POLAR BEARS: CLIMATE REFUGEES EXPANDING AND PROTECTING DESIGNATED CRITICAL HABITAT FOR POLAR BEARS USING THE ENDANGERED SPECIES ACT

LINDSAY CARD*

In 2016, the U.S. Fish & Wildlife Service promulgated several new rules clarifying and expanding several facets of the Endangered Species Act. Two rules in particular could potentially help the polar bear by expanding its designated Critical Habitat and escalating the Endangered Species Act's Consultation Requirement.

I. INTRODUCTION

In January of 2018, reports showed that seventeen of the eighteen warmest years on record have occurred since 2001.[1] Last winter, when sea ice traditionally expands, the Arctic had its second-lowest ice coverage on record.[2] Scientists project the Arctic

* Lindsay Card is a J.D. candidate at Florida State University College of Law and she will graduate in May of 2019.

1. Henry Fountain, *2017 Was One of the Hottest Years on Record,* THE NEW YORK TIMES (Jan. 18, 2018), https://www.nytimes.com/interactive/2018/01/18/climate/hottest-year-2017.html.

2. Brady Phillips, *2017 was 3rd Warmest Year On Record For the Globe*, NTNL. OCEANIC ATMOSPHERIC ADMIN. (Jan. 18, 2018), http://www.noaa.gov/news/noaa-2017-was-3rd-warmest-year-on-record-for-globe ("Antarctica had a record-low extent in 2017, while the Arctic had its second-lowest ice coverage on record"). Even in a La Niña year, when scientists hoped cooling would prevent significant losses and warming, 2017 was much warmer than expected.

could experience its first ice-free summers by 2040.[3] The Earth is seeing dramatic loss of sea ice as the arctic warms twice as fast as the rest of the planet.[4] This loss is compounded by the fact that sea ice disappears at an exponential rate.[5] While the future global implications of this arctic warming are great, it is currently and directly affecting one species in particular that depends on this sea ice for survival: the polar bear.

Polar bears were listed as threatened under the Endangered Species Act (ESA) in 2008 and have become somewhat of a poster child for the effects of climate change on wildlife.[6] While some object to the far-reaching implications of protecting endangered or threatened species, it is hard to deny the fact that, without protection, polar bear populations will suffer a tremendous loss.[7.]

According to recent scientific data, U.S. polar bear populations are unstable, and projections show their global populations could experience a 30% decline by 2050.[8.] Furthermore, even if action were taken immediately to stop global emissions from growing, residual warming impacts would still detrimentally affect many polar bear populations. Climate change is dramatically reducing sea ice in the Arctic Circle and causing Polar Bear populations to suffer. To prevent further population decline, U.S. Fish and Wildlife Service (USFWS) should consider expanding the polar bear's Critical Habitat Designation, creating a larger geographic area subject to the ESA's consultation requirement and promoting conservation of the species. In 2016, USFWS promulgated two new regulations under the ESA implementing changes to the regulation for designating critical habitat[9] and revising a regulatory definition under the ESA's § 7 consultation requirement.[10] To understand how these new regulations could promote conservation of polar bears in particular, it is important to first understand how the ESA functions

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3. James Overland, *The Arctic and Antarctic: Two Faces of Climate Change*, 89 EOS, TRANSACTIONS, AMERICAN GEOPHYSICAL UNION 177, 177 (2008) ("This fast track is consistent with an ice-free summer Arctic before 2030"); *see* Keith Breene, The Arctic Could Be Ice Free by 2040, WORLD ECON. F. (May 17, 2017), https://www.weforum.org/agenda/2017/05/the-arctic-could-be-ice-free-by-2040/.

4. *See The changing planet, a changing Arctic*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://www.noaa.gov/explainers/changing-arctic-greener-warmer-and-increasingly-accessible-region (last visited Jan. 19, 2019).

5. Overland, *supra* note 3, at 177-180.

6. *Polar Bears*, U.S. DEP'T OF STATE, https://www.state.gov/e/oes/ocns/opa/biodiversity/polarbear/ (last visited Jan. 19, 2019).

7. Laura Zuckerman, Polar Bear Numbers Seen Declining A Third From Arctic Sea Ice Melt, REUTERS (Dec. 12, 2016, 9:23 PM), https://www.reuters.com/article/us-environment-climate-arctic/polar-bear-numbers-seen-declining-a-third-from-arctic-sea-ice-melt-idUSKBN14205I.

8. *Id.*

9. 81 Fed. Reg. 7413 (Feb. 11, 2016).

10. 81 Fed. Reg. 7214 (Feb. 11, 2016).

to list a species for protection, what types of protections the ESA provides, and how protections and plans are put in place to both prevent the species' extinction and promote the species' recovery.

II. THE EFFECTS OF CLIMATE CHANGE ON POLAR BEARS

Each year, the Arctic warms more quickly than any other place on earth.[11] A thinner atmosphere, less water vapor to block sunlight, and a darkening surface all contribute to the exponential increase in temperature.[12] Ancient ice sheets are beginning to melt and falter under these warmer temperatures, and what once belonged to the polar bear as hunting and breeding grounds is now becoming part of our rising seas.[13]

While it may seem like polar bears could simply learn to live on land, their survival really does depend on their ability to hunt, reproduce, and den on sea ice. Polar bears have evolved from the grizzly bear to become the largest bear on earth.[14] They can weigh up to 1,760 pounds and have an unusually high metabolism (they can lose up to four pounds per day), which requires them to consume large amounts of prey in order to maintain their health.[15] Polar bears are experts at using sea-ice to hunt for seals. However, due to dwindling sea ice, polar bears must travel greater distances to hunt, only to be intermittently rewarded with smaller amounts of prey.[16] They are burning more energy only to consume less food. It is an unsustainable way to live.

Most bears tend to bulk up in the summer, consuming prey in anticipation of winter.[17] However, for polar bears, spring is most important. In the spring, sea ice has had several winter months to reform (even though lately, sea ice has been receding, not expanding)[18] It is the best possible conditions for polar bear hunting

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11. *See Changing Planet, supra* note 4.
12. *Id* at 86-87.
13. *Id*, at 88-90.
14. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status For the Polar Bear Throughout its Range, 73 Fed. Reg. 28212 (May 15, 2008) (codified at 50 C.F.R. pt. 17).
15. Rachel A. Becker, *4 Ways Polar Bears are Dealing with Climate Change*, NAT'L GEOGRAPHIC (Sep. 4, 2015), https://news.nationalgeographic.com/2015/09/150904-polar-bears-dolphins-seals-climate-change/; *Species Information: Polar Bears (Ursus maritimus)*, U.S FISH AND WILDLIFE SERV. (March 2017), https://www.fws.gov/alaska/fisheries/mmm/polarbear/species.htm; Anthony Pagano, *High-energy, High-fat Lifestyle Challenges an Arctic Apex Predator, the Polar Bear*, 359 SCI. 568 (FEB. 2, 2018). For more information about the original study, visit https://www.carbonbrief.org/polar-bears-could-be-struggling-to-catch-enough-prey-study-shows.
16. *See* Pagano, *supra* note 15.
17. *Id.*
18. Phillips, *supra* note 2.

grounds.[19] Additionally, spring is pupping season for the seals.[20] This means the prey they find will often be easier to hunt. The problem is finding the prey in the first place.[21]

When polar bears cannot find prey, they will scavenge or fast until their next meal. If a meal cannot be found, they may wander onto the land to look for alternatives.[22] "In . . . areas such as Hudson Bay, most bears move onto land when the sea ice retreats. There, Arctic warming means the sea ice is breaking up earlier in the summer and returning later in the fall, forcing bears to spend more time on land."[23] Again, due to their metabolism, polar bears need to consume a lot of food. Picking off smaller prey and scavenging whale carcasses dumped by whale hunters can help, but it does not provide an adequate substitute for the amount of food they require to be healthy and viable.

In the Alaskan Arctic settlement of Kaktovik, these polar bears have been dubbed "climate refugees."[24] The freeze came late in 2016 and Arctic sea ice was in shorter supply than ever. In response to their lack of habitat, polar bears attempt to survive on land by invading parts of the settlement, but they cannot thrive here.[25]"[T]o scientists watching the bears in Kaktovik, there is no question that the bears are not picking whale bones by choice."[26] To scientists, these thin and hungry bears are a sign of a species in danger.

III. ENDANGERED SPECIES ACT LISTING REQUIREMENTS

The ESA is an advocate for the protection of threatened and endangered species.[27] While climate change remains a volatile and partisan issue, the 1973 legislation was approved almost unanimously—three hundred fifty-five to four in the House and

19. Alastair Fothergill, *In the Grip of Seasons (Arctic): Polar Predators, BBC ONE* (Nov. 8, 2015), https://www.bbc.co.uk/programmes/p037bspr/p037bqgc.

20. Robinson Meyer, *What Scientists Learned From Strapping a Camera to a Polar Bear*, THE ATLANTIC (Feb. 1, 2018), https://www.theatlantic.com/science/archive/2018/02/what-scientists-learned-from-strapping-a-camera-to-a-polar-bear/552083/; *see* Fothergill, *supra* note 19.

21. *Id.*

22. Erica Goode, *Polar Bears' Path to Decline Runs Through Alaskan Village*, N.Y. TIMES (Dec. 19, 2016) https://www.nytimes.com/2016/12/18/science/polar-bears-global-warming.html.

23. Tim Stephens, *Polar Bears Finding It Harder to Catch Enough Seals to Meet Energy Demands*, USC NEWSCENTER (Feb. 1, 2018), https://news.ucsc.edu/2018/02/polar-bears.html.

24. Becker, *supra* note 15.

25. Goode, *supra* note 22.

26. The Editorial Board, *The Climate Refugees of the Arctic*, NEW YORK TIMES (Dec. 20, 2016) https://www.nytimes.com/2016/12/20/opinion/the-climate-refugees-of-the-arctic.html.

27. *See* Endangered Species Act of 1973, 16 U.S.C. § 1532(16).

ninety-two to zero in the Senate[28]—and continues to be generally well-received across gender, age, and party lines.[29] The ESA focuses on three key provisions: (1) to prevent listed species from being harmed or killed; (2) to designate and protect habitats essential to the survival of the species; and (3) to create recovery plans to restore the species to a healthy population. While most species have yet to be recovered and de-listed, the ESA is responsible for keeping many of these species around long enough to find a path toward recovery. Implemented by USFWS and the National Marine Fisheries Service (NMFS) (which handles the listing of endangered and threatened marine species, usually in tandem with USFWS), no law has been more integral to preventing the extinction of wildlife.

A species can be listed under one of two categories: endangered species or threatened species. An "endangered species" is a species in danger of extinction throughout all or a significant portion of its range.[30] A "threatened species" is a species that is likely to become endangered in the foreseeable future throughout all or a significant portion of its range.[31] To help conserve genetic diversity, the ESA defines "species" broadly to include subspecies and distinct populations.[32]

To be listed, a species must meet the requirements set forth in 16 U.S.C. 1533. Based on the best scientific evidence, the USFWS will add a species to the list if it meets one of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its survival.[33]

This section goes on to empower citizens to petition USFWS when they believe a species should be listed and file suit under the

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28. S. 1983, 93rd Cong. (1973). https://www.congress.gov/bill/93rd-congress/senate-bill/01983/all-actions?q=%7B%22action-by%22%3A%5B%22Senate%22%2C%22House+of+Representatives%22%5D%7D.

29. *Poll Finds Overwhelming, Broad-Based Support for the Endangered Species Act Among Voters Nationwide*, TULCHIN RESEARCH (July 6, 2015), http://earthjustice.org/sites/default/files/files/PollingMemoNationalESASurvey.pdf.

"Most notably, in today's highly polarized political environment, support for the Endangered Species Act also spans the political spectrum, with the Tulchin Research—Endangered Species Act National Survey Results 2 law being backed by overwhelming majorities of self-identified liberals (96% support), moderates (94%), and conservatives (82%)."

30. 16 U.S.C. § 1532.

31. *Id.*

32. *Id.* "Species," as defined in 16 U.S.C. § 1532(16), applies to "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." *Id.*

33. 16 U.S.C. § 1533(a)(1).

citizen enforcement provision of the ESA if the USFWS or Secretary fails their non-discretionary duty to consider the listing of a species in a timely manner.[34]

IV. POLAR BEAR LISTING

In 2008, USFWS recommended to list the polar bear as "threatened" under the ESA, and Secretary of the Interior Dirk Kempthorne accepted this recommendation.[35] It was among the first marine mammal listing attributed primarily to climate change. Since climate change is such a controversial issue, the decision to list the polar bear as threatened was also met with controversy from both sides. Environmental groups were unhappy the polar bear was listed as "threatened" instead of "endangered."[36] They believed more protections were necessary to prevent detrimental population loss and promote recovery.[37] Others, including the state of Alaska, thought the polar bear should not have been listed given its population at the time of listing.[38] However, USFWS reports that "of the 19 subpopulations of polar bear, 6 are decreasing and 8 have an unknown trend . . . Loss of sea ice, now and in the future, is a threat to the species that we expect will put the species at risk of extinction as sea ice loss accelerates."[39]

Affording polar bears no protection under the ESA and allowing them to decline into "remnant populations" would fail to protect polar bears from extinction. A smaller population could easily be decimated by disease or an extreme weather event, which climate scientists project will be more likely to occur in the future. Furthermore, USFWS warns against "genetic bottlenecking" that can occur in smaller populations of species. Smaller populations can lead to inbreeding and associated genetic problems that compromise long-term survival. The best chance the polar bear has at recovery

34. *Id.*

35. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status For the Polar Bear Throughout its Range, 73 Fed. Reg. 28212 (May 15, 2008) (codified at 50 C.F.R. pt. 17).

36. *Statement of Center for Biological Diversity, Natural Resources Defense Council and Greenpeace on Obama Polar Bear Endangered Species Act Decision*, CENTER FOR BIOLOGICAL DIVERSITY (December 23, 2010), https://www.biologicaldiversity.org/news/press_releases/2010/polar-bear-12-23-2010.html.

37. *See* In re Polar Bear Endangered Species Act Listing and 4(d) Rule Litigation, 794 F. Supp. 2d 65 (D.D.C. 2011).

38. *See id.*

39. *Endangered Species Act - Demythified*, U.S. FISH & WILDLIFE SERVICE, https://www.fws.gov/alaska/fisheries/endangered/demythified.htm (last visited Jan. 19, 2019).

is to make every effort to keep their populations as large as possible by listing and protecting them under the ESA.[40]

Back in 2008, in his decision to list the polar bear, Secretary Kempthorne stated he would limit the scope of the decision to ensure it "wasn't abused to make global warming policies,"[41] Adding that "[t]hat would be a wholly inappropriate use of the Endangered Species Act . . . ESA is not the right tool to set U.S. climate policy."[42] Unfortunately, this makes the ESA listing of the polar bear somewhat problematic.

When a species is listed under the ESA, the causes of their dwindling populations are usually something the USFWS can regulate or prohibit in order to protect the species. For example, bald eagles were listed as endangered in 1967 under a precursor to the ESA in part because pesticides containing too much DDT built up in the eagles' body tissue and killed them, severely reducing their population.[43] In response to this finding, USFWS was able to influence EPA regulation in order to prevent further DDT poisoning and protect critical habitats of the species.[44] As a result, the bald eagle was delisted on August 9, 2007.[45] USFWS cites "[t]he two main factors that led to recovery of the bald eagle were the banning of the pesticide DDT and habitat protection . . . for nesting sites and important feeding and roosting sites."[46]

The difference and main problem for polar bears is that USFWS does not have jurisdiction to dictate energy policy, regulate emissions, or take other direct action against the underlying threat to their survival.[47] Unfortunately, sea ice is not depleting because people in Alaska are chipping it away with a hammer. If that were the case, USFWS could simply enjoin them from further ice-hammering and call it a day. In their recovery plan for the polar bear, they specifically address this very problem:

The single most important achievement for polar bear conservation is decisive action to address Arctic warming, which is

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40. *Endangered Species*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/endangered/laws-policies/ (last visited Jan. 19, 2019).

41. Dawn Stover, *Polar Bear Listed As Threatened Species*, POPULAR SCIENCE (May 14, 2008), https://www.popsci.com/environment/article/2008-05/polar-bear-listed-threatened-species.

42. John Roach, *Polar Bears Listed as Threatened Species in U.S.,* NAT'L GEOGRAPHIC (May 14, 2008), https://news.nationalgeographic.com/news/2008/05/080514-polar-bears.html [https://www.biologicaldiversity.org/news/media-archive/PBThreatNatGeo5-14-08.pdf].

43. *Bald Eagle Removed from Endangered Species List,* U.S. FISH & WILDLIFE SERV. (Mar. 18, 2011), https://www.fws.gov/pacific/ecoservices/BaldEagleDelisting.htm.

44. *Id.*

45. *See Id.*

46. *Id.*.

47. *Polar Bear Draft Conservation Management Plan*, U.S. FISH & WILDLIFE SERV., 1, 6 (Jan. 9, 2017), https://www.fws.gov/alaska/PDFs/PBRT%20Recovery%20Plan%20Book.pdf (citation omitted).

driven primarily by increasing atmospheric concentrations of greenhouse gases. Short of action that effectively addresses the primary cause of diminishing sea ice, it is unlikely that polar bears will be recovered. Addressing the increased atmospheric levels of greenhouse gases that are resulting in Arctic warming will require global action. While this Plan calls for action to promptly reduce greenhouse gas emissions, the focus is on wildlife management actions within the United States that will contribute to the survival of polar bears in the interim so that they are in a position to recover once Arctic warming has been abated.[48]

This means a pathway forward for the polar bear will require a less direct and more creative approach, possibly through the expansion of their critical habitat and more stringent enforcement of the ESA's consultation provision.

V. ENDANGERED SPECIES ACT CRITICAL HABITAT DESIGNATIONS

Once a species is listed under the ESA, critical habitat designation must be proposed and finalized to the maximum extent prudent and determinable.[49] A critical habitat is defined in 16 U.S.C. 1532(5) as specific geographic areas containing features essential to the conservation of an endangered or threatened species. These areas may require special management and protection. In designating the critical habitat, economic impacts may be considered, but may also be outweighed if the need of the listed species is greater.[50]

It is important to note that a critical habitat designation does not automatically suspend all activity on such land. It simply requires actors to take special precautions not to harm or destroy the important characteristics of the habitat.[51] Critical habitat designations do not create a preserve or refuge, nor do they have any regulatory impact beyond a determination of whether an action involving federal funds, authorization, or permits may destroy or adversely modify the area.[52] Federal agencies must comply with the consultation requirements outlined in section seven of the ESA when they take any action or issue any permits for action in areas

48. *Id.*

49. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(a) (2016).

50. *See* Tennessee Valley Authority v. Hill, 437 U.S. 153, 203-04 (1978). The economic impact of suspending the Tellico Dam project was significant, but the area was the only habitat for the snail darter, so the completion of the damn was suspended. The economic purpose cannot run counter to the ESA in decimating a species.

51. *Critical Habitat Under the Endangered Species Act,* U.S. FISH & WILDLIFE SERV., https://www.fws.gov/southeast/endangered-species-act/critical-habitat/ (last visited Jan. 19, 2019).

52. *Id.*

designated as critical habitat.[53] This means private landowners will only be subject to this requirement when there is a "nexus" between their activity and some federal funding or permitting scheme.[54] The government may not take or manage private property as a result of a critical habitat designation, nor may it allow public access to private land.[55]

VI. POLAR BEAR CRITICAL HABITAT DESIGNATION

After the polar bear was listed as threatened under the ESA in 2008, USFWS initially proposed a critical habitat designation in 2009 and finalized the rule December 7, 2010 with an effective date of January 6, 2011.[56] The USFWS designated approximately 187,157 square miles in Alaska and adjacent territorial and U.S. waters as critical habitat.[57] The designated area contains two prominent "physical and biological features essential to the conservation" of the polar bear:[58] (1) sea-ice habitats that serve as a platform for hunting, feeding, traveling, resting, and denning,[59] and (2) terrestrial habitats used by polar bears for denning and reproduction, as well as for seasonal use in traveling or resting.[60] The areas were designated in three units: barrier islands, sea ice, and terrestrial denning habitat.[61] Sea ice makes up 96% of the designated critical habitat.[62] While this may sound like a large area to designate for one species, it cannot be understated how

53. *Id.*

54. *Id.*

55. *Id.*

56. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear Throughout its Range, 73 Fed. Reg. 28212 (May 15, 2008) (codified at 50 C.F.R. pt. 17).

57. *Polar Bear Critical Habitat: Some Frequently Asked Questions*, U.S. FISH AND WILDLIFE SERV. (May 2016), https://www.fws.gov/alaska/fisheries/mmm/polarbear/pdf/PBCH%20updated%20Fact%20sheet.pdf.

58. *Endangered Species, supra* note 40 This is to account for the variation of habitat features that can occur in short distances, which would make precise mapping nearly impossible. It also allows for flexibility in protection as habitats may change over time and cause these elements to appear in different places. Having a larger, general area of designation prevents having to amend the critical habitat designation every time a physical or biological feature essential to the conservation of a species occurs in a new place or disappears from another.

59. Endangered and Threatened Wildlife and Plants, 73 Fed. Reg 28211 (May 15, 2008) (codified at 50 C.F.R. 17). Sea-ice habitats refer to both land-fast ice (including shore-fast ice, both of which are relatively stable ice formations that are either frozen to land or to the bottom of the sea) and pack ice (which is a more seasonal ice that forms in the open ocean and can vary drastically in size, composition and age due to winds, currents, temperatures, and other weather-related factors).

60. *Id.*

61. *Polar Bear Critical Habitat Fact Sheet*, U.S. FISH & WILDLIFE SERV. (Nov. 2010), https://www.fws.gov/alaska/fisheries/mmm/polarbear/pdf/critical_habitat_factsheet_11_2010.pdf.

62. *Id.*

desperately polar bears require sea ice to survive. Sea ice is dwindling at an exponential rate,[63] making protection of the remaining sea ice a top priority.[64] Furthermore, the ESA requires critical habitat designation "to the maximum extent prudent and determinable."[65] While this designation was a good first step, the law supports many arguments to expand the polar bear's critical habitat to include more areas, even those not currently occupied by polar bears. To understand these arguments, it is imperative to first understand the legal framework behind critical habitat designation, and second, to analyze a recently promulgated rule regarding critical habitat designation that could benefit the polar bear.

VII. THE CRITICAL HABITAT RULE: OCCUPIED OR UNOCCUPIED AREAS

Pursuant to 16 U.S.C. § 1532(5), critical habitat is defined as "specific areas within the geographical area occupied by the species, at the time it is listed . . ." that contain features "essential to the conservation of the species and which may require special management considerations or protection . . ." as well as areas outside this occupied area.[66]

Geographic areas, both occupied and unoccupied by the species, may be designated. "Geographical area[s] occupied by the species" can mean areas that are used constantly or intermittently by a species.[67] USFWS has interpreted this intermittent use to include breeding areas, foraging areas, and "migratory corridors."[68]

This interpretation by USFWS was supported in the Ninth Circuit regarding the critical habitat designation of the Mexican Spotted Owl. The court held the contested designated area was sufficiently "occupied" because "the owl uses [the area] with sufficient regularity that it is likely to be present during any reasonable span of time," even though that span of time is not continuous.[69] Under earlier regulations, the USFWS considered designating areas outside this occupied area *only if* the occupied habitat designation would be inadequate for conservation of the species.[70] A new rule promulgated by USFWS in 2016 ("Critical

63. Robert Henson, *THE ROUGH GUIDE TO CLIMATE CHANGE 106-108 (2011).*
64. Overland, supra note 3, at 177-180.
65. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(a) (2016).
66. Endangered Species Act of 1973, 16 U.S.C. § 1532(5).
67. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(a) (2016).
68. Listing Endangered and Threatened Species and Designating Critical Habitat; Implementing Changes to the Regulations for Designating Critical Habitat, 81 Fed. Reg. 7413, 7429-30 (Feb. 11, 2016) (codified at 50 C.F.R. 424).
69. Arizona Cattle Growers' Assoc. v. Salazar, 606 F.3d 1160, 1165 (9th Cir. 2010).
70. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(e) (2012).

Habitat Rule"), however, has eliminated this requirement as "both unnecessary and unintentionally limiting."[71] This does not mean all areas that could potentially support a species should be designated, but it does expand the opportunity for designation of valuable land without meeting a threshold requirement to designate all occupied areas first.

In the Federal Register, USFWS linked this expansion of unoccupied critical habitat designation directly to climate change and explains there are times when designation of unoccupied areas may be more important to species conservation than occupied areas.[72] "As the effects of global climate change continue to influence distribution and migration patterns of species, the ability to designate areas that a species has not historically occupied is expected to become increasingly important."[73] For instance, if a species occupies a geographical area that is inferior ("marginal") in quality, it may still meet the definition of critical habitat and be designated for protection.[74] While this is still an important, and sometimes effective step, USFWS suggests the following:

[A] more certain and efficient path to recovery may involve protection of…the marginal habitat combined with protection of some of the superior habitat (allowing for natural expansion or artificial reintroduction). A variation of this scenario would involve habitat that may currently be of high quality, but is unlikely to remain that way due to the effects of climate change.[75]

The hope is to designate the best areas, not necessarily the largest or most inhabited, as critical habitats. USFWS therefore stresses the importance of flexibility when making these designations and urges the departure from a "rigid step-wise approach."[76]

In light of climate change, the best areas for polar bears include *all* areas that contain sea ice.[77] While there is sea ice in much of the Arctic Ocean, the ESA only has jurisdiction to designate critical habitat within US territories and adjacent waters. This means they can only designate waters within 200 nautical miles of the coast line, which is known as the "exclusive economic zone" (EEZ),[78] as

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71. Listing Endangered and Threatened Species and Designating Critical Habitat, 81 Fed. Reg. 7413, 7434 (Feb. 11, 2016).

72. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(b) (2016).

73. *Id.*

74. Listing Endangered and Threatened Species and Designating Critical Habitat; Implementing Changes to the Regulations for Designating Critical Habitat, 81 Fed. Reg. 7413, 7434 (Feb. 11, 2016) (codified at 50 C.F.R. 424).

75. *Id.*, at 7435.

76. *See id.*

77. *Fact Sheet*, *supra* note 61.

78. *What is the EEZ?,* NAT'L OCEANIC SERV. (2018), https://oceanservice.noaa.gov/facts/eez.html (last visited Jan. 19, 2019). "The exclusive economic zone extends 200 nautical

critical habitat. While the polar bear's current critical habitat expands 200 nautical miles off the northwest corner of Alaska, it stops at a line demarcating the continental shelf at an ocean depth of 300 meters along the northern coast.[79] This expansion past the continental shelf to include the full 200 nautical miles off the northern Alaskan coast should be the first addition to the polar bear's critical habitat designation.

USFWS note that polar bears tend to prefer sea ice that has formed over continental shelf water, which in Alaska occurs at depths of 300 meters or less.[80] However, polar bear population ranges extend well past this 300-meter line out into the EEZ.[81] This means polar bears spend at least some of their time on sea ice that has formed over deeper waters. This occasional residence could qualify as a "geographical area occupied by the species."[82] But even if it were deemed an "unoccupied area," it could still be protected in light of the Critical Habitat Rule, which makes unoccupied geographic area designation more flexible.[83]

In the notice-and-comment period of the rule designating critical habitat for the polar bear, there were several commenters wondering why the critical habitat did not extend into the Arctic Ocean a full 200 nautical miles.[84.] USFWS responses were focused on the length of time polar bears spend in deeper waters:

While we acknowledge polar bears temporarily use ice over deeper waters when ice is absent from the shallower waters over the continental shelf, we believe the ice over deeper waters does not contain the biological features of the sea ice that are essential to the conservation of the polar bear, such as access to ice seals, to be considered critical habitat. . . . [In response to possible migration to sea ice over deeper waters,] we do not anticipate that polar bears would remain long in the ice-covered areas over deep water of the central basin in the southern Beaufort Sea. This is based on the

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miles from the territorial sea baseline , and is the zone where the U.S. and other coastal nations have jurisdiction over natural resources.. Within the EEZ, the U.S. has 'sovereign rights for the purpose of exploring, exploiting, conserving and managing natural resources . . . and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents, and winds.'"

79. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Polar Bear (Ursus maritimus) in the United States, 75 Fed. Reg. 76085, 76096 (Dec. 7, 2010) (codified at 50 C.F.R. 17).

80. *Id.*

81. *Species Profile for Polar bear (Ursus maritimus)*, U.S. FISH AND WILDLIFE SERV., https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0IJ (last visited Jan. 19, 2019).

82. 16 U.S.C. § 1532(5).

83. Listing Endangered and Threatened Species and Designating Critical Habitat, 81 Fed. Reg. 7413, 7425 (Feb. 11, 2016).

84. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Polar Bear (Ursus maritimus) in the United States, 75 Fed. Reg. 76085, 76096 (Dec. 7, 2010) (codified at 50 C.F.R. 17).

premise that ringed and bearded seals, the species on which polar bears primarily feed, would not remain in these areas but rather would remain primarily in the shallower waters over the continental shelf in the absence of nearshore sea ice.[85]

It seems the primary reason for excluding this area from the final critical habitat designation was based solely on the amount of time the polar bear would spend there. But in light of the new Critical Habitat Rule, this area would absolutely be eligible for addition. There is no requirement the bear must occupy the area, only that it be essential to the conservation of the species.

USFWS also responded to these inquiries as to why the designation stopped at the continental shelf by explaining that it did not believe the ice over deeper waters contained the biological features "essential to conservation."[86] But the fact remains that polar bears do inhabit these areas periodically, and "[a]s the effects of global climate change continue to influence distribution and migration patterns of species, the ability to designate areas that a species has not historically occupied is expected to become increasingly important."[87] USFWS should consider whether polar bears, along with its prey, will have to migrate further north as temperatures continue to warm, making designation of these northern waters even more important.

VIII. THE CRITICAL HABITAT RULE: PHYSICAL OR BIOLOGICAL FEATURES

In critical habitat designation, there is a difference between the general "geographic area" the species occupies (or may occupy) and the specific area protected as critical habitat. This general "geographic area" is likely to be much larger and usually encompasses multiple "specific areas" for designation.[88] For instance, if you looked at a map of Alaska, the polar bear's critical habitat designation appears as a large, continuous section of land that stretches across the northern coast of Alaska and into the waters of the U.S.[89]

This land is not continuous, however, but instead divided into 50 different sectors (each sector about 40 square miles) along the Alaskan coast.[90] Each sector is comprised of even smaller regions

85. *Id.*, at 76092-096.

86. *Id.*, at 76096.

87. Listing Endangered and Threatened Species and Designating Critical Habitat, 81 Fed. Reg. 7413, 7435 (Feb. 11, 2016).

88. Criteria for Designating Critical Habitat, 50 C.F.R. § 424.12(b) (2016).

89. *Marine Mammals Management: Polar Bears,* U.S. FISH & WILDLIFE SERV., https://www.fws.gov/alaska/fisheries/mmm/polarbear/esa.htm, (last updated June 2017).

90. *Id.*

that represent the protected critical habitat. Some pieces of these areas are further excluded by text in the final rule. This geographically intermittent protection is another factor that makes it more reasonable to consider expanding the polar bear's designated critical habitat.

To determine which areas will be specific protected areas, USFWS will look for "physical or biological features" within the general geographic area.[91] The definition of "physical or biological features" was clarified in 2016 under the Critical Habitat Rule as follows:

> The features that support the life-history needs of the species . . . . A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity.[92]

These features will vary by species, but are generally features that provide shelter, food, water, light, sites for breeding and rearing offspring, and space for individual and population growth.[93] The most relevant part to support the argument for polar bear habitat expansion comes with the Critical Habitat Rule's clarification that physical and biological features can be the features that support the occurrence of ephemeral or dynamic habitat conditions.[94] This means USFWS could conclude that essential physical or biological features exist in a specific area even in the temporary absence of suitable features (food, water, shelter, etc.). They could designate such an area as critical habitat if there were documented occurrences of the particular habitat type in the area and a reasonable expectation of that habitat occurring again. This reasoning effectively dismantles any argument by USFWS that a designation beyond the continental shelf is inappropriate due to lack of features.

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91. *Critical Habitat: What is it?*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/endangered/esa-library/pdf/critical_habitat.pdf (last visited Jan. 19, 2019).

92. Definitions, 50 C.F.R. § 424.02 (2016).

93. *Critical Habitat*, *supra* note 91.

94. Definitions, 50 C.F.R. § 424.02 (2016).

IX. THE MODIFICATION RULE AND THE CONSULTATION REQUIREMENT

The importance of a robust critical habitat designation is the regulatory protection it commands pursuant to § 7 of the ESA. Under § 7(a)(2), federal agencies are required to consult with the USFWS and ensure their actions are not likely to destroy or adversely modify critical habitat. There are many Federal Government actions that have the potential to affect critical habitats, such as water management, flood control, regulation of resource extractions, oil leases, and the funding and permitting of a number of other activities.

While the National Environmental Policy Act (NEPA) requires federal agencies to prepare environmental assessments and sometimes environmental impact statements in response to "major federal actions significantly affecting the quality of the human environment," the findings in these studies are not dispositive.[95] These studies only require that the impacts of major federal action and alternatives to major federal action be considered by the acting party.[96] There is no requirement for federal agencies to change or abandon their proposed action, even if it will adversely impact the environment. The consultation requirement of the ESA, however, carries slightly more weight, especially with the promulgation of another 2016 regulation.

The new regulation promulgated in regards to the consultation requirement provides a new definition for "destruction or adverse modification" ("Modification Rule") of critical habitat.[97] The Modification Rule states that "destruction or adverse modification" means:

> [A] direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the *conservation* of a species or that preclude or significantly delay development of such features.[98]

USFWS finalized this regulatory definition based on the consideration of a number of factors, such as public comments during the rulemaking process, original Congressional intent when

95. National Environmental Policy Act of 1969, 42 U.S.C. § 4322(C).

96. *Id.*

97. Definition of Destruction or Adverse Modification of Critical Habitat, 81 Fed. Reg. 7214 (Feb. 11, 2016) (codified at 50 C.F.R. pt. 402) (emphasis added).

98. 50 C.F.R. § 402.02 (2016).

passing the ESA, and the holdings of several cases that applied the "destruction or adverse modification" standard in a way that is more consistent with the new Modification Rule.[99]

Under previous regulations, "destruction or adverse modification" of critical habitat was defined as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for *both* the survival *and* recovery of a listed species."[100] However, the decisions of the Fifth Circuit in *Sierra Club v. U.S. Fish & Wildlife Service,*[101] and the Ninth Circuit in *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Service,*[102] were two that held this (now former) regulation should be changed because the standard it described was too strict to serve the conservation purposes of the ESA.

In *Gifford Pinchot*, the court held that this regulatory definition "sets the bar too high," because there is basically no protection for the habitat until it has diminished in value to the point it is less viable to sustain survival and virtually impracticable that it will sustain recovery of the endangered or threatened species.[103] The court held it is "logical and inevitable that a species requires more critical habitat for recovery than is necessary for the species survival," which is what prompted them to evaluate the standard in light of the purpose of the ESA.[104] Most poignantly, the court held this definition "offends the ESA" and gave the following example:

> The FWS could authorize the complete elimination of critical habitat necessary only for recovery, and so long as the smaller amount of critical habitat necessary for survival is not appreciably diminished, then no "destruction or adverse modification," as defined by the regulation, has taken place. This cannot be right. If the FWS follows its own regulation, then it is obligated to be indifferent to, if not to ignore, the recovery goal of critical habitat.[105]

The court continued by arguing that Congress's original intent in passing the ESA was to view conservation and survival as two separate goals. As the Fifth Circuit pointed out in *Sierra Club*, the two main goals of the ESA are to prevent species extinction

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99. Interagency Cooperation - Endangered Species Act of 1973, 81 Fed. Reg. 7214 (Feb. 11, 2016).

100. 50 CFR § 402.02 (1986) (emphasis added).

101. Sierra Club v. U.S. Fish & Wildlife Serv., 245 F.3d 434 (5th Cir. 2001).

102. Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059 (9th Cir. 2004).

103. *See Id* at 1069.

104. *Id.*

105. *Id* at 1069-70.

(survival) and promote species recovery (conservation) in order to one day delist them.[106] The Ninth Circuit also held that "[t]he agency's controlling regulation on critical habitat thus offends the ESA because the ESA was enacted not merely to forestall the extinction of species . . . but to allow a species to recover to the point where it may be delisted."[107]

The Modification Rule was proposed largely as a response to these cases setting a standard that contradicted the existing regulation. The Ninth Circuit was not shy about condemning the narrow construction of the regulation as "regrettably, but blatantly, contradictory to Congress' express command. Where Congress in its statutory language required 'or,' the agency in its regulatory definition substituted 'and.' This is not merely a technical glitch, but rather a failure of the regulation to implement Congressional will."[108]

With this new Modification Rule, if more land were subject to consultation requirements, it could give polar bears, however slight, a better chance at recovery. Before taking any action within a critical habitat, the acting federal agency must contact USFWS to determine whether there are any listed species in their "action area."[109] If a listed species is present, the federal agency must determine whether their action will jeopardize the species or destruct or adversely modify the habitat. The federal agency may engage in informal consultation with USFWS at this point to work together on action plans and conservation efforts that could eliminate any potential negative impacts that would trigger formal consultation procedures.[110] There is no time limit on this informal consultation process. If both the federal agency and USFWS eventually conclude the action will not impact the species, there is no formal consultation requirement. However, if the federal agency determines their actions will impact the species, they are required by the ESA to initiate formal consultation procedures as outlined in the ESA and the USFWS Handbook.[111] This is where more serious protections are considered.

First, the agency must tell USFWS about the specific impacts it believes their actions will have on the listed species within their

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106. *Sierra Club*, 245 F.3d at 444-46.

107. *Gifford Pinchot*, 378 F.3d 1059, 1070 (9th Cir. 2004).

108. *Id.*

109. Definitions, 50 C.F.R. § 424.02 (2016). The action area is defined by regulation as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

110. *Endangered Species, supra* note 40.

111. *Id.* The procedures for conducting such consultations can be found in a handbook created by the USFWS at https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf.

"action area."[112] After the formal consultation process between USFWS and the agency (up to 90 days), USFWS will then prepare a biological opinion (within 45 days of completing formal consultation).[113] The biological opinion states whether or not the proposed action is likely to result in injury to the protected species or critical habitat.[114] If "jeopardy" or "destruction or adverse modification" is likely, USFWS may use the biological opinion to propose "reasonable and prudent alternatives" to the federal agency's plan or "reasonable and prudent measures" in addition to the federal agency's plan that could allow the project to move forward while preventing harm to the species.[115] According to USFWS, upon receipt of reasonable or prudent alternative measures, the federal agency may:

> (1) adopt the reasonable and prudent alternative(s); (2) not undertake the project (e.g., deny the permit); (3) request an exemption from section 7(a)(2); (4) reinitiate consultation based on modification of the action or development of a reasonable and prudent alternative not previously considered; [or] (5) proceed with the action if it believes, upon review of the biological opinion, that the action satisfies section 7(a)(2). Regardless of what action the agency chooses, the agency must notify the Service of its final decision.[116]

This consultation requirement may seem burdensome, but it is not always completely prohibitive. Often, federal agencies can move forward with their original plans, they just do so in a way that is much more beneficial to listed species and habitats protected by the ESA. By consulting with USFWS, the federal agencies can proactively prevent threats to listed species instead of retroactively attempting to repair damage after it is done. In a study evaluating federal actions from 1987-1991, there were 1,869 consultations conducted between a federal actor and USFWS.[117] Only 181 of those consultations resulted in "jeopardy opinions," and 158 of those were still able to go forward because USFWS offered "reasonable and prudent alternatives" that the federal actor could easily

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112. *Consultations FAQ*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/endangered/what-we-do/faq.html (last visited Jan. 19, 2019).

113. *Id.*

114. *Id.*

115. 16 U.S.C. § 1536 (a)(1) (2012).

116. *Endangered Species Consultations,* U.S. FISH & WILDLIFE SERV. (Nov. 1, 2017), https://www.fws.gov/endangered/what-we-do/faq.html#13.

117. Federico Cheever, *The Road to Recovery: A New Way of Thinking About the Endangered Species Act*, 23 ECOLOGY L. Q. 1, 18 (1996).

implement.[118] The benefits of moving forward with a project in a safer and less detrimental way significantly outweigh the burden of being subject to formal consultation. An argument advocating that this requirement creates undue strain is less persuasive than an argument that the requirement creates a way for conservation and economic growth to coexist.

X. TAX CUTS AND JOBS ACT: DRILLING IN ANWR SECTION 1002

In December of 2017, Congress enacted the Tax Cuts and Jobs Act ("the Act"), which opened up 1.5 million acres in the Arctic National Wildlife Refuge (ANWR) for oil and gas drilling in order to offset the Act's proposed tax cuts. The specific ANWR area, known as section 1002, is part of the polar bear's critical habitat. This is not an ephemeral or unoccupied habitat; 34% of all denning for U.S. polar bear populations happen along the coastline of section 1002.[119] This is the only national conservation area where polar bears regularly den and the most consistently used polar bear land-denning area in Alaska.[120] The important question is whether these new regulations – the Critical Habitat Rule and the Modification Rule – could prevent or at least mitigate the damage from oil and gas drilling in this region.

ANWR, a 19-million-acre Arctic refuge, was created by Congress in 1980 under the Alaska National Interest Lands Conservation Act in order to protect not only the "unrivaled scenic and geological values associated with natural landscapes," but also "to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value . . . including those species dependent on vast relatively undeveloped areas."[121] Section 1002 is a 1.5-million-acre coastal plain that was set aside both in recognition of the area's potential oil and gas resources and also its importance as a wildlife habitat.[122] Largely because drilling in this area was never allowed, many different wildlife species, including the polar bear, were able to thrive.

Polar bears use the coastal plains of Section 1002 primarily for denning.[123] They dig deep into the snowpack and use the dens for

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118. *Id.*

119. George M. Durner, *Habitat Characteristics of Polar Bear Terrestrial Maternal Den Sites in Northern Alaska*, 56 ARCTIC 55, 56-57 (2003).

120. Bears, U.S. FISH AND WILDLIFE SERVICE, https://www.fws.gov/refuge/arctic/bears.html (last visited Jan. 16, 2019).

121. 16 U.S.C. § 3101(b) (2010).

122. 16 U.S.C. § 3142 (2012).

123. *Polar Bear Denning*, U.S. FISH & WILDLIFE SERV. MAY 1, 2014, https://www.fws.gov/refuge/arctic/pbdenning.html.

hibernation, reproduction, and initial care of their cubs.[124] In areas to the west of Section 1002, land leases for drilling disturbed the polar bears to the point where they started migrated east to escape the noise and seismic activity.[125] This means Section 1002 is more important than ever, because polar bears are running out of places to go.

Over the years, Alaskan politicians have repeatedly tried to overcome the "off-limits" status of Section 1002 and allow oil and gas drilling.[126] They have been unsuccessful until now. On April 19, 2018, the Bureau of Land Management (BLM) announced they would begin a "60-day scoping period to assist in the preparation of an Environmental Impact Statement (EIS) for the Coastal Plain Oil and Gas Leasing Program within ANWR."[127] Under NEPA, federal agencies (here, the BLM) must prepare an EIS if a proposed major federal action is determined to significantly affect the quality of the human environment,[128] but again, NEPA cannot involuntarily enjoin or even shape federal action. Furthermore, EISs are performed by the federal agencies undertaking the action in question, not an uninterested party.[129] NEPA's purpose is to ensure federal agencies think about environmental impacts and consider sustainable development, but it does not put a thumb on the scale in favor of environmental protection.

The announcement from BLM did not contain any information as to whether they have begun consultation procedures with USFWS. BLM is required by law to consult with USFWS with regard to these oil and gas lease proposals, but it is unclear whether formal consultations will begin, prompting USFWS to conduct their own biological opinion.[130] It is imperative the USFWS conducts this independent investigation. As one of the few "checks" on BLM's

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124. Durner, *supra* note 119.

125. *Id.,* at 56. "[E]xploration, construction, and production in the immediate vicinity of polar bear dens could cause the bears to abandon dens," . . . and . . . "production activities could create disturbances that would likely keep bears from returning to those preferred denning areas."

126. Ashley Killough, *For Murkowski, the fight to open up ANWR was generations in the Making*, CNN Dec. 20, 2017, https://www.cnn.com/2017/12/20/politics/lisa-murkowski-anwr/index.html.

127. Leslie Ellis-Wouters, *BLM Alaska to Prepare an Environmental Impact Statement for the Coastal Plain Oil and Gas Leasing Program*, U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT. (April 19, 2018), https://www.blm.gov/press-release/blm-alaska-prepare-environmental-impact-statement-coastal-plain-oil-and-gas-leasing.

128. Major Federal Action, 40 C.F.R. § 1508.18.

129. Environmental Impact Statement, 40 C.F.R. § 1502.

130. *Section 7 Consultation: A Brief Explanation*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/midwest/endangered/section7/section7.html (last visited Jan. 19, 2019).

"Under Section 7, Federal agencies must consult with the U.S. Fish and Wildlife Service (Service) when any action the agency carries out, funds, or authorizes (such as through a permit) may affect ta listed endangered or threatened species."

authority to issue land leases,[131] USFWS should require formal consultations, and they can do so more easily by applying the Modification Rule's definition of "destruction or adverse modification." While USFWS probably will not be able to completely prohibit land leasing activity in Section 1002, it is possible they could exclude certain especially delicate areas within Section 1002 from land leasing. And if not, at the very least, they could require BLM to adhere to strict guidelines in issuing land leases and any related permits through the issuance of reasonable prudent alternatives in the biological opinion.

Unfortunately, there is fear in the environmental community that standard environmental reviews are being short-circuited.[132] Environmental groups are concerned USFWS is being pushed aside by other federal agencies who are bypassing certain consultation requirements and politicizing the process. The city of Vernal, Utah has been subject to such treatment by BLM, who is issuing land leases for oil and gas drilling in an area where several parcels are designated critical habitats for endangered species and would be subject to "adverse and destructive modifications."[133] Conservation groups in Utah requested one parcel in particular be removed from consideration for drilling because it "provides some of the only suitable nursery habitat for the endangered razorback sucker, a freshwater fish."[134] This request was not addressed by USFWS and was subsequently included in the lease sale.[135]

This failure to consider a legitimate request about a listed and protected species suggests further analysis should have been undertaken before any decisions were made about the lease sale. The USFWS did not require a formal consultation, and therefore did not issue a biological opinion regarding the habitat. According to Michael Saul, an attorney for the Center for Biological Diversity, it is possible that moving forward with this lease sale without first completing formal consultation procedures could result in legal jeopardy, saying "[i]t sort of looks like one federal agency is just steamrolling right over another."[136]

While USFWS does not have power to dictate energy policy or regulate emissions, they do have the power and jurisdictional clout to rigorously enforce this consultation process. They know the polar bear's biggest threat is a loss of habitat due to climate change, which

131. *See* Adam Federman, *This is How the Trump Administration Gives Big Oil the Keys to Public Lands,* THE NATION (Dec. 8, 2017), https://www.thenation.com/article/this-is-how-the-trump-administration-gives-big-oil-the-keys-to-public-lands/.

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.*

limits the tools they have to protect them and severely impedes their ability to implement a meaningful recovery plan. However, a thorough formal consultation process with regard to Section 1002 would allow USFWS to directly impact a serious emissions-boosting, climate-change-fueling activity. USFWS has a chance to enforce regulation where they would otherwise be powerless; the only question that remains is whether they will take it.

CORN, COWS, AND CASH: HOW FARMING SUBSIDIES WORK AND WHAT THEY COULD POTENTIALLY ACHIEVE

JENNIFER MOSQUERA*

Farming subsidies are a controversial tool the federal government has historically used to prop up crop prices since the Great Depression. Recent changes to the agricultural subsidy scheme in 1996 and 2014 have changed the way these subsidies are distributed, but the federal government could use these subsidies in a more beneficial way than it has before. This note identifies three goals that farming subsidies could encourage: promoting healthier diets, protecting the environment, and promoting small farming businesses. In addition to establishing potential goals, this note sets out which reforms would most likely achieve those goals and evaluates these reforms. Policymakers should consider potential beneficial uses of restructuring the farming subsidies, specifically regarding the 2018 Farm Bill.

I. INTRODUCTION

The United States Department of Agriculture (USDA) spends over twenty billion dollars a year on farming subsidies.[1] This

* Jennifer Mosquera is a J.D. candidate at Florida State University College of Law and she will graduate in May of 2019.

1. Chris Edwards, *Agriculture Subsidies*, DOWNSIZING THE FED. GOV'T (Apr. 16, 2018), https://www.downsizinggovernment.org/agriculture/subsidies#_edn6.

funding is controversial because it is used to fund crops like corn, wheat, and cotton, and most of these benefits help larger farming corporations. There are better ways that Congress can distribute these twenty billion dollars to work towards several policy goals that are of national concern, such as promoting healthier lifestyle diet choices, protecting the environment, and stimulating small farming businesses.

This note will detail the history of agricultural subsidies, including an overview of the most recent Farming Bills and an introduction to the farming subsidy system that is currently in place. This note will then evaluate options available for using farming subsidies to attain these three different policy goals.
For the first policy goal, promoting healthier lifestyles, this note will evaluate the merits of removing farming subsidies that Congress provides to grains (corn, wheat, soybeans, and rice) in favor of subsidizing more nutritious food such as broccoli, carrots, and apples. This note will then evaluate whether farming subsidies can mitigate the environmental impact of farming, by incentivizing farmers either to move away from conventional farming toward alternative farming styles, or to adopt specific strategies that promote environmental responsibility. Finally, in regard to stimulating smaller farm business, this note will evaluate crop insurance reform and alternative programs that could be funded by the savings from crop insurance reform

Some may argue that Congress should eliminate farming subsidies instead of repurposing them, but this note contends that eliminating farming subsidies is not politically viable. Then in closing, this note will determine which of these plans are most feasible in the current political context.

II. BACKGROUND

A. History of Agricultural Subsidies

Since the formation of the United States, there was strong opposition from states regarding federal government intervention in agriculture; until the mid-1800s most agricultural programs were state-funded.[2] After this time, the federal government started to

2. Monica Hughes, *A Brief History of U.S. Farm Policy and the Need for Free-Market Agriculture*, THE OBJECTIVE STANDARD (Jan. 26, 2014), https://www.theobjectivestandard.com/issues/2009-summer/us-farm-policy.

States strongly believed they should govern agriculture; in 1836, when the federal government opened a three hundred-thousand dollar program to collect potentially useful,

gain power in the agricultural arena. The USDA grew from having an annual budget of less than ninety thousand dollars in 1896 to over twenty-four million dollars in 1912.[3] Beginning in the 1800s, the federal government grew increasingly involved in the agriculture industry, culminating in modern farming subsidies.[4] Modern agricultural subsidies were introduced in the first Farm Bill[5], the Agriculture Adjustment Act, as part of President Franklin D. Roosevelt's New Deal.[6] In the 1930s, mechanization and increased production due to World War I led to large surpluses of crops that caused prices to plummet.[7] This legislation attempted to boost crop prices by authorizing the federal government to pay farmers to farm less of their land and buy excess grain to sell in times of shortages.[8]

Five years later, Congress passed the Agricultural Adjustment Act of 1938, which made agricultural subsidies permanent.[9] Since then, Congress had to renew the Farm Bills every five years.[10] Most of the provisions of the original Agricultural Adjustment Act were adopted, except for a controversial processor's tax that funded the original legislation.[11] From 1933 to 1996, the federal government continued the polices of the original Agricultural Adjustment Act.[12] The federal government bought grains from farmers and released the grains into the market to prop up crop prices.[13]

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foreign plants for agriculture, Senator John C. Calhoun deemed it an enormous abuse of federal power. *Id.*

3. *Id.*

4. *See* Morrill Act of 1862, 7 U.S.C. §§ 301-309 (2012) (establishing land grant colleges); Hatch Act of 1887, 7 U.S.C. §§ 361-386 (2012) (funding agricultural research and establishing the U.S. Department of Agriculture); Smith-Level Act of 1914, 7 U.S.C. §§ 341-349 (funding agricultural education).

5. Modern farm bills are large bills that include a wide variety of topics including land use, energy, forestry, and nutrition. *See* Scott Neuman, *Why the Farm Bill's Provisions Will Matter to You*, NAT'L PUB. RADIO (June 13, 2012), http://www.npr.org/2012/06/13/154862017/why-the-farm-bills-provisions-will-matter-to-you. This paper will address farm bills only in the context of agricultural subsidies.

6. Kathleen Masterson, *The Farm Bill: From Charitable Start to Prime Budget Target*, NAT'L PUB. RADIO (Sept. 26, 2011), http://www.npr.org/sections/thesalt/2011/09/26/140802243/the-farm-bill-from-charitable-start-to-prime-budget-target.

7. Neuman, *supra* note 5.

8. Masterson, *supra* note 6.

9. *Id.*

10. *Id.*

11. *Compare* Agricultural Adjustment Act of 1933, 7 U.S.C. §§ 601-627 (2012) (containing provisions that established processing taxes to pay for farming subsidies) *with* Agricultural Adjustment Act of 1938, 7 U.S.C. §§ 1281-1407 (2012) (appropriating fund from the federal government to be used for farming subsidies); *see also* United States v. Butler 297 U.S. 1, 84 (1936) (holding that the processing taxes set forth in the 1933 law were unconstitutional).

12. *See* Masterson, *supra* note 6.

13. *Id.*

The first major change to the farming subsidy scheme came in 1996. Congress passed the 1996 Farm Bill,[14] the "Freedom to Farm Act," which was the first major attempt to restructure agricultural subsidies. Here, the federal government pulled out of grain management and price support.[15] The goal of the bill was to reduce commodity payments by setting fixed payments that declined each year.[16] However, this made commodity prices drop, and Congress authorized recurring lump sum payments that started at the time commodity payments were supposed to be lowered and continued until the 2002 Farm Bill.[17] This led to a new farm subsidy scheme that includes direct payments[18] and crop insurance subsidies.[19] This new structure made subsidies rise; by 1999 the United States government was paying over twenty billion dollars annually.[20] The 1996 Farm Bill also loosened many of the 1930s era conservation requirements that forced farmers to place up to fifteen percent of their land out of production.[21]

The 2002 Farm Bill, the Farm Security and Rural Investment Act of 2002, continued many of the policies that Congress set with the 1996 Farm Bill and formalized the lump sum payments now known as counter-cyclical payments.[22] The 2002 Farm Bill not only formalized the counter cyclical payments, but also increased the amount of money authorized for this program.[23] The 2002 Farm Bill was widely criticized for not meeting trade standards set out in by the World Trade Organization (WTO) because it provided an unfair advantage to certain United States crops in the international market.[24]

The 2008 Farm Bill, the Food, Conservation, and Energy Act of 2008, worked to bring United States agricultural law into closer conformity with the standards set out by the WTO by revising credit

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14. The official name of the 1996 Farm Bill is the Federal Agriculture Improvement and Reform Act of 1996.

15. *See* Masterson, *supra* note 6.

16. Doug O'Brien, *World Trade Organization and the Commodity Title of the Next Farm Bill: A Practitioner's View*, THE NAT'L AGRIC. L. CTR. 1, 5 (2006), http://nationalaglawcenter.org/wp-content/uploads/assets/articles/obrien_wto.pdf.

17. *Id.*

18. Direct payments are payments made to farmers per acre of land regardless of crop yield.

19. Masterson, *supra* note 6.

20. *Id.*

21. O'Brien, *supra* note 16, at 5-6.

22. *Id.* at 5.

23. Zixuan Yen-Yen Gao, *The Impact of United States Agricultural Subsidies on World Trade in Context of the Brazil Cotton Dispute*, U. OF PA. WHARTON PUB. POL'Y INITIATIVE (Sept. 8, 2015), https://publicpolicy.wharton.upenn.edu/live/news/851-the-impact-of-united-states-agricultural-subsidies.

24. *Id.*

guarantees program.[25] These revisions eliminated three key support programs: a short term export credit guarantee known as the supplier credit program, the intermediate export credit guarantee program, and a direct export subsidy known as the Export Enhancement Program.[26] The 2008 Farm Bill was passed under pressure from international actors that questioned United States support and legality of farming subsidies.[27]

Congress was supposed to pass a new Farm Bill in 2012, but Congress failed to do so in both 2012 and 2013, leaving the legislators to extend the 2008 Farm Bill as a stopgap measure.[28] Congress had trouble passing this Farm Bill because of contentious partisan issues.[29] In 2012, Speaker Boehner and Majority Leader Cantor refused to bring the Farm Bill to a vote because they did not have the necessary votes to pass the bill and did not want the vote to fail during an election year.[30] In 2013, the Senate passed the Farm Bill but could not find bipartisan support in the House, and the bill ultimately failed.[31]

B. Current Farming Subsidies System

The 2014 Farm Bill, the Agricultural Act of 2014, restructured farming subsidies and did away with direct payments, instead favoring subsidies as the commodity price declines.[32] Direct payments were controversial because they were granted based on acreage and historical yield, meaning that farmers received them regardless of whether their farms had a difficult or profitable year.[33]

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25. *Id.*; U.S. CONG. RES. SERV., 2008 FARM BILL: MAJOR PROVISIONS AND LEGISLATIVE ACTION at 20 (2008) [hereinafter 2008 FARM BILL].

26. 2008 FARM BILL, *supra* note 25, at 22.

27. *Id.* at 1.

28. Allison Crissman, *Senate Approves New Farm Bill*, THE DAILY IOWAN (June 12, 2013), http://www.dailyiowan.com/2013/06/12/Metro/33464.html. Congress temporarily sustained the 2008 Farm Bill through continuing resolutions and short-term deals. *See also* Brad Plumer, *The House Farm Bill Unexpectedly Failed. So What Happens Next?*, WASH. POST (June 20, 2013), https://www.washingtonpost.com/news/wonk/wp/2013/06/20/the-house-farm-bill-unexpectedly-fails-195-234-so-what-happens-next/?utm_term=.eddbfeb1c94d.

29. In both 2012 and 2013, the political struggle involved budget cuts to the Supplemental Nutrition Assistance Program (SNAP) also known as food stamps. *Why Did the Farm Bill Fail in the House?* NAT'L SUSTAINABLE AGRIC. COALITION (June 26, 2013), http://sustainableagriculture.net/blog/why-farm-bill-faied/.

30. *Id.*

31. David Weigel, *The House's Humiliating Farm Bill Fail, Explained*, SLATE (June 20, 2013), http://www.slate.com/articles/news_and_politics/roads/2017/11/fonio_could_this_forgotten_west_african_grain_be_the_world_s_next_trendy.html.

32. Dan Charles, *Farm Subsidies Persist and Grow, Despite Talk of Reform*, NAT'L PUB. RADIO (Feb. 1, 2016), http://www.npr.org/sections/thesalt/2016/02/01/465132866/farm-subsidies-persist-and-grow-despite-talk-of-reform.

33. Neuman, *supra* note 5.

The congressional authors of the 2014 Farm Bill promised these cuts would save taxpayer's over twenty-three billion dollars over the next 10 years.[34] However, the Congressional Budget Office (CBO) projected the United States would spend up to twenty-three billion dollars in crop subsidies this year, more than the original CBO projection.[35] The 2014 Farm Bill worked to further bring the United States in compliance with standards set out by the WTO.[36] The 2014 Farm Bill allowed the Secretary of Agriculture to make changes to the credit guarantee programs in order for these programs to comply with the WTO cotton case won by Brazil.[37]

The 2014 Farm Bill emphasized the crop insurance program over traditional farming programs.[38] The 2014 Farm Bill eliminated many traditional farming programs such as direct payments, the counter-cyclical price program, and the average crop revenue election program.[39] Most of the savings created by eliminating traditional farming programs was invested in crop insurance and permanent disaster relief.[40] Currently, crop insurance is one of the primary sources of federal farming subsidies, increasing from two billion dollars in 2001 to nine billion dollars in 2011.[41] The Risk Management Agency (RMA) of the USDA administers the crop insurance program.[42] The USDA pays approximately sixty percent of the insurance premium costs for the farmers who qualify.[43] In addition to subsidizing farmers, the USDA subsidizes nineteen percent of the administrative cost of farming insurance programs.[44]

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34. Charles, *supra* note 32.

35. *Id.*

36. Yen-Yen Gao, *supra* note 23.

37. U.S. CONG. RES. SERV., THE 2014 FARM BILL (P.L. 113-79): SUMMARY AND SIDE-BY-SIDE at 10 (2014) [hereinafter 2014 FARM BILL, SUMMARY AND SIDE-BY-SIDE]. Brazil successful brought a claim against the United States through the WTO that concluded in a formal settlement in 2014. *See* Yen-Yen Gao, *supra* note 23.

38. U.S. GOV'T ACCOUNTABILITY OFF., GAO 15-356, CROP INSURANCE: REDUCING SUBSIDIES FOR HIGHEST INCOME PARTICIPANTS COULD SAVE FEDERAL DOLLARS WITH MINIMAL EFFECT ON THE PROGRAM at 3 (2015) [hereinafter GAO, CROP INSURANCE REDUCING SUBSIDIES].

39. 2014 FARM BILL, SUMMARY AND SIDE-BY-SIDE *supra* note 37, at 6.

40. *Id.*

41. Craig Cox & Scott Faber, *The Case for Crop Insurance Reform*, ENVTL. WORKING GROUP (June 11, 2011), http://www.ewg.org/agmag/2012/06/case-crop-insurance-reform#.WeVJ5mhSzIV.

42. GAO, CROP INSURANCE REDUCING SUBSIDIES, *supra* note 38, at 1.

43. Edwards, *supra* note 1.

44. *Id.*

In 2010, the average crop insurance subsidy received was over five thousand dollars per farmer.[45] Currently, most agricultural subsidies go to corn, wheat, soybean, and cotton crops.[46]

III. ARGUMENT: FARMING SUBSIDIES CAN PROVIDE BETTER OUTCOMES

The United States government spends significant resources on agricultural subsidies.[47] These subsidies accomplish stability in crop prices and help many farmers but fail to accomplish other worthwhile goals. The current farming subsidy scheme over incentivizes the development of marginal lands, encourages the production of limited grain crops and allots most farming subsidies to large corporate farms. The annual twenty-five billion dollars used by the United States on farming subsidies could be better spent achieving federal policy goals. Three federal policies that farming subsidies can be used to accomplish are promoting healthier diets, protecting the environment, and encouraging small farming businesses.

A. Promoting Healthier Diets

One important federal policy should be improving public health by combating heart disease, obesity, and diabetes, among other illnesses. Farming subsidies can be used to incentivize healthier eating habits that could reduce these health problems. By allocating farming subsidies to healthier crops such as apples, broccoli, and carrots, rather than crops such as wheat and corn, the price of healthier foods could fall and the price for unhealthier foods could rise. Poorer families would be able to buy healthier products such as fresh vegetables and fruits if subsidies were allocated to those crops to lower prices.

Obesity is a pressing issue in the United States, with over a third of adult Americans and over twelve million children and adolescents

45. U.S. GOV'T ACCOUNTABILITY OFF., GAO 12-256, CROP INSURANCE: SAVINGS WOULD RESULT FROM PROGRAM CHANGES AND GREATER USE OF DATA MINING at 19 (2012) [hereinafter CROP INSURANCE SAVINGS].

46. Crops, U.S. DEP'T OF AGRICULTURE ECON. RESEARCH SERV. (May 8, 2008) https://www.ers.usda.gov/topics/crops/.

47. Between 1995 and 2005 the United States government paid out over 164.7 billion in farming subsidies; that is more than the government spends on other programs such as the financial aid Pell Grant program. *See* Tom Philpott, *Where Farm Subsidies Came from, and Why they are Still Here*, GRIST (Jan. 31, 2007), http://grist.org/article/farm_bill2/.

considered obese.[48] Obesity has also been linked to diseases such as stroke, heart disease, and type two diabetes.[49] Beyond the issue of obesity, a diet full of vegetables and fruits has many health benefits including prevention of cancer, diabetes, and coronary heart disease among other illnesses.[50] Scientific studies have further suggested that when the goal is weight loss, adding healthy foods such as vegetables and fruits to a person's diet is more impactful than cutting back on unhealthy foods that are high in fat or sugar.[51]

Obesity is often correlated with poverty. At times, fattening foods that are found in convenience stores and fast food restaurants are the only things available or affordable to poor consumers.[52] Currently, farming subsidies are mostly for grains like corn and wheat. Critics of the current system argue that because farming subsidies suppress the commodity prices of these grains, many of the resulting products, such as high-fructuous corn syrup, hydrogenated fats, and corn-fed meats, become more accessible and affordable than healthier foods that are not subsidized.[53]

This is especially so in the case of corn.[54.] Most of the corn produced for consumption in the United States is processed into the high-fructose corn syrup found in many processed foods.[55] High-fructose corn syrup has been linked to the same negative properties as other sugars.[56] Studies have shown that removing corn subsidies could lower corn production in the United States up to ten percent.[57]

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48. *Adult Obesity Facts,* CTRS. FOR DISEASE CONTROL & PREVENTION (Aug. 13, 2018), https://www.cdc.gov/obesity/data/adult.html [hereinafter *Adult Obesity Facts*]; *Childhood Obesity Facts,* CTRS. FOR DISEASE CONTROL & PREVENTION (Aug. 13, 2018), https://www.cdc.gov/obesity/data/childhood.html.

49. *Adult Obesity Facts, supra* note 48.

50. Sean B. Cash et al., *Fat Taxes and Thin Subsidies: Prices, Diet, and Health Outcomes*, 2 ACTA AGRICULTURAE SCANDINAVICA SECTION C167, 168 (2005).

51. *Id.* at 169.

52. Scott Fields, *The Fat of the Land: Do Agricultural Subsidies Foster Poor Health?*, 112 ENVTL. HEALTH PERSP. A821, A822 (2004); *see also Documentation*, U.S. DEP'T OF AGRIC. ECON. RES. SERV. (Dec. 5, 2017), https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/.

53. Fields, *supra* note 52, at A821.

54. There are also environmental reasons why Congress should reduce the amount of farming subsidies that are allotted to corn. *See* discussion *infra* Section II B.3.

55. Jonathan Foley, *It's Time to Rethink America's Corn System*, SCI. AM. (Mar. 5, 2013), https://www.scientificamerican.com/article/time-to-rethink-corn/.

56. John S. White, *Straight Talk about High-Fructose Syrup: What It Is and What it Ain't*, 88 AM. J. OF CLINICAL NUTRITION 1716S, 1717S (2017). High-fructose corn syrup has been linked to obesity and other illnesses but at the same rate as other sugars like sucrose. *Id.* at 470.

57. Julian M. Alston et al., *Farm Subsidies and Obesity in the United States: National Evidence and International Comparisons*, 33 FOOD POL'Y 470, 473 (2008), https://ac.els-cdn.com/S0306919208000523/1-s2.0-S0306919208000523-main.pdf?_tid=369fccce-c24c-11e7-b444-00000aacb360&acdnat=1509902005_e6b63f7dac72f92729b8b427673d688d.

Some are skeptical of the connection between obesity and farm subsidies, arguing that farm subsidies do not have a large effect on the price of subsidized crops.[58] Removing farming subsidies that support corn and grains will not have a large effect on price of fattening foods, skeptics say, because they are a small share of the input price of making fatty foods.[59] Farming commodity prices usually implicate less than twenty percent of the total cost of food products, especially heavily processed foods.[60]

Using farm subsidies alone to promote a lower obesity rate may be unsuccessful, because there are many variables that affect food choices. Even if removing subsidies for grain crops increases the price of fattening foods, consumers might still pick these foods because they are easier to prepare, less time consuming, or are part of their normal routine. In addition, other factors beyond diet choices, like exercise and genetic predisposition, affect overall health.[61] However, if both subsidies that support grain crops decrease and subsidies that support healthier vegetables increased, this policy in conjunction with other policies, such as food and exercise education campaigns, could improve the average American diet.

B. Protecting the Environment

Another federal policy that the government can pursue through farming subsidies is protecting the environment. Globally, agriculture creates an intense environmental footprint. Agricultural activities emit up to thirty-three percent of manmade greenhouse gases, occupy forty percent of Earth's land surface, and account for seventy percent of freshwater withdrawals.[62] There are many environmental problems that farming exacerbates. For example, nitrogen run-off from farms into the Mississippi River and its tributaries has been implicated as a cause for the dead zone in the

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58. Fields, *supra* note 52, at A821.

59. *Id.* at A823.

60. Alston et al., *supra* note 57, at 473. For example, Australia and the United States have similar rates of obesity and the consumption of soft drinks and fast food are similar, but Australia does not have a farm commodity program. *See* Julian M. Alston et al., *Are Agricultural Policies Making Us Fat? Likely Links between Agricultural Policies and Human Nutrition and Obesity, and their Policy Implications*, 28 REV. OF AGRIC. ECON. 313, 319 (2006).

61. *Physical Activity and Health,* CTRS. FOR DISEASE CONTROL & PREVENTION (June 4, 2015) https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm; *Genetics Basics,* CTRS. FOR DISEASE CONTROL & PREVENTION (Nov. 14, 2017) https://www.cdc.gov/genomics/about/basics.htm.

62. Michael Clark & David Tilman, *Comparative Analysis of Environmental Impacts of Agricultural Production Systems, Agricultural Input Efficiency and Food Choice*, 12 ENVTL. RES. LETTERS 1, 1 (2017), http://iopscience.iop.org/article/10.1088/1748-9326/aa6cd5/pdf.

Gulf of Mexico.[63] Bloated insurance subsidies make it lucrative to plow up wetlands, grasslands, and marginal lands that could be put to other uses with less deleterious environmental effects.[64]

1. Promoting Organic or Conservation Agriculture over Conventional Agriculture

There is a recent trend in western nations to increase organic and conservation agriculture because it is perceived to lessen the environmental impacts of farming.[65] Organic agriculture removes synthetic farming inputs such as synthetic fertilizers and replaces them with natural alternatives.[66] Conservation agriculture is based on the principles of minimal soil disturbance, continuous soil coverage, and crop rotation.[67] Organic and conservation agriculture have some benefits like producing crops more resistant to natural threats such as chronic droughts, soil degradation, and disease.[68]

Although organic and conservation agriculture has been championed to reduce the environmental impact of agricultural activities, studies conflict as to whether this is completely true.[69] Instead of concentrating on overhauling the style of farming that is being subsidized, farming subsidies can be used to promote individual strategies the help protect the environment. For example, crop rotations and allowing land to lie fallow are strategies that are generally accepted as ways to improve soil health.[70]

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63. Leo Horrigan et al., *How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture*, 110 ENVTL. HEALTH PERSP. 445, 446 (2002), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240832/pdf/ehp0110-000445.pdf.

64. Cox & Faber, *supra* note 41.

65. Clark & Tilman, *supra* note 62, at 3.

66. *Id.* at 2.

67. Ken E. Giller et al., *Beyond Conservation Agriculture*, 6 FRONTIERS IN PLANT SCI. 1, 1 (2015), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4623198/pdf/fpls-06-00870.pdf.

68. Hossien Azadi et al., *Organic Agriculture and Sustainable Food Production System: Main Potentials*, 144 AGRIC., ECOSYSTEMS, & ENV'T 92, 92-93 (2011), https://ac.els-cdn.com/S0167880911002805/1-s2.0-S0167880911002805-main.pdf?_tid=515206c8-c192-11e7-9f43-00000aab0f6c&acdnat=1509822163_352f6bbfe69e56cacd76d66b7e3d7801.

69. *Compare* Horrigan et al., *supra* note 63 at 453 (describing conservation agriculture producing higher crop yields and maintaining soil health), *and* Azadi et al., *supra* note 68 (stating that organic agriculture provides more stable crop yields and lowers carbon emissions), *with* Clark & Tilman, *supra* note 62, at 4 (concluding that organic agriculture does not lower carbon emissions or acidification potential compared to more traditional farming methods) *and* Giller et al., *supra* note 67, at 9 (criticizing conservation agriculture for being too restrictive to work in different agricultural environments).

70. M.D. McDaniel et al., *Crop Rotation Complexity Regulates the Decomposition of High and Low Quality Residues*, 78 SOIL BIOLOGY AND BIOCHEMISTRY 243, 249 (2014).

2. Promoting New Technology that Mitigate Environmental Impacts

One strategy is to reward farmers for switching to technology that helps mitigate the environmental impacts of agricultural activities. Farmers could be rewarded through subsidizing a percentage of the cost of upgrading to this technology. Examples of technology that can mitigate environmental impacts include switching from flood irrigation mechanisms to other systems, like center pivots drip irrigation that helps conserve water.[71] Another water-conserving technology is Low-Energy Precision-Application Irrigation System (LEPA), which works by delivering low pressure water in an efficient way.[72] LEPA can also be modified to efficiently apply fertilizers and pesticides.[73] Other strategies can lessen nitrogen runoff, like matching the application of nitrogen to the nitrogen pattern of that crop or injecting the nitrogen into the ground.[74] Another option to reduce nitrogen runoff is controlled release fertilizers that have water-insoluble coatings preventing water-soluble nitrogen from dissolving.[75]

Another option is for Congress to contribute more funds to USDA programs for agriculture research. Currently, although the USDA has research funding, it is not a priority under the current faming subsidy scheme.[76] In the next 10 years, all mandatory USDA research funding will increase by only a billion dollars.[77] This additional funding should be dedicated to research that would lessen the environmental impact of farming or roll out existing technological advances to farmers.

3. Discouraging the Production of Corn

Another potential environmental protection strategy is to discourage the growth of corn. As a crop, corn uses more fertilizer and water than other crops that could be grown in the Midwest, like

71. *The Environmental Risks of Corn Production*, NAT'L PUB. RADIO (June 11, 2014), http://www.wbur.org/hereandnow/2014/06/11/corn-environmental-risks.

72. NAT'L RES. COUNCIL OF THE NAT'L ACADS. WATER IMPLICATIONS OF BIOFUELS PRODUCTION IN THE UNITED STATES at 41-42 (2008).

73. *Id.* at 42.

74. *Id.* at 40.

75. *Id.*

76. Funding for USDA research comes from the sixteen percent of discretionary spending and account for less than three percent of annual spending. U.S. DEP'T OF AGRICULTURE, BUDGET SUMMARY FISCAL YEAR 2019 at 1-2 (2015) https://www.usda.gov/sites/default/files/documents/usda-fy19-budget-summary.pdf.

77. 2014 FARM BILL, *supra* note 37, at 14.

wheat.[78] The current trend has been to plant more acres of corn instead of less. Between 2006 and 2011, over thirteen million new acres were added to the total acres growing corn in the United States.[79] There are over ninety-seven million acres used to grow corn, an area close to the size of California.[80]

Although corn has a very high yield compared to other crops, a small percentage of that yield reaches the American dinner plate.[81] Most corn is used for either biofuel (forty percent of corn production) or animal feed (thirty-six percent of corn production), and much of the corn that is left is exported to other countries.[82] The two most prevalent uses of corn are also very inefficient and energy intensive.[83]

However, limiting the amount of farming subsidies that are used on corn will have its own set of challenges. Placing different environmental requirements on farmers to get farming subsidies could work, but it might hurt smaller farmers, who do not have the funds to comply with new regulations. Smaller corn farms could also have a hard time adapting to growing other crops. Another issue Congress must address is the artificial demand for corn created by the Energy Act of 2005, which requires a certain percentage of all fuel come from ethanol.[84]

C. Promoting Small Farming Businesses

Farming subsidies can promote small farming businesses that could stimulate our economy and provide more farming jobs in places hurt by globalism. Under the current farming subsidy system, large farm owners reap a disproportionate amount of the financial benefits, especially in the realm of crop insurance. In 2011, of the eight hundred and seventy-five thousand farmers who benefit from crop insurance premium subsidies, almost four percent receive

78. Foley, *supra* note 55; *Agriculture in the Midwest,* U.S. DEP'T OF AGRIC.: CLIMATE HUBS (Oct. 19, 2017) https://www.climatehubs.oce.usda.gov/hubs/midwest/topic/agriculture-midwest.

79. *Id.*

80. *Id.*

81. As discussed previously, the comestible corn that reaches American consumers is mostly high-fructose syrup, not the vegetable itself or other healthy alternatives. *See* discussion, *supra* Section II A.

82. Foley, *supra* note 55.

83. James Conca, *It's Final – Corn Ethanol if of No Use*, FORBES (Apr. 20, 2014), https://www.forbes.com/sites/jamesconca/2014/04/20/its-final-corn-ethanol-is-of-no-use/#1b74df2667d3; *U.S. Could Feed 800 Million People with the Grain Livestock Eat Cornell Ecologist Advises Animal Scientists*, CORNELL CHRON. (Aug. 7, 1997), http://news.cornell.edu/stories/1997/08/us-could-feed-800-million-people-grain-livestock-eat.

84. 109 Pub. L. 58, Section 1501.

over thirty percent of the financial benefit.[85] From 1995 to 2010, around ten percent of the farmers received seventy-five percent of the farming subsidy benefits.[86] A different distribution of farming subsidy dollars could encourage small farming businesses.[87]

1. Crop Insurance Subsidy Reform

Reforming crop insurance subsidies to ensure a more equitable distribution of benefits could lead to savings that can stimulate small farming businesses. There are two main kinds of crop insurance policies: those that are production-based, and those that are revenue based.[88] Production-based policies compensate farmers if their production falls lower than their historical production levels, while a revenue-based policy protects against both fall of production or price.[89] The administrative overhead costs that the government covers and the crop insurance subsidies are both financial benefits to farmers because the subsidies help lower the cost to farmers directly, and the administrative overhead is typically priced into private insurance.[90]

In 2012, the Government Accountability Office (GAO) recommended that the USDA impose a forty thousand dollar[91] crop insurance subsidy limit per farmer to lower program costs.[92] Crop insurance premium subsidy costs have increased from an average of three and a half billion dollars[93] to eight and a half billion dollars[94] annually.[95] If the crop insurance subsidy limit was implemented earlier, the GAO estimates that savings in 2010 would have been up to three hundred and fifty-eight million dollars, and in 2011, that number would have increased to a billion dollars.[96]

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85. *Key Issues: Farm Programs*, U.S. GOV'T ACCOUNTABILITY OFF., https://www.gao.gov/key_issues/farm_programs/issue_summary (last visited Jan. 16, 2019).

86. Masterson, *supra* note 6.

87. *Last Week Tonight with John Oliver* (HBO television broadcast Sept. 24, 2017), https://www.hbo.com/last-week-tonight-with-john-oliver/2017 (pointing out that politicians often speak of promoting small businesses and claim that small businesses are the backbone of America).

88. *See* CROP INSURANCE SAVINGS, *supra* note 45, at 5.

89. *Id.*

90. *Id.*

91. GAO advocated for a $40,000 limit because that was the limit on direct payments at the time. *Id.* at 40.

92. *Id.*

93. Average annual cost from 2004 to 2008. *See* GAO, CROP INSURANCE REDUCING SUBSIDIES, *supra* note 38, at 1.

94. Average annual cost from 2009 to 2014. *See id.*

95. *Id.*

96. CROP INSURANCE SAVINGS, *supra* note 45, at 15.

This limit would also prevent a small number of farmers from obtaining a large share of premium subsidies and would only affect less than five percent of all farmers who rely on the program.[97] Only thirty-seven farmers received more than half a million dollars in premium subsidies, the largest of which was a farming corporation that received close to two million dollars in premium subsidies.[98] The GAO also advocated for a limit of forty thousand dollars per farmer in administrative costs, noting that this would almost double savings from a billion dollars to close to two billion dollars.[99]

According to data from the USDA, large farmers[100] are in a better position to pay higher premiums than smaller farms, as signaled by higher annual gross sales, higher return on equity, and higher ability to service debt.[101] The GAO suggested methods of self-insuring for large farms to compensate for the limit on premium subsidies, including marketing contracts, future contracts, crop diversification, liquid credit reserves, and private insurance.[102] This suggests that larger farms would continue to be profitable without the large amounts of crop insurance subsidies that they currently receive.

Congress considered placing limits on crop insurance subsidies when passing the 2014 Farm Bill.[103] The Senate version of the Farm Bill included a provision that would reduce crop insurance subsides by fifteen percent for participants who averaged three-quarter million dollars gross income over three years.[104] Congress debated this topic in 2012 and 2013 and considered the crop insurance reduction a "controversial" provision.[105] Many congressional members, particularly those in the agricultural committee, viewed the crop insurance subsidy program as the most important aspect of the farm safety net while other congressional members considered the program too generous.[106] The crop insurance reduction provision passed in the Senate but ultimately did not make it into the final version of the bill.[107]

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97. *Id.* at 35, 15.
98. *Id.* at 19.
99. *Id.* at 20.
100. Large farms are defined as those that gross over a million dollars a year. *Id.* at 21.
101. *Id.* at 21-22.
102. *Id.* at 22-23.
103. GAO, CROP INSURANCE REDUCING SUBSIDIES, *supra* note 38, at 8.
104. *Id.*
105. U.S. CONG. RES. SERV., CROP INSURANCE PROVISIONS IN THE 2014 FARM BILL (P.L. 113-79) at 11 (2014).
106. *Id.* at 3-4.
107. GAO, CROP INSURANCE REDUCING SUBSIDIES, *supra* note 38, at 8.

2. Funding Programs with Crop Insurance Reform Savings

The GAO projected that their recommended crop insurance subsidy reform could save up to a billion dollars a year.[108] Congress could invest these savings in small farming businesses. A potential program could provide low-interest loans to farmers trying to buy farms under a certain acreage or meet qualifications the USDA deems important. This could stimulate the amount of small farming businesses in the United States and the USDA could use this as an opportunity to experiment with different farming methods. Farms under this program would have to follow specifications sent out by the USDA and allow the USDA to collect measurements such as soil health, yield, and fertilizer and water consumption for the USDA to develop new farming techniques. These small farms could be the farming laboratories of America.

Another option is to use the crop insurance subsidy reform savings to provide grants for technology improvement for small farming businesses. Equipping smaller farms with better technology could make them more efficient and environmentally friendly. The USDA could implement this program by identifying useful technologies for small farming businesses and could have a streamlined application for these technologies. The USDA could have a second process where small farms petitioned for a grant for other technological innovations by explaining the merits of these technologies and how it would be implemented on their farm. This kind of program would both help small farming businesses and protect the environment.

IV. CONSIDERATION OF COUNTER ARGUMENTS

A majority of this paper concentrates on what kind of effects Congress can create by distributing farm subsidies in other ways, but so far, it has not considered the question of whether subsidies should exist at all. Some argue Congress should eliminate farming subsidies or that Congress should create change using other tools, not farming subsidies. However, these arguments do not provide good reasons for why Congress should eliminate farming subsidies or leave them unchanged.

A. Farming Subsidies Should Be Removed

Some argue that Congress should not redistribute farming subsidies but instead should eliminate farming subsidies.

108. *Id.* at 42.

Proponents of smaller government argue that instead of redistributing subsidies, the government should cut subsidies altogether, because they have a negative effect on the economy and are costly to tax payers.[109] Critics of Farm Bills, such as the Cato Institute's Chris Edwards, characterize this legislation as a "bipartisan pork barrel spending spree" that provides taxpayer dollars to well-off farmers.[110]

Another concern with farming subsidies are the ramifications they hold for foreign agricultural trade. When the World Trade Organization replaced the General Agreement on Tariffs and Trades (GATT), the WTO created stringent standards in the agriculture trade industry with the goal of reducing export subsidy competitions.[111] In 1995, the WTO passed the Agreement on Agriculture, with goals of limiting export subsidies, reducing tariffs and scaling back domestic policies that directly affect agricultural trade and production.[112] Spending on large farming subsidies brings negative attention to the United States in the international arena.[113]

Although farming subsidies raise questions as to why legislators support farming subsidies, pose a risk to trade, and provide examples of inefficient spending, Congress implemented farming subsidies for a good reason. Farming subsides were implemented to protect both the American people and farmers from the natural boom and bust cycle of markets.[114] However, even if removing farming subsidies would be better for these reasons, there does not seem to be political will to do this.

A good example of Congress attempting to eliminate farming subsidies is the "Freedom to Farm" Act, also known as the 1996 Farm Bill. The 1996 Farm Bill cut price support and stopped buying grains abruptly; Speaker of the House Newt Gingrich stated this was the first major step to phasing out farming subsidies completely.[115] However due to the Asian financial crisis in 1998, commodity prices dropped, putting pressure on Congress to provide financial support to farmers.[116] The 1996 Farm Bill ended up being one of the costliest Farm Bills to date.[117] It seems that the

109. Edwards, *supra* note 1.
110. Neuman, *supra* note 5.
111. Yen-Yen Gao, *supra* note 23.
112. *Id.*
113. *Id.*
114. *See What is the Farm Bill?*, NAT'L SUSTAINABLE AGRICULTURE COALITION, http://sustainableagriculture.net/our-work/campaigns/fbcampaign/what-is-the-farm-bill/.
115. Masterson, *supra* note 6.
116. Yen-Yen Gao, *supra* note 23.
117. Masterson, *supra* note 6

congressional will to do away with farming subsidies evaporates with any signs of instability in the agricultural market.

In addition, it is important to consider the nature of the 5-year renewal plan. By the time a Farm Bill starts creating savings in farming subsidies, a new Farm Bill could replace the old one and negate those savings. For example, the 2014 Farm Bill was supposed to create farming subsidy savings by eliminating direct payments, but CBO projections show that farming subsidies stayed the same because of the decline in crop prices.[118] Crop insurance favors farmers when the prices of crops fall.[119] Many expected prices to fall when the Congress was passing the 2014 Farm Bill because the prices of crops had been unusually high in those years.[120] When Congress drafts the next Farm Bill and crop prices rise, leading to less farming subsidies, Congress can change the way farming subsidy are distributed to provide more subsidies to farmers.

B. Farming Subsidies are too Remote to Create Change

Others would argue that changing the distribution of farming subsidies does not create enough of an impact in the three areas discussed in this note. Some would argue that instead of concentrating on changing the agricultural production of food, the focus should be on encouraging Americans to make different food choices. Making food choices such as eating more plants and less ruminant meat would significantly lower the environmental impacts of farming.[121]

In addition, the same products that are the most harmful to the environment (ruminant meats, corn products, etc.) are also the most harmful to our diet.[122] This means that by avoiding the food products that most hurt the environment, consumers would also be improving their diets; this would meet two of the three objectives set out by this note. As for promoting small farming business, the argument is that consumers could favor food products from smaller farms if they would like to support small businesses.

It is true that consumers can choose to follow principled approaches when purchasing food and the market would likely respond to these changes. A good example of this is the organic food

118. Charles, *supra* note 32.

119. *Id.*

120. *Id.*

121. Clark & Tilman, *supra* note 62, at 9.

122. *Risk in Red Meat?,* U.S. DEP'T OF HEALTH & HUMAN SERV.: NAT'L INST. OF HEALTH (Mar. 12, 2012) https://www.nih.gov/news-events/nih-research-matters/risk-red-meat*; Know your Limits with Added Sugar,* CTRS. FOR DISEASE CONTROL & PREVENTION (Sept. 9, 2016) https://www.cdc.gov/nutrition/data-statistics/know-your-limit-for-added-sugars.html.

industry. The organic food industry started to retail products three decades ago, and because of growing demand for organic products, these items are now found in three out of four conventional grocery stores in the United States.[123]

However, after three decades, organic products only account for four percent of United State food sales.[124] Waiting for consumers to care for these goals enough to change their food product choices can be too little too late. This is especially the case in issues involving environmental protection that are time sensitive and perceived as political. The government has the expertise and resources to encourage these policies of national interest to develop more quickly than if we allow consumers to make these choices with no help. The idea that consumers can affect change through food choice also assumes that consumers are free to make these choices. As stated earlier, consumers might not have access to the education or money needed to make these choices every time they go to the grocery store.[125]

V. OTHER CONSIDERATIONS

This note outlines three federal policy goals and different strategies that Congress could use to achieve these goals. However, many of these strategies could conflict with each other or support one goal while undermining another. For example, larger farms with more capital are more likely to afford technologies that are more environmentally friendly than small farms. At the same time, studies show that large industrial farms are worse for the environment.[126] In some scenarios, providing environmentally friendly technology to larger industrial farmers could be less beneficial than providing it to smaller farmers. This shows that applying these strategies would require more thought to not only individual strategies, but also how these strategies would function together.

Congress can apply some of these strategies by themselves and create an immediate positive impact. Of the strategies proposed in this note, the one that would provide the largest immediate impact is reforming the crop insurance subsidy program, which could lead

123. *Organic Market Overview,* U.S. DEP'T OF AGRIC., ECON. RESEARCH SERV., https://www.ers.usda.gov/topics/natural-resources-environment/organic-agriculture/organic-market-overview.aspx (last visited Jan. 16, 2019).

124. *Id.*

125. *See supra* Section II A.

126. *See generally Hidden Costs of Industrial Agriculture*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/food_and_agriculture/our-failing-food-system/industrial-agriculture/hidden-costs-of-industrial.html#.Wh-WpEqnGUk (last visited Jan. 16, 2019).

to over a billion dollars in savings annually.[127] The savings could be used to further any of the three policy goals mentioned in this note.[128] Another strategy that could be very effective on its own is to cut subsidies given to corn. Cutting subsidies to corn would help achieve both the policy goal of protecting the environment and encouraging a healthier diet. The benefits of subsidizing corn do not outweigh the detrimental effects.[129]

Some of the other strategies mentioned in the note would work better as a part of a comprehensive strategy. For example, subsidizing healthier crops over traditional crops could accomplish its goal more effectively if used within a comprehensive plan. Congress could use this strategy in conjunction with SNAP reform, nutritional education campaigns, and nutritional research grants. Subsidizing healthier crops could be a piece of an effective framework although it does not function as a stand-alone strategy. This is also true for the strategy of subsidizing environmentally friendly technology.

VI. CONCLUSION

The United States government is spending over twenty billion tax dollars annually on farming subsidies.[130] There is no consensus on how beneficial these programs are or who they benefit. Part of this could be because the federal government conceived the 1933 Agricultural Adjustment Act as a stopgap measure to protect farmers and as one piece of a broader legislative plan outlined by the New Deal. Although current farming subsidies have some positive effects like stabilizing crop prices, they also have negative impacts like encouraging environmentally problematic practices and the growth of crops that are not feeding Americans.[131]

Distributing farming subsidies in a different way could provide more benefits to the American people than the farming subsidy scheme currently in place. Some of the policy goals and strategies work together, but others conflict. Of the strategies discussed in this note, the two most beneficial would be to reform crop insurance subsidy and to discourage the production of corn. Congress can use other strategies mentioned within larger plans to accomplish policy goals.

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127. GAO, CROP INSURANCE REDUCING SUBSIDIES, *supra* note 38, at 42.

128. *See supra* Sect. II A–C.

129. *See* Foley, *supra* note 55.

130. Edwards, *supra* note 1.

131. This is an especially important issue with the growing global population and the projected food shortage as food supply does not keep up with demand.

Whether Congress decides to encourage one of the policy goals articulated within this note or it decides to follow a different agenda, Congress can make farming more efficient. Congress should critically evaluate and pass a Farm Bill that makes better use of the twenty billion dollars currently spent on farming subsidies.