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BURNED

Deception, Deforestation and
America's Biodiesel Policy

By Rose Garr & Sheila Karpf



MIGHTY EARTH

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Dear Reader,

For 40 years, I championed environmental protections and solutions to climate change in Congress. I'm proud of my work to strengthen the Clean Air Act, make drinking water safer, reduce pesticides in food, and cut oil consumption through strong fuel efficiency standards.

Unfortunately, one piece of legislation that I supported in 2007, the Renewable Fuel Standard (RFS), has not stood the test of time. The RFS had admirable environmental goals. It was aimed at driving a transition to more environmentally friendly transportation fuel, and reducing climate pollution. Although it included huge mandates for consumption of food-based fuels that were worrisome at the time, these fuels were sold as a bridge to the production of non-food-based, ultra-low carbon fuels, such as cellulosic ethanol and other truly advanced fuels.



Henry A. Waxman

However, while I was still in Congress, an array of peer-reviewed scientific research suggested that food-based biofuels' climate and environmental impact was as bad or often much worse than the oil it was meant to replace. In addition, the production of truly advanced, cellulosic fuels failed to materialize. As Ranking Member of the Energy and Commerce Committee, we worked in a bipartisan fashion to evaluate the impact of the program through a series of white papers.

This report by Mighty Earth and Action Aid USA provides a dramatic on-the-ground glimpse of the unintended negative consequences of food-based biofuels. It shows that instead of driving large-scale climate solutions, the RFS has largely served as a mandate for corn ethanol and food-based biodiesel production, including soy and palm biodiesel produced overseas.

This biofuels production is driving the destruction of wildlife habitat around the world, from jaguars in South America to orangutans in Asia, and monarch butterflies in the United States. In part due to expanded biofuel production, last year saw the largest-ever dead zone in the Gulf of Mexico. These biofuels have no carbon emissions benefits, and are likely worsening our climate crisis.

As this report shows, food-based biofuels' impacts are not only a problem for the environment. Biofuel production drives increased use of pesticides and fertilizers, endangers drinking water supplies and drives indigenous and local communities from their land.

It's time to admit that the RFS has fallen far short of its goals. We don't need food-based biofuels to reduce the use of oil. Increases in fuel efficiency and exciting growth in vehicle electrification are what is actually reducing transportation's climate impact.

I am grateful to all the organizations and people that are contributing to better understanding of biofuels' impact, including ActionAid USA, Transport & Environment, the Norwegian Climate and Forest Initiative, the David and Lucile Packard Foundation, National Wildlife Federation, Jerry Jung, and the Clean Air Task Force.

Thank for your attention.

Sincerely,

A handwritten signature in black ink that reads "Henry A. Waxman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Henry A. Waxman



“Green.” “Low-carbon.” “Home-grown.”
“Clean-burning.” “Sustainable.”

All words used by the United States biodiesel industry to describe their product. After years of industry advertising, biodiesel is widely seen as environmentally friendly. Many associate the fuel with folk singer Willie Nelson, powering his tour bus on used French fry oil.

However, as our investigation uncovers, this “green,” recycled biodiesel is in fact a niche product, representing 13% of domestic biodiesel production in 2015.¹ The large majority of biodiesel actually comes from virgin oils, primarily soy, canola and even palm, often grown, processed or imported by the world’s largest agribusinesses, with environmental consequences that typically exceed those of the oil it is meant to replace.

And, as our analysis shows, a substantial amount of the biodiesel used in the United States isn’t even made by American producers, either big or small, but far away in Argentina and Indonesia.

A trip down a dusty dirt road in northern Argentina provides a more accurate picture of the reality of the modern biodiesel industry. On the left-hand side lies a pristine forest, teeming with wildlife: howler monkeys, tapirs, and jaguars. On the right, new soy fields are being carved into pristine forest. Burnt trees and the white ash they leave behind stretch for as far as the eye can see. Our investigation found evidence that the buyers of this “deforestation soy” are some of the same companies producing soy-based biodiesel for export to the United States.

Much of the demand driving this destruction in Argentina stems from U.S. biofuels policy, primarily the Renewable Fuel Standard (RFS). This overarching law mandates increasing consumption of biofuels over time.

Once envisioned a way to spur production of ultra-low carbon “fuels of the future” and support American farmers, is instead being almost completely met by “first-generation” corn ethanol and vegetable oil-based biodiesel that can produce more climate emissions than oil. In addition, a substantial portion of these fuels is produced overseas, in ways that are driving destruction of pristine ecosystems like the Chaco and harming the communities that live there.

New cropland carved into the Chaco forest of northern Argentina. Soy production is the primary driver of deforestation here.

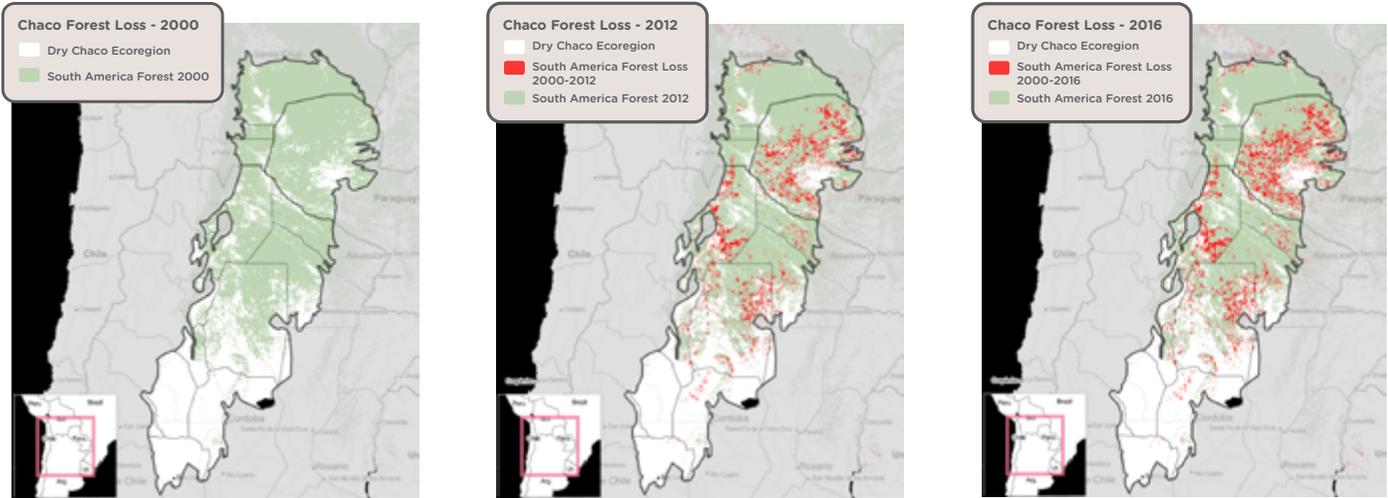
Photo Credit: Jim Wickens/Ecostorm



Our Investigation

For this report, we analyzed data compiled from government and trade databases, agricultural production reports and satellite maps. Our field team also visited ten sites in Argentina’s Gran Chaco, the lowland forest that is known as South America’s second “green lung” – the first lung being the great Amazon rainforest. Some Chaco regions and one national park go by the name ‘El Impenetrable’ because of their dense, thick vegetation.²

The name hasn’t stopped soy companies, which we found burning and bulldozing this frontier for conversion to monoculture soy plantations. At the sites we visited, we witnessed more than 30,000 acres of deforestation, just a small slice of the overall deforestation for soy in Argentina. We also spoke to community members who reported severe health impacts, loss of livelihood, and even displacement due to pesticides and water pollution associated with the expansion of the soy plantations in the region.



A Sea of Soy

As of 2016, the United States imported by far more biodiesel from Argentina than any other country. Two of every three imported gallons originated in Argentina,³ a total of 443 million gallons, accounting for about one-fifth of all biodiesel consumed domestically under the RFS that year.⁴ Producing this amount of biodiesel requires 5.3 million acres of monoculture soybean plantations, an area the size of New Hampshire.⁵

This massive expansion has come with a terrible cost.

Deforestation rates in Argentina’s Chaco rival those of the Brazilian Amazon during the early 2000s, when rapid forest clearance spawned the “Save the Rainforest” campaigns known around the world.⁶ The Chaco has become a deforestation “hot spot,” and studies conclude that expansion for soybean crops, Argentina’s top export, is the primary driver.⁷

When crushed, soybeans produce both soybean oil and soybean meal. In turn, approximately one-third of the soybean oil produced in Argentina feeds the biodiesel industry.⁸ The soybean meal is used primarily for animal feed to produce meat and dairy products consumed around the world. While biodiesel isn’t the only driver

of the deforestation we witnessed, it is a significant driver of expansion. Two earlier Mighty Earth reports on the impact of soybean meal used for food production explain what meat and dairy sellers can do to limit deforestation.⁹

In addition, more than 100 million gallons of palm oil-based biodiesel were imported from Indonesia in 2016¹⁰ for credit under the renewable fuels category of the RFS. Although palm oil is not explicitly approved as a qualified feedstock, some Indonesian facilities were grandfathered in under the RFS program. If other grandfathered facilities in Singapore, the Netherlands and Finland are also sourcing palm oil from Southeast Asia as a feedstock, as suspected, the total amount of palm oil-based biodiesel imported for RFS credit may have been as much as 200 million gallons in 2016.¹¹

Indonesia’s struggle with deforestation for palm oil and other commodities has been well-documented. The country lost more than 6 million acres of rainforest and carbon-rich peatland in 2015. Climate emissions due to deforestation in Indonesia alone have at times exceeded the emissions of the entire U.S. economy, and palm oil production has been the leading driver of this deforestation.¹²



Palm oil grown for biodiesel production is destroying orangutan habitat in Southeast Asia.

Argentine Biodiesel and the RFS Shell Game

For Argentine biodiesel imports to qualify for the RFS mandate, the United States requires feedstocks be grown on land that was under production in 2007. Put another way, soy intended for biodiesel production for U.S. export must be free of recent deforestation.

However, our supply chain research found that American agribusiness giants Bunge and Cargill among other large international grain traders, are producing soy biodiesel in Argentina for U.S. export.¹³ Both have been directly linked to extensive deforestation for soy in their South American supply chains.¹⁴

Bunge, which has a silo close to the sites we investigated, was identified in interviews as a buyer of soy from sites in this investigation. In response to inquiries by Mighty Earth, Bunge said they have no record of buying from the growers highlighted in our investigation. Cargill reported that its siloes were unlikely to source from the sites we visited, because their processing facilities are not in close proximity to those sites.

Bunge, Cargill and others may well be following the letter of the law and producing soy biodiesel for US export from land that was not deforested recently. However, it appears as if the soy industry has merely shifted soy production for other uses to the Chaco, Amazon, Brazilian Cerrado, and other South American

ecosystems in order to meet the technical requirements of the RFS, while still driving massive deforestation to expand their overall soy operations.¹⁵

The Commerce Department's late 2017 decision to impose countervailing duties on imported biodiesel from Argentina and Indonesia¹⁶ will likely curtail near-term biodiesel imports. However, the story of deforestation in Argentina and its links to biodiesel production should serve as an important cautionary tale. Unless the biodiesel mandate is reduced or eliminated, additional biodiesel production to replace Argentina's exports will have to ramp up elsewhere, posing the same risk for land, wildlife and communities.



Luis Zubizarreta is the president of Carbio, the Argentine biofuels association.

The Human Cost of Deforestation

In the rural Chaco province, one family asked for anonymity to tell their story. The license for their small business has already been threatened in retaliation after they spoke publicly about how agricultural run-off and pesticides poisoned them, killed their animals, and forced them to leave their property.

“The bees died first,” the father of the family told our research team, after his neighbor cleared his land for new plantings, and a rainstorm then washed pesticides off onto his property. His goats and livestock died next, and his children and wife were sickened. His children were hospitalized with skin rashes, stomach problems, and anemia. “The youngest suffered the most.”

The family eventually left their property for two weeks, but were sickened again on their return. The father reported that their story was not an isolated one.

In Avia Terai, another small town in the Chaco province, six-year old Camila is considered lucky. She survived the tumors behind her eyes and other birth defects, even though many children born with the same conditions have died.

Empty glyphosate containers lying on the edge of soybean fields are a stark reminder of how pesticide use has grown to cover new soy fields. The French government has moved to ban this controversial pesticide and is pushing the European Union to do the same.¹⁷

Hundreds of children like the campesino children and Camila suffer from health problems they believe are due to the expansion of soybeans – including birth defects, disabilities, and cancers.¹⁸ These health problems likely stem from drinking contaminated water and pesticides raining down from airplanes flying directly over communities where they play. In Camila’s hometown of Avia Terai, nearly one-third of residents report knowing a family member with cancer while communities with no nearby soybean fields report less than five percent.¹⁹

While our investigators witnessed vivid signs of recent deforestation, actual farmers were nowhere to be seen on most of the farms. When our investigators were able to find an on-site employee to talk to, we were pointed to absentee land owners living in towns or provinces far away.

Indeed, a study of agricultural expansion in the Chaco published in the Proceedings of the National Academies of Sciences found that “many of today’s large-scale [agricultural] producers in the Chaco and Chiquitano are highly educated, live in cities, [and] travel internationally,”²⁰ and are thus far removed from their own agricultural practices that poison children and destroy forests.

The agricultural operations of these absentee landlords harm vulnerable populations; already, residents of the Chaco Province are the poorest²¹ in Argentina and rank next-to-last in human development indicators including life expectancy,

Camila’s family and doctor suspect that pesticide exposure caused her tumors and birth defects.

Photo credit: Photo Credit: Jim Wickens/Ecostorm for Mighty Earth and ActionAid



Dr. Maria del Carmen Seveso believes there is a link between local health problems and increased use of pesticides and chemicals for crops in northern Argentina. Glyphosate, the controversial pesticide, is of special concern.

Photo credit: Photo Credit: Jim Wickens/Ecostorm for Mighty Earth and ActionAid





When industrial agriculture replaces wildlife habitat and native ecosystems, pesticide and fertilizer use also increases, impacting water quality. Nitrate pollution and algal blooms are already a problem across the Midwest and much of the country, and the 2017 Gulf of Mexico dead zone was the largest on record.

education, economics, and environmental sustainability.²² Indeed, although soy plantations produce massive amounts of biodiesel, vegetable oil, and soybean meal, this kind of monoculture cannot support a community's food needs. Existing communities typically had diverse food sources, which are cleared to create space for monoculture soy plantations.

To distant land owners, the profit from the crop matters, but the community needs land to grow food to feed itself. Competition for land due to demand for biofuel feedstocks makes it hard for local communities to access land and achieve food security.

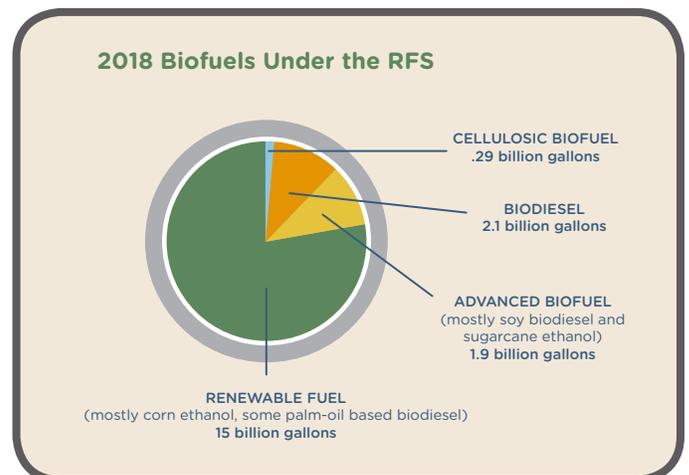
Is Even More Domestic Biodiesel the Answer?

But even if the United States were to stop importing from Argentina tomorrow, federal mandates for biodiesel and other food-based biofuels would remain on the books, artificially propping up demand. Could – and should – greater domestic biodiesel production make up the difference?

Unfortunately, from the quiet destruction of Midwest grasslands and prairie to record-setting dead zones and toxic algal blooms to the decline of species like the prairie chicken and monarch butterfly, the U.S. heartland is already suffering the environmental consequences of increased biodiesel and other biofuel – primarily corn ethanol – production.

Ethanol, which is derived mainly from corn, is blended into gasoline for use in light-duty vehicles. It is the main biofuel produced domestically, and production has more than doubled under the RFS mandate, rising from 6.5 to 15.3 billion gallons between 2007 and 2016.²³ Nearly 40% of the country's corn crop was diverted to ethanol production in 2016, with widespread negative impacts on the Midwestern landscape.²⁴

Biodiesel, which is blended with petro-diesel for use in the heavy-duty engines of buses, tractors, and ships, is made from vegetable oils or animal fats. While many people associate biodiesel with used cooking oil or “French fry oil,” which likely does reduce climate pollution, only 13% of domestic biodiesel was made from used cooking oil or other waste or recycled products in 2015. The majority of domestic biodiesel was made from virgin oils, primarily soy.²⁵





Domestic biodiesel production has also soared in the last decade, tripling to 1.56 billion gallons in 2016.²⁶ Of the U.S. soy oil crop, 30% is sent to biodiesel facilities.²⁷

Not surprisingly, demand for soy and its sister crop, corn, often grown in rotation, has increased over the past decade. While just as in South America, demand for corn and soy from the meat industry is a significant factor in driving agricultural expansion, biofuels have been a major part of the story. Corn and soybean acreage has reached record highs in recent years, with soybean acres in 2018 expected to reach all-time highs, fueling record levels of water pollution in many agricultural producing areas.²⁸

This expansion of monoculture agriculture came at a cost. More than 7 million acres of grasslands, primarily in the biodiverse Prairie Pothole region of the Upper Midwest, were converted to industrial agriculture for biofuels crops between 2008 and 2012 after the passage of the RFS.²⁹ In total, at least 37 million acres of corn and soybeans – an area the size of West Virginia - are required to produce

enough corn ethanol and soy biodiesel each year to meet RFS biofuel mandates.³⁰

This expanded agricultural production, often accompanied by retrograde agricultural practices like full fertilizer application and a lack of cover crops, has had the following impacts:

- **Greater water pollution and costs to treat drinking water**³¹ as fertilizer and pesticides run off fields into nearby waterways. In some states such as Louisiana, 50% or more rivers are impaired due to excessive nutrients from agriculture pollution.³²
- **Further downstream, record dead zones** are recorded when pollution runs down the Mississippi River into the Gulf of Mexico. An area the size of New Jersey was devoid of aquatic life in 2017.³³
- **Annual algal blooms occur in Lake Erie** due to excessive agricultural pollution. Toledo, Ohio, is a prime example, with residents banned from drinking their tap water for several days in 2014 because of a toxic algal bloom.³⁴
- **Wildlife populations** of pheasants, grouse, prairie chickens, monarch butterflies, bees, and other species have plummeted as corn and soybeans encroach on their habitat.³⁵

The ramp-up of large-scale, industrial agriculture in the U.S. to meet mandated biofuel production is devastating water quality and wildlife habitat. More domestic production would exacerbate these problems.

“ In fact, if nationwide conversion of grasslands and habitat is as high as some regional studies indicate, the US landscape may be experiencing the greatest transformation to cropland since the ‘fencerow-to-fencerow’ era of the 1970s and the Dust Bowl of the 1930s prior. ”

— Tyler Lark, J. Meghan Salmon, Holly Gibbs

“Cropland Expansion Outpaces Agricultural and Biofuel Policies in the United States”
University of Wisconsin, 2015
From: Environmental Research Letters



Monarch butterfly populations have plummeted. The conversion of habitat to cropland, in part due to biofuel crop expansion, is one cause.

Better Biodiesels

To many, biodiesel is synonymous with Willie Nelson, powering his tour bus from coast to coast with used French fry oil, restaurant fumes wafting behind.

Indeed, a small percentage of biodiesel is made from waste and recycled products, and these biodiesels likely do provide carbon emissions reductions, although recent research has identified other existing markets for used vegetable oil.³⁶

The very best biodiesels are the ones made from fats and oils that would otherwise go to a landfill. Often it is a small community facility, with dedicated, eco-conscious staff, that rescues these wastes and processes them into biodiesel.

Biodiesel from recycled cooking oil represented 13% of all domestically produced biodiesel in 2015³⁷ and, it is widely assumed, none of U.S. imported biodiesel. The supply of waste and recycled oils is also relatively steady, as it is set by the nation's appetite for fried food, and there is little growth potential among this category of better biodiesels.³⁸ Further growth in the biodiesel sector would have to come from virgin vegetable oil feedstocks like soy, canola, and palm oils, the same types of biodiesel that are already problematic.

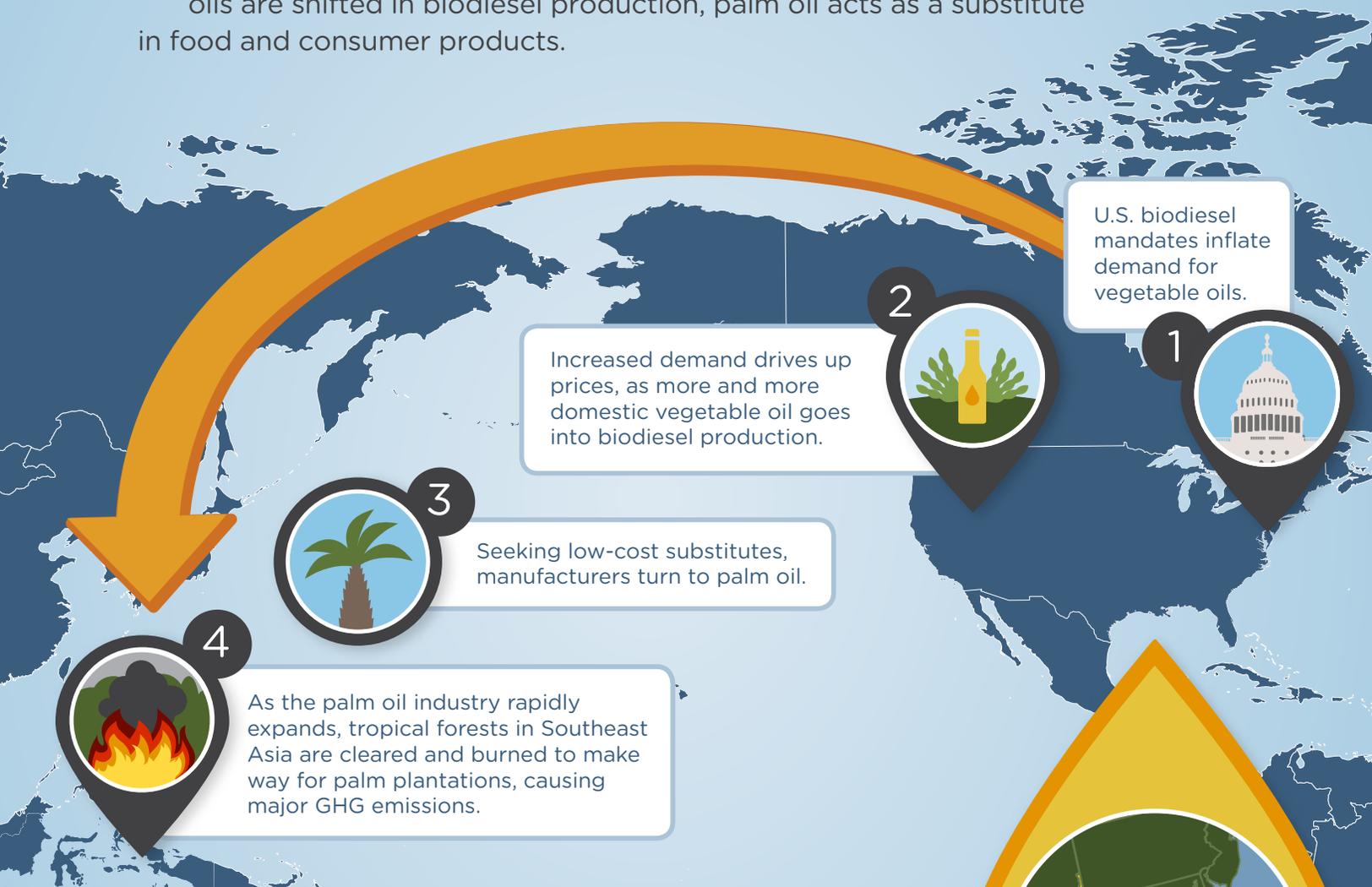


Willie Nelson, the folk singer and Farm Aid founder, has advocated for better types of biodiesel.



The Substitution Effect: How American biodiesel mandates drive deforestation in Southeast Asia

Palm oil imports to the United States have nearly doubled since passage of the RFS in 2007. As more and more domestically produced oils are shifted in biodiesel production, palm oil acts as a substitute in food and consumer products.



1 U.S. biodiesel mandates inflate demand for vegetable oils.

2 Increased demand drives up prices, as more and more domestic vegetable oil goes into biodiesel production.

3 Seeking low-cost substitutes, manufacturers turn to palm oil.

4 As the palm oil industry rapidly expands, tropical forests in Southeast Asia are cleared and burned to make way for palm plantations, causing major GHG emissions.



Crops planted for corn ethanol and soy biodiesel cover an area the size of West Virginia each year.

Environmental Impacts at Home

Increased production of corn ethanol and soy biodiesel in the United States has serious consequences for wildlife, water quality, and the climate.



7.3 million acres of native habitat converted to cropland production



Cropland expansion led to 30 million metric tons of carbon emissions, equivalent to about 20 million additional cars on the road



The 2017 dead zone in the Gulf of Mexico was the largest on record and caused by agricultural run-off

The Substitution Effect: Indirect Impacts of U.S. Biofuels Policies

U.S. biofuels policies not only cause major land conversion for new biofuel crop themselves, but they also lead to major shifts and substitutions in the allocation of base food ingredients around the world, which indirectly drive further land use change, raise food prices, and worsen hunger.

Diverting greater and greater amounts of food and feed crops – and in particular, vegetable oil – to be burned in gas tanks as biofuels creates a huge gap in America and the world’s food and feed supply.³⁹

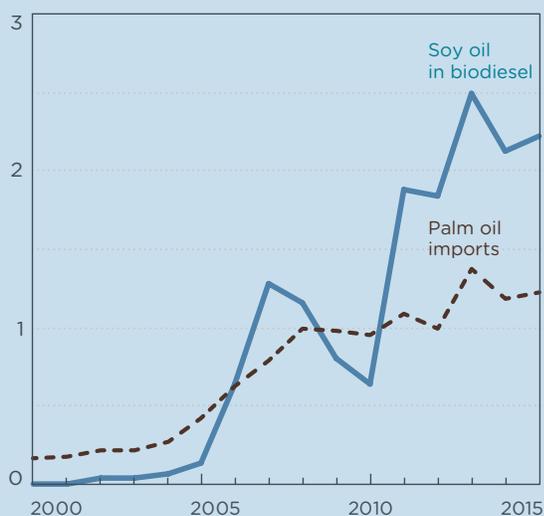
Given our interconnected world, these gaps are typically filled by the cheapest replacement available on the global market. Often, the cheapest replacement for diverted oils and fats is palm oil.⁴⁰ And indeed, as domestically grown soy oil has increasingly been diverted away from other uses and into fuel production, palm oil has filled the gap. In fact, palm oil imports have risen in close tandem with soy oil diversions to biodiesel production. This phenomenon is called ‘the substitution effect.’

Palm oil expansion is of special concern since plantations are expanding onto carbon-rich peatlands in Southeast Asia, which release massive amounts of carbon into the air when burned and converted to cropland.⁴¹ This region is also struggling to bring native orangutans, elephants, and rhinoceroses back from the verge of extinction. These species need habitat to survive, and it is increasingly being encroached upon by palm oil.

As demand for biofuels grows and more food crops are diverted to fuel, food prices also rise and become more volatile.⁴² Ability to access food – generally an ability to pay for food – is a key part of food security. Increases and volatility in food prices hurt the poorest around the world, who often already spend the majority of their income on food and cannot absorb a price increase.⁴³

Biofuels have increased land pressure on traditional and subsistence farmers in developing countries who grow a diverse array of food to support their communities. There have been many documented cases in which biofuel producers have engaged in land-grabbing, stealing traditional land from indigenous communities and local, small-scale farmers to make way for biofuels crops plantations. Over a ten-year period, the non-governmental organization GRAIN tracked land grabs for biofuels totaling 17 million hectares in Africa, Latin America and Asia.⁴⁴ Frequently, biofuel companies will promise jobs when they enter a new area, but usually those promises are not kept.⁴⁵ The community bears all of the costs without the benefits.

As U.S. soy oil used in biodiesel has risen, so have U.S. palm oil imports.



Data sources: USDA FAS (2017) and U.S. EIA (2017).

Chart provided courtesy of the International Council on Clean Transportation.



Dirtier Than Dirty Old Oil

Biofuels have been widely marketed as a tool to reduce greenhouse gas (GHG) emissions. Indeed, the Environmental Protection Agency's (EPA) 2010 analysis estimated that future biodiesel production would reduce emissions by at least 50%,⁴⁶ and corn ethanol produced in 2022 would offer a 20% emissions reduction in the 30 years thereafter.⁴⁷

However, an avalanche of new research has undermined the findings in these studies. In fact, a close look both at EPA's assumptions and at emerging, credible research, outlined here, shows that food-based biofuels are likely as bad or worse for the climate than oil and gas:

- ▶ Soy and palm biodiesel have two and three times the emissions of fossil fuel, according to the 2016 Globium study, a major report commissioned by the European Union.⁴⁸
- ▶ Corn ethanol, the primary biofuel filling the RFS mandate, may lead to higher – instead of lower – GHG emissions,⁴⁹ according to a 2014 Government Accountability Office report.
- ▶ The RFS as a whole “may be an ineffective policy for reducing global GHG emissions”⁵⁰ and may not achieve its goal of reducing GHG emissions,⁵¹ due to indirect land use change emissions, a 2011 National Research Council report found.

Concerns around EPA's biofuels climate assessments

- Nearly all corn ethanol facilities have been “grandfathered” into the RFS program and are not required to meet any GHG emissions reduction standards.⁵²
- EPA assumes that global food consumption will decrease through 2022, leaving more biofuel feedstocks to be used for biofuels instead of food,⁵³ which is unrealistic with a growing world population.⁵⁴
- EPA's modeling fails to fully account for indirect emissions⁵⁵ and biofuels feedstock diversions (like the palm oil substitution described above), a major source of emissions.
- EPA's analyses rely on an inaccurate assumption that farmers will generally intensify production on fields instead of assuming farmers will also bring new land into production to grow more biofuels crops.⁵⁶
- EPA fails to take recent deforestation and other land use changes into account, such as those tied to recent spikes in imported biodiesel and loss of U.S. grasslands and wetlands to biofuels crops.⁵⁷

Some biofuels do appear to offer climate benefits, in particular cellulosic biofuels made from limited amounts of true residues or wastes, for instance, which do not compete with food crops. However, these ‘truly advanced’ fuels were projected to be less than 2% of overall U.S. biofuel consumption in 2017,⁵⁸ and do not appear poised to grow under biofuel mandates as currently structured.



Howler monkeys live in northern Argentina's Chaco forest; their habitat is being destroyed as new soy production encroaches on the forest.

Recommendations

End federal mandates for food-based biofuels.

U.S. biofuels mandates should be eliminated or dramatically lowered to levels that do not lead directly or indirectly to deforestation, water pollution, destruction of native prairies, food price volatility, land grabs, or other unintended consequences on the most vulnerable ecosystems and the world's poorest residents.

Stop subsidizing food-based biofuels.

While the U.S. government eliminated the corn ethanol tax credit in 2011, it is considering reauthorizing tax credits for biodiesel and renewable diesel. Historically, the tax incentive has cost taxpayers \$3 billion per year⁵⁹ and benefited both domestic producers and importers – including Argentinian soy biodiesel.

Track and enforce unlawful land conversion.

The biofuels industry is prohibited from massively expanding agricultural land onto native grasslands, for instance, to meet biofuels mandates, but the law is not being monitored or enforced properly. Better implementation must be prioritized. Better transparency would also ensure the public and policymakers are aware of how RFS biofuels mandates are causing the destruction of forests and grasslands.

Re-assess the climate impact of biofuels

Ensure that direct and indirect emissions from land use change are fully accounted for.

Respect land rights and stop driving land grabs.

Land rights of farmers and communities must be respected. Any land acquired for biofuel production must be legally purchased in keeping with the standard of Free, Prior and Informed Consent of the rights holders and the Voluntary Land Tenure Guidelines. Biofuels and feedstocks exported from areas with high incidents of land grabs and conflict over land should not be eligible for compliance with biofuel mandates.

Agricultural traders and biofuel producers should adopt and fully enforce “No Deforestation, No Exploitation” commitments throughout their supply chains, around the world.

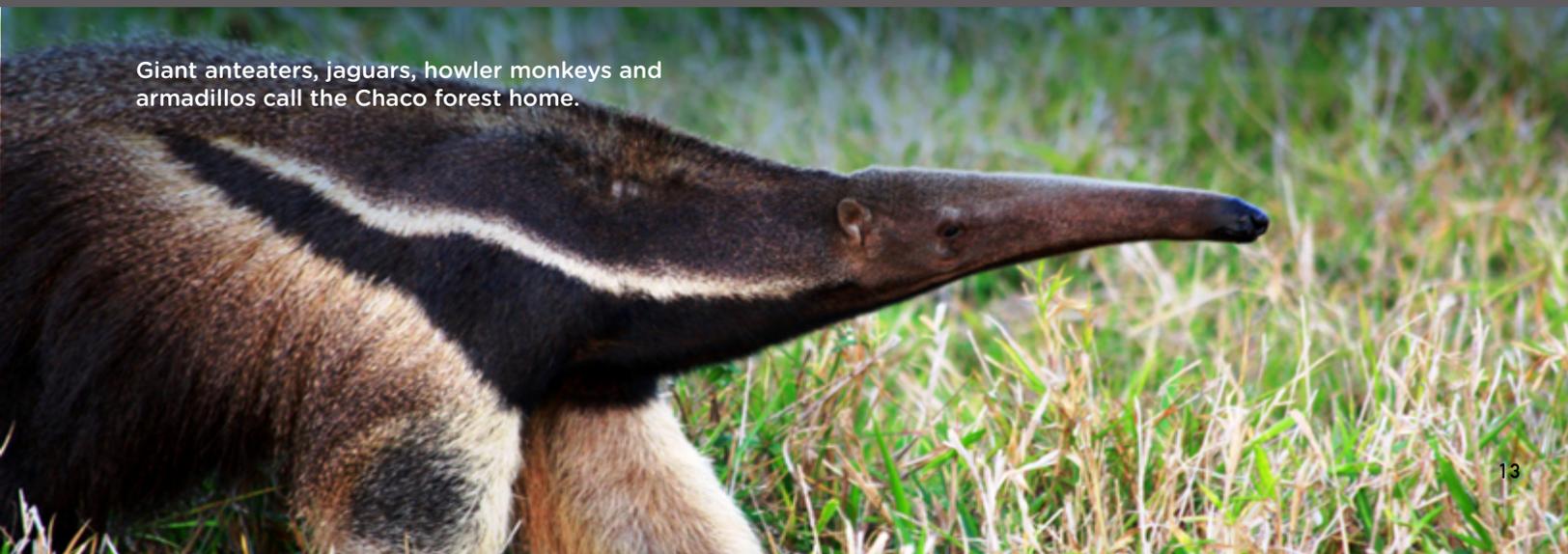
Rather than a piecemeal, region-by-region approach, which can shift deforestation from a protected area to its unprotected neighbor, this approach offers stronger protections for native ecosystems and the people who depend on them.⁶⁰

Conclusion

Preserving our planet's carbon-rich forests, grasslands, prairies, and other natural places from further destruction is critical, for the climate, wildlife, and people, now and in the future. We have solutions to protect these special places and green our transportation fuel supply. Solar energy now competes economically with fossil fuel. Electric cars are becoming commonplace. Fuel economy standards can shrink oil and gas consumption.

Limited amounts of truly advanced, cellulosic biofuels may be part of the solution as well. But food-based biofuels that lead directly or indirectly to destruction of native ecosystems for high-emission, industrial agriculture have no place in a greener future.

Giant anteaters, jaguars, howler monkeys and armadillos call the Chaco forest home.



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