

The word "GREEN" is written in large, bold, green letters. The letters are partially cut out, revealing the black and white photograph of a snowy forest scene behind them.

RUTGERS
GREEN PRINT

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EDITOR'S NOTE

This issue, the final for the semester and the ultimate for my time at Green Print, is a collection of topics and events that the staff and I have deemed worthy of sharing with you all. One of my goals during my time as editor was to further expand GP's reader base beyond our network of students present and past; to invite everyone who is looking to learn about the world through our lens. Green Printers are environmental stewards, notoriously skeptical, yet determined to make a difference. Every story we have published holds value to the student who wrote it. Whether the topic be scientific literacy or bee biodiversity, I hope that we have conveyed that to you. Our distinct disciplines and interests helped make this newsletter as assorted as we are.

The RU expression 'Jersey roots, global reach' has no question made its imprint on me. Through Rutgers I have traveled more than I ever expected, allowing me to form connections with people around the world and even more right here in New Brunswick. Most recently I was offered the opportunity to present research at an international symposium at the University of Sao Paulo. The experience was beyond rewarding, in addition to the fact that I was able to visit my mother's native country another time. During my years in community college I never could have imagined Rutgers would entail traveling to Brazil and studying abroad in Indonesia, nor making so many friends and professional relations. To say that I am grateful is an understatement. I am in awe of the education and relationships I've gained over my five semesters.

Thanks to all that have contributed to this journey, as well as the numerous writers and contributors who helped produce this publication. For me, on to the next. For Green Print, many years more ~

Yours truly,

Emily Hunziker
Editor



STORMWATER MANAGEMENT

By: Jessica Schoen and Jon Baier

Stormwater is a term we often hear in passing, but don't always think of what it truly is. Stormwater encompasses many different kinds of water and can be anything from precipitation to melted snow. This water can be soaked up by the ground and put back into underground aquifers, which act as natural holding tanks for groundwater. Water can fluidly pass through pervious surfaces and get filtered into these underground vessels.

Unfortunately, much of where we live is covered by impervious surfaces, depriving these underground aquifers of the water they need. This is where storm water runoff comes into play. Water cannot pass through these impervious surfaces, such as paved streets, sidewalks, and parking lots. This water ends up running along these solid surfaces into the nearest possible streams, lakes, and rivers. On its way to drainage areas, the water picks up every pollutant it passes on the ground. Salt, oil, chemicals, and dog droppings get swept off impervious surfaces and make their way to the closest body of water. Overtime, this water becomes more and more concentrated with all the junk that the stormwater picks up, harming humans, plants and animals.

While the reality of stormwater isn't pretty, there are a few storm water management practices to help reduce this problem. A couple are rain gardens and rain barrels.

RAIN GARDENS

Rain gardens are depressed areas that allow rain to run from impervious surfaces and be absorbed into the ground. Water runoff from impervious surfaces are not entering the waterways. Rather, water is entering the ground which naturally filters water before entering the water system, from which water is eventually consumed. In fact, rain gardens can cut pollution from entering waterways by 30%. Not only will a rain garden prevent pollution from entering waterways, but these gardens can also prevent potential flooding in your area, reduce mosquito breeding due to less standing water, and recharge groundwater which will become more adept to surviving a drought.

Rain gardens typically include native plants that are effective in preventing pooling water. Native plants usually do not require human watering, soil pH changes, or fertilizers because they are naturally adapted to the area in which they are planted. Because there are little-to-no required inputs, rain gardens are a cost-effective way to reduce flooding and runoff. Roots absorb water making less artificial filtration needed. Not only do these gardens provide ecosystem benefits, but they provide aesthetic advantages as well. Your lawn, park, or generic landscaped area turns into a plethora of colors and a great spot for relaxation or photography. You'll soon see new species coming to visit, such as butterflies, bees, birds, and other beneficial wildlife.

RAIN BARRELS

Rain barrels are small tanks that collect rainwater from rooftops to be used in the garden. They reduce the amount of storm water pollution by catching and retaining water before it hits the ground, becomes polluted, and enters our waterways. The

stored water is then manually released onto a pervious surface, such as a garden. In fact, rainwater is better for your plants and soil because it is highly oxygenated and free of salts, inorganic ions, and fluoride compounds that are contained in tap water. Additionally, rain barrels also provide a water source for your garden in times of drought. Not only are rain barrels helpful in reducing pollution, they also reduce water use and the cost of your water bill. When incorporating a rain barrel into your life, it is important to make sure you do not drink, bathe, or cook with the water, as it is not meant for human consumption. It's important to take into account that rain barrels create standing water, which can bring about mosquitos, so using repellent will be important. Adding vegetable oil to the rain barrel prevents mosquitos from laying eggs in the water, keeping them from breeding in your barrel.





Source: Washington Post

DENIAL

By: Emily Hunziker

The denial of climate change has become as far-fetched as chemtrails and Bigfoot. The reasons behind this range from bipartisan beliefs to basic apathy. All of them have in common a lack of understanding of the issue and its impacts. For this reason, climate enthusiasts have come out of the woodwork to share their knowledge. And while much of this entails preaching to the already converted, some interesting conclusions have resulted from the study of climate denial.

Hosted last month by the Department of Human Ecology, Patrick Egan, a professor of politics and policy at NYU, spoke on campus about his research on the public opinion of climate change. He and

his colleague have found a few primary reasons for this widespread trend of disbelief. Either the issue has been reduced to a low priority in comparison to others, the concept is confusing and difficult to grasp, people have chosen to align with political ideologies, or they are simply enjoying the temperature changes that climate change brings and see no problem to address.

This last concept struck me as intriguing. There are people who are experiencing weather unlike the norm, but because it is more pleasant than usual, such as warm temperature spikes in the fall and winter months, they are unbothered by it. Egan measured this by creating a Weather Preference Index (WPI), which gauges public opinion of new trends in climate, based on population change by county. (See their publication here: <https://www.nature.com/articles/nature17441>) The results of their data

show that Americans prefer warm winters and mild, less humid summers, thus coordinating with the weather changes of recent decades and further discouraging the acceptance of mitigation strategies.

To think that people are content with their changing climate might make sense at first. A warm day here and there doesn't seem like a major indicator of future devastation. Unfortunately, the climate is already changing, and there are countless examples of the negative impacts we are experiencing. There are some mitigation strategies in the works, but with so much resistance in a country with such a global presence, these changes will not be as effective as need be. We cannot wait around for the problem to worsen so much that it is undeniably affecting us. At that point, it will not be a quick fix, it will be entirely too late.

PASSION PUDDLE PLAYLIST

By Jon Baier

1. **Friend of a Friend** - Weezer
2. **24k of Gold (Feat J. Cole)** - Big Sean
3. **Stay** - Vinyl Theatre
4. **No Lie** - Glowie
5. **Second Guessing Game** - Colony House
6. **Dancing in the Moonlight** - Toploader
7. **Wind In Our Sail** - Weezer
8. **Hard Candy** - Counting Crows
9. **That Green Gentleman (Things Have Changed)** - Panic! At The Disco
10. **Queen of Daydreams** - Third Eye Blind
11. **QB Blitz** - Weezer
12. **Here I Am (Feat Avery Storm & Nelly)** - Rick Ross
13. **Godzilla** - Kesha



Source: Calgary Zoo

IT'S TIME TO CLOSE THE CALGARY ZOO

By: Jessica Schoen

The death of a peacock dealt another blow to the Calgary Zoo's reputation. In this case, the staff literally had one job: get the peacocks into their winter enclosure safely. Instead, they allowed the bird to fly into possibly the worst exhibit for a peacock to be in: the lion's den. And as the story goes the lion had a wonderful lunch. But why exactly did the normally free-roaming bird fly elsewhere? No one knows exactly, but I would venture to think it may be a staff error.

Here's the thing... this isn't the first time the Calgary Zoo has been neglectful. A capybara and a spider monkey were crushed by a hydraulic door in two separate incidences. Another spider monkey died from frostbite complications after it was left outside. **Four** feather-tailed sugar gliders were yet again crushed to death. **Forty** cownose rays died from low blood oxygen levels due to a system error. **Seven** penguins were found drowned in a back holding area. I could

keep going but at this point it's safe to say: the Calgary Zoo isn't the safest place for animals.

I myself work at a zoo. I am not one of those people that is entirely against the zoo system. I understand the importance of zoos for wildlife conservation. I also understand that it is human to make mistakes once in awhile. The problem with these mistakes is that they are leading to the deaths of innocent animals. These errors cannot just keep happening. Before you know it, you have critically endangered animals, like gorillas, biting the big one. This is not to say that animals who are not endangered aren't as important, but if you consistently let those

animals die then you run the risk of these human errors entering the realm of more problematic areas.

Since this has been occurring year after year, the only recommendation I can make is to shut it down. Clearly increased training has yet to nullify zoo keeper errors, and the overall culture is a lax one. Laxity is fine when you're stocking shelves at Rite Aid; Laxity is not fine when you have lives on your hands. It's time to transfer these animals to safer and more responsible zoos for the sake of their livelihoods. How many more lives are going to be taken as a result of carelessness before this zoo, itself, bites the big one?

Calgary Zoo to close stingray exhibit a year after more than 40 of the fish died

Truro Daily News

Published: Jan. 1, 2010, midnight **Updated:** Sept. 30, 2017, 8:40 a.m.

Peacock killed by lions at Calgary Zoo

Birds were being herded into their winter holding area when one flew into big cats' enclosure
CBC News Posted: Nov 15, 2017 8:32 AM MT | Last Updated: Nov 15, 2017 7:46 AM MT

Calgary Zoo audit uncovers more deaths

CBC News Posted: Jun 18, 2010 3:56 PM MT | Last Updated: Jun 18, 2010 7:12 PM MT

Lemur's death after surgery among 3 recent fatalities at the Calgary Zoo

Marmot and whooping crane also died in recent weeks

By Dave Dormer, CBC News Posted: Aug 25, 2017 2:04 PM MT | Last Updated: Aug 25, 2017 2:42 PM MT

Otter Drowns After Zoo Workers Give Him a Pair of Pants

Written by Angela Henderson | February 18, 2016

RED PANDA CUB DIES AT CALGARY ZOO

 Red Pandazine  2. July 2017  News, Zoos

Drowning of 7 penguins at Calgary Zoo remains a mystery

Zoo making 'precautionary changes' to where penguins are kept

By Erika Stark, CBC News Posted: Jan 19, 2017 10:09 AM MT | Last Updated: Jan 19, 2017 4:02 PM MT

ENDANGERED SPECIES OF THE MONTH: SPOON-BILLED SANDPIPER

By Jessica Schoen



Photo by: JJ Harrison



Photo by: ken

The spoon-billed sandpiper (*Calidris pygmaea*) is a small wader that breeds in north-eastern Russia and winters in Southeast Asia. A wader is a bird commonly found along shorelines. Their habitat is made up of coastal marine sites during migration and winter, and the coastal tundra during breeding season. Their unique spatulate bill allows them to easily eat buried invertebrates. They typically feed on midges, mosquitos, flies, beetles, and spiders. Occasionally, they will dine on grass seeds and berries.

The sandpiper has two different appearances. During the breeding season, they are reddish brown around the head, breast, and back with dark spotting extending towards a white belly. During the nonbreeding season, they are a mixture of white, black and gray. A breeding adult is typically 14 to 16 centimeters in length and weighs about 31 to 40 grams.

They are extremely territorial and will return to the same spot to breed every year. Upon arrival in Russia during the breeding season, which is May or early June, the males begin displaying above their territory and mating

happens in-flight. A female will usually lay 4 eggs in a shallow tundra depression, hatching in about 23 days. The young are able to leave the nest and feed themselves within a day. They begin flying around day 20.

The sandpiper is considered critically endangered. It has declined by 80 to 90% since 2002. Currently, there are an estimated 100 breeding pairs. This is due to the elimination of their migratory stopover habitat in the Yellow Sea region, subsistence hunting on the wintering ground by bird trappers, and habitat loss of its breeding grounds. The draining of the Saemangeum estuary in South Korea is particularly important because it removed an important migration staging point. It used to host a half-million migrating shorebirds on their 15,000-mile round trip. The spoon-billed sandpiper is first of the species to be pushed to the brink of extinction and could be extinct in as little as 5 years.

The best way to protect the sandpiper is by protecting their habitat. The Wildfowl & Wetlands Trust works to protect wetlands worldwide. Their website is <https://www.wwt.org.uk/>.



Source: Fox News

ELECTION OF PHIL MURPHY BIG 'FUCK YOU' TO TRUMP AND CHRISTIE

By: Andrew Cumming

In the first election since Trump was nominated president last year, New Jersey has voted Democrat Phil Murphy as the new governor. Murphy defeated Republican candidate Kim Guadagno by a margin of 56% to 43%. He succeeds the beloved Chris Christie, whose tell-it-like-it-is attitude the past eight years has led to his extremely high disapproval rating. Despite Murphy winning by such a decisive margin, I feel as though not many young people know a lot about his policies.

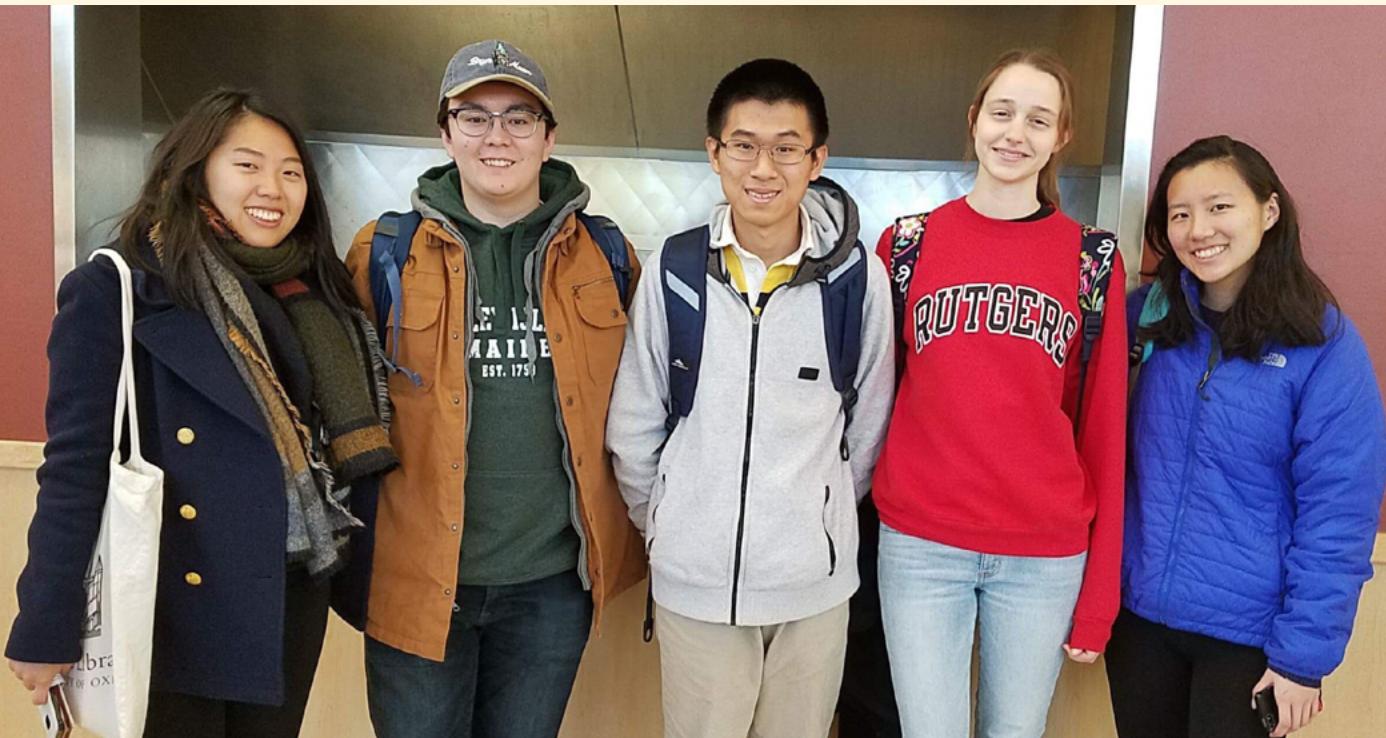
Here is a summary:

- ☛ **Plans to propose a \$15 minimum wage**
- ☛ **Plans to propose marijuana legalization**
- ☛ **Vows to stand up to Trump when warranted**
- ☛ **Supports equal pay for men and women**
- ☛ **Supports anti-discrimination policies against LGBTQ and minorities**
- ☛ **Supports comprehensive gun control**
- ☛ **Believes in treating addiction as an illness**
- ☛ **Opposes standardized tests and charter schools**
- ☛ **Opposes efforts to use police in mass deportation**
- ☛ **Proposes higher taxes for the super wealthy**
- ☛ **Wants to expand Obamacare**
- ☛ **Wants to build a greener economy and protect the environment**
- ☛ **Supports STEM jobs in New Jersey**
- ☛ **Wants to restore transportation funding**
- ☛ **Wants to make New Jersey more affordable to live in**

In my personal opinion, the election of Phil Murphy is an important step towards deflecting the impacts of Trump's presidency. I hope this trend will continue as other states elect new governors and political positions in the months and years to come.



Source: The New York Times



Members of SEAFood. Courtesy of Kyung Mi Bae

R U WASTING FOOD?

By: Joshua Morales

Another day, another half-eaten pasta platter thrown into the trash. Food, one of the bare essentials for the life of a college student, is wasted everywhere. This is true especially at Rutgers University-New Brunswick, where an enormous 50 tons of food waste is produced per day by all of the campus' dining halls combined¹.

Students for Environmental Awareness (SEA), a club of dedicated students trying to better the world one campaign at a time, is currently working hard to reduce food waste. Kyung Mi Bae, a senior double majoring in History and Public Policy, is the campaign leader of SEAFood. SEAFood is a coalition within SEA whose main objective is to decrease the waste here at Rutgers' dining halls.

SEAFood's main weapon for reducing food waste at Rutgers is education. SEAFood hopes to educate students using a variety of methods. Partnering with other student organizations, touring dining halls, and showing films are some of the tactics that SEAFood has implemented this semester.

In fact, SEAFood has partnered with the Healthy Dining Team to inform people how to eat more healthily and how to reduce food waste. According to Kyung Mi, “food is just as important after we throw it out, as it is before we put it in our mouths.”

Tours of the dining halls have also been very effective at showing the amount of food waste that is produced by students. Recently, SEAFood toured Nielsen Dining Hall and had an opportunity to see how much food waste is produced and what is done with the waste. Kyung Mi stated that, “most of the food gets put into digesters, where the solid waste is turned into a liquid.” The food waste can then be drained into the sewers, instead of having to be thrown into dumpsters, where the waste would eventually end up in a landfill. With less solid food waste put into the environment, the amount of methane released is also greatly reduced. Although food waste is still being produced, the potent greenhouse gas, methane, is not released into the atmosphere, where it could persist for years.

This is an initiative that the dining halls have implemented to help the environment in any way they can. “Dining halls are doing their part, and now it is up to the students to try and reduce their waste as much as possible,” said Kyung Mi.

Education can come in many varieties, and film screenings are a great way to get people informed. SEAFood recently hosted a documentary night, where they showed the film “Dive”, which shows the filmmaker and his friends dumpster dive at supermarkets to show America’s waste of good food². Kyung Mi stated, “it was crazy to see how much perfectly good food is wasted all over this country, and people do nothing about it.” The movie was so moving that it has inspired some of the SEAFood members to go dumpster diving at the Trader Joe’s in East Brunswick and the Whole Foods in Metuchen.



Anaerobic digester at Nielsen Dining Hall. Courtesy of Kyung Mi Bae

Food waste is a global issue, especially since so many people around the world are hungry. It is very easy to get caught up in our own little worlds and forget that there are billions of other people on this Earth. We cannot help everybody, but we do have the opportunity to help those around us. When asked why she was passionate about food waste, Kyung Mi stated that the “everyday choices we make have a big impact.”



Source: Nick Jack Pappas on Twitter

PAPA JOHN'S SALES HURT DUE TO PROTESTS

By: Tyler Lepucki

Papa John's Pizza has been a long time supporter and sponsor of the National Football League, which many would see as beneficial to the company. However, recently sales have been relatively slow for their pizza. This could be due to any reason, but on November 1st, the Chief Executive Officer John Schnatter stated during a conference call that slow sales were due to the NFL player protests during the national anthem.

To recap the situation, starting with Colin Kaepernick back in 2016, he and other players have been protesting racial injustice and police brutality in silence by taking a knee during the singing of the nation anthem at every game. Participants in the protest were rather infrequent and scattered for most of the year until recently on September 24th, 2017, when more than 200 players took a knee to stand with other players under Donald Trump's call to fire players that chose to protest during the anthem.

The protests are still a heated debate and according to Papa John himself, "NFL leadership has hurt Papa John's shareholders," going on to say that the protests, "should

have been nipped in the bud a year ago". This subsequently upset the public who caused enough media attention to rush the company into apology, tweeting "We believe in the right to protest inequality and support the players' movement to create a new platform for change. We also believe, as Americans, we should honor our anthem. There is a way to do both." They claim it was not their intention to come off as divisive in the CEO's previous comments during their earnings call. No matter the intention, Papa John's stock has fallen 13% and it is going to take a while for a true recovery to occur. Until then, maybe it would be best to purchase from another pizza chain, or possibly not at all.



THE OFF BRAND

By: Jessica Schoen

The Off Brand is an alternative rock band based out of New Brunswick, NJ. The band consists of Hanny Ra performing vocals, Joe Capongero as lead guitarist, Clayton Gomberg playing drums, and Sam Crisci on the bass. Since their inception in September 2016, they have played in numerous recognizable spots including Kelly's Korner, Pheasant's Landing, Triumph Brewing Company, and many others. On November 11 of this year, they released their first self titled album with songs including White Lighter, Testosterone Tommy, Falling, So Cold, and Automatic Charismatic. The album is available on Apple Music and Spotify. Their website is <https://www.theoffbrandmusic.com>. Check them out and support this great local band!



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