



GP

RUTGERS
GREEN PRINT

ISSUE 22 | OCTOBER 2018

Table of Contents

4	ENDANGERED SPECIES OF THE MONTH: THE VAQUITA
6	PROFESSORS OF RUTGERS
8	HELYAR HOUSE JUST HIT THE BIG 50!
10	BEFORE I GRADUATE
12	THE COMING APOCALYPSE: HOW CLIMATE CHANGE IS WARMING US UP TO THE IDEA OF A "POST-ANTIBIOTIC" ERA
16	PASSION PUDDLE PLAYLIST
17	REFERENCES

Hello Green Print readers!

It's the first issue of the fall semester! I'm so excited to be back here at Green Print green-printing once more. In addition to welcoming back a handful of returning members this year, we also have a number of new writers on staff. I sincerely hope the experience will be a good one for them.

As far as my life goes, I would say my experiences at Rutgers have been good ones. This semester marks the beginning of my senior year, which is crazy to think about. I've been here for almost four years, and while many things have been constant for me, a lot has changed. Even just this semester, for example, I've experienced a lot of firsts. I moved into my own apartment. I got a kitten. I learned how to cook three different kinds of vegetables. I finally feel like I'm starting to grow up a little.

My senior year, however, also brings challenges... and by challenges I mean the future. Historically, that is not something I like to think about, but now I feel I am somewhat prepared to think about concrete possibilities. Certainly, that's progress. Right?

For now I am here to give you Green Print. From us, you can expect new issues on the stuff that we care about. And pictures of my kitten. Definitely expect pictures of my kitten.

Andrew Cumming

Editor

ENDANGERED
SPECIES OF
THE MONTH





BY ALLISON ALMEDA-AHMADI

The vaquita, or *Phocoena sinus*, is a critically endangered marine mammal. Very few people know what vaquitas are, let alone the threats to their species or how they may become extinct by the end of the year.

Vaquitas are a type of porpoise that can weigh up to 120 pounds and reside in the shallows of Mexico's Gulf of California. Vaquitas are small in comparison to dolphins and other porpoises, and have dark spots around their eyes and lips. They have become endangered because they often get tangled and drown in gillnets set for fish.

In an effort to save vaquitas and other endangered species in the Gulf of California, Mexico's National Institute of Fisheries has teamed up with the World Wildlife Foundation to implement safer fishing technologies and to help the Mexican government implement a ban on gillnet fishing. Taking immediate action to save these vaquitas is critical, as there are currently no more than 30 vaquitas left in the world. Vaquitas were only discovered in 1958; they should not have to go extinct half a century later.

If you would like to help save the vaquita, the World Wildlife Foundation is involved in helping them bounce back. You can donate and adopt a dolphin with the World Wildlife Foundation at tinyurl.com/y83tmdrl.

Professors of Rutgers



*An interview with
Dr. Jeffra Schaefer, the undergraduate
program director of Environmental
Science*

BY **JOSHUA MORALES**

Professors are a major part of a student's academic life. We may only see professors twice a week for about 80 minutes, but their lives expand far greater depths than just teaching. Thus, at Green Print we feel it is important and interesting to get to know our professors on a slightly less academic level - something more personal. In this segment of Professors of Rutgers, we're going to get to know the "real" Dr. Schaefer.

Dr. Jeffra Schaefer is a born and raised Cali girl, hailing from the wonderful city of San Francisco. Growing up as a native Californian, Dr. Schaefer aspired to be an actress as she participated heavily in local productions in and around her town. However, as she grew, her love and passion for the arts slowly faded and took a backseat to science. She attended the two-year school, City College of San Francisco, where she gained her associate's degree. Dr. Schaefer then chose to pursue further studies at The University of California at Berkeley, where she studied Biochemistry.

While a student at UC Berkeley, Dr. Schaefer found a job at the United States Geological Survey (USGS) which is where her life's path began to fall into place. Dr. Schaefer started as a humble glass cleaner and after five years she became an invaluable biologist at this USGS location. Originally, she had planned to enter the private sector and to be a liaison between the business

and scientific aspect of biotechnology companies; however, the job at USGS changed her outlook for the future. Doing relevant environmental work and addressing fundamental microbiological problems and solutions increased her interest in furthering her studies.

Dr. Schaeffer had decided that she would be going to graduate school. In 1999, she decided to move to the New Jersey and pursue her graduate studies on the banks of the Ol' Raritan at Rutgers University. New Jersey and its weather did not faze her, as she continued to wear shorts and Birkenstocks through the first few winter months. In 2005, Dr. Schaefer graduated from Rutgers University with a Ph. D in Microbiology and Molecular Genetics. She then joined academia and worked at Princeton University for about 8 years. In 2013, Dr. Schaefer joined Rutgers University as an Assistant Research Professor, and in July 2018, she became the Undergraduate Program Director for Environmental Science. In this position, she hopes to best serve the Environmental Science students by addressing what gaps there are between the curriculum and the real world.

When not at Rutgers University, Dr. Jeffra Schaefer enjoys the company of her husband and two sons. They are a major soccer family, as much of their lives revolve around soccer. The Schaefer family owns season tickets to the New York Red Bulls. Dr. Schaefer has even been known to manage her older son's soccer team, which is quite hectic in the middle of soccer season. For some peace and quiet, Dr. Schaeffer enjoys painting and drawing.

I have had Dr. Schaefer as a Professor for two classes, Analytical Environmental Chemistry and Soil Ecology. Dr. Schaefer is a passionate professor who loves teaching and is very knowledgeable in many facets of the Environmental field. She is also a kind-hearted woman, who is a very driven teacher and learner of Environmental Science. Despite her busy schedule, she is always eager to help students achieve excellence. While her position as the Undergraduate Program Director for Environmental Science is still new, it is a safe assumption that she will do a fine job. No matter what, Environmental Science students at Rutgers can be sure that they have an advocate in Dr. Schaefer.

HELYAR HOUSE JUST HIT THE BIG 50!

BY HENRY VELASQUEZ



Life can be an extremely grueling challenge for individuals who come from financially disadvantaged backgrounds, but there was once a man who sought to fight that issue. Frank G. Helyar, a professor and director at the College of Agriculture from 1917 to 1953, would stop at nothing to help less-fortunate individuals earn a college degree. He found places for them to live on campus, whether it was an attic, a greenhouse, or a basement, and in exchange they would work for the university as payment for their living accommodations. 50 years ago,



in 1968, Helyar House was established to honor Frank Helyar and his mission: to provide housing for financially-troubled students so that they could complete their education in what is now known as Cook Campus in Rutgers University. This year Helyar House celebrates its 50th anniversary. Helyar House is unlike other dorms because of its emphasis on self-governing cooperative living. This means all forty members have to do their part, including cooking for the entire house, feeding the chickens, watering the crops, keeping the house clean, and taking care of fellow housemates (who rapidly become close family). Alumni are no strangers to the house either, as they often visit to catch up with former housemates and get to know the new members. Helyar House has been co-ed as of 2002 and has not only blessed its inhabitants with the gift of a college education, but has also offered the support of an ever-expanding family as well. With aid from magnanimous deans and alumni who donate their time, Helyar House improves every single year. Just like a bottle of wine, the house only gets better with age.

Before I Graduate

BY MEGAN YUEN



I first came to Rutgers in August 2015 without a clue as to how much of a dream the next three years would be. Having grown up in a rural town in Southern Maryland, New Jersey was a wonderfully overwhelming new world. Determined to get the full college experience, I've done a lot in my undergraduate career so far. Rutgers is a place of many firsts: my first all-nighter (thanks expos), first time presenting research, and my first ever fat sandwich. From going to King Neptune Night (4 dining halls in 4 years!) to becoming an RA, I've made good use of my time as an undergraduate. Now that my senior year is well under way, however, I internally panic every few days when I think of all the things I have yet to do. To calm my mind, here's a list of all the things I wish to accomplish before I walk at graduation on May 19, 2019.

There's still so much to do in what feels like so little time. A small part of me envies those that aren't graduating in the Spring. I've made some questionable choices in the last 21 years of my existence, but attending Rutgers has certainly been one of my best decisions thus far. Perhaps you'll find inspiration in this checklist to try new things and experience all that Rutgers has to offer.



- WALK THROUGH THE RUTGERS GARDENS
- SUCCESSFULLY APPEAL A PARKING TICKET
- BECOME A PUBLISHED RESEARCHER
- BE A DANCER FOR DANCE MARATHON
- RU MUDDY 5K
- BIG CHILL 5K
- TAKE A TRIP TO ATLANTIC CITY

- SIX FLAGS GREAT ADVENTURE FRIGHT FEST
- SPEND A WEEKEND IN THE POCONOS
- TRAVEL OUT OF THE COUNTRY FOR SPRING OR WINTER BREAK
- SIT AT PASSION PUDDLE AND DO NOTHING BUT ENJOY NATURE
- STAR GAZE AT THE ASTRONOMY TOWER
- PARTY AT CLUB ALEX

The Coming Apocalypse

How Climate Change is
Warming Us Up to the Idea of
a "Post-Antibiotic" Era



BY WAMIA SIDDIQUI

If you asked someone how they think the world is going to end, there's a good chance they'd say a nuclear world war (especially considering the global state of affairs) or maybe state something along the lines of rapture arriving when the sun stops shining. Perhaps, the more scientifically-minded would bring up the "death" of the sun, or circumstances more directly brought upon us by human actions. Climate change and antibiotic resistance are two of these human actions that have become widely regarded as looming catastrophes. Climate change is a macroscopic issue--to truly understand it, one must view the Earth and the entire biosphere as one single entity that is rapidly changing. On the other hand, conceptualizing antibiotic resistance requires comprehending how small changes genetic changes may completely affect how we treat disease. Although they may seem different, new research has now revealed that these two apocalyptic outcomes are not as independent of each other as they may seem.

Climate change is one of the most contested issues of the century, and yet, the overwhelming majority of scientists agree that it is very much real, and very much, caused by "human activity" (Climate Change Evidence). Within the span of humanity's existence on earth, the health of the environment has been impacted greatly, and as time goes on with little done to stop the progression of this plague, various detrimental symptoms have emerged. These include, but by no means are limited to, rising temperatures globally, shrinking ice covers and glacial bodies, and increased occurrence of extreme weather events. Our oceans, which cover the majority of the Earth's surface, are particularly impacted, as they face acidification from carbon dioxide, sea level rise, and overall warming as they absorb the heat. All of these modifications are disrupting the precarious ecological balance that for thousands of years have been so painstakingly maintained and perfected through natural selection processes.

Antibiotic resistance, on the other hand, is not necessarily a controversial issue-- for the most part, there have been very few people who vehemently deny the fact that certain strains of bacteria are developing mechanisms to



Infographic on how climate change affects songbirds (University of Florida)

resist the conventional methods of treatment. As stated by the World Health Organization’s Director of Antimicrobial Resistance Secretariat, “Some of the world’s most common — and potentially most dangerous — infections are proving drug-resistant.” This is predicted to cause the number of deaths from communicable disease to drastically rise. In fact, it has been regarded as an issue since before their widespread use and commercialization.

When Rutgers’ own Selman Waksman, discoverer of streptomycin, delivered his acceptance speech for the 1952 Nobel Prize for its use in curing tuberculosis, the implications of bacterial strains eventually being able to prevail against his own discovery didn’t slip past him. Since their creation and commercialization, due to overprescription, misuse/noncompliance, and exposure to selective pressures, bacterial resistance has developed, which essentially means an increasing number of strains of bacteria are no longer susceptible to the medications commonly used to treat the diseases they cause, such as MRSA or VRE.

A recent study published in *Nature Climate Change*, conducted by researchers from the University of Toronto, leads to a startling conclusion-- that climate change, or specifically, the rise of temperatures globally, may exacerbate antibiotic resistance. Researchers created a geographic database of historically reported cases of infections caused by three different pathogenic bacteria

that commonly exhibit resistance. They examined information from clinical records of infections that were both community and hospital acquired, and then determined what percentage of those infections at each facility had been resistant strains. The study focused on the United States, spanning across over 40 states reporting susceptibility results from over 22.8 million infections. Researchers then compared these percentages for each place to the minimum daily temperature based on their zip code, and upon further data analysis, they uncovered some startling results. Based on the 30-year historical temperature data, as temperatures rose over time, so did the percentage of infections that involved resistance. However, geographically, the rates of resistant infections were significantly higher in southern latitudes that experienced higher temperatures-- a 10 degree increase in temperature was correlated to a 4.2% higher rate of antibiotic resistance in *E. coli*, for instance. Climate change could be accelerating the selective pressures and rate of mutations in bacteria that make them less susceptible to antibiotics, leading to some worrying results.

These two realizations coupled together point out a flaw in how people perceive both climate change and antibiotic resistance. As this research indicates, they may not be entirely separate problems, but rather, they combine to form an intertwined issue that will require widespread efforts around the world to prevent them. It also brings out an intersectional lens to these problems, as certain

countries or even continents lay more susceptible to antibiotic-resistant diseases than others, as they are for certain climate change related issues. These two harbingers of the end of the world, or at least, of society as we know, are clearly not nearly as independent of each other as we'd previously believed.

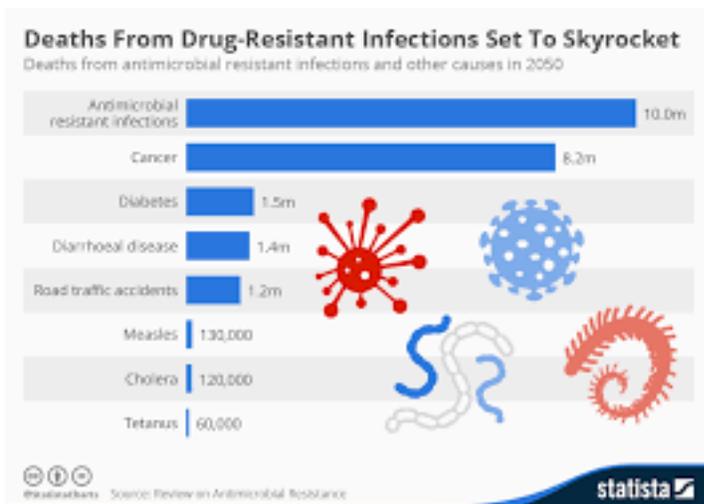


Chart depicting predicted % of deaths and causes in 2050
(Copyright: StatistaCharts)

passion puddle playlist

BY MEGAN YUEN

1. "MIDSUMMER MADNESS"
88RISING, JOJI, RICH
BRIAN, HIGHER
BROTHERS, AUGUST 08
2. "OTW"
KHALID, 6LACK, TY
DOLLA \$IGN
3. "WINE PON YOU"
DOJA CAT, KONSHENS
4. "WITHOUT THE LIGHTS"
ELLIOT MOSS
5. "BACK TO YOU"
LOUIS TOMLINSON, BEBE
REXHA, DIGITAL FARM
ANIMALS
6. "DOUBT IT"
KYLE
7. "MARVINS ROOM"
DRAKE
8. "BE CAREFUL"
CARDI B
9. "NORMAL GIRL"
SZA
10. "KING OF THE CLOUDS"
PANIC! AT THE DISCO
11. "HONEY"
KEHLANI
12. "GOOD FORM"
NICKI MINAJ

WORKS CITED

ENDANGERED SPECIES OF THE MONTH: THE VAQUITA

[HTTPS://WWW.WORLDWILDLIFE.ORG/SPECIES/VAQUITA](https://www.worldwildlife.org/species/vaquita)

HELAR HOUSE JUST HIT THE BIG 50!

[HTTP://RUONCAMPUS.RUTGERS.EDU/HELAR-HOUSE-2/](http://ruoncampus.rutgers.edu/helar-house-2/)

"THE HELAR EXPERIENCE: COOPERATIVE LIVING ON THE AGRICULTURE AND COOK COLLEGE CAMPUS OF RUTGERS UNIVERSITY" EDITED BY BONNIE J. MCCAY

THE COMING APOCALYPSE: HOW CLIMATE CHANGE IS WARMING US UP TO THE IDEA OF A "POST ANTIOTBIOTIC" ERA

CLIMATE CHANGE EVIDENCE: HOW DO WE KNOW? (2018, SEPTEMBER 21). RETRIEVED FROM [HTTPS://CLIMATE.NASA.GOV/EVIDENCE/](https://climate.nasa.gov/evidence/)

MACFADDEN, D., MCGOUGH, S., FISMAN, D., & SANTILLANA, M. (2018). A CLIMATE FOR ANTIBIOTIC RESISTANCE. NATURE CLIMATE CHANGE. RETRIEVED OCTOBER 1, 2018.

ZIMMERMAN, B. (N.D.). WHO: 5 MOST COMMON ANTIBIOTIC-RESISTANT INFECTIONS. RETRIEVED FROM [HTTPS://WWW.BECKERSHOSPITALREVIEW.COM/QUALITY/WHO-5-MOST-COMMON-ANTIBIOTIC-RESISTANT-INFECTIONS.HTML](https://www.beckershospitalreview.com/quality/who-5-most-common-antibiotic-resistant-infections.html)



RUTGERS
GREEN PRINT

DESIGN / COVER
ALEXANDRA LOBO

CHECK OUT
RUGREENPRINT.COM