

Determinación jurisdiccional de humedales	4

Wetland Jurisdictional Determination

Municipal Road to Punta Lima, Santiago y Lima Ward,
Naguabo, Puerto Rico



Prepared for:

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February 2008

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1.0 Introduction

The purpose of this study was to identify the waters of the United States of America (USA) present within a coastal site located at Santiago y Lima Ward in the Municipality of Naguabo. In order to identify the waters of the USA, Mr. Federico Togni contracted García Environmental Services to perform a Jurisdictional Determination (JD) for the site.

The term "waters of the United States of América" is defined in 33 CFR 3288.3 and includes a variety of water bodies such as lakes, rivers, streams (including intermittent streams), mudflats, wetlands, prairies, potholes, wet meadows, beach lakes, natural and, in some cases, artificial ponds.

Wetlands are a subset of the waters of the United States of America. Section 404 of the Clean Water Act defines a wetland as an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The identification of wetlands regulated by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act is physically performed through a process known as a JD. The JD process establishes a line (delineation) which separates and identifies the Corps regulated wetland areas from non-wetland (upland) areas, which are not regulated by the Corps.

This report includes all the issues required by the Public Notice of the Antilles Regulatory Section, published in October 12, 2001. According to the Public Notice, all requests for verification of JDs performed by landowners and private consultants in Puerto Rico and the U.S. Virgin Islands must be made in writing and, as a minimum, must include the following information:

- ❖ **Name, address and phone numbers of current properties owner(s) and authorized agent (if applicable):** This information is included in the portrait of the report.
- ❖ **A description of the parcel:** This information is included in Section 2.0 of the report (Location and Topography).
- ❖ **Permission for the Corps personnel to enter the properties:** A permission letter is included as Appendix 4 of the report.
- ❖ **An accurate location map and concise directions on how to get to the property:** The physical address of the site is included in the portrait of the report. Figures included in Appendix 1 illustrate the accurate location of the study area.
- ❖ **Plan, aerial photo, map or sketch showing the jurisdictional boundary line:** Appendix 1 includes a 1997 Aerial Photo illustrating the jurisdictional boundary as well as the properties boundaries.
- ❖ **Area of review if different from properties boundary:** The area of review is within the properties boundaries.
- ❖ **Name of waterways:** The property is a coastal site bordered by the Caribbean Sea.
- ❖ **Latitude and longitude (NAD 83 at the center of the property):** The Latitude and Longitude of the center of the properties are X: 277,381.10 and Y: 239,251.73
- ❖ **Aerial photographs (should be the latest available and must be as clear as possible):** This report includes a 2002 Aerial Photograph, which is used in figure2 presented in Appendix 1. However, the wetland delineation is illustrated over the 1997 aerial photograph due to the better resolution and site interpretation.
- ❖ **Reference Information:** Available official references were used for the study. The resources used for the figures (like maps) are presented in Section 6.0 of the report (Literature Cited).
- ❖ **Approximate total acreage of the site:** The site has an approximate area of 80 acres.

- ❖ **Data forms for uplands and wetlands of various points in the properties:** three data forms are included in Appendix 2 of the report. The photographic record also illustrate 4 additional observation points
- ❖ **General climatological condition at the time of the evaluation:** It was moist during the visits.

2.0 Location and Topography

The study area is located at Municipal Road to Punta Lima, Santiago y Lima Ward, Municipality of Naguabo, Puerto Rico. The site is limited to the north by the municipal road, to the east by a mangrove forest, to the south by the Caribbean Sea and to the west by a residential community. This JD covers all the property, which have an approximate area of 80 acres.

The study area is located at a coastal border of the Naguabo Municipality. Most of the topography is steep (more than 70%). The higher elevation at the site is about 30 meters above mean sea level, while the lowest is 2 meters above mean sea level.

Figure 1 illustrates the property boundaries in the Topographic Map of the Naguabo Quadrangle. Figure 2 presents the site location on a 2002 Aerial Photograph. Both figures are part of Appendix 1.

3.0 Methods

This JD was conducted following the guidelines and procedures recommended in the Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1, 1987). The On-site Inspection of the Routine Determination Method was the selected approach to perform it.

The study area was previously located at the Topographic Map of the Naguabo Quadrangle, the 2002 Aerial Photograph and the Soil Survey of Humacao Area of Puerto Rico. The fieldwork was conducted on November 2007.

3.1 Transects and Sampling Points

One transects and three sampling points were assessed for vegetation, hydrology and soils. The selected sampling points location was based on the characteristics of the site in such way that the information collected represents the different plants, hydrologic and soils at the nearly level portions of the site. Additional observations along the property were made to accurately define wetland/uplands boundaries (see observation points - OP- location in Figures 9 and 10).

Figures 9 and 10 illustrate transects and sampling points locations. Appendices 2 and 3, respectively, include the field data forms and a photographic record for each sampling point.

4.0 Results

4.1 Vegetation

Hydrophytic vegetation is defined as the sum of the total macrophyte plant life growing in water, soil or on substrate that is at least periodically deficient in oxygen as a result of excessive water content. Vegetation in wetlands consists of one or more plant associations. Therefore, it is mandatory to consider plant species dominance among other things to determine if a particular area is dominated by hydrophytic vegetation.

The property presents various stratum within different plant communities. The selected sampling points were representations of herbaceous stratum at the nearly level areas. The relative dominance was measured by the greatest percentage of aerial cover.

For this wetland determination, vegetation samples were inspected visually. Some species were taken to the Natural and Environmental Resources Department herbarium for expert identification.

The 1988 and 1996 National Lists of Plants Species that Occur in Wetlands for the Caribbean Region were used to identify the indicators of wetland vegetation. Wetland facultative (FACW) and upland (UPL) species were found at the site. Indicators for wetland vegetation were represented by *Brachiaria purpurascens* and *Ipomoea setifera*. Nearly level upland areas are dominated by *Trascendencia specie* (Cophitre). Other steep uplands are dominated by *Piteselovium dulce* (guamá americano) Specific vegetation observed at each sampling point is included at the field data forms (Appendix 2).

4.2 Hydrology

Wetland hydrology refers to the presence of water either above the soil or within the soil for a prolong period of time during the year. Plants development and soils formation are directly influenced by wetland hydrology.

Hydrology is favorable for the nearly level portions of the site, since two intermittent creeks drain trough it. The Caribbean Sea borders the property by the south, and the tidal fluctuations affect a mangrove forest nearby the southeast of the property. The general drainage of the area is from north to south east. The site drain to the mangrove forest located at the south east border.

A pond area is present at a topographic depression at the end of the intermittent creek 1. This pond is located above mean sea level (See OP-2 photo). The flood prone areas near (but outside) the site are shown in Figure 3.

Sampling points 1.1 and 1.2 were positive for wetland hydrology indicators (saturation criteria), while sampling point 1.3 was not. Other areas at the south east border of the property were confirmed as wetlands, as previously

illustrated in the National Wetland Inventory Map (see observation points 3 and 4 photographs at Appendix 3).

4.3 Soils

According to the Soil Survey of the Humacao Area of Puerto Rico, there are four different soils mapped in the study area: Co-Coloso silty clay loam occasionally flooded, TS-Tidal swamps, MaC2-Mabi clay 5 to 12 percent slopes and SaE2- Sabana silty clay loam 20 to 40 percent slopes (See Figure 4). The Hydric Soils List of the Caribbean Area, identify the Tidal Swamp as a hydric soil and the Coloso silty clay loam as a soil with potential hydric inclusions.

In order to determine locations for the soil samplings, a visual assessment of the area was performed with the guidance of the soil map. Soil pits were made on Coloso and Mabi soils. Due to evident presence of wetland indicators, the area with Tidal swamps soils was only observed but not sampled. Even when Mabi soils at the site are not listed as hydric or with hydric inclusions by the Hydric Soils List of the Caribbean Area, we decided to sample it, since it shows potential indicators of positive wetland conditions at a topographic depression on intermittent creek 1 (See sampling point 1 and observation point 2).

4.4 Atypical Situations or Problem Areas

No atypical situations or problems areas were found on the study area.

5.0 Conclusions

As a result of this study, wetland areas were confirmed as previously illustrated by the National Wetlands Inventory Map. However, the wetlands were accurately delineated (see figures 9 and 10). The wetland areas identified have an area of approximately 4 acres. Land crabs holes within the wetland areas are an

excellent indicator of the present delineation. They are limited to the wetland areas.

Other waters of the United States (two intermittent creeks) previously illustrated on the USGS Topographic Map of the Naguabo Quadrangle and the Soil Survey of the Humacao Area, were confirmed by this study. All the waters of the United States and Wetlands identified at the study area are illustrated on figures 9 and 10 of this report.

6.0 Isolated Wetlands

None of the wetlands identified within the property boundaries should be considered isolated wetlands, since they are feed by two intermittent creeks.

7.0 Literature Cited

- Boccheciamp, R. A. (1969). Soil Survey of Humacao Area of Puerto Rico. U.S. Department of Agriculture. Soil Conservation Service
- Más, E. G. and C. García. (1990). Guía Ilustrada de Yerbas Comunes en Puerto Rico. Servicio de Extensión Agrícola. Universidad de Puerto Rico, Recinto Universitario de Mayagüez. 103 pp.
- Munsell Soil Color Charts. (2000). Revised Washable Edition. GretagMacbeth. New York.
- Reed, P. B., Jr. (1988). National List of Plants Species that Occur in Wetlands: Caribbean (Region C). U.S. Fish and Wildlife Service.
- Reed, P. B., Jr. (1996). Revision to the National List of Plants Species that Occur in Wetlands: Caribbean (Region C). U.S. Fish and Wildlife Service. Supplement to Biological Report 88 (26.12).
- Soil Conservation Service. (1993). Hydric Soils of the Caribbean Area: In Cooperation with the National Technical Committee for Hydric Soils. Revised Edition of the List of Hydric Soils.
- U.S. Army Corps of Engineers. (1987). Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. Environmental Laboratory, Department of the Army, Waterways Experimental Station. Washington, D.C. 169 pp.

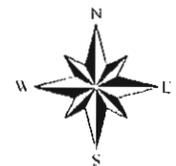
Appendixes



FIGURE 1. TOPOGRAPHIC MAP

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at
Santiago y Lima Ward, Naguabo PR



7701 Avenida Industrial, San Juan, P.R.
Tel: (787) 552-5252 Fax: (787) 552-5253
www.garciaenv.com



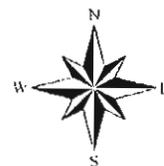
0 0.3 0.6 1.2 Kilometers

1:20,000

FIGURE 2. IKONOS 2002

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at
Santiago y Lima Ward, Naguabo PR





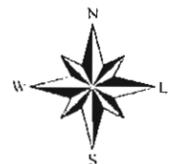
0 0.25 0.5 1 Kilometers

1:20,000

FIGURE 3. FLOOD MAP

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at
Santiago y Lima Ward, Naguabo PR



100 Avenida Industrial, Suite 200, San Juan, PR 00906
Tel: (787) 482-2222 Fax: (787) 482-2222
www.garcia.com



0 0.25 0.5 1 Kilometers 1:20,000

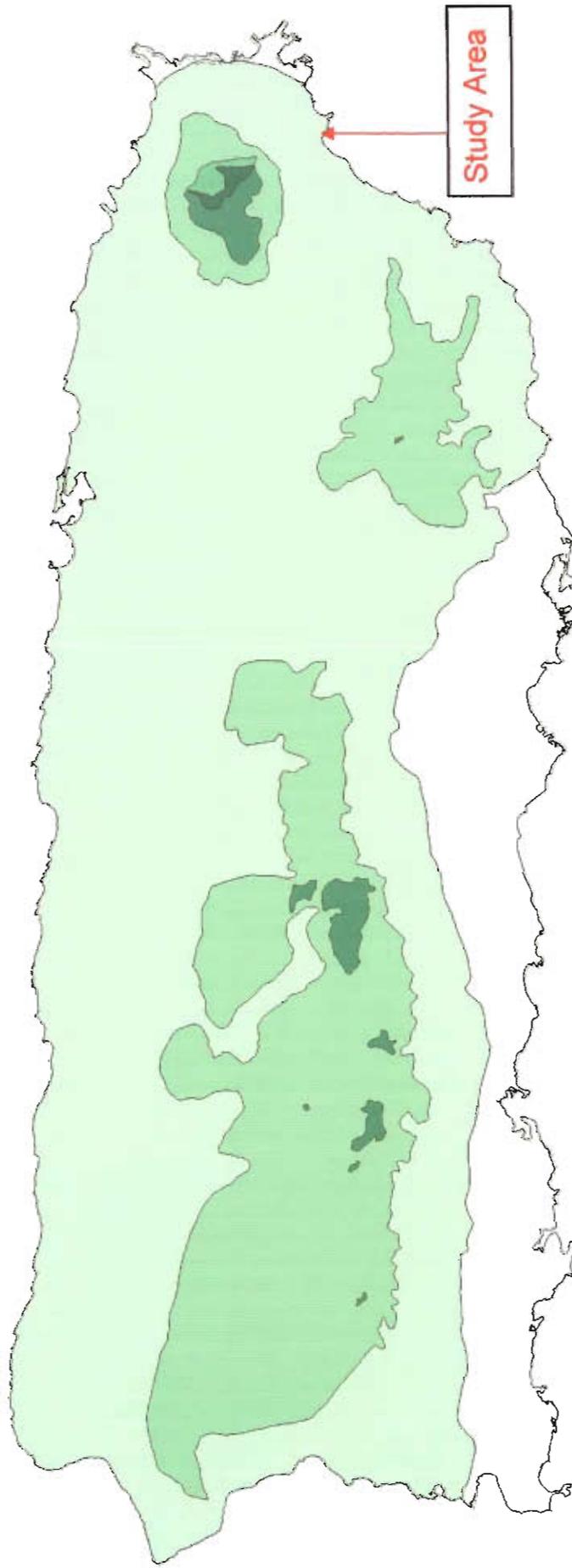
FIGURE 4. SOILS MAP

WETLAND JURISDICTIONAL DELIMITATION

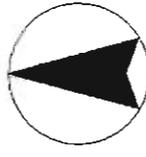
for a property located in a municipal road to Punta Lima at
Santiago y Lima Ward, Naguabo PR



Ecological Life Zones of Puerto Rico

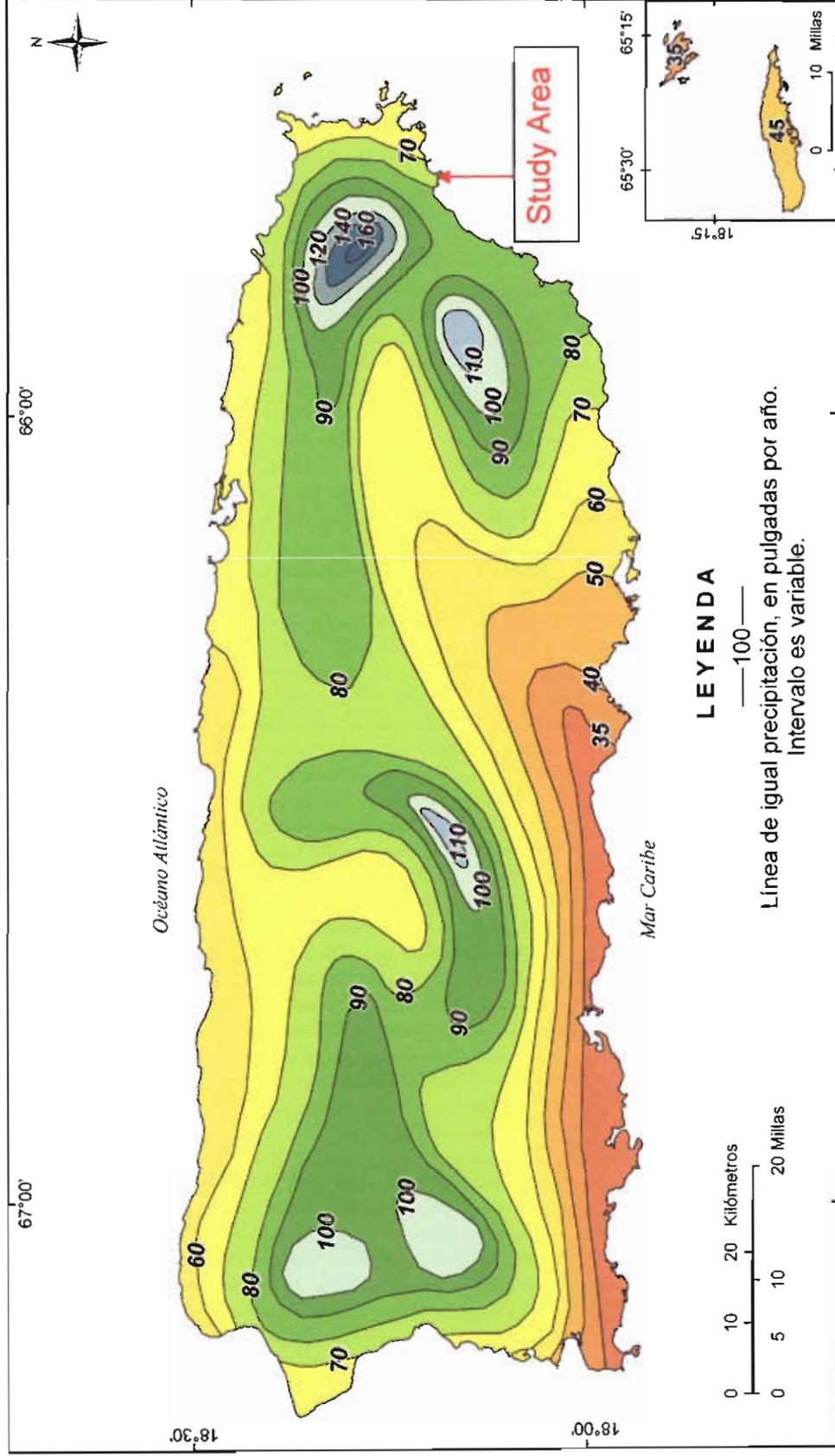


Holdridge	Subtropical Dry Forest	17.6 %
	Subtropical Moist Forest	58.4 %
	Subtropical Wet Forest	22.6 %
	Subtropical Rain Forest	0.1 %
	Lower Montane Wet Forest	1.2 %
	Lower Montane Rain Forest	0.1 %

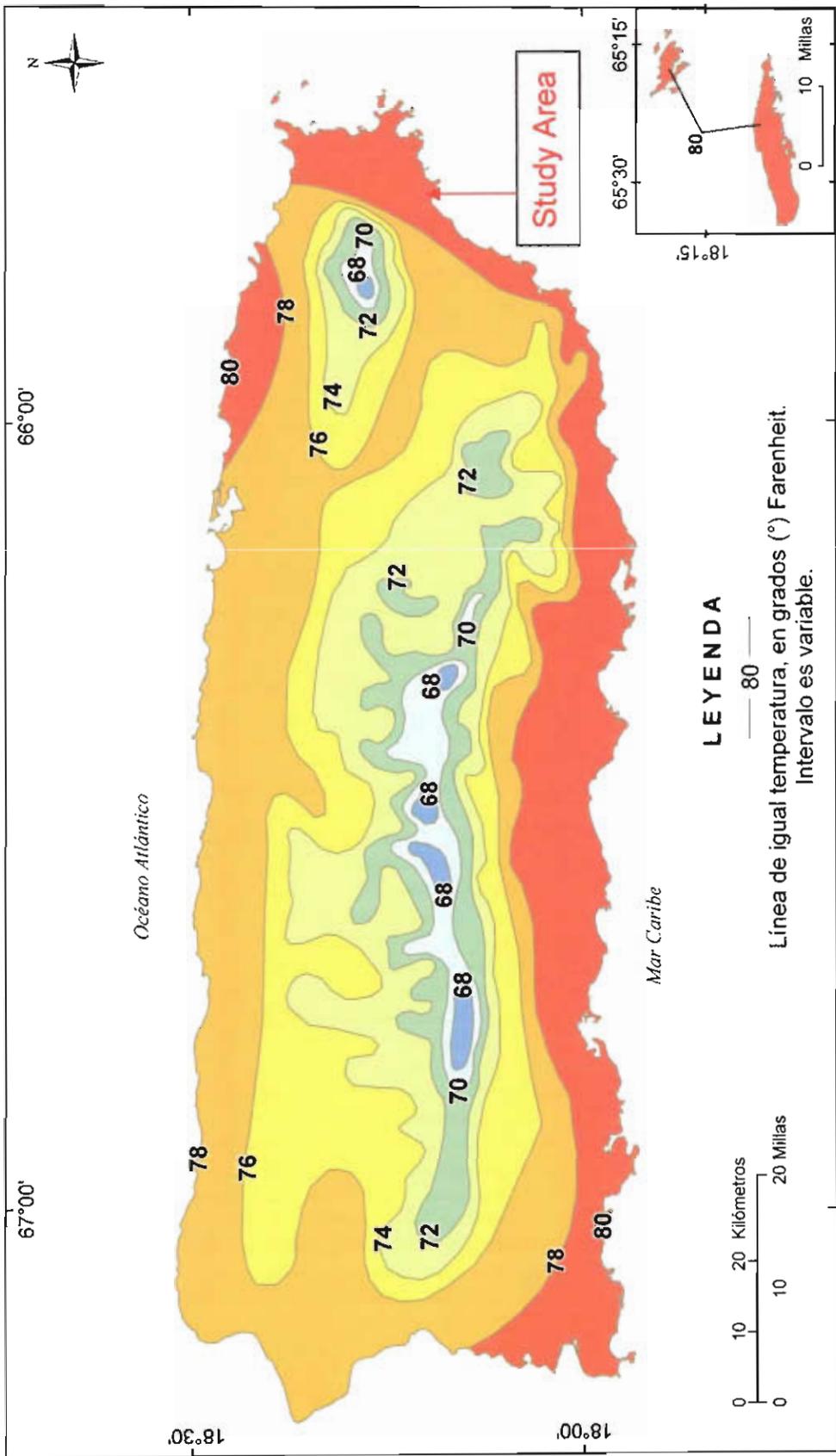


1:441177

US Department of Agriculture, (December 1973). The Ecological Life Zones of Puerto Rico and the US Virgin Islands. Forest Service Research Paper IT-48.



Source: Plan de Agua de Puerto Rico



Source: Plan de Agua de Puerto Rico

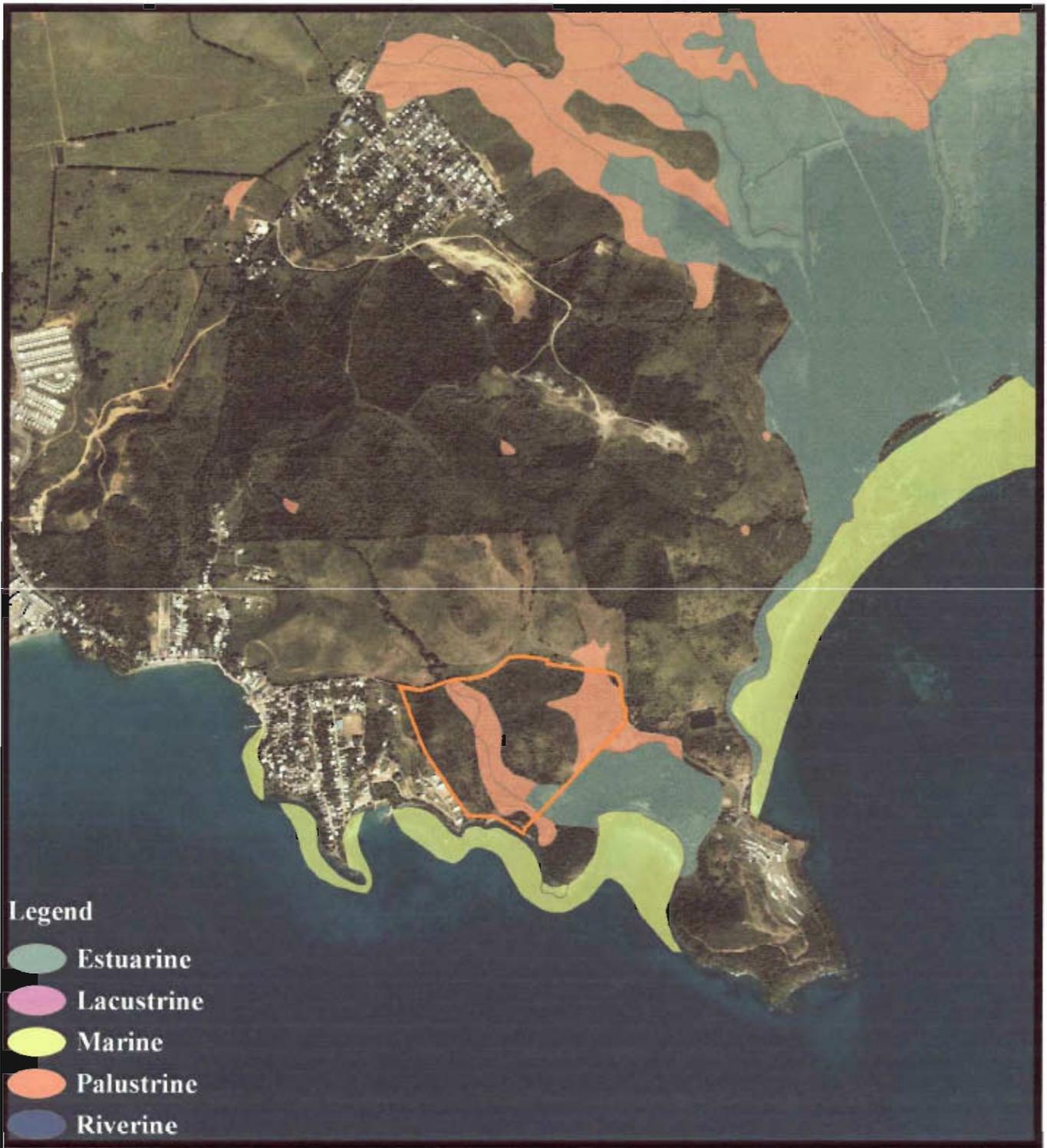


FIGURE 8. NATIONAL WETLAND INVENTORY

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at
Santiago y Lima Ward, Naguabo PR



Garcia Environmental Services, Inc.
1000 West 10th Street, Suite 100
Miami, FL 33136
Tel: (305) 859-1111
www.garciaenv.com

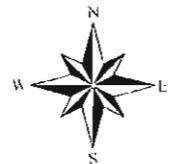
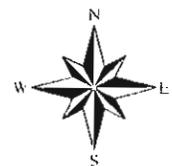




FIGURE 9. TRANSECT AND SAMPLING POINTS LOCATION AND PRELIMINARY WETLAND DELIMITATION

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at Santiago y Lima Ward, Naguabo PR



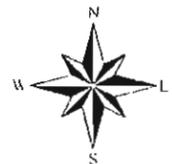
Garcia Environmental Services, Inc. 2011
 1000 W. 10th St., Suite 100
 San Juan, PR 00906
 Tel: (787) 754-1100 Fax: (787) 754-1101
 www.garciaenv.com



FIGURE 10. TRANSECT AND SAMPLING POINTS LOCATION AND PRELIMINARY WETLAND DELIMITATION

WETLAND JURISDICTIONAL DELIMITATION

for a property located in a municipal road to Punta Lima at Santiago y Lima Ward, Naguabo PR



DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>PR 701 km. 1.3 Aguirre Ward Salinas, PR</u>	Date: <u>October, 2007</u>
Applicant/Owner: <u>Federico Togni</u>	County: <u>Naguabo</u>
Investigator: <u>Yousev Garcia</u>	State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>1,1</u>
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Bursera purpurascens</u>	<u>> 50%</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Ipomoea setosa</u>	<u>≈ 10%</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Turkmenia</u>	<u>≈ 10%</u>	<u>NPL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>1</u> (in.)	
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): MaC2 (unli clay) Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations: _____

Confirm Mapped Type? Yes No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
1"-6"	A	10YR 3/1			clay
6"-14"	B	6YR 2 3/10Y			"

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Check)	(Check)
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>PR 701 km. 1.3 Aguirre Ward Salinas, PR</u>	Date: <u>October, 2007</u>
Applicant/Owner: <u>Federico Togni</u>	County: <u>Naguabo</u>
Investigator: <u>Yousev García</u>	State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>1.3</u>
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Larrea spec.</u>	<u>= 60%</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Turkey oak spec.</u>	<u>= 30%</u>	<u>WPL</u>	10. _____	_____	_____
3. <u>Baccharis papp.</u>	<u>= 10%</u>	<u>FACW</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>6</u> (in.)	
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): <u>Co (coloso)</u>		Drainage Class: _____
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
1-2	A	10YR 2/1			clay / some roots
2-6	B	10YR 3/2			" "
6-16	C	10YR 3/1 3/2	Syv 4/6	~ 50%	" " "

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Check)	(Check)
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>PR 701 km. 1.3 Aguirre Ward Salinas, PR</u>	Date: <u>October, 2007</u>
Applicant/Owner: <u>Federico Togni</u>	County: <u>Naguabo</u>
Investigator: <u>Yousev Garcia</u>	State: <u>Puerto Rico</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>1.3</u>
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juniperus sp.</u>	<u>> 80%</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Bursera</u>	<u>< 5%</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Lycium</u>	<u>< 2%</u>	<u>FACW</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: _____	



Observation Point 1



Sampling Point 1.1



Observation Point 2



Observation Point 3



Observation Point 4



Sampling Point 1.2



Sampling Point 1.3

February 18, 2008

Sindulfo Castillo, Chief
Department of the Army
Jacksonville District Corps of Engineers, Antilles Office
400 Fernandez Juncos Avenue
San Juan, Puerto Rico 00901-3299

Dear Mr. Castillo:

Jurisdictional Determination for a property located at Municipal Road to Punta Lima, Santiago y Lima Ward, Naguabo, Puerto Rico

We have retained the services of Environmental Consultant Mr. Yousev García to perform a Jurisdictional Determination on the above referenced property. He is hereby authorized to file said report with your office for approval.

Please also be advised that the Corps is authorized to enter the subject property, at your convenience to verify the JD findings.

If you have doubts about this matter, you can contact me at 787-837-3800.

Sincerely,

Federico Togni
Representative