

# GREEN LEAF

## Education, Information and Training Division

### Inside this issue:

About the Education, Information & Training Division	Pg. 1
EPA takes Climate Change to Kuru Kuru	Pg. 2
Relocation of Jaguars from Essequibo	Pg. 2
Community Outreach- one at a time	Pg. 3
Environmental Observances	Pg. 3
Kids Corner	Pg. 5
Building Staff Capacity	Pg. 6
Environmental Authorizations	Pg. 6
Complaints and Response Management	Pg. 7
Upcoming Activities	Pg. 7
Wildlife Spotlight	Pg. 8



EITD Staff

two-year Environmental Awareness and Capacity Building Programme funded by the UNDP which set the basis for the Division's work. Under this Programme, schools were targeted through a range of activities, e.g., workshops, activity modules, and quiz competitions. The Programme also targeted media, and Regional and Neighbourhood Democratic Councils for training on environmental management and biodiversity awareness.

The Division seeks to raise environmental awareness and education using various methods. These include informal, interactive presentations, targeted outreaches, media, and development of information materials.



As part of its work, the Division promotes environmental clubs in schools and communities. The intention being to stimulate interest in the environment and issues affecting it and to develop simple activities to assist in solving them.

With a current staff complement of 7, the Division has been able to gain assistance from international organisations such as UNDP, JICA and US Peace Corps over the years in a bid to increase its effectiveness. The Division also requires collaboration with local partners such as the Ministry of Education, Ministry of Indigenous Affairs, Caribbean youth Environment Network (CYEN), other sister agencies among others.



### Editorial Note

#### EPA, 20 Years of Charting the Course of Environmental Protection

June 5, 2016, marks the 20th Anniversary of the Environmental Protection Agency. In the two decades of its existence, the EPA has influenced changes in the relationship between natural resource use and the environment. As part of this change, people, biodiversity and environmental quality are now factored into the equation of development projects desirous of making use of our country's natural resources.

The EPA uses a holistic approach that considers the impact of development projects on all components of the environment, before making a decision on whether or not to give the green light to begin operations. Further, EPA has, over the 20 years of its existence, forged strong partnerships with stakeholders, such as, the agriculture, mining and forestry sectors, local government and other authorities, to enhance safeguards to the environment and people.

The EPA's achievements are many, ranging from development of pollution and biodiversity regulations, to monitoring and enforcement of safeguards for the environment. Of note, is that the EPA has led the process towards the development of several national biodiversity policies, strategies and action plans and has endeavoured to spread awareness of environmental management and issues at various levels of our society.

## EPA takes climate change awareness to Kuru Kuru

Recognizing the integral role that youths can play in Climate Change adaptation and mitigation, the Environmental Protection Agency conducted Climate Change awareness workshops targeting children and youth of Kuru Kuru during February 15-16, 2016. This was the first time that the Kuru Kuru Training Centre was included in the Agency's Climate Change Awareness Programme. The workshop highlighted the causes, impacts and actions to aid in addressing Climate Change. The participants were engaged in games, case studies, poetry and other interactive methodologies. The workshop sought to arouse participants' curiosity by engaging them in activities that allowed for thinking critically about the issues associated with Climate Change and to motivate them to be agents of change in their institution and respective communities. Among other areas explored were wise use of water and energy, waste management and youth actions necessary to complement Guyana's green initiative. Participants were asked at the end of the workshop to creatively express their vision for greening their communities.



College students engaged in activities

The participants expressed their satisfaction with the content and method of delivery of the workshop. They indicated that the experience was a valuable one and should be reinforced by follow up sessions. Recommendations included an extension of the workshop to other institutions across the country and that it should be an annual feature at the Training Centre.



Students of Grades 5-6

Capitalizing on the opportunity of being at Kuru Kuru, the Agency also delivered a presentation on Climate Change to 50 Grade 9 students of the Dora Secondary School, located in the compound of the Kuru Kuru

College. Embracing the need for climate change education among children, the Agency also conducted a presentation using a climate change activity book it developed. The book targets Grade 6 students and aims to help them learn about Climate Change in a fun and interactive way. Students were given the opportunity to apply what they learned through activities where prizes were awarded for correct answers.



Students of Grade 9

## Relocation of Jaguars (*Panthera onca*) from Essequibo Region No. 2

The Environmental Protection Agency (EPA) responded to reports of Jaguar attacks on livestock in Region 2, by conducting investigative visits to the three affected communities of Lima Sands, Tapakuma and Whyaka Mainstay. During the visits, detailed discussions were held with the affected communities which pointed to the need for the Jaguar situation to be treated with urgency. As such, the EPA started to conduct awareness sessions with the communities encouraging them to keep livestock and cattle in enclosures to deter the Jaguar (s) and thus preventing their animals from becoming easy prey. As a last recourse, traps were built, by both community members and the EPA Team, and set at strategic locations in the communities where the Jaguar(s) were known to frequent.

The EPA received news on Friday, February 19, and Thursday March 11, 2016, that a female and a male (on the later date) Jaguar were caught in the traps set. On receipt of this news from residents of the Mainstay Community, Officers travelled to the Mainstay community on both occasions to secure the Jaguars and ensure its safe transport to Georgetown. The Jaguars were relocated to the Guyana Zoological Park.

Although trapping and relocating was the last recourse in these cases, there are many preventative measures that can be taken to deter the Jaguar from attacking livestock, and from entering into your community. To keep Jaguars away from human dwelling space, it would require keeping domesticated animals in well-constructed pens or corrals at night. Motion-triggered light or loud sounds near the livestock have also proven to work. The surprise effect is what will make the cat change its mind and find food elsewhere.



EPA Officer (Zahair Ali) and community members building a jaguar trap

## Community Outreach - One at a time

With the environment being ours and everyone else's business, and the actions and the inactions of people being a major contributor to litter in our environs, the EPA held a number of community outreach activities in various Regions. This was done with the aim of meeting the people, spreading and raising awareness on environmental issues and recommending practical solutions to problems.

This outreach drive to spread awareness in communities across the country, is a collaborative effort of the EPA's EIT Division and Litter Enforcement Unit. At an outreach at Better-Hope, East Coast of Demerara, residents were sensitized on the Agency's Litter Prevention Regulations as well as on measures they can apply to address the current litter situation within the community. This community faces the issue of the dumping of fish and other seafood offal into the sea since fishing is one of the main livelihood activities in the community. This poor waste disposal practice create major odour problems for residents. After having a meaningful discussion session, concerns and comments of persons in attendance were heard and suitable recommendations were made by officers of the EPA on alternative disposal methods.



EPA spreading awareness to the villagers

The EPA's team also visited the Region 10 area and made stops in Kwakawni and Linden during February 16-22 2016. There, the outreach took the form of an Environmental Clinic and door-to-door community walk-through. The objective of these activities was to increase awareness and build capacity within the Region. Visitors to the Clinics were made aware of the Agency's Litter Enforcement Regulations and how its enforcement will aid in the development of their community. Visitors also received information on waste management, climate change, noise management and pollution. Emphasis was also placed on the Agency's Swine, Poultry and Spray-Painting Guidelines with the aim of improving operations in these communities.

## Environmental Observances

**World Wetlands Day**, the first environmental observance of the year, is celebrated on February 02, annually. The Environmental Protection Agency organised several activities to raise awareness on this year's theme: '**Wetlands for our future: Sustainable Livelihoods**'. Since the theme's emphasis was on sustainable development, the activities all focused on youths. On February 02, a tour was conducted to the Golden Grove-Belfield Mangrove Reserve for four schools along the East Coast of Demerara: Annandale Secondary, Ann's Grove Secondary, President's College, and Golden Grove Secondary.



Students during the World Wetlands Day



Students of Santa Rosa Secondary during their session

Additionally, seminars were conducted at Guyana School of Agriculture (GSA), Mon Repos, East Coast Demerara, and Bina Hill Institute, Annai, Region 09. These seminars sought to enlighten these young minds who will soon be decision makers on the need to preserve wetlands because of the important role they play in providing humans with various resources.

Finally, an interactive presentation was conducted with Grade 9 students of the Santa Rosa Secondary, Region 01. These activities all form a part of the EPA's environmental education and awareness programme which seeks to promote positive environmental action by changing attitudes and behaviours.

## Environmental Observances - Cont'd

### World Water Day

In celebration of **World Water Day 2016**, a workshop was conducted at the Regency Suite Hotel with fifth form students from eight different secondary schools in Region four (4). In keeping with this year's theme "water and jobs", personnel from what can be considered water intensive sectors, were invited to be a part of the workshop. Students were introduced, through interactive presentations from presenters: Mr. Thom from the Guyana Geology and Mines Commission and Mr. Thorne from the Ministry of Agriculture's Engineer, on the importance of water to the mining and agriculture sectors, respectively. The workshop also placed focus on how the quantity and quality of water can change workers' lives and livelihoods in these sectors, and even transform societies and economies. Participants also learnt about the processes of making water potable from the head of technical services of Guyana Water Inc., Mr. Shako.



World Water Day Seminar

After the presentation sessions, students were then required to put on their thinking caps and brainstorm different scenarios. These were shared through impromptu and persuasive discussions. Prizes were then awarded to students from each school who were actively and most integrally involved throughout the sessions. The main objective of this session was not only to focus on water-related issues affecting the world, but to equip students with the knowledge to be a part of the solution to the problem when choosing future careers.

Water Day dates back to the 1992 United Nations Conference on Environmental and Development. The day itself provides an opportunity to learn more about water-related issues, be inspired to tell others and take action to make a difference. So regardless which job you choose-better water means better jobs.



Participants in EPA's matching

### Earth Hour

On March 19, millions of people from over 178 countries around the world turned off lights for Earth Hour as a symbol for collective action against climate change. Guyana joined the rest of the world in celebrating **Earth Hour 2016**, on March 19 under the theme; 'Shine a light on climate action'. The event commenced with an Earth Run/Jog on March 12, 2016, from the Square of the Revolution to the National Park. Earth Hour is a worldwide movement for the planet, organised by World Wildlife Fund (WWF) and was spearheaded locally by WWF Guyana. The Agency was pleased to be a part of the planning committee of the significant event for the second consecutive year. Scores of environmental enthusiasts dressed in black entered the

National Park as the atmosphere was transformed to reflect limited illumination, drawing attention to the significant role energy plays in our lives. The 'Earth Hour' concert featured poems, songs, games and dances, all geared to reflect our roles in the fight against climate change. The EPA delivered two fun and informative games to enlighten the audience on the importance of being cognizant of their energy use. The School of Earth and Environmental Sciences (SEES) and Caribbean Youth Environment Network (CYEN) which were instrumental in the success of the concert being lead coordinators of the concert. The event culminated with the "lights-out" and candle lighting of the 60+ emblem of Earth Hour. ***Everyone is encouraged to do their part in support of low carbon world as we battle the scourge of climate change.***

### World Wildlife Day

On March 03, every year, **World Wildlife Day** is celebrated. This year it focused on the theme **"The future of wildlife is in our hands"**. Countries around the world celebrate this day by holding various activities to raise awareness on wildlife. Guyana commemorated this day by holding a poster competition and an exhibition.



Wildlife Day Expo



Students of Region 10 at Wildlife Day outreach

The Division, in collaboration with the Wildlife Unit, BMD, and the Wildlife Management Authority held outreach sessions to schools promoting World Wildlife Day and a poster competition. In the months January – February, Officers from the EITD, BMD and the WMA reached out to approximately 872 students from schools in Regions 1, 3, 4, 5, 7, 9 & 10 to raise awareness. These sessions geared at informing them on wildlife and their importance and also to notify them of the poster completion and their chances of winning awesome prizes.

On March 3 at the National Park an open ceremony was held for the day followed by an exhibition that was participated by different agencies under the Ministry of Natural Resources displaying their work and a highlight of the 2015 winning pieces of the poster competition. This exhibition was aimed at reaching out to some secondary schools within Georgetown and Region 3.

# Kids Corner

## Don't Waste Water

Unscramble the letters to complete the Poem.



Don't waste water or the world will never \_\_\_\_\_

R K N I D

Don't waste water or the world will never \_\_\_\_\_  
TAE

Don't waste water or the world will never \_\_\_\_\_  
ELPSE

Don't waste water or there will never be water in the \_\_\_\_\_  
OLWDR

Don't waste water or you will never see the \_\_\_\_\_  
TGILH

## Build a Rain Gauge

A rain gauge is the instrument used to measure the amount of rain that falls in a particular area. You can construct your own rain gauge to measure the amount of rain that falls at your house. Here's how to do it.

- ◆ Take an old plastic bottle and cut off the top half.
- ◆ Turn the top half upside down into the bottom half.
- ◆ Dig a hole in your backyard for the cut bottle to fit in.
- ◆ Place the bottle in the hole so that the top just sticks out of the ground.
- ◆ The next time rain falls, use a ruler to measure the amount of water in the bottle.



If you have a leaky pipe in your house, you can also use your rain gauge to measure the amount of water that is wasted.



## Construct Your Very Own Solar Oven!

### What You Need:

- ◆ Cardboard pizza box
- ◆ Box knife or scissors
- ◆ Aluminum foil
- ◆ Clear tape
- ◆ Plastic wrap
- ◆ Black construction paper
- ◆ Newspapers
- ◆ Ruler, or wooden spoon



### What You Do:

1. Use a box knife or sharp scissors to cut a flap in the lid of the pizza box. Cut along three sides, leaving about an inch between the sides of the flap and the edges of the lid.
2. Cover the inner side of the flap with aluminum foil so that it will reflect rays from the sun. To do this, tightly wrap foil around the flap, then tape it to the back, or outer side of the flap.
3. Use clear plastic wrap to create an airtight window for sunlight to enter into the box. Do this by opening the box and taping a double layer of plastic wrap over the opening you made when you cut the flap in the lid. Leave about an inch of plastic overlap around the sides and tape each side down securely, sealing out air.
4. Line the bottom of the box with black construction paper - black absorbs heat. The black surface is where your food will be set to cook.
5. To insulate your oven so it holds in more heat, roll up sheets of newspaper and place them to border the bottom of the box. The lid should still be able to close.
6. To use your oven, take it outside to a sunny spot and adjust the flap until the most sunlight possible is reflecting off the aluminum foil and onto the plastic-covered window. Use a ruler to prop the flap at the right angle.



## Building Staff Capacity

At the end of the 1st quarter, 101 staff were serving at the EPA. The Agency continues to build the capacity of staff to effectively execute its mandate, and continues to recruit staff to fill any vacant positions. During the first quarter, six (6) young professionals joined the EPA:

1. Ms. Jasmine Adams, Litter Prevention Warden.
2. Mr. Joshua Muridall, Administrative Officer.
3. Mr. Keshav Rampersaud, Office Assistant.
4. Mr. Mahendra Doraisami, Environmental Officer I.
5. Mr. Kevin Jones, Driver.
6. Ms. Ruth Trotman, Filing Clerk.

During the review period, staff attended various training and workshops both locally and overseas.

### Workshops and Meetings

1. Mr. Colis Primo and Ms. Anastasia Chandra attended a workshop on Integrating Coastal Eco-system based Adaptation into National Policy which was held in Grenada during February 22-26, 2016.
2. Dr. Indarjit Ramdass and Ms. Bibi Sharief attended The Global Environment Facility (GEF) Expanded Constituency Workshop (ECW) was held in Port of Spain, Trinidad and Tobago during March 01-04, 2016.

## Environmental Authorizations

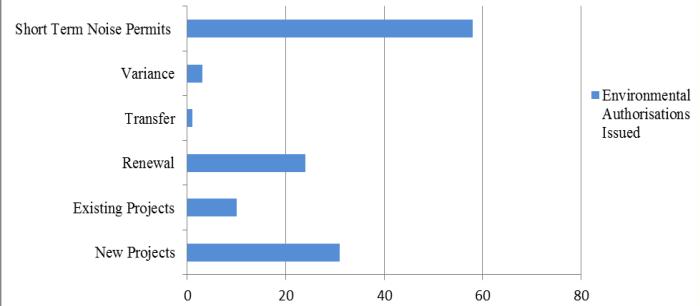
A total of one hundred and twenty-seven (127) Applications for Environmental Authorisation were received for the period January to March, 2016. Thirty-one (31) of the Applications were for new projects, ten (10) for Existing projects, and twenty-four (24) for Renewal of Environmental Authorisations. In addition, there was one (1) Application for transfer and three (3) Applications for variance. Fifty-eight (58) Applications for Noise Permits were received for this period.

The Permitting Division conducted six (6) site visits for new projects and eight (8) site visits for existing operations. Compliance/renewal audits were also conducted for fifteen (15) operations that were issued with an Environmental Authorisation.

The Agency granted seventy-two (72) Environmental Authorisations during this period. Eight (8) Environmental Permits; two (2) Operation Permits were granted for new projects; three (3) renewals and one (1) variance of Environmental Permit was granted. A total of fifty-eight (58) short- term Noise Permits were issued by the Division for the period.

The Division continues to process the other Applications received during this period to determine whether these projects will be required to conduct Environmental Impact Assessments (EIAs) or develop an Environmental Management Plans (EMPs).

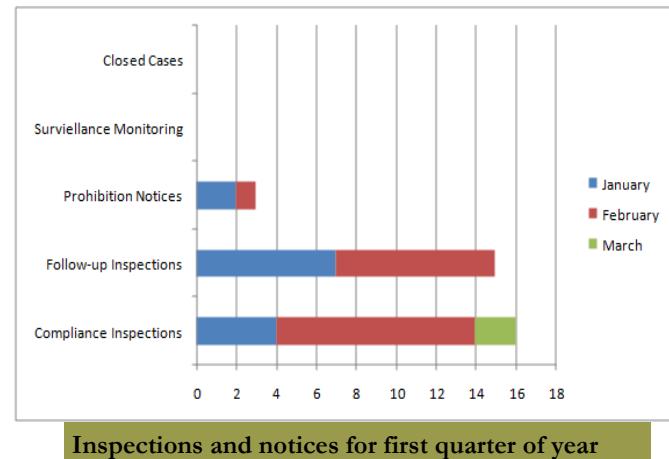
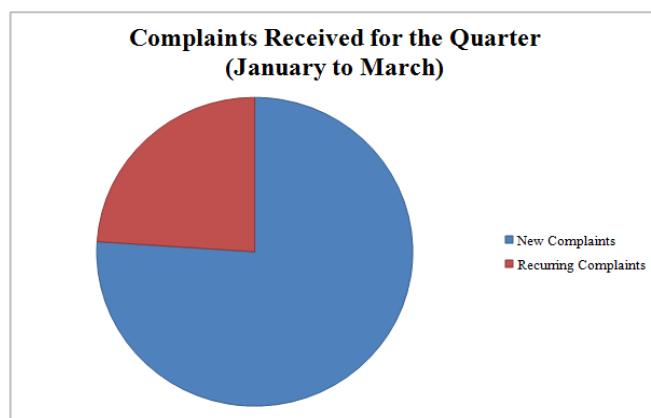
**Environmental Authorisations Issued (January to March)**



## Complaints and Response Management

The Environmental Compliance Division (EMCD) received a total of seventy-one (71) complaints in the first quarter. Fifty-four (54) new complaints and seventeen (17) recurring complaints were received. The Division conducted sixteen (16) Compliance Inspections and (15) Follow-up Complaint Inspections. Three (3) Prohibition Notices were also issued for the quarter.

The majority of the complaints received were in relation to: dust, noise, burning, odour; one also related to removal of mangroves.



## Upcoming Activities

The EPA initiates and undertakes activities on a continuous basis to pursue its mandate.. Having successfully achieved the set goals for the first quarter of the year, planning and coordination have already begun towards its planned objectives for the next quarter.

Activities scheduled for April - June, 2016, include the following:



Activity	Theme	Target Group	Date
<b>Earth Day</b>	Trees for the Earth		April 22
<b>Trash to Fashion Show</b>	_____	Region 7 - Primary & Secondary Schools	May 10
<b>Guy Expo</b>	50 years: Guyana Means Business. Promoting Enterprise, Driving	General public	May 12– 15
<b>Int'l Day for Biological Diversity</b>	Mainstreaming Biodiversity; Sustaining People and their Livelihoods		May 22
<b>World Environment Day</b>	Fight against Illegal Wildlife Trade <i>Join the race to make the world a better place</i>		June 05

# WILDLIFE SPOTLIGHT

## The Common Lancehead (*Bothrops Atrox*)

*Bothrops atrox* also known as the common lancehead, *fer-de-lance*, and in Guyana and Suriname called the *labaria* is a species of pit viper found in the tropical lowlands of northern South America east of the Andes including southeastern Colombia, southern and eastern Venezuela, the island of Trinidad, Guyana, Suriname, French Guiana, eastern Ecuador, eastern Peru, Panama, northern Bolivia and the northern half of Brazil.. No subspecies are currently recognized.

### Appearance

The Labaria's color pattern is highly variable, including a ground color that may be olive, brown, tan, gray, yellow, or (rarely) rusty. The body markings are highly variable, as is the degree of contrast: in some specimens the pattern is very well defined, while in others it may be virtually absent. In general, however, the body pattern consists of a series of dorsolateral blotches, rectangular or trapezoidal in shape, which extend from the first scale row to the middle of the back. These blotches may oppose or alternate across the midline, often fusing to form bands. They also have pale borders, which in some cases may be prominent, and may be invaded from below by tan or gray pigment, occasionally dividing them into pairs of ventrolateral spots. The belly may be white, cream or yellowish gray, with an increasing amount of gray to black mottling posteriorly that may fade again under the tail. The head usually does not have any markings other than a moderately wide postocular stripe that runs from behind the eye back to the angle of the mouth. The iris is gold or bronze, with varying amounts of black reticulation, while the tongue is black. As a terrestrial species, adults usually grow to a total length 75–125 cm (about 30-50 inches) and are moderately heavy-bodied.

### Habitat

Despite the vast destruction of rain forests, the Fer-de-lance is amongst the most numerous and common of pit vipers and is not endangered. In Trinidad, it prefers wet forests from sea level to 940 m.

### Diet

This snake's main diet includes mostly small mammals and birds, but also frogs and lizards. Larger prey is struck and released, after which it is tracked down via its scent trail.

### Reproduction and nesting

The Common lancehead can give live birth to up to 80 offspring at once. Adults breed year-round. After mating, females with developing embryos travel in and out of sunlight to keep themselves and the embryos at a constant temperature. In equatorial regions, the gestation period is about three to four months, with an average of 60 young per litter. At birth, the young are about 30 cm (12 in) in total length, more brightly colored than adults, and have yellow or beige tails.

### Fact - Venom

These snakes are known to search for rodents in coffee and banana plantations. Workers there are often bitten by the snake, which can lie camouflaged for hours, nearly undetectable, and strike with high speed.



Their venom consists mostly of hemotoxin, a toxic protein that affects the circulatory and nervous system; it destroys red blood cells, and sometimes loss of memory occurs. They are much feared because their venom is particularly lethal and fast acting. Presently, treatment is usually possible if the victim receives medical attention soon enough. Commonly, bites from this snake cause symptoms including nausea, blackouts, and paralysis. In almost all cases, temporary and sometimes permanent loss of local or 'short term' memory were reported. Extended hospital stays, as well as weight loss of up to 15 pounds, have also been reported. Venom yield averages 124 milligrams (1.91 gr), although it may be as much as 342 milligrams (5.28 gr). The enzyme reptilase (battroxobin), derived from this snake's venom, is used in modern medical laboratories to measure fibrinogen levels and blood coagulation capability. The test is considered to be a replacement for thrombin time, and is used when heparin is present in the sample. The enzyme is unaffected by heparin.

### 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.

### 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.

### Editorial Committee:

Sharifah Razack

Candacie Brower - Thompson

Fareena Alli - Narine

Dillon Charles

Deuel Hughes

Gracelyn Trim - Giddings

### E-mail:

[eit.epaguyana@gmail.com](mailto:eit.epaguyana@gmail.com)

### Mailing address:

Environmental Protection Agency,  
EIT Division,  
Ganges Street,  
Sophia,  
Georgetown.

### Telephone Numbers:

225-6044, 225-6048, 225-5467-9,  
225-0506, 225-6917, 225-1218,  
225-2062

Fax # 225-5481

