THE GREEN LEAF

Did you know?

The scarlet ibis (Eudocimus ruber) is a South American wading bird that belongs to the same order as herons, spoonbills, and storks. It is known as a gregarious bird, living, traveling, and breeding in flocks. In flight, ibises form diagonal lines or v-formations. This formation decreases wind resistance for trailing birds. When the leader of the pack tires, it falls to the back of the formation and another ibis takes its place at the front.

The scarlet ibis is a shorebird and is most noted for its vibrant red coloration, which it derives from its diet of shrimp and other crustaceans and are known to stay their bills back and forth in shallow water to capture prey. Scarlet ibises forage for food by probing their long, curved bills into soft mud. Both males and females exhibit the same coloration ranging from pink to bright red with black tipped feathers on the wing tips. The red coloration intensifies as the bird grows older, but young scarlet ibises are dull in comparison, with grey-brown upper parts and white underbellies. Both sexes are alike with long spindly legs, partially webbed feet, a long and slender neck, a short stubby tail, and a long downward curving bill which is longer and thicker on the male. Adults are 56–63 cm long and weigh 650 g (males slightly larger than females) and their wingspan is usually around 38 inches.

Scarlet ibises reproduce by laying eggs. They reach sexual maturity at two (2) years of age. Males are polygamous (females mate with one mate for the year) and display of precopulatory, preening, flight, head rubbing, and a rocking motion to attract a mate and are rather quiet birds, only grunting or croaking on breeding grounds. They congregate in colonies of several hundred at breeding time, nesting on dense brushes and mangrove-covered islands and shore areas near river mouths. Nests are round and made of loosely packed twigs usually located in treetops overlooking water. A clutch consists of 3–5 dull, brown-streaked eggs. Incubation lasts between 19 and 23 days. Both parents incubate, care for, and protect the young which fledge (develop flight feathers) after 35 days and are independent in 75 days. The life span of the scarlet ibis is approximately 15 years in the wild and 20 years in captivity. Habitat destruction, poaching, and insecticide use such as DDT have all caused the decline of several ibis species. These birds are not only scavengers, seen around rubbish dumps or sewers, but they also roost in trees and lagoons, shallows, bays, marshes, mudflats, and mangrove groves.

Habitat destruction, poaching, and insecticide use such as DDT have all caused the decline of several ibis species. These birds are not only scavengers, seen around rubbish dumps or sewers, but they also roost in trees and lagoons, shallows, bays, marshes, mudflats, and mangrove groves.

WILDLIFE SPOTLIGHT

The Green Leaf

THE GREEN LEAF is published quarterly by the Environmental Protection Agency, Guyana. This publication is intended to promote awareness on the work of the Environmental Protection Agency.

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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 a 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.

SHARING EARTH’S LIVING TREASURES

The Environmental Protection Agency (EPA) organized a number of activities to mark the International Day for Biological Diversity (IDBD), 2011. Observed annually around the world on 22 May, the day brings focus to a particular biodiversity issue each year. This year the focus and theme was “Forest Biodiversity: Earth’s Living Treasures”.

The year’s observations began with a Biodiversity Youth Forum at the J.C. Chandidsingh Secondary School, Rose Hall, Corentyne. Grade 10 students from seven (7) Secondary Schools in the Corentyne area participated in the Forum.

Exciting films were also featured . The videos were followed by interactive sessions for students to express their understanding of conservation through the arts, e.g. poems, songs, skits, and painting.

Books, activity booklets, leaflets and replicas of forest animals were also on display in the lobby of the National Library. Members of the public were able to view these materials and to obtain copies of a few.

Students interacting with EPA staff at exhibition

A panel discussion on the international theme was also broadcast on television. Panelists were: Mrs. Mahado–Singh, Guyana Forestry Commission, Mr. Damian Fernandes, EPA and Mr. Calvin Bernard of the Centre for Study of Biological Diversity.

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Two Documentaries. Amazon Alive: Forests of the Future and Natural Wonders of the Caribbean: Rainforests and Mangroves were shown at six secondary schools in Georgetown. These films highlighted the importance of forest biodiversity and threats facing them. Conservation approaches and methods to protect forest biodiversity were also featured. The videos were followed by interactive sessions where students expressed their understanding of conservation through the arts, e.g. poems, songs, skits, and painting.

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Although it is the national bird of Trinidad, the scarlet ibis is native to the tropical regions of northern South America from Venezuela to eastern Brazil, Guyana and coastal islands. They inhabit fresh and salt water estuaries, swamps, lagoons, shallows, bays, marshes, mudflats, and mangrove groves.

The scarlet ibis is a shorebird and is most noted for its vibrant red coloration, which it derives from its diet of shrimp and other crustaceans and are known to stay their bills back and forth in shallow water to capture prey. Scarlet ibises forage for food by probing their long, curved bills into soft mud. Both males and females exhibit the same coloration ranging from pink to bright red with black tipped feathers on the wing tips. The red coloration intensifies as the bird grows older, but young scarlet ibises are dull in comparison, with grey-brown upper parts and white underbellies. Both sexes are alike with long spindly legs, partially webbed feet, a long and slender neck, a short stubby tail, and a long downward curving bill which is longer and thicker on the male. Adults are 56–63 cm long and weigh 650 g (males slightly larger than females) and their wingspan is usually around 38 inches.

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NATURE AT YOUR SERVICE— WED 2011

World Environment Day (WED) is an annual event which is perhaps the most widely celebrated global day for positive environmental action. WED activities take place throughout the year but climax on June 5, usually with much pomp and fanfare. This observance began in 1972 and has grown to become one of the main vehicles through which the United Nations (UN) stimulates worldwide awareness of the environment and encourages political attention and action.

Through WED, the UN Environment Programme (UNEP) is able to personalize environmental issues and enable everyone to realize not only their responsibility, but also their power to become agents for change in support of sustainable and equitable development. The theme for this year’s WED celebrations is “Forests: Nature at your Service” which coincides with the International Year of Forests and brings focus to the importance of our forest ecosystems and the services they provide.

WED, THE GUYANESE WAY!

As the Agency responsible for coordinating environmental awareness in Guyana, the EPA engages a cross section of the population in a number of activities. A Panel Discussion in which Dr. Patrick Chesney of the Guyana Shield Initiative and Mr. Khalawan of Forest Products Association of Guyana brought interesting but different perspectives on forests, was broadcasted on national television on Sunday, June 4.

The annual Green Walk, which attracted eight hundred and ninety five (895) participants this year, was an exciting mix of colours, creative depictions of the WED theme, and catchy choruses of chanted slogans as Guyanese from all walks of life walked through the streets of Georgetown to raise environmental awareness. The Walk this year coincided with the 15th anniversary of the EPA-Guyana.

This year, a new addition to the usual supporting contingents was the Youth Arm of Oliver Seven Day Adventists, whose exuberance and exaltation at copping three trophies—two first place and a second place, for Best Banner, Uniformity and Best Chant, respectively, was led to loud cheers and jumping for joy from members of that contingent. Other participants awarded trophies this year included Marian Academy Environmental Club (Largest Contingent) and Graham Hall Green Ambassadors (Best Chant).

Brief remarks were given at the end of the Walk by His Worship, Mayor of Georgetown, Hamilton Green, Mr. Navin Chanderpaul, (Speaker of the House) and Mr. Calvin Bernard, who recited an EPA Environmental Officer, Saudia Sadloo. A poem written by Colleena Piper of Christ Church Secondary School titled “Life as a Forest Tree” was recited by an EPA Environmental Officer, Saudia Sadloo.

The EPA initiates and undertakes continuous activities to ensure that the concept of environmental stewardship reaches across counties to all parts of Guyana. Having successfully achieved the set goals in this regard for the first quarter of the year, planning and coordination have already begun to guarantee a varied and participatory approach to events planned for the next quarter.

The interesting mix of activities planned for July—September 2011 include the following:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Theme</th>
<th>Target Group</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Environmental Camp</td>
<td>Forests: Nature at your Service</td>
<td>Environmental Clubs from Regions 2, 3 and 6</td>
<td>July 12-15</td>
</tr>
<tr>
<td>Climate Change Workshops</td>
<td>Adapting to Climate Change</td>
<td>Primary School Students</td>
<td>July - September</td>
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<tr>
<td>Nature School Sessions</td>
<td>Threat &amp; Climate Change</td>
<td>Primary School Students</td>
<td>July - September</td>
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<tr>
<td>International Coastal Clean-up</td>
<td></td>
<td>Environmental Clubs</td>
<td>September</td>
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In an attempt to take existing Environmental Clubs to greater heights and raise programmes to meet the needs of members and communities within which they function, Club Supervisors and Staff of the EPA resorted to the drawing board to work out challenges and brainstorm ideas for implementation.

At the two sessions held in Berbice so far, Club Supervisors shared experiences, concurred on similar challenges and discussed possible strategies for implementation within respective clubs. The sessions were interactive and rewarding as participants discussed possible solutions to current challenges and conceptualized new paths and possible projects for implementation within clubs.

Environmental Clubs exist within some schools and aim at raising awareness on environmental issues, complement teaching/learning, inculcate problem-solving and inquiry skills and instill sound environmental values within students. Over the years, the school’s academic curriculum has taken up the entire school day to the detriment of extra-curricular activities such as Environmental Club activities. This has negatively affected the instillation of sound environmental values and stymied the use and tuning of critical skills associated with environmental education such as inquiry, observation, analysis and practical application among others. The EPA hopes to work closely with Environmental Clubs within schools to enhance the profile of environmental education (EE), engage students in positive action for the environment and hone environmental advocacy skills to ensure a well educated, intellectually rounded corps of youths taking the mantle of EE into the next generation. Similar sessions are planned for other regions in Guyana.

SHARING EARTH’S LIVING TREASURES...Cont’d from Page 1

Students were especially attracted to the display of forest animals and enjoyed the challenge of finding the “living treasures” (plants and animals) hidden in the forest in a Forest Treasure Hunt game. Activity booklets provided by World Wildlife Fund (WWF) were also distributed to students at the exhibition.

A Forest Biodiversity Seminar culminated activities for the IDBD observance. Presentations—“How do Forests look in Flatland?”, “Beyond the Trees” and “Abundance: Use and Economic Value of Selected Species in Guyana” delivered by Dr. David Singh of Conservation International - Guyana, Mr. Calvin Bernard of the University of Guyana, and Mrs. Sunmella Mahadeo-Singh of GCFC, respectively, brought an interesting and striking perspective on forests for students of the Cyril Potter College of Education (CPC).
The EPA’s Environmental Management Division (EMD) grants Environmental Authorisations for various projects submitted to the Agency. This is done after a site visit is conducted to assess the potential or current environmental impacts of the project. Large projects are usually required to submit an Environmental Social Impact Assessment (ESIA) or Environmental Management Plan (EMP). Noise permits for various events and operations are also granted by the Agency. A total of seventy-seven (77) applications for Environmental Authorisations were received, for the period March to May 2011.

The Agency is currently reviewing the updated Environmental Social Impact Assessment (ESIA) for the Amla Falls Hydropower Project and the ELA Addendum for the Haag’s Bosch Landfill. An ELA Addendum and Environmental Management Plan (EMP) were submitted and reviewed by the Agency. EMPs were also submitted for the following developments: JOP Property Holdings for a Liquefied Petroleum Gas Storage and Bottling Facility and from the Guyana Industrial Minerals Inc. for a Bauxite Mining project.

The Division conducted thirty-eight (38) site visits for new projects and fourteen (14) verification visits for existing projects/operations. Compliance/renewal audits were also conducted for ten (10) operations that were issued with Environmental Authorisations during this period. Seventeen (17) Environmental Permits and two (2) Construction Permits were granted for new projects and ten (10) Operation Permits and one (1) Letter of Authorization were granted to existing projects.

The Agency granted thirty (30) Environmental Authorisations during this period. Seventeen (17) Environmental Permits and two (2) Construction Permits were granted for new projects and ten (10) Operation Permits and one (1) Letter of Authorization were granted to existing projects.

Congratulations to Staff who were confirmed as follows:

- Marcia Crawford, Human Resources Officer
- Solomon Baldeo, Finance Officer

Natural Resources Management Division
- Oumardatt Ramcharran, Senior Environmental Officer

Environmental Management Division
- Kimberly Craig, Environmental Officer
- Earl Nelson, Environmental Officer
- Malicia Hall, Environmental Officer
- Latoya Farinha, Environmental Officer
- Saudia Sadiboo, Environmental Officer
- Mahendra Saywack, Environmental Officer
- Shalana Yusuf, Environmental Officer

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CLIMATE CHANGE – STILL A HOT TOPIC

The EPA has embarked on a Climate Change Outreach, primarily targeting Grade 6 students who would have recently completed the National Grade 6 Assessment. The outreach began on May 30, 2011, and will continue until the end of the school term. The primary schools targeted for this first phase were selected at random for Georgetown and its environs. Thus far, a total of 276 students from seven (7) primary schools and around Georgetown participated in the Climate Change Outreach.

The idea to conduct climate change awareness sessions targeting primary schools stemmed from the increasing impacts of climate change being experienced in Guyana. More so, Guyana has gained international recognition and mileage from its Low Carbon Development Strategy (LCDS) and His Excellency the President has adopted a proactive national and global role in the fight against climate change. This is therefore a crucial time to help Guyanese understand the reality of the phenomena of climate change. As a result, educational materials were created to suit various target audiences which included both women and children, each such educational tool was a Climate Change Activity Booklet titled “Children and the Changing Climate”. This Booklet, which was created and pilot tested in 2010, was also endorsed by the Ministry of Education. The booklet is designed to help children ages 9-11 develop a basic understanding of climate change. It promotes learning about the causes and effects of climate change and how people can adapt. More importantly, it also enlightens children on the LCDS and help them to recognize and adapt appropriate attitudes and behavior for a better environment and human health.

The lessons in the booklet are informative and interactive and are especially designed to appeal to various aspects of a child’s cognitive development. During the outreach, the children were engaged in a range of activities including puzzle solving, mazes, word searches, interpreting pictures and filling in blanks to complete sentences and phrases. It was observed that although most children heard of the term climate change, they did not have a clear understanding of what it meant. At the end of each session, children showed a more comprehensive understanding of climate change and were able to link the concept with the effects and impacts it would have on them and everyday life. These outreach activities are expected to continue during the new school term in order to raise awareness among one of our most vulnerable groups – ‘Our Children’.

The festival was made even more historic by the presence of the Buxton Fusion School of Music who introduced a piece of Guyanese culture (African drumming) that was never before experienced at the festival.

During the festivities, club reporting sessions at the forum provided a forum for members to share experiences, challenges, threats and opportunities among each other. While some experienced major challenges, other clubs were able to weather the storms, like the Suriname Junior Wildlife and Conservation Club, Yakarinta Giant Otter Conservation Club, Yupukari Hearts and Haris and Junior Wildlife Club, Momoto Wildlife Youth Club and the Santa Rosa Conservation Club. Culture night presentations were also a treat and a valuable educational experience as some were delivered in the native language of Makushi and to space things up, the Buxton Fusion group, performed African and Guyanese folk songs to the beat of traditional African drums. A special duet was done by the group along with the Santa Rosa Environmental Club, as they sang ‘Wherever you will go’, ‘La Bamba’ and ‘Guyana’.

APRIL-JUNE 2011
POLLUTION OF THE MARINE ENVIRONMENT

The International Seabed Authority defines the Marine Environment as "the physical, chemical, sedimentological and biological components, conditions and factors which interact and determine the productivity, state, condition and quality of the marine ecosystem, the waters of the seas and oceans and the airspace above those waters, as well as the seabed and ocean floor and subsoil thereof".

Characteristics of Guyana’s Marine Environment

Guyana’s marine environment is unique and is descripted by the Food and Agriculture Organisation (FAO) as "one that lies within the area bounded by the Orinoco and Amazon rivers, and during the rainy season, is greatly influenced by the heavy sediment load and great discharge of fresh water from these huge rivers, as well as its own large rivers, the Essequibo, Demerara and Berbice. The fresh water affects the salinity, while the sediments (and nutrients) create a series of shifting sand bars and mud flats that cover the shelf out to about 40 metre isobath. Sand gradually becomes dominant beyond this depth and is replaced by coral at about 100 metres depth. The mud supports a rich invertebrate fauna that nourishes a variety of denizens of the species".

Pollution of the marine environment estimated by Greenpeace (2006), shows that 80% of the pollutants primarily come from land-based sources/activities and the remaining 20% comes from ocean-based sources/activities. In Guyana, 91% comes from land-based sources and 9% comes from ocean-based sources (UNEP & EPA, 2007).

Some of these land-based sources include: storm water discharges; combined sewer overflows; littering; solid waste disposal, and landfill and industrial activities. Ocean-based sources include: commercial fishing, recreational boating, merchant, military and research missions, and offshore oil and gas.

The sources of pollution can be further categorized into four major groups, namely:

- Pollution from tourism-related litter of the coast which includes litter left by beach goers such as food and beverage waste and associated packaging, cigarettes, plastic and beach toys.
- Pollution from sewage-related debris including water from storm drains and combined sewer overflows which discharge waste water directly into the sea or rivers during heavy rainfall. These waste waters carry with them garbage such as street litter, condoms and syringes.
- Pollution from fishing-related debris including fish lines and nets, fishing pots and strapping bands, and bait boxes that are lost accidently by commercial fishing boats or are deliberately dumped into the ocean and
- Wastes from ships and boats which includes garbage accidentally or deliberately dumped overboard.

Impacts of Pollution on the Marine Environment

Pollution can cause tremendous problems to the marine environment and those who depend on it. Marine organisms are killed or harmed by simply becoming entangled or ingesting pollutants/debris. The impacts of pollution on the marine environment are as follows: fish kills/mortality; eutrophication; threats to corals, swamp ecosystems and sea grass beds; biological diversity loss; red tides which have killed marine organisms; threats to human health due to elevated numbers of pathogenic micro organism (e.g. viruses, bacteria) and toxins created by algal bloom; and threats to tourism.

The oceans are a vast resource whose usefulness to the global society continues to be realized. Thus, it is in the best interest of humanity that they are used in a manner that is protective and sustainable, in order to preserve their health and guarantee their continuing viability. There are major implications for the marine environment if degradation pressures are allowed to continue unabated. Marine ecosystems will become more fragmented and less equipped to adapt to changing conditions such as the effects of climate change. Trawling and overfishing are also impacting marine ecosystems and many of the ecological or species changes associated with these issues have not yet been scientifically addressed.

What can you do? Simple ways of taking action.

- Use biodegradable soaps and detergents without phosphates.
- Do not discharge sewage from boats into coastal waters.
- Report any dumping you may see. Note date, time and location of the incident.
- Choose cruise ships with sound environmental practices. In advance of the trip, you can ask how they discharge waste.
- Do not bathe or fish near sewage outfalls due to the high risk of contamination.
- Do not flush household products such as cleaners, beauty products, medicines, paints, tampons, condoms, diapers down the toilet.
- Do not pour motor oil in the toilet or drainage system.
- When you wash your car, use biodegradable soaps over grass or gravel.

Green Tree Frogs live near large flowers on trees and are excellent climbers. In the month of March in Guyana, their calls echo from high up in the trees — up to almost 50 feet (15 meters) above the ground!

Almost all plants are green.

Do you ever wonder why?

It is because their leaves contain chlorophyll. Chlorophyll is a pigment that plants produce to capture the energy of the sun. The plants then use this energy to make sugar and oxygen from carbon dioxide and water. But new plants cannot make chlorophyll in the dark. They must first have a source of light.

Prove it to yourself by doing the following activity.

Materials

- 2 Paper towels
- 2 Plastic zip-closing bags (1 pint size)
- Pen
- Bean seeds (black-eyed beans work well)
- Disposable plastic spoon
- Water
- Moss box, or dark cabinet

Procedure

1. Fold the paper towels into fourths and place one inside each of the plastic bags.
2. Using the masking tape and pen, label one bag “Dark”, and the other one “Light”.
3. Lay the bags down onto a flat surface with the labels facing up.
4. Place five seeds in each bag. Arrange the seeds on top of the paper towel so that you can see them through the bag.
5. Without lifting the bags, use your plastic spoon to carefully add enough water to each of the bags to wet the paper.
6. Seal the bags, and press down on the tops of the bags so that the seeds are pushed down into the paper towel.
7. Place the bag labeled “Light” in a sunny spot like a window sill, and place the bag labeled “Dark” in a very dark place like the inside of a shower, or a cabinet.
8. Draw a picture of the seeds in each bag.
9. Without moving the bags, examine the seeds once a day for a week, and draw a picture of them each day. Observe any differences between the seeds placed in the light and those in the dark.
10. When the experiment is finished, throw the baggies and their contents into the trash. Clean your work area thoroughly, wash your hands and roux completely.

Environmental Tip

Don’t trash it - reuse it! Be creative as you look for new ways to reduce the amount or kinds of household waste. Plant seeds in an egg carton. Make a flower pot out of a plastic ice cream tub. By thinking creatively, you will often find new uses for common items and new ways to recycle and reduce waste.