Clean Air Task Force
Environmental Working Group
Friends of the Earth

June 23, 2008

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OAR Docket
U.S. Environmental Protection Agency
Mailcode: 6102T
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Transmitted by email to: OAR docket (a-and-r-docket@epa.gov)
James W. Caldwell, OTAQ (caldwell.jim@epa.gov)

Attention: Docket ID No. EPA-HQ-OAR–2008–0380; FRL–8569–5;
73 Fed. Reg. 29753 (May 22, 2008).

Re: Comments on EPA's "Notice of Receipt of a Request From the State of Texas for a Waiver of a Portion of the Renewable Fuel Standard."

I. SEVERE ENVIROMENTAL HARM FROM THE 2008 RFS

Section 211(o) of the Clean Air Act authorizes states to petition the United States Environmental Protection Agency to waive or reduce the Renewable Fuel Standard on a year-by-year basis. EPA may grant such requests if it finds that implementing the RFS would "severely harm the economy or environment of a State, region, or the United States," or if it finds the domestic supply of renewable fuels to be inadequate.

On April 25, 2008, Texas Governor Rick Perry petitioned the United States Environmental Protection Agency to reduce the RFS by 50 percent. The Texas petition states that by increasing the demand for biofuels, the RFS is also increasing the demand for biofuel feedstocks such as corn (for ethanol): "corn prices are up 138 percent globally over the past three years and global food prices have increased 83 percent over that same time period, in part because of the artificial economic forces created by the RFS." According to Governor Perry's petition, higher corn prices have cost the Texas livestock industry billions of dollars and have contributed to "skyrocketing grocery prices."[1]

EPA has 90 days to approve or disapprove the Texas petition and, as required by the Clean Air Act, has solicited public comment on "any matter that might be relevant … to the petition."[2] It is likely EPA will receive numerous comments about the economic harm posed by the RFS. The Clean Air Task Force, Environmental Working Group, and Friends of the Earth appreciate this opportunity to describe some of the severe *environmental* harms associated with the RFS as well.

Biofuel production levels incentivized by the 2008 RFS pose a severe threat to climate stability. As discussed in Section III.B. below, land use changes connected to the incremental increase in biofuel production mandated by the RFS in 2008 will cause approximately 1.3 billion metric tonnes of carbon dioxide-equivalent emissions to be released into the atmosphere. That is the same amount of greenhouse gas emitted in one year by *four hundred* 500MW coal-fired power plants. (*See* Appendix A for analysis.)

The threat from the RFS to climate stability is compounded by other environmental harms associated with biofuel production and consumption, including severely diminished water quality (Section IV) and the loss of critical habitat (Section V). Accordingly, we urge EPA to waive the RFS for 2008.

II. BIOFUELS AND THE ENVIRONMENT: OVERVIEW

With help from policymakers around the world, interest in biofuels has exploded in recent years. Annual production levels for ethanol doubled globally between 2000 and 2005, while biodiesel production tripled. The European Union instituted ambitious biofuel consumption targets for 2005, 2010, and 2020. China expects to meet fifteen percent of transport fuel demand in 2020

[1] Letter from Governor Perry to Administrator Johnson, Requesting a waiver of a portion of the RFS, April 25, 2008.
[2] 73 Fed. Reg. 29753, 29754 (May 22, 2008).

using biofuels. Dozens of ethanol refineries are being built across the United States, fueling record corn plantings. The RFS, as amended in late 2007, will increase domestic production of biofuels almost five-fold, and a growing number of states are exploring ways to develop local bioethanol and biodiesel markets.

The main engine behind the surging interest in biofuels is their theoretical potential to strengthen agricultural economies, to expand the options for transport fuel at a time of record oil prices, and to reduce emissions of greenhouse gases and other harmful air pollutants.

This focus on biofuels' theoretical benefits has obscured their actual track record. Numerous recent studies have linked policies like the RFS – *i.e.*, policies that incentivize the production and consumption of biofuels – to increased competition for water, land, and other resources. The studies accuse such policies of playing a significant role in global warming, tropical deforestation, biodiversity loss, water pollution, and the spread of monoculture cropping.

By increasing biofuel production levels in the United States and abroad, the 2008 RFS harms the United States' environment in the following ways:

- *Global warming*. Although biofuels are theoretically capable of reducing the climate impact of the transportation sector, the fuels currently incentivized by the RFS are, on net, contributing to global warming. Biofuel production harms climate stability directly and indirectly, by increasing the use of climate-forcing nitrogen-based fertilizers and by encouraging the conversion of forests and other carbon-rich ecosystems into farmland.
- *Water pollution*. The increase in acreage planted to corn in 2007 likely resulted in the application of over 1.8 billion additional pounds of nitrogen and 812 million additional pounds of phosphate—a serious increase in the risk of water pollution in agricultural regions. The danger of increasing the risk of water pollution was clearly demonstrated this when heavy spring rains fell on agricultural watersheds in the midwest. The U.S. Geological Survey reports that spring nutrient delivery from the Mississippi-Atchafalaya River Basin to the northern Gulf of Mexico is among the highest in the last three decades.
- *Habitat destruction*. A key ingredient in making conventional biofuels (*i.e.*, the kinds of biofuels being produced to meet the 2008 RFS) is farmland. In order to keep up with policy-driven demand for biofuel feedstocks *and* sustain current food production levels, the agricultural sector is cultivating millions of hectares of new farmland – a process that often involves clearing critical habitats like forests, wetlands, and grasslands.

The severity of these environmental harms, described in further detail below, warrants a waiver of the 2008 RFS.

III. SEVERE HARM TO CLIMATE

Policies like the RFS that encourage biofuel production affect climate change in a variety of ways, through the net greenhouse gas emissions resulting from the production and use of biofuels and through the effects from changes to global agricultural markets. Their net impact on climate is difficult to ascertain, because the analytic tools currently used to assess biofuel policies have some significant remaining gaps in addressing the production process (direct

effects) and are not yet capable of quantifying the full range of market-mediated (or indirect) effects. It is clear, however, from recently developed analyses that adverse indirect effects – particularly the release of carbon dioxide (CO2) as forests and wetlands are cleared to accommodate increased demand for farmland – can overwhelm the direct benefits of replacing fossil fuels with fuels made from conventional crops like corn, soy, rapeseed, and oil palms. This is certainly true of the RFS: as described below, analysis submitted with these comments demonstrates that the incremental increase in biofuel production required by the revised 2008 RFS will result in 1.3 billion metric tonnes of additional CO2-equivalent emissions..

A. NET IMPACT OF BIOFUELS ON CLIMATE: BACKGROUND

Direct effects are climate-relevant events (typically emissions) that explicitly result from the use or production of biofuels. The most obvious direct impact biofuels have on climate is a reduction in the amount greenhouse gases emitted from the tailpipes of automobiles that run on biofuel, as compared to those powered by petroleum. When biofuels made from plant matter are combusted, the CO2 emitted is the same CO2 absorbed by the plant matter before it was harvested and made into fuel – a correlation that has given rise to the misconception that biofuels are "carbon neutral". However, the climate benefit from reduced tailpipe emissions is undermined by other effects directly tied to the production of biofuels. According to a recent University of Sheffield (UK) study, biodiesel made from rapeseed grown on dedicated European farmland accounted for nearly the same amount of CO2-equivalent emissions per kilometer driven as petroleum diesel. The main reason biodiesel performed so poorly is that rapeseed farming, like commercial-scale corn farming, relies heavily on nitrogen-based fertilizers which, in turn, give off nitrous oxide – a powerful global warming agent.[3] A recent analysis of N_2O (nitrous oxide) emissions from production of conventional biofuel feedstocks concluded that N_2O emissions may cancel out any reduction in direct greenhouse gas emissions, depending on the efficiency with which nitrogen is used by the crop plant.[4]

The indirect impacts on greenhouse gas emissions that occur as a variety of markets adjust to fluctuations in the demand for biofuels can far exceed the direct effects. Because the vast majority of commercial biofuels are made from sugars and oils extracted from commonplace crops, policies that expand the market for biofuels tend to also increase demand for agricultural crops and such inputs as water, fertilizer, and land.

The demand for crops has roiled food markets because the most widely cultivated "energy crops" are also food and feed staples like corn, soy, sugarcane, rapeseed, and oil palm. The vast majority of ethanol produced in the United States comes from corn, and will continue to for some time. Demand from recently-built corn-ethanol refineries contributed to a dramatic spike in the price of corn, pushing up the cost of corn-intensive foods including dairy, eggs, and meat from corn-fed livestock. The sharp rise in the price of corn and other cereals also touched off

[3] Johnson, Eric and Russell Heinen, "Petroleum diesel vs biodiesel: The race is on," *Chemistry & Industry*, April 23, 2007. 22-23. *See also* Mortimer, N.D., *et al*., "Evaluation of the Comparative Energy, Environmental and Socio-Economic Cost and Benefits of Biodiesel – Draft Report for Department of Environment, Food and Rural Affairs," June 2002. 28-30. <http://www.ienica.net/policy/sheffield.pdf>.

[4] Crutzen, P.J, A.R. Mozier, K.A. Smith, and W. Winiwarter. 2008. N2O release from agro-biofuel production negates global warming reduction by replacing fossil fuels. Atmospheric Chemistry and Physics 8:389-395.

street protests in dozens of countries including Mexico, Egypt, Haiti, and Indonesia. A 2007 OECD report found that, "Given the high ambitions of the EU, the US, China, Brazil, and others" with respect to biofuel production, "it is certain that without a serious change in policy the 'food-versus-fuel' debate will become more acute in coming years."[5]

Biofuel policies' indirect impact on climate is closely related to their effect on food prices, and is just as troubling. Four recent studies confirm that almost regardless of *where* biofuel production is expanded or *what kind* of energy crop is cultivated, tropical forests and grasslands ultimately will be cleared to make room for farmland. When farmers respond to subsidy-enhanced biofuel demand by diverting crops like corn, soy, or rapeseed from food markets to energy markets, farmers elsewhere in the world satisfy the unmet demand for food and feed products by clearing and cultivating enough new farmland to reestablish food market equilibrium. In an increasingly globalized food market, the make-up food often will be grown wherever land and other agricultural inputs are the cheapest. The result is the conversion of forests, wetlands, grasslands, and other areas in tropical countries – a process that typically leads to substantial releases of soil- and plant-carbon as land is cleared, drained, and/or burned to make it suitable for farming or grazing. According to Berkeley professors Alex Farrell and Michael O'Hare, "There is no way around this effect unless we un-make the global economy."[6]

Although the land use-related effect that biofuels have on climate can be "indirect," it dominates other climate-relevant impacts. The studies' authors and several other prominent researchers have determined that the negative climate impacts from converting forest or grassland to farmland can overwhelm even the most optimistic assessments of the annual climate benefit derived from biofuels made from energy crops grown on what was formerly food-producing farmland. The four studies are:

- An article in *Science* by Searchinger, Ralph Heimlich, Richard Houghton, and several researchers from Iowa State on the indirect – but dominant – climate impact associated with an expansion in ethanol produced from US-grown corn and switchgrass. The authors concluded that as compared to regular gasoline, ethanol made from corn and switchgrass would increase GHG emissions by 93% and 50%, respectively.[7]

- A companion study by Searchinger and Heimlich that uses the same methodology to conclude that the net GHG emissions associated with the use of biodiesel made from US-grown soybeans would be 75-158% higher than the emissions from conventional diesel.[8]

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[5] Doornbosch, Richard and Ronald Steenblik, / OECD, *Biofuels: Is the Cure Worse Than the Disease?* September 2007. 34. <http://media.ft.com/cms/fb8b5078-5fdb-11dc-b0fe-0000779fd2ac.pdf>.

[6] Memo from Alex Farrell and Michael O'Hare to John Courtis, "Greenhouse gas (GHG) emissions from indirect land use change (LUC)" (January 12, 2008) (http://www.arb.ca.gov/fuels/lcfs/011608ucb_luc.pdf)

[7] T. Searchinger, R. Heimlich, R.A. Houghton, F. Dong, A. Elobeid, J. Fabiosa, S. Tokgoz, D. Hayes, T. Yu, "Use of U.S. Croplands for Biofuels Increased Greenhouse Gases Through Land Use Change," Science Express (Feb. 7, 2008)

[8] T. Searchinger and R. Heimlich, Estimating Greenhouse Gas Emissions From Soy-Based U.S. Biodiesel When Factoring in Emissions From Land Use Change (February 7, 2008) (http://www.catf.us/projects/climate/biofuels/Searchinger_Heimlich-Biodiesel_Greenhouse_Gas_Emissions_and_Land_Use_Change.pdf).

- A second article in *Science* by Joseph Fargione and researchers from the University of Minnesota about the "biofuel carbon debt" incurred when forests, grasslands, etc in the US and the tropics are directly converted into energy crop farms. "Our analyses suggest that biofuels, if produced on converted land, could for periods of time, be much greater net emitters of greenhouse gases than the fossil fuels that they typically displace."[9]

- A memo by University of California-Berkeley professors Alex Farrell and Michael O'Hare released in January 2008, essentially previewing the findings in Searchinger *et al*. In addition, Farrell and O'Hare found that if the indirect emissions associated with biofuels were properly accounted for, the carbon intensity of California's existing gasoline would be as much as 33% higher than current estimates due to the amount of ethanol that is already blended into the gas.[10]

B. NET IMPACT OF THE 2008 RFS ON CLIMATE

Pursuant to amendments contained in the Energy Policy Act of 2005, EPA set the 2008 RFS at 5.4 billion gallons of renewable fuel.[11] The standard was revised again following the passage of the Energy Independence and Security Act of 2007, which substantially enlarged annual production targets and established a long-range goal of 36 billion gallons of renewable fuel by 2022.[12] The RFS for 2008 of 9.0 billion gallons represents a 3.6 billion gallon increase over the preexisting target for 2008.

The Clean Air Task Force contracted Agricultural Conservation Economics (ACE) principal Ralph Heimlich to assess the net impact on GHG emissions that can be attributed to that 3.6 billion gallon increase. ACE applied the same model-driven approach that Heimlich and his co-authors described in their above-referenced February 2008 *Science* article, titled "Use of U.S. Cropland for Biofuel Increases Greenhouse Gas Through Emissions from Land Use Change."[13] See Appendix B. According to their *Science* article,

> Most prior studies have found that substituting biofuels for gasoline will reduce greenhouse gasses because biofuels sequester carbon through the growth of the feedstock. These analyses have failed to count the carbon emissions that occur as farmers worldwide respond to higher prices and convert forest and grassland to new cropland to replace the grain (or cropland) diverted to biofuels.

Heimlich and his co-authors corrected for that "accounting error" by factoring in emissions from land use changes, using tools developed by the Food and Agriculture Policy Research Institute (FAPRI) (to model the acreage and location of new cropland that would be cultivated to accommodate increased biofuel production) and research by the Woods Hole Research Center (to calculate the amount of CO2 that would be released per acre from the various ecosystems

[9] J. Fargione, et al., Land Clearing and the Biofuel Carbon Debt, Science Express (February 7, 2008).
[10] Farrell/O'Hare Memo, *supra* note 5.
[11] 72 Fed. Reg. 66171, 66172 (November 27, 2007).
[12] EISA 2007 at §202(a)(2) (amending CAA §211(o)); 73 Fed. Reg. 8665, 8666 (February 14, 2008).
[13] Searchinger, T. *et al.*, Use of U.S. Cropland for Biofuel Increases Greenhouse Gas Through Emissions from Land Use Change, *Science* (February 8, 2008).

projected to be converted into cropland). The land use-related emissions were then used to adjust the output from GREET, the most commonly used lifecycle analysis.

For the *Science* article, Heimlich and his co-authors projected the amount of land that would be cultivated and the corresponding amount of CO2 that would be released if US corn ethanol production were to increase by 56 billion liters (approximately 15 billion gallons).

In the memorandum appended to these comments (see Appendix [C]), ACE used the same approach to calculate the GHG emissions associated with an incremental increase of 3.5 billion gallons (*i.e.*, slightly less than the 2008 RFS increase). Structural constraints within the FAPRI model required ACE to analyze an increase from 15 billion gallons to 18.5 billion gallons (rather than from 5.4 billion to 9.0 billion) and to assume the increase was to occur in 2011 (rather than 2008). These data accommodations have no substantial effect on the outcome, however, because the calculations are based on a reasonably static *rate* of emissions per gallon of corn ethanol produced.

As described in the appended memorandum, increasing US corn ethanol production by 3.5 billion gallons would *increase* net CO2-equivalent emissions by 1,311 million metric tonnes. By way of comparison, that is almost equal to the amount of CO2 that nearly four hundred 500MW coal-fired power plants would emit over the course of a year.

1.3 billion tons CO2e can come from …

2008 RFS: Taking into account land use change-related emissions, a 3.5 billion gallon increase in the annual production mandate will cause greenhouse gas emissions to increase by 1.311 billion tons carbon dioxide-equivalent gasses.

or ...

Nearly 400 coal-fired power plants: A 500MW coal-fired power plant with an 80% capacity factor will produce 3.5 million MWH per year. The CO2 emissions rate for such a plant is about 205 lbs/MMBTU, which means a plant with a heat rate of 10,000 BTUs per KWH will emit 2050 pounds of CO2 per MWH. Over the course of a year, that comes to 3.6 million short tons (3.3 million metric tonnes) of CO2. At that emissions rate, it would take 397 such power plants to emit 1.311 billion metric tons of CO2 in one year.

C. THE EUROPEAN PRECEDENT

Assessing the real-time climate impact of biofuel policies is difficult, but the scale of those impacts (as well as the complicated nexus between policies that promote biofuels and activities that accelerate global warming) can become apparent over time. The 2003 EU Biofuels Directive, which is similar in several respects to the US RFS, established successively larger biofuel consumption targets for 2005, 2010, and 2020. European biodiesel is usually made from

domestically grown rapeseed oil, which also happens to be a popular cooking oil. By diverting more and more of the annual rapeseed harvest to biodiesel refineries, the Directive inadvertently created a demand for anything that could fill the void in the market for cooking oils. Part of that demand has been met by Malaysian and Indonesian palm oil, much of which is produced at plantations carved from forests and peatlands.

The bog-like peatlands of Southeast Asia store enormous quantities of soil carbon. According to a 2006 report issued by Wetlands International and the Dutch engineering firm Delft Hydraulics, almost 12 million hectares of Indonesian peatland have been drained and cleared – often to make room for palm oil plantations. In the process, approximately two billion metric tons of CO2 are released annually, making peatlands destruction a leading source of global warming emissions. After accounting for these emissions – which equal eight percent of global CO2 emissions from fossil fuel use – researchers determined that Indonesia's CO2 emissions were the third highest in the world, behind only the United States and China.[14]

The carbon release is large enough, in fact, to easily negate any of the purported carbon benefits that might be achieved if European motorists were to meet the Directive's biofuel-for-petroleum substitution targets. Biofuelwatch, an industry watchdog based in Britain, calculates that the average net CO2 emissions caused by producing South East Asian palm oil for biodiesel are between two and eight times larger than the emissions that are avoided by substituting the biodiesel for petroleum-based diesel.[15] The Wetlands/Delft report estimates that between 10 and 30 metric tons of CO2 are released for every metric ton of palm oil produced.[16]

Consequently, in a somewhat predictable expression of policy regret, the EU announced it is working on a set of proposals that would ban the importation of biofuel feedstocks that contribute to global warming, and require that feedstocks used to comply with the Directive provide "a minimum level of greenhouse gas savings."[17]

IV. SEVERE HARM TO WATER QUALITY

Increasing the amount of cropland planted to corn will likely increase water pollution unless producers substantially ramp up their use of conservation and pollution prevention practices. According to the USDA Economic Research Service's 2006 Agricultural Resource and Environmental Indicators report, about 130 pounds of nitrogen and 58 pounds of phosphate are applied on average to each acre of corn in the United States. The 14 million acre increase in corn acres reported by the National Agricultural Statistics Service in 2007, then, likely resulted in the application of over 1.8 billion pounds of nitrogen and 812 million pounds of phosphate—a serious increase in the risk of water pollution in agricultural regions. The danger posed to the

[14] Wetlands International and Delft Hydraulics, *Assessment of CO2 emissions from drained peatlands in SE Asia,* December 7, 2006. Summary, 29-30. <http://www.wetlands.org/publication.aspx?ID=51a80e5f-4479-4200-9be0-66f1aa9f9ca9>.
[15] Jim Roland-Biofuelwatch, "An estimation of the expected CO2 emissions caused by producing South East Asian palm oil for biodiesel, compared with the avoided diesel emissions," February 2007 (internal citation omitted). <www.biofuelwatch.org.uk/SE_Asia_palm_biodiesel_analysis.doc>.
[16] Wetlands Intl/Delft, 30.
[17] *See, e.g.,* Member states in push to revise renewable plans, *EurActiv* (June 10, 2008) (http://www.euractiv.com/en/energy/member-states-push-revise-renewables-plans/article-173208)

environment by such an increased risk of pollution was clearly demonstrated this spring when heavy rains fell over much of the U.S. Corn Belt. The U.S. Geological Survey (USGS) recently reported that contributions of phosphorus to the Gulf of Mexico are estimated to be the highest for the USGS record since the 1980s. Total phosphorus (83,000 tons) and dissolved orthophosphate (26,000 tons) are about 60 and 85 percent higher than the long-term spring average for the nearly 30-year period. Similarly, nitrogen contributions to the Gulf of Mexico from April through June are estimated to be about 35 to 40 percent higher than the long-term spring average since the early 1980s. Contributions for total nitrogen and dissolved nitrate during the three months are estimated to be about 817,000 and 578,000 tons, respectively. USGS goes on to point out that nutrient delivery, particularly during the months of April through June, has been identified as one of the primary factors controlling the size of the hypoxic zone that forms during the summer in the northern Gulf of Mexico.

The suffocation of marine life every spring through summer is so extensive and grave in the Dead Zone that many scientists fear a "regime shift" may occur where the entire ecosystem's food chain is rapidly reorganized, which is difficult or impossible to reverse. This is a high environmental price to pay for a biofuels policy that is straining family food budgets for the poorest Americans, and is doing next to nothing to lower gas prices.

Corn is the most fertilizer-and energy-intensive of all the commodity crops. Therefore, according to Donner and Kucharick (2008), achieving a mere 15 billion gallons per year mandate for corn ethanol would cause a 10 to 18 percent increase in nitrogen export to the Gulf of Mexico. If 36 billion gallons of conventional corn ethanol were somehow produced in a manner that met the greenhouse gas requirements in the bill, then the nitrogen export to the Gulf would increase by 34 percent.[18]

Instead, to shrink the Dead Zone to 5000 km^2 – a size scientists think is sustainable – nitrogen loadings to the Gulf need to be reduced by 40 to 45 percent. Thus, Donner and Kucharick conclude that the corn ethanol mandate makes it "practically impossible" to reach the goals of reducing the Dead Zone without extreme shifts in food production and agricultural management. The scientists' project that a revolutionary shift in diet away from meat consumption and construction of 22,000 km^2 of wetlands next to all corn and soybean lands may be necessary to shrink the Dead Zone.

Moreover, in 2007, corn was planted on an additional 14 million acres largely in response to the demand for more corn from the RFS mandate and continued strong demand from overseas. Morris estimates that about two of the 14 million acre increase came from Conservation Reserve Program (CRP) land.[19] Thus, millions of taxpayer dollars worth of investments in clean water, wildlife habitat, and carbon sequestration from retiring environmentally sensitive cropland into 10-15 year conservation contracts have been lost to the high price of corn driven up, in part, by the RFS mandate.

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[18] Donner, Simon D. and Christopher J. Kucharick. Corn-based ethanol production compromises goal of reducing nitrogen export by the Mississippi River Published online on March 10, 2008, 10.1073/pnas.0708300105 PNAS | March 18, 2008 | vol. 105 | no. 11 | 4513-4518. http://www.pnas.org/cgi/content/abstract/105/11/4513

[19] Morris, David. Ethanol and Land Use Changes. POLICY BRIEF February 2008. http://www.newrules.org/de/Ethanol-and-Land-Use.pdf

Though many environmental and conservation groups warned of the environmental consequences that a five-fold increase in the RFS would have, attempts to set minimum environmental performance standards for corn production were thwarted. What follows are the some of the ramifications of this short-sighted and dangerous food-to-fuel policy.

The USGS in February 2008 estimated that agricultural fields – primarily corn and soybean fields – in just 9 states in the Mississippi River Basin contributed 75 percent of the fertilizer and manure pollution creating the Dead Zone in the Gulf of Mexico every spring.[20, 21] These 9 states received $14.3 billion of the $34.8 billion in federal crop subsidies between 2003 to 2005, or 41% of all of taxpayer support for production agriculture. A good start to addressing this problem would be the implementation of a mandatory and comprehensive nutrient management plan that would require all commodity crop subsidy recipients to lower their nutrient pollution while optimizing production. While still optimizing yield, farmers can lower excess fertilizer and manure inputs and prevent nutrient pollution by making conservation practices commonplace.

V. SEVERE HARM TO CRITICAL HABITAT

As global biofuel production competes for arable land, farmers and governments are converting native forests and grasslands to agricultural lands**.** In the same way that biofuels production is leading to increased land use change that contributes to global warming, this land use change also causes the destruction of native and natural ecosystems and habitat loss. Lands brought under biofuel production will either directly or indirectly cause deforestation and the loss of other natural ecosystems, resulting in biodiversity loss and threatening the existence of species.

In the United States, increased demand and high prices has caused CRP land to be taken out and used to produce corn and other commodities. CRP is fundamental for wildlife conservation and biodiversity enrichment. Much of the land enrolled in CRP is within the Great Plains region, where, approximately 99 percent of the original prairie grassland has been lost.[22] Over a decade ago, 55 grassland species in the United States were threatened or endangered and 728 were candidates for endangerment.[23]

In 2006, the US imported 10 percent of ethanol used in the country, much of which came from Brazil.[24] This trend is likely to increase as the demand for biofuels increases in order to

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[20] Five of these nine states are in the top 10 Crop Subsidy-Receiving States in the Country (Iowa is the no. 1 subsidy-receiving state, Illinois is no. 3, Indiana=7, Arkansas=9, Missouri=9. Two more states are in the Top 15 Subsidy-Receiving States (Ohio=12, Michigan=14). The last two are in the Top 25 Subsidy-Receiving States (Tennessee=21, Kentucky=25).

[21] Alexander, Richard B. Richard A. Smith, Gregory E. Schwarz, Elizabeth W. Boyer, Jacqueline V. Nolan, and John W. Brakebill. Differences in Phosphorus and Nitrogen Delivery to the Gulf of Mexico from the Mississippi River Basin. February 2008. http://water.usgs.gov/nawqa/sparrow/gulf_findings/

[22] Noss, Reed F., Edward T. LaRoe III and J. Michael Scott. "Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation." Appendix A. http://biology.cos.ucf.edu/files/spice_lab_publication_26.pdf

[23] Samson, Fred and Kritz Knopf. "Prairie Conservation in North America." *BioScience,* Vol. 44, No. 6, June 1994, p. 418.

[24] Ethanol import data based on United States International Trade Commission data, found at http://dataweb.usitc.gov.

accomplish the mandate. In Brazil, increased acreage for soybean biodiesel and sugarcane ethanol is devastating the *Cerrado*, Brazil's biodiverse savanna. A great number of species exist solely in the Cerrado. Additionally, leakage as a result of expanding biofuel-related agriculture, specifically soybean production, is causing the destruction of the Brazilian rainforest. The Brazilian Amazon is home to the 10 percent of the world's mammals and 15 percent of the world's known land-based plant species; it is also estimated that as many as 300 species of tree can be found in a single hectare.[25]

Malaysia and Indonesia are the largest producers of palm oil in the world. In Southeast Asia, deforestation is occurring to expand palm oil plantations – in part to meet international, policy-driven demand for biodiesel. Close to 48 percent of currently productive palm oil plantations in Malaysia and Indonesia are on land that was recently converted from forest.[26] Widespread deforestation in Sumatra, Borneo, and other islands that are part of Malaysia and Indonesia has caused severe damage to the biodiversity of the area. The small island of Borneo alone contains at least 222 mammals (44 endemic), 420 *resident* birds (37 endemic), 100 amphibians and 394 fish (19 endemic), with new species discovered each year.[27] Deforestation has resulted in iconic mammals, such as the Sumatran tiger, the Sumatran orangutan, the Asian elephant and the Sumatran rhinoceros to become endangered or critically endangered.

VI. CONCLUSION

In light of the severe environmental harms associated with the RFS-driven increase in biofuel production, the undersigned groups urge EPA to respond to the petition submitted by the State of Texas by waiving the 2008 RFS.

Respectfully submitted,

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[25] http://www.greenpeace.org/international/campaigns/forests/amazon
[26] Wakker, Eric. "Greasy palms: The social and ecological impacts of large-scale oil palm plantation development in Southeast Asia" Friends of the Earth, United Kingdom, January 2005. http://www.foe.co.uk/resource/reports/greasy_palms_impacts.pdf
[27] World Wildlife Foundation. "Borneo Wildlife: Evolution in all its magnificence." http://www.panda.org/about_wwf/where_we_work/asia_pacific/our_solutions/borneo_forests/about_borneo_forests/borneo_animals/index.cfm