Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

1. Name and address of the compiler of this form:

Tracy Commock, Director - Natural History Museum of Jamaica, 10-16 East Street, Kingston
Keron Campbell, Botanist – Natural History Museum of Jamaica, 10-16 East Street, Kingston

Ainsley Henry – Director, Applications Management Division
Monique Curtis - Environmental Officer, Ecosystems Management Branch
Shakira Azan - Environmental Officer, Ecosystems Management Branch
National Environment & Planning Agency
10 Caledonia Avenue
Kingston 5

Jerome Smith – Director, Environmental Management Division
Ministry of Water, Land, Environment and Climate Change
Half Way Tree Road
Kingston 5

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DD MM YY

Designation date | Site Reference Number

2. Date this sheet was completed/updated:

August 4, 2011

3. Country:

Jamaica

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Mason River Protected Area, Bird Sanctuary and Ramsar Site

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only)**:**
a) Designation of a new Ramsar site ☑; or
b) Updated information on an existing Ramsar site ❑

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ❑

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or

ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

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7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

Please send the official map of the site.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): ❑;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ☒;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ❑.

b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary is the same as an existing protected area and Game Sanctuary. The delineation used follows geopolitical boundaries (Parish boundaries), roadways and rivers. Starting at the bridge which crosses the Blue River on the Mason River - Douglas Castle main road; then going in a north-easterly direction along the Blue River which also coincides with the St. Ann - Clarendon Parish Boundary, to the point where a tributary meets with it; then in an easterly direction along the tributary to where the motorable track crosses it; then in a south- easterly direction along this motorable track to the junction with Mason River - McNie Main Road; then in a westerly direction along the centre line of the Mason River to McNie main road to the entrance to the Mason River Research Station; then south-westerly along the said main road for 1km to a point where it is intersected by a motorable track; then in a northerly direction to the starting point.

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8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

N 18^0 11’ 38”
W 77^0 15’ 46”

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9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The Mason River Protected Area and Bird Sanctuary (MRPA) is located in the central section of the island of Jamaica on the parish boundary between Clarendon and St. Ann. It is 4km away from the Town of Kellits, Clarendon which has a population of 2,423 (STATIN, 2001).

10. Elevation: (in metres: average and/or maximum & minimum)

Mean altitude of 670 metres

11. Area: (in hectares)

Inland Wetland – 82 hectares

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

In the hilly countryside of central Jamaica, is a flattish area with several surface depressions, ponds, and sinkholes that seasonally store surface water. The MRPA is found in this area at a mean altitude of 670m and is the highest wetland area in Jamaica. The original vegetation surrounding the MRPA was cleared decades ago for expanding agriculture, making the 'protected area' an ecological island of upland scrub savannah amidst a sea of cultivation surrounded in the distance by dry limestone hillsides. It has a peat bog, which perennially stores water below the surface. The site also has a network of trails roughly estimated to have a total length of 2.25km.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☑	☑	☑	☑	☐	☐	☐	☐	☐

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

JUSTIFICATION FOR RAMSAR CRITERION #1

Mason River is a representative and rare example of an inland wetland and contains an upland peat bog and scrub-savannah. The bog is unique to the area and rare in Jamaica. The bog is mainly a result of terrestrialization where *Sphagnum* moss spreads across the area that originally may have been a pond. The bog is accompanied by several other wetland types such as small ponds, marsh and a small stream. Some of these wetlands are seasonal and may be dry at the surface. The ponds form settlement areas as a result of the topography, which has numerous depressions. Small streams are all that remain of what was formerly referred to as the Blue River.

JUSTIFICATION FOR RAMSAR CRITERION #2

Several endemic plant species found within the MRPA are listed on the IUCN Red List (2011); for example, *Myrcia skeldingii*, which was originally described from this locality. This species has subsequently been listed as extinct, since the plant has not been collected or seen in several decades. Other endemic plants including *Bactris jamaicana* (Prickly Pole), *Calyptranthes nodosa, Cordia troyana* and *Hyeronima jamaicensis* are listed as vulnerable species. While *Coccoloba plumieri, Gymnanthes integra*, *Phyllanthus cladanthus* and *Psychotria dolichanta* are listed as lower risk/near threatened species. *Ouratea jamaicensis* which is also endemic is listed as a species that is lower risk/near vulnerable.

JUSTIFICATION FOR RAMSAR CRITERION #3

There are approximately 430 plant species found in the MRPA with 90% being indigenous and about 11% being endemic. Twenty-nine of the 93 genera found in the MRPA are represented by at least one endemic species. Endemic palms such as *Calyptronoma occidentalis* and *Roystonea altissima* are all found in the MRPA. The endemic orchid, *Habenaria purdiei*, which has not been seen for decades, is thought to have been discovered in the MRPA. The MRPA also contains more than 30 species of ferns, two of which are *Cyathea* species (commonly known as "Tree Ferns"), *Equisetum giganteum* (commonly known as "Giant Horsetail") and *Psilotum nudum* (commonly known as "Skeleton Fork Fern") which are all primitive plants. Several bromeliads are also present, some of which hosts faunal species within the pools of water accumulated in the bases of their leaves. These bromeliads not only supply water but act as discrete ecosystems where some faunal species spend their entire life cycle.

JUSTIFICATION FOR RAMSAR CRITERION #4

Mason River Protected has several species of the moss *Sphagnum* that are essential for the existence of the bog. Likewise is an important site for the endemic *Mellisuga minima* (Vervain Hummingbird), the migratory species *Oporomis agilis* (Connecticut Warbler) which prefers moist vegetated or wetland habitats (Davis, 2001) and three types of carnivorous plants as the native *Drosera capillaries* (Sundew), *Urticularia* spp. (Bladderworts), and the *Dionaea muscipula* (Venus Flytrap).

Jamaica has a managed shooting season for several species of birds. To facilitate the sustainability of this activity, the mechanisms for protection/conservation employed include the designation of sanctuaries. The MRPA is one such declared Game Sanctuary and is an important site for the *Columba leucocephala* (White-Crowned Pigeon), as it serves as a refuge from bird shooters.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Jamaica falls in the Neotropical Biogeographical Region

Terrestrial Ecoregion – World Wildlife Fund
Tropical and subtropical Moist Broadleaf Forests
Neotropical Greater Antillean Moist Forests

b) biogeographic regionalisation scheme (include reference citation):

http://wwf.panda.org/about_our_earth/ecoregions/greaterantillean_moist_forests.cfm

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc. Please complete the information regarding the physical features of the site, including hydrology, soil type, water quality, etc.

The topography of the site has been described as having a flattish, undulating surface with several peat filled depressions in which water collects and is stored (Proctor, 1970; White, 1991). The site, like the rest of Jamaica is subject to two rainy and two dry seasons. The depressions are therefore inundated seasonally along with other sections of the MRPA. There are also limestone features within the boundaries of the MRPA in the form of sinkholes. Water quality monitoring within the area yielded the following results: Biological Oxygen Demand (BOD) 8.1-31, Total Suspended Solids (TSS) 4-222, Total Dissolved Solids (TDS) 94-100, Faecal Coliform (FC) 79-1600, Nitrates (NO_3) 0.01-0.3, Phosphates (PO_4) 0.06-0.2 and pH 4.2-6.4. The BOD and FC exceeded the national standards and may be explained

by anthropogenic influences in the area. The pH value also exceeded the national standard but this is expected, since the chemistry of inland bogs tends to be acidic.

17. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type). Please complete the information regarding the physical features of the catchment area.

The soil types found at the MRPA are Deepdene Clay #98 (*Aquic Tropudults*), Boghole Clay #99 (*Umbric Palequults*), Morass Peat #152 (*Typic Tropohemists*) and Boghole Sandy Loam #199 (*Umbric palequults*) (Evans, 2005). These soils are fine and heavy except for those bordering the limestone sinkholes which are well drained. In general, the soils are acidic in nature. The catchment area, which refers to the majority of the MRPA, is undulating with depressions and gentle slopes throughout. The two rainy seasons with peak rainfall in May and September (Davis, 2003)

18. Hydrological values:
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The MRPA is located on the main ESE-WNW watershed in central Jamaica, which gives rise to north and south flowing rivers (White, 1991). To the north, the MRPA feeds into the Roaring River, Laughlands River and Rio Bueno along the north coast in St. Ann. All the wetland types present play an important ecological function in preventing downstream flooding by absorbing precipitation. There is little groundwater storage except for intermittent underground streams and ponds. The lack of groundwater results from a basement aquiclude underlying the MRPA. This aquiclude is a saturated geological unit that cannot transmit significant quantities of water under normal circumstances (Underground Water Authority, 1990 as reported by Davis, 2003). The *Sphagnum* moss also retains water and this adds to the importance of the ecosystem especially during the drier months.

19. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va • Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

U – N – Xf –Tp – Xp – Ts – W – Zk(b) – Y

20. General ecological features:
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Generally, the MRPA has been described as an induced upland scrub-savannah by Weck in 1970. The savannah was further differentiated into thirteen vegetative areas and is presented below:

- **Southwestern Melastome Scrub**

Average height of the dominant vegetation (melastomes) is about 18m (5ft). The predominant scrub is *Miconia albicans* with liberal amounts of *Clidemia strigillosa*, *Miconia laevigata*, and *Miconia attenuata* spaced about 0.3m (1ft) apart. Except for a few *Myrsine coriacea*, *Clethra occidentalis* and *Buchenavia capitata*, which are 2.4-3m (8-10ft) high, there are no forest trees and shading is moderate. *Andropogon bicornis*, *Lantana camara*, and *Pteridium aquilinum* comprise the 0.9m (3ft) layer of the scrub vegetation. The 0.3-0.9m (1-3ft) layer includes many melastome seedlings, grasses and sedges. Partly because the area is so small, the tree types are quite similar and the area stands alone as both a topographic, soil, and vegetation unit. The soil is dry with no humus and about 5cm litter. Surface soil consists of a brown, friable clay-loam grading into orange clay at about 25cm depth. The presence of ackee and guava trees indicates previous human habitation.

- **Southwestern Hill Vegetation**

Melastomes such as *Miconia albicans*, *Miconia attenuata*, *Miconia laevigata*, and *Clidemia strigillosa* are dominant as in the Southwestern Melastome Scrub, but are more widely spread at about 0.6-0.9m (2-3ft) from stem to stem. The hill has quite a number of forest trees: *Coccoloba swartzii*, *Eugenia axillaris, Eugenia wilsonella*, *Clethra occidentalis*, *Clusia rosea*, *Cyrilla racemiflora,* and *Lisianthius exertus*. The melastomaceous vegetation reaches a high of about 1.2m (4ft), while the scattered forest trees grow either as seedling, in clumps of 0.9-1.2m (3-4ft) high or singly to about 2.4m (8ft).

Although grasses, sedges, melastome seedlings and ferns are common, no one species stands out as being dominant in the 0.3-0.4m (1-1.5ft) layer. *Pteridum aquilinum* appears physiognomically dominant because it is widespread and 0.3-0.6m (1-2ft) higher than the other low vegetation. The steep topographic gradient on the hill may account for the very dry, grainy nature of the topsoil which is a brown clay-loam as in the Southwestern Melastome Scrub. Again, humus is lacking and litter is slight. Reddish clay is encountered at a depth of about 23cm (9in.). The hill is a fairly well-defined unit due to its topographic and floristic composition.

- **Pterdium Bog**

The bog is the most visible and defined region. The bog is basically 0.9-108m (3-6ft) with *Blechnum serrulatum* ferns growing in hummocks, which stand out of 0.3-1.2m (1-4ft) deep water. Scattered within the bog are a few 4.5m (15ft) tall *Clusia rosea* and *Henriettia ramiflora* trees with stilt roots. Towards the edges of the bog, drier species like *Miconia attenuata*, *Myrsine coriacea*, *Miconia dodecandra*, *Miconia laevigata* are common. Aside from some scattered *Lindseae portoricensis* ferns, no other herbs are present in the main part of the bog.

Soil within the water of the bog is soft, dark, red-brown organic mud. The hummocks are composed entirely of *Blechnum serrulatum* roots and dead organic matter, no mineral soil and are surprisingly dry. Soil near the edges of the bog is gray-brown, clay-loam underlain by gray marly clay at 10cm (4in.) and red clay at 0.3m (10in.). Although the bog is higher than any other area of the station, it forms a sink from the surrounding higher topography, perhaps partly accounting for its high water table.

- **Limestone Sinkholes**

The sinkholes are scattered throughout the south-eastern region of the station, each with different flora. The floras are similar, however, in that they are plants that flourish in well-drained rather than water-logged sites. The sinkholes vary in depth from about 1.5-3.6m (5-12ft) and are located over porous limestone rock. There seems to be one or more water outlets at the bottoms of these holes, where water draining from nearby disappears underground into cavernous areas.

Three of the sinkholes on the site supported several medium large trees or shrubs, a small grass or herb layer, and very few of the small shrubs. Two of the holes are considerably shaded; one hole has several clumps of *Bambusa vulgaris*, *Miconia prasina*, and *Cyathea parvula*. The other hole is dominated by several *Psidium guajava* (Guava), indicating previous habitation, with some small shrubs of *Clidemia hirta* and *Lantana camara* accompanied by *Impomoea tiliacea* and *Mikania micranatha* vines. At 9m (30ft) the third hole is too large to be shaded by the *Eugenia axillaris* trees surrounding it. This results in a greater number of

grasses and shrubs such as *Clidemia strigillosa* and *Miconia attenuata* growing in the hole. Soil on the sinkhole slopes is a dark, granular clay lam grading into plastic, yellow-brown clay with a small amount of litter and up to 1cm of humus. Near the drain holes, litter accumulation is 8-12cm (3-5m).

- **Small Southeastern Swamp**

This predominant vegetation of the swamp is sedge, growing hummocks which occupy a low but not very distinct area of the MRPA. The swamp is 100m long and 25m wide and generally contains standing water. *Rhychospora marisculus*, *Rhynchospora fascicularis*, and *Rhynchosa cyperoides* are common sedges growing about 0.5m (1.5ft) from water level. Common plant species 0.3m (1ft) and lower, included *Lycopodium cernuum*, *Gerardia albida*, *Centella asiatica*, *Nepsera aquatica*, and *Acisanthera quadrata*. The swamp is surrounded to the northwest by forest trees and large melastomes, some of which intrude into the edges of the swamp, whose boundaries are indefinite and vary with rainfall. East of the swamp, the land rises abruptly and gives way to a different vegetation type.

Hummocks and hollows understandably differ with respect to soil character. The hummocks contain soft, fine clay, which has been deposited between the roots and stems of the grasses and sedges. Hollows, on the other hand, contain a grayish clay loam, which grades into gray clay marl at about 10cm (4in.) and at 1.5-3.0dm (6-12in.) into orange-gray clay. The 5cm litter is composed of grass and sedges leaves and roots with some fermentation into humus taking place.

- **Low Melastome Scrub on Western Boundary**

Outside of the Pteridium Bog and the Small Southeastern Swamp, this is the wettest area on the station. The Low Melastome Scrub encompasses most of the topographically lowest part of the MRPA, extending to the pond and tributaries of the Mason River at the northwestern corner. The most common shrubs are the melastomes, *Miconia attenuata* and *Clidemia strigillosa*, both of which attain heights of approximately 0.9m (3ft). The common herbs are *Blechnum serrulatum*, *Centella asiatica* and *Lycopodium cernuum*. Scattered within the low limestone matrix is a higher melastome and shrub vegetation composed of *Miconia dodecandra*, *Vernonia acuminata*, *Eugenia axillaris* and *Miconia prasina*. These 1.8-3.0m (6-10ft) species range about 10-30m from stem to stem. Towards the north of the site, forest trees become more common. Trees and shrubs common in the transition region are *Cyrilla racemiflora*, *Coccoloba plumieri*, *Clethra occidentalis*, and *Myrsine coriacea*, which attain heights of 3.6-4.2m (12-14ft). The soils are generally dark clay loam grading into white clay at 15cm (6in.). Litter of about 2.5cm (1in.) is present but this is accompanied by very little humus.

- **South-central Thick Hill Melastome Scrub**

This area is adjoining the Low Melastome Scrub on the western boundary in the southern half of the MRPA. A thick melastome scrub grows along a rising topography to the low hills, which form a spine or ridge to the southern half of the site. The shrub density is attested by the highest stem count per unit area on the site. This vegetation gives way to a glade type as the lands drops on the eastern side of the site. Again, as in the Low Melastome Scrub on the western boundary, *Miconia attenuata* and *Clidemia strigillosa* predominate, but are taller than their counterparts in the Low Melastome Scrub on the western boundary.

As the topography rises, so does the frequency of *Miconia dodecandra* and *Miconia prasina*. The height of these latter melastomes is from 1.5-1.6m (5-12ft), averaging about 1.4m (7ft). At the highest elevation of this area, forest trees such as *Coccoloba swartzii*, *Myrsine coriacea*, and *Eugenia wilsonella* are common, but mostly as seedlings and small plants. Common herbs are the 1m *Pteridium aquilinum* (often dead), a 3-6dm (1-2ft) layer of *Panicum glutinosum* and a grand layer of *Coccocypelum herbaceum*. The presence of jackfruit, ginger, potato and pineapple indicates previous agricultural use of this area.

Soils are brown, sandy clay loams overlying sand, grayish clay and marl. The water table is at 0.3m (13in.) at discrete points within the site. Litter is up to 7.6cm (3in.) deep, with a slight fermentation layer underneath.

- **Eastern Glades**

This area, pock-marked with sinkholes, is generally dry, but has regions of standing water. It is quite open and sunny and favors many grasses and sedges which attain heights of 1.5m (5ft) such as *Scleria melaleuca*, *Panicum glutinosum*, *Scleria secans*, *Arundinella confinis* and *Andropogon bicornis*. Common herbs include *Blechnum serrulatum*, *Lycopodium cernuum* at 0.6m (2ft) and mats of *Centella asiatica*. Shrubs and trees such as *Miconia dodecandra*, *Clethra occidentalis*, *Clusia rosea*, *Coccoloba swartzii*, *Clidemia strigillosa* and *Miconia prasina* are scattered several meters apart from each other or grow in clumps. *Psidium guajava* is present in abundance in this area as well as in the sinkholes. In areas of standing water, the palm *Bactris jamaicana* and the tree fern *Cyathea parvula* are common. The palms are some of the highest trees on the site at approximately 10.5m (35ft). The other shrubs and trees vary from 1.5-4.5m (5.15ft). Loamy tan clay covers tough orange clay, which starts at about 0.2-0.3m (9in.) deep. Gray sand can also form the topsoil. The water table is usually 15-20cm (6-8in.) down. About 2.5cm (1in.) litter was found at the soil surface.

- **Groves**

Similar to the sinkholes in the south, the groves are discontinuous and scattered throughout the northern portions of the site. Unlike the sinkholes, however, the groves do not occupy a given topographic level on the site, ranging from the lowest to medium low regions. The groves vary in size from about 600m square to 3000m square, but are not in themselves discrete units, being a mosaic of groups of forest trees and more open scrub and grassy areas. Common upper species averaging about 4.5m (15ft) are *Bactris jamaicana*, *Eugenia axillaris*, *Eugenia wilsonella*, *Coccoloba swartzii*, *Coccoloba plumieri*, *Guettarda argentea*, varieties of *Randia aculeata*, *Myrsine coriacea*, *Clethra occidentalis*, *Hedysomum nutans*, *Cyathea parvula*, and *Cyrilla racemifolora*.

The common herb underneath the forest canopy was *Blechnum serrulatum* and *Thelypteris kunthei* ferns with mats of *Centella asiatica*. In the shadiest groves herbs as well as shrubs are scarce. Around the clumps of taller trees are 1.2-1.8m (4-6ft) shrubs of *Miconia dodecandra*, *Miconia albicans*, *Miconia laevigata*, and *Cordia brownie*. Many seedlings of the above melastomes occur in the herb layer in open areas around the groves along with myrtaceous seedlings of 0.3-0.6m (1-2ft) high. Other herbs include grasses such as *Panicum pilosum*, *Panicum glutinosum*, and *Andropogon bicornis*.

Despite the low topography, surface soil is dry. This may be due to the numerous, probably man-made drainage ditches running throughout the groves. Water table is fairly close to surface, about 15cm (6in.) below the drier surface soil. A dark clay loam overlies a white to orange clay. Litter varies from 1.5-2.5cm or more around tree stems. No humus was found.

- **Large Central Swamp**

This area is quite distinguishable since it was cultivated at the time as a dasheen field, which was not abandoned until 1962. The area is in a pocket of low topography between ridges to the south and north. The dominant vegetation is tall sedge and grass, primarily hummocks. Other common vegetation includes 1.8m (6ft) *Typha domingensis* plants, a 0.3-0.6m (1-2ft) layer of *Scleria melaleuca*, *Phaius tancarvilleae*, *Arundinella confinis*, and *Blechnum serrulatum* with mats of *Centella asiatica*. Small, trailing woody plants such as *Arthrostema fragile*, *Nepsera aquatica*, and *Desmodium canum*, growing 0.6-0.9m (2-3ft) long are scattered throughout the swamp as are 0.9-1.2m (3-6ft) shrubs of *Clidemia strigillosa*, *Cordia brownei*, and *Vernonia acuminata*. The shrubs average about 9m (30ft) from stem to stem *Myrsine coreacea* and *Chrysobalanus icaco*, the few forest trees of about 2.4m (8ft) in height, are even less common.

Standing water is usually found in the swamp but may dry up after a week of no precipitation. The soil remains moist, however, consisting of a gray clay loam over tough orange clay which starts 0.2-0.3m (6-12 in.) down. In one section of the site, marly clay was encountered below 10cm (4in.) of orange clay. Litter accumulation is 2.5-10cm (1-4in.) and some fermentation also occurs, perhaps due to the slow drainage from this area.

- **Northcentral Glades**

Between the pond on the west and the thicker vegetation on the hill to the east, lies a gently sloping area of mixed characteristics. It forms a matrix to the groves scattered within and its borders are, as a result, ill-defined. In the wet and low region to the west, sedges such as *Rhynchospora cyperoides* and tall grasses such as *Andropogon bicornis* and *Arundinella confinis* predominate. *Blechnum serrulatum*, *Lycopodium cernuum*, and *Centella asiatica* fill out the 0-0.3m (0-1ft) layer while *Clidemia strigillosa* and *Miconia attenuata* shrubs of 0.6-1.2m (2-4ft) are scattered irregularly at 2-10m from stem to stem. *Coccoloba swartzii* is the only forest tree in the glades and is rather rare. A gray-brown clay loam of 15-23cm (6-9in.) overlies tough gray or orange clay. Litter varies from 2.5-5cm (1-2in.) and is composed mostly of grass and sedge leaves from the hummocks. Some fermentation occurs in the hollows, but otherwise there is little humus.

- **Thick Melastomes of Northeastern Hill**

Occupying the highest hill of the site, this area exhibits a large number of woody stemmed melastomacious shrubs, primary of which are *Miconia albicans*, *Miconia attenuata*, *Clidemia strigillosa*, *Miconia prasina*, and some *Micona dodecandra*. All the shrubs are about 1.5m (5ft) high and very dense at 0.2-0.3m (0.5-1.0ft). Common plants of the 0.1-0.6m (1-2ft) layer are *Nephrolepsis exaltata*, *Panicum pilosum* and *Lycopidum cernuum*. *Coccocypselum herbaceum* and *Centella asiatica* comprise the ground layer with a few ginger and cassava plants as reminders of previous cultivation. Aside from a few *Myrsine coriacea* individuals, there is no forest. Despite the high topography, the water table was reached at 23cm (10in.) and has granular, loose, brown clay loam that grades into tough orange clay at 20cm (8in.). Litter is slight at 2.5cm (1in.) humus lacking.

- *Dicranopteris* **Fern Brake**

The areas covered by *Dicranopteris* sp. are like the groves, scattered throughout the site but are more defined. The fern seems almost of be superimposed over a pervious thick melastome scrub. While the fern is decidedly the dominant plant, other vegetation was observed creeping over the closed canopy that extended from 0.3-2.4m (1-8ft) high. The fern appears to grow over existing vegetation, eventually killing it through shading. Among the dying and enduring vegetation are *Miconia dodecandra*, *Miconia attenuata*, *Coccoloba plumieri*, *Clidemia strigillosa*, *Miconia prasina*, and *Clethra occidentalis*. A ground layer is understandably lacking due to excess shading. The dead fern leaves create a springy litter layer of about 0.3-0.5m (1-1.5ft) deep. Humus is again absent. Beneath the litter, a tan clay-loam grades into a tough orange clay at about 18cm (7 in.).

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS*.

The MRPA has several species of the moss *Sphagnum* that are essential for the existence of the bog and several species of plants and animals. The MRPA is also known for its flora which range from common to rare. Within this range, there are plants that are exotic, indigenous, endemic and even endangered. The MRPA is the only locality in Jamaica where four different types of carnivorous plants can be found in the same habitat. These plants include the native *Drosera capillaries* (Sundew), *Urticularia* spp. (Bladderworts), the introduced *Sarracenia* spp. (Pitcher Plants) and the *Dionaea muscipula* (Venus Flytrap).

Also of note is *Psidium cattleianum* (Strawberry Guava), which was introduced to the sire presumably to encourage birds but has now become quite aggressive, forming small stands through out the site. The efficacy of maintaining this species is to be evaluated as a part of the overall management plan when completed.

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22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare,

endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The MRPA has a range of faunal species such as mammals, birds, insects, crustaceans, amphibians and reptiles. The endemic *Mellisuga minima* (Vervain Hummingbird) is of special note because it is the second smallest bird in the word with a maximum size of 5cm (2in.) as well as the migratory Connecticut Warbler (investigations into the importance of the site as a critical habitat for this species needs to be undertaken). The regionally restricted *Monophyllus redmani* (Greater Antillean Long-tongued Bat) is also found at the MRPA where it is a pollinator of *Passiflora penduliflora* (Kay, 2001).
Herpestes javanicus (Small Indian Mongoose), which was introduced is a major threat to birds, snakes, lizards and other fauna. A mechanism to control this species is to be included in the management plan to be developed.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The Jamaica National Heritage Trust (JNHT) in 2002 declared the MRPA a Protected National Heritage Site under the JNHT Act of 1985 (http://www.jnht.com/download/declared_sites.pdf). The site currently acts as a resource for education for students within the area and throughout the island of Jamaica. Several scientific studies have also been carried out in the area which indicates its importance as an area of scientific interest. The site also acts as a catchment area from which water moves to the north and south which is used on occasion by the community as a source of water.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box ❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site: Government of Jamaica – Jamaica National Heritage Trust

b) in the surrounding area: Privately owned

25. Current land (including water) use:

a) within the Ramsar site: Scientific Research Station

b) in the surroundings/catchment: Agriculture such as sugarcane, yam, cabbage, pineapple, and other small cash crops.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site: Invasive species, illegal bird shooting, fires caused from ambers crossing the fire lane from neighbouring sugarcane farms, illegal removal of trees and encroachment.
b) in the surrounding area: Farming and deforestation

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:
In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The MRPA is entirely fenced and in 1998 was declared a Game Sanctuary under the Wild Life Protection Act of 1945, a Protected Area in 2002 under the Natural Resources Conservation Authority (NRCA) Act of 1991, and also a Protected National Heritage site in 2002 under the JNHT Act of 1985. The MRPA has since been managed as such and signage has been installed to enhance awareness.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ☑;Ib ❑; II ❑; III ❑; IV ☑; V ❑; VI ❑

The MRPA is not reported as a protected area on the website www.protectedplanet.net. However, based on the description of the IUCN (1994) protected area categories, the MRPA can be described as a "Strict Nature Reserve (Ia)" and "Habitat/Species Management Area (IV)".

c) Does an officially approved management plan exist; and is it being implemented?

Currently, an officially approved management plan does not exist; however, steps have been undertaken to prepare the plan.

d) Describe any other current management practices:

Over the past 40 years the Natural History Museum of Jamaica (formerly Natural History Division) has been actively addressing the practice of the removal of wooden fence posts and small trees for firewood, periodic fires, wandering livestock and illegal trespassing within the fully fenced MRPA (on which the museum's field station is also located). The inadequacy of funds has resulted in the repairs to the fence being occasional and not as thorough as is required. Regular patrols by the resident Forest Warden and Assistant are also conducted to identify and remedy issues surrounding trespassers, wandering livestock and fires. Additionally, fire lanes are also cut to enhance fire control and the trails are also maintained for accessibility throughout the site and to facilitate the tours.

28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

Invasive species removal and habitat restoration work is currently being planned for implementation at the site. Specific species that have already been identified for removal or intensive management are *Psidium cattleianum* and *Dicranopteris pectinata*. There is also a proposal for the expansion of the existing green house to facilitate the propagation of a range of species for reintroduction in some of the areas from which invasive species have been removed.

29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

There exists a field research station with three associated posts: a Forest Warden, an Assistant Forest Warden and an Auxiliary Worker. Presently, there is one main project to develop a field guide with descriptions, images and general information about the species found at the MRPA.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Presently the MRPA is one of the sites at which World Wetlands Day celebrations are held annually. Schools and community members are invited to the MRPA and tours, presentations, exhibits, games and other activities which help them to have a greater appreciation and understanding of the importance of the MRPA and the Ramsar Convention are conducted. Additionally, schools visit the MRPA throughout the year for tours and field assessments as part of their curriculum. The activities and programmes carried out at the MRPA are highlighted through the National Ramsar Committee (NRC) and are also included in the National Reporting mechanism to the Ramsar Convention.

31. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The site is open for local and overseas visitors for tours and research but currently, the majority of visitors are school children from schools in and around the community.

32. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Clarendon Parish Council is the local authority with jurisdiction. There is, however, some jurisdiction shared by the Ministry of Water, Land, Environment, and Climate Change and the Ministry of Youth and Culture.

33. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Institute of Jamaica
8-16 East Street
Kingston, Jamaica
Mrs. Tracy Commock
Director, Natural History Museum of Jamaica
tcommock@nhmj-ioj.org.jm
922-0621-6

Jamaica National Heritage Trust
79 Duke Street
Kingston, Jamaica
Mrs. Laleta Davis-Mattis
Executive Director
executive@jnht.com
922-1287-8
967-0960

National Environment and Planning Agency

10 Caledonia Avenue
Kingston 5, Jamaica
Mr. Peter Knight
Chief Executive Officer
Peter.Knight@nepa.gov.jm
754-7540

The area is currently the primary responsibility of the Institute of Jamaica. It should however be noted that in 2005, a draft co-management agreement has been prepared. The agencies (NEPA, JNHT and IOJ) have not yet formally implemented the agreement but it is still under consideration for eventual implementation.

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34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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