



GREEN LEAF

WED Highlights the Importance of Biodiversity

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Guyana joined countries around the world to celebrate World Environment Day (WED) under the theme: **“Many Species. One Planet. One Future”**. This theme echoes an urgent call to conserve and protect the diversity of life on our planet and in so doing supports the theme for International Year for Biodiversity: ‘Biodiversity is life. Biodiversity is our Life’.

Scientists have estimated that there are between 5 million to 100 million species present on Earth. Today, just about 2 million species have been identified. What we do know is that humans are among only a handful of species whose populations are growing exponentially, while most animals and plants are becoming endangered and worst - extinct.

Due to our approach to development over the years, man is greatly to blame for the decline in other species. We are destroying our Rainfor-



ests during timber harvesting and have drained half of the world’s wetlands to create space for urban development; depleted three quarters of all fish stocks due to over-harvesting, and have emitted thousands of tons of greenhouse gases which has caused an ‘enhanced’ greenhouse effect and ultimately led to the global challenge of Climate Change.

Climate Change.

WED is celebrated on June 5 every year to raise awareness on global threats to the environment. It also provides the opportunity for us to consider carefully the impacts of our actions –both

individually and collectively, on the environment and equip us with the knowledge that is needed to live more environmentally sustainable lives.



Green Walk proceeding along Church Street

The Environmental Protection Agency (EPA) co-ordinated two (2) major events that served to sensitize the public about WED this year.

Green Walk - Georgetown

On May 30, the early morning heavy rainfalls did not daunt the spirits of the large gathering in front of the Umana Yana for EPA’s Annual Green Walk. This year proved a great success with representation from several governmental agencies, non-governmental agencies and environmental clubs such as the Ministry of Amerindian Affairs, Ministry of Tourism, School of Earth and Environmental Sciences, Marian Academy Environmental Club, Graham’s Hall Green Ambassadors Environmental Club, Emerald Environmental Club, Climate Change Unit - Office of the President, Guyana Geology and Mines Commission, Iwokrama, Banks DIH Ltd. and the Guyana Police Force.

Editorial Note

2010 is a year-long celebration of biological diversity and its value for life on Earth. Humans as part of this biodiversity, have the power to protect or destroy it. Currently, our activities are causing the loss of biodiversity at alarming rates. There is a critical need, therefore, to prevent the destruction we are currently wreaking, take measures to safeguard biodiversity and focus on the urgent challenges ahead.

The United Nations Convention on Biological Diversity (UNCBD) sets the overall goals, policies and general obligations and organizes technical and financial cooperation. As a signatory to the Convention, Guyana is working continuously to fulfill its obligations. A *National Strategy for the Conservation and Sustainable Use of Guyana’s Biodiversity* which laid the basis for the development of the *National Biodiversity Action Plan (NBAP)* has been developed. The implementation of a Protected Areas System, fund-raising, strengthening legal frameworks, public awareness and education on biodiversity issues are also being undertaken.

Our economic development is heavily dependent on the country’s biological resources. Conservation and sustainable utilisation are important not only for the present but also for future generations.

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In a short ceremony in the Botanical Gardens, the Honourable Prime Minister Samuel Hinds addressed participants, commending their efforts in observing WED during Guyana Environment Week and implored all Guyanese to adapt more environmentally friendly practices.

Concluding the programme, trophies were awarded for Best Banner, Largest Contingent, Uniformity and Best Chant. The School of Earth & Environmental Sciences (SEES) walked away with 1st places for all categories except for Largest Contingent which was copped by the Ministry of Tourism.

Ride for the Environment - Linden

In an effort to extend the reach of awareness for environmental issues, a 'Ride for the Environment' was for the very first time coordinated in the town of Linden, Region 10. On the morning of Sunday, June 6, residents of Linden and representatives from the EPA converged at the Amelia's Ward Bus Shed with their bicycles to undertake a ride of approximately 9 kilometers, to focus attention on the environment and provoke thought on actions required for a safe and healthy environment.

The 'Ride', which attracted a substantial number of enthusiasts, lasted for approximately 45 minutes and ended at the Christianburg Community Centre. At the short ceremony following the Ride, Sharifah Razack, Director of the Education, Information and Training Division, emphasised the importance of World Environment Day celebrations in raising awareness on biodiversity and its link to our development. Participants were encouraged to take positive actions for the protection of biodiversity and the general environment.

Trophies for Largest Contingent and Most Uniformed were awarded to the Linden Bauxite Flyers and Central Mackenzie Scout Group respectively. The youngest male and female and the oldest male and female participants in the 'Ride' were also awarded.

The Ride for the Environment was a great success and the agency looks forward to greater participation next year!

Environmental Camp for Youth

The EPA's Annual Environmental Camp is currently being planned for July. The Camp will target youth from affiliated Environmental Clubs and intend to engage them in a programme focused greatly on biodiversity and Climate Change.

SEES displaying their winning Banner



Banks DIH & Marian Academy display their banners



Honourable Prime Minister presents award to Largest Contingent Winner



The Agency wishes to commend all organisations, youth groups and individuals that participated in the World Environment Day celebrations this year and encourages continued reflection and action on the theme for the remainder of the year. Remember – 'Biodiversity is Life. Biodiversity is our Life!'



Ride for the Environment in Linden



Officer presenting award to participant



Kanuku Mountains Protected Area Project

The Kanuku Mountains is one of the most ecologically diverse areas in Guyana. It is located in the heart of the Rupununi Savannas and provides habitat for a great percentage of endemic mammals and birds of Guyana, including many globally threatened species.

Conservation International – Guyana (CI-Guyana) in hopes of establishing the Kanuku Mountains as a protected area has been engaging stakeholders including neighbouring communities in discussion on the way forward towards making this area protected.



Photo Credit: Chuvika Harial

The proposed Kanuku Mountains Protected Area (KMPA) is one of two pilot study sites for the proposed Guyana Protected Areas System (GPAS). The GPAS aims to ensure effective protection and sustainable management of representative ecosystems of Guyana through a national system of protected areas which is self-sustained, transparent, decentralised and managed through partnerships.

It is anticipated that the establishment of the Kanuku Mountains as a protected area will ensure that the rights and traditions of the indigenous communities be respected, while maintaining a balance

between sustainable use and conservation, which will allow future generations to benefit from the resources of the Mountains.

The Macushi and Wapishana people live in or near the Kanuku Mountains. Although the impacts of their communities on biodiversity have been relatively low, there are several growing threats to biodiversity and to the integrity of the area. Notably the construction of the cross border Takutu Bridge to Brazil and improvement of the Lethem-Georgetown Road which runs near the Kanuku Mountains and through the Rupununi Savannas. The road has allowed increased access to natural resources, increased population growth in Lethem (the nearest town to the Kanukus), fires, over-harvesting of wildlife for sale in Brazil, and illegal wildlife trade.

A conservation management plan is an output of this project, for the collaborative management of the proposed Kanuku Mountain Protected Area by communities and Government while also supporting the strengthening of the institutional and administrative capacity of the Community Representative Group (CRG), the representative body of the 18 stakeholder communities in this process.

You can get Involved for a Better Environment

People all around the world have been tackling environmental education and awareness and making great strides in so doing. It is becoming clearer that local communities, schools, and youth groups are greatly concerned about the issues that affect our planet and have been taking positive actions. These actions of recent have been on the premise of acting locally but thinking globally.

You can join international efforts in the fight for the protection and conservation of our environment!

United Nation’s Billion Tree Campaign

This campaign was initiated in November 2006 in Kenya under the patronage of Nobel Peace Prize Laureate Professor Wangari Maathai and His Serene Highness Prince Albert II of Monaco. It has contributed significantly to the desire for global action in the combat against climate change.

Last year’s objective was to meet the goal of seven billion trees – one for every person on our planet. This goal was met on September 21, 2009 with a total of 7.3 billion trees planted in 167 countries around the world.



The campaign has since continued and today has recorded over 10 billion trees planted. Learn more about this campaign and make your contribution in the global effort of combating climate change. Visit the website: <http://www.unep.org/billiontreecampaign>.

Clean Up the World 2010

“Clean Up the World inspires and empowers communities to clean up, fix up and conserve their environment. Now in its 18th year, Clean Up the World, held in conjunction with United Nations Environment Programme (UNEP), mobilises an estimated 35 million volunteers from 120 countries annually making it one of the largest community based environmental campaigns in the world. The campaign brings together businesses, community groups, schools, governments and individuals in a range of activities and programs that positively improve local environments.”

Clean Up the World activities include clean up events, recycling projects, educational campaigns, resource recovery projects, water reuse and conservation, competitions and exhibitions. The campaign’s flagship event is **Clean Up the World Weekend, 17-19 September 2010**. Visit their website to register and for online resources.



Biodiversity Research Application Process

Many people are not aware that in order to do biodiversity research in Guyana, a Permit is required from the Environmental Protection Agency.

The process of acquiring a Research Permit begins with the submission of the full project proposal outlining a detailed budget and Curriculum Vitae (CV) of all members of the research team. In addition, an Application Form has to be completed and submitted along with a processing fee (US\$75.00).

These are to be submitted to the Agency three months prior to the commencement of the research activities.

After all required documents have been submitted, the Agency would

conduct a screening process. The applications would then be submitted to the National Biodiversity Committee (NBC) for review.

If approval has been granted, the researcher is notified and the Permit is issued upon payment of the permit fee.

The Application Form for Biodiversity Research, the Guidelines for the Review of Biodiversity Research Applications, the Permit Fees Structure for Biodiversity Research and Bio-prospecting, and other relevant documents pertaining to Biodiversity Research can be found on the EPA's website at:

<http://www.epaguyana.org>

The Biodiversity Rap

You can spread the message on the importance of biodiversity with your family and peers with this Biodiversity Rap. Have fun rapping for the environment!!

Biodiversity is really cool!

We learned about it today in school.

The **ecosystem** – that's where it's at.

And where organisms live, that's their **habitat**.

Now to have an ecosystem that is so fine,
you gotta have variety down the line.

You need lots of animals. And plants, too.

Usually more is better than just a few.

To keep **biodiversity** in days to come,



we can't keep the animals on the run.

But if I do my part and you do yours,
we can **ALL** protect the great outdoors.

Swamps and wetlands and tall cool forests,
can use our help, and I'm all for it.

'Cause if habitats are there for lots of critters,
they'll be there for me, and that's all the better.

So now that you've heard my diversity song,

I hope on the next round that you'll sing along.

So teach it to others, and our feet we'll all tap,

as **EVERYONE** does the **Biodiversity Rap!**



Upcoming Activities

The Annual Environmental Camp for youth during July 19 - 22 is the first on the list of activities for the next quarter of the year! The programme for the camp will be developed around this year's WED theme "Many Species. One Planet. One Future". Biodiversity being the hot topic, activities will be focused on threats to and ways of sustainably utilising our biodiversity.

In August, the Guyana Geology and Mines Commission will be having its annual Guyana Mining Exhibition. This year's celebration will be under the theme "Mining our Resources, Minding our Future". The exhibition will be a three days affair to be held at the Girl's Guide Pavilion from 15:00hrs to 20:00hrs.



International Day for Ozone Protection is celebrated annually on September 16. The EPA intends to conduct presentations at schools and distribute information packages.

Every year on September 18, many countries participate in International Coastal Clean up. This activity is usually observed in Georgetown, however, in 2009 the EPA co-ordinated cleanup activities with a few school-based environmental clubs and community groups along the Essequibo, Demerara and Berbice Coasts for the first time. It is the hope this year to have more communities in these areas participate to make this activity a greater success.



Kids Corner

Decorate a Compost Bin



What you'll need:

- 3-5 gallon plastic storage bin with lid
- Craft paint in bright colors
- Foam alphabet stamps (letters C, O, M, P, S, T)
- Foam leaf stamps
- Clear acrylic sealer spray
- Heavy-duty knife or power drill

How to make it:

1. Have an adult cut the following holes into the storage bin: A series of holes, about a centimeter wide and three centimeters apart, along both edges of the bin. On the bottom of the bin, cut a hole one centimeter wide and three centimeters long in two opposite corners. The compost bin will need ventilation in order to let air and moisture circulate.
2. Place plastic bin on its side and use the craft paint to create designs. Use bright colors to create simple flowers, stems, leaves and grass.
3. Use your pointer finger to dot on insects with bright colors, using the end of a paint brush, dot white on either side of the finger print to make their wings.
4. To decorate the lid, paint each foam stamp with a good amount of paint, and press carefully but firmly onto the lid surface. Continue with each letter until you have spelled out "COMPOST". (**Tip:** if you don't have foam stamps, you can just paint the word on the lid).
5. Paint leaf stamps with green paint and decorate the lid around the word "compost".
6. Allow all the paint to dry.
7. In a well-ventilated area (preferably outdoors), spray all painted surfaces with acrylic sealer spray. Let dry. Repeat this process for a total of three times. This will help protect your painted surface from the outside elements.
8. Make your starter compost and place outside. If you are placing the bin on the platform, you may want to use an extra lid cover as a drip pan.

Making Compost

Line your bin with a few inches of clean potting soil. You can also add dry leaves to the soil, as they are full of nutrients. Sand and small pieces of black and white newspaper will work as well.

There are many items that can be added to your bin and just as many that should be avoided. Kitchen wastes such as vegetable and fruit scraps (potato and carrot peeling, banana peels, etc.) are a great addition to your compost bin. These items will add moisture so you will also need dry matter to keep the moisture level from getting too high.

Avoid meat, dairy, fish, or bones--they decompose very slowly and the smell they create will attract animals. Also, no glossy magazine paper or materials from the side of the street (they might contain chemicals or other debris).

Dry matter can include dry leaves, straw (not hay), grass clippings, and even sawdust from untreated wood.

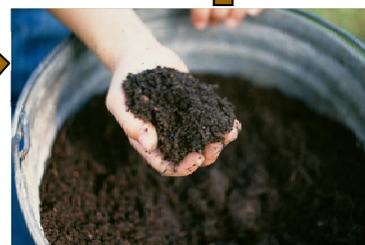
Add a layer of moist matter covered by a layer of dry matter. Turn and mix (aerate) your compost bin contents every 4-5 days. If you feel heat coming from the mixture, you know that your bin is working properly.

Add some water to the compost to keep it moist. This helps with the decomposition process but **do not** over-water it.

It takes about 4-6 months for your compost to be completely decomposed. When the compost is finished it smells earthy, heat no longer comes from the compost, it looks like dark soil and is crumbly, you can no longer identify the food items.

Uses:

- Compost can be added directly to kitchen gardens or flower beds/pots.
- Mound the compost around the base of plants it helps to retain moisture at the plant roots.



Environmental Authorisations

For the period March-May, 2010, a total of fifty-one (51) applications were received by the Environmental Protection Agency.

Twenty-five (25) of the applications were for new projects, eight (8) were for existing projects, twelve (12) were for renewal of Environmental Authorisations, five (5) were for the transfer of Environmental Authorisations and one (1) was for the variance of an Environmental Authorisations.

None of the projects that applied for Environmental Authorisation during this period were required to conduct an Environmental Impact Assessment (EIA) or prepare an Environmental Management Plan (EMP). However, two revised EIAs were submitted for review during this period for the following projects: Guyana Goldfield Inc. - Gold Mining Project (Aurora Gold Mine) located at Aurora, Cuyuni River and Romanex Guyana Exploration Ltd. - Alluvial Gold Mine located in South Rupununi.

Three (3) EMPs were also submitted for review during this period for the following projects: National Drainage and Irrigation Au-

thority - Construction of a drainage canal and support structure - Hope/Douchefour, East Coast Demerara; BLT Enterprise - Fertilizer Storage and Blending Facility - Area K, Providence, East Bank Berbice; and Comfort Sleep – Foam Manufacturing – Eccles Industrial Estate, Eccles, East Bank Demerara.

Forty-one (41) applications for Noise Permits were received for this period.

The Division conducted twenty-two (22) site visits for new projects and seventeen (17) verification visits for existing projects/operations. Compliance/renewal audits were also conducted for fourteen (14) operations that were issued with Environmental Authorisations.

The Agency granted seventeen (17) Environmental Authorisations during this period - ten (10) Environmental Permits, two (2) Construction Permits to new projects and five (5) Operation Permits to existing projects.

Water Pollution: Where Does it Come From?

Water is a resource that has numerous uses including recreational, transportation, commercial, agricultural, domestic, industrial, and hydroelectric power. Water also supports all forms of life and affects our health and lifestyle. It has been observed that millions of people worldwide are deprived of this vital resource. One factor affecting this situation is the real availability of water. Fresh water (drinking water) represents only 2.75 percent of the water on Earth, about two-thirds of it is frozen in glaciers, a quarter exists in the form of groundwater and only 0.005 percent of it is surface water available for human use. Moreover, this available fresh water is threatened not only by the increasing demand and poor management but also by *pollution*.

Water pollution is usually caused by human activities. Every community produces waste as a result of daily processes. This waste can be liquid, solid, or it can take the form of air emissions. The liquid waste (wastewater) is essentially the water supply of the community after it has been used in a variety of applications. Wastewater may be defined as a combination of the liquid or water-carried wastes removed from residences, institutions, and commercial and industrial establishments. An effluent is the liquid discharged from a processing step. When these effluents are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds, water pollution occurs.

Effluents can be generally classified as domestic and industrial. Domestic effluents consist of wastewater discharged from residences

and from commercial, institutional, and similar facilities. Its constitution, no matter the source, is similar because the use given to the water supply does not vary much from house to house or within the various institutions. Meanwhile, Industrial effluents consist of wastewater in which industrial wastes predominate; these wastes vary significantly depending on the type of industry from which they are derived. Also, within the same type of industry, effluents may vary in constitution depending on the size, process and technology of each establishment.



In an effort to prevent and control water pollution, the EPA, under the Environmental Protection Act, 1996, developed the Environmental Protection (Water Quality) Regulations, 2000. This Regulation empowers the EPA to specify the allowed maximum discharge limits of specific substances. In this way, domestic and industrial wastewater has to undergo treatment in order to

comply with discharge limits. Water pollution prevention is a large but necessary job that requires citizens co-operation. It is only when citizens demonstrate a compliant attitude towards the relevant environmental Laws and Regulations that pollution can be minimised and its effects mitigated.

EPA Collaborates for IDB

The year 2010 is designated the International Year of Biodiversity under the theme **“Biodiversity is Life – Biodiversity is our Life.”** This theme provides opportunity of celebrating life on earth and reflecting on the value of biodiversity to our existence.

International Day of Biological Diversity was celebrated this year, under the theme: **“Biodiversity for Development and Poverty Alleviation”**. The Environmental Protection Agency together with Stakeholders co-ordinated a variety of activities in observance of this day.

Media Programmes

A Panel Discussion on the “Human - Biodiversity Connection” was broadcast on national television. A message on Biodiversity was delivered by the Honourable Prime Minister Samuel Hinds.

An appearance was made on Viewpoint by Mr Shyam Nokta, Chairperson, National Climate Unit. The focus was Biodiversity and Climate Change.

There was a News Feature on NCN 11 and Weekly Articles were submitted to the Guyana Times and the Guyana Chronicle.

Exhibitions

Exhibitions were coordinated at the National Museum which showcased flora and fauna, the Guyana Post Office Corporation showcased stamps portraying flora and fauna, the National Library displayed a collection of books, pictures, and posters on flora and fauna, and the National Parks Commission/Guyana Zoological Parks which exhibited wildlife.

Seminars

A Seminar was co-ordinated by the Cyril Potter of Education for students of that institution. In addition, four (4) Seminars/film series were held at the Walter Roth Museum of Anthropology for members of the public under the topics: The Ru-

pununi – Rediscovering a Lost World, Managing Biodiversity – Who is Responsible?, Integrated Conservation and Development, and Conservation and use of Biodiversity for Food and Agriculture.

Youth Forum

A Youth Forum on Biodiversity was organised for students of Grade 10 on May 20, 2010, at the GNS Sports Complex.

Forty eight (48) students and ten (10) teachers from ten (10) schools (Christianburg Wismar Secondary School, Mackenzie High School, President’s College, St. Rose’s High School, Bishops High School, St. Joseph High School, Queens College, Marian Academy, Cyril Potter College of Education and Guyana School of Agriculture) participated in this Forum. At the Forum,

Presentations were delivered on the topics: ‘Youths for Biodiversity Conservation’, ‘Biodiversity Works for the Good of All’, ‘Biodiversity in Peril’, ‘Biodiversity is my Country’s Future’, ‘Protected Areas System – What

is Conservation and How to Make it Work’ and ‘Humans Need Nature to Thrive’.

Butterfly Watching

This activity was co-ordinated by the Iwokrama International Centre for Rainforest Conservation and Development at the Guyana Zoological Park. Approximately ninety (90) students from three (3) schools in Georgetown – Mae’s Secondary, Christ Church and Tutorial High School benefited from the exercise.

Participating students pose with wildlife models after Forum



Participants recites the Biodiversity Pledge



CI - Guyana, Capacity Building and Communications Co-ordinator - Rene Edwards, highlights the importance of nature to human survival



Wildlife Spotlight

Did you know?

The Giant River Otter (*Pteronura brasiliensis*) (also known as the water dog) is the world's largest otter species at about 6 feet (2 m) long, weighting up to 34 kilograms.

They are found mainly in South America and live in rivers and creeks of the Amazon, Orinoco, La Plata and the Rupununi River systems. Slow-moving freshwater rivers and creeks within forests, swamps, and marshes are preferred by the otters. They inhabit areas of up to 12 Km² (which are regularly patrolled and marked), and prefer waterways with gently sloping banks and good cover, that are seasonally flooded.

Their fur is uniformly chocolate brown with the exception of large creamy white patches on the underside of their long necks. Each individual's patch is unique like a fingerprint. Their water-repellent fur keep them dry and warm. They have webbed feet, nostrils and ears that close in the water. They spend most of their time in the water and swim by propelling themselves with their powerful wing-like tails and flexing their long bodies.

They den by burrowing into banks or under fallen logs, and establish a home territory that they will aggressively defend. Giant river otters are social, typically forming groups of 4-9 individuals (though congregations of up to 20 individuals have been observed), and include monogamous parents and the offspring from several breeding seasons.

The Giant Otter is active during daylight hours. They hunt alone or in groups, sometimes using co-ordinated efforts. Each animal may eat 6 to 9 pounds (3-4 kilograms) of food per day. Fish make up most of their diet but is supplemented by crustaceans, snakes, small caimans and other river creatures. Prey are often held on the chest and eaten in the water, or may be dragged to a bank. They have been known to use rocks to crack open shells when feeding.

Females come ashore to give birth. They retreat to their underground dens and deliver litters of 1 - 6 young. Young otters remain in the den for a month but grow up quickly. After nine or ten months, it is difficult to tell mother from child. Cubs are reared in a central den area (1.2-1.8 meters wide) which connects to an adjacent waterway via a tunnel or series of tunnels. They reach maturity at about 2 years old. Adults live approximately 14 years.

It is the noisiest otter species and nine distinct vocalisations have been documented that indicate alarm, aggressiveness, recognition, excitement and reassurance.

Habitat degradation and loss is the greatest current threat. They have no serious natural predators other than humans. Decades of poaching for its velvety pelt, peaking in the 1950s and 1960s, hugely diminished population numbers. The species was listed as endangered in 1999 and population estimates are typically below 5,000 in the wild. The Guianas are the last real stronghold for the species. It is the most endangered mammal in the neo-tropics.



THE GREEN LEAF

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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.

