RAPID ASSESSMENT AND RECOMMENDATIONS FOR ECOTOURISM DEVELOPMENT IN THE LEFEVRE PANAMA BAY PROPERTY

Panama City, Republic of Panama

ESTE INFORME FUE ESCRITO POR EL SERVICIO FORESTAL DE LOS EE.UU., INSTITUTO INTERNACIONAL DE DASONOMÍA TROPICAL

Bibliographic Citation

Bauer, Jerry, Wayne Arendt, and Jerry Wylie. 2015. *Rapid Assessment and Recommendations for Ecotourism Development in the Lefevre Panama Bay Properties.* Report prepared by the US Forest Service International Institute of Tropical Forestry.

Credits

Photos Jerry Bauer and Jerry Wylie
Graphic Design Jorge Paniagua

This work was completed by the USDA Forest Service International Institute of Tropical Forestry with assistance from local partners and collaborators.

RAPID ASSESSMENT AND RECOMMENDATIONS FOR ECOTOURISM DEVELOPMENT IN THE LEFEVRE PANAMA BAY PROPERTY

Panama City, Republic of Panama

Prepared by:
Jerry Bauer
Biological Scientist
US Forest Service, International Institute of Tropical Forestry

Wayne Arendt
Wildlife Research Scientist
US Forest Service, International Institute of Tropical Forestry

Jerry Wylie
Ecotourism Specialist
US Forest Service, International Institute of Tropical Forestry

In cooperation with:
ANCON
Grupo Lefevre

June 2015

TABLE OF CONTENTS

Tables

Maps

Figures

Appendices

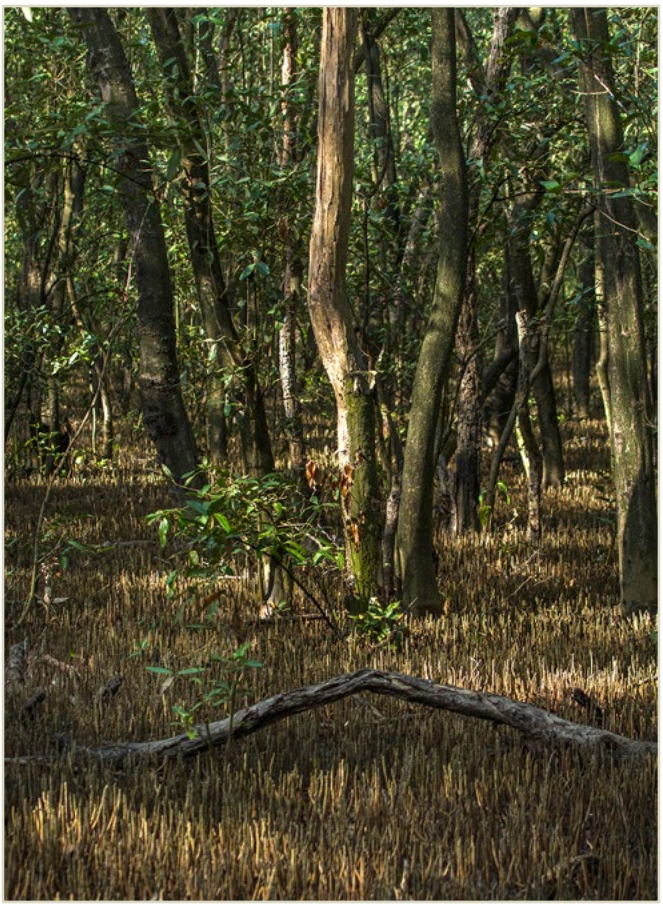
I. INTRODUCTION

Grupo Lefevre requested assistance from ANCON and IITF for a rapid assessment of the recreational potential for their properties within the Panama Bay Wildlife Refuge and adjacent to the Ramsar wetland site and proposed Mangrove Urban Park.

The Grupo Lefevre properties, about 133 hectares, are located on the outskirts of Panama City on the west side of the Río Juan Díaz in the extreme eastern end of the Panama Bay Wildlife Refuge (Map 1). Portions of their land are within the boundary of the wildlife refuge and in close proximity of the Ramsar site but not within the Ramsar boundary (Map 2).

Grupo Lefevre is interested in developing recreational opportunities on portions of these properties, especially the portions of their land, about 99 hectares, that are within the boundary of the wildlife refuge (Map 3, green polygon).

This is a very preliminary, rapid assessment and recommendations for further work. Much more field reconnaissance is needed to develop a more in-depth assessment and plans.

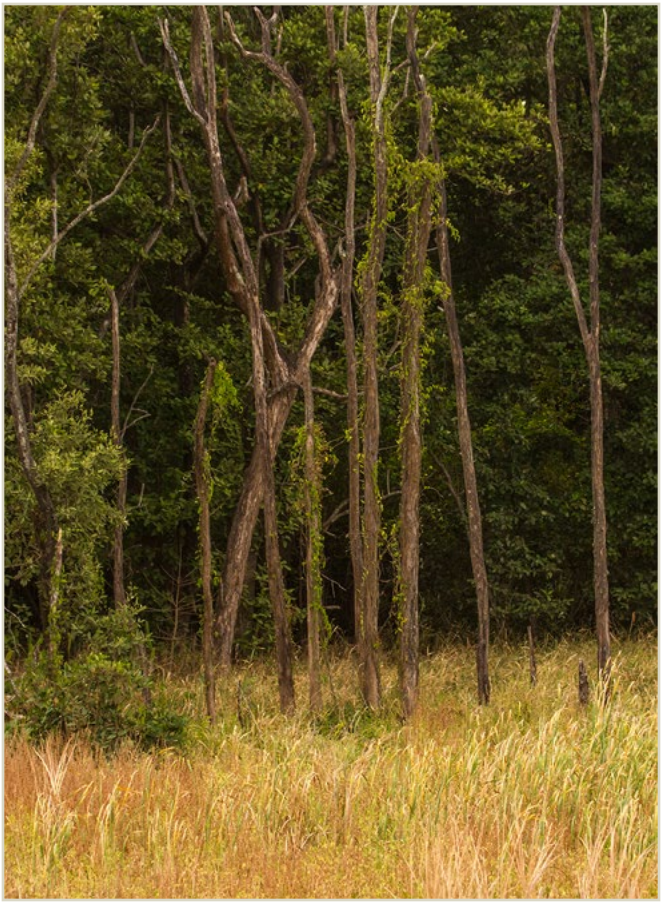


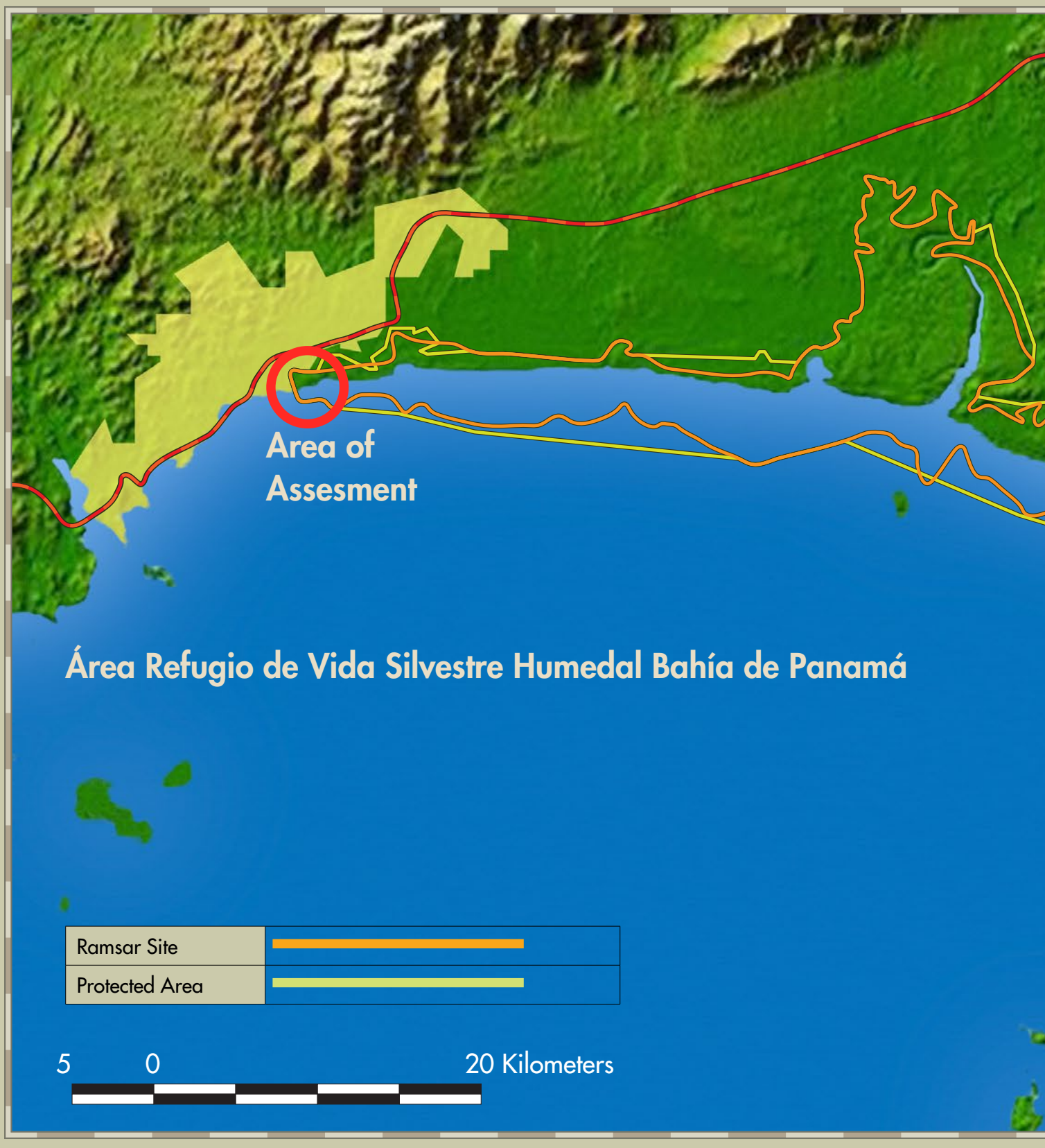
II. FIELDWORK

A US Forest Service team visited the Grupo Lefevre and surrounding properties, including parts of the Panama Bay Wildlife Refuge and Ramsar site from 16–19 March 2015 to conduct this rapid assessment and to gather data on opportunities for ecotourism development in the area. Under the direction of Jerry Bauer, the assessment team was comprised of Jerry Bauer, Wayne Arendt, Benny Wilson, and Jerry Wylie, with assistance from Gerassy Miranda and Karol Anne Serracín, students from Universidad Tecnológica de Panamá who are doing an internship with ANCON. Graphic designs were developed by Jorge Paniagua.

A briefing/introduction meeting was held with Grupo Lefevre staff and ANCON on 16 March in the ANCON Office and then field site visits were made during portions of each day from 17–19 March. A debriefing was held with the Grupo Lefevre at their offices on 23rd March.

Previous to the sites visits, Gerassy and Karol had conducted a literature search for the site and the status of the protected area and the RAMSAR site.





Map 1. Location of the Assessment Area.

Map 2. Grupo Lefevre Properties with Protected Area Boundaries.


A Aeropuerto Tocumen
Corredor Sur
Centro Comercial
Costa Sur
Costa Sur
Costa
Mare
Colegio
de Panamá
LF
LF
Construcciones
Residenciales
LF
LF
El Gallinazo
LF
LF
LF
LF
Gases Industriales
LEYENDA
Áreas visitadas por equipo de campo
Refugio de Vida Silvestre
Sitio Ramsar
LF
Propiedad Grupo Lefevre
0
500
1000 m

III. ENVIRONMENTAL SETTING

The Panama Bay is an important conservation area for migratory shorebirds and conservation organizations have been working for many years to get this site protected from development for long-term conservation. In February 2015 the Government of Panama declared 85,664 acres of land in the Panama Bay as a Wildlife Refuge. Previous to this the Panama Bay was declared a Wetland of International Importance by the Ramsar Convention (2003), a globally recognized Important Bird Area (2003), and a Site of Hemispheric Importance by the Western Hemisphere Shorebird Reserve Network (WHSRN) (2005). These legally established conservation areas place restrictions on land use and development. For specific details to the guiding regulations, refer to Gaceta oficial Año CXI, No. 27717, "Que declara Área Protegida al Refugio de Vida Silvestre Sitio Ramsar Humedal Bahía de Panamá", Ley No 1., Capítulo V, Artículo 17, Sección 8 y Artículo 22.

Just west of the Grupo Lefevre properties, near the water treatment plant (Map 2), there are efforts underway to develop en "Urban Mangrove Park". This effort is spearheaded by the Ministry of Public Health (Ministerio de Salud de la República de Panamá), in cooperation with the Ministry of Environment, the Panama City Municipality, Civil Society Organizations and the private sector companies.

Existing Conditions

The Grupo Lefevre properties are located in an area that is under heavy development with new housing (such as Costa Sur), corporate parks (e.g., Metro Park), and new highways (Corredor Sur) in response to the ever-increasing urban population growth in Panama City. However, even though these urban development pressures are becoming more common in this area, there is still large portions of well developed mangrove forest, that is of utmost importance for the protection of the area, for conservation of habitat so important to migratory birds (where 30% of the world's Western Sandpiper population migrate) and other wildlife species. For more information on conditions and the conservation importance of this area refer to ANAM (2013), "Centro Regional Ramsar para la Capacitación e Investigación sobre Humedales para el Hemisferio Occidental" (2010), and Audubon Panama (nd).

IV. GOALS AND OBJECTIVES

The general goals and objectives of sustainable tourism are to maximize the positive benefits that tourism can have on biodiversity, ecosystems, and economic and social development, while minimizing negative social and environmental impacts from tourism (Secretariat of the Convention on Biological Biodiversity, 2004). In addition, an important goal is to maintain a high level of biodiversity as an attraction for tourism.

Grupo Lefevre is encouraged to establish the following goals and objectives for this site:

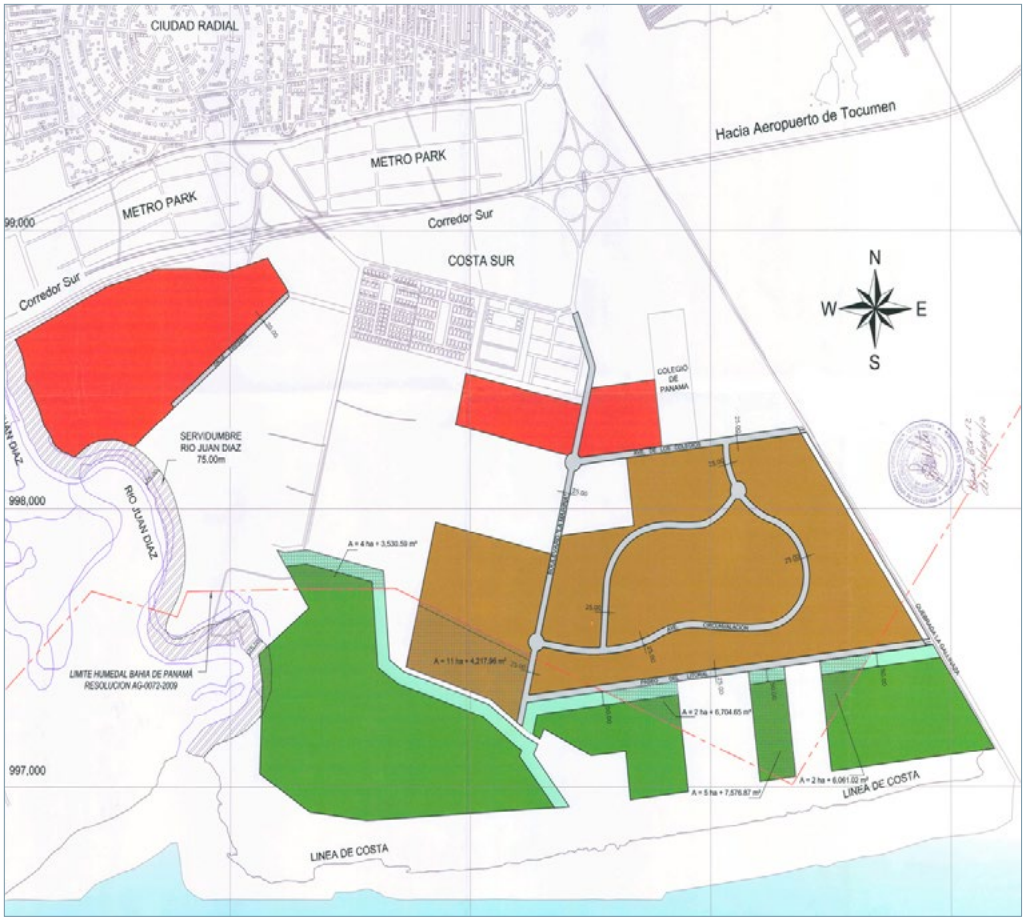
Goals

- Conserve biodiversity, especially birds and mangroves
- Change public attitudes and behaviors relating to mangroves through community outreach
- Provide low-impact outdoor recreation to urbanites
- Create sustainable benefits for the environment, private sector, and visitors

Objectives

- Provide safe access to mangroves and waterbirds
- Provide high-quality environmental education and interpretation
- Provide incentives for the private sector
- Develop proper infrastructure and signage
- Create an identity for the Lefevre properties and the Park as a destination

Map 3. Area under Development Showing the Grupo Lefevre Properties



Polygon	Parcel	Area
1	A	49.0
	B	7.7
	C	10.0
2	A	27.2
	B	93.5
3		70.0
4	A	16.8
	B	6.0
	C	23.0

V. A BENEFITS BASED APPROACH

Conservation must be integrated with development activities. However, the ultimate goal of integrating sustainable tourism and biodiversity conservation is not just to reduce threats or avoid impacts, it is the creation of sustainable benefits to the environment and the local community (Global Sustainable Tourism Criteria, 2009; USAID/ARD 2005a:28) and visitors, which are frequently overlooked.

To achieve this integration and meet the project objectives listed above requires a benefits-based model of sustainability that provides linkages and synergies between all three elements. Since they are directly linked, actions in one affect the other two (Figure 1). Details of this model are presented in Appendix A (Wylie and Bauer, 2008).

This model is not only a theoretical concept, it is a practical "compass" for providing direction at each stage of project planning, implementation and monitoring. For example, it can help:

- Define and expand the project vision and goals
- Focus the threats and opportunity assessments
- Develop integrated conservation/tourism targets
- Analyze positive "value-chain" linkages affecting tourism opportunities
- Create a conceptual model describing linkages among causal factors
- Develop specific actions with monitoring measures
- Select and prioritize activities with synergistic linkages

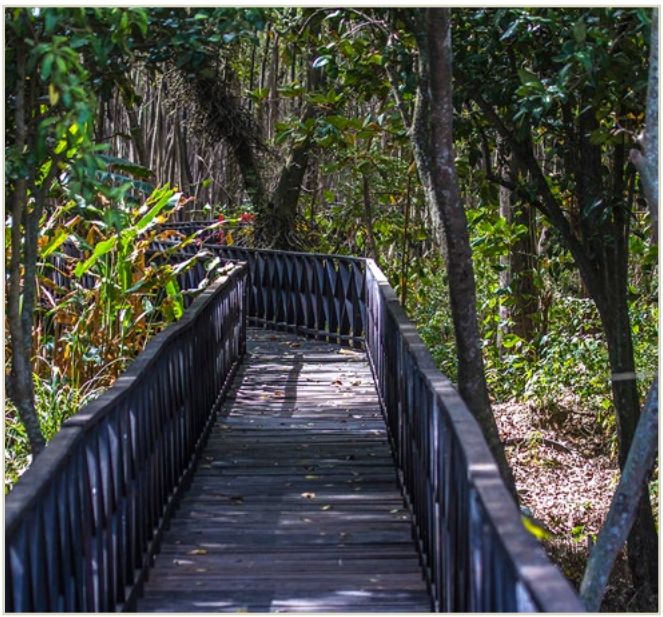


Figure 1. Sustainable Tourism Model.

VI. SWOT ANALYSIS

Table 1 shows the SWOT analysis conducted during this rapid assessment. This is based on field visits accessing the area via local dirt roads and by hiking in the properties (areas walked are identified by green lines on Map 2), and conversations with Grupo Lefevre and ANCON personnel.

The area's primary attractions are its pristine mangrove forests (mostly black mangrove) as well as wildlife viewing opportunities provided by birds and other wildlife. These natural attractions are enhanced by their close proximity to Panama City.

Thousands of potential tourists, both local and international, are within a few kilometers of this site. This potential source of visitors so close to a protected area is very rare and represents a tremendous opportunity to develop ecotourism products to supplement the typical "sun-sand-and-sea" resort experience. These opportunities are described in detail below.

However, before any tourism programs can be initiated, several issues need to be addressed. The primary concern is water quality. Monitoring is imperative to determine the extent of water pollution and strategies developed to control it. Also, trash (plastic debris coming from the ocean and down the Río Juan Díaz) need to be controlled.

Table 1. Strengths, Weaknesses, Opportunities, Threats (SWOT) Rapid Assesment.

Strengths
Proximity to city
Well-developed black mangroves with open understory
Ramsar international wetlands designation
Abundant birdlife
Good road access
Strong private landowner commitment

Weaknesses
Massive trash from ocean/streams and dumping
Contaminated water
High tidal fluctuation (muddy at low tide)
Noisy flight path to Tocumén airport
Inaccessible shoreline
Criminal activity
Fragmented land ownership
Difficulties building in tidal mangroves

Opportunities
Biodiversity conservation
Environmental interpretation
Research (including testing trails systems)
Recreation
Develop best management practices for sustainable tourism in mangroves
Tourism tax incentives

Threats
Crime and public safety
Health risk from poor water quality
Illegal cutting and burning of forest
Super high tides
Fast-growing mangroves block views and access
Siltation and sea level rising can modify the location and character of the shoreline

VIII. STANDARDS AND GUIDELINES FOR DEVELOPMENT OF WETLANDS (Ramsar, 1996, 2005, 2008, 2012a, 2012b)

The following Standards and Guidelines should be considered as the site is developed for ecotourism:

- Conserve and restore wetlands for the benefit of people and nature.
- Use wetlands as essential "green infrastructure" for water management and conservation.
- Develop examples of best management practices for sustainable development.
- Understand the value of wetlands through communication, education, participation, and public awareness.
- Demonstration sites for "wise use" wetlands should be equipped and prepared for capacity, signage, and interpretive materials.
- Educational centers can be established to provide focal points for public programs.
- Ensure that services offered are appropriate to carrying capacity and quality of the visitor experience.
- Monitor and manage tourism and recreation impacts through Limits of Acceptable Change (LAC).
- Prominently display the Ramsar logo and promote the Ramsar mission.
- Be consistent with UN World Tourism Organization (UNWTO) principles of sustainable tourism (UNWTO, 2005).

IX. STANDARDS FOR SUSTAINABLE TOURISM (UN World Tourism Organization, UNWTO)

"Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities"

Sustainable tourism should:

- Make optimal use of environmental resources, maintain essential ecological processes, and help conserve biodiversity.
- Respect the socio-cultural authenticity of host communities.
- Provide long-term socio-economic benefits to all stakeholders.
- Maintain a high level of tourist satisfaction and ensure a meaningful experience.
- Promote sustainable tourism practices among visitors.

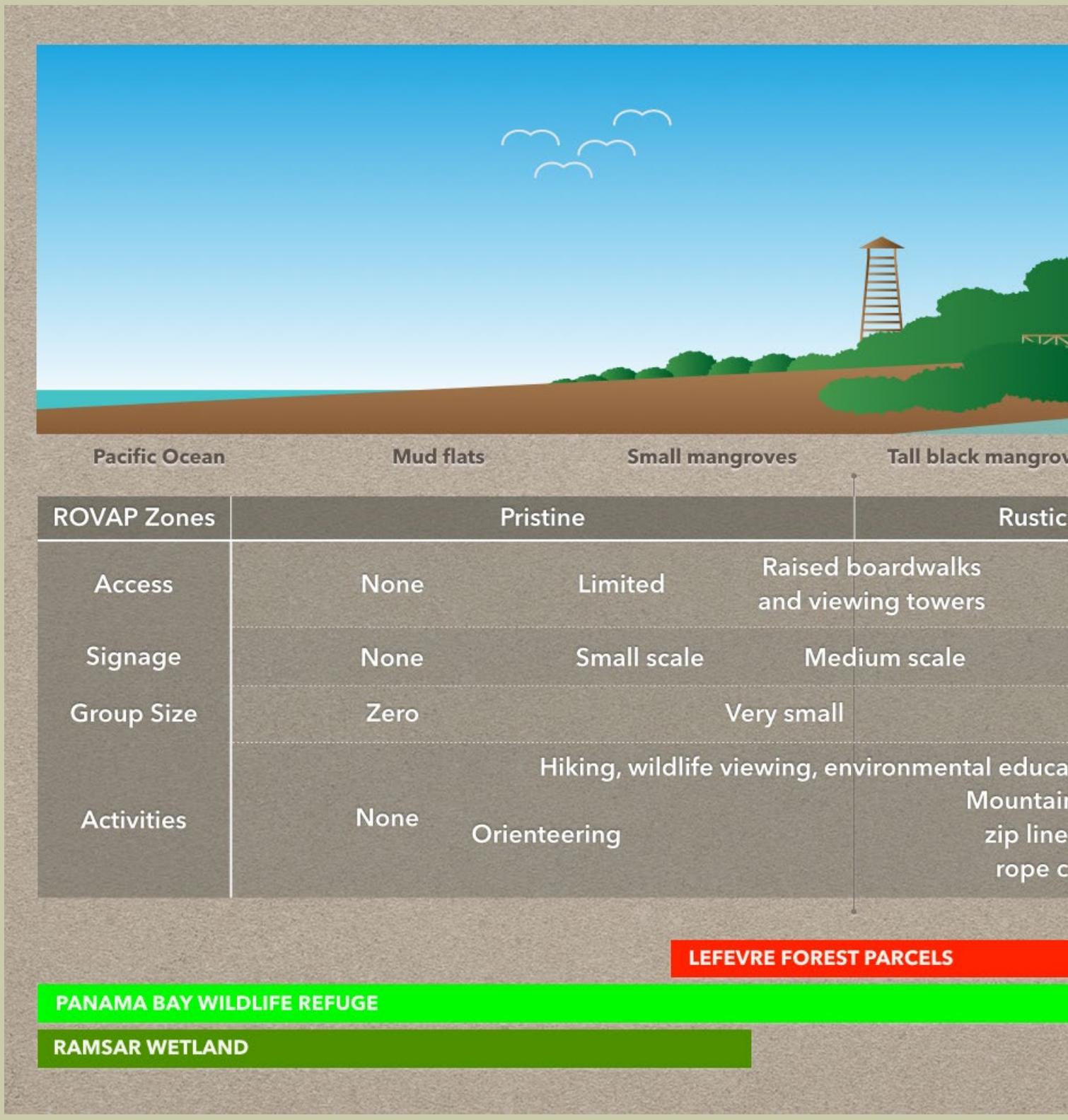
X. STANDARDS FOR ECOTOURISM IN MANGROVES (UN Food and Agriculture Organization; FAO 2002)

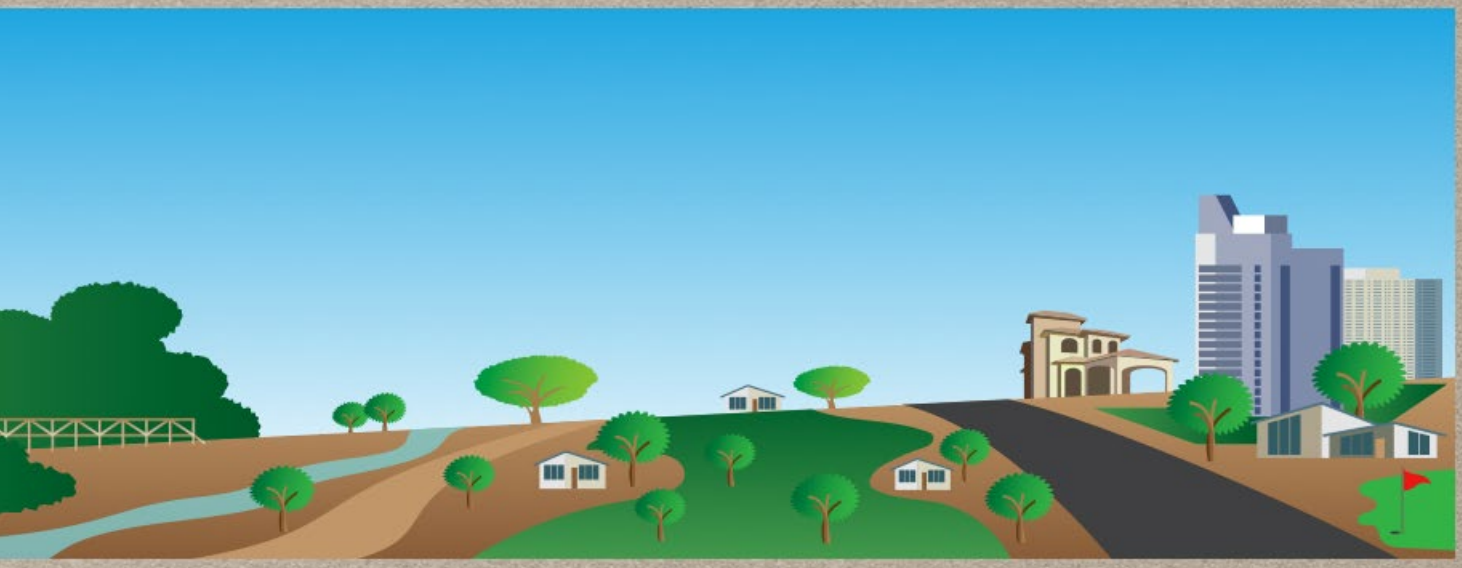
Specific standards for ecotourism in mangroves that should be followed include:

- Identify appropriate locations for ecotourism development.
- Identify proper ecotourism activities that do not harm the environment.
- Manage visitors.
- Control the number of visitors per trip.
- Control impacts by taking in all necessities needed as well as bringing out all trash from remote areas.
- Design facilities that blend in with the natural surroundings.

Following these standard will help mitigate and minimize the impacts of tourism in the mangrove forest. Figure 2 shows a proposed schematic zone plan that implements the above standards (Wallace et al. 2009).

Figure 2. Schematic Zoning Plan For Lefevre Properties.





ves

Natural	Rural	Urban
Low boardwalks and gravel trails	Unpaved roads and pathways	Paved roads and pathways
Visitor center or info kiosk	Informational road signs	
Medium	Large	Unlimited
tion n biking, , yoga, ourse	Mountain biking and road cycling, segway tours, jogging, playground, fitness challenge course, sports park	City park

AREA OF PLANNED URBAN AND SUBURBAN DEVELOPMENT

EXISTING ROADS, GAS PLANT AND RÍO SAN JUAN EMBARCADERO

XI. POTENTIAL NICHE MARKETS

Ecotourism activities could be developed to meet specific niche markets, such as:

Recreational

- Walking and sightseeing/photography
- Mountain biking
- Segway rentals
- Bird watching with or without a guide
- Fitness challenge course with exercise stations
- Obstacle course
- Extreme races (Mudder challenges)
- Kid's playground

Educational

- Environmental education
- School field trips and science projects
- Team-building ropes course

Adventure

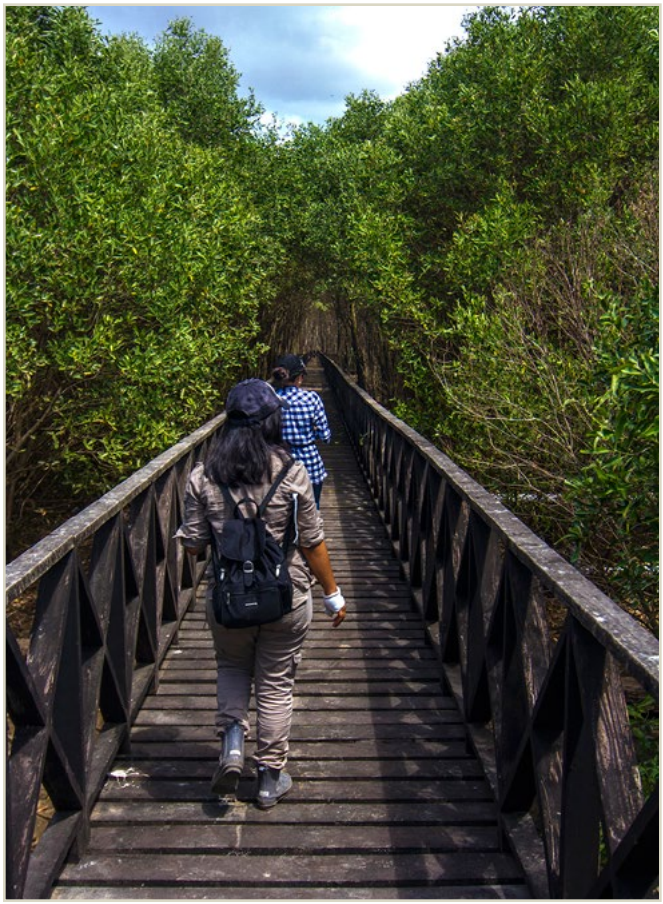
- Self-guided exploring (Letterboxing or Orienteering)
- Zip-line
- Primitive skills survival training
- Primitive camping

Over time, many of these niche tourism activities could be developed. Two with very promising opportunities in the Grupo Lefevre properties are bird watching and mountain biking.

During our site visits an ornithologist and bird tourism guide conducted a rapid assessment of bird diversity in this area and the potential for bird watching. Local and international bird guides are looking for sites near Panama City where they can take clients to see flagship species and this area offers this opportunity. Local tour guides could easily include the Lefevre properties in their itineraries because of their proximity to Panama City and its infrastructure (e.g. hotels, restaurants, international airport, etc.). International bird watchers, especially from the temperate zone, often request mangrove forests and their resident birds as tour destinations because both the habitat and many of its inhabitant species are new to them. During our brief visits to the Grupo Lefevre properties, particularly the wetlands and mangrove forest, more than 100 species of birds were observed, including four much sought after tropical kingfishers and a nesting pair of the Spot-breasted Woodpecker *(Colaptes punctigula),* a bird that could serve as a flagship species to entice birders to the mangrove forest, especially since the pair was nesting adjacent to the first viewing site on the mangrove boardwalk near the water treatment plant. To complement guided tours, the added attraction of self-tours, with the provision of easily traversed trails, adequate signage, and possibly nature interpreters to add to the birding experience, should be promoted. See Appendix B for more information on bird watching opportunities.

Mountain biking is another theme that could be developed in the near future at this site. The assessment team was informed that there is a huge and growing interest for biking trails near Panama City. Currently there are biking clubs and many individuals that are looking for areas that are safe, interesting and near Panama City. This is a growing niche market in Panama that could be explored by Grupo Lefevre.

To fully explore the potential of bird watching, mountain biking and other niche market opportunities, Grupo Lefevre should contact local tour guides, representatives of tour and guiding organizations, sustainable tourism organizations (such as the Panamanian Association for Sustainable Tourism, APTSO, www.zptso.wordpress.com) and the Ministry of Environment to learn more about the recently initiated "Green Tourism Initiative", to develop strategic alliances, and to gather ideas, information and suggestions from these groups on how to initiate ecotourism activates in their properties. For example, the assessment team understands that the Ministry of Environment is in the process of developing "Green Tourism" strategy to "develop a shared national vision and to prepare a "National Action Plan for the Development of Ecotourism in Protected Areas of Panama that will allow ecotourism to be a driver of economic growth and social inclusion". This could be a perfect opportunity and starting point for Grupo Lefevre to develop a long-term relationship with these organizations and kickstart an ecotourism program in their properties.



XII. MANGROVE TOURISM

Although we do not currently have enough information to make any specific recommendations for the development of tourism in the study area, typically mangrove parks have a similar set of features to accommodate public visitation. These can serve as a guide for future planning.

The key elements of a possible "Bosque Lefevre" or "Mangrove Discovery Center" may include development of:

- Parking and entrance.
- Access via trails, boardwalk, observation tower, canopy walkway, etc.
- Information kiosk or visitor center.
- Visitor map.
- Informational and interpretive signage.
- Bathroom facilities.
- Water faucets to clean muddy shoes.

Raised wooden boardwalks are frequently used to provide safe access to mangrove forests. As noted by Mangrove Watch (www.mangrovewatch.org.au), if constructed and maintained properly mangrove boardwalk trails provide:

- Excellent viewing points for education, recreation and monitoring of ever-changing mangrove and tidal salt marsh habitat.
- Great places for bird watching.
- Ideal places for regular monitoring of coastal changes to mangrove diversity, biomass and overall ecosystem health.
- Minimal to no disturbance of mangrove habitat.
- Good locations for appropriate educational signage.
- Great places for family day trips
- Quiet places inspiring contemplation and reflection.

XIII. RECOMMENDATIONS

The following recommends can be applied to develop ecotourism in this site:

1. Develop a work plan and conduct follow-up fieldwork. More fieldwork is needed immediately to survey birds/ wildlife, tidal flooding, coastal access, mangroves, and existing and potential trails locations. This report is based on three days of fieldwork. Not all sectors of the land/water areas were visited, such as the coast mud flats or marine access, in this limited amount of time. More site visits are essential to collect in-depth information necessary to make specific recommendations. More detailed information is also needed on current and future land use as well as existing literature and internet information on other urban mangrove parks to help develop ideas and concepts.

2. Define the relationship between Grupo Lefevre and the Mangrove Urban Park concept. This could include development of a collaborative program with the CAF and Odebrecht, and possibly other private sector companies. See also recommendation #9 below.

3. Define and resolve key issues such as public safety in the mangrove area. The evaluation team was informed several time about the concern for public safety and the possibility of illicit activities by unknown persons in the mangrove area. In fact, we saw several mangrove trees that had been set on fire, apparently to burn out iguanas, and we observed people walking thought the area that clearly did not want to talk to us or be seen by us. This issue needs to be addressed and mitigation measures need to be taken if the area is to be developed for public use.

4. Determine the high-tide cycle and extent of maximum flooding. Detailed information on the lunar tide cycle needs to be collected and high tide maps need to be developed before recreational and ecotourism activities and small-scale infrastructure can be developed.

5. Design a preliminary conceptual plan. After the above steps are completed and more information is available, the next step for management of this area is development of a conceptual plan in consultation with Grupo Lefevre. This plan should identify a vision/mission/objectives for development of the area, zoning and areas for public use, key attractions and things a visitor can do, proposed actions/work plan, and an impact monitoring plan. Some examples of similar plans in other countries are: "Análisis de Sitio y Recomendaciones para el Desarrollo Ecoturístico del Sendero Padre Nuestro, Parque Nacional del Este, Bayahibe, República Dominicana" (Domínguez, et al 2010), "Plan de Desarrollo Ecoturístico Ruta Turística-Comunitaria del Pacífico Sur, Municipio de San Juan del Sur, Rivas", Nicaragua (Domínguez, et al 2009), and "Plan de Uso Publico, Reserva Natural Cerro Datanli-El Diablo, Jinotega, Nicaragua" (Domínguez, et al 2008).

6. Create an image for this area as a tourism destination. This will include a logo, definition of the image to be projected about this area, the landowners, and the proposed activities, a position/vision/mission statement, and similar activities.

7. Develop a draft plan for heritage interpretation and informational signage. Heritage interpretation and proper signage are first-step essentials in the development of this site as a destination and/or for environmental education purposes. Informational signage is needed for public safety and to guide visitors to areas they can visit. A simple, focused heritage interpretation plan can help kick-start the educational program for this area. This plan should identify collaborative opportunities with other protected areas such as Parque u and it should include interpretive signage.

8. Identify research opportunities that could be conducted in the area. It will be necessary to plan both short- and long-term research activities. In addition, a search or review of on-going research in mangroves in Panama will be beneficial to determine how coordination could be developed with other research activities.

9. Develop Public-Private Partnerships (PPP) to help plan and develop Panama's, and perhaps Central America's, first urban mangrove park. Define relationships between stakeholders, including landowners, Ministry of Environment, ANCON, concessionaires, etc. These PPPs could play a key role in developing this property for ecotourism and long-term conservation strategies. It is very likely that to develop some desired PPPs legislation or local ordnances would have to be passed (such as for carbon sequestration, tax incentives for conservation, etc). More data collection, literature search, discussions with Governmental agencies, and field work need to be completed to determine current rules, regulations, laws, etc. that pertain to PPPs in Panama (see Appendix C).

LITERATURE CITED AND PERTINENT REFERENCES

ANAM. 2013. *Manglares de Panama, Importancia, Mejores Prácticas y Regulaciones Vigentes.*

Audubon Panama. nd. *Fact Sheet: Save the Panama Bay.*

Centro Regional Ramsar para ls Capacitación e Investigación sobre Humedales para el Hemisferio Occidental. 2010. *Inventario de las humedales continentals y costeras de Panamá.* ISBN 978-9962-8976-0-6.

Domínguez, Juan Pablo, Jerry Bauer, Jerry Wylie y Mark Willuhn. 2010. *Análisis de Sitio y Recomendaciones para el Desarrollo Ecoturístico del Sendero Padre Nuestro, Parque Nacional del Este, Bayahibe, República Dominicana.* Reporte Preparado por el Servicio Forestal de los Estados Unidos para el Banco Internacional de Desarrollo (BID) y la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID) en soporte a la Alianza Dominicana de Turismo Sostenible (DSTA).

Domínguez, Juan Pablo, Mark Willuhn, y Jerry Bauer. 2009. *Plan de Desarrollo Ecoturístico Ruta Turística-Comunitaria del Pacífico Sur, Municipio de San Juan del Sur, Rivas, Nicaragua.* Reporte Preparado por el Servicio Forestal de los Estados Unidos para la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID).

Domínguez, Juan Pablo, Jerry Bauer y Mark Willuhn. 2008. *Plan de Uso Publico, Reserva Natural Cerro Datanli-El Diablo, Jinotega, Nicaragua.* Reporte Preparado por el Servicio Forestal de los Estados Unidos para el Banco Internacional de Desarrollo (BID) y la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID).

FAO. 2002. *Rehabilitation, Conservation and Sustainable Utilization of Mangroves in Egypt.* UN Food and Agricultural Organization.

Mangrove Watch Australia. *www/mangrovewatch.org.au.*

Ramsar.1996. *Wise Use Guidelines. Section II.5 Education and Public Awareness.*

Ramsar. 2005. *A Conceptual Framework for the Wise Use of Wetlands and the Maintenance of their Ecological Character.* 9th Meeting of the Conference of the Parties to the Convention of Wetlands, Kampala, Uganda.

Global Sustainable Tourism Criteria. 2009. *www.sustainabletourismcriteria.org.*

Ramsar. 2008. P*rogramme on Communication, Education, Participation and Awareness (CEPA) 2009-2015 of the Convention on Wetlands. (Resolution X.8, 2008)*

Ramsar 2010. *Ramsar Handbook for the Wise Use of Wetlands, 4th Edition.* (reviewed but not quoted directly).

Ramsar. 2012a. *Principles for the Planning and Management of Urban and Peri-Urban Wetlands.* Ramsar Resolution XI.11, 2012.

Ramsar. 2012b. *Issues for Stakeholders to Address in Achieving Sustainable Tourism and Recreation in and Around Wetlands.* (Resolution XI.7, annex 2)

Secretariat of the Convention on Biological Diversity. 2004. *Guidelines on Biodiversity and Tourism Development: International Guidelines for Activities Related to Sustainable Tourism Development in Vulnerable Terrestrial, Marine and Coastal Ecosystems and Habitats of Major Importance for Biological Diversity and Protected Areas, Including Fragile Riparian and Mountain Ecosystems.* 30 pages.

USAID/ARD. 2005a. *Tropical Forestry and Biodiversity (FAA 118 and 119) Analyses: Lessons Learned and Best Practices from Recent USID Experience.* U.S. Agency for International Development, Washington DC. 74 pages.

USAID/ARD. 2005b. *Biodiversity Conservation: A Guide for USAID Staff and Partners.* U.S. Agency for International Development, Washington DC. 197 pages.

Wallace, George, L. Lechner, D. Stoll, P. Newman, C. Juarrero, and J. Bauer. 2009. *ROVAP, El Rango de Oportunidades para Visitantes en Áreas Protegidas.* Colorado State University and U.S. Forest Service International Institute of International Forestry.

UNWTO. 2005. *Making Tourism More Sustainable – A Guide for Policy Makers.* UN Environmental Program and UN World Tourism Organization.

Wylie, J. and J. Bauer, 2008. *The Changing Face of Heritage Tourism.* National Association for Interpretation, Legacy, Vol. 19, No. 1.

Appendix A
Sustainable Tourism and Biodiversity Conservation Model

This is a model of sustainable tourism development that provides linkages and synergies between visitors, communities, and the environment so that benefits in one area create benefits in the other two.

Conservation relates to the overall health of the environment, as measured by biodiversity and preservation of historic sites. It also ensures high-quality settings for residents and visitors and the product base for tour providers. Indicators include:

- Acres/hectares protected or restored
- Historic and cultural sites protected or restored
- Scenic vistas enhanced
- Number and types of species observed
- Reduction of depreciative behavior (vandalism, litter, looting, wildfires, graffiti, etc.)
- Political support for conservation agencies and programs
- Hours and money donated
- Entrance fees collected

Community and Economic Development enhances the quality of life for residents and creates business opportunities. Successful tourism businesses and communities provide infrastructure and services, financial and volunteer support for conservation projects, and political support for conservation projects and agencies.

Benefits include increases in:

- Numbers of jobs related to conservation
- Economic diversification and percentage of jobs conservation-related
- Income
- Profits
- Taxes
- Infrastructure for locals and visitors

Quality Visitor Experiences are the foundation for successful tourism. They depend upon properly managed, resources, settings and attractions (including scenery), professional tourism services and infrastructure, and adequate visitor information and interpretation. Without a quality visitor experience there will be no sustainable tourism and no public or financial support for parks and conservation. Potential benefits include:

- Increased customer satisfaction and loyalty
- Longer stays and willingness to pay
- Repeat visits
- Word-of-mouth advertising
- Positive psychological, social, and physiological changes for the individual
- Education and appreciation
- Changes in visitor and local community's attitudes and behavior

Appendix B
Areas Within The Grupo Lefevre Properties Conducive To Eco- And Avetourism, And Ways To Enhance Their Attractiveness

Two avian experts, a USFS-IITF Research Ornithologist (Wayne J. Arendt) and one of Panama's foremost eco- and avetourism guides (Benny Wilson) surveyed the Grupo Lefevre properties over a three-day period. Following is a list of strong candidate areas that will appeal to ecotourists, international birders, and nature enthusiasts in general:

1. **The rivers, streams, freshwater swamps, saltwater marshes, drainage ditches and water-catchment basins (small ponds) scattered throughout the properties, including the development areas:**

- Several species of migratory and resident waterfowl, shorebirds, and landbirds were observed in these areas. Many of the observed species are in decline and/or species of conservation concern. Thus, as with all of the wetland areas surrounding the Panama Bay, the Grupo Lefevre properties, even the areas under development, are of great importance as: (a) stopover destinations for passage migrants; (b) "wintering" grounds for seasonal migrants, which often remain as long as nine months of the year; (c) breeding sites for a diverse group of resident birds; and (d) refugia for all avifauna and other plant and animal species.

To enhance the quantities and diversity of birds in these areas, contamination of the various wetland types from pollution by surrounding communities, biocide runoff from agriculture, etc., must be reduced; contaminant studies are recommended.

Restoration of native wetlands vegetation in all of these areas.

2. Río Juan Díaz Estuary and Mangrove forest

Numerous species of terrestrial, shore- and waterbirds were observed in these two important biodiversity-rich areas. Several bird species of conservation concern and "Watchlist" shorebirds (Scolopacidae) undergoing population declines were observed along the river and in or adjacent to the mangroves. Kingfishers, including American Pigmy (Chloroceryle aenea) and the coveted Spot-breasted Woodpecker (Colaptes punctigula) were observed near the first boardwalk-viewing site in the mangrove forest near the water treatment plant.

- Birding and mangrove exploration is a popular form of ecotourism, an activity that may ultimately help the Lefevre Group improve their management of the natural resources on their properties.

- Ideally, ecotourists visit sites to observe wildlife and as a result spend money in the area. Well-planned ecotourism can provide economic and political incentives for conservation of these two areas, and could bring additional benefit to the local community and the regional economy.

- As an extension of wetland areas discussed above, the large Río Juan Díaz estuary and relatively extensive mangrove forest ecosystem are the Group's centerpiece for attracting those who appreciate the natural environment and nature based tourism.

  Many of the attributes and enhancement recommendations included above are germane to these two areas, especially the removal of human-generated debris (trash) and needed contaminant studies. It is unknown what short- and long-term effects decades of pollution and contaminants buildup are having on the life cycles, population dynamics and sustainability of the local plant and animal communities in these areas.

  Owing to their proximity to Panaman city, the Grupo Lefevre properties, including the estuary and mangrove forest, can be reached with minimal travel efforts.

  As documented elsewhere in this report, to attract more visitors to these important natural areas, it is imperative that additional accessibility infrastructure (boardwalks, viewing towers) be constructed and well maintained.

  To bolster the local economy we recommend the use of indigenous guides because nature based tour operators must possess a strong knowledge of, and an even stronger affinity for, these natural areas and the biota. For this reason, selection of the appropriate, local ecotourism guide is essential.

  Owing to the expected high volume of visitors to these areas, we recommend a buffer zone around these two areas to protect not only wildlife but also the unique vegetation.

Social Impacts

- In addition to economic and environmental impacts, ecotourism can have social effects.

- Ecotourists could use small boats to view the wildlife in the estuary at high tide. The local economy would also be augmented if the boat operators are from the surrounding communities.

Harassment of wildlife

- Ecotourism in these, as in all, areas under discussion, has the potential to cause harmful environmental impacts. One issue is the harassment of wildlife. For example, feeding the birds and other wildlife can create unnatural behavior, which can be dangerous to their wellbeing. As a case in point, some birders attract birds by producing sounds (e.g., "pishing," hand squeaking, and whistling) or by playing a tape-recorded song, which brings the bires out into the open, thus causing undue stress and exposure to predators.
- Ecotourists can set fire to the mangrove forest, which could have devastating impacts on the vegetation and wildlife habitat.
- Another issue is the trampling of the vegetation. Ecotourists often venture off the trail in pursuit of birds and other animals, damaging the underlying vegetation and soil in the process. Delegated authorities will need to use discretion in addressing such issues.

Appendix C
Public-Private Partnerships

In the last few years Public-Private Partnerships (PPP) have evolved as a strategic tool to assist with conservation and long-term protection/enhancement of biodiversity and publicly declared protected areas.

By definition, PPP is a government service or private business venture that is funded and operated through a partnership between a government and one or more private sector companies. A PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project.

A PPP could be developed between Grupo Lefevre and one or more public agencies such as the Ministry of Environment (who is responsible to complete a management plan for the Ramsar site and the Wildlife Refuge and ultimately to manage the site for public use and long-term conservation), the Ministry of Health (who is responsible for management of the water treatment plant), and possibly other public agencies and institutions. In addition, Grupo Lefevre could develop a partnership with other private sector groups that have an interest or stake in this area, such as the companies developing housing and commercial property near the Grupo Lefevre property.

Some possible incentives for sustainable mangrove development that could be explored through PPP include:

There are several types of incentives for Grupo Lefevre to build a program around sustainable use and conservation of mangroves in an peri-urban setting.

There could be immediate financial returns based on:

- Tax incentives for tourism development.
- Carbon offset payments.
- Cost-savings with use of green infrastructure for water control & landscaping.

There could be future financial gains from:

- Increase potential value of all Lefevre properties by offering high-quality natural landscaping and recreational infrastructure for visitors and residents.
- Creation of small business related to mangrove tourism (guides, concessionaires, guards, maintenance, food services, souvenirs, etc.).
- Demand for new Lefevre expertise in sustainable development consultation.

The Lefevre corporate image could be expanded and enhanced through:

- Positive public relations from satisfied visitors and clients.
- Creation of a positive "green" identity for the company.
- Linking the Lefevre name with national and international conservation organizations.
- Shaping the interpretive message to showcase the company's role in conservation.

Grupo Lefevre can develop a proud environmental legacy through:

- Development of a reputation and expertise in mangrove sustainable development.
- Taking a lead role to change public, corporate and government attitudes about mangroves and their importance for biodiversity and global climate change.
- International recognition for contributions to sustainable development.

And everyone involved with this project can have the personal satisfaction of having provided real benefits for the environment, community & economic development, and visitors