



# GREEN LEAF

## EPA Interfaces with Schools for World Wetlands Day

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Students participating in Web of Life Activity

World Wetlands Day was observed on February 2, under the theme: **“Wetlands, Biodiversity & Climate”**.

This theme supports 2010 being designated the International Year of Biodiversity (IYB) and being celebrated under the theme **“Biodiversity is Life –Biodiversity is our Life”**. IYB

focuses on celebrating life on earth and reflecting on the value of biodiversity to our existence.

Wetlands are known to be very rich ecosystems and this year the focus was on biodiversity loss in wetlands, the impacts of climate change on biodiversity and the implication of these impacts for us and the wider environment.

The EPA, being the regulatory

agency for environmental and Natural resources management in Guyana, has over the years sought to bring awareness of the value of Wetlands in observance of World Wetlands Day.

This year, the EPA collaborated with the Nature School at the Guyana Zoological Park through the National Parks Commission to conduct outreach with visiting schools.

This outreach activity was conducted during the period February 1-5, 2010 with Primary School Students (grades 5 & 6), drawn from schools out of Georgetown. The sessions were coordinated and held at the Nature School of the Guyana Zoological Park. The Zoo has an ongoing programme which seeks to educate Primary school students on basic concepts about biodiversity in an effort to foster attitudinal change at an early age.

The outreach was interactive and involved nearly 200 students. The sessions were conducted jointly by the Educator of the Guyana Zoo – Mr. Donald Gurnraj and Environmental Officers of the EPA. As

part of these sessions illustrations, videos and practical exercises were used to engage the audience.

The students were taught about Wetlands – the range of biodiversity that are present in wetlands, their importance and the threats they face. At the end of the sessions, students were able to identify simple things they can do to help protect wetlands.

In addition, the EPA prepared 25 information packages on wetlands education and these were distributed to the schools during the outreach activity as well as to the Wildlife Clubs of the North and South Rupununi.

Wetlands are very vulnerable to Climate Change. However, proper management of wetlands biodiversity and ecosystems can contribute to mitigating Climate Change impacts and help in adaptation.

### Editorial Note

2010 is International Year of Biodiversity (IYB) and is a year-long observance to showcase the values and benefits of biodiversity as well as highlighting the perils facing biodiversity globally.

Guyana is richly endowed with biological wealth by virtue of its high virgin forest cover. Added to this, is the high biodiversity supported by our many rivers, wetlands and our coast.

May 22nd is International Day of Biological Diversity (IDBD) and would be a highpoint in the global celebration of IYB. Here in Guyana, the Environmental Protection Agency is working with several partners to coordinate and scale-up activities in observance of the theme **“Biodiversity, development and poverty alleviation”**.

Everyone can be a part of IYB and IDBD 2010! Organisations, businesses, media, communities, religious groups and individuals - join in the effort to promote biodiversity – for development!!

## Environmental Awareness, the Focus at UG Open/Career Day

The Environmental Protection Agency actively participated in the recently held career Day hosted by the University of Guyana. The Agency, in support of the theme of the Fair “Study options and Career Choices for Youth Empowerment”, disseminated information and encouraged interpersonal discussions on career choices within the Agency. Maximum use was also made of the opportunity to spread awareness about the environment, Biodiversity and Climate Change.

The Career Fair, held on February 19, 2010, attracted a wide cross-section of students from schools and other institutions around the country. At this forum, they had opportunity to meet and interact with representatives from various Governmental and Non-Governmental Organisations which provided information



Students participating in Speed Drawing Activity

about their business and sought to offer guidance on employment opportunities. Career choices in various fields of study were also highlighted at the Open/Career Day.

The EPA provided a speed drawing activity which involved a number of students from various schools to foster interaction and interest in the work of the Agency. This activity allowed youth to express their understanding of an issue through

art and stimulate discussions with the Environmental Officers.

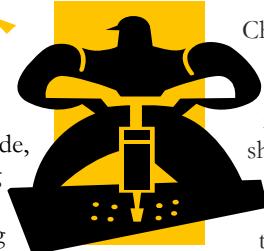
Brochures on the EPA, International Year of Biodiversity and Career opportunities in the EPA were distributed to students and to schools as part of packages prepared.

## Noise Management in Guyana

A walk around Georgetown often equals exposure to noise from numerous sources: buildings being constructed, music vendors plying their trade, friends conversing, buses tooting horns incessantly in a loud bid to attract passengers, sellers hawking their goods and the list goes on. In the Guyanese context, one can easily conclude that noise is everywhere - this is not a quiet place or by any stretch of the imagination a silent society.

The Environmental Protection (Noise Management) Regulations, 2000, defines noise as “unwanted sound which may cause or tend to cause an adverse psychological effect on human beings and includes vibration”. Prolonged and continuous exposure to noise may result in noise induced hearing loss, problems with speech communication, and psychosocial effects.

Gordana Ristovska and colleagues (2004) in their article Psychosocial Effects of Community Noise: Cross Sectional Study of School Children in Urban Center of Skopje, Macedonia, concluded that school children exposed to elevated noise level had significantly decreased attention, social adaptability and increased opposing behavior in comparison with school children who were not exposed to elevated noise levels.



Chronic exposure to noise, therefore, is associated with psychosocial effects in school children and should be taken as an important factor in assessing the psychological welfare of the children. Cognizant of

the impact of noise pollution on human health and the environment, the Environmental Protection (Noise Management) Regulations, 2000, was developed. The Environmental Protection Agency (EPA) is mandated by this piece of legislation to ensure that a framework for the management of noise is established, as well as to control noise emission in the environment. Further, the legislation enables the EPA to maintain the integrity of the environment.

Under the Environmental Protection (Noise Management) Regulations, 2000, persons hosting open air events that utilize “boom boxes” and operators of nightclubs, restaurants and bars, etc. are required to make an application to the EPA for a short-term or long-term Environmental Authorisation - Noise Permit.



The Environmental Protection (Noise Management) Regulations, 2000, specifies that permissible noise levels for various categories be set. In collaboration with the Guyana National Bureau

of Standards (GNBS) and other sector agencies, the EPA has revised the Guidelines for emission of Noise into the Environment. The Guideline sets out permissible limits which can be seen in the table below:

Categories	Daytime Limits in dB (A)	Nighttime Limits in dB (A)	
Residential	75	60	
Institutional	75	60	
Educational	75	60	
Industrial	100	80	
Commercial	80	65	
Construction	90	75	
Transportation	100	80	
Recreational	100	18:00 – 01:00h	100
		01:00 – 08:00h	70

The Guideline is currently available for public comment and can be accessed in its entirety at [www.gnbs.gov.gv](http://www.gnbs.gov.gv).

Noise is everyone's business, so visit the website and leave your comments. These Guidelines will be used by the EPA to enforce the Environmental Protection (Noise Management) Regulations, 2000.

Noise is definitely ingrained in our society but you can help to protect the environment and other citizens by doing your part to control noise pollution by employing sound technology, implementing good management practices and effective environmental tools to help protect Guyana's environment and the well-being of its people.

## Beekeeping Project for Upper Mazaruni Communities

Residents of the Upper Mazaruni are challenged with very limited options for income generation due to the remote location and difficult terrain area. As such, mining is one of the few livelihood activities available to community members.

In 2002 and 2007, projects were undertaken in the area to develop a local beekeeping industry as an alternative livelihood source. Although 100 hives were provided, 47 have either been lost to fire or abandoned by their colonies. This has severely affected honey production in the area.

A project proposal to expand the local honey industry was submitted under the KfW Small-Grants Component of the Guyana Protected Area System Project for consideration. The communities of Jawalla, Kako, Kamarang, Paruima and Waramadong, along with the satellite villages of Quebenang (Jawalla) and Warawatta (Kamarang) are involved in this Project.



The Project seeks to foster increased income generation from the sale of honey and beeswax products by providing communities with a further



200 hives, capacity building (through apicultural training for residents of the communities involved), and additional beekeeping equipment.

This intervention is expected to increase the area's yearly honey production to approximately 2,000 gallons. At current prices, this would generate G\$12M annually.

The total cost of the project is estimated at G\$13,525,100, with G\$12,425,100 being funded by KfW and \$1,100,000 contributed by the community.

The expansion of the beekeeping industry in the Upper Mazaruni will have far reaching positive environmental impacts. Aside from the important ecological role played by bees in pollination, the income generated will serve as a significant incentive for the conservation of forested areas, since these are the primary source of nectar. In so doing, the project will foster forest conservation on village lands and by extension, the larger Upper Mazaruni Eco-region.



## Interesting Mix of Activities for IDB and WED

The EPA has planned an interesting mix of activities for the observation of International Day of Biodiversity (IDB) and World Environment Day (WED) which will be observed in May and June, respectively.

For each of the observance, a month-long series of activities engaging a wide cross-section of the public will be held. These include Youth forum, Seminars, Exhibitions, panel discussions, feature articles, a photo competition, bird watching, a bike-a-ton and of course, the annual Green Walk.

Several stakeholders including Conservation International, Iwokrama, the School of Earth and Environmental Sciences, the National Parks Commission, the Centre for Biological Diversity, the Guyana Museum and the Guyana Post Office Corporation, among others, will collaborate to make the planned activities a reality.

Among the target groups identified to benefit from the planned activities are schools, tertiary level institutions and members of the public.

The EPA hopes to capitalise on the observance to raise environmental awareness, promote education on current environmental issues and instill sound environmental values among citizens.



**WED2010**  
WORLD ENVIRONMENT DAY . 5 JUNE  
MANY SPECIES ONE PLANET ONE FUTURE



# Guyana Working to Restore Mangroves

In the zone between high and low tide, where freshwater meets saltwater and the ground is neither liquid nor solid, mangroves grow. Mangrove forests are among the most productive and biologically complex ecosystems on Earth. Birds roost in the canopy, shellfish attach themselves to the roots and snakes and crocodiles come to hunt. In addition, mangroves provide nursery grounds for fish, a food source for tree-climbing crabs and a nectar source for bats and honeybees.

Despite their considerable importance, mangroves are under threat locally and worldwide. Mangrove forests are being destroyed and their sites converted to fish pens, rice paddies, salt-drying ponds, cattle pasture, tourist developments and human settlements. Mangrove wood makes good fuel and excellent charcoal, but over-harvesting has contributed to their demise. In addition, plants die from a thousand indirect causes: oil spills, chemical pollution, sediment overload and disruption of their sensitive water and salinity balance.

Increasingly, the important role mangrove forests play in the health of the planet is being realized. Climate Change which is a pressing issue at this time is strongly linked to mangrove forests, since mangroves contribute both to mitigation of sea level rise effects and to the abatement of global warming through carbon sequestration.

Mangroves form part of Guyana's forests, accounting for about 0.5% of the forested region, and play an exceptional role in sustaining biodiversity.

In light of the importance of mangrove ecosystems as natural insurance against climate change, a programme developed under the European Union's (EU) Global Climate Change Alliance Budget line linked to sustainable Coastal Zone Management, has been approved. Under this programme, the Government of Guyana may receive approximately €4,165 million over a three year period, primarily through a Sector Budget Support mechanism.

The overall objective of the EU programme, entitled "Sustainable Coastal Zone Protection through Mangrove Management", is to abate climate change (carbon sequestration through reforestation and forest preservation) and to mitigate the deleterious impacts/ effects *via* enhanced and

more sustainable systems of sea defense. The project will therefore include rehabilitation, protection and sustainable use of mangrove areas, their careful monitoring and the enforcement of revised forest legislation following a policy and legislation review. It will also include the formulation of a Code of Practice for mangrove management, a programme of mangrove research and perhaps most important of all, a programme of public awareness and education. The draft National Mangrove Management Plan, 2001, is also being updated and revised for final Cabinet approval. The Sector Policy Support Programmes (SPSP) will contribute towards the follow-

ing:

**Rehabilitation of mangrove fields:** A selection of sites will be identified for rehabilitation. This includes extension and protection of existing forests (maximum mangrove cover) and sites which have high value for sea defence but are more difficult to rehabilitate and which will require some hard structures for protection. Seedlings can either be obtained from existing mangrove stands or from nurseries.

**Mangrove monitoring:** GIS Mapping of mangroves, in order to accurately establish current mangrove sites (in collaboration with the MRV exercise for REDD+).

**Input to Forest Plan:** Mangroves will be fully considered in the new draft of the Forest Plan. The quality and effectiveness of regulations protecting mangroves will be reviewed.

**Public awareness and community involvement:** Participation of populations living close to mangrove forests is important both for protection and for mangrove monitoring. As far as possible, community involvement will be encouraged.

The National Agricultural Research Institute (NARI) has been identified as the implementing Agency for this Project, while a Mangrove Action Committee has been constituted of the various stakeholder agencies involved in mangrove management to oversee the implementation of the Project.



Mangrove Swamp

# Kids Corner



Water can be found in everywhere. Every living thing needs water to survive. Although 97% of the Earth is water, only 1% is fit for drinking. The remainder is either salt water or is frozen as glaciers or ice caps.

Clear water is not always clean water. Waste water from our homes and industries is required to be treated before it is released into the environment. If waste water is untreated before discharge, it can pollute other water sources causing illnesses and harm to the environment.

Approximately, 450 million people today are faced with water shortage, nonetheless people in many parts of the world are wasting and polluting this precious gift from nature.

An average person requires 80 liters of water per day for health and hygiene. Water companies are draining rivers to cope with the demand for water. If we take action to conserve our water, we can save money and the environment as well.



All parts of the body contain some water. Here are some of the more "watery" parts.



**Lungs: 90%** water



**Blood: 82%**



**Skin: 80%**



**Muscle: 75%**



**Brain: 70%**



**Bones: 22%**

## Water Conservation Tips

**Turn the Tap off while you brush your teeth**



**Fix Leaking pipes**



### HOW DOES IT WORK?

Water is denser than oil. The two liquids never mix. So when the water moves, it pushes the oil around, making shapes like waves.



### YOU WILL NEED

- Clear jar with lid
- Water
- Blue food coloring
- Glitter
- Baby oil
- Plastic floating toys

1. Fill the jar halfway with water.
2. Add drops of food coloring until you like the color you see. Shake in a little glitter.
3. Pour in baby oil until the jar is three-quarters full.
4. Place a floating toy on top of the oil, then screw on the lid tightly.
5. Shake the jar gently to set your ocean in motion.

**Spread the message of water conservation**



**Collect Rain Water**



**Turn pipes off when not in use**



**Fill a bucket when washing the car rather than keep the hose running**



## Environmental Authorisations

The Environmental Management Division (EMD) grants Environmental Authorisation for various projects submitted to the Agency. This is done after a site visit is conducted to assess the potential or current environmental impact of the project. Large projects are usually required to submit an Environmental Impact Assessment (EIA) or Environmental Management Plan (EMP). Noise permits for various events and operations are also granted by the Agency.

For the period January - February, several Authorisations were granted for various projects.

Thirty-three (33) applications were received. Twenty-three (23) were for new projects, three (3) were for existing projects, six (6) were for renewal of environmental authorisations and one (1) was for the variance of an environmental authorisation.

None of the projects for which Environmental Authorisation were sought during this period was required to conduct an Environmental

Impact Assessment (EIA).

No Environmental Impact Assessments (EIA) or Environmental Management Plans were submitted during this period.

Twenty (20) applications for Noise Permits were received during this time.

The Division conducted twenty-three (23) site visits for new projects and eleven (11) verification visits for existing projects/operations. Compliance/renewal audits were also conducted for four (4) operations that were issued with Environmental Authorisations.

The Agency granted twelve (12) Environmental Authorisations during the period under review. Seven (7) Environmental Permits and one (1) Construction Permit were granted for new projects, three (3) Operation Permits were granted for existing projects, and one (1) Letter of Authorisation was granted for a project that did not require an Environmental Authorisation.

## Berbice Students More Water Wise

Over three hundred (300) students benefited from interactive sessions which took the form of a presentation emphasizing the importance of access to clean water and promoted basic water conservation actions that could be practiced by individuals during the EPA's awareness drive for World Water Day this year.

For the observation, a week-long series of outreach was successfully conducted at four (4) Secondary Schools and twelve (12) Primary Schools along the West Coast of Berbice. Officers of the Education, Information and Training Division of the EPA, facilitated the outreach session to enhance awareness of World Water Day.



Students from Belladrum Secondary, Fort Wellington Secondary and No. 29 Primary (respectively) participating in World Water Day Outreach



This year WWD was observed under the theme 'Clean Water for a

Healthy World. This highlights the fact that millions of people around the world do not have access to good quality drinking water and the consequences this could have on the health of people and communities. The World Health Organisation (WHO) estimates that approximately 1.2 billion people die every year due to lack of access to good quality drinking water.

The Guyana Water Incorporated (GWI) as the lead supplier of drinking water in Guyana, organised activities in observance of World Water Day. GWI successfully executed a week-long programme which included workshops targeting five (5) Primary Schools around George-



town. The EPA actively contributed to the informational activities at these workshops.

In view of the importance of water to the world, a decision was made to observe World Water Day annually on March 22 internationally. This decision was made at the United Nations Conference on Environment and Development, held in 1992 in Rio de Janeiro, Brazil. World Water Day has since been celebrated annually under various themes, each highlighting an issue of concern about the state of water in our world today.

## Biodiversity in Focus at this Year's Wildlife Festival

This year's Wildlife Festival was a unique mix of cultural, educational and social activities revolving around the theme "Biodiversity: Our Best Security". This not only served to convey the importance of biodiversity but also highlighted the fact that the peoples of the Rupununi rely on the rich biodiversity of their environment for their traditional and healthy lifestyle.

The Wildlife Festival is perhaps the largest assemble of people of the North Rupununi and other interest groups coming together for the sharing of ideas for development and progress in an atmosphere of mutual respect and solidarity. This is achieved through art, poetry, prose, an interesting blend of traditional activities including cotton spinning, basket weaving, archery, fire lighting, cassava grating, sports and discussions on topical social issues such as water pollution and conservation efforts, child abuse and peer pressure.

The Wildlife Festival is a three-day affair and was again a great success this year with approximately 250 youths participating. The majority of participants were drawn from the wildlife clubs of the North Rupununi and this year, four visiting clubs – three from the South Rupununi and an environmental club from Georgetown participated for the first time.

Planning for the Festival began in February when representatives from each Wildlife Club of North Rupununi met to report on the recent club activities. The EPA was integrally involved in this session and now enjoys a stronger relationship both with the Clubs of the North Rupununi as well as with Iwokrama, the coordinator of the Festival. This relationship has led to greater interaction with the Wildlife Clubs of the North Rupununi and has resulted in an increased focus on environmental issues both by the Clubs and within the communities they operate. This year, one of the great achievements was the conferring of Certificates of Affiliation to seventeen (17) Wildlife Clubs. The EPA is optimistic of greater collaboration and being able to make a more dynamic contribution in environmental issues to the hard to reach communities of the Rupununi region through the Clubs functioning in these areas.



Surama Wildlife Club members displaying their winning Banner



Cotton spinning, archery and cassava grating were some of the competitions at the Festival



One of the costumes displayed at this year's festival

At this year's festival, Officers from the EPA were involved in organizing and running activities and also served as judges for the best banner and best costume competitions. A formal presentation which highlighted water pollution and conservation was also done.

The North Rupununi Wildlife Clubs have always been recognised as some of the most active clubs to be affiliated with the Environmental Clubs of Guyana. They show a strong commitment to community-based conservation and awareness efforts. During the opening ceremony, this was highlighted during brief remarks given by Environmental Officer Sean Mendonca of the EPA. The continued passion of the wildlife clubs in the North Rupununi is a clear indication that young people are very much concerned about the environment and are making a difference today with the hope of ensuring a brighter future for the coming generations.

# Wildlife Spotlight

## Did you know?

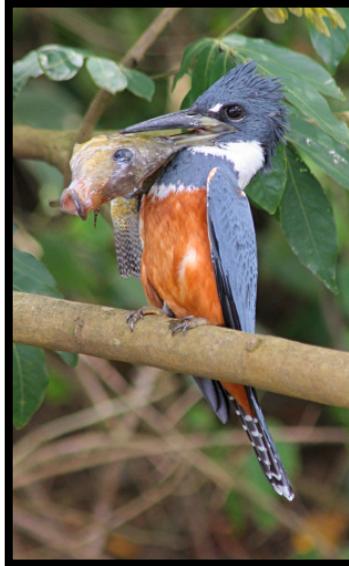
The Ringed Kingfisher (*Megaceryle torquata*) is one of six (6) kingfisher species that can be found in Guyana. They belong to the Order Coraciiformes which also includes hornbills and bee-eaters. Kingfishers in general are known to be characteristically 'chunky' bodied with short legs and long dagger-like bills.

The Ringed Kingfisher can be described as a large and rather noisy species with a loud rattling call during flight. They can be found commonly along rivers and other waterways throughout the year. They usually remain perched silently on branches of over-hanging trees along waterways waiting for a possible meal – primarily fish.

Ringed Kingfishers are approximately 40 cm long, with deep blue or bluish-gray plumage with white markings and a distinctive shaggy crest. They have a broad white collar around the neck. The bird's most distinguishing characteristic is the entire rufous belly, which also covers the entire breast of the male. In nature, most male species are known to be more attractive than females. However, this is not the case with the ringed kingfisher where reverse sexual dimorphism is observed. Females are more colourful than the male and have a bluish-gray breast and a narrow white stripe separating the breast from the belly.

Kingfishers are solitary for most of the year except during the mating season. At this time, a male and female kingfisher will build their nest in a horizontal tunnel made in a river bank or sand bank where the female lays 3 to 6 eggs. Both parents will work together to excavate the tunnel, incubate the eggs and feed the young during this period.

The Ringed Kingfisher relies heavily on waterways – rivers, creeks and canals within its home range for food. We can therefore assume that water pollution resulting in migration or death of fish can have severe consequences for the ringed kingfisher population.



## THE GREEN LEAF

The Green Leaf is published quarterly by the Environmental Protection Agency, Guyana.

This publication is intended to promote awareness of the work of the Environmental Protection Agency.

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## Get involved for the Environment:

Participate in our Activities in observance of International Day for Biological Diversity (May 22, 2010) & World Environment Day (June 5, 2010)

Join our Annual Green Walk on May 30, 2010.

Contact us for more information!

### About Our Logo...

Our logo is the Passion Fruit leaf. Yellow Passion Fruit (*Passiflora edulis flavicarpa*) is native to the Amazon.

The passion fruit plant produces beautiful flowers and sweet – tart fruit. It was named by the Spanish missionaries in South America.

Passion Fruit is widely grown throughout the tropics and subtropics. The leaves are used in traditional medicine to settle edgy nerves. They are also used for colic, diarrhea, dysentery and insomnia.

