Letter From the Editors

“Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.”

--Rachel Carson

Readers,

The staff and writers of The Trail are thrilled to be back providing environmental news for the 2015-2016 school year! Whether you have been busy grading midterms or taking them, we hope this month’s content brings a welcome relief from the semester’s hustle and bustle. In this issue, you will find topics ranging from Cuba’s imperiled corals, to agricultural advancements in our own Garden State. We hope you enjoy our newest issue!

Happy Trails!

James, Alex, & Ariel
# Table of Contents

Page 3: **The Clean Diet Cure** by Mackenzie Pitt  
Page 5: **Will New Prime Minister Turnbull be a Breath of Fresh Air, or a Climate Change Turncoat?** by Alex Toke  
Page 7: **Sounds in the Night: Travelers from Parts North** by James Duffy  
Page 8: **Washing Our Problems Down the Drain** by Sagarika Rana  
Page 9: **Extinction is Forever- Wear a Condom** by Taylor Dodge  
Page 10: **New Jersey Leads in Food, Health, and Agricultural Innovation** by Ariel Schwalb  
Page 12: **Rutgers’ Final Frontier: The Rutgers Ecological Preserve** by Rachel Rodriguez  
Page 14: **Current Refugee Crisis Gives Insight into Future Climate Crises** by Rachel DiSciullo  
Page 16: **The Grind on your Morning Coffee** by Melissa Mertz  
Page 18: **Milk Without the Cow?** by Alexus Lizardi  
Page 20: **Whale Sharks & Ecotourism** by Morgan Lewis  
Page 22: **The Pristine Coral Reefs of Cuba** by Langley Oudemans  
Page 24: **The Mechanical Bull** by Finn Gorman  
Page 25: **Death of the Dead Sea** by Derek Leckner  
Page 26: **RU Refilling?** by Brayden Donnelly  
Page 28: **Conserving New Jersey’s Bats** by Noha Haggag  
Page 30: **EPIB Trail Mix** by Ariel Schwalb
Cancer is undoubtedly one of the greatest health threats humans have had to deal with, especially considering that the number of cancer diagnoses has risen dramatically in recent decades. For this reason, the field of oncology and cancer treatment has grown enormously, with millions of dollars being put towards cancer research every year. While we often hear about new cancer treatment methods on the rise in the news, chemotherapy or radiation therapy still remains the most common method of treatment. When we hear the word “chemo” it immediately conjures images of terminally ill people in hospitals who must endure uncontrollable vomiting and extreme hair loss as side effects of the toxic radiation. But what if it were possible to treat cancer without using any radiation, or any other conventional method of cancer treatment? What if it were possible to treat cancer by simply changing a patient’s diet?

This radical idea was the brainchild of M.D. Max Gerson, who used to suffer from frequent migraines. After going on a strict plant-based diet, Gerson’s migraines ceased. He then decided to research the connection between diet and disease further, and went on to experiment with, what he called at the time, the “migraine diet”. He soon found that this diet not only rid patients of migraines, but also cured tuberculosis. Gerson established a treatment program using his diet at the Munich University Hospital, where he caught the attention of Dr. Ferdinand Sauerbruch. Together Gerson and Sauerbruch conducted clinical trials on 450 tuberculosis patients using the Gerson diet, out of which 446 completely recovered from the disease. The success of the treatment led Dr. Gerson to extend his practice to patients of several kinds of illnesses, from heart and kidney diseases all the way to cancer. Gerson continued to see success in all his patients— even those who had been given up to die after all other treatments failed.

Today, the Gerson Institute, founded in 1977 by Charlotte Gerson, the daughter of Dr. Max Gerson, treats patients of cancers, heart disease, diabetes, arthritis, and more. The institute administers treatment in two different locations: one clinic in Mexico, and one health center in Hungary. It also maintains an office in San Diego, California.

As with any method as seemingly radical as the Gerson treatment, there is much speculation as to its effectiveness. In fact, the Gerson treatment is illegal in the United States and not verified by the FDA. Some speculate that this is mainly because the Gerson treatment method does not allow any pharmaceutical companies or major corporations to benefit from it, as it does not involve any conventional medicine. Its efficiency, some argue, thus threatens those companies that make a living off of the sick. There is also much skepticism over the availability and validity of studies done on this method. When searching for such studies, one may find many websites claiming that there is no valid evidence proving the Gerson method to be effective. In fact, one is more likely to find several major sites, such Cancer Research UK and National Cancer Institute, strongly recommending against the Gerson treatment. (cont.)
However, according to the makers of “Food Matters”, a documentary that dissects the clean diet healing concept, these studies have been hidden from the public and most databases, even though many doctors and researchers have researched and reported findings on the issue. The alleged motive for the secrecy is moneyed interest to protect billion-dollar investments into the industry of medicine. Overall, it is important to know that the Gerson method may be effective, but it does not mean it will replace the need for all forms of conventional medicine, such as surgeries. And perhaps one day in the future, the work of the Gerson Institute can be integrated as a part of conventional practices.

This is indeed a practice and conspiracy that challenges the basis of what most of us conceive as health care. Nonetheless, a body that is ill surely cannot be healed if it is poorly nourished. Pills and injections alone do not replace a healthy diet. Whether or not you believe the Gerson treatment method to be radical, it is undeniable that a healthy diet is one of the most important components of maintaining and achieving good health.

Sources:


Will New Prime Minister Turnbull be a Breath of Fresh Air, or a Climate Change Turncoat?

by Alex Toke

In a shift not-unprecedented in recent years, Australia experienced a dramatic political upheaval as Prime Minister (PM) Tony Abbott was ousted from office on September 14. This followed a leadership vote in Australian parliament that saw those in favor of removing Abbott win by a handy 54 votes in-favor to 44 opposed. His replacement, former-Minister for Communications under the Abbott government Malcolm Turnbull, has promised a new style of leadership, referencing Abbott’s government thusly: “the Prime Minister of Australia is not a president. The Prime Minister is the first among equals.”

Turnbull began his assault on Mr. Abbott’s position on Monday, September 14, declaring that Mr. Abbott was incapable “of providing the economic leadership we need”, and that Australians “need a style of leadership that explains those [economic] challenges and opportunities, explains the challenges and how to seize the opportunities.” While both politicians are members of the dominating Liberal party, leadership upsets in Australian politics are nothing new as of late. Turnbull is the fifth PM in Australia in the past five years, although he plans for a “21st century government, and a ministry for the future,” implying, at least in theory, that he intends to cement his newly-acquired position through concrete action.

Promising more progressive stances than former-PM Abbott on a variety of issues, including climate change, same-sex marriage, and increasing the ranks of women in government, Turnbull has already had his share of detractors, with Australians and the international community divided on their pre-perceptions of the results of his time in-office. Turnbull, for the moment at least, is more popular in his own party and with younger demographics, although there are many who are skeptical of how different of a tune he might sing from his new seat in Canberra.

While before his ascension he was a firm proponent of the idea of carbon markets and exchanges, as well as a fiercely-impassioned supporter of more-progressive environmental policy, he has since changed tack, in a move that has some questioning whether he is, in fact, a Climate Change “turncoat”, or, as bad as his predecessor, who was labeled by Canadian author and outspoken environmentalist Naomi Klein as a “Climate Change villain”. While in 2010 Turnbull declared that “we are as humans conducting a massive scientific experiment with this planet. It’s the only planet we’ve got…we as a human species have a deep and abiding obligation to this planet and to the generations that come after us.”, post-election, he declared that the Labor party’s (only) stance on the environment, that Australia generate 50% of its energy needs from renewables by 2030, was “one of the most reckless proposals the Labor party has made.”, before going on to say how natural gas and “clean coal” could somehow play roles in reducing the state’s greenhouse gas (GHG) emissions.

Coal production and export was greatly expanded during Abbott’s truncated time in office, and inevitably, so too were Australia’s GHG emissions during the same period. However, despite arguing vehemently for greater recognition of the threats of Climate Change, PM Turnbull has declared that his stance will not differ from the Liberal party’s on the subject, a business-as-usual approach that has many environmental activists and policymakers concerned. (cont.)
Indeed, many environmental activist groups in Australia are petitioning Mr. Turnbull to end an ongoing inquiry spearheaded by the controversial Minister for the Environment, Greg Hunt, into supposed misuse of funds by environmental groups. Hunt was also the official responsible, through Abbott, for approving the dumping of dredge silt from expanded coal ports onto the Great Barrier Reef. Deeming the inquiry an ideological attack by the former Abbott government, many Green groups are pressing PM Turnbull to protect their -deductible status and end the lopsided inquiry.

With these issues concerning future environmental policy arising so early into his term, along with the current and future economic, social, and political issues facing Australia, it is currently unclear how the government of Mr. Turnbull will adapt to the changing climates, both literal and figurative. Will this new government bring in a breath of fresh air for the only state to cover an entire continent, or will PM Turnbull follow in the same league of Climate Change villainy as his predecessor? Only time, and the polls, will tell.

Sources:
Sounds in the Night: Travelers from Parts North

James Duffy

I sat bundled on my back porch in rural Warren County, New Jersey. Like many a Northeasterner, I was enjoying the subtle hints of fall that had found their way into the night air, even during an unseasonably warm September. The pitch of summer’s crickets had faltered, while the increasingly loud presence of goldenrods and asters forecasted impending change from the roadsides and woodland edges. Hands wrapped around steaming tea in the dark, I surveyed the night sky when suddenly, out of the blackness—a chirp.

The tea mug clinked down on the table. Ears strained in silence.

Not thirty seconds later, it happened again. Somewhere in the clear darkness above, perhaps between the Big Dipper and the North Star, a singular chip rang through the air. It was a noise so small as to be lost to ambient noise in daylight, but in the night’s near silence, that chip fell heavily to earth, eerily out of place. It was the first of many to be heard that hour, each one no more than a suggestion of a presence. And as those hints of birds bounced overhead, one couldn’t help but feel privy to something secretive and significant, and to wonder: who else was traveling unseen through the night?

As it turns out, I wasn’t the only one with ears tilted skyward that night. Across the Northeast, bird enthusiasts watched radar screens light up as clouds of birds—numbering perhaps in the tens of thousands—took to the air in perpetuation of an ancient cycle: fall migration. For untold millennia, songbirds have winged south on the cool, stable air of autumn nights, away from the watchful eyes of predators. Their departure from parts north was signaled by shortening days, changing temperatures, and changes in food availability. The journey itself is guided by little-understood internal compasses and celestial markers.

Some avian migrants may move from one temperate location to another, while others—the Neotropical migrants—may wing south over 200 miles in a night on their journey to the tropics. And distance is not the only staggering figure—on a recent morning in Cape May, New Jersey, 57,088 individual birds were tallied flying past the counting site at dawn, with 40,729 belonging to just one species of warbler. While exceptional, this songbird flight constitutes just one of many occurring across North America from August through as late as November.

One must wonder: where do they come from? The answer lies in the dusky confines of North America’s boreal forests. Within the boughs of this evergreen stronghold, an estimated 80 percent of North America’s waterfowl, two-thirds of its finches, and roughly half of its wood-warblers make their summer home. And this should come as no surprise. By most appraisals, the great majority of boreal wilderness remains intact and unfragmented. However, pressure to develop oil, gas, timber, mining, and hydroelectric resources in the boreal forests threaten the vastness of these avian breeding grounds. Most disturbingly, much of the boreal forest exists at latitudes where global warming is predicted to be most pronounced. The fate of these vibrant forests, as well as the fauna they house, rests in the decisions made by policymakers in the immediate future.

The integrity of these forests and the fate of the Americas’ songbirds are intertwined. If juncos are to adorn the winters of our children, the needle-coated soils of this biome must remain. If future generations are to cast ears upward as rivers of migrants flow through the landscape in autumn chill, efforts to preserve the physical presence of these forests, and curb the climatic changes that threaten them, must continue.

Sources:
Washing Our Problems Down the Drain
by Sagarika Rana

Think back to what you did this morning when you woke up. People typically follow their morning routines and do things like brushing their teeth, washing their face, drinking some coffee and leaving through the front door. But does anyone have “adding plastic into the water system” to their list of morning activities? You would be surprised to see how often you un-intentionally do.

Microbeads are a popular additive to beauty products ranging from lip balms to personal care products. These beads help exfoliate the skin but they are non-biodegradable. This is because the plastic microbeads are made of polyethylene and can be less than a millimeter wide in diameter. The plastic is a cheaper alternative than the natural defoliants such as apricot seeds and various other “scraps”. Items such as soaps frequently contain microbeads but new toothpastes have also started to use microbeads in their formula.

When the beads are washed down the drain, they are usually not caught by the water treatment plant and they are released into natural water systems. Water treatment plants were not built to extract tiny bits of plastic from the water. These beads are durable and non-biodegradable so when we wash them down the sink, they will end up somewhere and stay there for quite some time. This plastic can sometimes be ingested by fish that we later eat ourselves. Ironic, right? The plastics can also harbor pesticides, heavy metals and toxins, which again are extremely damaging not only for us but for residents of the sea. Ingesting plastic can be fatal but having the plastic lodged in our gums is also dangerous. Dentists in California were the first to raise concerns over the alarming amount of plastic in patients’ gums. The plastic can harbor toxins and bacteria, and due to this Crest products are due to phase out microbeads by Match 2016.

There is already movement to ban microbeads and their products in California, Washington, Connecticut and Canada. Companies have pledged to remove the beads by 2017. Dove and Axe soap have phased their beads out earlier this year. Try to check if the products you buy have any beads in them by looking for polyethylene, poly-e-terephthalate, and polymethyl methacrylate. By being aware of the products and ingredients to steer clear of, you are helping reduce the amount of plastic microbeads released into the water systems. This form of plastic in the water supply is preventable so with everyone doing their part we can hope to see a difference before irreversible damage is done to the water systems and the animals that live there.

Resources
http://www.dailytimesgazette.com/scientists-call-for-a-ban-as-toothpastes-8-trillion-microbeads-pollute-waters-daily/27547/
http://storyofstuff.org/plastic-microbeads-ban-the-bead/
http://www.motherjones.com/environment/2015/05/
Extinction is Forever- Wear a Condom
by Taylor Dodge

The human population is thriving while others are dwindling to near extinction. Humans, as a species, have nearly tripled in size from two billion in 1950 to over seven billion today. By 2050, our population is projected by Geohive Population Statistics to reach close to 10 billion. Although the world may be able to sustain our growing population, thousands of other species are taking a hit. As the population grows, so does our need for additional resources and space. These come at a cost, though. As we take for ourselves we are depleting the resources from millions of species that have lived and thrived long before us.

The Center for Biological Diversity has started a new campaign to help raise awareness of this problem in a unique and entertaining way; condoms. To help raise awareness of endangered species and population control, the CBD has designed condoms with wildlife themed packages. These packages are accompanied with two colorfully wrapped condoms, catchy slogans, a brief fact about the featured critter, facts about unsustainable population growth, and lists solutions to the problem. Since their campaign launched in 2009, they have distributed hundreds of thousands of free condoms across the United States.

Why condoms, though? Unintended pregnancies account for 51% of total pregnancies (31% mistimed, 20% unwanted), and by wearing condoms, millions of unwanted and unplanned pregnancies can be prevented. One of the CBD’s goals are to empower women, to let them know that they are in control of their lives, and to provide women with the resources and information they need to help plan their pregnancies. The also aim for worldwide education of all peoples, universal access to birth control, and sustainable consumer choices. In addition to preventing unplanned pregnancies, using condoms as a campaign helps people to see in a fun and creative manner the linkage between the growing human population and increasing species extinction.

These condoms are also sustainably made themselves. Yes, these condoms are vegan. The brand name is Sustain and they are completely free of animal by-product, nitrosamine, and GMO’s and are less likely to cause an allergic reaction. The latex used comes from one of the most sustainable rubber plantations on the planet with recyclable and biodegradable packaging.

Not only does preventing overpopulation aid in lowering the species extinction rate, but it also has a number of other environmental benefits as well. As each person has a carbon footprint, with every new person brought onto this planet more greenhouse gasses will be brought with them. By slowing down population growth, CO2 emissions can be reduced as well. By reducing CO2 emission, issues like climate change and increased ocean acidification will begin to take less of a toll on our environment.

The CBD spread their message with their endangered species condoms. Human population growth can be held accountable globally. There is still time to save the other hundreds of thousands of species that are on the brink of extinction, and it can be as easy as recycling or even picking up trash along the sidewalk. So, the next time that you’re fumbling in the dark, be smart and think of the Monarch.

There are two garden state farms that want to change the way we view consume and produce food.

The first is the farm at Ethos Health Center in Long Valley, NJ. Dr. Ronald Weiss, assistant professor of Rutgers New Jersey Medical School, purchased an 18th century, 348 acre farm with the intention of incorporating vegan nutrition into his practice. "Plant-based whole foods are the most powerful disease-modifying tools available to practitioners — more powerful than any drugs or surgeries... I am talking about treating and preventing chronic disease... heart attacks, the strokes, the cardiovascular disease, the cancers ... the illnesses that are taking our economy and our nation down." He hired a nutritional educator, Asha Gala, to teach cooking classes in the renovated barn to show people how to prepare the farm produce.

Ethos is run as a CSA, or a community supported agriculture project, where consumers can pay a membership fee at the beginning of the season and receive a share of fresh vegetables, fruits, and herbs every week. Members also volunteer on the farm to help it keep going and to learn about where their food comes from. So far 90 families have joined the CSA. Running a farm this way helps farmers know in advance how much food to grow, providing them with greater financial stability. Such methods can also make produce more affordable for consumers. In fact, CSA’s tend to be cheaper than farmer’s markets and farm stands. In addition to practices governing output, Ethos is also working towards more wholesome production as it pursues certified organic status. Weiss believes the center will have a positive impact on his patients, the community, and the planet. "Human health is directly related to the health of the environment, the production of food and how it is grown. I see this farm as an opportunity for me to take everything I’ve done all my life, all the biology and chemistry of plants I have studied, and link them to the human biological system." (cont.)
The second farm is going in a different direction. In Newark, NJ, an old steel mill is being replaced by the world’s largest indoor vertical farm to date. Aerofarms, a mission-driven clean-tech company, will use the 69,000 square foot space to grow 2 million pounds of leafy greens annually by the end of 2015. Despite conventional wisdom, plants can be grown without soil. The roots are dangled in midair, where they are sprayed with nutrients, and LED lights act as a substitute for the sun. This allows crops to be stacked in rows on top of each other, saving space and time. Plants will grow in 1/11th the time and use 95% less water, 3% of the land, 0% of the pesticides, and 98% less transportation emissions than conventional agriculture, all while creating jobs in the city. Aerofarms can grow produce year round and claims it can extend the shelf life of greens from 1-2 weeks to 3-4 weeks by eliminating the need to wash soil and pesticides off the plants before sale. This is their second project, backed by Goldman Sacs. Theirs first was a micro vertical farm in a Newark Chart School’s cafeteria kitchen. It was a raging success.

From farm to diet, New Jersey leaders are going where no doctor or farmer has gone before.

Rutgers’ Final Frontier: The Rutgers Ecological Preserve

Rachel Rodriguez

The Rutgers Ecological Preserve, also known as Kilmer Forest, is well known by most ecology enthusiasts in Rutgers, but is rarely ever discussed outside of the ecological community. Considering its richness in history, one begins to question how such a vast amount of land is kept a secret from a majority of Rutgers’ students. The Rutgers Ecological preserve is 370 acres (Rutgers Ecological Preserve, nynjtc.org) of land- its entrance located just outside of the Livingston campus- with trails which can be used for hiking, biking, bird watching, and more. It is completely free and open to the public, whether a student or faculty member hopes to relax or study what New Jersey’s woodland has to offer.

Besides being an ecological preservation site, Kilmer Forest holds an important piece of history for the state of New Jersey. Before it became the Rutgers Ecological Preserve, it was in fact part of Camp Kilmer, a military base which housed a prisoner-of-war camp, a bunker for ammunition, a mess hall, and barracks. Travelers of the ecological preserve can still spot the paved areas through the middle of the tracts, and the soil mounds used to protect soldiers from the ammunition stores. Camp Kilmer, which in its entirety spans from Edison to Piscataway, was first used in 1941 as a major transportation site for the soldiers traveling between the European Theater, during World War II. The camp was closed down by 1949, but reopened when hostilities arose between the United States and Korea in 1950. It was officially inactivated in 1955, when Fort Dix replaced it as the major processing point. (Camp Kilmer, globalsecurity.org)

Faculty members such as Professor Richard Lathrop, the Faculty Director of the Rutgers Ecological Preserve, hope to shed light on the importance of the ecological preserve. Throughout the years, Professor Lathrop has been helping students conduct field research at Kilmer Forest, and often brings the students of his Principles of Natural Resource Management class out to the preserve for field-based lectures. Along with informing his students at Rutgers, Lathrop has also worked with high school students and fellow professors within the Ecology, Evolution, and Natural Resources department. “The EcoPreserve provides experiential learning sites where students can observe and collect data as well as get their hands dirty by undertaking experimental manipulations and be involved in hands-on restoration and enhancement, design or arts projects,” states Professor Lathrop. (cont.)
Throughout the summer, Richard Lathrop teamed up with the high school students of the 4-H Samsung Summer Science program, a science, technology, engineering and math (STEM) program which helps underprivileged, underrepresented students work within the STEM fields. Professor Lathrop as well as other Rutgers faculty, undergraduate, and graduate students assisted the students in geolocating trees and trying to figure out the effects Superstorm Sandy has had on tree coverage and canopy opening at the Rutgers Ecological Preserve. The students attempted to answer questions such as “Which tree species were hit the hardest?"

What we can take away from experiments such as the one run by both Rutgers students and the high school students of the 4-H Samsung Summer Science program is, the ecological preserve is more than an untouched area outside of Rutgers University. The forest, in fact, has a great history, and has been effected in more than one way by direct human contact. The relationship we share with the ecological preserve can scarcely be found elsewhere, and with events such as RU Muddy (a mud run held the 26th of September) taking place at the Kilmer Forest, it is important that more students within the university are made aware of the forest which lies just next door.

Sources:
http://www.nynjtc.org/park/rutgers-ecological-preserve-kilmer-woods
http://www.globalsecurity.org/military/facility/camp-kilmer.htm

Current Refugee Crisis Gives Insight into Future Climate Crises

by Rachel DiSciullo

Civil war in Syria is causing one of the most devastating humanitarian crises in this lifetime. Over 45% of Syria’s population--or 10 million people--have been displaced; about 4 million of those displaced have found refuge in countries in the region. But Syria’s neighbors have become over encumbered with refugees, causing many to seek asylum in Europe. In Europe, and in parts of the Middle East, Syrians struggle against backlash from unfamiliar governments. It is unsurprising that such large-scale emigration from Syria has caused such international upheaval. But, what does this mean for future climate refugees? Climate change certainly played a hand in the Syrian crisis, but it is only the tip of the iceberg. The United Nations estimates that 200 million people will be climate refugees by 2050. Given the reaction of the international community to approximately 4 million refugees, how will the world ever be able to handle 200 million or so more?

In 2013, neighboring Lebanon was already oversaturated with refugees. The nation had taken in over one million Syrians--overwhelming their government services, job market, and real estate market. Severe conditions in Lebanon prompted Information Minister Ramzi Jreij to ask refugees to settle elsewhere. Lebanon’s suddenly overwhelmed infrastructure has been a point of tension between Syrians and Lebanese citizens. Relocation is about more than finding a place to live--it is concerned with integrating refugees into their new communities and empowering them politically. Fortunately, 25 UNHCR community centers were established in order to connect Syrians and Lebanese in a shared space--potentially preparing for a future where the current refugees are fully integrated into Lebanon. While the UN has taken a role in settling tensions, aid is desperately needed to allow Lebanon to provide basic necessities to refugees--and the international community has not stepped up.

The problems refugees face in Europe is quite different than those they face in Lebanon and neighboring states. While most European countries that Syrians are seeking refuge in are wealthy and well-able to accommodate refugees, fear, nationalism, and nativism (cont.)
dominate their discussions of immigration. Hungary recently voted to deploy troops on its border to block Syrians; and the refugees that Europe is hosting as a whole is equivalent to a mere 1.7 percent of the amount of refugees hosted in the Middle East. The European acceptance of refugees is insufficient, and that is even with the protections granted to them under international law. The Universal Declaration of Human Rights grants those persecuted in their home country the right to enjoy asylum in other nations, but it does not grant this right to climate refugees. While not all climate refugees will be forced out of their states for purely environmental reasons—many will need to seek asylum due to conflict brought on or exacerbated by climate change—it is still necessary for the international community to change its definition of what a legitimate refugee is to include those forced out of their homes by climate change.

The international community must take a greater role in refugee crises as a humanitarian responsibility and also, in the case of climate refugees, as an actor in the crisis. While some countries contribute to climate change via emissions more than others, the impacts of climate change are global. It is necessary for the sake of sane treatment of refugee crises that Western and wealthy nations, which have created the most emissions over the course of history, reconcile with their role in the problem. While Syria’s climate-change-spurred drought had a large part in destabilizing the region, the largest contributors to global emissions (Western nations as well as Saudi Arabia) were the quickest to turn away refugees. Luckily, there is a high correlation between a state’s total emissions and its likelihood to be highly developed, thanks to industrialization. Industrialized nations have the ability and the responsibility to take in refugees, escaping from a problem they themselves caused. If only they would step forward.

Sources:
Coffee lovers rejoiced when the Keurig K-Cup became a household phenomenon and there was no longer wasted coffee at the bottom of a large coffee pot every day. One no longer needed to hassle with coffee filters, spilling grinds, or waiting for a whole pot to brew. Since around 83% of U.S. adults drink coffee, this revolutionized a multi-billion dollar industry. (USA Today) But lurking beneath the veil of convenience is an environmentally lethal issue.

K-Cups are small, single-use plastic pods filled with coffee grounds, designed to brew one individual cup of coffee. What happens next? The pod can only be tossed into the trash to sit in a landfill with all its other plastic companions. A K-Cup is made from #7 plastic (officially labeled “other” because it is a mix of composite plastic) and generally cannot be recycled in its entirety. When tossed in the garbage, plastic does not biodegrade, therefore it will never break down into organic matter that can be reabsorbed into the environment (Clean Ocean Action). Plastic only has the capacity to photodegrade, breaking into smaller and highly polluting pieces. An enormous amount of the pieces end up in the ocean, causing suffocation, strangulation, and starvation in seabirds, turtles, sea lions, fish, and several other types of marine animals (Environmental Protection Agency).

John Sylvan, the inventor of K-Cups, is beginning to express his regret for his part in the environmental damage. Sylvan told The Atlantic, on inventing the disposable pods, “I feel bad sometimes that I ever did it.” (CNN) One wouldn’t even find a Keurig system in Sylvan’s personal home. Sylvan was bought out by Green Mountain Brewing Company for $50,000, and has since attempted to help Green Mountain make a more sustainable product. Unfortunately, Sylvan quotes, “I told them how to improve it, but they don’t want to listen.” (CNN) The reusable K-Cup pod was not adopted for several years and Green Mountain has made the Keurig 2.0 system incompatible with reusable pods.

Americans haven’t been overly receptive to the environmental impact of the K-Cup, however, since Keurig Green Mountain’s annual revenue skyrocketed to $4.7 billion in 2014 and an estimated one in three homes has a Keurig machine. (NY Daily News) The impact of this amount of plastic is astronomical—the amount of K-Cups sold in 2013 could encircle the globe 10.5 times (Mother Jones). When the company released its sustainability report, they noted that they
are committed to making 100% of the pods recyclable by the year 2020. They also are donors in part to the “Closed Loop Fund”, which “helps finance development of recycling infrastructure” (CBS Local).

Although the ease of a disposable K-Cup may seem tempting in the morning, one will save money and save the environment if they wait just an extra few minutes for a fresh pot of Joe.

Sources:
http://www.motherjones.com/blue-marble/2014/03/coffee-k-cups-green-mountain-polystyrene-plastic
Milk Without The Cow?
By Alexus Lizardi

Scientists are beginning to create alternatives to the unsustainable use of animals in the food industry. One of the newest companies trying this out is named Muufri, (pronounced Moo-free), which was created by three vegan bioengineers named Perumal Gandhi, Isha Datar and Ryan Pandya. This company has been successful in creating a synthetic equivalent of cow’s milk using bovine DNA and yeast culture. This is not your regular almond or soymilk. This milk is made to duplicate the taste and consistency of cow’s milk. Muufri began their research in 2014 as an extension of a non-profit, New Harvest, which focuses on global food insecurity and cultured meat. Six months into their research Li-Ka-Shing, known as the richest man in China, invested $2 million into Muufri--and their support is continuing to grow.

More specifically, to create this milk, Muufri is adding together the essential sugars, minerals, fats, and proteins that can be manipulated by plants at the molecular level. They are then taking yeast and inserting DNA sequences from female cows. After that, they let the cultures grow. This creates milk proteins.

The inspiration behind creating this alternative is to cut back on the environmental impacts of the dairy industry. According to the EPA, animal agriculture is the largest contributor to methane emissions globally, and is the second largest contributor in the United States (Overview of Greenhouse Gases). Methane is created through the digestive process of livestock, the most common culprits being cows. In other words, cow farts are actually hurting our planet. According to the Food and Agriculture Organization of the United Nations, 4% of greenhouse gas (GHG) production comes from dairy alone (Greenhouse Gas Emissions from the Dairy Sector). This number is calculated by taking into account the production, processing and transportation that goes into milk.

Aside from GHG emissions, water is also a highly used resource in the production of milk. According to A Global Assessment of the Water Footprint of Farm Animal Products, dairy cattle contribute to 19% of the total water footprint of farm animals, second only to beef cattle (Mekkonen). Another study has found that one glass of milk (250 ml) has a water footprint of 66 gallons (Hoekstra).

These facts alone show that dairy is an environmental problem (this is without even mentioning the issue of ethics). According to a presentation given by Ryan Pandya at the Postcode Lottery Green Challenge, Muufri’s brewed milk will consume 98% less water, 91% less land, emit 84% less CO2, and consume 65% less energy. And while these numbers might sound like sustainability heaven, it is too early to be sure of these projections’ reliability. Taking these numbers with a grain of salt, Perumal Gandhi simply explains the issues with current milk production: “Making an entire cow to make just the milk is inefficient. You’re giving it all this feed and water, and most of it goes towards growing legs, growing a head, growing a liver and lungs—just living.”

Muufri is not the only business exploring the realms of replacing animal products through new technology. Companies like Beyond Meat have created a plant-based burger that bleeds just like meat. Clara Foods is creating the chicken-less egg white to be used in pastas and condiments. Hampton Creek is making scrambled eggs without the egg. The list goes on.

What will all these upcoming businesses mean for the way we produce our food? These technologies will make us question our culture, agriculture, ethics, environmental impacts, and how we define food. There is much uncertainty in this realm of research, and is unquestionably controversial. The public and business sectors’ reactions to these companies as they continue to grow is greatly anticipated.

Sources


Milk Grown in a Lab Is Humane and Sustainable. But Can It Catch On? (National Geographic)

Overview of Greenhouse Gases (Methane Emissions)

by Heather Roth

This month, the Africa Progress Panel released its annual report. The panel is made of ten distinguished individuals involved in Africa’s private and public sectors. The individuals on this panel have been advocating for equitable and sustainable development within Africa. The focus of this year’s report is on developing Africa’s energy resources to help fuel sustained economic growth. The panel believes that life improvements will be brought about by making energy more available. According to the report, 621 million people still lack access to electricity and the energy gap between Africa and the rest of the world is only increasing. The 2015 Progress Report has detailed steps that global and African leaders must take in order to achieve the panel’s vision.

The panel understands that Africa’s opportunity for a low-carbon energy revolution will be difficult to achieve. To change Africa’s current situation, energy sources must first be allocated to each house, school, or building throughout Africa. Once the amount of energy sources has been increased, attention must be paid to the most disadvantaged citizens. Many believe that simply increasing the availability of grid-based models would vastly improve the life of the everyday citizen. Many Africans generate their own energy by the burning of wood and other biofuels, which emit pollutants into the air. However, many African countries have additional natural energy resources that could help kickstart future projects for wind and solar energy. International governments have acknowledged the benefits of potential renewable energy sources, which could lead to cleaner innovations in how African nations generate their energy.

In many African nations, agriculture is the principal driver of local and national economies. However, climate change has already taken a great toll on agricultural production by changing rainfall patterns, causing new temperature extremes, and increasing the rate of desertification among the land. Due to many African nations’ scarce energy supplies, especially in Sub-Saharan regions, it may be difficult to recover from the effects of rising temperatures that would cause farmers to see lower crop yields. According to the report, Africa is susceptible to climate change due to its agricultural dependence on rainfall.

This gives officials even more reason to support renewable energy innovation and policy that will help improve energy access that will expand current irrigation systems. The panel’s report urges African governments to put greater efforts into developing sustainable agriculture systems that can withstand climate risk, raise productivity, and help strengthen food security.

The effects of climate change have become an increasingly important topic within the international community. The Paris summit will therefore be discussing international action for establishing a zero-carbon emissions plan to prevent a two-degree Celsius rise in temperature. The spokesperson for the panel, Kofi Annan, speaks seriously about the effects of climate change within Africa and how it might alter crop production. He says, “The effects of climate change are felt all over the planet, but not equally.” He implores the international community to put climate change at the top of its agenda.

This November, the panel will bring these proposals to an international symposium held in Paris, where it will be requesting international support. The Paris summit offers present countries the opportunity to take initiative in molding this international agenda, and thus playing an important role in establishing “equitable access to sustainable development”.

It will undoubtedly be interesting to see Africa’s sustainable development goals unfold throughout the coming years. If the panel is correct about Africa’s energy development and its effects on production, then the world may have an answer to combating global poverty and inequality. If the summit approves the proposal, we as a global community must help combat climate change to see economic success in Africa.

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Whale Sharks & Ecotourism
by Morgan Lewis

There has to be something breathtaking about jumping into deep-sea water and coming face to face with the ocean’s biggest fish. Big, beautiful, and mysterious, the whale shark (Rhincodon typus) is a fish worth money to see. Don’t think so? The Yucatan’s whale shark tourism has grown from a few hundred tourists a year to about 12,000 annually and a survey in the Seychelles has shown that people would be prepared to pay US$55 for just an encounter with one of these magnificent creatures. And with a large geographic distribution these tourist opportunities are also available and utilized in other countries as well, like Belize, Mozambique, the Philippines, and the Maldives.

More interest in whale sharks equals more tourists, and thus more money. From a financial perspective, whale shark ecotourism is beneficial to locals and tourists. Tourists get to see something spectacular and locals get to make a living off one’s curiosity. However, not everyone is convinced that the benefits reaped by both locals and tourists do not in turn effect the whale sharks negatively.

An increase of tourists out at sea to explore their whale shark desires inevitably means more boats out at sea. At Isla Mujeres, a small island off Mexico’s Yucatan, there is a spectacular aggregation of whale sharks between June and September. With over 300 hundred ships licensed to bring tourists to their whale shark guaranteed destinations, there are easily more boats out then whale sharks in the water most days. And on days when the waters are just a little overcrowded these slow-moving, close surface feeding creatures are unfortunately susceptible to unintentional boat strikes that can cause serious injury. On top of that, this area is also a route for many cruise lines like Carnival, Norwegian, and Royal – limiting even more space for whale sharks to move about safely.

In places like the Philippines, on the other hand, there are also some controversial methods going on to guarantee the whale shark ecotourism. Upset that these creatures are migratory and prevent year round visits to the same destination? No worries, in Cebu, an island of the Philippines, the feeding of whale sharks is sure to keep them where you’d like them to be. Many scientists believe that the feeding of whale sharks in one particular area could (cont.)
potentially lead to abnormal behavior by whale sharks such as increased aggression or competition amongst one another. Others on the other hand feel that such close contact could lead to the spread of disease and parasites, and that the food being fed to these creatures may not have the nutritional requirements they usually receive. When it comes down to science though, there is still very little published information in regards to these concerns.

There are a lot of questions in regards to how this controversial style of ecotourism and its effects on whale sharks will be handled. While the material is still new, it is hoped that new research will shed light on this interesting topic.

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Whale_Shark_Isla_Mujeres_Research_Snorkel_free_dive_diving_conservation_holiday_snorkelling_swim_Caribbean_Cancun_Holbox
An image of a tropical paradise is incomplete without the colorful marine landscapes known as coral reefs. They are mysterious and beautiful, and those who have gone snorkeling or scuba diving amongst the reefs say that the experience is unmatched by any in beauty. Coral reefs are marine ecosystems, home to extremely diverse and well-populated communities. They provide services to many marine ecosystems as well as to humans; they are the rainforests of the marine world.

However, much of these beautiful seascapes are no longer the active and vibrant places they used to be. These wonders of the sea are not only being threatened, but are already being destroyed by the harmful effects of climate change and pollution from nearby development. The process of coral bleaching and ocean acidification could bring an absolute end to the reefs that are not only beautiful, but vital to marine ecosystems.

Coral bleaching is the result of corals expelling the algae living in its tissues due to stress caused by a change in ocean conditions. Because of this process, the coral is left white due to the exposure of its calcareous skeleton through its now translucent tissues. The algae and coral live symbiotically, and together build the platform for a vast web of marine organisms that cannot survive without them. The conditions that can cause bleaching include an increase in water temperature, runoff that dilutes ocean water, pollution, overexposure to sunlight, and exposure to air during exceptionally low tides. Coral can survive bleaching if it is not too severe, but this has not been the case for much of the world’s reefs in recent years. In 2005, half of the Caribbean coral reefs were lost to bleaching. Ocean acidification is the result of the ocean absorbing CO₂ that has been released from industrial and agricultural activities. This
lowers the pH of the water and ultimately reduces the ability of coral to extract dissolved calcium, thus damaging corals’ development and durability. Mark Spalding, a marine scientist at the Nature Conservancy, estimates that 75% of the world’s coral reefs are threatened with degradation.

However, as many of the reefs in our world disappear, in one part of the world, they are thriving. The miraculous discovery of these reefs took place in the waters off Cuba. The reefs of Cuba are like a marine time capsule, containing areas that resemble the Caribbean reefs of over 25 years ago, including some species of endangered coral that scientists have not yet been able to study thoroughly. What is the key to their success? The answer is lack of modern human activity. For many years, Cubans have not been able to afford fertilizers and pesticides, reducing harmful runoff into the ocean. There is barely any costal development and tourism. And importantly, there are also strong environmental laws in place which protect 25% of Cuba’s waters and limit commercial fishing. Even in areas where rising temperatures and pollution have caused bleaching, the coral is recovering, indicating a very healthy environment.

The future of these reefs is the big question on the table. The relaxing of US and Cuban relations, and the possibility of the border opening up to American travelers is raising many different possibilities for the coral reefs’ future. On one hand, many scientists are utilizing this gift as a way to understand a healthy reef and how to restore and protect threatened reefs. Some scientists are calling it a “living laboratory,” and are anxious to work with Cuban scientists to research and expand the pristine area. They want to do whatever they can to protect what may be the last unspoiled reefs. On the other hand, a potential boom of US tourism will ensure coastal development as well as increase in trade, meaning a large potential for the disruption of the reefs. Many scientists and conservation organizations are working closely with Cuba and Cuban conservation organizations to ensure this disruption does not happen. The Cuban government has vowed to keep 25% of its waters protected, but keeping the reefs safe will require significant planning and an unyielding desire to keep these reefs pristine.

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The Mechanical Bull

by Finn Gorman

It might be possible to say that the mechanical bull may come to be one of the most important inventions of the 21st century. No, not the flailing robotic bull found in a Southern dive bar; Ethan Brown, ambitious founder of Beyond Meat, has created a revolutionary mechanism nicknamed 'The Steer'. The California based company Beyond Meat is revolutionizing the way meat is consumed. The aforementioned 'Steer' essentially recreates the process of a cow eating plant matter, converting the energy to muscle or fat, and ending with a juicy, delicious burger. From using only plant matter to create meat, benefits emerge that range from animal and human welfare to curbing climate change.

Beyond Meat's products, such as the Beast burger, offer nutritional benefits that are hard to match. The Beast burger contains Vitamins A through E, Calcium, Iron, and 23 grams of protein. Competing veggie burgers come up short of vitamins as well as almost half the protein. The non-GMO pea and soy based products avoid the need for antibiotics and other chemicals that run rampant in the production of animal meat. Alternative meat sources can also alleviate stress on the livestock industry; by reducing the amount of animals needed to satiate the demand of the population animal welfare will have an opportunity to improve. Curbing demand for animal meat also reduces the necessity for Factory Farms, who are notorious for torturous animal conditions for the sake of efficiency. Aside from the obvious nutritional and ethical upside to the Steer's plant powered meat, global resource use and the effects of climate change can only get better.

Beyond Meat's is framing their environmental ambitions around their “25/20” campaign which aims to reduce global meat consumption by 25% by 2020. The results if this ambitious goal is achieved would be overwhelmingly positive for the global environment as well as human welfare. In 2006 the UN’s Food and Agriculture Organization (FAO) released a report detailing global livestock influence toward climate change and greenhouse gas emissions. The report, “Livestock’s Long Shadow”, pegged global livestock attributable emissions at 7,516 million metric tons of CO\textsubscript{2} equivalents per year. However, a Worldwatch study has supplemented the FAO’s report with unaccounted greenhouse gas emissions including, but not limited to: livestock respiration, land use, methane, fluorocarbons, packaging, and distribution. Inclusion of such unaccounted sources inflates the original estimates from 7,516 million to anywhere from 32,564 million to 63,803 million metric tons of greenhouse gases per year. The former, more modest, recalculated estimate of 32,564 million measures livestock emissions at 51% of global greenhouse gas emission.

If all goes according to Ethan Brown’s plan animals, humans, and the Earth stand to reap from what he has sowed. The direct and indirect benefits of eliminating a quarter of the livestock industry are substantial. Beyond Meat’s products include beef patties, chicken strips, ground beef crumbles, and meatballs. All of the products come with variety of flavors from fiesta buffalo to sesame ginger. As the company has been growing and receiving praise from people such as Bill Gates, the environmental products can be found in Targets, Safeways, Sprouts, and Publix. Hopefully one day everyone will have the opportunity to get thrown off a mechanical bull and sit back down and enjoy a hoppy pint from Ireland and a fresh, delicious burger from “The Steer.”

Source:
Death of the Dead Sea by Derek Leckner

The Dead Sea is one of the most well-known places on the planet, and 15 miles from what some consider the holiest city on the planet. It is also one of the most-frequent visited places in the country of Israel as it is the lowest place on Earth. Its legendary mud is distributed around the globe in the belief that if one cover themselves in it from head to toe, its salts and nutrients has almost supernatural skin-healing tendencies. There is so much salt in the Dead Sea, exposed wounds will sting, and it is not hard at all for bathers to float on their backs. Indeed, Israel makes most of its money from tourism by Jews, Christians, Catholics, Muslims, and others from different religions or not religious at all. One of these iconic attractions is that of the Dead Sea: the sea that is dying ever so slowly as it is shrinking in size.

Israel is sixty per cent desert, making it extremely difficult to grow anything and support the people that live there. In turn, the only way for the state to be able to produce the necessary crops to nourish its people is redirecting water sources from one part to the other. Although Israel’s water recycling program is advanced, one of the most common places that Israelis get their water from is the Jordan River. The Jordan River is a 156 mile river that flows through Jordan and Israel and empties into the Dead Sea, replenishing its water levels. As long as Israel continues to divert water from the Jordan River, the Dead Sea will continue to dry up and it may lose a lot of tourists as well as the consumers of its precious mud. Another reason for the end of viability of the Dead Sea is the formation of large sinkholes around the tourist attraction. The salt water in the Dead Sea is receding faster than the freshwater, causing the freshwater to leech away at the sand causing sinkholes. Not only can water fall into them but also tourists, making the drying of the Dead Sea an immediate as well as large-scale safety hazard.

Another issue regarding the Dead Sea is not just that its eventual disappearance will cost the Israeli government millions of dollars in tourist revenue, but that it is a snapshot for the bigger picture of how humans are damaging the environment through overexploitation. Another example is a 10 hour flight away: Rutgers New Brunswick, the Raritan River. It is an historic site for Rutgers students, alumni, and residents of the New Brunswick area alike. But like the Dead Sea, it is another example of how human interactions with the environment are devastating natural landmarks. While some pose that it is for the benefit of the greater good, but it is important to note the effects human activities are having, as exemplified by the quote “this is the only planet we have”.

The Raritan is full of toxins and the Dead Sea is drying up. Yet knowing this many people still act in a manner that is not environmentally friendly. With this knowledge, I encourage all the readers to go out there in the world and view other ways in which we are damaging the environment at Rutgers and around the world. Maybe you notice trees are being cut down or rough terrain plowed over to make way for more classrooms. You notice in your town when you go home that forest is not there and is instead a site for a new CVS (as in my home town). Or maybe, if you go to Israel, you will notice a dried up desert in a place that once held a lot of water and which people frequently visited. This is not a call to take action, but a call to take notice. Everything else from that point is and always will be up to you.

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Weaning Rutgers off the landfill’s favorite bottle.
by Brayden Donnelly

Rutgers University is renowned for its rich scarlet red, years of tradition, and influence on the Garden State. The University was born in a time when the word plastic had yet to be mentioned. Now, each staff member, student, and local resident finds themselves in contact with the substance and its many forms. Joining together the knowledge and awareness provided by this university, its staff, and diverse student body, we will be able to move towards a holistic understanding of how to best orchestrate the creation, use, and disposal of these plastics.

The NJDEP has 854 registered dumpsites in New Jersey as of December 2014. Most of these sites find themselves full of disposable water bottles. In 2012, the NJDEP recorded that New Brunswick alone produced 572.49 tons of waste classified as “plastic containers”, and 183 additional tons of “other plastics”. The community needs to be aware of the huge burden throwaway plastics put on the waste stream and infrastructures. With all of the conveniences and progressive solutions they are associated with aside, do a great deal of damage to the planet.

The Rutgers University and New Brunswick communities must not be alarmed or scared off by these numbers. Each individual has the opportunity to make a difference. That opportunity will start with the individual’s first step:
Each individual must start small, but think quickly.
Each individual must start quick, but think simply.
Each Individual must start simple, but think globally.

This could very well be the new mantra of the environmentally-conscious within the New Brunswick area. With this moral in the back of everyone’s minds, these issues can be lessened, and eventually solved.

As if hearing the echo of the call for less plastic waste, Rutgers has made a few modifications to the student centers, libraries, and fitness centers over the past few years. The newest additions to the scarlet family are Elkay EZ H20 Cooler Kits; also known as water refill stations. They were brought to campus in part by the New Jersey Public Interest Research Group (NJPIRG), Take Back the Tap, Green Purchasing, and student funding. Their job is to help each of us see the simplicity in lessening the weight of plastic bottles on our municipalities. According to Elkay’s website, these refill stations come in at around $1,500 – $2,500 depending on various aesthetic and filter options. Their return on investment has already been greatly surpassed considering many of the stations around campus have registered numbers in the realm of 50,000 to 100,000+ refills since their installments. Averaged out, most disposable water bottles cost around $1.00. This means that Rutgers has saved the community hundreds of thousands of dollars with a mere $2,000 investment in each refill station. On top of these numbers, Rutgers has helped keep hundreds of thousands of disposable water bottles out of the waste stream. This number can only keep growing. You can be a part of it with only a small investment of $4.00 to $7.00 in a reusable water bottle. Imagine how great it will feel to take this first small step towards a greener planet.

For the individual, that $4.00 to $7.00 investment in a reusable water bottle will save you hundreds of dollars each year. The savings come from what you may have spent instead on bottled water. For the homeowner a gallon of bottled water costs roughly $8.00 while a gallon of tap water, within their own homes, costs $1. Daily Finance, a website for the economically and environmentally concerned, helps to lay out each of these number comparisons on their website.

Many feel that no matter the benefits, bottled water is the cleaner, healthier, and safer route to choose. In recent years this idea has been debunked. Organizations such as the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and the Center for Disease Control (CDC) have pointed out the fact that tap water and bottled water are tested very differently, according to the EPA. Tap water falls under the regulations of the Federal EPA. Often, they will test major water sources every few hours. On the other hand, the Food and Drug Act is responsible for regulating bottled water. This is due to the fact that bottled water is considered a food as well as a private industry. They check bottling plants only a few times a year. Neither the EPA nor the FDA actually certifies bottled water companies.

Switching from disposable to refillable water bottles will change the university, and the surrounding area, in multiple ways. The shift in habit from disposable to reusable will provide an economic savings, as well as a mental “pat on the back” for the individual. So, please, start reusing, recycling, and most importantly refilling here at Rutgers University.

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CONSERVING NEW JERSEY’S BATS
by Noha Haggag

When people think of bats, they inevitably picture nefarious vermin eager to feast on their blood. In reality, bats are harmless, fuzzy, and contrary to popular belief, beneficial to humans. In fact, bats are of utmost importance when it comes to pest control and agriculture. A single colony of 150 bats eats nearly 1.3 million insects each year; and unlike the Dracula-imposed stereotype, North American bats have much bigger issues than those related to garlic or light exposure: a disease called White Nose Syndrome.

White Nose Syndrome is a cold-tolerant fungus that primarily infects and kills bats during their winter hibernation. Since no food is available during the winter, bats hibernate and go into a state of controlled reduction in body temperature and metabolic rate. Every so often, their hibernation is interrupted by a brief arousal to normal body temperature that lasts less than 24 hours. Most of their saved up energy for winter is spent during these brief periods of thermoregulation. However, when the fungus infects the skin of the muzzle, ears, and wings, it awakens the bat for an extended amount of time. This results in a premature depletion of fat reservoirs. The bat then dies of emaciation and physiological stress.

The fungus invaded New York in 2007, and it has been running rampant since. With no cure, it has killed off nearly 80% of the bat population in the Northeast, leaving a surplus of 660 to 1320 metric tons of insects. Science magazine estimates that bats contribute an astonishing $53 billion to U.S. agriculture. If nothing is done to help this vital species, pest control may have to come out of taxpayer’s pockets. Fortunately, the U.S. took some of its first steps this year in protecting the hardest hit bat species, Northern Long-Eared Bats.

This specific species has suffered a whopping 98% reduction in population size. This past April, The U.S. Fish and Wildlife Services listed Northern long-eared bats as threatened under the Endangered Species Act. This provides more funding, recovery opportunities, and maximum protection in areas affected most by White Nose Syndrome, including New Jersey. Though legally protected, too little
is known about the remaining population’s habitat preference and roosting sites. As a result, NJ Conserve Wildlife, NJDEP Division of Fish and Wildlife, and Rutgers University teamed up to find out more on their whereabouts.

This summer, I and several other Rutgers students had the privilege of participating in the statewide mist netting and radio telemetry project. The project consisted of visiting several state parks in New Jersey and putting up mist nets between the hours of 5 PM and 2 AM. Any bats caught in the mist nets were safely removed and tagged with a colored band. Any Northern long-eared bats caught also had a tiny radio transmitter attached to them for tracking purposes. The bats were tracked daily until their transmitters fell off or were no longer detected. Beginning June 1st and ending mid-August, the team mist netted a total of 19 nights. 63 bats were caught, with only 4 of them being Northern long-eared bats. Mist netting and catching bats may seem like the biggest hurdle, but tracking the 4 bats was no easy task. The maximum distance the antenna can receive a signal is from ¾ of a mile, which resulted in a hefty amount of hiking and driving to hear those consecutive beeps of success. Tracking the 4 bats led to 5 different roost sites including under the cedar siding of two homes, two pitch pines, and a stump. Though it may not seem like much, each bat caught was another victory, another survivor. The data collected on Northern long-eared bats will help in making future conservation decisions for the endangered species.

Dracula was lucky to have been “alive” in Europe in the 1400s. If he had transformed into a bat post-2007 in the U.S., a quick stabbing would not have been his death, but rather a long torturous winter of White Nose Syndrome.

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The Independent: The most pessimistic climate change scientist ever, Johan Rockström of Stockholm University has had a sudden change of heart

“The world has a better chance of saving itself from catastrophic global warming now than at any time over the past two decades, according to the scientist behind some of the most alarming predictions ever made for the planet’s future.

His optimism is founded on the breakneck speed of innovation in wind and solar power in the past two to three years, which means that renewable energy is being deployed on a massive scale and, crucially, at a cost roughly comparable to fossil fuels. Only last week new figures showed that the cost of electricity produced by onshore windfarms in the UK has fallen so much that for the first time it is now cheaper than fossil-fuel energy.

“We have a paradox unique to our era. On a scientific basis there is more reason to be nervous than ever before. But at the same time there has never before been so much reason for hope,” Professor Rockström told The Independent on Sunday.

But Professor Rockström warns: “The negatives remain. The world’s coral reefs are so worryingly close to collapse, while the Arctic and Antarctic are deteriorating so rapidly they could hit tipping points that are irreversible ... it’s now or never towards tipping the world to a very costly, very devastating future, versus tipping ourselves towards a sustainable future.”

-Tom Bawden at The Independent