

**Species Report  
In Response To A Request For Permission  
from  
The National Environment and Planning Agency (NEPA)  
for Vegetation Clearance for a Site Access Road  
for the  
Jamaica Broilers Proposed Ethanol Plant Site, Port Esquivel, St. Catherine**

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**On behalf of**

**Jamaica Broilers Group Ltd.  
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**September 12, 2006**

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## **1.0 Introduction**

The Jamaica Broilers Group Ltd. (JBG) proposes to construct and operate an Ethanol Dehydrating Plant at Port Esquivel in St. Catherine, on land purchased from, and adjacent to Windalco (Plate 1.0). The proposed plant is a 60 million gallon per year facility based on the molecular sieve technology, which is the safest and most efficient alcohol dehydrating process available today. ESL Management Solutions Ltd. (ESL) has been contracted by JBG to conduct the required professional environmental services in respect of the proposed development.

JBG applied to NEPA on March 31, 2006, for permission to prepare an access road to the site. NEPA, in their response dated September 7, 2006 and received by ESL on September 12, 2006 requested a Species Survey Report (Flora and Fauna), which covers the areas to be affected. NEPA requested that the report include the methodology used in conducting the survey and well as the coverage of vegetation.

This report, dated September 12, 2006 is in response to the request from NEPA. Responses to other requests from NEPA regarding the permission to clear the site have been submitted by ESL on May 1, 2006, August 30, 2006 and September 12, 2006, and communication regarding these are included as Appendix I of this report.

Plate 1.0      Aerial Photo of Site

## **2.0 Methodology**

### **2.1 Terrestrial Flora**

Detailed surveys of the flora of the proposed site for the Ethanol Dehydration Plant at Port Esquivel were conducted between August 17<sup>th</sup>, 21<sup>st</sup> and 22<sup>nd</sup> 2006. An initial site reconnaissance was made by members of the EIA team on March 17, 2006. During the surveys plants were identified and notes were made of the relative abundance of plant species. Specimens of unidentified plants were collected and taken to the University of the West Indies Herbarium for identification.

### **2.2 Terrestrial Fauna**

Surveys of the flora and selected faunal groups of the proposed site for the Ethanol Dehydration Plant at Port Esquivel were conducted between August 17<sup>th</sup>, 21<sup>st</sup> and 22<sup>nd</sup> 2006. Standard methodology for bird surveys using point counts in this type of assessment involves using a minimum of ten sampling points. Sample points would be distributed either on a regular grid if the area is largely homogenous or in a stratified random distribution if it includes several distinct habitat types. This site had several problems which created difficulties for application of either approach. Sampling points for bird surveys must be located a minimum of 200m apart (depending on vegetation type and species surveyed), in order to minimize the possibility of double-counting individual birds. This commonly occurs with species that are highly visible or vocal.

The average canopy height for the vegetation was less than three metres and the species composition of the wooded area was dominated by a few species. This meant that relatively few species would find the habitat suitable and highly detectable species such as flycatchers were detected across most of the site. The small size of the site meant that it was impossible to accommodate enough sample sites in each zone to provide sufficient data. Attempts were made to conduct six minute point counts at various locations across the site indicated that the same individual birds were being detected at several points and so this was abandoned.

All surveys were therefore conducted as walking transects in each zone. The road was used as the survey line through the thorn scrub zone. All bird and plant species were identified (or sampled for later identification) along the transect lines. The number of individuals of each bird species encountered was noted.

The site was also sampled on August 21<sup>st</sup> between sunset and 8:30 p.m. to determine which nocturnal species might be present on the site.

Observations of butterflies and other wildlife were also recorded. Unidentified butterflies were photographed for later identification.

### **3.0 Terrestrial Flora and Habitats**

In general the project site is highly disturbed and influenced by the activities occurring at the neighboring Port Esquivel. The site exhibited some natural zonation due mostly to the influence of the sea. The low canopy height and plant species diversity did not readily support a great diversity of other wildlife. The beach zone showed signs of significant disturbance but this may be related to recent hurricane activity although this damage was more obvious in the mature mangrove forest to the east of the site. The vegetation suggested that the site may have been cleared in the past and been re-colonised by many of the naturally occurring species along the beach but inland areas are dominated by a few introduced or pioneer species. The high soil salinity and air would have prevented many other invasive species from occupying the site although it had been cleared.

#### **3.1 Beach Zone**

The beach was populated by typical coastal pioneer species such as beach grass *Sporobolus virginicus*, Beach Pea (*Canavalia maritima*), Seaside Purslane (*Sesuvium portulacastrum*), Seaside Mahoe (*Thespesia populnea*) and Black Mangrove trees (*Avicennia germinans*).

There were some small pools in the vicinity of two pipelines near the eastern border of the site. These pools could have been part of an old drainage feature. They were surrounded by mangrove trees and showed evidence of being regularly flooded by incoming waves from the sea. There was a small salt pond located behind these pools that was separate from the extensive flats on the north of the site. Several sandpipers and other wading birds were seen on the beach but they were few in number. However the number and diversity of waders on the beach would be expected to increase in a September and October when neotropical migratory birds begin their fall migration to the area. The Yellow Warbler (*Dendroica petechia*) was common in the mangroves of this zone and its distinctive call could be heard from neighboring zones. Frigatebirds (*Fregata magnificens*) and Brown Pelicans (*Pelecanus occidentalis*) were also common along the beach but could often be seen from anywhere on the site.

### **3.2 Coastal Thorn Scrub**

The dominant plants in this zone are Cashaw (*Prosopis juliflora*) and Acacia (*Acacia tortuosa*) which are interspersed with coastal (salt tolerant) shrubs and herbs such as Crab Withe (*Alternanthera ficoidea*) and cacti (*Opuntia jamaicensis*). The vegetation here is very thick and could not easily be traversed except by the road, the canopy height was typically 2 – 2.5metres with the Cashaw trees being the tallest plant. The various species of cacti were all found in this zone mixed among the Cashaw and Acacia trees. The vegetation became less dense along the northern edge where there is a transition to the more open salina to the north.

There was a strip of cleared vegetation up to thirty metres wide along the eastern edge of this zone running next to the fence between the port and the housing area. This strip was recently cleared and was beginning to be regenerated by Cashaw and Acacia. The clearing of the thick vegetation provide space for many other herbs, shrubs, vines and grasses and this made it the best habitat for butterflies which mainly feed on the flowers of those shrubs and herbs. Some of the preferred flowers included Scorpionweed (*Heliotropium indicum*), Coralita (*Antigonon leptopus*) and Lantana (*Lantana camara*).

The Opuntia (*Opuntia jamaicensis*) and the Prickle Withe (*Hylocereus triangularis*) are endemic to Jamaica. The Prickle Withe is widespread and common in thickets, on rocks and on large old trees. The Opuntia is described as being very abundant locally in Manchester and St Catherine, forming pure stands near mangrove and logwood thickets and salinas in heavy silt alluvium near sea level (Adams 1972).

### 3.3 Salt Flats

The Salt Flats were mainly located to the north of the site. The only plant growing in that zone was the Jamaican Samphire (*Batis maritima*). There were many white butterflies in the area but they were mainly of a single species, the Cabbage Butterfly (*Ascia monuste eubotea*). They did not appear to be feeding on the Samphire but were swarming over the open area.

### 3.4 House and Gardens

The area within the chain link fence surrounding the houses includes gardens with fruiting and ornamental plants. The largest fruit tree was the mango tree and an Otaheite Apple tree (*Syzygium malaccense*). There were also a few Orange (*Citrus sinensis*) and Sweet Sop trees (*Annona squamosa*). There were several planted hedgerows along the fences within the property and along the perimeter fence. Most of the hedges within the perimeter were made of Privet (*Pithecellobium unguis-cati*) but other species such as the June Rose (*Lagerstroemia indica*) were sometimes planted in rows. The larger ornamental trees in this area included Poinciana (*Delonix regia*), Cassia trees (*Cassia fistula*), African Tulip (*Spathodea campanulata*), Yellow Poui (*Tabebuia rufescens*), Norfolk Island Pine (*Araucaria heterophylla*) and Coconuts (*Cocos nucifera*).

The smaller ornamentals included Oleander (*Nerium oleander*), Crotons (*Codiaeum variegatum*), Ixora (*Ixora coccinea*) and Bougainvillea (*Bougainvillea glabra*).

A full list of the species of flora is given in Appendix II.

## 4.0 Fauna

The fauna observed on the site included native, endemic and migrant bird species, butterflies, reptiles, amphibians and mammals. No bats were observed. A list of the species birds, including migrants, and butterflies present is given in Appendix III.

### 4.1 Bird Species

There were only thirty five bird species observed during the survey. Many of these species were detected from the neighboring wetlands to the east or along the beach. The Thorn Scrub which was the largest habitat type was the poorest in species diversity. The relatively low diversity is a reflection of the highly disturbed nature of the site. The dominant bird species was the Grey Kingbird (*Tyrannus dominicensis*) which could be seen or heard from almost any part of the site. This species is an austral migrant which comes to Jamaica in the summer to breed and returns to the south (northern South America) in the winter. They are particularly aggressive and vocal and frequent open perches atop the taller trees or utility poles and perimeter fencing of the housing area.

Several waterbird and seabird species were detected, mainly at the seaside or from the nearby wetland. These included Royal Terns (*Sterna maxima*), Spotted Sandpipers (*Actitis macularia*), Great Egrets (*Ardea alba*) and Green Herons (*Butorides virescens*). Although no threatened or rare bird species were detected on the site during these surveys several uncommon migratory species would be expected to be found there during migration since the site is located on the south coast where neotropical migrants often congregate in large numbers particularly during the southbound (fall) migration.

### 4.2 Endemic Bird Species

Only two of Jamaica's 28 extant endemic bird species were observed – the Jamaican Woodpecker (*Melanerpes radiolatus*) which was heard in the mangrove forests adjoining the site and the Jamaican (*Vireo modestus*). These are two of the most common and widespread endemics and unlike the majority of Jamaican endemics they are not dependent upon well developed forests and are adaptable to many types of disturbed habitats as long as there is sufficient tree cover.

### 4.3 Migrant Bird Species

Neotropical migratory birds account for nearly half the total number of bird species occurring in Jamaica. This survey was conducted during the summer months when all such species are on the northern breeding grounds. This means that there are several potential species which regularly occur on similar sites in Portland Bight and therefore would be expected to occur on the site that could not be surveyed. However there are a few migrants that come to Jamaica to breed in the summer months, the two most prevalent of these austral migrants is the Grey Kingbird (*Tyrannus dominicensis*) and the Black-whiskered vireo (*Vireo altiloquus*) both of which were common on the site.

The table of species includes the most likely migrants that may be expected to utilize the site (based on my knowledge of typical prevalence of these species in comparable habitat). Most likely species include American Redstart (*Setophaga ruticilla*), Prairie Warbler (*Dendroica discolor*) and Palm Warbler (*Dendroica palmarum*). The Northern Waterthrush (*Seiurus noveboracensis*) may be expected to occur in the mangroves especially along the banks of the Bowers Gully and the small ponds near the beach.

The beach area can be expected to be used by migratory shorebirds particularly because it is located on the south coast, is surrounded by wetland areas and it is relatively undisturbed. Several uncommon migrant species such as Whimbrel (*Numenius phaeopus*), Dunlin (*Calidris alpina*) and Short-billed Dowitcher (*Limnodromus griseus*) are occasionally observed on nearby beaches such as Old Harbour Bay and Goat Islands.

### 4.4 Nocturnal Birds

Surveys were conducted at dusk until 8:30 p.m. on August 21st. No owls or nighthawks were observed. The only night bird detected was a Black-crowned Night Heron (*Nycticorax nycticorax*) - seen flying over the wetland areas and the beach.

#### 4.5 Butterflies

Fifteen species of butterflies were observed on the site. Most were found in the strip of cleared vegetation next to the fence between the houses and the Port. The most common species was the Antillean Great White or Cabbage Butterfly (*Ascia monuste eubotea*) which was seen swarming over the open salt flats to the north of the site. The tiny Hanno Blue (*Hemiargus hanno ceraunus*) was also very abundant in the grasses along the cleared strip as well as around the houses. All the species identified were common and most were typical of disturbed open habitats. Only two endemic sub-species of butterfly were observed, they were the Jamaican Queen (*Danaus gilippus jamaicensis*) which is described as common in low lying habitats and is known from this locality (Brown and Heineman 1972) and the Jamaican Peacock (*Anartia jatrophae jamaicensis*) which is also common island wide.

#### 4.6 Reptiles

There were several anolis lizards seen mainly in the garden, these were the species *Anolis lineatopus*. Geckoes (croaking lizards) (*Aristelliger praesignis*) were heard calling again mainly in the gardens but both species should occur throughout the site.

American Crocodiles (*Crocodylus acutus*) were not observed during these surveys but are known to frequent the area and have been recorded on the beach during crocodile surveys (C-CAM unpublished data). The crocodile is a locally and globally threatened and protected species. The Bowers River and Bowers Gully to the west and east of the site respectively are important habitat for this species and the Rolling Bay beach which is no more than a few hundred metres away is regarded as one of the most important nesting sites for crocodiles in the Portland Bight Protected Area (D. Kelly<sup>1</sup> pers. comm.). Since the site can be expected to be visited by crocodiles it is important that adequate perimeter fencing be installed to prevent the animals from entering the property and becoming a danger to the workers or themselves. Additionally efforts should be made to inform the

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<sup>1</sup> Deon Kelly is currently pursuing a Masters degree at the University of the West Indies examining the status of crocodiles in Jamaica. The and C-CAM have been involved in Crocodile surveys in the Portland Bight area for several years.

management and workers of the appropriate procedures to take in the event that they encounter a crocodile on the site.

#### 4.7 Amphibians

The only frog seen or heard on the site was the introduced cane toad (*Buffo marinus*).

#### 4.8 Mammals

The only mammal observed on the site was the Small Indian Mongoose (*Herpestes javanicus*). It is likely that there were rats on the site especially since the Port is used to import grain and spilled grains can often be seen along the roadway however none were observed. No bats were observed in the night.

#### 5.0 Alignment for Access Road

The only means of access to the site is through the private road network of Windalco at Port Esquivel. The new plant will require an independent means of access and the proposal is to construct a road to the site from the existing private road to the Port. The proposed alignment is for the road to run along the existing eastern and northeastern perimeter fencing for the Port (Figure 5.0). This area traverses two habitat zones, the Salt Flats along the northern edge of the site and the Coastal Thorn Scrub. **However the actual proposed footprint of the roadway falls within the area of cleared vegetation described in the general description of the site.**

That area is cleared regularly as evidenced by the lack of mature trees or shrubs even though juvenile specimens were present. It is subject to periodic cutting as a part of maintenance and security for the Port facility. This zone is approximately 30m wide and is dominated by grasses and herbs (see last column of species list for indication of species in the cleared zone). Most of the *Prosopis* and *Acacia* trees that dominate the Cashaw Scrub are also present but are all immature or recovering. This zone had the highest diversity of butterflies while the Batis dominated Salt Flats had the largest number of individuals (by virtue of the swarm of Cabbage butterflies).

Figure 5.0: Map of Alignment for Access Road