



August 11, 2009

Secretary Salazar

Department of the Interior  
1849 C Street, N.W.  
Washington DC 20240

Dear Secretary Salazar,

On behalf of the Center for Food Safety<sup>1</sup> (CFS) and Public Employees for Environmental Responsibility<sup>2</sup> (PEER), we respectfully request that the Department of the Interior issue a moratorium on the planting of genetically engineered crops on all National Wildlife Refuges. In the recent case *Delaware Audubon Society v. Department of Interior*, the District Court of Delaware held that the Department of the Interior and the Fish and Wildlife Service violated the National Wildlife Refuge System Administration Act (NWRSA) and the National Environmental Policy Act (NEPA) by permitting genetically engineered (GE) crops (aka genetically modified organisms) on the Prime Hook refuge without the required disclosure and analyses,<sup>3</sup> and violated the Administrative Procedure Act (APA) because the Fish and Wildlife Service's (FWS) own policy prohibits the use of GE crops unless the refuge makes a determination that GE crops are "essential."<sup>4</sup>

GE crops have no place in National Wildlife Refuges because they pose significant risks to wildlife and biological diversity. Yet the planting of GE crops (corn and soybeans) in the Refuge Systems is widespread. Thus we urge you to issue a moratorium on permitting GE crops in the nation's wildlife refuges.

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<sup>1</sup> CFS is a national non-profit organization which promotes sustainable food production and addresses the harmful effects of industrial agriculture on human health, animal welfare and the environment.

<sup>2</sup> PEER is a national non-profit alliance of local, state and federal scientists, law enforcement officers, land managers and other professionals dedicated to upholding environmental laws and values.

<sup>3</sup> *Delaware Audubon Society v. Dept of Interior*, No. 06-223, 2009 WL 763925, at \*6-7 (D. Del., 2009) ("Because...defendants failed to make a written compatibility determination - prior to permitting cooperative farming on Prime Hook - the court concludes that the defendants violated the NWRSA as a matter of law." "Because...defendants allowed farmers to grow genetically modified crops...without first preparing either an environmental assessment or an environmental impact statement...violated NEPA as a matter of law.")

<sup>4</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*8 ("Particularly,...the court notes that the defendants permitted this activity in contravention of...their own "GMO Policy"...and in view of their own biologists' findings that these activities posed several significant risks to Prime Hook.")

## **I. Permitting GE Crops Requires a Compatibility Determination, an Environmental Impact Statement, an Essentiality Determination**

The use of “genetically modified organisms” is explicitly forbidden by FWS’s own Biological Integrity, Diversity and Environmental Health policy of 2001 unless they are found to be “essential to accomplish refuge purposes.”<sup>5</sup> Considering evidence demonstrating that GE crops generally pose significant risks to wildlife and the ecosystem, and that soybeans in particular fail to fulfill the dietary needs of wildlife, and may actually harm waterfowl,<sup>6</sup> such a determination is not justifiable.<sup>7</sup> In *Delaware Audubon Society*, the court held permitting GE crops contradicted the scientific opinion of FWS’s own biologist that GE crops are harmful to wildlife and the ecosystem and therefore violated the FWS’s own Biological Diversity policy.<sup>8</sup>

The NWRSA and the 1997 Improvement Act established the mission of the Refuge System “to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States...”<sup>9</sup> The NWRSA and relevant regulations require refuge managers to complete a compatibility determination (CD) to demonstrate that the use is compatible with the purpose of the refuge in his/her “sound professional judgment.”<sup>10</sup> Sound professional judgment must be consistent with the principles of sound wildlife management, be based on available science, and comport with relevant laws.<sup>11</sup> Additionally, a CD must be re-evaluated if there are significant changes to the conditions surrounding a use, or new information is found regarding the effects of the use.<sup>12</sup> Not only farming, but farming of GE crops specifically must be determined to be compatible, especially given the FWS policy against GE crop use. Before making any final determination of compatibility, the Manager must also provide the public with an opportunity for comment and review.<sup>13</sup>

NEPA requires agencies to take a “hard look” at the environmental consequences of their actions.<sup>14</sup> The agency must prepare an EIS for any “major federal action significantly affecting the quality of the human environment.”<sup>15</sup> In *Delaware Audubon Society*, the Dept of Interior and FWS violated NEPA as a matter of law when the Refuge Manager failed to conduct NEPA environmental review to address the impacts of GE crops on the environment. The need for an EIS was especially apparent because the FWS’s own biologist determined that the cultivation of GE crops posed significant environmental risks.<sup>16</sup>

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<sup>5</sup> U.S. Fish and Wildlife Service, *Biological Integrity, Diversity and Environmental Health*, 601 FW 3.15 (2001), available at <http://www.fws.gov/policy/601fw3.pdf>.

<sup>6</sup> Gray Krapu, David Brandt & Robert Cox, *Less waste corn, more land in soybeans, and the switch to genetically modified crops: trends with important implications for wildlife management*, WILDLIFE SOCIETY BULLETIN (2004), Vol.32, Issue 1, p.127-136.

<sup>7</sup> A final agency action (like the decision to allow planting of GE crops) must be set aside if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A).

<sup>8</sup> *Delaware Audubon Society v. Dept of Interior*, 2009 WL 763925 at \*7.

<sup>9</sup> 16 U.S.C. § 668dd.

<sup>10</sup> 50 C.F.R. § 25.12.

<sup>11</sup> 16 U.S.C. § 668ee.

<sup>12</sup> 50 C.F.R. § 25.21.

<sup>13</sup> Fish and Wildlife Service Refuge Manual, Refuge Management, Chapter 2: Compatibility, 603 FW 2.12(a)(9).

<sup>14</sup> *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n. 21 (U.S. 1976).

<sup>15</sup> 42 U.S.C. 4332(C).

<sup>16</sup> *Delaware Audubon Society v. Dept of Interior*, 2009 WL 763925 at \*7.

## II. GE Crops Do Not Belong in National Wildlife Refuges Because Pose Significant Risks to Wildlife and the Ecosystem

To permit planting of GE crops, refuge managers must first determine that the GE crop is “essential to accomplish refuge purposes.”<sup>17</sup> GE soybeans and corn are grown on many wildlife refuges across the country,<sup>18</sup> yet there is no evidence that GE crops further refuge objectives. Rather, GE crops pose significant risks. Thus, far from “essential,” GE crops may be detrimental to wildlife refuge purposes.

Evidence of adverse impacts to the environment and lack of knowledge about the long-term effects of GE crops have led many experts, including FWS biologists, to conclude that the use of GE crops should be discontinued on wildlife refuges.<sup>19</sup> The purpose of most refuges is protecting migratory bird populations and promoting biological diversity. Farming may fit this purpose by providing food for birds and other wildlife. However, FWS biologists recognize the dangers of GE crops, including the emergence of herbicide resistant weeds, negative impacts to wildlife and biological diversity, as well as biological contamination.<sup>20</sup>

### A. GE Crops Harm Wildlife and the Ecosystem

GE crops can harm the ecosystem through negative impacts to insects, wildlife, and soil life.<sup>21</sup> For example, *Bt* corn, a type of GE crop engineered to produce one or more insecticidal toxins, is lethal to certain insect pests. Scientific studies demonstrate that *Bt* corn may also have adverse impacts on beneficial non-pest organisms, including aquatic insects such as the caddis fly<sup>22</sup> and the water flea (*Daphnia magna*),<sup>23</sup> as well as terrestrial insects like the Monarch butterfly,<sup>24</sup> the

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<sup>17</sup> U.S. Fish and Wildlife Service, *Biological Integrity, Diversity and Environmental Health*, 601 FW 3.15 (2001), available at <http://www.fws.gov/policy/601fw3.pdf>

<sup>18</sup> 41 of 128 refuges on wildlife refuges in the Southeast are growing GE crops. PEER, Data compiled from Fish and Wildlife Service documents, available at [http://www.peer.org/docs/nwr/09\\_25\\_6\\_list\\_of\\_region\\_4\\_gmc\\_wildlife\\_refuges.pdf](http://www.peer.org/docs/nwr/09_25_6_list_of_region_4_gmc_wildlife_refuges.pdf)

<sup>19</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*2 (“Prime Hook’s stated goal in this regard was to phase out the use of [GE] crops because the crops ‘do not contribute to achieving refuge objectives.’”)

<sup>20</sup> Memorandum from FWS Director to Regional Directors, *Delegation of Authority and Process for Approving the Use of Genetically Modified Crops on the National Wildlife Refuge System*, (April 6, 2005) (“FWS GE Crop Memo”). Soybeans generally fail to meet the dietary requirements of wildlife, thus soybeans are generally incompatible and GE soybeans are not justifiable. See, e.g. Gray Krapu, David Brandt & Robert Cox, *Less waste corn, more land in soybeans, and the switch to genetically modified crops: trends with important implications for wildlife management*, WILDLIFE SOCIETY BULLETIN, (2004), Vol.32, Issue 1, p.127-136.

<sup>21</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*2.

<sup>22</sup> Rosi-Marshall, E.J. et al, *Toxins in transgenic crop byproducts may affect headwater stream ecosystems*, NATIONAL ACADEMY OF SCIENCES PROC, (2007), 104(41): 16204-208; see also Press Release, Crosby, T, *Transgenic corn may affect aquatic insects*, Southern Illinois University Carbondale, October 7, 2007, available at <http://news.siuc.edu/news/October07/100907tc7104.jsp>.

<sup>23</sup> Bohn, T., Primicerio, R., Hessen, D.O. and T. Traavik, *Reduced fitness of Daphnia magna fed a Bt transgenic maize variety*, ARCHIVES OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY, (2008) 55: 584-592.

<sup>24</sup> Losey JE, Raynor L. & Carter M, *Transgenic pollen harms monarch larvae*, NATURE (1999), 399: 214; Jesse Hansen L & Obrycki JJ, *Field deposition of Bt transgenic corn pollen: lethal effects on the monarch butterfly*, OECOLOGIA (2000), 125: 241-248; Safford, D., *Advisory Panel Criticizes EPA Claim That Bt Corn Does Not Harm Butterflies*, BUREAU OF NATIONAL AFFAIRS, October 25, 2000, available at [http://www.biotech-info.net/advisory\\_panel\\_criticizes.html](http://www.biotech-info.net/advisory_panel_criticizes.html).

ladybird beetle,<sup>25</sup> and the green lacewing.<sup>26</sup> Despite this evidence, refuges have approved *Bt* corn, failing even to recognize it as a GE crop.<sup>27</sup>

Furthermore, biological contamination is a critical risk that FWS biologists have acknowledged may adversely affect refuges, and two federal courts have found to be a legally cognizable and significant environmental risk that must be evaluated under NEPA.<sup>28</sup> The term “biological contamination” refers to the unintended comingling of GE crops with non-GE crops and can occur through pollination of non-genetically engineered plants by genetically engineered plants or by the mixing of genetically engineered seed with natural or non-genetically engineered seed.”<sup>29</sup> Biological contamination, “namely, the alteration of a plant specie’s [sic] DNA through the transmission of the genetically engineered gene,”<sup>30</sup> is the worst form of environmental contamination, because unlike standard chemical pollution, this is living pollution that can reproduce and spread through pollen flow. As the federal court noted: “Once the gene transmission occurs and a farmer’s seed crop is contaminated with the Roundup Ready gene, there is no way for the farmer to remove the gene from the crop or control its further spread.”<sup>31</sup>

Genetically engineered crops contaminate neighboring fields and seed stocks through pollen drift, seed mixing, and human error, and once the seed is contaminated, the harms associated with GE crops become unavoidable. Thus, refuges must prohibit the use of GE crops,<sup>32</sup> and if they choose to supersede this policy, must determine that they are “essential” and comply with NEPA by preparing an EIS.<sup>33</sup>

## **B. GE Herbicide-Tolerant Crops Foster Evolution of Resistant Weeds and Increased Use of Pesticides**

Currently, the major use of genetic engineering in agriculture is to make crops herbicide-tolerant (HT), primarily to the weed-killing chemical glyphosate (sold by Monsanto as Roundup). The most comprehensive, independent study of GE crops and pesticide use to date demonstrates that adoption of HT crops resulted in 138 million pounds more herbicide use than would have been

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<sup>25</sup> Schmidt, J.E.U., et al, *Effects of activated Bt transgene products (Cry1Ab, Cry3Bb) on immature stages of the ladybird Adalia bipunctata in laboratory ecotoxicity testing*, ARCH ENVIRON COMTAM TOXICOL (2009), 56: 221-28.

<sup>26</sup> Hilbeck A, Baumgartner M, Fried PM & Bigler F, *Effects of Bacillus thuringiensis corn-fed prey on mortality and development time of immature Chrysoperla carnea (Neuroptera: Chrysopidae)*, ENVIRONMENTAL ENTOMOLOGY (1998) 27: 480-487; Hilbeck A, Moar WJ, Pusztai-Carey M, Fillippi A & Bigler F, *Toxicity of Bacillus thuringiensis Cry-1Ab Toxin to the Predator Chrysoperla carnea (Neuroptera: Chrysopidae)*, ENVIRONMENTAL ENTOMOLOGY (1998), 27:1255-1263.

<sup>27</sup> *Requirements of New Farming Policies from the U.S. Fish and Wildlife Southeastern Regional Office*, Wheeler National Wildlife Refuge, February 2007. Bt corn is clearly a GE crop. Thus USDA has repeatedly considered it a “regulated article” because Bt corn is created using recombinant DNA technology. See, e.g., USDA/APHIS Environmental Assessment in Response to Monsanto Petition 06-298-01p, APHIS 2007-0030-0034, <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&o=090000648068dc5c>

<sup>28</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*2; *Geertson Seed Farms, et al. v. Johanns*, 2007 WL 518624, \*5 (N.D. Cal. 2007) *aff’d*, 541 F.3d 938 (9th Cir. 2008).

<sup>29</sup> *Geertson Seed Farms*, 2007 WL 518624 at \*5.

<sup>30</sup> *Id.* at \*8.

<sup>31</sup> *Id.* at \*5.

<sup>32</sup> U.S. Fish and Wildlife Service, *Biological Integrity, Diversity and Environmental Health*, 601 FW 3.15 (2001), available at <http://www.fws.gov/policy/601fw3.pdf>.

<sup>33</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*2, 6-7; *Geertson Seed Farms*, 2007 WL 518624 at \*5.

used in their absence over the nine years from 1996 to 2004.<sup>34</sup> Studies show that certain amphibian populations exposed to low, field-relevant usage rates of Roundup herbicide experience much higher mortality than unexposed amphibians.<sup>35</sup> Such impacts will only increase with the dramatically rising use of glyphosate associated with Roundup Ready crops. From 1994 to 2005, for instance, USDA data demonstrate that aggregate use of glyphosate on soybeans, corn and cotton has risen from 7.9 million lbs. to 119.1 million lbs. – a 15-fold increase.<sup>36</sup> Thus, alone, this dramatically increased herbicide exposure to wildlife and the ecosystem contravenes the purpose of the refuge system to protect the ecosystem.<sup>37</sup>

Furthermore, extensive evidence, including warnings from FWS biologists, demonstrates that the greatly increased reliance on and use of glyphosate associated with Roundup Ready crops has fostered a dramatic increase in acreage infested with glyphosate-resistant and glyphosate-tolerant weeds.<sup>38</sup> Many experts in the field recognize the escalating problem of weed resistance,<sup>39</sup> and at least nine different weed species have been confirmed as glyphosate-resistant in 20 states.<sup>40</sup> For example, glyphosate-tolerant horseweed has been reported in annual row crops in 13 U.S. states,<sup>41</sup> and glyphosate-resistant pigweed (Palmer amaranth) is expanding rapidly in the southern U.S.,<sup>42</sup> where some pigweed populations have emerged that have a greater resistance to glyphosate than Roundup Ready soybeans.<sup>43</sup> In turn, weed resistance to glyphosate leads to increasing use of harsher, more toxic herbicides.<sup>44</sup> Having to resort to more toxic pesticides

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<sup>34</sup> Benbrook, Charles M., *Genetically Engineered Crops and Pesticide Use in the United States: The First Nine Years*, BIOTECH INFO NET, Technical Paper 7, October 2004, p. 2, available at [http://www.biotech-info.net/Full\\_version\\_first\\_nine.pdf](http://www.biotech-info.net/Full_version_first_nine.pdf).

<sup>35</sup> See, e.g. Relyea, R.A., *The lethal impact of Roundup on aquatic and terrestrial amphibians*, ECOLOGICAL APPLICATIONS (2005), 15(4): 1118-1124; Relyea, R.A., *The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities*. ECOLOGICAL APPLICATIONS (2005), 15(2): 618-627.

<sup>36</sup> Friends of the Earth International, "Who Benefits from GM Crops: The Rise in Pesticide Use," January 2008, Table 4, available at <http://www.centerforfoodsafety.org/pubs/FoE%20I%20Who%20Benefits%202008%20-%20Full%20Report%20FINAL%202-6-08.pdf> (last visited July 22, 2009).

<sup>37</sup> In addition to the NWRSA, NEPA and APA issues discussed herein, permitting GE Crops in certain refuges requires Endangered Species Act (ESA) compliance due to the risk posed to threatened and endangered species. However, there is no evidence that Section 7 consultation has ever been conducted to even investigate whether GE crops will harm threatened or endangered species.

<sup>38</sup> *Delaware Audubon Society*, 2009 WL 763925 at \*2 ("The defendant's own biologists identified several significant risks in connection with planting [GE] crops...biological contamination, increased weed resistance, and damage to soils."); Service, R.F., *A Growing Threat Down on the Farm*, SCIENCE, 319, May 25, 2007, p.1114-1117.

<sup>39</sup> See February 20, 2004 statement by 10 prominent U.S. weed scientists, available at <http://www.plant.uoguelph.ca/resistant-weeds/resources/preserving.html>.

<sup>40</sup> *Glycines resistant weeds by species and country*, WEEDSCIENCE (2008), available at <http://www.weedscience.org/Summary/UspeciesMOA.asp?lstMOAID=12&FmHRACGroup=Go>

<sup>41</sup> *Growth stage level influences level of resistance in glyphosate-resistant horseweed*, CALIFORNIA AGRICULTURE, April-June 2007, Vol. 61, No. 2, p.67-70.

<sup>42</sup> Culpepper and Kichler, *University of Georgia Programs for Controlling Glyphosate-Resistant Palmer Amaranth in 2009 Cotton*, UNIVERSITY OF GEORGIA COOPERATIVE EXTENSION, April 2009; Bennett, D., *Resistant pigweed 'blowing up' in Mid-South*, DELTA FARM PRESS, July 30, 2008, available at <http://deltafarmpress.com/cotton/resistant-pigweed-0730>.

<sup>43</sup> Robinson, E., *Pollen big factor in resistant pigweed spread*, SOUTHEAST FARM PRESS, April 28, 2009, available at <http://southeastfarmpress.com/cotton/herbicide-resistance-0428>.

<sup>44</sup> Friends of the Earth International, "Who Benefits from GM Crops: The Rise in Pesticide Use," January 2008, pp. 7-12.

certainly conflicts with the purpose of the refuge system because they pose significant toxicity risks to wildlife.<sup>45</sup>

### III. Illegal GE Crop Use is a Nation-Wide Problem

Prime Hook NWR is just one example of the many refuges illegally permitting farming of GE crops. Evidence shows that at least 6 of the 8 Regions have refuges that allow GE crops without proper compatibility determinations. For example, GE crop approval questionnaires from the Southeast region show limited and conclusory analysis of the necessity of planting GE crops. 41 of the 128 refuges in the Southeast (Region 4) grow GE crops (mostly herbicide-resistant) without a public compatibility determination or EIS.<sup>46</sup>

In the Southwest Region, both the Sequoyah NWR in Oklahoma and Lower Rio Grande Valley NWR in Texas have cooperative farming agreements, allowing farmers to plant GE crops like Roundup Ready corn and soy.<sup>47</sup> FWS approved the use of GE crops on both these refuges without compatibility determinations or NEPA environmental review. Furthermore, the essentiality determinations lacked reasonable justification. For example, the Lower Rio Grande Valley NWR found GE crops to be “essential” for controlling non-native grass, yet failed to provide any justification whatsoever why a GE crop provided any particular benefit beyond non-GE options.<sup>48</sup>

In the Midwest Region, the Big Stone NWR in Minnesota has grown Roundup Ready soy and *Bt* corn since 1998,<sup>49</sup> but the 2003 CCP for the Wetland Management District failed to mention GE crop use in any CD.<sup>50</sup> Similarly, the 2001 DeSoto NWR CCP failed to mention GE crops,<sup>51</sup> but records show that GE corn and soy farming continues on several hundred acres.<sup>52</sup>

In the Southeast Region, Wheeler NWR permits GE corn and soy cultivation but fails to even recognize *Bt* corn as genetically modified, stating, “Bt corn has not been listed as a GM (GE) crop.”<sup>53</sup> This clearly reflects the confusion within the Refuge System about FWS GE crop policy and about what in fact constitutes a GE crop.

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<sup>45</sup> Robert F. Service, *A Growing Threat Down on the Farm*, SCIENCE MAGAZINE, Vol. 319, May 25, 2007, p.1114-1117.

<sup>46</sup> Data compiled from Fish and Wildlife Service documents, *available at* [http://www.peer.org/docs/nwr/09\\_25\\_6\\_list\\_of\\_region\\_4\\_gmc\\_wildlife\\_refuges.pdf](http://www.peer.org/docs/nwr/09_25_6_list_of_region_4_gmc_wildlife_refuges.pdf)

<sup>47</sup> Letter from Dom Ciccone, Regional Chief, National Wildlife Refuge System, to Charles Sloan, on the planting of GE crops on Sequoyah NWR (Feb. 14, 2006); Memo from Project Leader, South Texas Refuge Complex to Regional Chief, NWRS on the Approval for Using Genetically Modified Organisms at the Lower Rio Grande Valley NWR (Aug. 11, 2006).

<sup>48</sup> *Id.*

<sup>49</sup> Unknown Author, *Genetically Altered Crops on Big Stone NWR/WMD/NTGP 1998-2007*.

<sup>50</sup> U.S. Fish and Wildlife Service, Region 3, Big Stone Wetland Management District Comprehensive Conservation Plan (2003), <http://www.fws.gov/midwest/planning/bigstonewmd/ccp/fullccp.pdf>

<sup>51</sup> U.S. Fish and Wildlife Service, Region 3, DeSoto NWR Final Comprehensive Conservation Plan (2001), <http://www.fws.gov/midwest/planning/desoto/index.html>

<sup>52</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11, [http://www.peer.org/docs/nwr/09\\_25\\_6\\_gmc\\_acreage\\_chart.pdf](http://www.peer.org/docs/nwr/09_25_6_gmc_acreage_chart.pdf)

<sup>53</sup> *Requirements of New Farming Policies from the U.S. Fish and Wildlife Southeastern Regional Office*, Wheeler National Wildlife Refuge, February 2007.

Several refuges and Waterfowl Management Districts (WMD) in the Mountain-Prairie Region are growing GE crops, including Arrowwood NWR, Arrowwood WMD and Rainwater Basin WMD.<sup>54</sup> Despite evidence showing Arrowwood NWR (North Dakota) plans to use RR soy this year and in 2011,<sup>55</sup> the CCP from 2007 includes no CDs for farming, and farming is mentioned only as a management tool for “dense nesting cover,”<sup>56</sup> with no determination why GE, rather than a non-GE alternative, is essential as nesting cover. The 2008 Arrowwood WMD CCP contains a CD for cooperative farming, but again neglects to mention how the cultivation of GE crops will achieve the intended purpose of this farming, namely feeding birds and other wildlife.<sup>57</sup> Similarly, Rainwater Basin WMD in Nebraska has a 2007 CCP that includes a CD for general farming,<sup>58</sup> but the CCP fails to analyze the effects of several hundred acres of Roundup Ready soy that is being grown there.<sup>59</sup>

Furthermore, in the Western Region, San Joaquin NWR has a 2007 CCP that does not include a CD for farming, but mentions farming as a land management tool.<sup>60</sup> In an agreement with a local farmer, Lyons, the Mapes Ranch grew hundreds of acres of RR corn in 2007, ostensibly for winter migratory birds.<sup>61</sup>

In addition to the specific examples above, FWS data show that the following refuges are or have been growing GE crops without a determination that such farming is either compatible or essential to the purpose of the refuge and without any EIS:

In Region 3 Crab Orchard NWR<sup>62</sup>; in Region 4, West Tennessee Complex, Grand Cote, Cache River, Wapanocca, Bald Knob, Holla Bend, Felsenthal, White River, Santee, Pocosin Lakes, Mattamuskeet, North Louisiana Complex, Central Louisiana Complex, Tennessee NWR, Theodore Roosevelt Complex, North Mississippi Complex, St. Catherine Creek NWR, Noxubee, Key Cave, Eufaula and Clarks River NWR<sup>63</sup>; in Region 5 Eastern Neck and Montezuma, and in Region 6 Lake Andes NWR.<sup>64</sup>

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<sup>54</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11, [http://www.peer.org/docs/nwr/09\\_25\\_6\\_gmc\\_acreage\\_chart.pdf](http://www.peer.org/docs/nwr/09_25_6_gmc_acreage_chart.pdf)

<sup>55</sup> *Id.*

<sup>56</sup> U.S. Fish and Wildlife Service, Arrowwood NWR Comprehensive Conservation Plan (2007), [http://www.fws.gov/mountain-prairie/planning/States/North%20Dakota/Arrowwood/ardccp\\_final\\_web.pdf](http://www.fws.gov/mountain-prairie/planning/States/North%20Dakota/Arrowwood/ardccp_final_web.pdf)

<sup>57</sup> U.S. Fish and Wildlife Service, Arrowwood WMD Comprehensive Conservation Plan (2008), [http://www.fws.gov/mountain-prairie/planning/States/North%20Dakota/nd\\_wmd\\_ccp/nd\\_wmd\\_2008\\_ccp\\_all.pdf](http://www.fws.gov/mountain-prairie/planning/States/North%20Dakota/nd_wmd_ccp/nd_wmd_2008_ccp_all.pdf)

<sup>58</sup> U.S. Fish and Wildlife Service, Rainwater Basin WMD Comprehensive Conservation Plan (2007), [http://www.fws.gov/mountain-prairie/planning/States/Nebraska/rwb/rwbccp\\_final/web\\_rwbccp.pdf](http://www.fws.gov/mountain-prairie/planning/States/Nebraska/rwb/rwbccp_final/web_rwbccp.pdf)

<sup>59</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11.

<sup>60</sup> U.S. Fish and Wildlife Service, San Joaquin NWR Final Comprehensive Conservation Plan (2007), [http://www.fws.gov/cno/refuges/sanjoaquin/SJR\\_CCP\\_FINAL.pdf](http://www.fws.gov/cno/refuges/sanjoaquin/SJR_CCP_FINAL.pdf)

<sup>61</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11.

<sup>62</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11.

<sup>63</sup> Memorandum from Jon Andrews, Regional Chief of Refuges, Southeast Region, to All Refuge Managers, Re: Delegation of Authority and Process for Approving the Use of Genetically Modified Crops on NWRs in the Southeast Region (Feb. 14, 2007).

<sup>64</sup> Untitled chart, list of NWRs expressly approving use of GE crops 2007-11.

## **CONCLUSION**

GE crops have been and are being cultivated on many refuges across the country. Substantial scientific evidence demonstrates that GE crops pose potential risks to wildlife and ecosystems, and are therefore not compatible with the purpose of the National Wildlife Refuge System, and are certainly not “essential” to accomplish the purpose of the refuge system. Thus, based on FWS’s own policy, we request the Department (1) to issue a moratorium on all GE crop cultivation in National Wildlife Refuges, and (2) comply with federal laws by completing compatibility determinations, NEPA environmental review, and an “essentiality” determination before permitting any further cultivation of GE crops in national wildlife refuges.

Sincerely,

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Jeff Ruch

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Lauren Hopwood

Chair GE Committee, Sierra Club

Peter Galvin

Conservation Director, Center for Biological Diversity