animal species.”

“El Yunque’s combination of Cool Mountain streams, tranquil tropical vistas and beautiful, cloud shrouded mountains serves to refresh and invigorate the body and nurture the spirit.”

“Past lessons give clues to explore present and future human relationships with the forest.”

- The Taino viewed the Luquillo Mountains as the sacred dwelling of Yokahú.
- Early Spanish explorers were lured in to the heights of El Yunque in search of gold.
- EYNF is a successful example of tropical forest reforestation due, in great measure, to the massive conservation and reforestation efforts of the Civilian Conservation Corps.
- During the Great Depression, the Civilian Conservation Corps construction projects opened Puerto Rico’s forests to public recreation.

## Sub-Themes

Each Interpretive site in the Forest will have a site-specific theme (or set of themes) that reflect each area’s unique character. All sub-themes will interrelate with the Interpretation/CE Master Plan’s Central Theme and its supporting themes.



Fungii

## **Agency Interpretive/CE Goals and Objectives**

The agency's interpretive/conservation education goals are stated in Forest Service Manuals 2390 (IS) and 1623 (CE). Agency goals describe how we should manage the implementation of interpretive services and conservation education goals. Objectives provide more detail and can subsequently be used to measure whether we were successful at meeting these stated agency goals. These objectives are specific to the EYNF Interpretive/Conservation Education master plan.

**Agency Goal 1: Foster partnerships that strengthen ties to communities and initiatives that improve interpretive services and conservation education, and that are cost effective and efficient, with strong message consistency.**

### **Objectives:**

- Conservation education and interpretive services must compliment each other and not duplicate efforts.
- We must strive for increased grant awards (MKIW, etc.) and to increase the number of partnerships developed.
- Partnerships for products and services must be tied to EYNF priorities and goals and compliment each other.

**Agency Goal 2: Provide a variety of high-quality conservation education materials and programs that are geared toward meeting state/national educational standards.**

### **Objectives:**

- A fully trained staff to provide the educational materials to teachers or school groups.
- Programs follow management goals and objectives.
- Ensure the availability and distribution of high-quality educational materials to elementary through high school youth and educators in both formal and informal settings.
- Promote public awareness and understanding of natural resources, calling attention to particular issues related to forest ecology conservation, protection and use.
- Pursue new, and improve existing partnerships with commonwealth and federal agencies, non-governmental organizations (NGOs) and the local educational community.



La Coca Falls

**Agency Goal 3: Provide a variety of professional interpretive products and programs that are universally accessible to visitors of various abilities and that address a variety of learning styles.**

**Objectives:**

- The EYNF must provide accessible products and programs by ensuring that exhibits are accessible and programs consider aural, visual and learning impairments.
- Personnel providing interpretive services are fully trained in interpretation.
- All products follow design guidelines and, when necessary, obtain regional approval.
- Programs follow management goals and objectives.

Facilities are accessible and follow accessibility guidelines (Appendix H)

**Agency Goal 4: Develop interpretation and conservation education that supports all resource program areas, mitigates user conflicts and aids management.**

**Objectives:**

- Areas of user conflict have a higher priority for interpretation
- Areas with resource damage have a higher priority for interpretation and education.
- Interpretation considers national and regional priorities in message delivery (tiered to USDA Forest Service Strategic Plan – FY 2007-2012).
- Conservation Education and Interpretation is tiered to National Draft Conservation Education Strategy 1/11/2007).

**Agency Goal 5: Integrate interpretation and conservation education within Capital Improvement Program (CIP) projects and develop funding strategies that emphasize partners and grants.**

**Objectives:**

- Evaluate current and new CIP projects for inclusion of interpretation/education.
- Funding alternatives should be identified for each interpretive/educational proposal.



Mt. Britton Tower  
View from El Yunque Trail

- Products will be deferred if no additional funding sources are identified.

**Agency Goal 6: Recommend specific interpretive planning needs for existing and proposed interpretive sites.**

**Objective:**

- Develop a five-year plan for proposed sites/programs with cost estimates that will be used for budget planning purposes. Project managers should use this plan when developing their project work plans and for asking the region for funds each year.

**Agency Goal 7: Establish a process to consistently evaluate and prioritize interpretive/conservation education proposals.**

**Objectives:**

- Evaluate products and programs (internal and external) against the process developed.
- Only products and programs meeting the criteria will be implemented.

**Conservation Education Goals/Objectives and Themes**

**The primary goals of the Conservation Education Program are:**

- To provide conservation education opportunities to all Forest visitors; in particular to children;
- To provide teachers and their students with an opportunity to encounter our rain forest;
- To provide teachers and their students with “hands-on,” conservation themed activities that will aid them in acquiring knowledge and develop the values, attitudes, skills and motivation needed to protect and improve the environment;
- To promote behavior that is consistent with the environmental conservation ethic;
- To create an awareness of global warming issues, highlighting needs and detailing methods we all can use to help reduce our energy footprint.

**Conservation Education Objectives**



Puerto Rican Lizard Cuckoo  
*Saurothera vieilloti*

Development and enhancement of the precepts of these primary objectives by CE staff and partners will facilitate the ultimate implementation of our stated CE goals:

- **Awareness** - We must help our youth and adult customers develop awareness of, and sensitivity towards the environment and its protection;
- **Knowledge** – We must provide participants with the means to develop a current, fact-based, fundamental knowledge of tropical forest;
- **Attitudes** - We must promote the development of a conservation ethic and a heartfelt commitment to ecological conservation;
- **Skills** – We must actively promote the development of those skills needed to identify and solve environmental problems;
- **Participation** – We must provide participants with multiple opportunities to participate and then to apply the skills they have learned to aid the conservation process in the schools and within the community.

### Conservation Education Themes

El Yunque's Conservation Education Staff has identified five (5) principal themes to guide the design and proper implementation of all Forest's CE activities:

- Puerto Rico's forests are characterized by their extensive biodiversity and their complex interdependence.
- Tropical forests provide free services that are indispensable to the maintenance of everyone's quality of life.
- We must work together to conserve our forests.
- Tropical forests and their inhabitants have connections with the global community.
- Global warming will critically impact the islands of the Caribbean; tropical forests substantially reduce the amount of greenhouse gases in the atmosphere.

### Conservation Education Activities

Activities are the modular "building blocks" vital for a conservation education program. Design of these activities will address the following parameters:



Hanging Fern

- All developed conservation education activities will be designed to be provocative, exciting and multi-disciplinary; each activity will incorporate the arts as a vital component, will be participatory and will be school-grade level specific.
- The concept is to develop student interest in a stated theme, providing a basic knowledge of the theme and enhancing this new-found classroom knowledge by practical applications through direct contacts with nature; to encourage and stimulate students (and teachers) to observe and retain more information.

### **Target Groups**

El Yunque's conservation education program intends to serve elementary, middle, high school and university students and their teachers. However, our overriding emphasis will be focused on attracting elementary and middle school students (and their teachers) to the forest.

### **Partnerships**

El Yunque's CE program depends on the support and counsel of partners in the development of specific projects and activities. Some of our current partners are:

- The Conservation Trust (CT)
- Universidad de Puerto Rico (UPR)
- Universidad del Este (UNE)
- University of Wisconsin, Stevens Point (UWSP), Global Environmental Training (GET)
- Universidad Metropolitana (UMET)
- Puerto Rico Department of Education (PRDOE)
- Girl Scouts of America, Concilio Caribe (GSA)
- Boy Scouts of America (BSA)
- Environmental Protection Agency (EPA)
- Interamerican University, CE Program (IAU)
- Puerto Rico Department of Natural and Environmental Resources (DNER)
- US Fish & Wildlife Service (USFWS) Puerto Rican Parrot Recovery Program (PRPRP)



Palo Colorado Tree

- International Institute of Tropical Forestry (IITF)
- US Geological Survey (USGS)
- Municipality of Naguabo, Puerto Rico

## Programs

Here are a few examples of projects whose successful completion was greatly facilitated by the support and counsel of our partners;

- **The Tropical Forest Trunk**

This curricular enhancement tool was developed by El Yunque's CE staff in partnership with IITF, the Conservation Trust and the Puerto Rico DOE following Project Learning Tree methodology. It was designed to be used by elementary and middle school teachers as classroom preparation for a Forest visit. Teachers are trained in the use of the curricular guide and educational support materials when attending training sessions led by our qualified, professional CE staff. Each training session is presented in partnership with a local college or university that provides logistic support and affords continuing education credits to participating teachers.

- **Puerto Rican Parrot – Elementary School Module**

These activities targeted elementary school students to create an awareness of this endangered species, the critical factors that contribute to its present situation and to focus attention on the recovery efforts being employed by the three participating agencies. These modules were designed by CE staff and were presented in partnership with Fish and Wildlife Service and the Department of Natural and Environmental Resources.

- **Educational Fairs**

El Yunque's CE staff designs theme displays, compiles related "hand-outs" educational materials and presents themed activities and demonstrations supported by IITF, IAU and related partners. These affairs typically attract hundreds of students and teachers.

## ***Products, Programs and Tools***

### **Products**



Pterocarpus

Products (non-personal services media) include information and orientation kiosks, interpretive exhibits within facilities or along roads (waysides), site-specific interpretive plans, electronic media, brochures and other interpretive media such as audio tours, videos, etc. Currently all interpretive structures or facilities are classified in INFRA under the developed recreation module.

### Programs

***“Do not try to satisfy your vanity by teaching a great many things. Awaken people’s curiosity. It is enough to open minds; do not overload them. Put there just a spark. If there is some inflammable stuff, it will catch fire.”***

– Anatole France

Even with the introduction of products (non-personal interpretive media) as identified in this plan, there is no substitute for the uniformed “ranger” to communicate National Forest values and policies. A uniformed presence can also deter adverse impacts or inappropriate behaviors in regard to structures and resources. An enthusiastic interpreter can develop visitor support for National Forest philosophies and programs.

### Training Programs

All public contact staff should receive training prior to providing information and/or interpretive services. Although our present El Yunque National Forest Interpretive Staff have been trained and were certified after successfully completing coursework offered by the National Association for Interpretation (NAI), all staff who have contact with visitors should receive training to enhance their communication skills and knowledge of Forest interpretive themes to improve the overall quality of their service to the public.

The following is a “short list” of subjects that we believe should be covered if we are to ensure consistent and accurate Forest message:

Interpretive staff:

- Interpretive Techniques and Communication Skills
- Forest Natural History and Conservation themes
- USDA Forest Service Mission
- Forest Heritage themes
- Wilderness Area strategies



Taino Petroglyphs

Visitor information staff, fee booth operators and concessionaires:

- Customer Services of Excellence
- USDA Forest Service Mission
- EYNF Organization and Operation
- Safety procedures
- Forest Recreation Site Information
- Field training

We also stress the importance of evaluating and monitoring these training courses and materials on a regular basis to ensure that they are contributing to a quality of visitor service consistent with the high standards of the USDA Forest Service.

### **Evaluation Strategies**

In order to determine if an interpretive project and the overall interpretive program is achieving its goals, objectives must be clear and quantifiable. The tables that follow provide a variety of evaluation techniques and the pros and cons of each. See appendix G for current evaluation instruments used at EYNF.



Tortugo Prieto

**Table 13 - Evaluative Techniques for Interpretive Services (After Wagar, 1976; Veverka, et al, 1977)**

Evaluative Technique	Description	Pros	Cons	Comments
Direct Audience Feedback	Interpreter analyzes visitor's responses in face-to-face settings.	Allows for immediate analysis of visitor's reaction to the interpreter and service. The interpreter can change his/her approach on the spot to elicit a better response from the visitors.	Technique is subjective since the interpreter must "interpret" the visitor's reaction to him/herself and the service.	The number of questions visitors ask, facial expressions, restlessness, etc. are often good indicators of enjoyment, boredom, etc.
Auditing By An Expert	Have an experienced interpreter watch and critique an interpretive presentation.	Allows for the input of more experience professionals into interpretive programming.	The expert judges how he/she thinks a presentation will affect a visitor. Thus, subjective.	In the case where live presentations cannot be evaluated on site, video tapes can be used.
Direct Measures of Behavior	Determine what interpretive service options visitors take when given a choice, i.e., hike versus movie.	Allows for the determination of which services are most preferred.	Can determine what service visitors prefer but not why.	This type of information usually determined by head counts, tickets stubs, etc. The technique could be used in conjunction with a questionnaire or interview to determine why visitors made certain choices.



Gobi

Evaluative Technique	Description	Pros	Cons	Comments
Observation of Audience Attention	Plant scanners in audience to watch and document how many people are focusing their eyes on the interpreter.	Allows for the determination of visitor responses during a presentation.	Assumes that watching the interpreter is synonymous with interest, understanding, enjoyment, etc.	
Length of Viewing or Listening Time	Compare the amount of time people looks at or listen to a presentation with the amount of time it would take to completely read or hear it.	Allows for the determination of whether or not people are spending enough time with an exhibit, sign, etc. to absorb the entire message.	Cannot determine visitor enjoyment,	Shiner and Shafer found that “visitors looked at displays only 15 to 64 percent of the total time required to read or listen to the total message presented.” “... the longer the printed or recorded message ... the shorter the viewing time.”
Questionnaire	A written set of questions given to visitors to determine demographic and experiential data.	A great deal of visitor information can be obtained with a well-designed questionnaire. Questions concerning specific services can be incorporated into the questionnaire.	Subject to written response bias. Time consuming to design, administer and evaluate.	A major problem with many questionnaires is that they are designed and written to elicit the responses the researcher wants. Great care must be taken to design a questionnaire as objectively as possible.



Puerto Rican Boa, *Epicrates inornatus*

Evaluative Technique	Description	Pros	Cons	Comments
Interviews	Similar to questionnaires except that questions are administered orally.	Same advantages as questionnaires. Often a preferred method of data collection since "many people are more willing to communicate orally than in writing."	Similar problems as with questionnaires in terms of designing objective questions.	
Self-Testing Devices	Mechanical devices operated by the visitor to answer questions or uncover more interpretive information.	Allows for active participation of visitors. A "fun" technique of evaluation from the visitor's point of view.	Subject to mechanical breakdowns and vandalism. Often monopolized by children.	For further reference see Wagar (1972).
Panel of Outsiders	A panel of people not associated with interpretation nor the subject matter being presented are asked to evaluate a service.	The panel can point out the strengths and weaknesses of a service before it is ever presented to the public.	The evaluation will only be as objective as the panel members chosen.	



Sierra Palm Forest

Evaluative Technique	Description	Pros	Cons	Comments
Other Unobtrusive Measures*	Look at fingerprints and nose prints on glass, footwear, litter (such as leaflets, cigarette butts, etc.). Look at products of depreciative behavior (graffiti, vandalism, etc.)	May indicate heavy use or a basic design problem.	Do not know why areas are being used so extensively nor the specific design flow.	This information oftentimes can be gleaned by talking to maintenance personnel.
Suggestion Box	A locked box where visitors can drop any comments or suggestions.	Anonymity.	Usually gets comments biased towards a positive or negative extreme.	In relation to Malabar, the box should be located in VIC as a general catch-all for comments concerning all services.

\* These categories have been added by Gregg Lussier et al and three of Wagar's original categories were deleted. (From Malabar Farm: An Interpretive Planning Process, Veverka, Willis, et al, 1977).

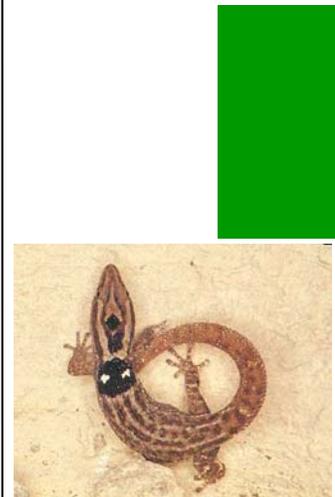
**Recommendations**

**Existing & Proposed Interpretation/CE Programs**

In 2008, the ICE core team conducted an inventory of existing Interpretation and CE products. Concurrently, the ICE core team reviewed proposed ICE products/programs/projects to determine if they should be recommended to this plan. The inventory included evaluation of the condition and level of use of facilities, the status and appropriateness of the media and whether it fit within theme and sub-theme statements. Using the following evaluation criteria, the core team selected existing interpretation/conservation education products, measured the perceived worth of proposed ICE products, and then recommended appropriate action.

**First Level Criteria**

Is this interpretative/conservation education product or opportunity ...



*Sphaerodactylus*

- Associated with a high use site?
- Associated with a technology or method that reaches a large number of visitors?
- Accessible to persons with disabilities?
- Addressing a resource protection issue? If so which?
- Related to the theme/sub theme?
- Meeting public interest/demand?
- In a special interest area or nationally designated area?
- Sensitive to increased use?
- Meeting conservation education objectives?

### **Second Tier Criteria**

Is this interpretive/conservation education product or opportunity ...

- Related to adjacent sites/messages?
- Attractive to partners?
- Sustainable?
- Maintainable?
- Implemental on a larger scale?

A complete listing of existing interpretation/conservation education programs is included in Appendix A, Interpretive/Conservation Education Site Inventory Forms.

### **New Interpretation/CE Recommendations**

Each potential proposal was evaluated against the criteria listed above. Cost estimates were developed for each of the proposals that met the first cut criteria (Five Year Plan and Budget, page 76). Each of these projects was then sifted through the second tier criteria to determine relative priority. The details including themes, objectives, graphic requirements and design notes particular to each project will be developed on an as needed basis each year as funding becomes available. It is important that this information be incorporated into annual work planning efforts and Capital Investment Project planning efforts. The detailed data will then be used in the next phase of interpretive/conservation education development where specific exhibit or brochure text is developed and site planning and design is accomplished.



Tabonuco Forest

## Product Recommendations

The following are titles, descriptions, justifications and cost estimates for products and projects proposed and recommended within this ICE Master Plan.

### El Portal Rain Forest Center

El Portal opened its doors in June of 1996 to rave reviews. The building won the prestigious URBE Design Award, given by the Association of Architects and Landscape Architects of Puerto Rico for tropical design architecture. It also won a prize for tropical landscaping design of the year from the US Landscape Architects Association. The exhibit designers were an integral part of the multidisciplinary core team that developed the project. The interpretive exhibits were developed following an overall theme and three sub-themes, and specific stated design goals and objectives. The exhibits offer a coordinated color scheme and design and blend well with the main features of the facility. The building is totally open with no permanent walls, only adjustable enclosures; giving visitors a sense of the surrounding forest while they are viewing the exhibits. All exhibits were constructed as “outdoor” exhibits to prevent deterioration from exposure to the elements. Despite eleven years of tropical weather (including two major hurricanes) the El Portal exhibits still “look good.” However, the content of some of the exhibits and the introductory film references are dated, and thus obsolescent. Replacement of all exhibits is overdue. A new interpretive prospectus, exhibit design plan and site plan for El Portal that focuses on such vital local issues as the potentially hazardous effects of climate change on the world, our island and the forest’s biodiverse ecology, should tier directly with this ICE Master Plan. A totally new introductory film is already in production and should be available in early FY 09. Cost for design, construction and installation of all new exhibits is estimated at somewhere between four to five million dollars at today’s rates.

### The Unique Puerto Rican Parrot

Visitors to this self-guided, descriptive nature trail will discover first-hand how one of the world’s most endangered birds, and the sole remaining parrot species in the U.S. or its territories, was at the brink of extinction when a dedicated group of scientists and workers from federal and state agencies banded together to begin a coordinated species recovery program. By viewing easily understood, graphically illustrated signs that describe in detail the intricate construction and careful tending of special parrot habitat structures, visitors will become intimate with the intriguing



Puerto Rican Parrot Pair

details of the parrot recovery program in the El Yunque rain forest; a cooperative effort of the US Fish and Wildlife Service and the US Forest Service. Estimated total cost to implement this project using currently available sources at present rates is: \$125, 000.

### **Electronic Media – EYNF Website**

Since its humble beginnings as a simple, basic information website a decade ago, [www.fs.fed.us/r8/el\\_yunque](http://www.fs.fed.us/r8/el_yunque) has been carefully crafted by EYNF’s Customer Service Team staff into an extremely viable and powerful public information tool. It currently reaches potential visitors from all over the world and has received frequent praise and commendations from parents, teachers and the general public for providing easy access to a wealth of tropical rain forest conservation, ecology and heritage information. The EYNF site was among the first to include a “Kid’s Page” with exciting, age-related descriptions of rain forest flora and fauna. By 2005, most of the site’s content was alternatively offered in Spanish in response to the cultural and linguistic needs of Puerto Rico and mainland US Hispanic populations: among the very few FS sites to do so. The EYNF website is currently in the process of implementing instructional content describing practical Forest and island specific carbon and ecological footprint reduction methods, and will soon provide links to select federal and NGO websites that will provide viewers with pertinent “Greening” and climate change information.

Visitor orientation and trip planning remains a primary function of the EYNF website. Presently, the site provides downloadable, text annotated maps designed to give prospective visitors advance, in-depth information about El Yunque’s nature trails to save time and ensure the ultimate enjoyment of those on a tight tourism schedule.

We believe that we can further improve, enhance and continue to add user value to the EYNF website’s content in the coming years, thus increasing its potential recreational and educational potential to our visitors and the general public; here are just a few ideas that we are presently considering – we feel that these suggestions only represent the “tip of iceberg” of potential future website content we can offer to the public:

- Include suggestions for specific theme-related tours—i.e. heritage tours, wildlife tours, and so on;
- Display captioned heritage photographs of El Yunque. Include similar photographs of Puerto Rico’s private and commonwealth forests



Coqui Frog Eggs

describing each forest's unique significance and relating specific access and regulation details:

- Publish high resolution photographs to the Forest's intra net to be used as a resource for EYNF staff to speed and ease the production of print and electronic media products;
- Post high resolution images for the media on the EYNF internet site;
- Create additional links to Federal, Commonwealth and NGO partner's websites with similar ecology and conservation messages;
- Provide streaming video web seminar content featuring scientists and conservation leaders from Federal, Commonwealth, non-government organizations and the surrounding community;
- Encourage parents to bring their young children to the EYNF for a day of exploring the rain forest, its unique tropical animals and plants – and encourage them to submit stories and photographs of their “adventure” for publication on our website.

Costs of maintaining this site at its current high level of service, including the estimated costs of future enhancements such as the examples shown above are difficult to estimate. Like all other NF sites, the EYNF website operates as a “satellite” of the USDA-FS website and depends on its ongoing support and regulation. Under this system, EYNF staff involvement is minimal, consisting solely of a collaterally assigned CS-VIS interpreter, (with impressive, independently acquired “cyber-skills”) who serves as the site's webmaster and graphic artist. She is assisted by a full-time volunteer writer/editor who provides much of the text content. Their activities are supervised, mentored and encouraged by the CE Team's Interpretation and Conservation Education Leader. Additional content is provided by the Forest Supervisor, Team leaders and other FS staff. In spite of these limitations, the EYNF website continues to grow slowly.

### **The Talking Tree Trail**

This innovative use of digital audio message repeaters was originally proposed for use in Big Tree Trail. These unique devices will enable visitors to push a button and “listen to a tree talk to them.” The messages can include general trail information; trees could also act as surrogate trail guides, presenting thematic interpretive presentation at targeted locations. The message unit can be powered with solar panel rechargeable batteries requiring minimal maintenance. The multi-message capability of this approach allows visitors to hear a different audio message at several



Wild Flower

predetermined locations along the trail. Estimated cost of digital audio units at today's rates is \$1,000 per station. To further enhance the overall effect of each installation, this electronic media could be combined with interpretive signage.

Comments received during the review period of the ICE Plan expressed concern for the use of this technology in Big Tree Trail due to vulnerability to vandalism. It was recommended that this approach be first tried in the Accessible Trail to be built at El Portal Visitor Center where there is 24 hour security coverage. Estimated total project cost using today's rates is \$150,000

The recommendation included replacing and improving interpretive signs at the entrance/trailhead of Big Tree Trail and Río de la Mina Trail, so it provides Information describing the biological, heritage, scenic and recreational values of the Wild and Scenic Rivers and how to protect it. This recommendation is still valid.

### Virtual Forest Tours

"Eye Tours" of EL Yunque NF are available as free video downloads to registered users of the Eye Tour website so that visitors can view all the information they need in the palms of their hands by downloading it to their cell phone displays. Eye Tour and the EYNF collaborated in the creation of two videos sponsored by the Puerto Rico Tourism Company and INTENE, our partner from Universidad del Este: an introduction to the EYNF (3:05 min.) and another featuring the El Portal Rain Forest Center (1:42 min.). The videos form part of Eye Tour's content library and are freely distributed to visitors and tourists who link to [www.eyetour.com](http://www.eyetour.com). Now we have the opportunity to add video segments to augment El Yunque's online presence through Eye Tour and to offer a more complete downloadable video guide of the forest. The expanded version will include 8 specific sites tours and two informative sections:

- La Coca Falls
- Yokahú Tower
- Juan Diego Creek
- Big Tree Trail - La Mina Falls
- Sierra Palm – Picnic Area/Food concession
- Caimitillo Trail
- Palo Colorado Interpretive Site/ Baño Grande Pool
- Gate at PR 191 Km 13/ Mt. Britton Trail - Tower
- El Yunque NF Do's & Don'ts - Safety Guidelines
- El Yunque Forest Services



Bejuco Colorado

The estimated total cost of this project using today's rates is: \$45,000.

### **PR Road 191 Recreation Corridor**

The main recreation corridor in the EYNF begins at PR 191 Km 4.0 and ends at Km 13.0 (See Map 1). At present there is a visitor information kiosk in place near the Forest's main (north) entrance featuring an annotated map. Directional and trailhead signs are installed at strategic locations along the PR 191 recreational corridor, as well as two interpretive trails. Much of the signage has been damaged by vandalism and/or the results of extreme tropical weather; most signs provide obsolescent, inaccurate information: e.g., "old" CNF name v. 2007 Forest EYNF rename; ambiguous trail directions, and so on. All signs require either replacement or refurbishing. Various sign formats were implemented during different periods. In the late 90s efforts were made to coordinate the color scheme of information (trails, natural features, etc.) provided on some of the signs but differing materials and styles still prevail. Additionally, placement locations have not always been optimal, resulting in "sign cluttering" in some areas and absence of adequate signs with badly needed interpretive/directional information in others. Since the 13 Km PR 191 Recreational Corridor receives by far the heaviest visitor use of any EYNF area, a total comprehensive redesign that produces a distinctive, coordinated "look" is urgent. This new, improved signage format must provide visitors clear direction and information about recreational attractions; describe special natural features; include brief, theme-based text which relates both Forest ecology and heritage facts, interrelated with current conservation issues such as climate change. In order to accomplish this task, a site plan that addresses directional, informational and interpretive needs in a comprehensive manner must be developed specifically for this intensive-use recreational corridor. Estimated total project cost, development and implementation using currently available resources; at today's rates is \$125,000.

### **Information and Orientation Kiosks**

Develop orientation kiosks at main forest entrances, offices and heavily used recreation areas. Introduce visitors to the major interpretive theme of the forest. Orient the visitor to the activities available on the EYNF, i.e. where to hike, view wildlife, where to see interpretive trails and exhibits, etc. Include a forest map, safety information, user ethics, etc. A kiosk at the entrance/trailhead of the El Toro and Trade Winds Nature Trail should inform hikers that they are entering a wilderness area, describe the Cloud Forest ecosystem, identify the challenges they will encounter and specify



Rose Apple Flower

the regulations they must observe. The cost of each Kiosk is estimated to be \$20,000 using currently available sources, at today's rates. Total project cost is estimated at \$140,000.

### **Heritage Resources – Pre-historic Period**

Because they are inaccessible and fragile it is prudent to protect the actual prehistoric sites from public contact. In order to do so we will use the EL Portal Rain Forest Center as the central location to develop and expose the public to this theme, which will be intertwined with the other themes.

Several of the exhibits at El Portal already include references and graphics describing prehistoric utilization of the forest. As the exhibits are redesigned, they will include more explicit information about the prehistoric use of forests on the island, including information about the prehistoric and contact period of the Native American inhabitants of Boriquen.

There are eight petroglyph sites on the EYNF, but none of them are easily accessible to the public. One way to make these heritage resources accessible to the visiting public at large without endangering these fragile and irreplaceable resources is to present them in videos, iPod, cell phone, or other media. Artifact display will provide a tangible benefit to the public emphasizing how the forest was being exploited for its resources. Creating reproductions of petroglyphs at strategically placed boulders at El Portal, would serve multiple purposes: when they were being reproduced they would be a public archaeology educational tool, once the cycle of petroglyph reproductions were complete, they would serve as graphic examples of the petroglyphs on the EYNF and would be an interpretive element. Forest interpretive signs could include interpretive information about Spanish Gold Mines, mentioning the Taino laborers and farmers that were forced to work in mines and fields as part of the "encomienda" system during the contact period. Cost for design, construction and installation of all new exhibits and interpretive signage would depend on current rates.

### **Heritage Resources Spanish Period**

Because they are also inaccessible and fragile it is prudent to protect the actual Spanish Period archaeological sites from public contact. A Spanish era exploration and exploitation display, including early Spanish artifacts should be a permanent heritage display feature at El Portal. Artifact displays can be accompanied by text and illustrations interpreting mining, colonization and farmsteads during the Spanish period. On the Forest strategically located interpretive signage about Spanish Gold Mines can be developed. Cost for design, construction and installation of all new exhibits and interpretive signage would depend on current rates.



Puerto Rican Parrots

### Heritage Resources American Colonial Era (CCC)

Included in the new interpretive video at the El Portal Rain Forest Center are historic photographs and mention of the CCC (Civilian Conservation Corps) projects on the Forest. More detailed information and additional photographs illustrating the recreation, reforestation and conservation efforts can be presented in interpretive displays. On the Forest informative, graphically illustrated signs interpreting the CCC era accomplishments can be placed at key CCC-era sites.

In the case of American Colonial Era sites, these buildings, roads and trails are both accessible and sturdy, so they invite visitation from the public – many are still in use today on the Forest. Stone House is the oldest CCC building on EYNF. It's matchless architecture and workmanship as well as it's unique history merit interpretation. This building has served many functions during its lifetime – initially as a FS Ranger Station and later as a summer residence for Puerto Rican Governors. This is an ideal location to interpret administrative changes within the Forest that ran parallel to Puerto Rico's changing political history over the last one hundred-plus years. For instance it could be developed as a living history site by having an interpreter dressed as a Spanish period Guardabosque, or in a CCC-era FS uniform. A compelling, graphically illustrated sign in the vicinity of Mt. Britton Tower and Trail built by the CCC, could also describe the early scientific research of Nathaniel Lord Britton and Elizabeth Knight Britton, a husband and wife research team. Cost for design, construction and installation of all new exhibits and interpretive signage would depend on current rates.

### Personal Interpretation

Personal interpretation is the type of information service provided by an interpreter/guide in a face to face encounter with the visitor. Interpretive research has shown that this type of information interchange is by far the most effective because it fosters the development of emotional and intellectual connections with the visitor and the resource. (See *Inventory of Current Interpretation and Conservation /Education* page 31)

- The referenced FAT and RAR programs have proven highly effective and should remain in place, with some adjustments.
- The FAT program is presently offered on a “first come – first served basis” setting specific hours for the tours will make the program consistently available, and thus more easily and effectively marketed to visitors.



Vergüenza

- Interpreters will have portions of their time available to design additional interpretive programs and develop special EYNF Interpretive events.
- More opportunities exist for developing a wider range of tours: some could offer increased contact time in order to hike to multiple forest attractions in a single tour, adding such locations as the Dwarf forest, and the El Toro Wilderness Area.
- Another variant of this would provide special tours, e.g.; night time nature trail tours or early morning bird identification hikes.
- Price range differentials for more complex tours should be derived and set in place from inception.
- Using partners or outside providers to implement these tours could prove to be a more cost effective consideration within the overall interpretive program budget.
- The tours of duty of the two seasonal interpreters should be extended in order to keep three interpreters available at a minimum during high season and two interpreters available during the rest of the year. An analysis of the present program situation and the proposed schedule shows that this could be achieved by increasing their tours of duty from the current 180 work days to 220 days, With this minimal change the variety of interpretive offerings could be significantly increased, and customer satisfaction would rise as there would always be at least one person available for visitor service.
- This beneficial effect would conceivably “spill over” to the conservation education program since both services are provided by the same staff members.



Walking Stick

**Special events**

Special events serve to reach out to target groups in the community, mark important holidays, and to highlight high priority conservation themes, and so on. By presenting these events we strive to attract larger groups of forest visitors for educational and conservation purposes.

**Table 14 - Special Events**

Month	Event	Description	ICE Staff – Task(s)	Location
March	International Earth Week Celebration	Conservation Education Fair organized by IITF	Provide logistic support	Botanical Gardens and related events at EYNF

Month	Event	Description	ICE Staff – Task(s)	Location
<i>April</i>	Earth Day Celebration	El Yunque's popular annual combined Clean-up Day and Earth Day Celebration	Provide exciting CE themed activities for children	EYNF and El Portal parking area
<i>May</i>	Live Animal display and talk	#1 in a series of popular, summer/fall, live animal presentations	Provide animal-themed talks – organize/arrange live animal display(s)	El Portal – Main level
<i>June</i>	National Trails Day National Get Outdoors Day	Experience EYNF nature trail hikes. Special event for parents & children	Interpreter staff and EYNF sponsored BSA Venture Crew members; provide Free guided hikes all day.  Use print & electronic media parents & children to “get in touch w/nature	Selected EYNF Nature Trails EYNF – Nature Trails
<i>July</i>	Forest Access Control	High Forest visitation – vehicular traffic control	Provide assistance as required	EYNF – PR 191 recreational corridor
<i>August</i>	Live Animal display & talk	# 2 in a series of popular, summer/fall live animal presentations	Provide animal-themed talks – organize/arrange live animal display(s)	El Portal – Main level
<i>September</i>	Live Animal display & talk National Public Lands Day	# 3 in a series of popular, summer/fall live animal presentations  Free entrance to all EYNF Facilities	Provide animal-themed talks – organize/arrange live animal display(s)	El Portal main level All EYNF venues



View from El Yunque Peak

Month	Event	Description	ICE Staff – Task(s)	Location
October	Live Animal Display & talk  Living History Presentation	#4 in a series of popular, summer/fall live animal presentations  Proposed Sunday-holiday activity Designed to attract visitors to EL Portal	Provide animal-themed talks – organize/arrange live animal display(s)  Highlight our EYNF Heritage Program with special displays and talks	El Portal main level  El Portal upper level/theater/pavilions
November	Live animal display & talk  International Migratory Bird Day	#5 in a series of popular, summer/fall live animal presentations  Migratory bird species are captured in mist traps – participants can view birds “up-close” before release	Provide animal-themed talks – organize/arrange live animal display(s)  Provide Interpretation service as required	El Portal main level  EYNF – predetermined locations
December	Live animal display & talk  Audubon Society sponsored Annual Christmas Bird Count	Sixth and final presentation of this popular summer/fall live animal presentation series  Dr. Joseph Wunderle (IITF scientist) leads this popular annual event	Provide animal themed talks – organize/arrange live animal display(s)  Provide organization/interpretation services for the EYNF bird count location	El Portal main level  Predetermined EYNF location



Fungii

**Interpretive Project Priorities**

The following table summarizes the priorities that resulted from the Core Team’s evaluation of specified major interpretive projects and programs. Detailed evaluation/recommendations of all existing interpretive media and some site specific interpretive opportunities are contained and illustrated in Appendix A.

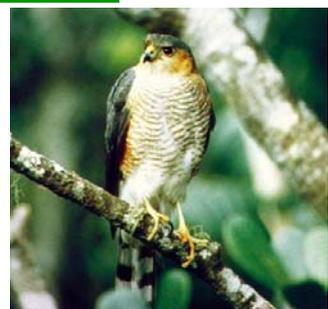
**Table 15 - Interpretive Projects/Programs Priorities**

Project Identification	Total	Ranking	Comments
El Portal Rain Forest Center	51.7	1	235,000 visitors/yr; covers all themes
The Unique Puerto Rican Parrot	51.7	2	Most visited interpretive trail; endangered parrot; exotics
Personal Interpretation Forest Adventure Tours	43.1	3	Excellent interpretation, must be made more cost effective
Personal Interpretation Rent-A-Ranger	43.1	3	Excellent CE tour, must be made more cost effective
EYNF Website	41.0	4	Attractive/wide-outreach
The Talking Tree Trail	40.1	5	High visitation, trail to La Mina Falls (most visited spot)
Virtual Forest Tours (8 sites)	38.0	6	Wide outreach, free downloads from "Eye Tours" site.
Brochures	37.4	7	Recreational & CE
Heritage Resources American Colonial Era (CCC)	37.3	8	
Special event: EYNF Earth Day Celebration	36.8	9	
Rd. 191 Recreation Corridor	36.3	10	Receives 90% of all visitors
Information and orientation kiosks (3 main entrances) \$100,000	47.3	11	High inf. Value; reaches most visitors
El Portal Easy Access Trail	35.1	12	Will provide an enhanced sensorial experience to all visitors and only accessible trail in Forest. Existing design.
Heritage Resources Pre-historic period	35.0	13	
Heritage Resources Spanish period	34.6	14	



Land Snail  
*Caracolus caracolla*

Project Identification	Total	Ranking	Comments
High Season Access Control Operation	34.4	15	
AM/FM Interpretive Radio	32.0	16	
Special Event Live Animal Interpretive Presentation	29.3	17	
Special Event International Migratory Bird Day	28.6	18	
Special Event Audubon Christmas Bird Count	28.3	19	
Special Event Living History Presentation	28.0	20	
Special Event International Earth Day Celebration	26.5	21	
Special Event National Trails Day	23.1	22	
Special Event National Get Outdoors Day	22.0	23	
Special Event National Public Lands Day	18.1	24	



Sharp-chinned Hawk

**Program Recommendations**

The intent of the total EYNF interpretive program, including tours and special events is to be partially self-sustaining. It is important that partners and the programs tier closely with the EYNF interpretive themes and sub-themes.

**Training is Essential**

**We must strive to:**

- Continue to host regularly scheduled, in-depth training sessions for all front-liners, volunteers and employees who deal directly with the public including those doing law enforcement (LEO) officers.

- Provide hospitality training through partnerships with the Puerto Rico Tourism Company...
- Review and update our Interpretive Resource Manual for employees and partners conducting programs and providing information.

### Printed Materials

For many years EYNF brochures have been developed and produced “in-house,” with little or no standard design parameters. Most were developed for educational purposes. EYNF needs to develop a new design template for all future brochures. This design element should be used in all printed materials to maintain a consistent look and feel, so that visitors can readily identify all EYNF publications. There are currently 31 different publications in print; only two recently developed publications respond to recreation promotional needs and have had great acceptance (Appendix A-5). Although these two new publications were done by professional designers, and are very attractive and adequately address current marketing requirements, we still need to have a standardized format that we consistently use, and that is immediately recognizable as an EYNF and USDA Forest Service product.

A brochure evaluation team will meet in October 2008 to review all publications, and produce specific recommendations on which publications should be produced to serve promotional, recreational and educational needs.

### General recommendations for printed media are:

- Continue publishing the three existing, individual forest maps and the current recreation information handouts.
- Publish the brochures approved by the Brochure Team.
- Continue to publish the quarterly employee newsletter.

For many years, a substantial number of our publications have been produced and/or edited by a professional, full-time volunteer writer-editor. He has expressed a desire to reduce his workload in the near future in order to focus on specific EYNF and commercial writing projects. As a priority, we should begin to consider the creation of a part-time writer-editor position, or to recognize the need for contractor or detailer support for this vital function, well before his departure.



Caoba Coqui,  
*Eleutherodactylus*  
*richmondi*

## **Funding is Key**

### **We must make every effort to:**

- Partner with other agencies/groups to produce and implement needed programs, with an introduction by a Forest Service employee in uniform.
- Continue to use revenue returned by Eastern National (Forest Interpretive Association) to help fund interpretive/conservation education efforts.
- Identify special events where programs can be conducted. Work with the Puerto Rico tourism Company to prioritize program needs for special events, tour groups, bus groups, outfitter guides and other users.

## **Evaluation Improves Efficiency and Effectiveness**

### **We must:**

- At present we evaluate and keep statistics on the FAT, RAR and CE programs. We need to evaluate the average attendance at all programs by day of week, location and topic and recommend the best value. This may especially be helpful in evaluating the programs that are being offered at present.

## **Marketing Recommendations**

The following marketing recommendations are proposed to fully implement the interpretive plan. Visitors need to know about the incredible opportunities available on the El Yunque National Forest, and this final step in the plan is essential to accomplishing the goals and objectives. Many of the recommendations can be implemented as a part of normal business on the forest. Still others can be implemented as the forest revises or expands current opportunities, such as the forest map or website. These are listed in order of priority by category and subcategory.

## **Signage**

- Install directional signs along trails to inform hikers of special recreational opportunities and to ensure that they don't get lost trying to find their way back.
- Include introduction and orientation kiosks at major entry points to allow visitors to successfully find, use and enjoy the EYNF.
- Replace all the existing trailhead and junction signs.



El Toro Peak

## Media

- Incorporate interpretive/conservation education messages in current publications being distributed in the private sector.
- Ensure the currency of our media mailing list to provide up-to-date information, especially operational changes or special events, to television stations, newspapers, hotels and private camps, etc.
- Include interpretive/conservation education opportunities and self-guided tours on current EYNF website.
- Continue printing the highly successful, site specific guidebooks and selling them through our Eastern National Outlet.

## Partners

- Develop eco-tours and heritage tours with partners; strive to enlist hotels and interested private enterprises to promote the forest.
- Promote these tours “on-line” and through print materials.
- Continue to collaborate with partners to create student conservation activity modules/programs focused on Forest environmental issues.

## Conservation Education

### Future program direction recommendations

Aligned with USDA Forest Service CE direction, we will be using a *More Kids in the Woods* (MKIW) based approach. Recent studies have revealed that an emotional connection with nature is required for healthy human development, and that this connection later translates to actions that promote the protection of natural resources. This emotional connection is developed by experiencing joyful contact with nature at very early stages of development (Louv 2006). We also have evidence that high transportation costs are making it difficult or impossible for teachers to bring student groups on field trips.

EYNF management has directed the forest to develop CE activities in the six municipalities adjacent to the forest boundaries. We will be focusing on increasing our elementary school participation in educational activities and promoting incentives for forest visits. We are also trying to obtain partner support to subsidize transportation of children from disadvantaged neighborhoods.

In order to entice elementary school teachers and school directors to bring groups to El Yunque, we have been offering them a coordinated school visit



Elfin Woods Warbler  
*Dendroica angelae*

in which one of our interpreters develops and enacts outdoor CE activities with their students as preparation and motivation for a future Forest visit. The participating school director and teachers must then commit to transporting the motivated/prepared student groups to the Forests for a subsequent, cost free “El Yunque experience”, in which they visit El Portal and engage in conservation-themed activities in the Forest.

In 2008, the first year that this program was implemented, a total of 16 elementary schools were visited and 526 children participated in the preparatory school activities led by our staff and 387 of those children visited the Forest. For 2009, the Naguabo Municipal Government has agreed to sponsor transportation for five school field trips to the Forest’s recently opened Interpretation site/picnic area adjacent to the Naguabo community. Additional efforts to engage other partners, such as Wal-Mart and similar “big box” island merchants, to sponsor field trips will serve to increase opportunities to bring children to the Forest from elementary schools in disadvantaged communities in the island’s targeted municipalities to the forest.

Through a Rent-A-Ranger (RAR) special offer we combined entrance to El Portal and a guided tour for island schools that are can arrange transportation and were able to pay for their forest visits. In FY 08 a total of 376 schools took advantage of this offer, and brought 8,717 students to the forest. An additional 176 schools with a total of 3,329 students have come to the forest on their own initiative, under the supervision of school staff.

### **Teacher training**

At the start of our CE program in 1998, we successfully implemented a minimum of four and a maximum of six teacher training workshops per year; each typically attended by 30 teachers. Two separate training workshops were made available: The Tropical Forest Trunk was the basic “building block” workshop. Once teachers had been exposed to this unique concept, they attended a second-level CE workshop – “Adopt-A-Watershed”. Each training workshop included a three day (24 hour) workshop alternately located at the El Yunque Girl Scout facilities or at the University of Puerto Rico’s Río Piedras campus facilities. An additional 8 hour Forest field trip completed each workshop. These training sessions were carried out in partnership with the University of PR 2000 Teacher Training Institute, which provided each teacher/participant with meals, stipends and three continuing education credits. The USDA Forest Service paid UPR \$185.00 per teacher for the continued education certificate. Loss of vital Forest staff and funding, combined with increasing demands on the



*Brunfelsia lactea*

time of our reduced CE/Interpretive staff and coordination complications within various levels of the Puerto Rico Department of Education (DOE) that were required to obtain teacher approval to attend training workshops, as well as the elimination in 2004 of the 2000 Teacher Training Institute at UPR ended this very popular program.

At this time, we were approached by the Dean of Education of the University of Wisconsin at Stevens Point (UWSP) who wanted to develop a conservation education teacher training and exchange program for local island and US teachers. It would be sponsored by the university in partnership with the PR DOE, in collaboration with the EYNF. The UW-SP in partnership with the PR DOE and Metropolitan University, offers a credited continued education course which, in addition to the distance learning requirements, includes a two week summer training trip to Puerto Rico. An equal number of continental US teachers and local teachers participate. We collaborate with the program by receiving the group, and presenting a three day conservation education training workshop at EYNF in June of each year. This Global Environmental Training (GET) partnership has been very successful and is still ongoing.

In addition, we have collaborated with the Ana G. Mendez Foundation which groups several island university campuses such as UMET, Jayuya Campus and UNE to implement conservation education teacher training sessions. They organize the training, obtain the participants, and give them the continued education credits, and we provide the trainer and training materials.

We have established a close relationship with the Superintendent of Schools of the Forest's neighboring East Region, but we need to develop sponsorships to support teacher training sessions/workshops, and encourage a local university to issue continued education credits to the teachers for attending training sessions.

### **Overnight forest experiences**

The most profound and multi-sensed experience we can provide to a young child is the opportunity to camp-out or stay overnight in the forest. Experiencing all the forest's changes from dusk to dawn in a safe environment and participating in exciting, fun-packed educational activities can leave a lasting impression and develop strong emotional connections with nature.

Offering "mini-camps" in which children come into the EYNF around 4:00 pm on Friday and leave around noon on Sunday could achieve this goal.



Fire Cracker

For many children this will be a first experience in the forest, - we want it to be pleasurable. For this reason it would be best to provide the children (and their guardians) with sleeping facilities and not require them to “camp-out”. Over the long term there are some forest structures which are not being used at present that could be rehabilitated for this purpose. Meanwhile, we could always work out an agreement to use the Concilio Caribe Girl Scout camp located on our forest for this purpose. This experience would be especially suited to the needs of fifth to seventh graders. Participants would have to pay to cover lodging and food and we would have to get partners to cover other expenses such as transportation, materials and to recruit/provide volunteer support staff. Insurance coverage must also be considered even when we collect parental permits and releases of responsibility.

**Pack-it-In, Pack-it Out**

Recycling saves energy and resources. The EL Yunque National Forest receives over a million visitors a year, leaving behind tons of garbage that impact our ecosystems and adversely affects their ability to enjoy the forest. A comprehensive program, reinforced with a strong educational component, will be used to educate our visitors and involve surrounding communities by encouraging them to “Pack it in and Pack it out;” taking everything that they bring into the Forest with them when they leave. Through the use of sign graphics, visitors will be shown how to recycle and properly dispose of leftover garbage. Financial participation from our partners will ensure that the El Yunque National Forest design and install the components necessary to complete this important public service project. Cost: \$60,000

**Table 16 - Conservation Education Priorities**

Project	1st Tier Criteria	2nd Tier Criteria	Totals	Ranking
Tropical Forest Trunk	34	13	47	1
Pack-it-In, Pack-it-Out	31.1	14	45.1	2
Rent-A-Ranger Special Offer	33.6	11	44.6	3
More Kids in the Woods	33.8	10	43.8	4
Puerto Rican Parrot Elementary School Module	32.5	11	43.5	5



*Lepantes orchid*

Project	1st Tier Criteria	2nd Tier Criteria	Totals	Ranking
Educational brochures	25.6	9	34.6	6
Educational Fairs	28.6	5	33.6	7
Overnight Forest Experiences	17.5	8	25.5	8

## Accessibility

During the formulation of the ICE-Master Plan, selected El Yunque NF visitor information sites were thoroughly evaluated to determine their present level of accessibility. The sites were evaluated using the USDA Forest Service Exhibit Accessibility Checklist (based on the Smithsonian Institution Exhibition Accessibility Checklist); additional site-specific accessibility requirements were derived from the results of an “accessibility walkthrough” of the El Portal Visitor Center conducted during the February, 2008 ICE-Master Plan Core Team Workshop.

The following sites were evaluated: El Portal Rain Forest Center, Yokahú Tower Interpretive Site, Palma de Sierra Recreational Area and Palo Colorado Visitor Center.

### Accessibility Factors

- Due to the Forest’s location within the rugged Luquillo mountain range accessible terrain is limited;
- The Yokahu Tower Interpretive site was built in the early 1960’s before ABA and ADA federally mandated guidelines were established and enforced;
- The Palo Colorado and Palma de Sierra Visitor Information Sites were constructed in the 1930s, before ABA and ADA federally mandated guidelines were established and enforced;
- Over the years, minor accessibility improvements have been made to the parking areas and restrooms at these sites.
- The El Portal Rain Forest Center, which was opened to the public in 1996, was the last major construction project to be completed on the Forest; accessibility was a major factor in the design of this facility, its exhibits and displays.
- Picnic shelters, swimming pools and trails have not been considered accessible in the past because they are constructed on rugged,



Red-tailed Hawk,  
*Buteo jamaicensis*

steep terrain. However, a new project has been approved and funded which will eventually restore the Baño de Oro swimming pool to its original (1930s) condition; it is planned to make the facility, its approach trail and parking area wheelchair accessible.

Each site was evaluated separately to determine where and how projects could be developed to improve accessibility. (See Appendix H, Accessibility Guidelines).

## FIVE YEAR PLAN AND BUDGET

### *Implementation Schedule*

Tables 17 to 19 summarize the proposed time schedule for project development and approximate costs.



Pearly-eyed Thrasher  
*Marquarops fuscatus*







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El Yunque National Forest Interpretive and Conservation Education Plan

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El Yunque National Forest  
Río Grande, Puerto Rico  
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### Website Links:

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<http://web.ist.utl.pt/carlosbana/bin/help/lectures/CreatingVisionforPuertoRico2025.pdf>.

**More Kids in the Woods**,

<http://www.fs.fed.us/recreation/programs/woods/index.shtml>.

**National Association for Interpretation (NAI)**, <http://www.interpnet.com/>.

**National Visitor Use Monitoring (NVUM)**,

<http://www.fs.fed.us/recreation/programs/nvum/>.

**Project Learning Tree**, <http://www.plt.org>.

**Stakeholders Plan for achieving the Puerto Rico 2025 Vision**,

<http://www.kinesispr.org/pdfs/Stakeholders%20Plan%20for%20Achieving%202025.pdf>.

**The Natural Inquirer**, <http://www.learnnc.org/lp/external/naturalinquirer>.

## GLOSSARY OF TERMS

Please note that some definitions in this glossary are forest, agency or discipline specific, and may not coincide with commonly accepted usage. Some Spanish words germane to an understanding of the plan are also included.

**Accessibility** - Easily approached or entered - frequently used as a determination of ease of access to public facilities by disabled or health impaired individuals. This term may also refer to message accessibility - a measurement of ease of viewing and comprehension of text and graphics of both exhibit and electronic media (website, video displays, etc.) by persons with hearing, vision or physical impairments.

**Biodiversity** - The number and variety of organisms found within a specified geographic region.

**Caribbean National Forest** - From 1935 until 2006 the official name of the El Yunque National Forest.

**Concession** - The privilege of maintaining a subsidiary business within a certain premises; the location of the business, or the business itself.

**Conservation Education** - The process of educating school children, teachers and the public about resource conservation through the use of activities, tutorials and lectures.

**Cultural Resource** - A collection of historical and cultural narratives and artifacts that can be drawn upon when needed for interpretation or conservation education.

**Ecosystem** - An ecological community together with its environment, functioning as a unit.

**Eco-Tourism** - Tourism involving travel to areas of natural or ecological interest, typically under the guidance of a naturalist, for the purpose of observing wildlife and learning about the environment.

**El Portal** - The El Yunque National Forest's rain forest visitor center.

**Endemic** - Native to or confined to a certain region, such as a plant or animal species.

**EOCY** - End of Calendar Year.

**EYNF** - El Yunque National Forest (also: El Yunque NF).

**FAT** - The El Yunque National Forest's "Forest Adventure Tours" interpretive program,

**Fauna** - Animals, especially the animals of a particular region or period, considered as a group.

**Fideicomiso de Conservación** - The Conservation Trust of Puerto Rico; a private, non-profit organization whose mission is to protect and enhance the Island's natural resources.

**Flora** - Plants considered as a group, especially the plants of a particular country or region.

**Goals** - The purpose toward which an endeavor is directed; an objective.

**Heritage** - Something that is passed down from preceding generations; a tradition.

**INFRA** - The US Forest Service master infrastructure data base.

**Infrastructure** - Basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools and post offices.

**Interactive activities** - Programs or projects that respond to user stimulus.

**Interpretation** - The process of presenting and explaining nature, conservation and/or heritage themes to visitors, school groups and other interests.

**Interpreter** - A professional guide who presents and explains nature, conservation and/or heritage themes to visitors, school and organizational groups and other interests.

**Interpretive Site** - A forest location which encompasses natural and/or cultural elements to facilitate the interpretation process.

**Kiosk** - A small structure, often open on one or more sides, used as an information booth.

**LEED** - Leadership in Energy and Environmental Design – a "green" building rating system developed by the US Green Building Council (USGBC) that provides a suite of standards for environmentally sustainable construction.

**LEF** - Luquillo Experimental Forest.

**Luquillo Forest Reserve** - Original (1903) US Federal name for what is now the El Yunque NF.

**Luquillo National Forest** - Second (1905) US Federal name for what is now El Yunque NF.

**MKIW - More Kids in the Woods** - A US Forest Service program designed to encourage children and teenagers to put down their electronic gadgets, come out and rediscover the outdoors.

**Natural Resource** - Typically, a forest or fresh water source that is found in nature is necessary or useful to humans and has economic value.

**NAI** - The National Association for Interpretation.

**Natural History** - The study and description of organisms and natural objects, especially their origins, evolution, and interrelationships - A work or treatise containing such facts.

**NGO - Non Government Organization** - Any commercial or non-profit organization with no governmental affiliation.

**NVUM** - The US Forest Service's National Visitor Use Monitoring survey program.

**Objectives** - Something worked toward or striven for - a goal.

**Outreach** - A systematic attempt to provide services beyond conventional limits, as to particular segments of a community.

**Palo** - Spanish word for tree.

**PLT - Project Learning Tree** - A Forest Service, modular, conservation education program.

**Quebrada** - Spanish word for creek or small river tributary.

**R8** - US Forest Service Southern Region - the EYNF resides within this region.

**RAR** - The El Yunque National Forest's "Rent-A-Ranger" interpretive program.

**Rain Forest** - A dense evergreen forest occupying a tropical or temperate region with an annual rainfall of at least 100 inches (2.5 meters).

**Resource** - An available supply that can be drawn on when needed. Often used in the plural.

**“Shoulder” Season** - That portion of the El Yunque National Forest’s calendar year that falls on either edge of the “high” tourist season.

**Sierra** - Spanish word for a “saw tooth” mountain range.

**Special Use Permits** - Groups and individuals such as outfitter guides, commercial photographers and researchers regularly seek to obtain Special Use Permits to conduct their various endeavors. The Forest Service must weigh whether the proposed use is compatible with the values that make the El Yunque National Forest an irreplaceable resource,

**Stewardship** - An ethic that embodies cooperative planning and management of environmental resources with organizations, communities and others to actively engage in the prevention of loss of habitat and facilitate its recovery in the interest of long-term sustainability.

**Sustainability** - The striving to keep in existence or maintain (a forest).

**Táíno** - The aboriginal inhabitants of some of the Greater Antilles islands, including Puerto Rico.

**Theme** - A unifying idea that is a recurring element in a lecture, talk or text.

**Tropical** - Any part of the area of the earth which lay between the hemisphere boundaries of the tropics of Cancer and Capricorn and straddle the equator.

**VIS** - Visitor Information Service.

**Venue** - The scene or setting in which something takes place; a locale.

**WO** - The US Forest Service Washington Office and national headquarters.

## APPENDICES

- Appendix A - Existing Interpretation and CE Inventory
- Appendix B – Proposed Interpretive Planning Process and Design Guidelines
- Appendix C – El Portal Rainforest Center/Yokahú & Palo Colorado Greening Options
- Appendix D - National Interpretive Services Strategy
- Appendix E - National Conservation Education Strategic Plan
- Appendix F - Forest Service National Recreation Agenda
- Appendix G - Evaluation Forms - Personal Programs/Teacher Assessments/Comment Cards
- Appendix H - Accessibility Guidelines – Exhibit Accessibility Checklist
- Appendix I - Informal Environmental Education – Guidelines for Excellence