

Sustainable

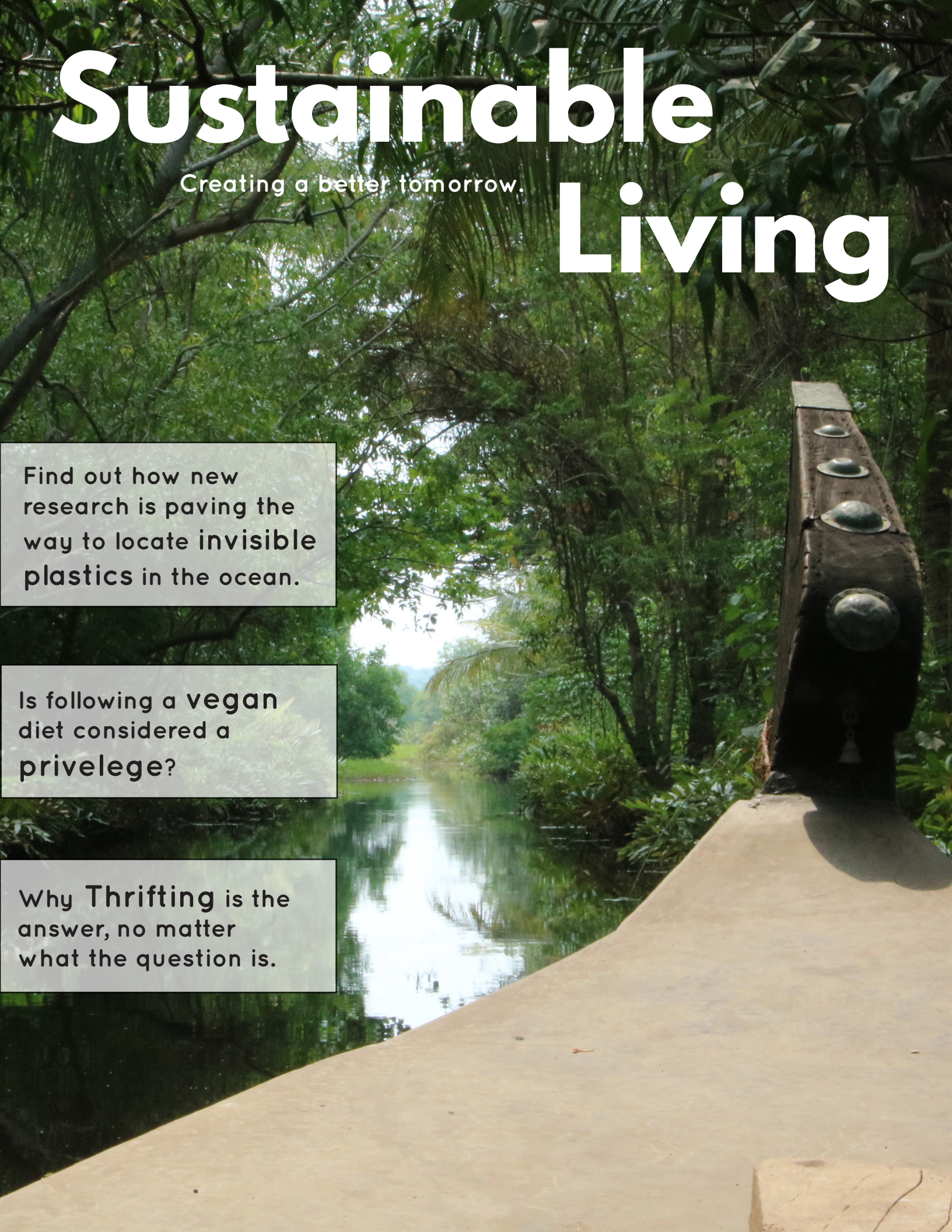
Creating a better tomorrow.

Living

Find out how new research is paving the way to locate invisible plastics in the ocean.

Is following a **vegan** diet considered a **privelege**?

Why **Thriftling** is the answer, no matter what the question is.



Hey There!

A letter from the editor.

Welcome to my very first edition of Sustainable Living!

I've had a blast putting this magazine together from selecting articles that fit the magazines personality to choosing imagery that brings the words to life to placing them all on pages so it all flows together.

I designed Sustainable Living based off of ideals that mean a lot to me; veganism and plant based lifestyles, zero waste living, cruelty free living and animal wellbeing, green technology and re-imagining our fashion world to be more sustainable for the environment. Through articles in and around these topics I hope to shed some light on sustainable living practices for our world that we all can adopt even in a small way to better ourselves, the planet and our future.

Thank you and hope you enjoy a look into my world,

- Mallory Warren
Editor in Chief
Sustainable Living magazine

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Mallory Warren
Editor-in-Chief &
Publisher of
Sustainable Living
magazine





Meat Alternatives Produce 10
Times Less Greenhouse Gas
Emissions Than Beef

Written by: Nil Zacharias

The secret's out... the meat industry is a destructive force and the time for change has come. Given that this industry is handed out \$38.4 billion a year in Government subsidies (that's 63 percent of total U.S. food subsidies), one would, at least, assume it is doing good. On the contrary, the meat industry is essentially draining our natural resources, trashing our planet and driving more greenhouse gas emissions than the entire transportation sector.

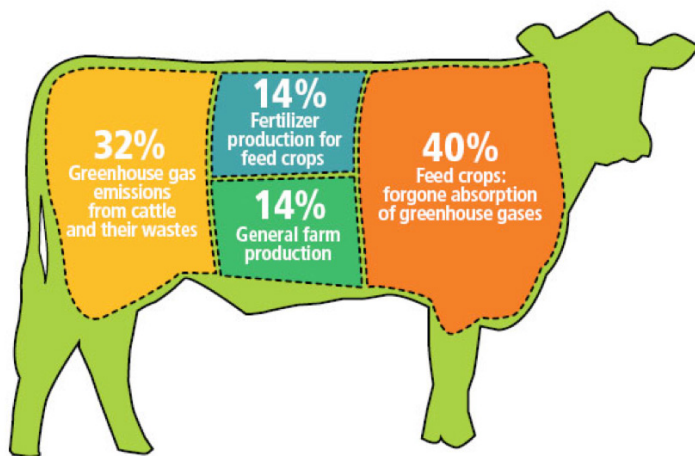
Luckily, we have the power to make a difference by just changing the way we eat. According to some estimates, if we cut down on our meat consumption and chose to eat more plant-based foods, we could cut our carbon footprint in half, and also, save our precious natural resources.

The great news is Americans are finally getting it. Driven by concerns ranging from sustainability to health, we're looking for cleaner alternatives to animal protein. Which explains all the latest hype around plant-based meat alternatives and the race to recreate animal protein in labs. Meat substitutes are no longer niche products with questionable ingredients found tucked

away in a corner of health food stores for a small population of vegetarians or vegans that are craving something "meat-like." Those days are long gone. The new world of meat substitutes are healthier, better tasting and are primarily being consumed by meat eaters with a genuine interest in cutting back on their animal protein consumption. According to some estimates, the plant-based meat market is set to reach \$5.2 billion by 2020 and could make up one-third of the market by 2050. Introductions of new products with plant-based proteins grew 14.7 percent in 2014 (while animal protein grew 7.5 percent) and in 2015, more than 100 plant-based meat substitutes were introduced in grocery stores.

But are plant-based meat alternatives truly more sustainable? Well, considering they don't use meat, dairy or eggs, each of which have an enormous environmental impact, the answer should be obvious. But if you need studies and facts to back those assumptions, we now have some real proof.

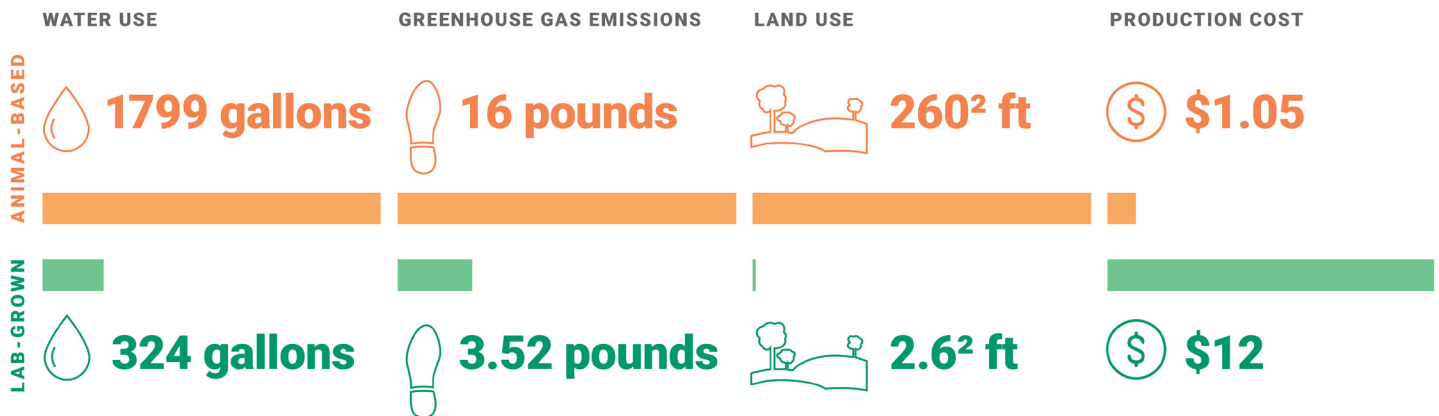
According to a recently released study of the environmental impacts of 39 meat substitutes presented at the American Society for Nutrition Annual Meeting, across the board, plant-based meat alternatives were found to be associated with substantially lower emissions than actual meat.



Substantially lower, as in, *ten times* less greenhouse gas emissions than producing comparable beef-based products!

OUR MEATLESS FUTURE: COSTS AND BENEFITS

Resource Comparison of Animal-Based vs. Lab-Grown Meat



Usage, emissions, cost per pound of meat

SOURCES: CB Insights, Water Footprint Network, Business Insider, Forbes, Food Climate Research Network (FCRN), Quartz

The research team analyzed emissions generated to produce different, common meat substitutes from the field to the grocery-ready factory output, reports Science Daily. Crunching thousands of data points, the team calculated total greenhouse gas emissions in terms of carbon dioxide equivalents.

In conclusion, they found that while the emissions generated to produce a typical 8-ounce steak is equivalent to driving a small car for about 29 miles, replacing that steak with the same weight of a plant-based meat alternative is like driving the same car just three miles. If this news doesn't make you want to consider trying out a plant-based meat alternative the next time you're at the grocery store, keep in mind that these products are also healthier for you. It may sound too good to be true, but trust me, this is real, and it's happening now. And if you are not satisfied with the current products available, don't despair. Investors are pumping millions of dollars into businesses that are trying to make good on the promise of recreating the taste, texture and nutrition of animal meat, minus all the health problems, environmental

destruction, and cruelty. We're going to soon live in a brave new world where everyone can make a positive impact without giving up on the foods they love.

So, the meat industry can continue to spend billions on lobbying and advertising and take billions in subsidies, but they can't withstand the force of real change. Fueled by a bit of knowledge, like the simple and striking fact that plant-based meats produce 10 times less greenhouse gas emissions than beef, people are picking up their forks and molding a better food system with every meal.

There's a new conscious food movement rising that's unlike anything we've seen before. It's being driven by consumers who are demanding healthier, better foods, purpose-driven media companies like One Green Planet that are empowering people to eat differently, and an emerging food economy that's getting organized and innovating at breakneck pace.

This isn't a passing trend that can be ignored; it's the future of food and it just happens to be sustainable, healthy, and vegan.

OPINION

Food for thought: Our choice of diet is a privilege

Written by: Sydney Bartos

Sydney Bartos



Recently, as a vegan, I've been considering how my diet is a form of privilege. I have chosen a vegan diet which means that I have access to healthy food from grocery stores and restaurants. This access is a privilege, as it allows me to specifically choose the foods I want to consume.

Privileges can be defined as the special rights or advantage a particular person or group of people hold.

Jessica Greenebaum, a scholar who specializes in the politics of food and a vegan since the late '90s, argues that both veganism and the more normalized non-vegan diet exhibit levels of privilege. This is particularly showcased through one's access to food, whether it is vegan or non-vegan.

Many opt for a diet free of meat, dairy, eggs and all other animals for apolitical reasons, like the inherent health benefits involved. However, in recent years, veganism has become a trendy alternative commonly linked to expensive raw nutrition items from Whole Foods and \$12 smoothies from aesthetic juiceris. Essentially, this instagrammable lifestyle has become the "vegan image," and often it becomes associated with elitist culture.

The problem with this is veganism becomes attached to the idea of an exclusive lifestyle that few can obtain. There are barriers in accessibility to a vegan diet that can't be ignored.

Vegan blogger Lisa Le, from the Viet Vegan highlights that it is critical to consider that those part of marginalized communities may not have ac-

cess to grocery stores that provide vegan-friendly products, and while canned beans and rice may be accessible vegan staples, they may not be adequate for meeting people's nutritional needs.

The vegan philosophy advocates for a compassionate diet that challenges the food industry's exploitation of animals, humans and the environment. However, a typical criticism of vegans is that they often exhibit a sense of elitism and superiority towards non-vegans.

I think this stems from the conception that vegans feel a sense of high morality because they have chosen a diet free from animal cruelty. A person with privilege may assume this sense of superiority as well.

When considering who has access, the high price range that a vegan diet demands, leads to a very narrow and privileged group of vegans.





Representation is also an issue since the most prominent vegan images displayed in the media are often white, fit and able-bodied women.

This image of veganism is problematic and it has since sparked the advocacy for an intersectional and inclusive vegan movement.

Like other social movements, veganism needs to acknowledge the systemic barriers that other communities face that impede them from a vegan lifestyle.

Lisa Le agrees that access is an important factor. “Understanding that sometimes, people are just doing what they can to get through the day, and while yes, they can empathize that animals are suffering, but they are suffering too,” she said.

As a solution to perhaps challenge this vegan image, vegans should be allies to marginalized groups and should actively participate in other movements aside from veganism in order to advocate for social justice within all realms.

The current state of political and social affairs and the marginalization of certain communi-

ties, have led to blatant exhibitions of sexism and racism. In order to challenge the current social and political climate, those with privilege must be willing to become allies.

When you think about it, the exploitation of animals is closely interrelated with oppression of women, people of colour and other marginalized people.

Exploitation is about exhibiting power over someone, and the ability to then take from them, whether that is a woman, a marginalized person, or an animal.

Therefore, I think the argument that veganism is elitist can be argued from both sides, considering that if one has the access to healthy and organic foods, they may consciously choose to go vegan, vegetarian or not at all.

All individuals should be aware that our access to food and our consumption inevitably reflects the privileges we hold. What matters is our willingness to recognize our privileges and advocate for more inclusive and intersectional social justice movements.





Why **not** travel with a purpose?

You can veg out on a beach any time...

Helping out and giving back to others brings such a sense of accomplishment and happiness. Volunteering my time in India and Nepal with ASB Ryerson was the best decisions of my life.

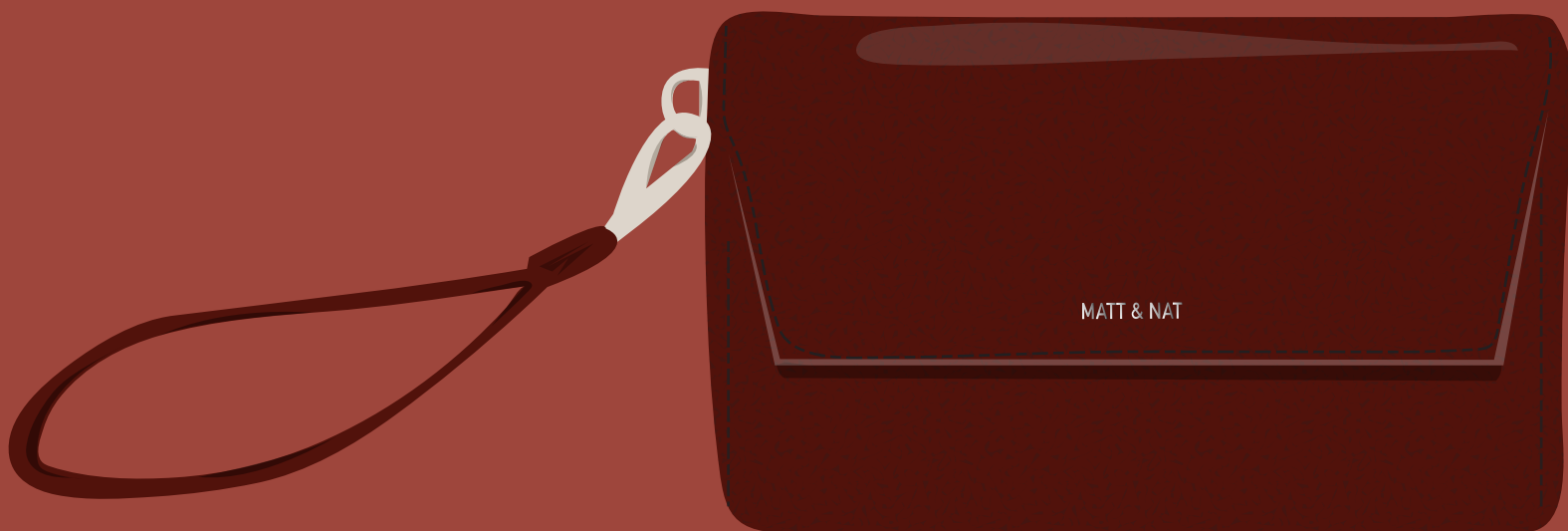
From building latrines in rural India to helping rebuild after the earthquake in Nepal, these are moments I just wish I could go back to. People say that I'm such a nice person for giving my time and effort to volunteer overseas but it's not just about giving for me. I actually gain so much personally too. I've learned more about myself while volunteering in other countries and I have bettered the way I live at home because of what I've learned.

I've had the most amazing summers of my life volunteering abroad, you should try it.

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Thrift Talk 101

Written by: Sydney Bartos

Photos by: Sophia Smith



Some of my prize possessions include thrift-shopped turtlenecks, as seen above, and when coupled with these red pants from Reformation, it's a comfy, colourful combo. I could go on, but really I want to talk consumerism, and more specifically, fast fashion. So first and foremost, here's some need-to-knows...

Some Fast Facts about Fast Fashion

- The fashion industry is the second most polluting industry (after oil!).
- Until the 1960's the US produced about 95% of their clothing... now it's at about 3%.
- Because clothing production is now outsourced to developing nations, it has become more affordable for us here in developed nations to purchase clothing (and this has induced a mindset that clothing is virtually disposable).
- The concept of fast fashion was essentially created so retailers could shift more products through their stores, monthly, even weekly, to fasten consumers into an endless cycle of consumption (I'm dizzy).

It's all about the fast, cheap and continuous consumption of products.

As told by Andrew Morgan and Michael Ross, the creators of the documentary *The True Cost*, essentially, we live in a society constructed on the consummation of goods, where corners are cut to increase the speed of production and decrease the cost for consumers. While the industry is inevitably complex, the undeniable reality of our world of fast fashion- that is, the trends change so fast that no one can ever catch up- is that the industry is flawed, wasteful, and really only benefiting large corporations. Not only is the production of clothes one of the top contributors to water usage, but the chemical wastage that is released back into the environment after production is frightening. Not to mention it's stressful how often trends change, I mean I'm stressed out just thinking about the thousands of recently purchased items that wind up in landfills everyday.

While becoming aware of the detrimental fast fashion philosophy is crucial, I do hate to be a drag, so enough with the negativity, let's consider an alternative, economical and substantially less wasteful way of shopping for jeans and nifty tees. Yes... I'm talking about thrift shopping...!

Seriously, thrift shopping is my go-to and actually encompasses the majority of my wardrobe, coupled with some pieces from eco brands, and items I've kept since altering my lifestyle last year. While it can be tough and time consuming to find the exact pieces you might be looking for, I think finding items that are a little passé are ten times groovier.



While “thrifting” is indeed mega trendy these days, and is also very suitable for budget-conscious consumers, its significance goes well beyond even that. Choosing second hand clothing is choosing to contribute to a more environmentally conscious community. And quite honestly, the festivity of digging for out-dated mom jeans and oversized sweaters beats the racks of supposedly “on trend” civvies daring you to deplete your chequing account at every fast fashion joint you step foot inside. There is just something magical about stumbling upon the funkiest five-dollar blouse you’ve ever encountered at your local Value Village. Once you’re over the five-dollar blouse, the item can be donated again to another thrift shop to be stumbled upon by someone else. The transformation of “junk” items to treasures that happens at your local thrift shop is marvellous, and is essentially a recycling program I urge you to get involved in. Worried about the funky smell? That just gives your clothing character, and is something to look past when considering the water and waste you are saving by not contributing to the fast fashion industry, and instead you are making use of items that have already been put into marketplace. Let’s make our clothing’s lifecycles last longer than Zara’s one-week “micro seasons”...who knew the seasons could utterly change within the span of a week anyways?



Sporting a thrifted jacket and turtleneck, pants from Reformation and a backpack that follows me everywhere, from Matt&Nat.

Thrift shopping is a clothing recycling program that benefits more than just our planet. Often thrift shops are charitable, so you are contributing to more than just an environmental cause. The Salvation Army and the Goodwill are just a couple of examples. My personal favourite, Community Thrift and Vintage, located in Vancouver B.C., not only donates all of their proceeds to Vancouver’s PHS Community Services Society but the store also provides an integrated peer program that employs women, providing them with opportunities and a safe work environment.

So really, I don’t see an issue purchasing second hand clothing, considering the multitude of benefits for yourself, the environment and your community. So skip the tacky t-shirt from Forever XI and opt for some funky finds at your local Salvation Army.

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Solar energy: The future of clean sustainable living

Paid post by UBS

The shift to clean energy may be underway, but with fossil fuels still counting for 80 percent of global energy production there is still some distance to go.

The United Nations estimates that an additional \$1.25 trillion of investment is needed each year to switch to sustainable energy by 2030. That is over triple the current spend. While the funding gap may be extensive, it also highlights a growing market with opportunities for investors to get behind.

In 2016, a record 161 gigawatts (GW) of renewable energy capacity was installed across the globe, with \$288 billion of new investment going into the sector. Compared to just \$130 billion ten years ago in 2006, it is clear to see how the sector has already grown. With more and more countries committing to 100 percent clean energy goals, there is widespread demand for the trend to continue.

“The world now adds more renewable power capacity annually than it adds in net new capacity from all fossil fuels combined,” says REN21, the international renewable energy policy network.

According to the World Economic Forum, clean energy now costs the same as — or even less than — coal, oil and gas. While the world average cost of fossil fuels has remained at \$100 per megawatt-hour (MWh) for the past decade, solar has dropped from \$600 to at or below \$100 with wind power costing even less at \$50.

With one in five of the world’s population — an incredible 1.2 billion people — unable to access electricity, the increasing affordability of renewables could bring hope to where it’s needed most.

However, this need has also catalyzed new technology and investment opportunities in those areas most affected, which is primary Sub-Saharan Africa and South Asia.

“Africa is undergoing an energy revolution and has become a laboratory for pioneering new methods of energy delivery,” says Matt Tilleard, co-managing partner of CrossBoundary & UBS Global Visionary.

“A key driver of this has been the dramatic fall in cost of solar power — down by over 80 percent since 2008,” he adds.

Technological innovation has been pivotal to driving the transition to a clean energy network; bringing prices down, increasing efficiency, and getting investors and consumers on board with attractive solutions.

Smartflower is a prime example. It is the world’s first plug-and-play solar solution and is ready to generate electricity anywhere within one hour of delivery.





The system can generate in the region of 3,400 kWh to 6,200 kWh per year (depending on location), which is enough electricity for the average European household, coming in at 3,500 kWh.

Its power output is around 40 percent more than traditional roofing systems due to the smart modular fan which tracks the sun from sunrise to sunset for maximum exposure. Any excess electricity can either be stored in its integrated battery for later use or can be fed into the public network.

The product has been meticulously designed and tested. Unlike other renewables systems, Smartflower's components are packaged within

the single unit, making it completely portable. It is also self-cleaning, self-operating, and can withstand storms and temperatures down to -4 degrees Fahrenheit.

Alexander Swatek, founder and inventor of Smartflower, comments: "My purpose was to create something completely new within the solar field. With Smartflower we want to send a clear message, to make the world a better one."

With the renewable energy sector on course to further expand, and more companies like Smartflower set to push the boundaries of what can be achieved, the opportunity to invest in clean energy presents itself at every level.



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99% of Ocean Plastic Waste Is **Invisible**, But This Method Could Help **Find It**

Written by: Mike Merae



The oceans are full of plastic. We know it, and we know it's a big problem. What we don't know is precisely how big the problem is.

A fluorescent dye could help scope out the tiniest pieces of garbage in our marine environments, allowing researchers to map oceanic waste in unprecedented detail and just maybe help us find solutions to this growing environmental crisis.

Waste that accumulates in gyres, often described as Great Garbage Patches, often shocks us with its sheer scale.

But it's the tiny bits we don't see that are as much of a concern, if not more so.

Particles smaller than 5 millimetres (0.2 inches) known as microplastics can be found as tiny beads in cosmetics and cleaning products, fibres in garments, or form from larger plastics breaking down.

As such, they are estimated to be far more abundant than the chunky bottles and floating bags we can see. Just how much more, nobody really knows.

Research led by the University of Warwick in the UK has found a practical solution for detecting microplastics in field samples.

Tiny pieces of plastic waste on the scale of tens of micrometres aren't exactly easy to distinguish from other pieces of natural flotsam, even with a decent microscope.



As tempting as it is to think of these miniscule shreds of rubbish as 'out of sight, out of mind', they're just a much of an issue for marine species as the turtle-choking plastic bags that larger animals mistaken for tasty jellyfish.

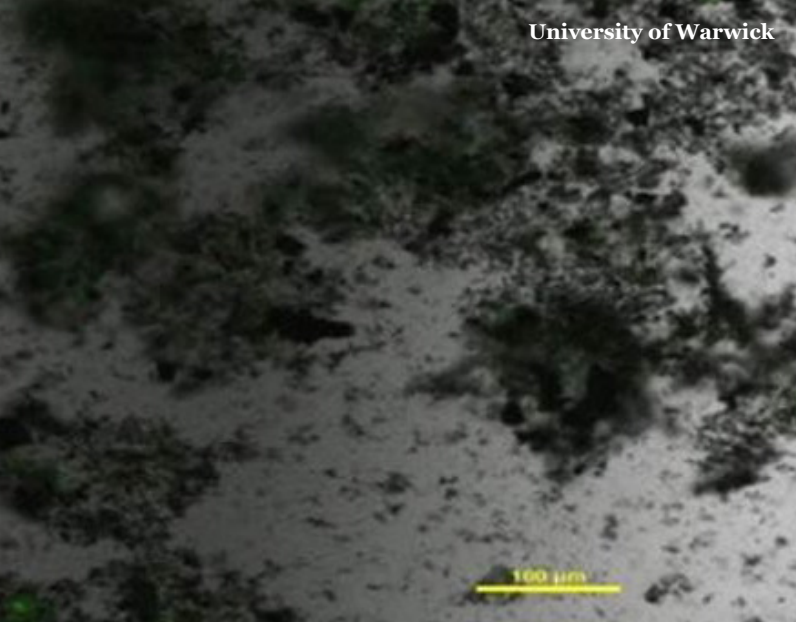
Just recently, researchers found coral polyps didn't just swallow them up – they did so with relish, seeming to actually like the flavour.

That's not to mention the variety of plastic materials that shed persistent, bioaccumulative, and toxic (PBT) compounds into the food chain.

So getting a grip on the scale and distribution of microplastics is clearly a high priority.

“Current methods used to assess the amount of microplastics mostly consist in manually picking





the microplastics out of samples one by one,” says marine ecologist Gabriel Erni-Cassola.

To help make the plastics stand out from similar-looking bits of gunk, the researchers investigated the use of “Nile red”, a fluorescent dye that lights up when it comes into contact with the right kinds of chemicals. Preliminary tests on different plastic polymers showed the dye was up to the job of making microplastics stand out.

To make sure it didn’t mark similar materials such as fatty substances or tiny wood fragments, they flushed samples with nitric acid, which proved efficient at digesting all kinds of biogenic matter.

Out in the field, the team took samples of beach sand and trawled the surface water from the coast around the town of Plymouth and analysed them for microplastics using both traditional methods and their staining technique.

They found a much larger amount of microplastics under 1 millimetre (0.04 inches) in size than they’d predicted, and significantly more than they’d have found using traditional methods alone.

The number one culprit for these hidden, smaller variety microplastics seems to be polypropylene – the stiff polymers we use in everything from ropes to banknotes to packaging.

“Using this method, a huge series of samples can be viewed and analysed very quickly, to obtain large amounts of data on the quantities of small microplastics in seawater or, effectively, in any environmental sample,” says Erni-Cassola.

Previous studies have determined that 99 percent of the plastic waste that we believe to be entering the ocean can’t be detected, meaning it’s either too small to see or is hiding inside the digestive systems of marine life.

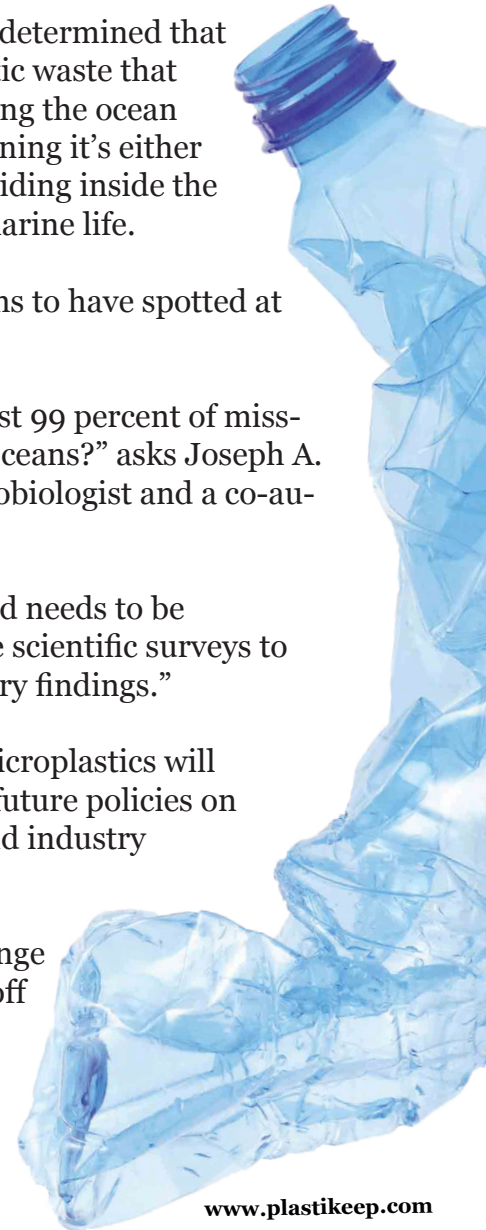
This new method seems to have spotted at least a portion of it.

“Have we found the lost 99 percent of missing plastic in surface oceans?” asks Joseph A. Christie-Oleza, a microbiologist and a co-author on the study.

“Obviously this method needs to be implemented in future scientific surveys to confirm our preliminary findings.”

Tracking the fate of microplastics will certainly help inform future policies on waste management and industry regulations.

Meanwhile, the challenge of weaning ourselves off our insatiable love of plastics and finding a way to deal with the waste remains.



www.plastikeep.com

A small brown bird with a crest is perched on a thin branch with green leaves. The bird has a dark brown body and a prominent crest of dark feathers on its head. It is facing right. The background is a soft-focus green, suggesting a natural habitat.

**High Quality
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by **Mallory Warren**