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Bird Take—Death Trade

*Michael J. Lockman**

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I.

INTRODUCTION

Each year in the United States, humans kill around one billion birds. The causes are diverse: collisions with buildings, communication towers, wind turbines, airplanes, and vehicles; hunting and poaching; electrocution on power lines; drowning in oil pits; poisoning by pesticides; scalding by solar flux; incineration in gas flares. As of 2016, more than one-third of North American bird species have shown signs of mass decline.¹ Conservation efforts have been underway since the late 1800s: as Justice Holmes pointed out, bird conservation is a “national interest of very nearly the first magnitude.”²

The Migratory Bird Treaty Act (MBTA) protects 1,027 bird species—the vast majority of native birds in the United States and its territories—by criminalizing the taking, killing, or selling of any migratory bird or bird part.³ Beginning in the 1960s, the Fish and Wildlife Service (FWS) began prosecuting industrial firms for

1. *The State of North America's Birds*, THE STATE OF N. AM.'S BIRDS 2016 (N. Am. Bird Conservation Initiative, Ottawa, Can.), May 14, 2016, at 2, <http://www.stateofthebirds.org/2016/wp-content/uploads/2016/05/SoNAB-ENGLISH-web.pdf>. See also John Faaborg, *Saving Migrant Birds: Developing Strategies for the Future* 1–11 (2002) (compiling bird population surveys); *America's Bird Habitats*, STATEOFTHEBIRDS.ORG, <http://www.stateofthebirds.org/2014/habitats> (last visited Oct. 26, 2016).

2. *Missouri v. Holland*, 252 U.S. 416, 435 (1920).

3. Migratory Bird Treaty Act of 1918, 16 U.S.C. §§ 703–711 (2006).

“incidental take,” the unintentional taking or killing of migratory birds. Incidental take is a negative externality of industry: firms kill birds—a natural resource shared by all—and do not compensate for their loss. A split in authority consequently arose on whether the strict liability misdemeanor of the MBTA criminalizes such unintentional killings. In response to concerns of incidental take, the FWS is now in a rulemaking process, by which it hopes to establish an incidental-take permit program, allowing firms to purchase take permits, compensate the FWS for estimated bird take, and evade or at least minimize the risk of prosecution.

While the incidental-take circuit split has already received scholarly attention elsewhere, this Article tackles a larger conservation question, drawing on scholarship in the fields of emissions trading and conservation banking. This Article proposes two alternative market-based solutions to the menace of incidental take. First, the Bird Tax: a Pigouvian tax that seeks to correct the inefficient market outcome that results in uncompensated industrial and nonindustrial incidental take. Second, the North American Bird Market: a trilateral initiative building upon decades of successful environmental cooperation between Canada, the United States, and Mexico. By incentivizing clean energy, requiring industry to internalize its bird take, and promoting habitat restoration, the Bird Market is an efficient and clean theoretical solution to the menace of incidental take and the looming threat to our continent’s shared birdscape.

In contrast to a comprehensive, upstream Bird Tax that targets both industrial and *nonindustrial* incidental take, the Bird Market would entail potentially restrictive financial and logistical costs due to its limited focus on the regulation of *industrial* take. As such, it is possible that the Bird Market is a mere flight of fancy—a thought experiment whose doom radiates from its very core—and nothing more. Despite these challenges, this Article’s presentation of the Market serves three other purposes. First, the Market serves as a vehicle to expose the sobering truth that the MBTA and incidental-take prosecutions are an expressive, but ultimately fruitless conservation mechanism. Second, the Market is an investigation of how to quantify and trade death with the goal of conserving life. Finally, the exposition of the Market and the critique of the MBTA is an attempt to tightrope walk the

seemingly unbridgeable legal-analytical rift between the ritualized law and economics of Ronald Coase,⁴ and the touchy-feely-throw-your-hands-up-in-the-air neorealism of Arthur Allan Leff.⁵ Ultimately, because incidental *industrial* take is only a minor anthropogenic stressor, the Market will fail to achieve meaningful conservation goals for the same reasons that incidental-take prosecutions under the MBTA fail to achieve these goals. August 2016 marked the centennial of the first migratory bird treaty with Canada. One hundred years have passed, and this Article calls upon Congress to abandon its ancient conservation precepts and supplement our treaties and the MBTA with a meaningful international habitat-restoration program.

II.

THE ACT

Armed with the foolish assumption that our nation's wildlife resources were infinite, the hunters and trappers of the 19th century drove various native birds and mammals into extinction or near-extinction.⁶ Beginning in the late 19th century, grassroots Audubon Clubs led the earliest conservationist efforts to protect our nation's wildlife, resulting in the Lacey Act of 1900,⁷ which criminalized the interstate transportation of poached animals.⁸ Bird populations nonetheless suffered rampant decreases due to habitat destruction and hunting. Congress responded to this plight by enacting the Weeks-McLean Migratory Bird Act in 1913, which criminalized the killing of any birds except in accordance with regulations promulgated by the Secretary of Agriculture.⁹

4. Ronald Coase's *The Problem of Social Cost* is rightly celebrated as the intellectual genesis of emissions-trading schemes. See Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

5. See Arthur Allan Leff, *Unspeakable Ethics, Unnatural Law*, 1979 DUKE L.J. 1229, 1249 ("All I can say is this: it looks as if we are all we have.").

6. See George Cameron Coggins & Sebastian T. Patti, *The Resurrection and Expansion of the Migratory Bird Treaty Act*, 50 U. COLO. L. REV. 165, 167-68 (1979).

7. Lacey Act of 1900, 16 U.S.C. §§ 667e, 701 (1976) and 18 U.S.C. §§ 42-44 (1976).

8. Coggins & Patti, *supra* note 6, at 168.

9. Act of March 4, 1913, Pub. L. No. 62-430, ch. 145, 37 Stat. 828, 847.

However, this precursor to the MBTA was ruled unconstitutional by several district courts as a violation of Congress's commerce power.¹⁰ Fearful that the Supreme Court would find the Act unconstitutional, conservationists aided by Senator Elihu Root lobbied President Woodrow Wilson to sign a treaty to strengthen the Act's constitutionality.¹¹ Accordingly, the President signed the Treaty between the United States and Great Britain (on behalf of Canada) for the protection of migratory birds.¹² The MBTA is the resulting implementing legislation, which the Supreme Court later found to be a constitutional exercise of the federal government's treaty power.¹³ Over the course of the next six decades, the United States entered into three similar treaties to protect migratory birds: with Mexico in 1936,¹⁴ with Japan in 1972,¹⁵ and with the Soviet Union in 1976.¹⁶

10. See *United States v. McCullagh*, 221 F. 288, 295–96 (D. Kan. 1915); *United States v. Shauver*, 214 F. 154, 160 (E.D. Ark. 1914).

11. See Gregory Dehler, *Missouri v. Holland: Migratory Bird Treaty and Its Impact on the Midwest*, in *THE AMERICAN MIDWEST: AN INTERPRETATIVE ENCYCLOPEDIA* 1594 (Andrew R.L. Cayton, Richard Sisson, & Chris Zachner eds., 2006).

12. Convention Between the United States and Great Britain for the Protection of Migratory Birds, Gr. Brit.-U.S., Aug. 16, 1916, 39 Stat. 1702 (assuring the preservation of species harmless or beneficial to man, and prohibiting the killing of insectivorous birds).

13. *Missouri v. Holland*, 252 U.S. 416 (1920). In the District Court, Judge Van Valkenburgh analogized the constitutionality of the MBTA to acts regulating fisheries:

The movements of all these forms of life may be computed almost with mathematical precision. . . . Their movements are dictated by neither whim nor caprice, but are impelled by an instinct, which inheres in the law of their being. If this be true, what distinction can we draw between the fish, which swims through one of the great natural elements, and the bird, which flies through another?

United States v. Samples, 258 F. 479, 484 (W.D. Mo. 1919).

14. Convention between the United States of America and the United Mexican States for the Protection of Migratory Birds and Game Mammals, MX.-U.S., Feb. 7, 1936, 50 Stat. 1311 (providing for enactment of laws and regulations to protect birds by establishing closed seasons and refuge zones).

15. Convention between the Government of the United States of America and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction, and their Environment, JP.-U.S., Mar. 4, 1972, 25 U.S.T. 3329 (providing for protection of species that migrate between the two countries through enhancement of habitat, exchange of research data, and regulation of hunting).

16. Convention between the United States of America and the Union of

The MBTA protects 1,027 distinct bird species,¹⁷ by criminalizing the taking or killing of protected birds with a variety of exceptions related to hunting, farming, and scientific research.¹⁸ Currently, 8 percent of the species protected under the MBTA (seventy-four) are also listed as threatened or endangered under the Endangered Species Act (ESA), and an additional 25 percent are designated as Birds of Conservation Concern.¹⁹ The MBTA defines both felony and misdemeanor violations. The felony provision criminalizes *knowingly* selling or bartering migratory birds.²⁰ In contrast, the misdemeanor penalty is a strict liability crime²¹:

“[I]t shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or

Soviet Socialist Republics Concerning the Conservation of Migratory Birds and their Environment, U.S.S.R.-U.S., Nov. 19, 1976, 92 Stat. 3110 (providing for the protection of bird species that occur in either country and “have common flyways, breeding, wintering, feeding or moulting areas.”).

17. See General Provisions; Revised List of Migratory Birds, 78 Fed. Reg. 65,844 (Nov. 1, 2013) (to be codified at 50 C.F.R. pts. 10 and 21). There are approximately 914 bird species in the fifty states. The MBTA protects an even higher number of birds due to the inclusion of numerous bird species in U.S. Territories, such as those occurring in Puerto Rico, Guam, the Northern Mariana Islands, American Samoa, as well as the U.S. Minor Outlying Islands. The MBTA does not protect nonnative species, invasive birds, and others, *e.g.*, the House Sparrow, the European starling, and the common Rock Pigeon.

18. See 16 U.S.C. § 704(a) (2012).

19. The Birds of Conservation Concern project is the FWS implementation to the 1988 amendment to the Fish and Wildlife Conservation Act, which requires the FWS to “identify species, subspecies, and populations of all migratory birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973.” 16 U.S.C. § 2912(a)(3) (2012). See also *Species Search*, U.S. FISH AND WILDLIFE SERVICE, http://ecos.fws.gov/tess_public/pub/SpeciesReport.do?groups=B&listingType=L&mapstatus=1.

20. 16 U.S.C. § 707(b) (2012).

21. 16 U.S.C. § 707(a) (2012).

not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest, or egg thereof.”²²

The statute further defines the prohibited act of “take” as “pursue, hunt, shoot, wound, kill, trap, capture, or collect.”²³ The misdemeanor violation is punishable by a \$15,000 fine, six-month imprisonment, or both.²⁴

On one of his last days in office, President Bill Clinton heralded a century of bird conservation by urging courts to recognize that the MBTA criminalizes incidental take, and by outlining enforcement priorities to meet treaty obligations.²⁵ To this end, he commanded agencies to monitor and promote research on bird habitat and populations. Agencies should “support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities” and “restore and enhance the habitat of migratory birds, as practicable.”²⁶ The Bird Tax and the Bird Market are conceived as an implementation of Clinton’s vision: a market-based integration of conservation principles that would serve not only to reduce incidental take, but also restore and enhance bird habitat.

Clinton described the value of birds, noting how they “bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds.”²⁷ While this is true, migratory birds bring far greater tangible benefits than mere enjoyment. In order to assess the benefits that migratory birds bring to humanity, one must distinguish between the benefits of a rich total bird population, and the benefits of species diversity, including the protection of endangered species.

First, fundamental values are at stake in maintaining the total demographics of the overall migratory bird population. Beyond their role in the forty billion dollar birder market,²⁸

22. 16 U.S.C. § 703(a) (2012).

23. 16 U.S.C. § 715(n) (2012).

24. 16 U.S.C. § 707(a) (2012).

25. Exec. Order No. 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, 66 Fed. Reg. 3853 (Jan. 17, 2001).

26. *Id.* at 3854.

27. *Id.* at 3853.

28. Audubon Society & Nat. Res. Def. Council, Public Comment, *Re-*

migratory birds are essential life-giving members of the continental ecosystem. They control pest insects by consuming 100,000 metric tons of invertebrates each day, saving billions of dollars in disease, pest, and insect mitigation costs.²⁹ Even one hundred years ago, Congress understood this essential agricultural role of migratory birds.³⁰ Further, our continent's billions of migratory birds provide essential large-scale "ecosystem services," such as tree and plant pollination as well as nutrient cycling.³¹ This is why ecologists frequently use the richness of migratory bird populations as a key indicator of ecosystem health. Given their indispensable role in plant pollination and pest control, migratory birds are necessary for the air we breathe, for the food we eat, and, ultimately, for the long-term viability of our oft hapless human civilization.³²

Second, the protection of avian species diversity also brings

Incidental Take of Migratory Birds Docket No. FWS-HQ-MB-2014-0067 *9 (July 27, 2015). Forty-seven million birders spent approximately \$40 billion in 2011 on birding supplies and expenditures. U.S. FISH AND WILDLIFE SERVICE, REPORT 2011-1, BIRDING IN THE UNITED STATES: A DEMOGRAPHIC AND ECONOMIC ANALYSIS: ADDENDUM TO THE 2011 NATIONAL SURVEY OF FISHING, HUNTING AND WILDLIFE RECREATION (2003).

29. See Partners in Flight, *Conservando a Nuestras Aves Compartidas: La Vision Trinacional de Companeros en Vuelo para la Conversacion de las Aves Terrestres* 6 (2010), http://www.savingoursharedbirds.org/final_reports_pdfs/PIF2010%20Spanish%20FINAL_small.pdf.

30. See 56 CONG. REC. 7362 (June 4, 1918) (statement of Rep. Stedman) ("[L]et the boll weevil go to rest amidst the happy hunting grounds of his fathers in that great and splendid region of our land where he first saw the light. Let his onward march of destruction be halted forever."); 55 CONG. REC. 4816 (July 9, 1917) (Statement of Sen. Smith) ("Enough birds will keep every insect off of every tree in America, and if you will quit shooting them they will do it.")

31. See Robert L. Fischman & Jeffrey B. Hyman, *The Legal Challenge of Protecting Animal Migrations as Phenomena of Abundance*, 28 VA. ENVTL. L.J. 173, 176 (2010). See also Heather L. Reynolds & Keith Clay, *Migratory Species and Ecological Processes*, 41 ENVTL. L. 371, 374 (2011).

32. A grim reminder of this is Mao Zedong's 1958 Great Sparrow Campaign to eradicate sparrows, who were thought to be eating much of the grain on farms. After the sparrow population plummeted, locust populations became unmanageable and famine ensued. An estimated 15–78 million humans starved to death. See John Platt, *The Great Sparrow Campaign Was the Start of the Greatest Mass Starvation in History*, MOTHER NATURE NETWORK (Sept. 30, 2013), <http://www.mnn.com/earth-matters/animals/stories/the-great-sparrow-campaign-was-the-start-of-the-greatest-mass>.

distinct economic benefits. First, the extinction or endangerment of a single species could cause serious, irreversible, and unexpected damage to its ecosystem. The economic consequences of such an extinction or endangerment are inevitably unpredictable. Second, preserving biodiversity permits the potential use of species in unknown future pharmaceutical or other scientific applications.³³ Even if only a few species have such important and irreplaceable future commercial uses, it would be foolish to fail to conserve these exhaustible public resources.³⁴ Aldo Leopold wrote of this in no uncertain terms:

“The last word in ignorance is the man who says of an animal or plant: ‘What good is it?’ If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.”³⁵

Furthermore, biodiversity brings other anthropocentric benefits based on aesthetic, moral, spiritual, or cultural values. Although such benefits are not easily quantifiable, they are no less real than the economic benefits. These include, for example, the recreational enjoyment of biodiversity, the aesthetic and cultural treasuring of our national and global biodiversity, and the belief held by most Americans that destroying species must be avoided “because God put them on this earth.”³⁶

33. See William M. Flevaris, Note, *Ecosystems, Economics, and Ethics: Protecting Biological Diversity at Home and Abroad*, 65 S. CAL. L. REV. 2039, 2042 (1992).

34. *Id.* at 2043 (“Although only a small percentage of species will ever be of economic use to humans, we have yet to find a way to utilize many that have such potential. Consequently, because we do not know how ecosystems will be affected by the loss of species, we must act to protect ecosystems as a means of safeguarding the collective biological diversity from which we all benefit.”).

35. ALDO LEOPOLD, *The Round River*, in A SAND COUNTY ALMANAC 188, 190 (Oxford Univ. Press ed. 1966) (1953).

36. See Mark Sagoff, *Muddle or Muddle Through? Taking Jurisprudence Meets the Endangered Species Act*, 38 WM. & MARY L. REV. 825, 987 (1997) (“[D]ivine creation is the closest concept American culture provides to express the sacredness of nature.”) (quoting WILLETT KEMPTON ET AL., ENVIRONMENTAL VALUES IN AMERICAN CULTURE 92 (1995)).

III.

INCIDENTAL TAKE

This Part begins by describing the incidental-take circuit split. Section B presents the FWS proposals to implement an incidental-take permit program in 2017. Section C explores data on bird mortality and discusses MBTA enforcement and prosecution. It then critiques current enforcement under the MBTA as well as the FWS proposal, concluding that neither is well-suited to achieve conservation goals.

A. *The Circuit Split*

Incidental take by industry has increased to about forty million birds per year in the United States.³⁷ Starting in the 1960s, the FWS responded with MBTA prosecutions against industrial actors whose activities unintentionally caused the deaths of protected birds.³⁸ The Fifth Circuit and several district courts have held—and the Eighth and Ninth Circuits may have suggested—that the MBTA does not criminalize such incidental, unintentional take. On the other hand, the Second and Tenth Circuits, and a number of district courts, have found corporations liable under the MBTA’s misdemeanor provisions. This circuit split has been the subject of extensive commentary.³⁹

37. See *infra* Part II.C.1.

38. Scott W. Brunner, *The Prosecutor’s Vulture: Inconsistent MBTA Prosecution, Its Clash with Wind Farms, and How to Fix It*, 3 SEATTLE J. ENVTL. L. 1, 13–14 (2013).

39. See generally Julie Lurman, *Agencies in Limbo: Migratory Birds and Incidental Take by Federal Agencies*, 23 J. LAND USE & ENVTL. L. 39 (2007); Larry Martin Corcoran, *Migratory Bird Treaty Act: Strict Liability for Non-Hunting*, 77 DENV. U. L. REV. 315 (1999); Larry Martin Corcoran & Elinor Colbourn, *Shocked, Crushed and Poisoned: Criminal Enforcement in Non-Hunting Cases Under the Migratory Bird Treaties*, 77 DENV. U. L. REV. 359 (1999); Alexander K. Obrecht, *Migrating Towards an Incidental Take Permit Program: Overhauling the Migratory Bird Treaty Act to Comport with Modern Industrial Operations*, 54 NAT. RES. J. 107 (2014); Andrew G. Ogden, *Dying for a Solution: Incidental Taking Under the Migratory Bird Treaty Act*, 38 WM. & MARY ENVTL. L. & POL’Y REV. 1 (2013); Kalyani Robbins, *Paved with Good Intentions: The Fate of Strict Liability under the Migratory Bird Treaty Act*, 42 ENVTL. L. 579 (2012); Rachel Abramson, Comment, *The Migratory Bird Treaty Act’s Limited Wingspan and Alternatives to the Statute: Protecting the*

Because this Article’s focus lies beyond mere resolution of this circuit split, this section presents only a summary of the arguments on both sides.

1. No Liability

The Fifth Circuit and some district courts have held—and the Eighth and Ninth Circuits may have suggested—that the MBTA does not criminalize incidental take. In *United States v. CITGO Petroleum Corp.*, the Fifth Circuit established the most restrictive view to date in holding that “take” under the MBTA misdemeanor is “limited to deliberate acts done directly and intentionally to migratory birds.”⁴⁰ The court reversed the MBTA convictions of an oil refinery firm that incidentally killed birds that landed and drowned in its open-air oil tanks. The court premised its holding on three rationales. First, after noting the textual ambiguity, the court looked to the origins of the word “take” both at common law and in Roman imperial law, concluding that “take” was synonymous with actively “reduc[ing] an animal to human control.”⁴¹ Second, while admitting that the misdemeanor was a strict liability crime, the court noted that “take” does not concern the applicable *mens rea* of a defendant, but rather its *actus reus*, and that an affirmative act—as opposed to passively maintaining open-air oil tanks—is required to “take” a bird.⁴² Finally, the court cautioned that liability for incidental take would be overinclusive by permitting the prosecution of all owners of windows, cars, and even cats, who incidentally “take” birds.⁴³ An earlier case from the Southern

Ecosystem Without Crippling Communication Tower Development, 12 FORDHAM ENVTL. L.J. 253 (2000); Alex Arensberg, Note, *Are Migratory Birds Extending Environmental Criminal Liability?*, 38 ECOLOGY L.Q. 427 (2011); Ashley R. Fiest, Comment, *Defining the Wingspan of the Migratory Bird Treaty Act*, 47 AKRON L. REV. 587 (2014); Tyson Lies, Note, *Strict Liability Is for the Birds: A Comparison of Take Under the MBTA and ESA*, 43 TEX. ENVTL. L.J. 197 (2013); Kristina Nadasdy, Note, *Killing Two Birds with One Stone: How an Incidental Take Permit Program Under the MBTA Can Help Companies and Migratory Birds*, 41 B.C. ENVTL. AFF. L. REV. 167 (2014).

40. *United States v. CITGO Petroleum Corp.*, 801 F.3d 477, 489 (5th Cir. 2015).

41. *Id.* at 489.

42. *Id.* at 492.

43. *Id.* at 494.

District of Indiana also explored this question of overinclusiveness.⁴⁴ That court noted the absurdity of incidental take liability, whereby the MBTA would “impose criminal liability on a person for the death of a bird under circumstances where no criminal liability would be imposed for the death of another *person*.”⁴⁵ The court also rejected the claim that it is appropriate to rely on prosecutorial discretion to temper the breadth of the MBTA, preferring instead to limit the Act itself.⁴⁶

The *CITGO* court mischaracterized and relied on case law of the Eighth and Ninth Circuits.⁴⁷ Those two cases were inapposite, as they did not concern prosecutions of industrial firms that incidentally took birds. Rather, they were public-interest actions brought against the United States Forest Service to enjoin the sale of lands to logging companies. The plaintiffs argued that the land sales would lead to bird take due to habitat destruction. In rejecting this claim, the courts found that “take” describes “physical conduct of the sort engaged in by hunters and poachers,” noting that the MBTA “make[s] no mention of habitat modification or destruction.”⁴⁸ Because the Eighth and Ninth Circuits were not examining industrial incidental take when they held that “take” does not cover habitat destruction, it is not clear how they would interpret incidental industrial take in a future case.⁴⁹

44. See *Mahler v. U.S. Forest Serv.*, 927 F. Supp. 1559 (S.D. Ind. 1996); *Citizens Interested in Bull Run, Inc. v. Edrington*, 781 F. Supp. 1502, 1510 (D. Or. 1991).

45. *Mahler*, 927 F. Supp. at 1577–78.

46. *Id.* at 1582–83.

47. *Seattle Audubon Soc’y v. Evans*, 952 F.2d 297 (9th Cir. 1991); *Newton County Wildlife Ass’n v. U.S. Forest Serv.*, 113 F.3d 110 (8th Cir. 1997).

48. *Seattle*, 952 F.2d at 302; *Newton*, 113 F.3d at 115 (citing *Seattle*, 952 F.2d at 302).

49. For further analysis of take liability by one Canadian authority, see *Regina v. Ojibwe* [1965] 8 CRIM. L. Q. 137 (Blue, J.) (upholding the conviction of a defendant under the Small Birds Act for shooting a pony that was saddled with a pillow, because the Act defined a “bird” as an animal covered with feathers, and remarking—in dicta—that “[s]tatutory interpretation has forced many a horse to eat birdseed for the rest of its life.”).

2. Liability

The Second and Tenth Circuits and a number of district courts have come to the opposite conclusion, holding corporations liable for their industrial incidental take. The Second Circuit was the first to reach this decision in the late 1970s when it affirmed a judgment against a pesticide manufacturer, whose toxins had drained to a nearby pond, killing the resident birds.⁵⁰ The court analogized to the strict tort liability rule of *Rylands v. Fletcher*, under which a landowner is liable for the damage caused by the escape of a substance that he brings onto his land, when he knows that the substance will likely cause damage if it escapes.⁵¹

In *U.S. v. Moon Lake Electric*, the District of Colorado expanded incidental-take liability on four premises adopted by later courts.⁵² First, “take” is textually distinct from the other acts prohibited by the MBTA, and thus not limited to the activities of hunters and poachers.⁵³ Second, the MBTA’s legislative history shows that it was intended to cover more than just hunting and poaching because the Act protects not just game birds, but also “nongame” and “insectivorous” birds.⁵⁴ Third, the Supreme Court had recently found that “harm” in the ESA includes indirect as well as direct injuries, and noted in dicta that “take” does not require direct application of force.⁵⁵ Finally, the concern of overbroad liability is tempered by the limiting principle of proximate cause. For example, driving a car, owning a home with windows, or owning a cat will not result in liability, because “the death of a protected bird is generally not a probable consequence” of such activities.⁵⁶

50. *United States v. FMC Corp.*, 572 F.2d 902, 904–05 (2d Cir. 1978).

51. *Id.* at 907 (citing *Rylands v. Fletcher*, L.R. 1 Ex. 265, 279 (1866)).

52. *United States v. Moon Lake Elec. Ass’n, Inc.*, 45 F. Supp. 2d 1070 (D. Colo. 1999).

53. *Id.* at 1074–75.

54. *Id.* at 1080–82. *See also* 56 CONG. REC. 7453 (1918) (statement of Rep. Green: “What are the enemies of insectivorous birds? These hunters gentlemen have been talking about? Who hunts insectivorous birds? Not anybody in my State or elsewhere hunts insectivorous birds.”).

55. *Babbitt v. Sweet Home Chapter of Communities for a Great Or.*, 515 U.S. 687, 697–98, 701 (1995).

56. *Moon Lake*, 45 F. Supp. at 1085.

The Tenth Circuit expanded the *Moon Lake* proximate cause analysis with a limiting principle based on due process.⁵⁷ The crux of due process in the context of criminal statutes, whether framed as a constraint on causation or mental state, is foreseeability.⁵⁸ Under this framework, proximate cause exists in an incidental-take case only where the defendant likely knew that his actions might result in an MBTA violation.⁵⁹ Though industrial actors are expected to be well-informed of the environmental law liabilities relating to their hazardous activities, the average cat owner, homeowner, or peripatetic motorist cannot foresee that his activities would likely result in a legally prohibited effect on birds. Here “the statute reaches its constitutional breaking point.”⁶⁰

B. *The FWS Proposals*

After oral arguments in *CITGO*, the FWS began a rulemaking process and announced a programmatic evaluation of an incidental-take permit program,⁶¹ modeled in part on a similar proposed regulatory initiative in Canada⁶² and in part on the existing incidental-take permit program under the ESA.⁶³ The FWS hereby acknowledged its “longstanding position” that the

57. *United States v. Apollo Energies, Inc.*, 611 F.3d 679, 689–90 (10th Cir. 2010).

58. *Id.* at 690 (citing *Lambert v. California*, 355 U.S. 225 (1957) (constraint on causation), *Robinson v. California*, 370 U.S. 660 (1962) (constraint on causation), *United States v. Int’l Minerals & Chem. Corp.*, 402 U.S. 558 (1971) (constraint on mental state)).

59. *See, e.g.*, *United States v. Corbin Farm Serv.*, 444 F. Supp. 510, 536 (E.D. Cal. 1978) (“When dealing with pesticides [in an incidental take case], the public is put on notice that it should exercise care to prevent injury to the environment and to other persons; a requirement of reasonable care under the circumstances of this case does not offend the Constitution.”).

60. *Apollo Energies, Inc.*, 611 F.3d at 690.

61. *See* Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. 30032 (proposed May 26, 2015) (to be codified at 50 C.F.R. Pt. 21).

62. *See* Ecojustice Can., Abandonment of the *Migratory Birds Convention Act* Incidental Take Regulatory Initiative, Response to Environmental Petition No. 311 (June 17, 2011), http://www.oag-bvg.gc.ca/internet/English/pet_311_e_35723.html.

63. *See* 50 C.F.R. § 402.02 (1975); 16 U.S.C. § 1536(o) (1986).

MBTA creates liability for incidental take, contrary to the positions taken by the Fifth Circuit and the Southern District of Indiana.⁶⁴ To that extent, the permit program will presumably be accompanied by an agency regulation declaring that the MBTA includes incidental take, and thereby resolving the circuit split insofar as courts will subsequently defer to the agency's statutory interpretation.⁶⁵

While the FWS acknowledges that incidental-take authorization will not alone suffice to address national bird conservation needs, it hopes that such a program will “provide a framework to reduce existing human-caused mortality of birds.”⁶⁶ Importantly, the FWS notes that under such an incidental-permit system, it would neither expect every person or business that incidentally takes birds to obtain a permit, nor would the FWS expand its currently limited enforcement activities. Rather, enforcement will continue to be focused on industries that “chronically kill birds” even after notification of take issues and collaboration on voluntary take-mitigation measures.⁶⁷ The FWS is considering three courses of action, with the hope of having a rule come into effect by 2017.

1. No Action

The fallback to the FWS plan is to simply provide voluntary guidance to industry actors, continue development of voluntary guidelines, and encourage compliance.⁶⁸ It would remain entirely discretionary if and when Best Management Practices are followed. Yet because any residual take would remain illegal, FWS would not be able to accept any compensation from industry actors for their voluntary compliance in exchange for regulatory assurances of nonprosecution.⁶⁹

64. Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. at 30034.

65. *See* Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842–43 (1984).

66. Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. at 30033.

67. *Id.* at 30034.

68. *Id.* at 30035.

69. U.S. Fish and Wildlife Serv., *Incidental Take Webinar* (Sept. 14, 2015),

2. General Conditional Permitting

General conditional authorization for hazards with bird-safe solutions would permit incidental take by certain types of firms that comply with take-mitigation standards.⁷⁰ Such authorization would be offered only to members of those industries that “consistently take birds” and for which there exists “substantial knowledge about [mitigation] measures.”⁷¹ The FWS would thus supplement this proposal with bird-safe standards for a number of industries, which the FWS has initially limited to oil, gas and wastewater disposal pits; methane and other gas burner pipes; communication towers; and electric transmission and distribution lines. To receive authorization, a firm must show 100 percent compliance, but may receive authorization if partial compliance is offset by compensating FWS with a variable fee.⁷²

3. Individual Permitting

Individual permitting may supplement the general condition authorization option, whereby the FWS would issue individual incidental take permits for projects and activities that are not otherwise covered under a general authorization.⁷³ For example, this could include a fishery project involving a new technology with high projected take volumes. Permits would require a preliminary NEPA analysis, and there would be individually determined mitigation requirements. The drawback to this proposal is the administrative burden on both sides of the permitting process.

<http://www.fws.gov/birds/policies-and-regulations/incidental-take.php>.

Beginning in 2007, Canadian environmental authorities considered a permit program in response to incidental take, whereby permits would be issued to logging, mining, pipeline, and agriculture firms with the goal of large-scale population conservation. In 2010, Environment and Climate Change Canada abandoned this proposal, citing limited departmental resources, and instead opted to continue to develop voluntary guidelines. The FWS’s fallback option would thus mirror Canada’s 2010 inaction. *See* Ecojustice Can., *supra* note 62.

70. *See* Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. at 30035.

71. *Id.*

72. U.S. Fish and Wildlife Serv., *supra* note 69.

73. *See* Migratory Bird Permits; Programmatic Environmental Impact Statement, 80 Fed. Reg. at 30035.

C. *Demographics, Enforcement, and Criticism*

There are many problems with the FWS's current command-and-control approach, the proposed permit approach, and, admittedly, with this Article's Tax and Market solutions. First, avian mortality demographics suggest that anti-take mitigation is a fairly futile conservation tool. Second, the selective enforcement of the MBTA undermines the viability of all three approaches. This section explores some of the practical failures of the current approach and the planned permit approach.

1. Avian Mortality

Migratory bird populations—in particular neotropical birds⁷⁴—have been declining in North America since the 1960s.⁷⁵ The total North American bird population is currently estimated to be somewhere between 10–20 billion.⁷⁶ Each year, around 40 million birds drown in oil, burn in gas flares, ingest toxins and pesticides, are electrocuted on power lines, crash into communication towers, are incinerated mid-flight through solar flux,⁷⁷ and enter jet turbines. As disturbing as these figures are, they appear minor in comparison to the graver anthropogenic stressors. Of the circa one billion bird deaths caused by anthropogenic stressors, building collision is responsible for a

74. Neotropical birds are those that summer in the New World Temperate Zone (U.S. and Canada) and winter in Mexico and Central America. Only 6 percent winter in South America. Faaborg, *supra* note 1, at 120.

75. *See id.* at 22–23 (explaining that some species are declining dramatically continent-wide, and numerous species are showing concerning patterns of regional decline). *See also* Greg Butcher, *Wakeup Call*, AUDUBON (Summer 2007), http://www.audubon.org/sites/default/files/documents/sotb_cbid_magazine.pdf; H. Berlanga et al., *Saving Our Shared Birds: Partners in Flight Tri-National Vision for Landbird Conservation*, Appendix C: Common Birds in Steep Decline, CORNELL LAB OF ORNITHOLOGY (2009), http://www.savingoursharedbirds.org/appendices/PDF_appendices/English_Appendix_C.pdf (listing large population declines in 42 species of concern).

76. *See* U.S. FISH & WILDLIFE SERVICE, *Migratory Bird Mortality* (2002), <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1363&context=usfwspubs> (last visited Jan. 22, 2017).

77. *See, e.g.*, Louis Sahagun, *A Grim Toll*, L.A. TIMES (Sept. 4, 2016), at B1 (describing 6,000 annual avian deaths at one Mojave Desert solar plant).

large share, at approximately 365–988 million p.a.⁷⁸ Another 89–340 million p.a. are killed on the nation’s roads when struck by vehicles.⁷⁹ These anthropogenic causes of death are further dwarfed by felinogenic stressors. A recent study found that the approximately 70 million feral cats in the United States, together with domesticated house cats, are responsible for 1.3–4.0 billion bird deaths p.a., with an estimated median of 2.4 billion.⁸⁰ Cats are well-known killers: feral cats were one of the driving causes of over 10 percent of known global extinctions on oceanic islands.⁸¹

Current estimates of *industrial* incidental take pale in comparison. For example, within the U.S. per year, it is estimated that approximately 29 million birds die from power line collisions and electrocutions, 6.5 million die by colliding with communication towers, 234,000 die by colliding with monopole wind turbines,⁸² and 1.5 million die from interactions with oil and gas extraction and processing facilities.⁸³ Put in perspective, cats may be killing 60 times more birds than all do all U.S. industrial operations combined.

Compared further with habitat loss and habitat fragmentation, industrial incidental take appears to be a red herring. The most significant cause of avian population declines is the devastating loss of breeding and winter habitat that has sharply decreased since the 1980s.⁸⁴ As one conservationist with the

78. Scott R. Loss et al., *Direct Mortality of Birds from Anthropogenic Causes*, 46 ANNU. REV. ECOL. EVOL. SYST. 99, 101–02 (2015), <http://www.annualreviews.org/doi/pdf/10.1146/annurev-ecolsys-112414-054133>.

79. *Id.* at 102.

80. Loss, *supra* note 78, at 102.

81. Felix M. Medina et al., *A Global Review of the Impacts of Invasive Cats on Island Endangered Vertebrates*, 17 GLOBAL CHANGE BIOLOGY 3503, 3503–04 (2011).

82. Loss, *supra* note 78, at 102.

83. Wallace P. Erickson, et al., *A Summary and Comparison of Bird Mortality from Anthropogenic Sources with an Emphasis on Collision*, *1037 (2005), <http://www.wingpowerenergy.com/wp-content/uploads/2012/07/birdmortality.pdf>.

84. *See* Faaborg, *supra* note 1, at 1, 8. *See also* Robert Fletcher, *Loss of Wetlands: How are Bird Communities Affected*, ACTION BIOSCIENCE (Oct. 2003), <http://www.actionbioscience.org/environment/fletcher.html> (noting that over 20 U.S. states have lost 50 percent or more of their original wetlands); Matt

Cornell Lab of Ornithology succinctly put it, “the top three threats to birds overall are habitat loss, habitat loss, and habitat loss.”⁸⁵ Many of the migratory birds of North America spend their winters in the southern states of the U.S. Many others, however, spend their winters in the tropical forests of Mexico and Central America. Mexico, in particular, is the primary wintering grounds for neotropical migratory birds that spend their winters outside the U.S.⁸⁶ Although Mexico comprises only 1 percent of global land, it is home to 10 percent of all global species.⁸⁷ Because the wintering areas of migratory birds is one-seventh to one-eighth as large as their northern breeding ranges, the literature suggests that the loss of a single acre of southern wintering habitat is the equivalent to a loss of seven or eight acres of northern breeding habitat.⁸⁸ As such, conservationists have focused their efforts on preventing habitat loss in Mexico and Central America.⁸⁹ Particularly in the 19,000 square miles of the Yucatán, the burgeoning industries of cattle ranching and agriculture threaten the ancient life-sustaining tropical ecosystem.⁹⁰

Habitat loss is not simply a Mexican problem: habitat fragmentation and the decline of wetlands in the U.S. and

Swayne, *Habitat Loss, Not Poison, Better Explains Grassland Bird Decline*, PENN STATE (June 23, 2014), <http://news.psu.edu/story/319020/2014/06/23/research/habitat-loss-not-poison-better-explains-grassland-bird-decline>.

85. Mel White, *North American Birds Declining as Threats Mount*, NATIONAL GEOGRAPHIC (June 21, 2013), <http://news.nationalgeographic.com/news/2013/06/130621-threats-against-birds-cats-wind-turbines-climate-change-habitat-loss-science-united-states/>.

86. U.S. FISH AND WILDLIFE SERVICE IMPLEMENTATION OF THE NORTH AMERICAN FREE TRADE AGREEMENT *23 (2010) [hereinafter Implementation of NAFTA].

87. *Mexico: Wildlife Without Borders*, U.S. FISH AND WILDLIFE SERV., <http://www.fws.gov/international/wildlife-without-borders/mexico/> (last visited Oct. 19, 2016).

88. Faaborg, *supra* note 1, at 8.

89. *See id.* at 8–9.

90. *See Southern North America: Yucatán Peninsula in Mexico*, WORLD WILDLIFE FOUND., <http://www.worldwildlife.org/ecoregions/nt0235> (last visited Oct. 19, 2016).

Canada is similarly responsible for avian population declines.⁹¹ While habitat loss does not qualify as incidental take under the MBTA, it contributes to avian population decline more significantly than any other anthropogenic cause.

The following chart illustrates the estimated anthropogenic causes of avian mortality, excluding population decline through habitat loss.

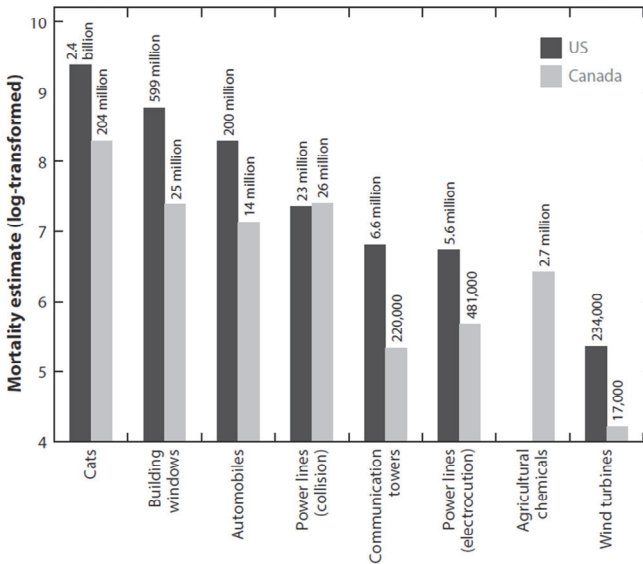


Fig. 1: Anthropogenic Causes of Avian Mortality in the United States and Canada.⁹²

91. See Jeff Wells, *Danger in the Nursery: Impact on Birds of Tar Sands Oil Development in Canada's Boreal Forest*, NAT. RES. DEF. COUNCIL 1–2 (2008), <https://www.nrdc.org/wildlife/borealbirds.pdf> (noting major population declines in boreal-dependent birds, after 80 percent of Manitoba's forests were fragmented).

92. This logarithmically scaled chart presents the averaged results of the systematic, data-driven estimates of national bird mortality from direct anthropogenic stressors, as compiled and analyzed by Professors Scott R. Loss, Tom Will, and Peter P. Marra. See *supra* notes 78–82. As noted, the science of bird demography remains inexact in 2016 and as such, we are limited to analyzing estimates of mortality figures. While this does not prevent the Article from describing the general contours of the Bird Market, it will prove highly

Although some birds that die from anthropogenic causes are not protected migratory birds, the broad majority of birds in the U.S. are protected. Most literature on avian mortality does not distinguish between MBTA-protected and unprotected species mortality rates. Because only a few bird species are unprotected, it is unlikely that the proportion of anthropogenic causes of avian mortality would greatly differ when limiting for MBTA-protected species. For example, with regard to oil pit deaths, a 2006 study found that 92 percent of oil pit victims were members of protected species.⁹³ With regard to building-collision mortality, the literature does not suggest that common Rock Pigeons or any other unprotected birds exhibit a higher mortality risk. Rather, the literature shows that certain protected species, such as hummingbirds and warblers, run a greater risk of death by building collision than other species.⁹⁴

2. The Futility of Enforcement

If buildings, cars, and cats kill more than 1 or 2 billion birds collectively per year, then it is not clear why the FWS bothers expending resources to prosecute industrial firms for incidental take under the MBTA: the 40 million incidental-take deaths appear to be merely rounding error for the primary causes of bird mortality.⁹⁵ The FWS states that it does not employ a “threshold, population-driven approach, but a risk-management

problematic within the scope of a practical market implementation. Because of the inherent difficulty of avian censuses and demography, it will be difficult to set, update, and calibrate targeted population caps and goals. Compare these figures with the graph in *The State of the Birds 2014. America's Bird Habitats*, *supra* note 1, at 11.

93. See Pepper W. Trail, *Avian Mortality at Oil Pits in the United States: A Review of the Problem and Efforts for Its Solution*, 38 ENVTL. MGMT. 532, 535 (2006).

94. See Scott R. Loss et al., *Bird-Building Collisions in the United States: Estimates of Annual Mortality and Species Vulnerability*, 116 THE CONDOR: ORNITHOLOGICAL APPLICATIONS 8, 18 (2014).

95. See Brunner, *supra* note 38, at 26 (suggesting that incidental take prosecutions are *per se* inappropriate except in rare circumstances, because incidental take does not cause “(1) significant harm or risk of harm to the environment, or public health, (2) deceptive or misleading conduct, (3) [facilities that] operate outside the environmental regulatory system, or (4) significant and repetitive violations of environmental laws”); *supra* Part II.C.1.

approach.”⁹⁶ This language is nearly identical to Environment and Climate Change Canada’s (ECCC) insistence on a “risk-based approach that will address the highest threats.”⁹⁷ The FWS admits that the proposed permit program—and MBTA enforcement in general—will not entirely address total conservation needs, but notes that MBTA enforcement is at least a “great start,”⁹⁸ and therefore seeks to identify clear hazards, and address those with easy solutions.⁹⁹

While the MBTA merely criminalizes acts taken against individual birds, the statute’s purpose is population control and conservation. The criminalization of the taking or killing of an individual bird is simply the means to the larger ends of population conservation. This proposition is supported by legislative history,¹⁰⁰ and the underlying original treaty itself, which sought to create a “uniform system of protection” for all bird species, and to “sav[e] from indiscriminate slaughter” those flocks that are “in danger of extermination through lack of adequate protection during the nesting season or while on their way to and from their breeding grounds.”¹⁰¹ Thus, the FWS’s refusal to use a “threshold, population-driven approach,” is curious.¹⁰² Why does the FWS officially rank industrial incidental take as third on its “High Priority” list for investigation

96. U.S. Fish and Wildlife Serv., *supra* note 69, at 16:20–35.

97. See Ecojustice Can., *supra* note 62. Environment and Climate Change Canada (also known as the Canadian Department of the Environment), is responsible for enforcement and regulation of the Migratory Birds Convention Act. See *Migratory Birds Convention Act (MBCA) and Regulations*, ENV’T & CLIMATE CHANGE CAN., <https://www.ec.gc.ca/nature/default.asp?lang=En&n=7CEBB77D-1> (last updated Mar. 14, 2016).

98. See U.S. Fish and Wildlife Serv., *Migratory Bird Permits Programmatic Environmental Impact Statement 20* (July 8, 2015), http://birdregs.org/process/USFWS_Mig_Bird_July-8_PowerPoint.pdf.

99. See *generally id.* (“exploring various approaches for authorizing incidental take”).

100. The legislative history of the MBTA is replete with statements regarding the Act’s conservation efforts. See *United States v. Moon Lake Elec. Ass’n, Inc.*, 45 F. Supp. 2d 1070, 1080–82 (D. Colo. 1999) (compiling various aspects of the MBTA’s legislative history and conservation purpose).

101. Convention for the Protection of Migratory Birds, Can.-U.S., Aug. 16, 1916, 39 Stat. 1702.

102. U.S. Fish and Wildlife Serv., *supra* note 69, at 16:20–30.

and enforcement,¹⁰³ instead of redirecting prosecutorial resources to habitat restoration, feline spay and neuter programs, or bird-safe-building campaigns?

There are many possible reasons for the increase in industrial incidental-take prosecutions, and the FWS's specific focus on prosecuting oil, gas, and chemical businesses as compared with the few wind-farm, power-line, and non-industrial prosecutions.¹⁰⁴ First, oil, gas, and chemical businesses are regularly visited by state and federal environmental inspectors, who review compliance with state and federal pollution and safety standards. During inspections, inspectors may find bird remains and have them shipped to the FWS Forensics Laboratory,¹⁰⁵ which may result in MBTA charges. This is precisely what occurred in *CITGO*: the defendant's refinery received a "surprise inspection" from Texas state inspectors, who discovered CAA violations as well as bird remains.¹⁰⁶ The same method of inspection and prosecution is unlikely to occur at communication towers, power lines, and offshore wind farms. Communication towers and power lines are often in remote, unpatrolled locations that are not subject to inspections, and evidence of the crime vanishes into the terrestrial carbon cycle. The same is true with regard to offshore wind farms: incidental take is washed away into the sea.

A less favorable interpretation is that the prosecutorial decisions are motivated by agency-driven environmental politics. Although wind farms may take hundreds of thousands of birds each year, their positive effects on climate change arguably provide a net benefit to bird life. To that extent, the prosecution of oil, gas, and chemical companies, such as those in many of the

103. The FWS Manual, Part 444 lays out the investigative and enforcement criteria for MBTA enforcement. Listed as a "High Priority" enforcement goal is "[t]he unlawful take of federally protected species of [] wildlife." *444 FW 1: Enforcement Priorities*, Fish & Wildlife Service Manual, U.S. FISH AND WILDLIFE SERVICE (Aug. 25, 2005), <https://www.fws.gov/policy/444fw1.pdf>.

104. Brunner, *supra* note 38, at 21.

105. The Forensics Lab in Ashland, Oregon is the world's first and only "lab in the world dedicated to crimes against wildlife." See U.S. Fish & Wildlife Service Forensic Laboratory, <http://www.fws.gov/lab/index.php> (last updated Oct. 6, 2015).

106. *United States v. CITGO Petroleum Corp.*, 801 F.3d 477, 480 (5th Cir. 2015).

cases described in Part II.A, may reflect a broader ecopolitical agenda of the prosecuting body itself.¹⁰⁷ Newt Gingrich objected to precisely this alleged problem of prosecutorial discretion in the incidental-take context in a 2012 letter to the House Committee on the Judiciary.¹⁰⁸ By prosecuting “dirty” companies such as those processing oil, gas, and chemicals, perhaps the FWS seeks to doubly punish the companies for both their direct bird take, as well as for the *indirect* consequences of their activities: pollution and climate change, which result in a globally damaged habitat for birds as well as all other wildlife.

3. Critique of the Status Quo

To recap the FWS proposals discussed in Part II.B, the FWS is currently considering three possible approaches: no action, general conditional authorizations for industries, and supplementary individual incidental-take permits. “No action” does not appear to be a viable option. With declining bird populations, loss of habitat, steadily increasing development, and ineffective and selective prosecutions, the FWS hardly appears to be making a dent in the incidental take machine. The FWS has unfettered discretion over which violators to prosecute, and in light of the fact that every industrial firm takes at least a few birds now and then, every firm is exposed to potential liability.¹⁰⁹ Given the extensive nonenforcement of the MBTA against firms that commit incidental take, the current status quo does not sufficiently incentivize firms to institute take-mitigation measures.¹¹⁰ Furthermore, voluntary guidelines alone are insufficient because they are nonbinding and provide no assurances that firms will not be prosecuted for incidental take.

The permit proposal likewise suffers from problems. First, given the limited prosecutorial resources of the FWS—which

107. See Brunner, *supra* note 38, at 21–22 (surveying the problem of endemic selective prosecution in the context of incidental take under the MBTA).

108. Newt Gingrich, *Press Release - Gingrich Requests House Investigation of DOJ Over Potential Abuse of Power Against ND Oil Companies* (Feb. 22, 2012), THE AM. PRESIDENCY PROJECT, <http://www.presidency.ucsb.edu/ws/?pid=99783#axzz2hpUSE7UM>.

109. See 16 U.S.C.A. § 706; Nadasdy, *supra* note 39, at 189–90.

110. See Nadasdy, *supra* note 39, at 189–91.

may diminish further due to the costs of establishing and operating the permit program—many firms may remain better off forgoing compliance with the FWS-promulgated industry-specific standards and risking prosecution. The command-and-control system of sparse enforcement has not incentivized firms to install take-mitigation measures across the board.¹¹¹ Although the permitting system would allow firms to evade the risk of prosecution, the costs of compliance would be higher: not only would they have to install the anti-take measures promulgated by the FWS, but they would also have to undergo a certification process to ensure their compliance.¹¹² Instead, firms might instead opt to deal with take by means of the age-old practice known colloquially as the “3-S” rule: “shoot, shovel, and shut up.”¹¹³

Second, the permit proposal is inapplicable for a broad spectrum of industries that cannot feasibly adopt take-mitigation measures. For example, the FWS standards for communication towers dictate requirements related to “tower-siting practices . . . shorter tower heights . . . eliminating or reducing the use of guy wires.”¹¹⁴ Similarly, the FWS standards for electric transmission lines note that “[c]ollisions are best minimized through appropriate siting considerations.”¹¹⁵ The problem is that the FWS take-mitigation standards are not currently adhered to by a vast majority of the 138,000 communication towers in the U.S.,¹¹⁶ or the 500,000 miles of power lines.¹¹⁷ Given that wiring, siting, and height are predom-

111. *Id.*

112. *See* Migratory Bird Permits; Programmatic Environmental Impact Statement, 50 C.F.R. § 21.11 (2015).

113. *See* Royal C. Gardner, *Legal Considerations*, in CONSERVATION AND BIODIVERSITY BANKING: A GUIDE TO SETTING UP AND RUNNING BIODIVERSITY TRADING SYSTEMS 69, 69–70 (Nathaniel Caroll et al. eds., 2008).

114. Migratory Bird Permits; Programmatic Environmental Impact Statement, 50 C.F.R. § 21.11 (2015).

115. *Id.*

116. Erickson et al., *supra* note 83, at 1032–33.

117. Albert M. Manville, II, *Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science – Next Steps toward Mitigation*, USDA FOREST SERVICE GEN. TECH. REP. PSW-GTR-191, at 1052 (2005), <http://www.fs.fed.us/psw/publications>

inant compliance factors to obtain FWS permit authorization, the permit program would be inapplicable to much of the existing American power and communications infrastructure, leaving such firms open to MBTA liability. Given that communication towers and power lines account for approximately 90 percent of industrial incidental take,¹¹⁸ the permitting program would have only a muted effect on bird conservation. The Bird Market solves this by allowing such infrastructure to continue to take birds, rewarding voluntary take-mitigation measures with tradeable bird credits, and focusing its conservation efforts on habitat restoration and maintenance. The Bird Tax also solves this through a technology-forcing mechanism. By taxing communications and power lines for their take, the Bird Tax will incentivize innovation in affordable anti-take technology.

Third, over the course of the 21st and 22nd centuries, industrial innovations—particularly in the field of clean energy—may be developed that result in exorbitant take volumes due to mechanical or siting characteristics. While otherwise socially beneficial, some such innovative industries might result in the en masse slaughter of migratory birds. Precisely such firms are unlikely to qualify under the FWS general conditional authorization, and they would thus depend on either non-enforcement of the MBTA, or issuance of individual incidental-take permits. For large-scale projects, such permitting decisions would require costly NEPA analyses,¹¹⁹ would be negotiated as individual contracts, and could entail enormous administrative and political costs, which may result in the denial of permits or doom the project altogether, depending on estimated take volume.

Enter the Bird Tax—Enter the Bird Market. While extraordinarily high take volumes by single industry actors may be net welfare enhancing—due to efficiency, cleanliness, or otherwise—

/documents/psw_gtr191/Asilomar/pdfs/1051-1064.pdf (last visited Jan. 25, 2016).

118. See *supra* text and graph accompanying note 92.

119. Reviews under the National Environmental Policy Act require a lengthy notice and comment period, opening projects to public scrutiny. See Ellen Crivella & Laura Nagy, *Forthcoming MBTA Rules Could Impact Permitting*, N. AM. WINDPOWER, at 4, http://nawindpower.com/online/issues/NAW1504/FEAT_02_Forthcoming-MBTA-Rules-Could-Impact-Permitting.html (last visited Oct. 22, 2016).

such projects are unlikely to obtain FWS approval. The Bird Market solves this by capping an acceptable level of take, and allocating free bird credits to each industry participant corresponding to the observed take volume (or acceptable and capped take volume) of each industry divided by the number of industry participants.

IV.

THE BIRD TAX

A Pigouvian Bird Tax presents itself as the first alternative to the status quo.¹²⁰ The Bird Tax would equal the cost of the externality that is not reflected in the price of the industry's products.¹²¹ It would thus be calculated by taking the total value of the birds that are killed by industrial take, and—in proportion to that firm's share of bird take—apply a tax on such firms that operate equipment in respective industrial categories, *i.e.*, power lines, communication towers, chemical and pesticide companies, oil and gas drilling operations, oil refineries, and wind farms. The Bird Tax would need to be “equal to the amount of money necessary to ensure that the firm” takes the socially optimal number of birds.¹²² Alternately, the tax could take the form of a tax credit offered to companies that retrofit their equipment to meet bird-safe standards. Coupled with an investment in enforcement, a tax or tax credit seeks to incentivize parties to minimize take by adopting anti-take practices. Tax proceeds could then be used to fund take-mitigation research, domestic and international habitat restoration projects, and conservation easement purchases, such as those purchased by the Migratory Bird Conservation Fund.¹²³

120. A Pigouvian Bird Tax in lieu of a permit program has been briefly mentioned in existing scholarship. *See* Abramson, *supra* note 39, at 286 (suggesting that a bird tax on the construction of communication towers could be used to fund research on take-mitigation measures for communication towers); Fiest, *supra* note 39, at 611–12 (arguing that the costs of the permit program can be offset by charging a provisional bird tax).

121. *See* Eric M. Singer, *Towards a Sustainable Fishery: The Price-Cap Approach*, 24 Tul. Envtl. L.J. 253, 259 (2011).

122. *See* Jonathan S. Masur & Eric A. Posner, *Towards a Pigouvian State*, 164 U. Pa. L. Rev. 93, 101 (2015).

123. *See infra* text accompanying notes 129–130 for a discussion of the

Commentary on Pigouvian taxes and markets has suggested that the two regulatory systems, when properly structured, will produce the same effects.¹²⁴ In the emissions context, the two systems will have equivalent effects if “the government sets the tax rate or the number of permits correctly so that in either case the price faced by polluters is the marginal harm from emissions.”¹²⁵ The Bird Tax would promise less environmental certainty, but more cost certainty to the regulated sectors. Section A explores reasons why the Market might be preferable to a Tax within the context of incidental take for reasons of environmental certainty, conservation effectiveness, international viability, and domestic political viability. Section B then outlines the benefits of the Tax.

A. *Potential Disadvantages*

1. Environmental Uncertainty

As compared to the Market, the Tax is less easily reconcilable with the purpose and spirit of the MBTA. The MBTA—not to mention the underlying four treaties—represents an effort to conserve our continent’s bird diversity and abundance by criminalizing the taking of any single bird.¹²⁶ The Tax would not alone create continental limits on take volumes. Rather, individual firms will reduce take until further take reduction is more expensive than the tax. This is why cap and trade in the emissions context provides greater “environmental certainty”: the government is able to place a strict cap on the total permitted level of emissions.¹²⁷ In contrast to the Tax, the Bird Market would permit regulators to set and calibrate the total

federal duck stamp program, the Migratory Bird Conservation Fund, and conservation easements.

124. *See id.* at 141–42; David A. Weisbach, Instrument Choice is Instrument Design, in Gilbert E. Metcalf, ed., *U.S. Energy Tax Policy* 113, 113–14 (Cambridge 2011) (“In the domestic context, with proper design, the two instruments are essentially the same.”).

125. Weisbach, *supra* note 124, at 5.

126. *See supra* Part II.C.2.

127. TREVOR HOUSER ET AL., *LEVELING THE CARBON PLAYING FIELD: INTERNATIONAL COMPETITION AND US CLIMATE POLICY DESIGN* 6 (2008).

amount of ecologically acceptable take. In response, a tax proponent might argue that the Market's biodiversity-offset program could flood the Market with additional bird credits, permitting the amount of take to exceed the set caps. This concern may be tempered by the use of two caps: an allocation cap for initial credit allocation and a super cap for the amount of take that is unacceptable regardless of mitigation offset.¹²⁸

2. Conservation Effectiveness

Bird Tax proceeds would be channeled to support public/NGO restoration and maintenance projects in the U.S. and beyond, quite unlike the Market's proposal of incentivizing private biodiversity-offset markets in the Yucatán and throughout North America. The private solution may be preferable. First, for political or pragmatic reasons, the Tax may be designed in such a manner whereby less than 100 percent of the proceeds are invested in biodiversity offset. The Market, on the other hand, will enable private parties to trade pre-certified biodiversity-offset credits at potentially lower transaction costs. As such, bird-credit purchases by industrial firms—*i.e.*, the equivalent of Bird Tax payments under a Tax system—may result in higher actual conservation yields.

The federal duck stamp program serves as an example of the tax-and-invest model within the scope of bird conservation. Labeled a tax by its critics, and a user fee by its proponents, the duck stamp program has existed since the 1930s. It requires duck hunters to purchase a \$25 federal license in addition to their state hunting licenses.¹²⁹ The funds are channeled into the Migratory Bird Conservation Fund, most of which is used to purchase conservation easements and servitudes on private grasslands and wetlands held in perpetuity by the FWS.¹³⁰ The

128. *See infra* Part IV.A.

129. Federal "duck stamps" have been issued since 1934 under the Migratory Bird Hunting and Conservation Stamp Act. Law of April 30, 2004, Migratory Bird Hunting and Conservation Stamp Act, 16 U.S.C. § 718 (repealed 2006).

130. *See* Fish and Wildlife Service, *Duck Stamp* (Oct. 1, 2015), <https://www.fws.gov/birds/get-involved/duck-stamp.php> (noting that 98 percent of funds are used for habitat development and conservation easements). *See also* Friends of the Stamp, *MBCF/Stamp Easement Acquisitions* (June 28, 2015),

FWS could use Bird Tax proceeds to similarly invest in domestic and Mexican biodiversity-offset projects. There are two ways to achieve the offset in Mexico. First, the FWS could certify and offer grants to Mexican conservation projects. Similar grants currently support Mexican wetlands conservation through the U.S. Migratory Bird Conservation Commission as well as the Neotropical Migratory Bird Conservation Act of 2000.¹³¹ Second, the FWS could simply transfer this responsibility—and a portion of the proceeds—to the Mexican Ministry of Environment and Natural Resources (SEMARNAT),¹³² and the Canadian ECCC respectively, or to one of the existing trilateral environmental committees. The former option may suffer from enforcement problems and possible agency-capture problems, where the grantor and the enforcer are not the same party, while the latter—a direct transfer of tax revenues to the Mexican and Canadian governments—will involve a political cost.¹³³

Private biodiversity offset may be superior to government grants on the basis of the investment's sustainability. Habitat conservation requires not merely a one-off conservation grant from the FWS, but rather a long-term and sustainable commitment to habitat maintenance. It is possible a private biodiversity offset market is better suited for this task: political rent-seeking

<http://www.friendsofthestamp.org/mbcfstamp-easement-acquisitions/> (showing that approximately 70 percent of the MBCF funds are used on easements). *See generally* Edward J. Heisel, *Biodiversity and Federal Land Ownership: Mapping a Strategy for the Future*, 25 *ECOLOGICAL L.Q.* 229, 280 (1998) (providing background information on the federal duck stamp program).

131. *See infra* text accompanying notes 205–206. The U.S. Migratory Bird Conservation Commission provided over \$28 million in grants over the course of the last three years. The Neotropical Migratory Bird Conservation Act of 2000, 16 U.S.C. § 6108, has provided over \$50 million since its inception in grants to Latin American and Caribbean countries for habitat protection, education, research, and monitoring for the long-term protection of neotropical birds. Fish and Wildlife Serv., *Neotropical Migratory Bird Conservation Act*, (May 10, 2016), <https://www.fws.gov/birds/grants/neotropical-migratory-bird-conservation-act.php>.

132. Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT) is the Mexican Environment Ministry. *See* SEMARNAT, <http://www.gob.mx/semarnat> (last visited Oct. 30, 2016).

133. *See* Masur & Posner, *supra* note 122, at 141–42 (noting the political toxicity of the word “tax”).

may incentivize state actors to invest in the up-front costs, but ignore the long-term maintenance costs.¹³⁴ In the biodiversity offset context, a private market—incentivized to sustainably make as much offset profit as possible—might serve as a better steward of the land than state actors, who seek to push for headline projects that provide them with short-term political rents.

With regard to the tax's effect on industry behavior, it is unrealistic to expect much existing infrastructure to be retrofitted to meet the FWS's bird-safe standards. As discussed, many of the bird-safe standards cannot be economically adopted for a vast array of existing infrastructure, such as the 138,000 communication towers and 500,000 miles of power lines in the United States.¹³⁵ This is particularly troubling, given the fact that communication towers and power lines account for approximately 90 percent of industrial incidental take.¹³⁶ The Pigouvian tax would not necessarily change the behavior of these industries, but rather would simply thrust upon them the costs of habitat offset and population offset.

Another concern with the Bird Tax is that it would be administratively and politically difficult to ensure that funds are offsetting habitat conservation where it is most needed, especially in international locations, such as Campeche, Yucatán, and Quintana Roo. Agency capture and the risk of being held “hostage to regulatory discretion” may mean that certain deserving projects do not receive FWS grants.¹³⁷ Yet where the Bird Market allows firms to trade among each other and purchase additional bird credits from the owners of habitat land, those additional bird credits will have entered the market through habitat restoration projects that are already certified and underway. That is, the Bird Market might provide a certainty that all additional take will be mitigated *ex ante* by

134. See generally SAUL LEVMORE, INTEREST GROUPS AND THE DURABILITY OF LAW, in THE TIMING OF LAWMAKING (Frank Fagan, ed.) (forthcoming Mar. 2017) (discussing public choice analysis and incentives confronted by state actors).

135. See *supra* text accompanying notes 114–117.

136. See *supra* text and graph accompanying note 92.

137. Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. R. REV. 21, 127 (2001).

purchasing credits from a firm that has installed anti-take measures or from a biodiversity offset program.

3. Practical and International Concerns

With regard to other considerations, the Bird Tax does not appear to provide a unique advantage over the Bird Market. For example, the proper tax rates would be difficult to determine without a stringent enforcement structure in place, and thus, the Tax would not save on enforcement costs, as compared with the Market. Further, the information costs of the Tax might be greater than those of the Market. The Market regulators would need to set total population caps, while the Tax regulators would need to frequently update and calibrate tax levels based on fluctuations in bird population, industry size, and changes in take volume due to increases or decreases in industrial activity, firm-specific mitigation efforts, and bird population.¹³⁸

With regard to international enforcement of the Market, there exist some straightforward arguments in favor of the Bird Tax. Professor Weisbach argues that although a tax and a market are generally equivalent in the domestic context, a tax may actually be preferable to a market in the international context, throwing doubt on the wisdom of experiments such as the EU Emissions Trading System (EU ETS).¹³⁹ Weisbach argues that a market may incentivize a rogue regime to fail to monitor domestic emissions, thereby allowing the sale of excess permits.¹⁴⁰ In contrast, a tax regime incentivizes countries to monitor emissions because unmonitored emissions mean uncollected revenue.¹⁴¹ Weisbach's concerns may be mostly inapposite with regard to the Bird Market. The Bird Market does not involve a broad network of countries, such as in the EU ETS, but rather merely three countries that have been close partners in environmental cooperation since the 1993 North American Agreement on Environmental Cooperation (NAAEC). Further, as

138. *Cf.* Singer, *supra* note 121, at 269 (analogizing to factors relevant to fishery regulation).

139. Weisbach, *supra* note 124, at 42–44.

140. *Id.* at 43.

141. *Id.*

will be discussed later, monitoring and enforcement will be conducted by national offices in collaboration with a trilateral bird-conservation organization such as the existing Council for Environmental Cooperation and the Trilateral Committee for Wildlife and Ecosystem Conservation and Management.¹⁴²

B. *The Advantages*

The key advantage to the Bird Tax is its simplicity and breadth of operation. With regard to its simplicity, there already exists a robust tax enforcement system and institutional authority to regulate federal industrial taxes. With regard to its breadth, combatting only *industrial* incidental take is an insufficient measure. With an estimated total annual volume of 40 million birds, industrial incidental take is merely rounding error for the gravest anthropogenic and felinogenic stressors: cats, building collisions, and car collisions. By taxing concrete, glass panes, or auto manufacturers the Bird Tax could be placed further upstream to capture a broader field of the building-related causes of bird mortality. Alternately, cat owners can be incentivized to spay and neuter their cats by means of tax penalties, spay/neuter tax rebates, or even cat ownership fees. It is further feasible for the government to use tax proceeds to subsidize the production and distribution of the effective—and quite fancy—ruffled, bird-safe collars that many bird-conscious cat owners place around their felines' necks.¹⁴³ Taxing the externality as far upstream as possible will serve to minimize collection and monitoring costs, while ensuring broad coverage, because “there are far fewer upstream producers than there are downstream consumers and the cost will be lower per unit of tax due to economies of scale in tax administration.”¹⁴⁴ To this

142. See *infra* Part IV.F.

143. See BIRDS BE SAFE, www.birdsbesafe.com (last visited Dec. 23, 2016) (“Cats normally rely on being stealthy and unseen while hunting. With Birdsbesafe’s bright colors around their necks, cats are easily seen by most songbirds. Birds simply fly to safety! It’s like your cat is wearing a bright flag that signals: ‘Danger, here!’”).

144. Gilbert E. Metcalf & David Weisbach, *The Design of a Carbon Tax*, 33 HARV. ENVTL. L. REV. 499, 523 (2009).

extent, the Bird Tax has the ability to target a far broader spectrum of regulated entities. While the Bird Market is only able to target those industries that contribute most per capita to bird take, the Bird Tax is able to target the largest absolute causes of bird take by taxing industries upstream.

V.

THE BIRD MARKET

While existing scholarship has addressed the incidental take circuit split and the proposed permit program,¹⁴⁵ no commentary has explored a tradeable permit program in this context. This Part introduces the basics of tradeable death permits. It then sketches some of the Market's contours: bird caps, the fungible bird credit, the free allocation of credits, a single market as opposed to zonal markets, the interwoven biodiversity offset market, trilateral institutional competency, enforcement, and the lofty goal of a 22nd-century Pan-American Bird Market.

The Bird Market is based on a simple economic concept that is best explained by way of analogy to emissions trading. In an emissions market, the distribution of emissions among polluters depends on the costs of pollution control.¹⁴⁶ A polluter that can reduce emissions for less than a permit's market price will invest in pollution control and sell permits; a polluter with comparatively higher costs of pollution control will buy additional permits. Under a frictionless system, trading continues until each source's marginal cost of pollution reduction equals the permit's market price.¹⁴⁷ As opposed to a command-and-control system, cap and trade is a system of Coasean bargaining, where market participants find the least-cost means to reduce emissions.

The Bird Market's participants will analogously trade bird credits until each source's marginal cost of take reduction equals the market price of a bird credit. Moreover, the Market will additionally stimulate conservation through its bird-credit-

145. *See supra* note 39.

146. Jonathan Remy Nash & Richard L. Revesz, *Markets and Geography: Designing Marketable Permit Schemes to Control Local and Regional Pollutants*, 28 *ECOLOGY L. Q.* 569, 577 (2001).

147. *Id.*

denominated biodiversity offset program.¹⁴⁸ The offset program will allow the Market to offer a conservation solution that the FWS permit proposal cannot alone address. To this extent, the Market's structure is primarily distributional: industry actors that actively violate the MBTA on a daily basis by taking birds will internalize this cost by compensating land owners, who maintain or restore bird habitat. Given this distributional framework, the Market will face high political costs. Critics will bemoan the Market's apparent distributional mechanics of the Market—and the alternate Bird Tax—citing the injustice and inefficiency of asking industry to pay for habitat restoration when they are responsible for merely a fraction of anthropogenic avian mortality. This is just one of the numerous financial, logistical, and political costs that might render the Market infeasible. The following exposition of the Market is thus an attempt to hold up a law-and-economics mirror to the MBTA and incidental take. The Market is, however, ultimately a failed policy proposal for the same reasons that the MBTA and incidental take prosecutions are failed policy realities.

Under different circumstances, however, the Bird Market could be an entirely feasible solution to incidental take. That is, the thought experiment is best conducted under the assumption that bird take in North America is caused primarily or exclusively by industrial activities for which there are known available take-mitigation techniques.

A. *Capping*

Setting a national or international cap would require a baseline impacts analysis of current activities and estimated bird take under both mitigated and unmitigated models, which accounts for all anthropogenic and other avian stressors. The FWS would need to commission population-level impact studies for species of particular concern. For any such species, the FWS retains the authority under the ESA to name them as endangered species.¹⁴⁹ The preliminary problem with capping is

148. *See infra* Part IV.D.

149. 16 U.S.C. § 1533(a)(1) (2010). *See also* *Babbitt v. Sweet Home Chapter*

the current lack of precise estimates of total and species-specific populations. For present purposes, it is sufficient that one can estimate populations within the correct order of magnitude. As technology-aided avian ecology and demography develops further, total and species-specific population counts should improve likewise. The methodology for calculating caps may be approached via the science-based conservation mechanisms proposed by the Audubon Society and the Natural Resources Defense Council (NRDC) in their response to the FWS 2015 Notice of Intent.¹⁵⁰

Two issues related to capping must be considered: allocation of credits and defining the regulated entities. First, in the emissions-trading context, permits are distributed either by free allocation or an auction.¹⁵¹ In the context of the Bird Market, free allocation would improve market participation, given the concern that market participants will simply forego participation and run the risk of prosecution. Second, in defining the regulated entities, it seems feasible to include all firms possessing industrial operations for which the FWS has published recommended anti-take mitigation techniques and which the FWS has targeted within the scope of prior incidental take prosecutions: oil and gas extraction and processing facilities, chemical plants, wind farms, power lines, and communication towers.

An example of allocation may be useful. Each bird credit gives the holder the right to take one bird. Credits are allocated on an annual basis and are surrendered to the national regulating agency (the Canada's ECCC, the FWS, and Mexico's SEMARNAT) to cover the firm's estimated take based on the regulated infrastructure and equipment it operates. For example, if Yoyodyne, Inc. owns an oil refinery plant that is estimated to take x birds p.a., the firm is allocated x credits at the start of the year. If on July 1, it purchases a communication

of Communities for a Great Or., 515 U.S. 687, 708 (1995) (deferring to decision of the Secretary of Interior and Fish and Wildlife Service director to identify for protection of certain species in danger of extinction).

150. Audubon Society & Nat. Res. Def. Council, *supra* note 28.

151. See SCOTT D. DEATHERAGE, CARBON TRADING LAW AND PRACTICE 31–32 (2011).

tower, which is estimated to take y birds p.a., then it must purchase sufficient bird credits to meet its end-of-year payment of $x + (y/2)$ bird credits.

One weakness of the Bird Market is that a tradeable MBTA-take permit would not indemnify the holder against liability for incidental take of birds that are also protected as endangered species under the ESA¹⁵² or under the Bald and Golden Eagle Act.¹⁵³ This includes eight percent, or 76 species out of the 1,027 species protected under the MBTA.¹⁵⁴ However, the broad majority of these 76 species are native to Guam, Hawaii, the Northern Mariana Islands, and Puerto Rico. To that extent, the Bird Market could initially exclude U.S. Territories and Hawaii. Only approximately 20 of the 1,027 species protected under the MBTA are classified as endangered and are present in the continental U.S.¹⁵⁵ Furthermore, given that these 20 species live in habitats that are already amply protected under the ESA, industrial firms would not likely have the opportunity to pose a significant local threat to these fragile species.

B. *The Bird Credit*

A uniform homogenous commodity is necessary to ensure sufficient market liquidity of any tradeable permit program.¹⁵⁶ In the absence of a fungible commodity, resource trading devolves into “microcontract methods, hostage to regulatory discretion in the permitting process.”¹⁵⁷ One complexity in the

152. 16 U.S.C. § 1536(a)(2) (2010).

153. 16 U.S.C. § 668(a) (2010).

154. See *Species Search*, *supra* note 19. Seventy-four are listed as endangered under the ESA, twenty-three are listed as threatened, and the Golden and Bald Eagles are separately protected under the Bald and Golden Eagle Act. *Id.*

155. See *id.* These include, for example, the California Condor, the Whooping Crane, the Southwestern Willow Flycatcher, the Everglade Snail Kite, the Piping Plover, Attwater’s Greater Prairie-Chicken, four rail species, the San Clemente Loggerhead Shrike, three sparrow species, three tern species, two vireo species, several warblers, and two woodpeckers. *Id.*

156. Stewart, *supra* note 137, at 111. See also DEATHERAGE, *supra* note 151, at 258 (“Fungibility makes for a more liquid market.”).

157. Stewart, *supra* note 137, at 127.

emissions-trading context is the fact that each of the six “greenhouse gas” pollutants degrades the environment at a unique level.¹⁵⁸ Separate markets for each pollutant would lead to thin markets and be administratively complex for both industry actors and regulators. The Kyoto Protocol instead bases its tradeable carbon credits on a common unit of CO₂ equivalent, *i.e.*, “CO_{2e}.”¹⁵⁹ Under such a system, one ton of sulphur hexafluoride, the most injurious greenhouse gas, is converted to 23,900 tons of CO_{2e}. The Chicago Climate Exchange (CCX), the EU ETS, and previous 2008–09 proposals in Congress involve varying forms of this conversion mechanism.¹⁶⁰

Some may insist upon guild-specific or even species-specific credits to provide variable protection. In particular, the Audubon Society and the NRDC have noted the need for individualized conservation plans for each guild, *e.g.*, varying incidental-take mitigation measures for seabirds, raptors, songbirds, *et cetera*.¹⁶¹ Naturally, each species has its own respective exposure risk to incidental take, its own respective population, and its own respective role in the ecosystem.

The Bird Market forgoes this unnecessary complexity and utilizes a single bird credit based on the number of birds that may acceptably be taken. First, the MBTA does not discriminate based on size, plumage, or weight. Rather, Congress provided for uniform protection of all types of bird, be it the noble Yellow-Crowned Night-Heron, the strange Puerto Rican Lizard-Cuckoo, or the unassuming Black-Bellied Whistling Tree Duck. Second, converting each 1,027 protected bird into an equivalent “common bird unit” would entail significant compliance and administrative costs. Under such a system, each firm might need to staff an

158. See DEATHERAGE, *supra* note 151, at 23.

159. *Id.* at 26.

160. DEATHERAGE, *supra* note 151, at 26. See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009);

European Commission, The EU Emissions Trading System (EU ETS) *5 (2013), http://ec.europa.eu/clima/publications/docs/factsheet_ets_en.pdf; ARIEL DINAR ET AL., THE CLEAN DEVELOPMENT MECHANISM (CDM): AN EARLY HISTORY OF UNANTICIPATED OUTCOMES 54 (World Scientific 2013).

161. Audubon Society & Nat Res. Def. Council, *supra* note 28, at *6.

ornithologist to identify its take volumes by species, in order to allow the firm to sufficiently cover its estimated annual take. Third, by measuring birds by number, rather than by total take weight or variable valuation of species, the Bird Market promises a simplicity that other tradeable-permit markets do not offer. The costly instrumentation and expertise that are needed to monitor invisible emissions will be unnecessary for bird-take monitoring. Because bird credits will not differentiate by species or guild, an industrial Bird Compliance Officer would not require a high-school education, much training, or complex instruments or tools. A pencil and notepad, binoculars, and a good pair of walking shoes should suffice to count the number of dead birds on the ground, in the oil pits, or stuck in the pipes.

C. *The Single Market*

The Bird Market is a market in death. In these terms, it is a market in environmental degradation, *i.e.*, bird credits allow the owner to degrade the birdscape by x birds. As discussed above, in the context of permit-trading programs, there is generally an expectation of fungibility of the tradeable commodities. The problem of so-called spatial differentiation arises where externalities that result from identical acts of environmental degradation differ because the acts are conducted in different locations.¹⁶² For example, in the emissions context, environmental damage caused by the emission of identical amounts and types of pollutants may differ with temperature, wind patterns, and the velocity and altitude of pollutant release. Spatial differentiation skews the market and may result in more harm to the environment than planners intend. Another problem with a single market relates to the question of distribution: opponents of cap and trade argue that emissions trading will give rise to excessive concentrations of pollution at particular “hot spots.”¹⁶³

162. See Jonathan Remy Nash, *Trading Species: A New Direction for Habitat Trading Programs*, 32 COLUM. J. ENVTL. L. 1, 14 (2007).

163. See Lily N. Chinn, *Can the Market Be Fair and Efficient: An Environmental Justice Critique of Emissions Trading*, 26 ECOL. L.Q. 80, 95 (1999); Nash & Revesz, *supra* note 146, at 580–81.

Birds migrate at different volumes in different places across the U.S. and North America. Ornithologists have identified four traditional flyways of bird migration in North America as depicted in the following diagram: the Pacific Flyway, the Central Flyway, the Mississippi Flyway, and the Atlantic Flyway:

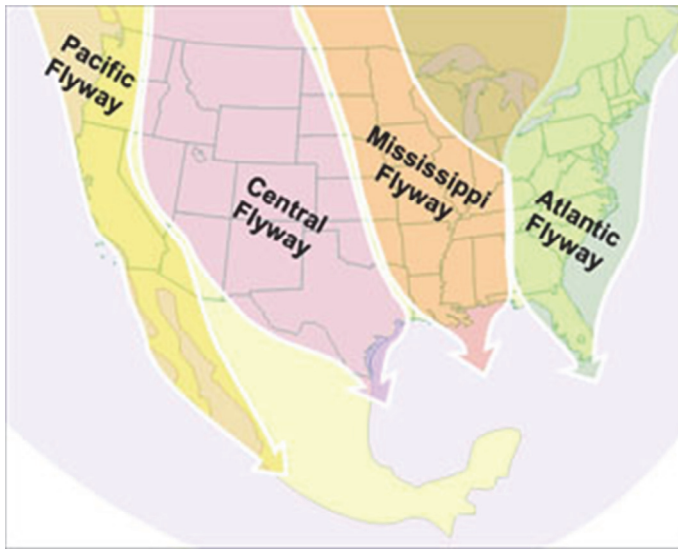


Fig. 2: The Four Flyways.¹⁶⁴ “Their movements are dictated by neither whim nor caprice, but are impelled by an instinct which inheres in the law of their being.”¹⁶⁵

Given the differing environments, avian ecology, and geography of the flyways, a single Bird Market may suffer from problems of spatial differentiation. For example, a wind turbine on a sparsely migrated patch on the Central Flyway, might not yield as much take as an identical turbine located on heavily

164. *Bird Migration Routes*, U.S. FISH AND WILDLIFE SERVICE, <http://www.fws.gov/refuge/arctic/birdmig.html> (last updated Dec. 30, 2013). See generally The Nutty Birdwatcher, *North American Migration Flyways*, BIRDNATURE.COM, <http://www.birdnature.com/flyways.html> (last visited Oct. 20, 2016) (providing more information on the geographical boundaries and migratory populations of the four flyways).

165. *United States v. Samples*, 258 F. 479, 484 (W.D. Mo. 1919), *aff'd sub nom. Missouri v. Holland*, 252 U.S. 416 (1920).

trafficked plot of land on the Pacific Flyway, *e.g.*, located directly adjacent to a popular wetlands habitat. On one hand, this properly incentivizes industrial siting in areas with low migratory traffic. On the other hand, the diversity of industrial geography and avian migration diminishes the degree of environmental certainty that the Market can provide.

In the emissions-trading context, one proposal to deal with such spatial differentiation is to establish multiple zonal markets by dividing a regulated region into subregions.¹⁶⁶ With regard to the Bird Market, this could involve flyway-specific submarkets, similar to the flyway-specific conservation programs proposed by the Audubon Society and the NRDC.¹⁶⁷ Furthermore, similar to the “hot spot” concerns in the emissions context,¹⁶⁸ there is a translatable “hot spot” concern in the context of the Bird Market. For example, a geographically clustered activity, such as the waste and oil pits accompanying the 33,000 new fracking wells in Texas,¹⁶⁹ may find it efficient to forgo bird-control measures and instead purchase bird credits en masse from California wind farmers who comply with FWS take-mitigation standards and sell their bird credits. While such a trade may help reduce the wind-based threat to species on Pacific Flyway, the Texan wells may result in a “hot spot” that threatens, *e.g.*, the Lesser Snow Goose, who winters in southeastern Texas.¹⁷⁰

The concern of “hot spots” and reduced efficacy of a single market are allayed within the scope of a single Bird Market for two reasons. First, given the demography of nonindustrial bird take,¹⁷¹ increases in localized *industrial* bird take is unlikely to

166. Nash, *supra* note 162, at 29–30.

167. Audubon Society & Nat Res. Def. Council, *supra* note 28, at *6.

168. Chinn, *supra* note 163, at 95.

169. Elizabeth Ridlington et al., *Fracking by the Numbers: Key Impacts of Dirty Drilling at the State and National Level* 20 (2013), http://www.environmentamerica.org/sites/environment/files/reports/EA_Frackin_gNumbers_scrn.pdf.

170. Clifford E. Shackelford et al., *MIGRATION AND THE MIGRATORY BIRDS OF TEXAS: WHO THEY ARE AND WHERE THEY ARE GOING* 8–9 (4th ed. 2005), https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_0511.pdf.

171. *See supra* Part II.C.1.

rise to levels that threaten entire populations. Second, where “hot spots” do arise that threaten specific local species, the FWS retains the authority to designate such species as threatened or endangered under the ESA.¹⁷² Currently, eight percent of the species protected under the MBTA are listed as threatened or endangered, and another 25 percent are designated as Birds of Conservation Concern,¹⁷³ an intermediate step to obtaining protection under the ESA. As discussed, the bird-credit system would not indemnify credit holders against liability for taking or killing birds with supplementary statutory protection, such as those protected under the ESA¹⁷⁴ or the Bald and Golden Eagle Act.¹⁷⁵ However, as also discussed,¹⁷⁶ although these additionally protected birds include 76 species out of the total 1,027 species protected under the MBTA, only approximately 20 are actually active in the continental U.S.

Besides the fact that zonal markets would not fully solve the problem of spatial differentiation,¹⁷⁷ they would also result in administrative and liquidity problems. First, in order to obtain the most cost-efficient reduction in bird take in a zonal system, the FWS would need not only to establish continental caps for total bird take, but it would also need to correctly allocate the number of bird credits to actors in each of the submarkets.¹⁷⁸ Because of the fluidity, overlap, changing nature of migratory patterns, and difficulty in accurately estimating bird populations—let alone regional flyway populations—this may prove an impossible task. Second, zonal markets will naturally be thinner than a single market and suffer from low liquidity. A liquidity crisis would be particularly ruinous to the Bird Market while it seeks participants in its early years.

172. Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2012).

173. See *Species Search*, *supra* note 19.

174. 16 U.S.C. § 668(a) (2012).

175. 16 U.S.C. § 1536(a)(2) (2012).

176. See *supra* text accompanying notes 154–155.

177. Nash, *supra* note 162, at 29 (noting that zonal markets may lead to decreased spatial differentiation, but generally cannot alone solve the differentiation problem).

178. Nash & Revesz, *supra* note 146, at 617.

D. *Biodiversity Offset*

Under the proposed internationalization of the Bird Market, landowners in Canada, the United States, and Mexico would be eligible to receive bird credits for a qualifying biodiversity-offset land use, which can then be sold to industrial firms on the Market. This biodiversity-offset component has great conservation potential, as habitat destruction is the single leading cause of large-scale bird population decline. While habitat destruction does not involve an active “take” or “kill” under the MBTA, it passively affects populations by depriving birds of food, areas for successful breeding, and resting grounds during migratory passage. This section discusses existing habitat-trading programs and models, offset valuation for the Bird Market, currency models, and mechanisms to incentivize a private biodiversity-offset market.

1. Current Programs

Biodiversity- and habitat-trading programs have seen success in past decades.¹⁷⁹ None of these programs concerns the trading of rights to actually kill protected animals—as in the case of the Bird Market—but are instead focused on the trading of rights to take, destroy, or modify the habitats of endangered species. Biodiversity credits are designed to permit developers to mitigate the illegal ecological impacts of their development by purchasing credits on a market.¹⁸⁰

Two programs are particularly noteworthy: the federal programs under the Clean Water Act (CWA) and the Endangered Species Act (ESA). The federal mitigation banking program under Section 404 of the CWA,¹⁸¹ has evolved over the course of the last forty years, and has culminated in a three-prong approach to the “no net loss” wetlands management philosophy:

179. See generally Gardner, *supra* note 113 (providing guidance on “species mitigation banking,” a type of biodiversity trading system); DEATHERAGE, *supra* note 151, at 232 (introducing the concept of biodiversity credits using California’s policies as an example); Nash, *supra* note 162 (suggesting ways to create more viable habitat trading programs).

180. See DEATHERAGE, *supra* note 151, at 233.

181. 33 U.S.C. § 1344 (2016).

a developer must either 1) mitigate on- or off-site himself; 2) pay a “mitigation sponsor” to handle off-site mitigation; or 3) purchase credits from an off-site mitigation bank.¹⁸² Under the ESA, firms that plan to develop endangered-species habitats must obtain incidental-take permits and provide funding for a Habitat Conservation Plan that mitigates the harm to the species. Conservation banks are one form of incidental-take mitigation in the ESA context. States have also developed local solutions. For example, California has experimented with conservation banks as an alternative to ineffective, piecemeal mitigation projects, in which developers set aside pieces of development to offset the project’s overall environmental harm.¹⁸³ Florida protects its few remaining panthers by incentivizing owners of undeveloped land to continue to maintain the land in ways that are compatible with conservation.¹⁸⁴ New Jersey requires regional offset in its Pinelands trading system.¹⁸⁵

The lessons of fish banking are also relevant to the Bird Market’s design. Fish banking was explored in the late 1990s and mid-2000s as a private sector response to the increasing industry and government needs for species offset and wetlands offset. For example, the Fremont salmon conservation bank, now owned by the mitigation specialists Wildlands,¹⁸⁶ provided for a fresh supply of endangered fish, such as Chinook salmon and delta smelt.¹⁸⁷ Wildlands now offers a range of services and mitigation products, such as the forthcoming San Bernardino Kangaroo Rat credit that offsets development projects that

182. See EPA, *Wetlands Compensatory Mitigation*, https://www.epa.gov/sites/production/files/2015-08/documents/compensatory_mitigation_factsheet.pdf.

183. See California Environmental Protection Agency, *Official Policy on Conservation Banks* (Apr. 7, 1995).

184. See Nick Wiley, *Conservation Banking Can Help Save Panthers* (Mar. 2, 2010), <http://bigcatrescue.blogspot.com/2010/03/conservation-banking-can-help-save.html>.

185. See Nash, *supra* note 162, at 20 n.58.

186. See WILDLANDS, <http://www.wildlandsinc.com/about/company-overview/> (last visited Dec. 23, 2016).

187. Tom Cannon & Howard Brown, *Fish Banking*, in CONSERVATION AND BIODIVERSITY BANKING, *supra* note 113, at 160–61.

threaten the endangered rodent. Fish banking is particularly relevant to the Bird Market because of the migratory nature of fish. The early fish banks were developed close to the site of development impact.¹⁸⁸ Commentators have doubted, however, whether this approach was proper, given the highly migratory nature of the fish species under consideration. The more important consideration for fish banks—and significantly relevant to the Bird Market’s biodiversity-offset component—is locating them in “areas that are biologically significant for the species.”¹⁸⁹ This accounts for the importance of the Bird Market’s internationalism. As discussed,¹⁹⁰ the primary avian conservation concern is habitat loss, with a specific focus on Mexican deforestation and development. Mexico is the primary wintering grounds for migratory birds that spend their winters outside the U.S.¹⁹¹ Because the wintering areas of migratory birds are seven or eight times smaller than their northern breeding ranges, the literature suggests that the loss of a single acre of southern wintering habitat is the equivalent to a loss of seven or eight acres of their breeding habitat.¹⁹²

2. Calculating Offset

The number of bird credits allocated—or the “exchange rate”—would be determined by several factors, including the relative value of the land to guild- and flyway-specific conservation purposes, as well as specific qualities of the land, such as habitat shape. A variety of offsetting activities may qualify as biodiversity offset, *e.g.*, “restoring or rehabilitating degraded areas, replanting indigenous trees . . . removing alien invasive species . . . averting the risk of development [] by putting in place conservation management . . . stopping unsustainable activities (fuelwood chopping, crop plantation in forests) . . . [or]

188. *Id.* at 161.

189. *Id.*

190. *See supra* Part II.B.

191. Implementation of NAFTA, *supra* note 86, at 23; *Mexico: Wildlife Without Borders*, *supra* note 87.

192. Faaborg, *supra* note 1, at 8.

securing migration paths.”¹⁹³ Landowners and mitigation specialists who develop or maintain qualifying habitat would apply to the respective national agency responsible for Bird Market administration, which would certify the land with compliance examinations on an annual or other basis.

While the Bird Market and its interlinked habitat-restoration market are novel, the concept of a habitat market has itself been the focus of prior scholarship. Several models are available to certify and weigh offset. The original model was proposed in 1994 as the “habitat transaction model,” whereby land would qualify for “habitat quality points,” ranging from 0.0 to 1.0 based on a variety of factors, such as size, contiguity, soil type, vegetation, *et cetera*.¹⁹⁴ A variety of other computer-based models, such as Professors David Sohn and Madeline Cohen’s flexible “modified habitat transaction model” approach, under which partial restoration of any kind of land is rewarded with “development allowances” that can be traded on an open market.¹⁹⁵ Finally, Professor Jonathan Remy Nash has theorized a “constrained development permit scheme,” whereby an online interface program with a highly robust dataset enables market participants—both polluters and habitat offsetters—to make trades at prices that reflect the actual conservation gains and losses of each party’s pollution or offset.¹⁹⁶

The Sohn and Cohen modified habitat transaction model is likely the most attractive for launching Bird Market’s biodiversity-offset element. Because the Market seeks to incentivize both a private market, as well as a response from local landowners, the modified habitat transaction model allows certification of partially restored and maintained habitat land.

193. Kerry ten Kate & Mira Inbar, *Biodiversity Offsets*, in CONSERVATION AND BIODIVERSITY BANKING, *supra* note 113, at 192.

194. See Todd G. Olson et al., *The Habitat Transaction Method: A Proposal for Creating Tradable Credits in Endangered Species Habitats*, in BUILDING ECONOMIC INCENTIVES INTO THE ENDANGERED SPECIES ACT: A SPECIAL REPORT FROM DEFENDERS OF WILDLIFE 27, 29–30 (Hank Fisher ed. 1994).

195. See generally David Sohn & Madeline Cohen, *From Smokestacks to Species: Extending the Tradeable Permit Approach from Air Pollution to Habitat Conservation*, 15 STAN. ENVTL. L. J. 405 (1996).

196. See Nash, *supra* note 162, at 38.

This model also incorporates all elements of the original habitat transaction model, and bird-credit-denominated biodiversity-offset credits would be awarded on the basis of certification standards agreed upon on a trilateral basis.

3. Market Design

The question of market design raises some concerns. First, it is theoretically possible that the biodiversity-offset market would respond positively to the Bird Market and offer high volumes of bird-credit-denominated biodiversity offset for sale, while noncompliant or nonparticipating firms cause a decline in bird credit demand. The result would be a crash in the price of the bird credit. This was one of the key factors that led to the crash of the Chicago Financial Instrument, from a historical high of \$7.50 to \$0.05, leading to the closing of the CCX in 2010.¹⁹⁷ The CCX was flooded with habitat-offset sellers, while a corresponding demand was absent.¹⁹⁸

The Bird Market prevents such an imbalance in two ways. First, the CCX involved voluntary emissions contracts by unregulated firms, and firms eventually became less interested in such voluntary bilateral contracts. In contrast, the Bird Market will operate in the shadow of the MBTA, which can be strictly enforced to punish noncompliance. Second, the Bird Market can resolve a potential crash of the bird credit price by operating as a dual-currency system. Under a single-currency system, certified offset is awarded x bird credits, corresponding to the amount of bird take the project is expected to offset. The offsetting party can then sell this immediately on the market, sell it on a secondary market, or bank it for future trading years. Under a dual-currency system, biodiversity-offset projects would be awarded as a biodiversity credit. The exchange rate between a biodiversity credit and a bird credit is initially set at 1:1. Should the market become flooded with biodiversity credits, as occurred

197. See Nathaniel Gronewold, *Chicago Climate Exchange Closes Nation's First Cap-and-Trade System but Keeps Eye to the Future*, N.Y. TIMES (Jan. 3, 2011), <http://www.nytimes.com/cwire/2011/01/03/03climatewire-chicago-climate-exchange-closes-but-keeps-ey-78598.html?pagewanted=all>.

198. See *id.*

with the CCX, the regulating authority can adjust the exchange rate accordingly. The two-currency system would give the regulating authority the power to swiftly adjust the exchange rate in response to financial and ecological imbalances.

Another concern is related to the bizarre, yet wonderful, possibility that the Bird Market is a success, spurring habitat restoration throughout the continent and resulting in a restored, doubled, or tripled migratory bird population. With our skies then darkened by the ominous clouds of migrating birds, how would the market respond? In a frictionless and well-functioning theoretical Bird Market, as soon as population levels increase, take volumes would similarly increase, driving up demand for additional bird credits, and incentivizing new habitat restoration development, causing population levels to increase further, *ad infinitum*. This cycle suggests that the Bird Market may be founded on a paradox that epitomizes its political absurdity. That is, by purchasing offset credits from landowners who engage in habitat restoration, industry actors would not only shoulder the conservation costs of birds, but also contribute to increases in mitigation or bird credit costs that it will later inherit. This concern is, however, likely exaggerated: the development and destruction of wildlife habitat continues throughout North America at a rapid pace, and there is no reason to expect development and industrial take to decline in the short- and medium-term.

4. Incentivizing Offset

Insofar as habitat development is a primary goal of the Bird Market, this larger conservation goal will not be achievable unless the market makes it profitable for landowners, in particular landowners in the Yucatán and neighboring states, to maintain their land for biodiversity purposes. The primary concern is that the credits will have a variable—and potentially low—value, and thus may not be as attractive a resource to the landowner as other competing uses. Further, if bird-credit allocation for habitat restoration depends on the administratively complex modified habitat transaction method as proposed by Sohn and Cohen, a landowner would face some uncertainty about whether credits would actually be forthcoming, and how many credits he would receive for his conservation or restoration efforts.

The Market's goal is to incentivize a private biodiversity-offset market throughout North America, with particular emphasis on the Yucatán. Market players would ideally include specialist mitigation firms, which can be incentivized to participate in a number of ways. First, each respective national conservation agency—Canada's ECCC, the FWS, and Mexico's SEMARNAT—will coordinate at their local levels and bear responsibility for each country's respective development of biodiversity offsets. Second, biodiversity-offset participation can be incentivized by implementing the Bird Market alongside other tradeable environmental protection schemes, such as a carbon-trading program similar to the proposed American Clean Energy and Security Act of 2009 or under an ESA Section 404 biodiversity- or habitat-trading scheme.¹⁹⁹ If, for example, three interlinked environmental markets existed—1) an endangered species market with biodiversity offset; 2) a Bird Market with biodiversity offset; and 3) a carbon market with forest offset—a landowner would be triply incentivized to maintain or convert his land into credit-compliant habitat.

E. *Institutional Guidance*

Two existing international organizations possess the experience, statutory authority, and institutional capacity to assist in the development and operation of the Bird Market. The first is the trilateral Council for Environmental Cooperation (CEC) in Montreal, which was established by the 1993 NAAEC—the environmental treaty that supplements NAFTA. The CEC has decades of experience in fauna conservation activities,²⁰⁰ is charged with the objective of “promot[ing] economically efficient and effective environmental measures,”²⁰¹ and thus may be instrumental in supporting the scientific and international-

199. See DEATHERAGE, *supra* note 151, at 157–61 (discussing the offset program that were involved in the proposed American Clean Energy and Security Act of 2009).

200. See, e.g., Arctic Migratory Birds Initiative (AMBI) – the Americas' Flyway Action Plan, CEC Operation Plan (2015–16), http://www.cec.org/sites/default/files/documents/activities_budget/op15-16-project11.pdf.

201. NAAEC Art 1, cl. 9.

cooperation aspects of the Bird Market. The second is the Trilateral Committee for Wildlife and Ecosystem Conservation and Management, established in 1996 through a trilateral Memorandum of Understanding.²⁰² The Trilateral Committee has supported continental bird conservation projects, such as seabird restoration in Baja California, as well as the SGiN Xaana Sdiihtl'ixa project in the Haida Nation to protect ancient murrelets.²⁰³ Similar to the CEC, the Trilateral Committee is charged with “developing, implementing, reviewing, and coordinating specific cooperative conservation projects and programs,”²⁰⁴ which could include a scientific assistance role in the development of the Bird Market.

The habitat-credit component of the Market would build off of successes of decades of trilateral ecological cooperation. For example, the three countries have been cooperating in important habitat-reconstruction efforts under the 1988 Tripartite Agreement on the Conservation of Wetlands. U.S. support for Mexican wetlands conservation is evidenced by the U.S. Migratory Bird Conservation Commission's past and recent support for such conservation projects.

This bifurcated approach to the Market is furthermore consistent with the FWS's practice of using proceeds from MBTA prosecutions to fund wetlands conservation projects. For example, in 2013, the Commission approved more than \$25 million to restore, protect, or enhance thousands of acres of wildlife habitat for the purpose of bird protection; \$2 million of these grants went to public and NGO projects in Baja California, Sonora, Durango, Tamaulipas, and Michoacán.²⁰⁵ In 2014 and

202. See *Memorandum of Understanding: Establishing the Canada/Mexico/United States Trilateral Committee for Wildlife and Ecosystem Conservation and Management*, Trilateral Committee (1996), http://www.trilat.org/index.php?option=com_content&view=article&id=22&Itemid=143.

203. See *Island Conservation and Restoration*, Trilateral Committee (2014), http://www.trilat.org/index.php?option=com_content&view=article&id=1568&Itemid=209.

204. Trilateral Committee, *supra* note 202.

205. U.S. DEP'T OF STATE, BUREAU OF INT'L INFORMATION PROGRAMS, GRANTS WILL CONSERVE MIGRATORY BIRD HABITAT IN U.S., MEXICO (2013), <http://iipdigital.usembassy.gov/st/english/article/2013/05/20130516147517.html>; see also U.S. DEP'T OF JUSTICE, OFFICE OF PUBLIC AFFAIRS, UTILITY COMPANY

2015, over \$1.3 million in grants were issued to similar projects.²⁰⁶ The benefit of this existing international cooperation is two-fold. First, a framework has been established by which the FWS has been able to identify Mexican “wetlands and important wintering sites for migratory birds considered priority areas for trilateral cooperation.”²⁰⁷ Precisely in these geographic areas, a private habitat-restoration market can be incentivized to provide partial restoration consistent with the Sohn and Cohen “modified habitat transaction model.” Second, the preexisting international conservation partnerships are necessary to support the uniquely international nature of the Bird Market.

If successful, the Bird Market could be expanded to incentivize habitat restoration south of Mexico. While most North American birds protected under the MBTA spend their winters in the southern United States and in Mexico, others travel elsewhere—to the Caribbean and Central America. Six percent even travels as far as the northern rainforests of South America.²⁰⁸ Conservationists have also attributed population decline to deforestation in countries south of Mexico’s borders, such as Costa Rica.²⁰⁹ Thus if the trilateral Bird Market shows success, it could be expanded into a Pan-American Bird Take Market, spanning 5,000 miles from the Northern reaches of Nunavut to the depths of the Amazon.

F. *Enforcement*

Enforcement under the Bird Market will entail high costs and, together with questions of administration and operation, forms the most insurmountable barrier to the Market’s viability. In the tradeable-permit context generally, substantial penalties are

SENTENCED IN WYOMING FOR KILLING PROTECTED BIRDS AT WIND PROJECTS (2013), <https://www.justice.gov/opa/pr/utility-company-sentenced-wyoming-killing-protected-birds-wind-projects> (describing a \$400,000 fine under the MBTA, which was directed in full to the federal North American Wetlands Conservation Fund).

206. *Mexico: Wildlife Without Borders*, *supra* note 87.

207. *Id.*

208. Faaborg, *supra* note 1 at 120.

209. *Id.*

necessary to promote compliance. In the emissions-trading context, for example, penalties must be higher than the cost of reducing emissions and/or buying permits or offsets.²¹⁰ In the absence of such penalties, the firm will simply choose to pay the penalty instead of purchasing offsets or reducing emissions.

One method of enforcement could be arranged through the implementing trilateral treaty itself. EU ETS member states are required annually to ensure that each regulated facility submits sufficient carbon credits to cover its emissions.²¹¹ When a facility emits greenhouse gases in excess of its carbon credits, each member state must collect fines from the respective facility. Incentivized by fines of 40–100 Euros per ton of emitted greenhouse gas, regulated facilities in the EU have seen compliance rates improve from 91 percent to 97 percent between 2005 and 2012.²¹² In the context of the Bird Market, each member state—Canada, the United States, and Mexico—may likewise be made responsible for ensuring compliance of its regulated firms. The treaty could include provisions that require national governments to pay penalties or otherwise cover their national firms' noncompliance fines. Another option, explored in literature on international cap-and-trade compliance, is to sanction noncompliant states by reducing future permit allocation to industry firms in that state.²¹³ The firms would then be forced to purchase higher quantity of permits in the following year. This option would greatly depend on a credible threat of prosecution of industrial bird take in all three member states.

In the context of emissions trading, enforcement costs also include the exorbitant so-called “monitoring, reporting, and verification” costs.²¹⁴ For example, the Los Angeles RECLAIM

210. See DEATHERAGE, *supra* note 151, at 19.

211. See *id.* at 58.

212. ANTOINE DECHEZLEPRÊTRE, REPORT ON THE EMPIRICAL ASSESSMENT OF MONITORING AND ENFORCEMENT OF EU ETS REGULATION 2 (2012), <http://entracte-project.eu/research/report-monitoring-and-enforcement-eu-ets-regulation>.

213. Brett Frischmann, *Using the Multi-Layered Nature of International Emissions Trading and of International-Domestic Legal Systems to Escape a Multi-State Compliance Dilemma*, 13 GEO. INT'L ENVTL. L. REV. 463, 496 (2001).

214. *MRV & Enforcement*, INTERNATIONAL CARBON ACTION PARTNERSHIP,

program to control nitrogen and sulfur oxide emissions suffered from high administrative costs, including the costs of inspectors, the length and complexity of inspections, and data processing problems.²¹⁵ The difficulty of obtaining emissions data, and a resulting oversupply of permits, was one of the leading factors that led to the near collapse of the price of carbon emissions in the EU ETS in 2007.²¹⁶ While capping bird credits may be a similarly difficult project, the monitoring, reporting, and verification costs are dissimilar to those of an emissions-trading program. The Bird Market will rely on self-reporting by market participants, and may include surprise inspections. Unlike the costly, complex scientific instrumentation and expertise needed to monitor emissions, a bird inspector might simply review the reports of the Bird Compliance Officer, perform on-site reviews, and inquire with local staff regarding suspicions of take volumes in excess of those reported.

Bird Market enforcement will necessitate large-scale compliance and participation in the market by regulated firms. To that end, each national agency will need to ensure that nonparticipants are investigated and prosecuted for all residual take. Without a credible threat of prosecution, industry actors will simply forgo take-mitigation measures, forgo purchasing bird credits to account for increased take, and return to operating in a pre-Market state of noncompliance with the MBTA. Because biodiversity offset is the Market's key conservation mechanism, it will be essential to maintain a healthy bird credit price. The price of the credit will naturally include an inherent valuation of the risk of enforcement—as such, a credible threat of enforcement will be needed to sustain the Market.

<https://icapcarbonaction.com/en/about-emissions-trading/mvr-and-enforcement> (surveying the enforcement mechanisms in place throughout various emission-trading programs). For an overview of the complexities of emission monitoring and reporting, see generally Lesley K. McAllister, *The Enforcement Challenge of Cap-and-Trade Regulation*, 40 ENVTL. L. 1195 (2010).

215. Lesley K. McAllister, *Putting Persuasion Back in the Equation: Compliance in Cap and Trade Programs*, 24 PACE ENVTL. L. REV. 299, 339 (2007).

216. See Brittany A. Harris, Comment, *Repeating the Failures of Carbon Trading*, 23 PAC. RIM L. & POL'Y J. 755, 773 (2014).

Having completed the presentation of the Market, we reflect on some costs: the domestic and international political costs of the Market and Tax, the costs of enforcement that would accompany both the Market and the Tax, the costs of residual prosecutions that would be necessary to combat noncompliance, the costs of market operation and regular ecological surveys. We also reflect on some risks: the risk of a bird-credit price crash, the risk of mass noncompliance, the risk that a private biodiversity market in the U.S.—and especially in Mexico—is not forthcoming, the risk of hotspots and an ensuing localized avian disaster. Of the approximately forty million incidental-take deaths each year, around 90 percent are caused by communication towers and power lines—industrial infrastructure that cannot easily be retrofitted after it has been constructed.²¹⁷ To this extent, only approximately four million industrial take deaths per year can truly be mitigated by take-mitigation practices. Even when assuming that anti-take mitigation reduces take volumes by 100 percent, and that 100 percent of regulated firms opt for take mitigation, the Market could thus only reduce take by a maximum of approximately four million birds per year, *i.e.*, approximately 0.4 percent of total annual bird deaths through anthropogenic stressors. The costs of constructing the Market, enforcing the regime, and forcing industry to mitigate or pay for its bird take, cannot be worth such meager gains. In this same respect, the entire MBTA command-and-control apparatus and incidental-take prosecutions seem misguided, and, as such, this Article urges the FWS to focus its funds, efforts, and time on the area of greatest conservation need: habitat protection.

VI.

CONCLUSION: DEATH DRIVE, CHARISMA, AND THE DWELLERS OF THE NEST

We find it easy to love those endangered animals that we wish to hug (harp seal, panda), that make us feel small (whale, elephant), that fill us with wondrous fear (great white shark,

217. *See supra* Part III.A.2.

tiger), or that we have assigned cultural significance (bald eagle), *i.e.*, animals known as “charismatic megafauna.”²¹⁸ Though some migratory birds are smaller than others, they nonetheless all belong to this group: they are beloved for their beauty and flight.

On the other side of the Animal Kingdom are ugly little creatures with little public appeal: spinedace, bees, and krill. Is it a myopic anthropocentricity that drives us to save the charismatic and ignore the ugly? Is it that we see humanity in the megafauna, empathize with their plight, or have loved them since childhood? Although krill play a more important role in our ecosystem than pandas do, our myopic anthropocentricity makes the panda a more salient target for protection. But this is not necessarily a bad thing: advocacy groups have utilized this phenomenon to the advantage of all members of a given ecosystem. We protect the megafauna by protecting their habitats, which benefits all other creatures there residing.²¹⁹

With its obsessive focus on death, the MBTA is expressive, but ultimately fruitless. We loathe and criminalize a single bird’s death because that death is made proximate and visible, thereby reminding us of our own. We shun death from our presence in our fight to deny our own death drive, the *mortido*, the psychic energy force that pulls us all toward death.²²⁰ It is for this reason that today’s MBTA and incidental-take prosecutions are *cowardly* anti-death. The Congress of the 1910s, however, knew no other method of conservation.

We now know better. Instead of so fearing their inevitable death, let us celebrate their birth. The costs of industrial anti-take mitigation and MBTA enforcement and prosecution are better spent on investments in habitat maintenance and restoration throughout North and Central America. This would support not only migratory birds, but also their less charismatic

218. See Shannon Petersen, Comment *Congress and Charismatic Megafauna: A Legislative History of the Endangered Species Act*, 29 ENVTL. L. 463, 479 n.153 (1999) (describing the genesis of the term).

219. See Scott Schwartz, Note, *The Hapless Ecosystem: A Federalist Argument in Favor of an Ecosystem Approach to the Endangered Species Act*, 95 VA. L. REV. 1325, 1343 (2009).

220. See SIGMUND FREUD, BEYOND THE PLEASURE PRINCIPLE Ch. VI (1920) (“The aim of life is death.”).

neighbors. This Article thus calls for a solution *sub specie aeternitatis* and a return to first principles—only by nurturing the fragile Nest of the forest can we ensure the long-term survival of her birds *and other dwellers*.

Inarticulate though they seem, the birds of North America spoke in 1918 through their human agents,²²¹ who enacted the Migratory Bird Treaty Act as a pronouncement of the creative will of avian society. They sought to ensure their own survival. It was in this spirit that Representative Charles M. Stedman proclaimed the following to the House of Representatives, to which he received thunderous applause:

“Let the songbird live to herald to the world its happy and joyous anthem proclaiming the goodness of God to all his creatures! . . . Civilization, ever advancing along the world’s pathway, pleads for humanity, for the birds, so helpless and yet so useful.”²²²

So helpless and yet so useful, our continent’s shared bird populations face grave threats ahead. Industrial incidental take, however, may not be as threatening as the larger systemic culprits that are not as comfortably commanded and controlled. If we want industry to continue to shoulder the costs of conservation, then a market-based solution may someday prove effective. Yet if we wish to engage immediately and honestly with the dilemma of long-term bird conservation, we must supplement the death-focused MBTA with a life-affirming habitat-restoration program that meaningfully conserves our birds in the light of eternity.

221. *Cf.* *Sierra Club v. Morton*, 405 U.S. 727, 743 (1972) (Douglas, J., dissenting) (“The river as plaintiff speaks for the ecological unit of life that is part of it. Those people who have a meaningful relation to that body of water—whether it be a fisherman, a canoeist, a zoologist, or a logger—must be able to speak for the values which the river represents and which are threatened with destruction.”).

222. 56 CONG. REC. 7362 (daily ed. June 4, 1918) (statement of Rep. Stedman).