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**RELIGION AS SWORD, BUT NOT AS SHIELD:
RECTIFYING THE ESTRANGEMENT OF
ENVIRONMENTALISM AND RELIGIOUS LIBERTY**

Justin W. Aimonetti & Christian Talley**

Abstract

Over the past thirty years, a remarkable but unacknowledged shift has occurred in the relationship between environmentalism and religious liberty. For a brief period in the latter half of the twentieth century, the two fields stood in legal alliance. Relying on pre-1990 case law under which plaintiffs could attain strict scrutiny for incidental burdens on religious practice, litigants once enjoyed occasional success in enjoining governmental development projects harmful to both the environment and religious free exercise. This Essay terms such religious liberty claims advanced to protect the environment “Track I” claims. In its 1990 decision *Employment Division v. Smith*, however, the Supreme Court abandoned application of strict scrutiny to incidental burdens upon religious practice. Reacting to the *Smith* decision, Congress passed statutes intended to overrule *Smith*’s holding and to restore strict scrutiny for incidental burdens. Yet a paradoxical result ensued. Plaintiffs began to invoke religious liberty to gain religious exemptions from generally applicable environmental law. This Essay terms such claims advanced to gain exemptions from environmental protection laws “Track II” claims. Despite the advent of Track II claims, Track I claims have remained non-viable. The consequence has been the systematic use of religious liberty to evade environmental regulations, with no countervailing use to secure protections for the environment. This Essay documents the historical reasons behind that shift and proposes solutions to rectify the present disparity between Track I and Track II claims. If religion is to be a sword that can harm the environment, religion should also be a shield that can protect it, or else it should exit the battlefield altogether.

* J.D., Virginia, 2020; M.A., Virginia, 2020; B.A., Columbia, 2017. Winner of the Vermont Journal of Environmental Law’s White River Environmental Law Writing Competition. We dedicate this Essay to all members of the UVA Law community adversely affected by COVID-19. We thank Professor Scott Ballenger, Dana Raphael, and Anna Cecile Pepper for insightful comments. All views and any errors are our own.

* J.D., Virginia, 2020; M.St., Oxford, 2017; B.A., Vanderbilt, 2016.

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INTRODUCTION

Environmentalism and religious liberty might appear at first blush to be natural allies. Many religions encourage their adherents to protect the environment. In 2015, for example, Pope Francis released a lengthy papal encyclical, subtitled *On Care for Our Common Home*, urging Christians to preserve the earth and confront pollution and climate change.¹ Similarly, there is a robust strain of Jewish environmentalism informed by traditional Judaic doctrines yet responsive to modern environmental degradation.² No less compelling are the religious precepts of America’s indigenous peoples. Indigenous religions often distinctively emphasize natural locales³ — “[u]ndisturbed, unaltered, and pristine”⁴—in which to conduct traditional religious rituals. Under these and yet further belief systems,⁵ religious faith and environmentalism each inform and fortify the other.

Despite this intuitive union, modern American religious liberty doctrine has embraced a counterintuitive model of interaction between environmentalism and religion. Religious liberty claims advanced to protect

1. POPE FRANCIS, LAUDATO SI’: ON CARE FOR OUR COMMON HOME 3 (Vatican Press, 2015).

2. Ruth Sonshine et al., *Liability for Environmental Damage: An American and Jewish Legal Perspective*, 19 TEMP. ENV’T L. & TECH. J. 77, 98 (2000).

3. Robert S. Michaelsen, *American Indian Religious Freedom Litigation: Promise and Perils*, 3 J. OF L. & RELIGION 47, 60 (1985) (“American Indian traditions . . . have long been associated with particular areas.”).

4. Brief for Respondent State of California at 22, *Lyng v. Nw. Indian Cemetery Protective Ass’n*, 485 U.S. 439 (1988) (No. 86-1013), 1987 WL 880350, at *22.

5. See, e.g., *Buddhism*, YALE FORUM ON RELIGION AND ECOLOGY, <https://fore.yale.edu/World-Religions/Buddhism> (last visited Dec. 8, 2020) (summarizing Buddhist concepts that engage with ecology, such as do no harm); Zainal Abidin Bagir & Najiyah Martiam, *Islam: Norms and Practices*, YALE FORUM ON RELIGION AND ECOLOGY, <https://fore.yale.edu/World-Religions/Islam/Overview-Essay> (last visited Dec. 8, 2020) (noting that local Muslim practice is “deeply and uniquely rooted in its own land”); see generally Mary Evelyn Tucker & John A. Grim, *Introduction: The Emerging Alliance of World Religions and Ecology*, 130 DAEDALUS n.4 (Fall 2001), <https://www.jstor.org/stable/20027715> (discussing various religious tradition and attitudes toward nature).

the environment—what this Essay terms Track I claims—generally have failed, sometimes spectacularly, leading to new doctrinal restrictions on religious liberty.⁶ The Supreme Court and lower courts have been unreceptive to claims employing religion as a shield against government intrusions upon the environment.⁷ Conversely, claimants seeking religious exemptions *from* environmental regulations—what this Essay terms Track II claims—have proven more successful.⁸ Alleging that certain environmental regulations unduly burden their religious exercise, Track II claimants have threatened litigation and evaded environmental protections nationwide.⁹ Religion’s primary utility in the field of environmental law has emerged, ironically, not as a shield, but as a sword.¹⁰

The historical arc that produced this estrangement of environmentalism and religious liberty was not inevitable. Rather, it hinged on specific decisions of Congress and the Supreme Court in the last thirty years. This Essay is the first to trace that historical path, from the natural alliance between environmentalism and religion to the present disunion.¹¹ In so doing, it proposes potential legislative and judicial reforms—reforms of particular relevance as the Court considers this term whether to overhaul its free exercise jurisprudence.¹² To set out this historical arc and the possible reforms it suggests, this Essay proceeds in four distinct parts.

Part I describes the Court’s religious liberty jurisprudence as bookended by two watershed cases: *Sherbert v. Verner*,¹³ decided in 1963, and *Lyng v.*

6. See *Lyng v. Nw. Indian Protective Cemetery Ass’n*, 485 U.S. 439, 451 (1988) (applying a novel and circumscribed test for infringement of religious free exercise to deny a tribal free exercise claim despite potentially “devastating effects” on tribal religious practice); see also *infra* Part I (exploring Track I claims’ failure and describing various circuits’ rejection of Native Americans’ Track I claims).

7. See, e.g., *Lyng*, 485 U.S. at 450, 452.

8. See *infra* Part III (examining Track II claims’ success).

9. *Lyng*, 485 U.S. at 451.

10. Kevin M. Powers, *The Sword and the Shield: RLUIPA and the New Battle Ground of Religious Freedom*, 22 BUFF. PUB. INT. L.J. 145, 146 (2004) (declaring RLUIPA a “potent weapon in the quiver of religious groups”).

11. See *infra* note 50 and accompanying text. Some scholars have explored the history behind RLUIPA, RFRA, and the *Sherbert* regime, but by and large they have done so in a vacuum, without reference to the intersection between environmentalism and religious liberty. See also Matthew Baker, *RLUIPA and Eminent Domain: Probing the Boundaries of Religious Land Use Protection*, 2008 B.Y.U. L. REV. 1213 (2008) (exploring RLUIPA’s scope, but not the historical development); Christopher Serkin & Nelson Tebbe, *Condemning Religion: RLUIPA and the Politics of Eminent Domain*, 85 NOTRE DAME L. REV. 1, 10 (2009) (advocating for minimal application of RLUIPA); *Religious Land Use in the Federal Courts Under RLUIPA*, 120 HARV. L. REV. 2178, 2178–79 (2007) (describing the use of RLUIPA as a litigation tool); see generally Whitney Travis, *The Religious Freedom Restoration Act and Smith: Dueling Levels of Constitutional Scrutiny*, 64 WASH. & LEE L. REV. 1701, 1704 (2007) (exploring the different standards under RFRA and *Smith*, but not in the environmental context).

12. See Petition for Writ of Certiorari at i, *Fulton v. City of Philadelphia*, No. 19-123 (2019) (“Whether *Employment Division v. Smith* should be revisited?”), cert. granted, 140 S. Ct. 1104 (U.S. argued Nov. 4, 2020).

13. *Sherbert v. Verner*, 374 U.S. 398 (1963).

Northwest Indian Cemetery Protective Association,¹⁴ decided in 1988. *Sherbert* established an exemption era¹⁵ with its holding that generally applicable laws that substantially burdened religious practice—even if doing so incidentally—could receive strict scrutiny.¹⁶ Though religious exemptions were rare,¹⁷ this strict scrutiny regime struck many as naturally congruent with free exercise challenges to environmentally harmful government action that burdened religious practice.¹⁸ *Lyng*, however, dispelled these perceptions. In rejecting Native Americans’ challenge to the government’s proposed construction of a logging road through a tribal sacred site, the Court sharply clamped down on religious liberty claims altogether.¹⁹ *Lyng* thus closed the courthouse doors to religious adherents advancing Track I environmental protection claims.

Part II documents the Court’s rejection of the *Sherbert* exemption model in its 1990 decision *Employment Division v. Smith*.²⁰ Curtailing *Sherbert*, the *Smith* Court held that neutral and generally applicable laws that incidentally burden religion are subject only to rational basis review.²¹ Grounding its decision in rule of law concerns, the *Smith* Court worried that religious challenges against neutral and general laws could undermine government objectives and promote “anarchy.”²² In the context of environmental concerns, the *Smith* Court specifically criticized Track II religious liberty claims being used to undermine generally applicable regulations protecting the environment.²³ Cabining *Sherbert*, in the Court’s view, would block the possibility of religious exemptions eroding environmental regulations.²⁴

Part III describes Congress’s reaction to the *Smith* decision and a consequence of that reaction overlooked until now—the resurgence of Track

14. 485 U.S. 439 (1988).

15. Richard F. Duncan, *Free Exercise and Individualized Exemptions: Herein of Smith, Sherbert, Hogwarts, and Religious Liberty*, 83 NEB. L. REV. 1178, 1180 (2005) (discussing *Sherbert*’s exemption regime as, at least theoretically, “highly protective of religious liberty”).

16. *Sherbert*, 375 U.S. at 403.

17. Duncan, *supra* note 15, at 1180–81 (discussing *Sherbert*-era courts’ reluctance to grant exemptions and the various theories used to deny them).

18. The *Lyng* amici represent an interesting cross-section of groups that apparently subscribed to this view. They included the Christian Legal Society, the American Civil Liberties Union, Concerned Women for America, and the American Jewish Congress. *Lyng*, 485 U.S. at 441.

19. See *infra* Part I (examining *Lyng*’s amplification of the requirements for claims to receive strict scrutiny).

20. *Employment Div., Dep’t of Human Res. of Oregon v. Smith*, 494 U.S. 872 (1990).

21. See *id.* at 884–85 (declining to apply *Sherbert* test to free exercise challenges); Ryan S. Rummage, *In Combination: Using Hybrid Rights to Expand Religious Liberty*, 64 EMORY L.J. 1175, 1184 (2015) (stating that *Smith* “changed the level of scrutiny for free exercise claims back to the lowest level of scrutiny, rational basis review”).

22. *Smith*, 494 U.S. at 888.

23. See *id.* at 886, 889 (criticizing track II-type claims as a “constitutional anomaly”).

24. See *id.* at 888–89 (stating that respondent’s rule would allow religious exemptions to environmental protection).

II religious liberty claims. In the wake of *Smith*, Congress attempted to overrule *Smith*'s central holding by passing two religious liberty statutes: the Religious Freedom Restoration Act (RFRA)²⁵ and the Religious Land Use and Institutionalized Persons Act (RLUIPA).²⁶ Both statutes restored *Sherbert*'s strict scrutiny analysis for religious claims made against government action, RFRA generally and RLUIPA specifically in the context of land use.²⁷ Though RLUIPA aimed to codify non-discrimination principles against religious entities, an odd result has ensued: Religious entities now may wield RLUIPA-based challenges to gain exemptions from local zoning and land use regulations intended to protect the environment.²⁸ Yet as these Track II claims against regulations have succeeded—as forewarned by *Smith*—Track I claims intended to *halt* environmentally harmful government action have failed. Part III explores the doctrinal reasons for, and normative consequences of, this discrepancy.

Part IV proposes congressional changes to RFRA and RLUIPA and judicial reform of the relevant case law to rectify the estrangement of environmentalism and religious liberty. In short, religious liberty doctrine should either recognize both Track I and Track II claims as cognizable, or it should disallow both. But there is no persuasive justification for the latter's success and the former's concurrent failure. If religion is to be a sword, religion should also be a shield, or else it should exit the battlefield altogether.

I. TRACK I CLAIMS UNDER THE *SHERBERT* STRICT SCRUTINY REGIME

The roots of both Track I and Track II claims can be traced to the Court's mid-century religious liberty jurisprudence. The Court's initial encounters with religious liberty claims reflected doctrinal instability. In *Gobitis*, the Court held that the free exercise clause was not violated even when the government *directly* compelled behavior antithetical to religious beliefs.²⁹ Three years later, the Court reversed its decision on indistinguishable facts, but under a free speech rationale.³⁰ The doctrine exhibited similar instability as the Court decided the level of scrutiny that should apply to state action *incidentally* harming religious practice. In cases like *Braunfeld v. Brown*, the Court first held that claims of incidental burden—asserted harms to religious

25. Religious Freedom Restoration Act, 42 U.S.C. §§ 2000bb–2000bb-4 (1993).

26. Religious Land Use and Institutionalized Persons Act, 42 U.S.C. §§ 2000cc, 2000cc-1-5 (2000).

27. Additionally, RLUIPA permits strict scrutiny for prisoners' religious claims. *See infra* Part III.

28. *See* 42 U.S.C. § 2000cc(a)–(b) (granting local land use zoning exemption for religious exercise); *see also infra* notes 127, 185–89 and accompanying text (explaining RLUIPA's original non-discrimination purpose).

29. *See* *Minersville Sch. Dist. v. Gobitis*, 310 U.S. 586, 607 (1940) (holding minority religious belief does not outweigh state's interest in school discipline).

30. *W. Va. State Bd. of Educ. v. Barnette*, 391 U.S. 624, 630, 642 (1943).

practice without a showing of discriminatory intent—were not cognizable under the free exercise clause.³¹ Yet Justice Brennan, dissenting in *Braunfeld*, thought the majority’s approach undercut the “preservation of personal liberty.”³² Irrespective of their neutrality and general applicability, laws could be potentially unconstitutional, in his view, so long as “their effect” was to substantially burden religion.³³

A mere two years after penning his *Braunfeld* dissent, Justice Brennan wrote his views into law with his majority opinion in *Sherbert v. Verner*.³⁴ Speaking for the Court, Justice Brennan held that substantial burdens upon religious free exercise—even if such burdens were merely incidental—may trigger strict scrutiny.³⁵ In deciding in favor of a Seventh-Day Adventist who had been denied unemployment benefits after refusing to work on Saturdays, the Court set out a two-part framework that would govern religious liberty claims for the next twenty-seven years.³⁶ The first part of this analysis involved a three-prong threshold showing under which courts would determine whether a claim warranted strict scrutiny. Courts were to ask whether (1) the claimant was asserting a religious belief, (2) whether that religious belief was sincere, and (3) whether the government had imposed a “substantial burden” upon the asserted religious practice.³⁷ This third “substantial burden” prong had two constituent inquiries: (a) the “subjective” burden—whether the religious adherent perceived her beliefs were burdened—and (b) the “objective” burden—whether the government was indeed forcing the adherent into a tough choice between practicing religion or receiving secular benefits.³⁸ The Court held that Adele Sherbert’s claim had satisfied all elements of this threshold showing.³⁹ Under standards that were initially deferential to claimants, it determined that she was both

31. *Braunfeld v. Brown*, 366 U.S. 599, 607 (1961) (“But if the State regulates conduct by enacting a general law within its power, the purpose and effect of which is to advance the State’s secular goals, the statute is valid despite its indirect burden on religious observance unless the State may accomplish its purpose by means which do not impose such a burden.”); see also *id.* at 605–06, 608 (mentioning two other cases where individuals’ religious practices conflicted with the public interest and distinguishing *Braunfeld* since the law at issue “simply regulates a secular activity and, as applied to appellants, operates so as to make the practice of their religious beliefs more expensive”).

32. *Id.* at 610 (Brennan, J., concurring and dissenting).

33. *Id.* at 613, 615.

34. See *Sherbert v. Verner*, 374 U.S. 398, 410 (1963) (holding that states’ denial of public benefits based on individuals’ religious practice is subject to strict scrutiny).

35. *Id.* at 403.

36. *Id.* at 403, 406, 408–09; Duncan, *supra* note 15, at 1179.

37. William D. Lay, *Free Exercise and the Resurgence of the Religious Freedom Restoration Act*, SAGE OPEN 1, 4 (2016).

38. *Wisconsin v. Yoder*, 406 U.S. 205, 218 (1972) (restating the *Sherbert* test’s operative inquiries).

39. *Sherbert*, 374 U.S. at 404.

asserting a religious belief and that her belief was sincere.⁴⁰ Moreover, the Court concluded, she perceived her free exercise to be burdened, as the government had forced her either to work and violate her religious beliefs or not work, preserve her beliefs, and go destitute.⁴¹

With this threshold showing satisfied, the burden then shifted to the government to justify its actions under a robust formulation of strict scrutiny. Under that inquiry, courts would ask, first, whether the incidental burden could be justified by a “compelling state interest.”⁴² And second, even if the government could point to some harm it sought to mitigate by curtailing religious practice, it would next have “to demonstrate that no alternative forms of regulation would combat such abuses without infringing First Amendment rights.”⁴³ In *Sherbert* itself, the Court rejected South Carolina’s admonitions about fraudulent claims upon the welfare system as insufficiently compelling to justify the burden imposed.⁴⁴ The Court, therefore, held that Sherbert was entitled to an exemption from the general rule that those voluntarily choosing not to work were ineligible for benefits.⁴⁵

In the years following *Sherbert*, religious claimants employed that decision’s two-step framework to seek exemptions from a wide variety of governmental regulations—from the assignment of social security numbers⁴⁶ to compulsory education.⁴⁷ Less studied has been religious adherents’ use of the *Sherbert* framework to assert environmental religious liberty claims.⁴⁸ In practice, indigenous peoples were those who usually asserted Track I claims, as their spiritual practices often emphasize unaltered natural places in which to conduct religious ceremonies.⁴⁹ Government-sponsored development projects like logging, mining, and pipelines occasionally posed existential threats to these traditional belief systems.

The results of early Track I challenges that sought to enjoin such projects were mixed. On the one hand, though acknowledging that the free exercise

40. *Id.* at 404 (noting that the state ruled petitioner ineligible for benefits based solely on her religion).

41. *Id.*

42. *Id.* at 403.

43. *Id.* at 407.

44. *Id.*

45. *Id.* at 408–09.

46. *Bowen v. Roy*, 476 U.S. 693, 693–94 (1986).

47. *Wisconsin v. Yoder*, 406 U.S. 205, 205 (1972).

48. *See, e.g.*, Timothy A. Wiseman, *Why the Religious Freedom Restoration Act Cannot Protect Sacred Sites*, 5 AM. INDIAN L.J. 139, 141 (2017) (explaining that “the substantial burden test was not enough to protect Native American religions and their sacred places, either before or after the RFRA was passed”); *see generally* Amy Bowers & Kristen Carpenter, *Challenging the Narrative of Conquest: The Story of Lyng v. Northwest Indian Cemetery Protective Association*, in INDIAN LAW STORIES (Carole E. Goldberg, ed., 2011) (providing historical background on the case, but not discussing the historical arc’s development).

49. Michaelsen, *supra* note 3, at 59–61.

clause constrained the government's ability to dispose of public lands, several circuits had rejected such claims.⁵⁰ The District of Columbia,⁵¹ Sixth,⁵² and Tenth Circuits⁵³ had held either that indigenous peoples suffered no substantial burden on their religious practice, failing the first step of the *Sherbert* test, or that a compelling interest backed the government's projects, failing the second step. On the other hand, the Ninth Circuit⁵⁴ and some district courts⁵⁵ determined that Native tribes had asserted meritorious Track I claims. Foremost among these were the Yurok, Karok, and Tolowa tribes' long-running resistance to the government's proposed construction of a commercial logging road in California's Six Rivers National Forest.⁵⁶ "For generations," members of those tribes had "traveled to the high country to communicate with the 'great creator,' to perform rituals, and to prepare for specific religious and medicinal ceremonies."⁵⁷ The significance of this location "to the Indian plaintiffs' religion [made it] central and indispensable" to their religious practice.⁵⁸

The government's proposed development project, in turn, threatened to degrade the "pristine environment and [the] opportunity for [religious] solicitude" found in Six Rivers National Forest.⁵⁹ In the Tribes' view, the ensuing "environmental degradation of the high country . . . would erode the religious significance of the areas."⁶⁰ Specifically, constructing the logging road would cause a number of adverse environmental effects. The government conceded that its project would cause erosion, resulting in rock and debris slides that threatened to pollute nearby waterways, increasing sedimentation and endangering native marine life.⁶¹ And after the road's construction, its use for commercial logging projects would generate noise

50. *Wilson v. Block*, 708 F.2d 735, 744 n.5 (D.C. Cir. 1983) ("The government must manage its land in accordance with the Constitution . . . which nowhere suggests that the Free Exercise Clause is inapplicable to government land.")

51. *See id.* at 741 (concluding a development project would not burden indigenous religious beliefs).

52. *Sequoyah v. Tenn. Valley Authority*, 620 F.2d 1159, 1164-65 (6th Cir. 1980) (dismissing the importance of a development site to Native American religious practices).

53. *Badoni v. Higginson*, 638 F.2d 172, 177 (10th Cir. 1980) (holding the state's interest in a dam project compelling).

54. *See Nw. Indian Cemetery Protective Ass'n v. Peterson*, 795 F.2d 688, 692 (9th Cir. 1986) (stating that Native Americans provided enough evidence to support their religious use claim).

55. *See Nw. Indian Cemetery Protective Ass'n v. Peterson*, 565 F. Supp. 586, 594-95 (N.D. Cal. 1983) (stating that Native Americans' communication with their creator would be disrupted by the Forest Service's proposal and concluding that the government's actions violated plaintiffs' free exercise of religion).

56. *Id.* at 594 (explaining the tribes' land use dates back generations).

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.* at 592.

61. *Id.* at 600.

and emissions from the heavy rigs used to haul harvested timber.⁶² Given that the project “would seriously damage the salient visual, aural, and environmental qualities of the high country,” the district court found the “intrusion . . . destructive of the very core of [Native American] religious beliefs and practices.”⁶³

On review, the Ninth Circuit endorsed the district court’s conclusion that the logging road would substantially burden the indigenous peoples’ religious exercise. Not mincing words, the panel explained that it “agree[d] with the district court that the proposed operations would interfere with the Indian plaintiffs’ free exercise rights.”⁶⁴ In the court’s view, the land at issue was indeed central to the Tribes’ longstanding and sincere religious practice.⁶⁵ Not only had the government failed to adequately account for the project’s environmental impact,⁶⁶ but the Ninth Circuit disagreed that there was even a compelling interest in building the road.⁶⁷

Recognizing this nascent circuit split, the Supreme Court granted the government’s petition for certiorari on what ultimately became *Lyng v. Northwest Indian Cemetery Protective Association*. As the lower courts had progressively fractured, *Lyng* forced the Justices to confront uncertainties in *Sherbert*’s two-step framework. First among these was the showing required to establish a substantial burden on religious practice—one of the key threshold inquiries claimants had to satisfy before reaching strict scrutiny. In the years leading up to *Lyng*, courts generally had accepted claimants’ assertions of “subjective” burden.⁶⁸ Courts also tended to defer on the questions whether claimants’ beliefs were truly “religious” and whether those beliefs were sincere, under the longstanding principle that courts would not interrogate whether claimants had correctly interpreted their own religious creeds.⁶⁹ The courts’ deference on those questions turned the “objective” component of the substantial burden prong into the last gatekeeper before plaintiffs could attain strict scrutiny.

In other Track I cases, lower courts had escaped invalidating governmental development projects under strict scrutiny by determining that

62. Brief for Respondent State of California, *supra* note 4, at 9–12.

63. *Peterson*, 565 F. Supp. at 594–95 (N.D. Cal. 1983).

64. *Nw. Indian Cemetery Protective Ass’n v. Peterson*, 795 F.2d 688, 692 (9th Cir. 1986).

65. *Id.*

66. *Id.* at 696–97.

67. *Id.* at 695 (disclaiming that the government had “the compelling interest required to justify its proposed interference with the Indian plaintiffs’ free exercise rights”).

68. *See, e.g.*, *Thomas v. Review Bd. of the Ind. Emp’t Sec. Div.*, 450 U.S. 707, 715–16 (1981); *Wisconsin v. Yoder*, 406 U.S. 205, 218 (1972).

69. *See Thomas*, 450 U.S. at 716 (“Courts are not arbiters of scriptural interpretation.”); *United States v. Ballard*, 322 U.S. 78, 86 (1944) (permitting inquiry into litigants’ sincerity, but not whether beliefs were well-reasoned or true).

compelling governmental interests supported such projects.⁷⁰ The Supreme Court, similarly, had refused to grant exemptions by pointing to the importance of various governmental interests at stake, such as the smooth functioning of the nation's tax system.⁷¹ But in *Lyng*, there was a serious question whether the government had a compelling interest in constructing a logging road in a remote corner of a national forest. The Ninth Circuit below had directly repudiated the government's assertion that its purported interest was compelling.⁷²

To avoid the ramifications of declaring the government's interest unconvincing, the *Lyng* Court instead revised the *Sherbert* framework. It heightened the showing needed to satisfy the "objective" burden, thus amplifying the requirements to receive strict scrutiny. Plaintiffs' accusations that the government was *harming* their religious beliefs, even profoundly so, would no longer be sufficient. Rather, under the *Lyng* formulation, claimants would have to show that the government's actions coerced them "into violating their religious beliefs" or "penaliz[ed]" believers for adhering to their religious practice.⁷³ Under this modified standard, the government's construction of the logging road would not *itself* coerce the indigenous believers into violating their religion.⁷⁴ Thus, despite the Court's concession that "the logging and roadbuilding projects at issue . . . could have devastating effects on traditional Indian religious practices," the Court concluded that the Tribes' claims were not cognizable First Amendment violations.⁷⁵

Lyng's significance to free exercise doctrine was immediately apparent. One commentator, criticizing the Court's augmented strict scrutiny trigger, called it "the most troublesome decision on freedom of religion in more than 25 years."⁷⁶ What time has tended to obscure, however, is *Lyng*'s significance not merely as a religious liberty case, but also as an environmental rights case. The Tribes' assertion of a Track I claim was intended to protect not only their religious practice but the environment as well, as each interest was inextricably intertwined. Indeed, in addition to their free exercise claim, the Tribes pursued alternative theories under various

70. See, e.g., *Badoni v. Higginson*, 638 F.2d 172, 179 (10th Cir. 1980).

71. *United States v. Lee*, 455 U.S. 252, 260 (1982) ("The tax system could not function if denominations were allowed to challenge the tax system because tax payments were spent in a manner that violates their religious belief.").

72. *Peterson*, 795 F.2d at 695 (9th Cir. 1986).

73. *Lyng v. Nw. Indian Cemetery Protective Ass'n*, 485 U.S. 439, 449 (1988).

74. *Id.*

75. *Id.* at 451.

76. Stuart Taylor, Jr., *Justices Rule Religious Rights Can't Block Road: Other Religious Groups Fear the Ruling's Effects*, N.Y. TIMES (Apr. 20, 1988), <https://www.nytimes.com/1988/04/20/us/supreme-court-roundup-justices-rule-religious-rights-can-t-block-road.html>.

federal environmental statutes,⁷⁷ and several environmental interest groups served as co-plaintiffs.⁷⁸ And at the same time, private industry recognized the case as a nominal dispute about religious liberty, but centrally a conflict between environmental preservation and the economic stakes of resource development.

The clearest illustration of that point came from an amicus brief filed in *Lyng* by special interest groups representing the mineral and coal mining industries.⁷⁹ Their brief explained that “federal lands contain 85% of the nation’s crude oil, 40% of the natural gas, 40% of the uranium, and 35% of the coal reserves.”⁸⁰ It was over these lands that Native Americans had asserted a series of free exercise claims, seeking to block development projects that interfered with their religious practice. The industries explained that the lower courts’ affirmation of Native religious rights would have to be rejected, or else “mineral exploration and development on public lands may be significantly impaired.”⁸¹

The brief side-stepped the government’s apparent lack of a compelling interest in *Lyng* itself by asking the Court to consider the issues presented in the case at a higher level of generality.⁸² It claimed that the Ninth Circuit had erred by examining the merits of only “one particular proposal.”⁸³ The proper inquiry, in the industries’ view, was instead the government’s general interest in “producing natural resources from public lands,” which it submitted was “compelling.”⁸⁴ Conceding that “freedom to believe is at the foundation of fundamental rights,” the industries nonetheless argued that sincere religious beliefs “should not limit the government’s use of its resources.”⁸⁵ Rather, such claims of “spiritual disquiet”⁸⁶ would have to fall upon the altar of governmentally sponsored resource extraction.

Whatever persuasive weight the Court afforded the industries’ request for retrenchment, that was precisely the effect the majority’s opinion had. Clamping down on the threshold showing required for plaintiffs to receive strict scrutiny amounted to a functional foreclosure of Track I religious

77. *Lyng*, 485 U.S. at 443.

78. *Nw. Indian Cemetery Protective Ass’n v. Peterson*, 565 F. Supp. 586, 590 (N.D. Cal. 1983). These included the Sierra Club, the Audubon Society, and the Northcoast Environmental Center.

79. See generally Brief of Colorado Mining Association et al. as Amici Curiae in Support of the Appellants, *Lyng*, 485 U.S. 439 (No. 86-1013), 1987 WL 880344 (stating the lower court’s ruling “raises issues of paramount importance to those involved in the production of natural resources”).

80. *Id.* at *2.

81. *Id.*

82. *Id.* at *15.

83. *Id.*

84. *Id.*

85. *Id.* at *17.

86. *Id.* at *14–15.

liberty claims.⁸⁷ Future claimants asserting non-‘coercive,’ incidental burdens were now entitled only to rational basis review, under which the government, as in *Lyng*, could easily justify its development projects. Yet for all the criticism *Lyng* attracted, the reaction was ultimately muted compared to the Court’s forthcoming doctrinal revisions.

II. SMITH AND THE CREATION OF PARITY BETWEEN TRACK I & TRACK II CLAIMS

Just two years after the *Lyng* decision, the Court conducted yet another overhaul of its free exercise jurisprudence. In *Employment Division v. Smith*, the Court was asked to invalidate the denial of unemployment benefits for two drug rehabilitation clinic employees fired for ingesting peyote.⁸⁸ The respondents took the drug during a Native American religious ceremony, and they alleged that the resulting denial of unemployment benefits unduly burdened their religious free exercise.⁸⁹ Writing for the Court in *Smith*, Justice Scalia effectively overruled *Sherbert*.⁹⁰ Rather than portray the *Sherbert* framework as the baseline inquiry for free exercise analysis, he recast that framework as relevant only to “individualized governmental assessments,” like South Carolina’s adjudication of Adele Sherbert’s benefits.⁹¹ But neutral and generally applicable laws that incidentally burdened religion—even substantially so—would now receive only rational basis review under *Smith*.⁹² Further, Justice Scalia reasoned that the respondents had not been fired because of their religious *beliefs*, but because their ingestion of an illegal drug constituted workplace misconduct.⁹³ And because those laws and regulations were neutral and generally applicable, rather than targeted at religious exercise, the respondents’ claim for relief failed.

The *Smith* majority proffered several justifications for its holding. One was the view that the free exercise clause codifies a distinction between belief

87. *Lyng*’s objective burden threshold was so high “that few free exercise claimants could overcome” it. James E. Ryan, *Smith and the Religious Freedom Restoration Act: An Iconoclastic Assessment*, 78 VA. L. REV. 1407, 1415–16 (1992). *Lyng* thus did implicitly what *Smith*, two years later, did explicitly: terminate the exemption era. *See id.* at 1416 (“After *Lyng* it seemed the only sure way of demonstrating a burden would be to show that the particular religious practice in question was criminally prohibited.”).

88. *Emp’t Div., Dep’t of Human Resources of Or. v. Smith*, 494 U.S. 872, 874 (1990).

89. *Id.*

90. *Id.* at 874, 878–88.

91. *Id.* at 884.

92. *Id.*; *see also* Rummage, *supra* note 23, at 1184 (explaining such claims would receive only rational basis review).

93. *Smith*, 494 U.S. at 874, 876.

and conduct.⁹⁴ Though the government may not target conduct *solely* for its religious nature, it may pass neutral and generally applicable regulations that incidentally burden religious conduct.⁹⁵ Indeed, Justice Scalia disavowed the conclusion that the Court had ever held that “an individual’s religious beliefs excuse him from compliance with an otherwise valid law prohibiting conduct that the State is free to regulate.”⁹⁶ A second rationale was the potential “anarchy” that might result if a religious claimant could obtain an exemption from generally applicable laws; were such exemptions available, a successful religious claimant could become “a law unto himself.”⁹⁷ That “anarchy” had not resulted under *Sherbert* was not, in his view, a reason to retain that regime, but was instead an indication that the Supreme Court had never taken *Sherbert* seriously.⁹⁸ Whether by finding the government’s interests compelling or by framing claimants’ religious burdens as insubstantial, the Court had recognized only a handful of exemptions during *Sherbert*’s quarter-century reign.⁹⁹

Justice Scalia also invited readers to envision the “parade of horrors”¹⁰⁰ that might ensue if the Court were to strictly adhere to *Sherbert*.¹⁰¹ If religious claims were valid grounds for exemption from generally applicable laws, it might lead to the erosion of laws regulating taxation, mandatory vaccinations, drugs (as in *Smith* itself), the minimum wage, child labor, civil rights, and—most relevant for our purposes—“*environmental protection laws*.”¹⁰² The rule of law, in Justice Scalia’s view, was incompatible with a theory of religious liberty that would make Swiss cheese of such a panoply of socially important regulations.

Though typically not considered in the vanguard of environmental defenders, Justice Scalia revealed a deep insight about the interaction of environmentalism and religious liberty.¹⁰³ His point concerned the normative undesirability of Track II religious liberty claims—how religious liberty might be used as a sword to evade environmental protections. The case he

94. *Id.* at 879, 882.

95. *Id.* at 877–78.

96. *Id.* at 878–79.

97. *Id.* at 879, 888.

98. *See id.* at 883 (“Although we have sometimes purported to apply the *Sherbert* test in contexts other than [unemployment benefits], we have always found the test satisfied.”).

99. *See id.* at 883–84.

100. *Id.* at 902 (O’Connor, J., concurring in the judgment) (so labeling the majority’s list of generally applicable laws that might be evaded with religious exemptions).

101. *Id.* at 889.

102. *Id.* (emphasis added).

103. *Id.* at 891; *see, e.g.*, Dan Farber, *Justice Scalia and Environmental Law*, BERKELEY BLOG (Feb. 17, 2016), <https://blogs.berkeley.edu/2016/02/17/justice-scalia-and-environmental-law/> (“Justice Scalia did much to shape environmental law, nearly always in a conservative direction If Scalia had lived, he clearly would have pushed to expand on these precedents, further weakening environmental protection.”).

cited as illustrative of this pitfall was the Montana federal district court case *United States v. Little*.¹⁰⁴ In *Little*, the federal government had charged the defendant, Swede Little, with illegally harvesting trees for firewood in a National Forest.¹⁰⁵ Tried and convicted before a magistrate, Little sought review in the district court.¹⁰⁶ Though conceding that he had taken the timber, the gravamen of his defense was that prosecuting him violated his free exercise rights.¹⁰⁷ According to Little, “in all scriptural references pertaining to the gathering and using of firewood, God never implies that a king, ruler[,] or any individual has ownership over it.”¹⁰⁸ Little thus contended that “the permits and fees required by the U.S. Forest Service are a violation of our God-given rights guaranteed by the U.S. Constitution.”¹⁰⁹ The district court ultimately rejected his religious claim, finding him guilty of violating the regulations.¹¹⁰ Yet the potential that the district court might have reached a different result under *Sherbert* apparently struck Justice Scalia as a latent danger of that regime.

Smith's implications for the relationship between environmentalism and religious liberty were thus double-edged. *Smith*, it is true, disallowed Track I claims intended to protect the environment from damaging governmental intrusions that incidentally burdened religious practice. But the *Smith* Court also rejected Track II claims because of such claims' potential to confound environmental regulations. *Smith* was thus an exercise in taking the bitter with the sweet. Much like it promoted “equal liberty” by refusing to elevate religious claims above weighty claims of secular conscience,¹¹¹ *Smith* leveled Track I and Track II claims by making each non-cognizable.

Whatever *Smith*'s merits, though, the backlash was fierce. Scholars and pundits labeled the decision “a sweeping repudiation of nearly a century of humane and enlightened legal precedent,”¹¹² “an affront to our society's hard-won pluralism,”¹¹³ and “the most dangerous attack on our civil rights in this country since the Dred Scott decision.”¹¹⁴ The significance of *Smith* was

104. *Smith*, 494 U.S. at 889 (citing *United States v. Little*, 638 F. Supp. 337 (D. Mont. 1986)).

105. *Little*, 638 F. Supp. at 338.

106. *Id.*

107. *Id.* at 338–39.

108. *Id.* at 339.

109. *Id.*

110. *Id.* at 340.

111. See CHRISTOPHER L. EISGRUBER & LAWRENCE G. SAGER, RELIGIOUS FREEDOM AND THE CONSTITUTION, 52–53 (Harvard Univ. Press 2007).

112. *The Necessity of Religion: High Court Says Religious Freedom is a Luxury—Wrong*, L.A. TIMES (Apr. 19, 1990), at B6; see also Ryan, *supra* note 87, at 1409–12 (cataloguing the backlash in the wake of the *Smith* decision).

113. L.A. TIMES, *supra* note 112.

114. Ed Briggs, *Rabbi Deplores Supreme Court Trend on Freedom of Worship*, WASH. POST (Oct. 26, 1991), <https://www.washingtonpost.com/archive/local/1991/10/26/rabbi-deplores-supreme-court-trend-on-freedom-of-worship/2a5235d9-30a1-420a-8284-f85d31d06881/>.

not lost upon Congress either. Reacting to the abandonment of *Sherbert*, it soon passed the Religious Freedom Restoration Act of 1993. RFRA, as it became known, rejected *Smith* by name and purported to re-establish *Sherbert*'s strict scrutiny framework against both federal and state action incidentally burdening religious practice.¹¹⁵ After the Court's invalidation of RFRA in 1997 as applied to the states,¹¹⁶ Congress responded with the Religious Land Use and Institutionalized Persons Act of 2000 (RLUIPA). RLUIPA again codified *Sherbert*'s standard against the states,¹¹⁷ yet its scope was limited to land use laws and prisoners' free exercise rights.¹¹⁸ It was this legislative assault on *Smith* that produced the paradoxical result catalogued in Part III—the resurgence of Track II religious liberty claims.

III. THE PARADOXICAL RESURGENCE OF TRACK II CLAIMS

The rise of successful Track II religious liberty claims—and the concomitant lack of successful Track I claims—is tethered to the disuniform patchwork of scrutiny applied to religious liberty challenges after the last thirty years of doctrinal churn. Though RFRA purported to resurrect strict scrutiny for incidental burdens against government action at both the federal and state levels, the Court in *City of Boerne v. Flores* concluded that RFRA was inapplicable to the states.¹¹⁹ In a reassertion of judicial supremacy, the Court held that RFRA exceeded Congressional power under Section V of the Fourteenth Amendment.¹²⁰ Congress's failure to compile a factual record justifying the federal government's intrusion on state prerogatives led the Court to conclude that RFRA lacked "congruence and proportionality" with the asserted state-level harms.¹²¹ In some applications, RFRA may still apply a *Sherbert*-like test to *federal* action, but the law remains unenforceable against the states.

At the same time, *City of Boerne* gave Congress a roadmap for a second shot at re-instituting strict scrutiny for at least certain classes of claims. Congress did so three years later in RLUIPA, subjecting state and local land use decisions that burden religious liberty to strict scrutiny.¹²² Congress's detailed record about the purported need for the renewal of strict scrutiny in

115. Religious Freedom Restoration Act, 42 U.S.C. §§ 2000bb(a)(4), 2000bb(b)(1) (1993) (rejecting the holding in *Smith* by name).

116. *City of Boerne v. Flores*, 521 U.S. 507, 532–36 (1997) (holding RFRA inapplicable to states).

117. Protection of Land Use as Religious Exercise, 42 U.S.C. §§ 2000cc, cc-1 (2000).

118. *Id.* §§ 2000cc(a)(1), cc-1.

119. *City of Boerne*, 521 U.S. at 534, 535.

120. *Id.* at 519.

121. *Id.* at 530.

122. 42 U.S.C. § 2000cc(a)(2).

this area¹²³ has allowed RLUIPA to survive various constitutional challenges.¹²⁴ And therein lies the first of several key reasons for Track II claims' resurgence: given RFRA's inapplicability to the states—where the vast majority of cases are filed¹²⁵—Track I incidental burden claims are subject only to rational basis review under the *Smith* regime. Yet Track II claims to *avoid* land use regulations under RLUIPA can often receive strict scrutiny. Thus, in states that have neither passed their own state RFRA nor interpreted their constitutions as codifying a *Sherbert*-like standard,¹²⁶ land use decisions represent a central battleground where religious plaintiffs may attain heightened review.

Despite RLUIPA's original purpose as an anti-discrimination statute,¹²⁷ courts have interpreted its provisions as reflecting a legislative mandate that religious concerns are to be prioritized over environmental protections.¹²⁸ In the words of one federal judge, religious uses “are favored property uses,” requiring state authorities “to weigh their needs heavily against environmental concerns.”¹²⁹ Unlike RFRA's general command to restore *Sherbert*, a case that had systematically failed to produce broad exemptions, RLUIPA's hyper-specific mandate has emboldened plaintiffs and jurists. RLUIPA—as the *Smith* Court prophesied—has created a pathway for religious litigants to assert Track II claims against generally applicable land use regulations put in place to protect the environment.

123. Roman P. Storzer & Anthony R. Picarello, Jr., *The Religious Land Use and Institutionalized Persons Act of 2000: A Constitutional Response to Unconstitutional Zoning Practices*, 9 GEO. MASON L. REV. 929, 943 (2001) (noting that RLUIPA “narrowed the sweep of the legislation to those areas of law where the congressional record . . . was the strongest.”).

124. See, e.g., *Cutter v. Wilkinson*, 544 U.S. 709, 725 (2005) (upholding RLUIPA's institutionalized persons provisions). The constitutionality of RLUIPA's land use provisions remains an open question. See Zachary Bray, *RLUIPA and the Limits of Religious Institutionalism*, 2016 UTAH L. REV. 41, 62 (2016) (“[T]he Supreme Court . . . has not directly addressed the constitutionality of RLUIPA's land use provisions.”); Kellen Zale, *God's Green Earth? The Environmental Impacts of Religious Land Use*, 64 ME. L. REV. 207, 227 (2011) (same).

125. See NAT'L CTR. FOR STATE COURTS, *THE LANDSCAPE OF CIVIL LITIGATION IN STATE COURTS*, at v (2015).

126. And nineteen states, including some of the nation's most populous and economically important, such as California and New York, have not. See Juliet Eilperin, *31 States Have Heightened Religious Freedom Protections*, WASH. POST (Mar. 1, 2014), <https://www.washingtonpost.com/news/the-fix/wp/2014/03/01/where-in-the-u-s-are-there-heightened-protections-for-religious-freedom/?arc404=true>.

127. *Petra Presbyterian Church v. Vill. of Northbrook*, 489 F.3d 846, 851 (7th Cir. 2007) (justifying RLUIPA's “substantial burden” test as a protection against intentional discrimination); see also Douglas Laycock & Luke W. Goodrich, *RLUIPA: Necessary, Modest, and Under-Enforced*, 39 FORDHAM URB. L.J. 1021, 1025 (2012) (concluding that “twelve years of precedent show that RLUIPA was and is needed” to address the “hostility and discrimination” that churches face).

128. See Bray, *supra* note 124, at 45 (“[C]ourts' increasing willingness to accord special solicitude to religious institutions has . . . threatened to subvert many legitimate aims of local government in the land use context.”).

129. *Westchester Day Sch. v. Vill. of Mamaroneck*, 417 F. Supp. 2d 477, 572 (S.D.N.Y. 2006), *aff'd*, 504 F.3d 338 (2d Cir. 2007).

Understanding that RLUIPA challenges might lead to costly and protracted litigation—with the possibility of having to pay attorney’s fees should they lose¹³⁰—localities tread lightly when enforcing their land use restrictions against religious entities. Indeed, “megachurches and other expanding religious institutions” have evaded environmental laws and secured exemptions from “environmental land use regulations that otherwise ought to apply, based on little more than the institutions’ allegedly distinctive religious nature.”¹³¹ Such exemptions are particularly problematic when considering that “the environmental impact of religious land development has steadily grown in recent years, to the point where it now approximates or exceeds the environmental impact of large-scale commercial land development.”¹³²

RLUIPA’s expansive text has bolstered the resurgence of Track II claims. RLUIPA broadly defines “religious exercise” to include “any exercise of religion, whether or not compelled by, or central to, a system of religious belief.”¹³³ Religious plaintiffs are able to frame their “religious exercise” in general terms, and current doctrine prohibits courts from questioning the validity of claimants’ beliefs.¹³⁴ RLUIPA also imprecisely defines a “land use regulation” as “a zoning or landmarking law, or the application of such a law, that limits or restricts a claimant’s use or development of land”¹³⁵ Courts have thus been left with “the daunting challenge of determining the boundaries of RLUIPA’s application and force.”¹³⁶

Responding to this challenge, courts have broadly construed RLUIPA’s language to sweep under its purview a wide array of environmental regulations,¹³⁷ which are often intertwined with zoning laws. Zoning laws

130. See 42 U.S.C. § 1988(b) (2012) (permitting award of attorney’s fees to prevailing religious claimants); see also Bray, *supra* note 124, at 67 (“[T]he most practically significant aspect of the statute may be the discretion it affords courts to award prevailing religious claimants their attorneys’ fees.”).

131. Bray, *supra* note 127, at 84.

132. *Id.* at 65.

133. 42 U.S.C. § 2000cc-5(7)(A) (2000).

134. See Bray, *supra* note 127, at 83 (“[C]ourts tend to eschew any close examination of the sincerity or the centrality of the religious beliefs at issue”).

135. 42 U.S.C. § 2000cc-5(5), 5(7)(B) (defining religious exercise to include “[t]he use, building, or conversion of real property for the purpose of religious exercise”); see also Patricia Salkin & Amy Lavine, *God and the Land: A Holy War Between Religious Exercise and Community Planning and Development*, 2 ALB. GOV. L. REV. 8, 10 (2009). Congress inadvertently muddied the statutory waters even further by instructing courts to construe RLUIPA’s provisions “in favor of a broad protection of religious exercise, to the maximum extent permitted by the terms of this Act and the Constitution.” 42 U.S.C. § 2000cc-3(g).

136. Baker, *supra* note 11, at 1215.

137. See Daniel P. Lenington, *Thou Shalt Not Zone: The Overbroad Applications and Troubling Implications of RLUIPA’s Land Use Provisions*, 29 SEATTLE U. L. REV. 805, 806 (2006) (arguing that RLUIPA’s overly broad statutory language has made churches effectively “immune from local zoning laws”).

often take indirect aim at environmental concerns,¹³⁸ and “local land use laws are increasingly being used to accomplish a wide range of environmental objectives.”¹³⁹ Recently, zoning laws have been “implemented with the sole, not incidental, goal of protecting environmental interests.”¹⁴⁰ Erosion control measures, riparian setbacks, storm water management protocols, and tree mitigation requirements all serve the principal goal of ensuring “that land users control use of their property and limit damage to natural resources and ecosystems.”¹⁴¹ Some scholars’ assertions that “environmental justice goes to the core of traditional land use decisions,”¹⁴² as “local land use laws have morphed into local *environmental* land use laws,”¹⁴³ are thus unsurprising.

Despite the upswing in environmentally conscious zoning efforts, RLUIPA presents new challenges for local governments defending such regulations.¹⁴⁴ When the government fails to show either a compelling interest or narrow tailoring, a religious plaintiff can evade an environmental zoning regulation “without ever having to prove that its religious exercise was thwarted because of discrimination.”¹⁴⁵ RLUIPA thus “provides a powerful legal tool to congregations that wish to . . . build a parking lot or expand their buildings in defiance of municipal restrictions.”¹⁴⁶ As one commentator put it, “[a]ny time a church is denied permission to use its land for any church-related purpose—including the construction of a high-rise business building, a towering tabernacle or a radio antenna—RLUIPA intervenes.”¹⁴⁷ Some have even argued that “by allowing religious entities to use their property in ways that no other land users can, [RLUIPA] threatens to undermine local environmental protection efforts nationwide.”¹⁴⁸

138. Bray, *supra* note 124, at 65 (“[L]arge parking lots lead to increased mobile source air pollution, storm water runoff, and erosion.”).

139. Zale, *supra* note 124, at 222; see John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, 23 PACE ENVTL. L. REV. 705, 706 (2006) (exploring the authority of local governments to protect the environment); DANIEL P. SELMI ET AL., *LAND USE REGULATION: CASES AND MATERIALS* 3 (4th ed. 2012) (“[T]he fields of environmental law and land use law are converging.”).

140. Zale, *supra* note 124, at 213; see Stewart E. Sterk, *Structural Obstacles to Settlement of Land Use Disputes*, 91 B.U. L. REV. 227, 239 (2011) (noting that zoning laws in an increasing number of states now require environmental review).

141. Zale, *supra* note 124, at 213–14.

142. Patricia Salkin, *Environmental Justice and Land Use Planning and Zoning*, 32 REAL EST. L.J. 429, 429 (2004).

143. Patricia Salkin, *From Euclid to Growing Smart: The Transformation of the American Local Land Use Ethic into Local Land Use and Environmental Controls*, 20 PACE ENVTL. L. REV. 109, 127–28 (2003) (emphasis added).

144. Serkin & Tebbe, *supra* note 11, at 4, 15.

145. *Id.* at 11, 23 n.81.

146. *Id.* at 2.

147. Lawrence G. Sager, *Panel One Commentary*, 57 N.Y.U. ANN. SURV. AM. L., July 2001, at 14; see also Bray, *supra* note 124, at 64 (documenting RLUIPA’s intervention when religious entities are prevented from using their own land as they see fit).

148. Zale, *supra* note 124, at 210 (“RLUIPA’s message to churches is that they can expand without regard to the detrimental impact of their development.”).

Westchester Day School v. Village of Mamaroneck illustrates the renewed success of Track II claims.¹⁴⁹ In that case, a private Orthodox Jewish day school sought a modification from its existing special permit to construct a 44,000-square-foot building and to make related improvements to its campus.¹⁵⁰ Under the village zoning ordinance, the school's request required approval from the Village administrative body empowered to consider applications for special permits.¹⁵¹ After a public hearing, the Village permitted the project to proceed,¹⁵² despite environmental concerns about the proposed parking lot and the need to "preserv[e] the existing mature trees on site."¹⁵³ After public outcry, and upon reconsideration of the environmental impact, the Village rescinded the decision and instead required the school to undertake additional environmental studies.¹⁵⁴

The school sued, arguing in part that the Village's rescission of its permit violated RLUIPA.¹⁵⁵ After protracted litigation, the district court concluded that there were less restrictive means available to address the environmental concerns, as "the evidence indicates that any adverse environmental impact of the size of the building and the set-back . . . could have been mitigated . . . through imposition of conditions," instead of outright rejection.¹⁵⁶ The court then concluded that under RLUIPA, "religious schools are favored property uses[,] and zoning boards are adjured to weigh their needs heavily against environmental concerns."¹⁵⁷ A weighing of the school's "pressing need against the relatively minor adverse environmental impacts" compelled a finding that the Village's rescission of the special permit contravened RLUIPA.¹⁵⁸

Another example of renewed Track II success involved a Boulder, Colorado megachurch's objection to several neutral, environmental regulations. Boulder maintains "a comprehensive system of land use regulations designed to mitigate the slow chokehold of ever-encroaching development on wetlands and open space, on groundwater and soils, and on wildlife and native species."¹⁵⁹ The Boulder-based Rocky Mountain Christian Church proposed building a 6,500-square-foot chapel and

149. *Westchester Day Sch. v. Vill. of Mamaroneck*, 417 F. Supp. 2d 477, 572–73 (S.D.N.Y. 2006), *aff'd*, 504 F.3d 338 (2d Cir. 2007) (holding defendants "substantially burdened WDS's religious exercise without a compelling governmental interest exercised in the least restrictive means, in violation of the Religious Land Use and Institutionalized Persons Act").

150. *Id.* at 483.

151. *Id.* at 483, 505.

152. *Id.* at 509–10.

153. *Id.* at 510.

154. *Id.* at 512.

155. *Id.* at 482–83.

156. *Id.* at 553.

157. *Id.* at 572.

158. *Id.*

159. *Zale*, *supra* note 124, at 208.

expanding its school by 57,500 square feet.¹⁶⁰ County land use staff opposed the proposal because it would have harmed the surrounding environment.¹⁶¹ The County denied the plan, and the Church sued under RLUIPA, arguing that the denial, which stemmed from environmental zoning law, substantially burdened its right to religious exercise.¹⁶² The district court sided with the plaintiffs, finding the burden on religious practice substantial.¹⁶³ The Tenth Circuit affirmed, holding “that Boulder’s zoning laws, limiting development in environmentally sensitive rural areas, violated the megachurch’s right to religious exercise under . . . federal law.”¹⁶⁴ The Tenth Circuit’s decision, according to one commentator, “foreshadow[s] how RLUIPA could lead to a ‘death by a thousand cuts’ for environmental protection efforts across the nation.”¹⁶⁵ Put differently, the decision represents the viability of Track II claims and the use of religious liberty as a sword to evade environmental regulations.¹⁶⁶

Paradoxically, though religious institutions have successfully asserted Track II claims in the wake of RLUIPA, religious adherents asserting Track I claims under RFRA have fared poorly, despite each statute purporting to codify the same standard.¹⁶⁷ As mentioned, RFRA’s invalidation as applied to the states necessarily forecloses many potential state-level claims under the *Smith* regime. And though courts have taken RLUIPA as a mandate to vigorously police land use regulations, RFRA’s general codification of pre-*Smith* case law leaves Track I claims (when RFRA even applies to them) susceptible to all the same mechanisms by which courts traditionally declined to grant exemptions under *Sherbert*.

Take, for instance, *Navajo Nation*, a case in which a Native American group mounted a RFRA challenge to the Forest Service’s approval of a plan to convert wastewater into artificial snow to establish a ski resort on a tribal sacred site.¹⁶⁸ A three-judge panel of the Ninth Circuit concluded that the

160. *Rocky Mountain Christian Church v. Bd. of Cnty. Comm’rs*, 613 F.3d 1229, 1234 (10th Cir. 2010).

161. *Id.* at 1234–35.

162. *Id.* at 1230, 1235.

163. *Rocky Mountain Christian Church v. Bd. of Cnty. Comm’rs of Boulder Cnty.*, 612 F. Supp. 2d 1163, 1163 (D. Colo. 2009).

164. *Zale*, *supra* note 124, at 209.

165. *Id.* at 222.

166. *Id.*

167. *See Zale*, *supra* note 124, at 217–18. Theoretically, nothing bars the assertion of an RLUIPA Track I claim. Religious entities could rely on the statute to challenge a local land use law that simultaneously harmed the environment *and* burdened religious practice; for instance, if a locality changed zoning laws to permit constructing smog-producing factories around a church that imposed a nuisance on parishioners. Historically speaking, however, given the convergence of zoning and environmental regulations, RLUIPA challenges have been of the Track II variety. *See supra* Part II (describing RLUIPA challenges to evade environmental regulations).

168. *Navajo Nation v. U.S. Forest Serv.*, 535 F.3d 1058, 1065 (9th Cir. 2008) (en banc).

Forest Service’s approval “violates the RFRA.”¹⁶⁹ On review of the panel’s decision, the *en banc* Ninth Circuit agreed that “the Native Americans held sincere religious beliefs and were engaged in the exercise of religion on the Peaks.”¹⁷⁰ Yet it concluded that the initial burden of proof was on the Native Americans to establish that the wastewater scheme “placed a substantial burden on their exercise of religion.”¹⁷¹ Under the court’s threshold analysis, the wastewater “did not place a cognizable substantial burden upon them,” and thus their claim failed to trigger strict scrutiny.¹⁷² Echoing *Lyng*, the *en banc* court overrode the three-judge panel, disagreeing that the burden to religious practice was substantial despite “acknowledging that there may be a serious diminishment of the spiritual fulfillment of Native Americans who practice their religion on this peak,” and that the project was “offensive to their religious sensibilities.”¹⁷³ Compared to the success of Track II claims under RLUIPA, it is certainly “ironic that RFRA [has] failed to protect Native American[s], considering that it was enacted in response to [*Smith*], which centered on Native American religious beliefs.”¹⁷⁴

Other salient and recent Track I failures have reinforced the Track I-Track II disparity. In response to the Dakota Access Pipeline (DAPL) construction project—the genesis of a yearlong protest effort—the Standing Rock Sioux Tribe filed a RFRA challenge in 2017.¹⁷⁵ In its complaint, the Tribe asserted that “numerous . . . spiritual sites [exist] beneath the waters of the proposed DAPL pipeline crossing,” and that the water from the lake “play[ed] a central role in the religious and cultural beliefs of the Tribe,” as it was “used in numerous traditional ceremonies.”¹⁷⁶ Allowing the construction of the pipeline would thus “negatively impact the Tribe’s and its members’ ability to conduct traditional medicinal and spiritual ceremonies and practices.”¹⁷⁷

169. *Navajo Nation v. U.S. Forest Serv.*, 479 F.3d 1024, 1029 (9th Cir. 2007), *overruled by* 535 F.3d 1058 (9th Cir. 2008) (*en banc*); Wiseman, *supra* note 52, at 152–53.

170. *Navajo Nation*, 535 F.3d at 1073 (“Plaintiffs in this case, despite their sincere belief that the use of recycled wastewater on the Peaks will spiritually desecrate a sacred mountain, cannot dictate the decisions that the government makes in managing ‘what is, after all, *its* land.’”); Wiseman, *supra* note 48 at 152.

171. *Navajo Nation*, 535 F.3d at 1068; Wiseman, *supra* note 48, at 152.

172. Wiseman, *supra* note 48, at 153; *see Navajo Nation*, 535 F.3d at 1070 (“Applying *Sherbert* and *Yoder*, there is no ‘substantial burden’ on the Plaintiffs’ exercise of religion in this case.”).

173. *Navajo Nation*, 535 F.3d at 1070; Wiseman, *supra* note 48, at 153.

174. Zale, *supra* note 124, at 216 n.62. Certainly, “[a] key underlying distinction between *Navajo Nation* and most RLUIPA cases is that the religious entity in *Navajo Nation* had no property interest in the subject land . . . RLUIPA requires that a religious entity must have a property interest in the land at issue.” *Id.*

175. *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, 239 F. Supp. 3d 77, 80 (D.D.C. 2017); Edward K. Olds, *Trespass and Vandalism or Protecting That Which Is Holy? The Missing Piece of Religious Liberty Land-Use Claims*, 119 COLUM. L. REV. ONLINE 18, 26–27 (2019).

176. *Standing Rock Sioux Tribe*, 239 F. Supp. 3d at 86.

177. *Id.*

Despite concluding that the Tribe was “likely to successfully establish a sincerely held belief that the presence of oil in the Dakota Access pipeline running under Lake Oahe interferes with its members’ religious ceremonies,”¹⁷⁸ the district court nevertheless held the Tribe “unlikely to succeed on the merits of its RFRA claim.”¹⁷⁹ It reasoned that “*Lyng* likely prevents the Tribe from showing that the Corps’ decision to grant an easement to Dakota Access to operate an oil pipeline under Lake Oahe constitutes a substantial burden on its members’ free exercise of religion.”¹⁸⁰ Under *Lyng*’s heightened objective burden inquiry, tribes were once again blocked from reaching strict scrutiny.

This lack of success for Track I claimants extends beyond the rejection of just Native Americans’ RFRA-based challenges. Most recently, the Supreme Court declined to review a case involving a group of Roman Catholic nuns, the Adorers of the Blood of Christ, who oppose the construction of a high-volume natural gas pipeline directly through their property.¹⁸¹ Inspired by Pope Francis’s 2015 encyclical, the Adorers embrace a sincere religious duty to protect and nurture the unaltered land.¹⁸² After the Federal Energy Regulatory Commission issued a conditional certificate to build the pipeline, “the Adorers filed a claim pursuant to [RFRA] in district court to prospectively enjoin the construction and use of the pipeline on their property.”¹⁸³ The lower courts ultimately dismissed their appeal in light of a complicated jurisdictional issue discovered during the litigation, and the Supreme Court declined to grant review.¹⁸⁴ But if history provides any insight, the Adorers’ claim might have met a similar fate on the merits.

IV. RECTIFYING THE DISPARITY BETWEEN TRACK I AND TRACK II CLAIMS

The free exercise clause was framed some 230 years ago in recognition of the fact that “small minorit[ies]” would entertain “in good faith . . . religious belief[s]” that engendered “little toleration or concern” from society’s most powerful interests.¹⁸⁵ The gu

arantee of free exercise, like the Bill of Rights itself, sought “to withdraw certain subjects from the vicissitudes of political controversy.”¹⁸⁶ Yet the historical arc detailed in the preceding pages stands in contrast to those

178. *Id.* at 91.

179. *Id.* at 100.

180. *Standing Rock Sioux Tribe*, 239 F. Supp. 3d at 100.

181. *Adorers of the Blood of Christ v. Fed. Energy Regulatory Comm’n*, 897 F.3d 187, 190 (3d Cir. 2018), *cert. denied*, 139 S. Ct. 1169 (2019).

182. *Id.* at 191.

183. *Petition for Writ of Certiorari at 2, Adorers of the Blood of Christ v. F.E.R.C.* (No. 18-548).

184. *Adorers of the Blood of Christ*, 897 F.3d at 190.

185. *Minersville School Dist. v. Gobitis*, 310 U.S. 586, 606 (1940) (Stone, J., dissenting).

186. *W. Va. St. Bd. Of Educ. v. Barnette*, 319 U.S. 624, 638 (1943).

principles. Religious minorities—like the Sioux, the Yurok, and the Navajo—and the politically disenfranchised—like the Adorers—have found no refuge in their Track I claims. Large institutions like some megachurches, however, have benefitted from the Track II model, using religious liberty to gain exemptions from environmental protections. Whatever the independent merits of either Track, there is no persuasive justification for this Track I-Track II disparity. In response, this Essay now advocates three potential solutions.

The first is to alter the current interpretation of RLUIPA to principally target discriminatory governmental action. When RLUIPA was passed in response to the Court’s invalidation of RFRA as applied to the states, Congress intended the Act to address the “nationwide problem” of discrimination against religious entities in the zoning process.¹⁸⁷ Congress did not aim to provide “a free pass” to religious entities that elevates religious land use above neutral environmental zoning laws.¹⁸⁸ Instead, RLUIPA was fashioned with a special concern for “[s]maller and less mainstream denominations”—entities that are particularly vulnerable to “discriminatory regulation” from local governments.¹⁸⁹

Yet at present, RLUIPA is interpreted to grant religious entities “advantages that no other land users enjoy, as well as providing them with economic and legal incentives to intimidate local governments.”¹⁹⁰ Rather than smoke out discrimination, RLUIPA “has instead extended sweeping exemptions and unnecessary leverage to powerful religious organizations regardless of whether they have faced or are facing discrimination.”¹⁹¹ The statute’s imprecise language, broad judicial interpretations, and the threat of attorney’s fees all combine to lend religious claimants “substantial leverage when disputes arise.”¹⁹² In some cases, claimants with substantively meritless claims can leverage the threat of litigation to garner favorable exemptions from neutral environmental zoning regulations.¹⁹³ As one commentator put it, “the prospect of having to [pay attorney’s fees],

187. 106 CONG. REC. 16698, 16699 (2000) (statement of Sen. Hatch) (“[D]iscrimination against religious uses is a nationwide problem.”); *see also id.* at 16698 (explaining the “massive evidence” of widespread discrimination against churches); Zale, *supra* note 124, at 229 (proposing that RLUIPA be “refocus[ed] . . . on its intended purpose of eliminating religious discrimination.”).

188. Zale, *supra* note 124, at 236.

189. *See* H.R. REP. NO. 106-219, at 24 (1999); *see also* Richard C. Schragger, *The Role of the Local in the Doctrine and Discourse of Religious Liberty*, 117 HARV. L. REV. 1810, 1839 (2004) (“The charge is that localities enforce religious bigotry through the strategic use of often vague and standardless land-use ordinances and development processes.”).

190. Zale, *supra* note 124, at 228.

191. Bray, *supra* note 124, at 102.

192. *Id.* at 67.

193. *Id.* at 102 (“[M]any religious organizations have been able to dictate the terms of their land use to local governments, impairing local governments’ ability to plan for and control externalities arising out of a wide range of land uses not previously considered particularly religious.”).

combined with the murky nature of the statute's substantive provisions, frequently creates substantial pressure on local governments to compromise or settle even relatively weak RLUIPA claims.¹⁹⁴ To arrest litigants from prevailing on such meritless Track II claims, Congress could revisit RLUIPA's text, clarifying its anti-discrimination purpose¹⁹⁵ and making attorney's fees available only when discrimination is readily apparent.¹⁹⁶

Second, Congress could revisit RFRA's text and explicitly allow for Track I claims. Though the Court has foreclosed RFRA's application to the states, cases like *Navajo Nation* and *Standing Rock Sioux Tribe* reveal that it could still perform important work at the federal level.¹⁹⁷ Yet the central barrier remains the *Lyng* decision, which was incorporated into RFRA when Congress codified pre-*Smith* case law.¹⁹⁸ To circumvent *Lyng*, Congress could simply amend the statute to clarify that damage or destruction of religious sites is cognizable under the statute's strict scrutiny standard. Though the nearly unanimous coalition that passed RFRA in 1993 is today "fraying at the seams and is in danger of permanent disintegration,"¹⁹⁹ such a statutory modification would be circumscribed. It would also not engender the typical concerns about third-party harms, given Track I plaintiffs' sincerity and mere desire to preserve sacred religious sites.²⁰⁰

Third, the Supreme Court could revisit *Smith* and legitimize Track I claims. Though revision of precedent ordinarily would be an ambitious

194. *Id.* at 67–68.

195. This Essay, unlike others, contends that remedying the current disparity between Track I and Track II claims does not require RLUIPA's repeal. In fact, RLUIPA serves a valuable purpose in protecting religious entities from discriminatory governmental conduct, including the discriminatory use of environmental zoning regulations. See Roman P. Storzer & Blair Lazarus Storzer, *Christian Parking, Hindu Parking: Applying Established Civil Rights Principles to RLUIPA's Nondiscrimination Provision*, 16 RICH. J.L. & PUB. INT. 295, 295–96 (2013) ("While there is no question that local zoning boards and other regulatory bodies are often motivated by sincere concerns about matters such as . . . environmental protection, and adherence to building codes, it is also true that such reasons are often used as a façade for invidious discrimination.").

196. Courts engage in similar balancing under other statutes, such as the decision whether to award attorney's fees in copyright infringement cases. See *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 534 n.19 (1994) (recognizing nonexclusive factors to consider in making awards of attorney's fees).

197. See *supra* Part III (describing compelling but unsuccessful federal RFRA claims).

198. See *supra* Parts I, II & III (describing pre-*Smith* case law and RFRA's codification of it).

199. Martin S. Lederman, *Reconstructing RFRA: The Contested Legacy of Religious Freedom Restoration*, 125 YALE L.J. F. 416, 418 (2016).

200. And third-party harms are a concern only if one assumes that principle exists in free exercise analysis. See, e.g., Christopher C. Lund, *Religious Exemptions, Third Party Harms, and the Establishment Clause*, 91 NOTRE DAME L. REV. 1375, 1376 (2016). A possible example is the use of religious exemptions to engage in behavior that some may label invidious discrimination; for instance, declining based on religious convictions to sell gay couples custom-made wedding cakes. See also Douglas NeJaime & Reva Siegel, *Religious Exemptions and Anti-Discrimination Law in Masterpiece Cakeshop*, YALE L.J.F. 201 (2018). As in *Lyng*, the mere preservation of an isolated sacred site would not effect invidious discrimination or even a particularly significant third-party harm. The Tribes did not argue that the logging activity should be categorically barred, only that it should not occur upon their sacred site.

request, the Court has already agreed to reconsider *Smith* this term.²⁰¹ If the Court overrules that decision and re-institutes a *Sherbert*-like religious liberty regime, it should make clear that *Lyng* was wrongly decided. The *Lyng* Court adopted its demanding and novel substantial burden inquiry to avoid strict scrutiny in that case, likely having realized the government had no compelling interest in building its logging road. Instead, the government should have lost. Though the Court feared numerous religious attacks upon the government's central operations, the compelling interest prong of the strict scrutiny test had previously functioned as an adequate gatekeeper.²⁰² Challenging merely peripheral applications of governmental power—such as the construction of an isolated logging road that, in turn, destroyed central components of a religious system—should have been a core application of the *Sherbert* test.

CONCLUSION

Religious liberty doctrine should be forged into a shield for religious adherents, or it should lay down its arms altogether in the field of environmental law. But it should not function solely as a sword against these regulations. The solutions proposed above, separate or combined, are starting points in rectifying this Track I-Track II disparity. They would once again make environmentalism and religious liberty natural allies, providing the faithful new legal mechanisms to protect “Our Common Home.”

201. See Petition for Writ of Certiorari at i, *Fulton v. City of Philadelphia*, No. 19-123 (2019) (“Whether *Employment Division v. Smith* should be revisited?”), cert. granted, 140 S. Ct. 1104 (U.S. argued Nov. 4, 2020).

202. See, e.g., *United States v. Lee*, 455 U.S. 252, 259–61 (1982) (rejecting a religious exemption to taxation because of the government's compelling interest in a uniform tax system).

WADING THROUGH THE GROUNDWATER OF CWA JURISDICTION: *MAUI*'S "FUNCTIONAL EQUIVALENT" STANDARD

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ABSTRACT

The U.S. Supreme Court created an imprecise retrospective test for determining Clean Water Act (CWA) jurisdiction when the Court fashioned a "functional equivalent of a direct discharge" test that emphasized time and distance that the pollutant traveled from a point source through a conduit to a navigable water body. The seven-factor hindsight test was established to address the circumstance where the pollutant travels through an intermediary (such as groundwater) to reach the navigable water. *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020).

How do we achieve the national objective of the CWA "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" without undermining the states' jurisdictional right to regulate groundwater? Preserving this balance (without creating serious CWA loopholes) was at the heart of Justice Breyer's 6-3 majority decision in *Maui*. This article explains the reasoning of the Court and the pragmatic difficulties in applying its "functional equivalent of a direct discharge" test, in addition to examining the state and federal role under the CWA.

A hindsight test creates unnecessary costs and hurdles for determining CWA jurisdiction for citizen suit NGOs, businesses, and regulators. Businesses and municipalities need to know upfront whether their prospective discharges require CWA National Pollutant Discharge Elimination System ("NPDES") permits. The 47 states with delegated NPDES authority also need more specific guidance. The test hinders the proactive CWA goal of preventing and promptly mitigating contamination of our nation's waterways.

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INTRODUCTION

How do we achieve the national objective of the Clean Water Act (CWA) “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters”¹ without undermining the states’ jurisdictional right to regulate groundwater? Preserving this balance (without creating serious CWA loopholes) was the goal of the majority decision in *County of Maui v. Hawaii Wildlife Fund et al.* (“*Maui*”).² Justice

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1. Brief for Kinder Morgan Energy Partners, L.P. and Plantation Pipe Line Company, Inc. as Amici Curiae Supporting Petitioner at 6, *Cty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020) (No. 18-260).

2. *Cnty. of Maui v. Hawaii Wildlife Fund et. al.* (“*Maui*”), 140 S. Ct. 1462, 1477 (2020) (“Decisions should not create serious risks either of undermining state regulation of groundwater or of creating loopholes that undermine the statute’s basic federal regulatory objectives.”).

Bryer, writing for the 6-3 majority, established a “functional equivalent” test.³ Under the new standard, a permit issued pursuant to § 301 of the CWA National Pollutant Discharge Elimination System (NPDES) is “applicable to a discharge (from a point source) of pollutants that reach navigable waters after traveling through groundwater if that discharge is the functional equivalent of a direct discharge from the point source into navigable waters.”⁴

While admitting that the “functional equivalent” test was not a “bright line” test, the majority concluded that the analytical flexibility was necessary to protect the integrity of national waters from pollutants that reach national waters through a conduit.⁵ To guide this analysis, the majority included a nonexclusive list of factors to be considered:

- (1) transit time;
- (2) distance traveled;
- (3) the nature of the material through which the pollutant travels;
- (4) the extent to which the pollutant is diluted or chemically changed as it travels;
- (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source;
- (6) the manner by or area in which the pollutant enters the navigable waters; and
- (7) the degree to which the pollution (at that point) has maintained its specific identity.⁶

Of these factors, “time” and “distance” traveled are the most important in determining “[w]hether pollutants that arrive at navigable waters after traveling through groundwater are ‘from’ a point source depends upon how similar to (or different from) the particular discharge is to a direct discharge.”⁷ The Supreme Court vacated the Ninth Circuit judgment and remanded the case for application of that criteria.⁸

3. *Id.* at 1468 (discussing the distribution of the court in *Maui*, Roberts, Ginsburg, Sotomayor, Kagan and Kavanaugh joined Breyer in the majority, with Thomas, Alito and Gorsuch dissenting). This has become the “Roberts’ court,” with Chief Justice Roberts siding with the majority in nearly all of the cases so far this term.

4. *Maui*, 140 S. Ct. at 1477.

5. *Id.* at 1477–78.

6. *Id.* at 1476–77.

7. *Id.* at 1476–77.

8. *Id.* at 1478.

This article discusses whether the Court’s “functional equivalent” test adds clarity or confusion to the determination of CWA permitting jurisdiction and the costs of CWA compliance.

I. ANALYSIS OF MAUI AND RELATED CASES

The legal question before the Supreme Court in the *Maui* decision is “whether the Act [CWA] ‘requires a permit when pollutants originate from a point source but are conveyed to navigable waters by a nonpoint source,’ here groundwater.”⁹ In his majority opinion, Justice Breyer established a new standard: a permit issued under § 301 of the CWA NPDES is “applicable to a discharge (from a point source) of pollutants that reach navigable waters after traveling through groundwater if that discharge is the functional equivalent of a direct discharge from the point source into navigable waters.”¹⁰

A person (including a business or municipality) must obtain a CWA NPDES permit to (1) discharge (2) a pollutant (3) to navigable waters (4) from a point source.¹¹ The interpretation of the interconnection of those components lies at the heart of the dispute in *Maui*. The CWA prohibits the “discharge of any pollutant by any person,”¹² defining the “discharge of a pollutant” as “any addition of any pollutant to navigable waters from any point source.”¹³ The CWA defines “pollutant” broadly.¹⁴ Under the CWA and most relevant to the Court’s decision, point sources expressly include “wells” under its definition, which applies to “any discernible, confined, and discrete conveyance, . . . from which pollutants are or may be discharged.”¹⁵ The *Maui* case specifically addressed discharges from wells.

In *Maui*, the municipal wastewater treatment plant for West Maui (Lahaina Wastewater Reclamation Facility) injected four wells (point sources) with 2.8 million to 5 million gallons of treated sewage effluent

9. *Maui*, 140 S. Ct. at 1468 (citing Petition for Writ of Certiorari, *Maui*).

10. *Id.* at 1477.

11. *Headwaters, Inc. v. Talent Irrigation Dist.*, 243 F.3d 526, 532 (9th Cir. 2001).

12. Clean Water Act (CWA), 33 U.S.C. § 1311(a) (2020).

13. 3 U.S.C. § 1362(12).

14. *See* 33 U.S.C. § 1362(6) (defining the term “pollutant” as “dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural wastes discharged into water,” with some oil and gas exceptions).

15. *See* 33 U.S.C. § 1362(14) (defining the term “point source” as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged . . . not includ[ing] agricultural stormwater discharges and return flows from irrigated agriculture.”).

daily.¹⁶ A 2013 tracer dye study showed that 64% of the treated wastewater injected into wells 3 and 4 reached the Pacific Ocean, demonstrating a “hydrological connection.”¹⁷ The County of Maui did not obtain an NPDES permit.¹⁸ All parties concede that the wells are point sources¹⁹ and that some of the effluents reached the ocean after traveling through groundwater.²⁰ The Ninth Circuit Court of Appeals affirmed the district court ruling that the county violated the CWA, holding that: (1) the county discharged pollutants from a point source; (2) the pollutants are fairly traceable from the point source to a navigable water such that the discharge is the functional equivalent of a discharge into the navigable water; and (3) the pollutant levels reaching navigable water are more than *de minimis*.²¹ Plaintiffs-respondents in the CWA citizen suit include the Hawai’i Wildlife Fund, Sierra Club-Maui Group, Surfrider Foundation, and the West Maui Preservation Association.²² A half-million underground wastewater injection programs could be affected by the *Maui* decision.²³

Justice Breyer created a conundrum by adopting the “functional equivalent” standard, while purporting to reject the “traceability” standard of the Ninth Circuit.²⁴ The Ninth Circuit linked the two together, finding a “fairly traceable” discharge to be “the functional equivalent of a direct discharge.”²⁵ It cannot be said that traceability of the pollutant from its source to the navigable water is irrelevant, so traceability must be a necessary, but not a sufficient component in the analysis of what is a “functional equivalent” of a direct discharge.²⁶ It would have made more sense to adopt the Ninth Circuit’s three-part test and add details related to the “functional equivalent” portion.

During oral arguments, Justice Roberts raised concerns that “traceability” as a technological issue was not a sufficient limitation on

16. *Hawaii Wildlife Fund v. Cnty. of Maui* (“*Hawaii Wildlife Fund*”), 886 F.3d 737, 742 (9th Cir. 2018).

17. *Id.* at 737, 742–43, 744, 749 (9th Cir. 2018) (noting the County essentially conceded the hydrologic connection that the treated sewage pollutant ultimately travels to a navigable water—the Pacific Ocean—once discharged from the point source injection wells into groundwater).

18. *Id.* at 752.

19. Transcript of Oral Argument at 6, *Maui*, 140 S. Ct. 1462 (2020) (No. 18-260) https://www.supremecourt.gov/oral_arguments/audio/2019/18-260; *See generally* 33 U.S.C. § 1362(14) (defining “point source” under the CWA).

20. *See Hawaii Wildlife Fund*, 886 F.3d at 742–744 (noting the County had been aware that some of its effluent was reaching the ocean since at least 1991).

21. *Id.* at 749.

22. *Id.* at 742.

23. Transcript of Oral Argument at 6, *Maui*, 140 S. Ct. 1462 (No. 18-260).

24. *Id.* at 45.

25. *Id.* at 31.

26. *See id.* at 35 (arguing traceability and proximate cause are the sufficiently limiting principles).

permitting authority.²⁷ The dissenting judges concurred with the majority in its rejection of the “traceability” and “proximate cause” requirements²⁸ that were postured by the respondent environmental groups in the *Maui* oral arguments.²⁹

Justice Breyer tried to find the middle ground in requiring federal permits to preserve the integrity of our nation’s waters. He did not want a pipe owner to be able to use a loophole to avoid a permit requirement by “simply mov[ing] the pipe back, perhaps only a few yards, so that the pollution must travel through at least some groundwater before reaching the sea.”³⁰ Nor did he want to impose permitting requirements on a business whose diluted pollutant took years and great distances to slowly and circuitously migrate toward navigable waters.³¹ So Breyer’s “functional equivalent of a direct discharge” standard that emphasizes time and distance (while considering five other nonexclusive factors)³² seeks to strike that balance. The objective is to avoid “serious risks either of undermining state regulation of groundwater or of creating loopholes that undermine the statute’s basic federal regulatory objectives”³³ to “restore and maintain the chemical, physical and biological integrity of the Nation’s waters.”³⁴

The case focused on the linguistic interpretation of the prepositions “from” and “to.” The CWA expressly prohibits the addition of a pollutant “from” a point source “to” navigable waters.³⁵ The majority opinion in *Maui* concludes that Congress was referring to the origin (“any point source”) “from” which the pollutant originated and “to” the destination (“navigable waters”) to which the pollution flowed.³⁶ Congress specified the pollutants must come from the point source, but did not specify that pollutants had to originate *directly* from a point source.³⁷ Justice Breyer adopted the “every

27. *Id.* at 36.

28. *Maui*, 140 S. Ct. 1462, 1470 (2020) (Breyer, J., majority); *Id.* at 1482 (Thomas, J., dissenting); *Id.* at 1490 (Alito, J., dissenting).

29. Transcript of Oral Argument at 35, *Maui*, 140 S. Ct. 1462 (2020) (No. 18-260).

30. *Maui*, 140 S. Ct. at 1473; *See also* Transcript of Oral Argument at 30, *Maui v.*, 140 S. Ct. 1462 (No. 18-260) (questioning from Justice Breyer what if the pipe does not discharge directly into the ocean, the pollutant will have to travel through air, over land or through groundwater to reach the ocean, when is that the “functional equivalent” of a direct discharge from a point source?).

31. *Maui*, 140 S. Ct. at 1470, 1476.

32. *Id.* at 1476–77, (listing relevant factors depending on particular circumstances of a case: (1) transit time, (2) distance traveled, (3) the nature of the material through which the pollutant travels, (4) the extent to which the pollutant is diluted or chemically changed as it travels, (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, (7) the degree to which the pollution (at that point) has maintained its specific identity).

33. *Id.* at 1477.

34. CWA, 33 U.S.C. § 1251(a) (1977).

35. *See* 33 U.S.C. § 1312 (explaining the prohibition of discharges from a point source to navigable waters).

36. *Maui*, 140 S. Ct. at 1473–74.

37. *Rapanos v. United States*, 547 U.S. 715, 743 (2006).

day meaning . . . that the object of ‘from’ is a ‘point source’ – a source, again, connoting an origin.”³⁸ In oral arguments, Justice Kagan noted that the CWA specifies “to,” not “into” navigable waters, and the purpose of the law is to regulate the point source.³⁹ The function of the NPDES permits are to control and limit the discharge of pollutants from point sources to navigable waters that could compromise the integrity of those waters.⁴⁰ The CWA provisions do not include an express exception for discharges that travel through groundwater.⁴¹ The means of conveyance of the pollutant from the point source to the navigable water alone should not preclude the necessity of obtaining a NPDES permit—contrary to the County of Maui’s position that *how* the pollution got there is more relevant than *where* the pollution originated.⁴²

In his concurring opinion, Justice Kavanaugh, attempts to reconcile the *Maui* majority position with that of Justice Scalia in the *Rapanos* decision⁴³ by recognizing that “the discharge into intermittent channels of any pollutant that naturally washes downstream likely violates § 1311(a), even if the pollutants discharged from a point source does not emit ‘directly into’ covered waters, but pass ‘through conveyances’ in between them.”⁴⁴ Citing Justice Scalia, Justice Kavanaugh further emphasizes that polluters should not “evade the permitting requirement of §1342(a) simply by discharging their pollutants into noncovered intermittent watercourses that lie upstream of covered waters.”⁴⁵ Justice Kavanaugh applied this test to the situation and concluded that “the fact that the pollutants from Maui’s wastewater facility reach the ocean via an indirect route does not itself exempt Maui’s facility from the Clean Water Act’s permitting requirement for point sources.”⁴⁶ Justice Kavanaugh is comfortable with the *Maui* majority’s “functional

38. *Maui*, 140 S. Ct. at 1473–74.

39. Transcript of Oral Argument at 29, *Maui*, 140 S. Ct. 1462 (No. 18-260).

40. *NPDES Permit Basics*, ENV’T L. PROT. AGENCY, <https://www.epa.gov/npdes/npdes-permit-basics> (last updated Aug. 3, 2020).

41. See 118 CONG. REC. 10,666-69 (1972) (rejecting the Aspin Amendment); See Allison Kvien, Note, *Is Groundwater That Is Hydrologically Connected To Navigable Waters Covered Under The CWA?: Three Theories of Coverage & Alternative Remedies for Groundwater Pollution*, 16 MINN. J.L. SCI. & TECH. 957, 979–80 (noting the CWA’s lack of an explicit provision regulating discharges that travel through groundwater).

42. *Maui*, 140 S. Ct. at 1474–75; Transcript of Oral Argument at 67, *Maui*, 140 S. Ct. 1462 (2020) (No. 18-260), https://www.supremecourt.gov/oral_arguments/audio/2019/18-260.

43. See *Maui*, 140 S. Ct. at 1478 (Kavanaugh, J., concurring) (citing *Rapanos v. United States*, 547 U.S. 715, 743 (2006)). While Justice Kavanaugh confidently relies on *Rapanos*, Justice Scalia, who was describing conclusions reached by lower courts, might be surprised by this citation painting him as an environmentalist.

44. *Maui*, 140 S. Ct. at 1478 (Kavanaugh, J., concurring) (citing *Rapanos*, 547 U.S. at 743).

45. *Maui*, 140 S. Ct. at 1478 (Kavanaugh, J., concurring) (citing *Rapanos*, 547 U.S. at 742–743).

46. *Maui*, 140 S. Ct. at 1478 (Kavanaugh, J., concurring).

equivalent” test, because it “seeks to translate the vague statutory text into more concrete guidance,” focusing on time and distance factors.⁴⁷

Justice Scalia’s plurality opinion in *Rapanos* expressly states that the Court in *Rapanos* was *not* deciding the issue of whether a polluter can evade CWA enforcement “by discharging their pollutants into noncovered intermittent watercourses that lie upstream of covered waters.”⁴⁸ In dicta, however, Justice Scalia cited a Western District of Tennessee lower court decision that found CWA jurisdiction where the municipal sewer system point source was separated from the covered navigable waters.⁴⁹ To support this conclusion, Justice Scalia referenced appellate and lower court decisions in which those courts held an “intervening channel to be a point source,”⁵⁰ since the CWA does not expressly require that the addition of the pollutant be “directly” from the point source to the navigable water, but rather the CWA includes the “addition of any pollutant to navigable waters.”⁵¹ Using this reference as context, Justice Kavanaugh’s concurring opinion emphasized this language from Justice Scalia’s plurality decision in *Rapanos*. Kavanaugh acknowledged that “lower courts have held that the discharge into intermittent channels of any pollutant that naturally washes downstream likely violates § 1311(a), even if the pollutants discharged from a point source do not emit ‘directly into’ covered waters but pass ‘through conveyances’ in between.”⁵² Kavanaugh, therefore, concluded that pollutants from Maui’s wastewater facility are not exempt from CWA permitting requirements, despite reaching the ocean via an indirect route. In doing so, he elevated that language to greater precedential value in his *Maui* concurrence, where the aforementioned issue of pollutants flowing through an intermediate conveyance was directly before the Court.

47. *Id.* at 1479 (Kavanaugh, J., concurring), with emphasis on the time and distance factors.

48. *Rapanos v. United States*, 547 U.S. 715, 743 (2006). Instead, the issue before the Court in *Rapanos* was whether wetlands must have a continuous surface connection to bodies that are ‘waters of the United States’ in their own right to come within the CWA jurisdiction of the Army Corps of Engineers or whether the term “navigable waters” in the CWA includes wetlands that are not adjacent to waters that are navigable in fact. *Id.* at 740-742. Justice Scalia’s plurality opinion rejected wetlands that were “physically isolated waters” with only an “intermittent, physically remote hydrologic connection to ‘waters of the United States,’” as not being considered sufficiently “adjacent to” or “adjoin[ed to]” waters of the U.S. *Id.*

49. *See id.* at 743 (citing *United States v. Velsicol Chemical Corp.*, 438 F. Supp. 945, 946-947 (W.D. Tenn. 1976)).

50. *Rapanos*, 547 U.S. at 743.

51. *Compare Maui*, 140 S. Ct. at 1478 (Kavanaugh, J., concurring) (citing *Rapanos*, 547 U.S. at 743), with *Maui*, 140 S. Ct. at 1482 (Thomas, J., dissenting), who concluded that the Court should not be bound by the dictum in the *Rapanos* plurality opinion or by the lower court opinions it cited; *see also* Transcript of Oral Argument at 15, *Maui*, 140 S. Ct. 1462 (No. 18-260) (containing transcript of oral arguments before the Supreme Court wherein David Henkin, attorney for the respondent environmental groups, also argued that the absence of a statutory requirement that the discharge be direct allows for the interpretation that it can flow through an intermediary conduit).

52. *Id.*

As far back as 1980, the Fifth Circuit concluded in *Sierra Club v. Abston Construction Company*⁵³ that a defendant is not relieved from liability just because they did not construct an actual conveyance to the navigable water, “so long as they are reasonably likely to be the means by which the pollutants are ultimately deposited into a navigable body of water.”⁵⁴ In 1994, the Second Circuit concluded in *Concerned Area Residents for Environment v. Southview Farm*,⁵⁵ that “[t]he collection of liquid manure into tankers and their discharge on fields from which the manure directly flows into navigable waters are point source discharges under the case law.”⁵⁶

In their dissents, Justices Thomas and Alito criticized the majority opinion in *Maui* as exceeding the strict construction of the CWA language and creating a new nebulous standard: the “functional equivalent of a direct discharge.”⁵⁷ For Justice Thomas, only a direct discharge from a point source to a navigable water would require a permit.⁵⁸ Any channeling through groundwater would cut off the necessity of obtaining a CWA permit for the discharge.⁵⁹ Justice Thomas fails to recognize that a point source already existed with the well, and nothing in the CWA requires two point sources or that the point source itself be so long that it extends directly into the navigable water.

The dissenting Justices also pointed out that there is nothing in the literal text of the CWA from which the “functional equivalent” standard can be derived.⁶⁰ Justice Alito emphasized that this standard is “too nebulous,”⁶¹ creating great uncertainty in costs for businesses and homeowners⁶² and little guidance for lower courts that will “invite arbitrary and inconsistent application.”⁶³ According to Justice Alito, the “functional equivalent”

53. *Sierra Club v. Abston Constr. Co., Inc.*, 620 F.2d 41 (5th Cir. 1980).

54. *Id.* at 45.

55. *Concerned Area Residents for Environment v. Southview Farm* (“Concerned Area Residents”), 34 F.3d 114, 119 (2d Cir. 1994).

56. *Id.*

57. *Maui*, 140 S. Ct. at 1479, 1483.

58. *Maui*, 140 S. Ct. at 1479 (Thomas, J., dissenting) (with whom Justice Gorsuch joins), concluding that the statutory requirement of an “addition” of a pollutant “to” navigable waters requires a direct addition to navigable waters, echoing oral argument of Malcolm Stewart, Deputy Solicitor General for the United States, argued that ANY introduction of groundwater as a medium of conveyance removes federal CWA jurisdiction, Transcript of Oral Argument at 24, *Cnty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020) (No. 18-260), https://www.supremecourt.gov/oral_arguments/audio/2019/18-260.

59. *Maui*, 140 S. Ct. at 1479-80 (Thomas, J., dissenting) and *Maui*, 140 S. Ct. at 1485 (Alito, J., dissenting).

60. *Id.* at 1483 (Alito, J. dissenting).

61. *Id.* at 1486 (Alito, J., dissenting) (asking “How similar is sufficiently similar?” *Id.*).

62. *Maui*, 140 S. Ct. at 1489, 1491 (citing the high cost of CWA fines and the possibility that homeowners with septic tank systems might have to get permits); Transcript of Oral Argument at 40-41, *Cnty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (No. 18-260), https://www.supremecourt.gov/oral_arguments/audio/2019/18-260 (avoiding the permitting for septic tank systems was a major concern for Justices Alito, Gorsuch and Roberts).

63. *Maui*, 140 S. Ct. at 1483 (Alito, J., dissenting).

standard can lead to the absurd result that a pollutant that leaves a point source and travels toward navigable waters via a nonpoint source “is ‘from’ the point source for some portion of the journey, but once it has travelled a certain [undefined] distance or once a certain amount of time has elapsed, it is no longer ‘from’ a point source and is instead ‘from’ a non-point source.”⁶⁴ This is why the authors of this article believe that a prospective “hydrological connection standard”⁶⁵ would be a better test for jurisdiction than the hindsight “traceability” test or the “functional equivalent” test adopted by the Supreme Court.

The Environmental Protection Agency (“EPA”)—under different administrations—has contributed to the confusion. For many years the EPA applied the permitting requirements to pollution discharges from point sources that reached navigable water via groundwater, where there was a “direct hydrological connection” to surface water.⁶⁶ On the same day as the *Maui* opinion, the Trump administration issued a proposed interpretive statement, in which the EPA concluded that “the CWA is best read as excluding all releases of pollutants from a point source to groundwater from NPDES program coverage, regardless of a hydrological connection between the groundwater and jurisdictional surface water.”⁶⁷ Because of the shift in position of the EPA from its long-standing policies,⁶⁸ the justices in *Maui*

64. *Id.* at 1485.

65. *Id.* At various times, the courts and the EPA have used the terms “hydrologic” and “hydrological” interchangeably. In an effort to find consistency, the authors have opted to use the term “hydrological” unless referencing an actual quote.

66. See Revised NPDES Permit Regulation and Effluent Limitations Guidelines for CAFOs in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,420 (Nov. 20, 2008) (noting “[EPA] believed that requirements limiting the discharge of pollutants to surface water via groundwater that has a direct hydrologic connection to surface water should be addressed on a site-specific basis”); see also National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3015-17, 3061-62 (proposed Jan. 12, 2001) (to be codified at 40 C.F.R. pts. 122, 412) (proposing to require NPDES permits for Concentrated Animal Feeding Operations discharging pollutants to groundwater on a case-by-case basis when there is a direct hydrological connection to surface waters); National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7215 (Feb. 12, 2003) (to be codified at 40 C.F.R. 9, 122, 123, 412); Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations, 56 Fed. Reg. 6879, 64,892 (Dec. 12, 1991) (to be codified at C.F.R. pt. 131); *but see* Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions from Animal Waste at Farms; Emergency Planning and Community Right-to-Know Act, 84 Fed. Reg. 27,533 (June 13, 2019) (to be codified at 40 C.F.R. pt. 355) (reporting a Trump era exemption for CAFOs to bypass mandatory air toxic reporting requirements that had been aimed at protecting rural communities).

67. Proposed Interpretive Statement on Application of the Clean Water Act National Pollutant Discharge Elimination System Program to Releases of Pollutants from a Point Source to Groundwater, 84 Fed. Reg. 16,810 (Apr. 23, 2020) [hereinafter Groundwater Proposed Rule].

68. Groundwater Proposed Rule, *supra* note 66 at 16,812. The Groundwater Proposed Rule is consistent with the EPA’s change of position in 2019. *Id.*

did not give *Chevron* deference⁶⁹ to the current EPA interpretation, which differed from its former position.⁷⁰ While EPA's new interpretation of the CWA would jurisdictionally preclude CWA claims for discharges that were conveyed through groundwater to navigable waters, the administrative interpretation of the scope of the CWA must necessarily yield to the decision of the Supreme Court in *Maui*.

In *Upstate Forever v. Kinder Morgan Energy Partners, L.P.*,⁷¹ the Fourth Circuit adopted the EPA's long-standing position that the CWA applies to discharges "from a point source via groundwater that has a direct hydrologic connection to surface water."⁷² The court concluded that the "discharge need not be channeled by a point source until it reaches navigable water."⁷³ The factual inquiry of "direct hydrological connection" examines the time, distance geology, flow, and slope involved.⁷⁴ In *Kinder Morgan*, gasoline from an underground pipeline point source spill migrated through groundwater and soil to navigable water over two years after implementation of remediation and recovery measures to stop the discharge.⁷⁵ The court concluded that the "CWA's language does not require that the point source continue to release a pollutant for the violation to be ongoing."⁷⁶ The Fourth Circuit allowed the CWA citizen suit standing and vacated the district court's decision, because the point source was less than 1,000 feet from the

69. See *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 486 U.S. 837, 859-866 (1984) (developing the legal test for determining whether an agency decision is entitled to judicial deference).

70. *Maui*, 140 S. Ct. at 1474.

71. *Upstate Forever v. Kinder Morgan Energy Partners, L.P. (Kinder Morgan)*, 887 F.3d 637, 651 (4th Cir. 2018).

72. *Id.* at 651.

73. *Id.*; NAT'L ASS'N CLEAN WATER AGENCIES, CLEAN WATER ACT POINT SOURCE LIABILITY FOR DISCHARGES VIA GROUNDWATER (2018), [https://www.nacwa.org/docs/default-source/resources---public/clean-water-act-point-source-liability-for-discharges-via-groundwater-\(11-13-18\)83af94567b5865518798ff0000de1666.pdf?sfvrsn=2](https://www.nacwa.org/docs/default-source/resources---public/clean-water-act-point-source-liability-for-discharges-via-groundwater-(11-13-18)83af94567b5865518798ff0000de1666.pdf?sfvrsn=2); See also Justin Rheingold, Comment, *Digging Deep: The Clean Water Act's Applicability to Groundwater Discharges*, 60 B.C. L. REV. 311, 311 (2019) (analyzing the existing circuit split and arguing that adherence to the CWA's broad purpose is an effective tool in holding polluters more accountable liable).

74. *Kinder Morgan*, 887 F.3d at 651.

75. *Id.* at 644; but see *Hamker v. Diamond Shamrock Chemical Co.*, 756 F.2d 392, 394, 397 (5th Cir. 1985) (concluding that the residual effects from a prior pipeline discharge of oil were insufficient for a CWA claim when they seeped through groundwater, where plaintiffs sought an injunctive order for monitoring of a pipeline, but failed to allege that Diamond Shamrock is "in violation" of an effluent standard, limitation or order and where one discharge occurred, but no continuing addition to the groundwater from a point source is alleged.).

76. *Kinder Morgan*, 887 F.3d at 648.

navigable water⁷⁷ and the plaintiffs were able to allege a direct hydrological connection between the groundwater and the navigable water.⁷⁸

In the *Maui* case, the Obama EPA actually augmented the record by submitting an amicus brief to the Ninth Circuit in which the United States forcefully argued that “discharges from a point source to jurisdictional surface waters that move through groundwater with a direct hydrological connection” are regulated by the CWA.⁷⁹ Moreover, the EPA reinforced its support for the “hydrological connection” standard by reference to documents dating back to 1991.⁸⁰ The Supreme Court in *Maui* summarily ignored the Trump administration’s EPA’s filing of a new final rule on April 21, 2020 (just six days prior to the decision issued by the Supreme Court) in which the EPA drastically re-defined its position on the scope of Waters of the United States.⁸¹ While the majority opinion in *Maui* did not directly address how the Fourth Circuit analysis squares with its new “functional equivalent of a direct discharge” standard, the Supreme Court clearly focused on the origin of the pollution to determine whether there was a point source discharge rather than on the means of conveyance.⁸²

Among the emerging questions is how the *Maui* decision will apply to pending consent decrees. This question is likely to be addressed directly in the *United States v. U.S. Steel Corporation*.⁸³ At the trial level in the U.S. District Court for Northern Indiana, a CWA violation by U.S. Steel involved a 2017 discharge (spill) into groundwater of at least 298 pounds of hexavalent chromium and 346 pounds of chromium into Burns Waterway a few feet from Lake Michigan.⁸⁴ Due to the chromium contamination, beaches were temporarily closed and public drinking water supplies were

77. *See id.* at 643 (noting that the pipeline broke 400 feet from Cupboard Creek and less than 1000 feet from Browns Creek, tributaries of the Savannah River).

78. *Id.* at 652–53; *but see* *Sierra Club v. Va. Elec. & Power Co.*, 903 F.3d 403, 410 (4th Cir. 2018) (concluding that coal ash ponds were not sufficiently discernible conveyances to be point sources within the meaning of the CWA, while purporting to adopt the hydrologically connected standard of the *Kinder* case).

79. Brief for the United States as Amicus Curiae in Support of Plaintiffs-Appellees at 5, *Hawaii Wildlife Fund v. Cnty. Of Maui*, 886 F.3d 737, 744 (9th Cir. 2018) (No. 15-17447), 2016 WL 3098501, at *5.

80. *Id.* (citing to Amendments to the Water Quality Standard Regulations that Pertain to Standards on Indian Reservations, 56 Fed. Reg. 64,876, 64,982 (Dec. 12, 1991) (quoting, “[T]he affected ground waters are not considered ‘waters of the United States’ but discharges to them are regulated because such discharges are effective discharges to the directly connected surface waters.”)).

81. *See* *Navigable Waters Protection Rule: Definition of Waters of the United States*, 85 Fed. Reg. 22,250 (Apr. 21, 2020) (effective June 22, 2020); *Cf.* The Trump Administration has taken other anti-science-based positions such as limiting the type of dose response data that can serve as a basis for EPA regulations. *Strengthening Transparency in Pivotal Science Underlying Significant Regulatory Actions and Influential Scientific Information*, 86 Fed. Reg. 469 (Jan. 6, 2021) (codified at 40 C.F.R. 30).

82. *See Maui*, 140 S. Ct. at 1473–74 (rejecting the means of delivery test).

83. Complaint at 1, *United States v. U.S. Steel Corp.* (N.D. Ind. Apr. 2, 2018) (No. 2:18-cv-00127).

84. *Id.* at 18.

impacted.⁸⁵ The pending consent decree did not consider the CWA violation,⁸⁶ relying on the Seventh Circuit Court of Appeals decision in *Village of Oconomowoc Lake v. Dayton Hudson Corporation*,⁸⁷ which concluded that

water seeped from a retention pond into groundwater was not subject to CWA jurisdiction.⁸⁸ “Even though groundwater eventually reaches streams, lakes, and oceans, the court held, it is not part of the “waters of the United States.”⁸⁹ In light of the *Maui* decision, an environmental group is asking the District Court to reject the pending proposed consent decree and to reevaluate the corrective action to be taken, after taking into consideration that the contamination traveled through the groundwater and an outfall pipe to reach Lake Michigan.⁹⁰

II. FEDERALISM & GROUNDWATER

A. Waters of the United States

For purposes of the CWA, the term “navigable waters” means the “waters of the United States.”⁹¹ Congress, however, has not defined the term “waters of the United States” in the CWA and has, instead, left it to the courts and administrative agencies to provide that definition.⁹² As early as 1986, the US Army Corps of Engineers articulated the traditional definition of “navigable waters of the United States” as “[t]hose waters that are subject to the ebb and flow of the tide and/or are presently used or have been used in the past or may be susceptible for use to transport interstate or foreign commerce.”⁹³

85. Stan Maddux, *U.S. Steel Chemical Spill Closes Lake Michigan Beaches*, SOUTH BEND TRIBUNE, (Apr. 14, 2017), https://www.southbendtribune.com/news/local/u-s-steel-chemical-spill-closes-lake-michigan-beaches/article_afaed343-ccfd-5b30-af7f-fb6474013a2a.html.

86. *U.S. Steel Corp.*, No. 2:18-cv-00127 (N.D. Ind.) (Revised Consent Decree filed Nov. 20, 2019).

87. *Village of Oconomowoc Lake v. Dayton Hudson Corp.*, 24 F.3d 962 (7th Cir. 1994); see Plaintiff-Intervenor Surfrider Foundation’s Reply to Defendant U.S. Steel’s Response to Plaintiff-Intervenor’s Notice of Suppl. Auth. at ¶ 3, *United States v. U.S. Steel Corp.* (N.D. Ind.) (No. 2:18-cv-00127) (stating that the Plaintiff Governments failed to consider the groundwater pathway as part of their CWA investigation).

88. See *Village of Oconomowoc Lake*, 24 F.3d at 966 (showing the holding of the case).

89. *Id.* at 963.

90. Complaint at 4, *United States v. U.S. Steel Corp.* (N.D. Ind.) (No. 2:18-cv-00127); Lara Beaven, *Environmentalists Cite Maui to Push for Stricter CWA Permit Enforcement*, INSIDE EPA (May 25, 2020), <https://insideepa.com/daily-news/environmentalists-cite-maui-push-stricter-cwa-permit-enforcement>.

91. 33 U.S.C. § 1362(7).

92. See *Sackett v. Environmental Protection Agency*, 566 U.S. 120, 133 (2012) (Alito, J., concurring) (noting Congress did not define the term “waters of the United States” in the CWA).

93. 33 C.F.R. § 329.4 (2020).

Clarifying the 1985 ruling in *United States v. Riverside Bayview Homes, Inc.*,⁹⁴ the 2001 Supreme Court plurality decision in *Solid Waste Agency of Northern Cook County* recognized that jurisdiction extends to those wetlands that have a “significant nexus” to waters that are or were navigable, but concluded that the Corps cannot regulate isolated waters that are not adjacent to traditional navigable waters.⁹⁵ Consequently, abandoned sand and gravel pits that had evolved into seasonal ponds as habitat for migratory birds were beyond CWA’s jurisdiction.⁹⁶ In the 2006 *Rapanos* Supreme Court case, Justice Scalia narrowed the definition to encompass “relatively permanent” bodies of water that are connected to traditional navigable waters and wetlands with continuous surface connection to such relatively permanent bodies of water.⁹⁷ Justice Kennedy’s concurring opinion, however, added the “significant nexus test,” that included bodies of water (and wetlands) as waters of the United States if they “either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’”⁹⁸ Although the majority of Justices apparently could agree that the definition should include some waters that are not navigable in the traditional sense, they could not reach consensus on a single rule.⁹⁹

These competing articulations of the definition by the Court were problematic and left the impacted administrative agencies to announce their own definitions. In 2015, the U.S. Army Corp of Engineers (together with the EPA) published the “Clean Water Rule: Definition of ‘Waters of the United States’” (WOTUS Rule).¹⁰⁰

The agencies sought to synthesize the text of the CWA, the various plurality decisions by the Supreme Court, as well as peer-reviewed science, public input, and the agencies’ experience implementing the statute.¹⁰¹ After public comment, the 2015 WOTUS Rule included: the traditional navigable waters, interstate waters, the territorial seas, impoundments of jurisdictional

94. See *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 139 (1985) (ruling that the Corps reasonably acted in interpreting the CWA to require permits for the discharge of fill material into wetlands adjacent to jurisdictional waters).

95. *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 167 (2001).

96. *Id.* at 168.

97. *Rapanos v. United States*, 547 U.S. 715, 742 (2006).

98. *Id.* at 759, 780 (Kennedy, J., concurring).

99. *United States v. Acquest Transit LLC*, 2020 WL 3042673, at *9 (W.D.N.Y. June 4, 2020) (assessing the competing views of the Justices in *Rapanos*).

100. Clean Water Rule: Definition of “Waters of the United States” (WOTUS), 80 Fed. Reg. 37,054 (June 29, 2015) (to be codified at 40 C.F.R. 110, 112, 116).

101. *Id.*

waters, covered tributaries, and covered adjacent waters.¹⁰² The rule excluded certain bodies of water, like ditches, irrigated land, and stock tanks.¹⁰³ The 2015 rule also left the door open, however, to other bodies of water that may be deemed waters of the United States on a case by case basis such as isolated waters that are not connected to navigable waters, but are ecologically important (including California vernal pools or prairie potholes).¹⁰⁴

Although the 2015 WOTUS rule was often criticized for its breadth, it did not include groundwater within its scope.¹⁰⁵ Some scholars thus criticized the 2015 rule as being too narrow, stating that “[t]here is no historical, textual, or functional basis for asserting jurisdiction over surface waters that are tributary to navigable waters while denying jurisdiction over groundwater that is tributary to those same surface waters.”¹⁰⁶ Applying the *Rapanos* “significant nexus” test, it makes no sense to exclude groundwater from CWA jurisdiction.¹⁰⁷

In his 2017 executive order, President Trump directed the agencies to replace the Obama administration’s broader WOTUS Rule with one that was consistent with Justice Scalia’s plurality opinion in the *Rapanos* case.¹⁰⁸ Two days before the Court handed down the *Maui* decision, the EPA published its final rule, called the Navigable Waters Protection Rule (NWPR),¹⁰⁹ to replace the Obama WOTUS Rule,¹¹⁰ dealing with the scope of national jurisdiction under the CWA and its narrowed interpretation of “navigable waters.” The new NWPR standard recognizes only permanent, standing, and flowing waters and wetlands that abut or are otherwise inseparably bound up with such relatively permanent waters as within CWA federal jurisdiction.¹¹¹ The NWPR also specifically rejects Justice Kennedy’s “sufficient nexus” case-by-case standard from his *Rapanos* concurrence in favor of a narrower “bright-line rule” of what falls within the

102. See generally *id.* at 37,065 (explaining the scope of the significant nexus analysis, and covering traditional navigable waters, interstate waters, and the territorial seas, and referencing the categories of waters determined to have a significant nexus, including covered tributaries, covered adjacent waters, and impoundments).

103. *Id.* at 37,098.

104. Farris Gilman, *WOTUS Redefined: New Definitions of Waters of the United States*, JDSUPRA (Apr. 23, 2020), <https://www.jdsupra.com/legalnews/wotus-redefined-the-new-definition-of-78604/>.

105. WOTUS, 80 Fed. Reg. 37,055.

106. Michael C. Blumm & Steven M. Thiel, *(Ground)Waters of the United States: Unlawfully Excluding Tributary Groundwater from Clean Water Act Jurisdiction*, 46 Env’t. L. 333, 335 (2016).

107. *Id.* at 337.

108. Exec. Order No. 13,788, 82 Fed. Reg. 12,497 (Mar. 3, 2017).

109. Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. 22,250.

110. *Id.* at 22,259.

111. *Id.* at 22,273.

definition of waters of the United States.¹¹² Language in Scalia’s *Rapanos* decision recognizes the “hydrological connection” standard,¹¹³ as do twenty other groundwater cases and the EPA’s own interpretation prior to the Trump administration’s directive.¹¹⁴ Nevertheless, the EPA’s most recent iteration rejects that “hydrological connection” standard as it applies to groundwater conduits.¹¹⁵ The Biden Administration needs to restore the “hydrological connection” standard, consistent with its long history and its protection of the nation’s waters, which was the primary congressionally-stated purpose of the CWA.¹¹⁶ “Congress recognized, demanded broad federal authority to control pollution, for ‘[w]ater moves in hydrologic cycles and it is essential that discharge of pollutants be controlled at the source.’”¹¹⁷ Moreover, reliance on the “hydrological connection” does not require that the EPA intrude on the traditional authority of the States to regulate groundwater, but rather to proscribe and address those discharges that actually impact jurisdictional waters.

The authors of this article believe that the repeal of the 2015 WOTUS Rule results in a substantially narrowed reach for CWA jurisdiction. As a result, CWA protection is removed from a significant number of water sources. In other words, the strides made to improve water quality across the United States since the passage of the CWA may be at risk. Governmental enforcement could revert back to a pre-CWA world where only total maximum daily loads (TMDLs)¹¹⁸ are applied, and dilution may be deemed an acceptable means of satisfying state regulatory requirements. Therefore, highly concentrated discharges of pollutants may not be regulated until the subsequent level of dilution is determined and pollution is so pervasive that extensive remediation will be required after the fact, when it is most difficult and most expensive to achieve.

112. *Id.*; *Rapanos v. United States*, 547 U.S. 715, 759, 781 (2006) (Kennedy, J., concurring).

113. *Rapanos*, 547 U.S. at 728.

114. See Kvien, *supra* note 41, 977–78 (summarizing the above-mentioned twenty groundwater cases).

115. Interpretive Statement on Application of the Clean Water Act National Pollutant Discharge Elimination System Program to Releases of Pollutants from a Point Source to Groundwater, 84 Fed. Reg. 16,812 (Apr. 23, 2020) (Groundwater Proposed Rule).

116. *Id.* at 16,824.

117. *United States v. Riverside Bayview Homes*, 474 U.S. 121, 132–33 (1985) (citing Senate Report No. 92-414, p. 77 (1972)).

118. See CWA, 33 U.S.C. § 1313(d)(1)(A) (addressing impaired waters and TMDLs); see also *Statute and Regulations Addressing Impaired Waters and TMDLs*, EPA, <https://www.epa.gov/tmdl/statute-and-regulations-addressing-impaired-waters-and-tmdls#:~:text=The%20objective%20of%20the%20Act,efforts%20to%20attain%20it%20continue> (last visited Dec. 8, 2020) (addressing impaired waters and TMDLs in Section 303(d) of the Clean Water Act).

B. Regulating Groundwater

Groundwater provides one-third of the public water supply in cities and 90% of drinking water in rural areas, as well as contributing 48% of water used for irrigation.¹¹⁹ In addition, 29% of all fresh water came from groundwater.¹²⁰ Most state water laws focus on ownership, time and water allocation rules, but the complexity of the state rules make it difficult to have a universal policy regarding pollution that flows through groundwater.¹²¹ Allocation systems for water use also complicate matters, with eastern states adopting riparian rights that allow a landowner to make reasonable use of the water resource, while western states generally have a prior appropriation system or a hybrid.¹²²

A 2012 study by the Water Resources Research Center and the Udall Center for Studies in Public Policy at the University of Arizona revealed that groundwater is used for up to 95% of human water needs, depending on the state and region of the state.¹²³ It reports that “there is significant variance in terms of the role of state law in recognizing the connection between surface and groundwater, and consideration of the water needs of groundwater dependent ecosystems.”¹²⁴ While 96% of the states regulate groundwater, 71% of states have separate agencies that manage water quantity versus water quality, further complicating coordinated management.¹²⁵ Public water supply sources and aquifers are more tightly regulated than private wells; only nineteen states regulated household or domestic wells.¹²⁶ Groundwater governance priorities emphasize water quality/contamination (90%); conflicts between water users (e.g., well interference) (72%); and declining groundwater levels (64%).¹²⁷ To manage groundwater quality, 76% rely on permits, 76% on monitoring, 57% on planning, and 50% on protected areas.¹²⁸ Some states have extensive regulatory guidance, such as

119. See Water Science School, *Water Questions & Answers: How Important is Groundwater?*, USGS, https://www.usgs.gov/special-topic/water-science-school/science/water-qa-how-important-groundwater?qt-science_center_objects=0#qt-science_center_objects (last visited Dec. 8, 2020).

120. *Id.*

121. See Blumm, *supra* note 106, at 340–342 (discussing the focus of state groundwater regulations and their lack of uniformity).

122. *Water Law: An Overview*, NAT. AGRIC. L. CENTER, <https://nationalaglawcenter.org/overview/water-law/> (last visited Jan. 25, 2021).

123. ANDREA K. GERLAK ET AL., *GROUNDWATER GOVERNANCE IN THE U.S.* iii (2013).

124. *Id.*

125. *Id.* at 7.

126. *Id.* at 8–9.

127. *Id.* at 10.

128. *Id.* at 13.

California's Sustainable Groundwater Management Act (SGMA), where groundwater supplies two-thirds of the state's fresh water.¹²⁹

California's SGMA provides for the creation of groundwater sustainability agencies (GSA) for each groundwater basin, as well as the assessment and ranking of these basins to determine the risks to basin integrity.¹³⁰ California has even begun to utilize Airborne Electromagnetic Surveys to determine the distribution and characterization of aquifers, aquitards, and relevant geologic formations necessary to inventory and plan for the long-term sustainable management of California's groundwater resources.¹³¹ Each GSA is tasked with developing and adopting a groundwater sustainability plan for each basin that is deemed to be a medium-to-high priority.¹³² Ultimately, the California legislature enacted the SGMA to accomplish key goals while not impairing the highly complex water rights that exist in California. These goals include: (1) managing local groundwater basins sustainably with minimal state intervention; (2) increasing groundwater storage and eliminating the over drafting of aquifers and thereby minimizing subsidence; (3) promoting design and development that promotes recharge of the aquifers; (4) improving data collection for enhanced management of subsurface resources; and (5) assuring the GSAs are empowered to act with the appropriate authority, technical guidance, and financial support to effectively manage the groundwater resources within their respective basins.¹³³ The importance of successfully implementing the SGMA is highlighted by the fact that twenty-one basins have been identified as critically over-drafted and all of them have adopted groundwater sustainability plans prior to the statutory target deadline.¹³⁴ The protection and sustainable management of groundwater is an essential component both in terms of water quantity and quality.

A 2019 Environmental Law Institute webinar reported that twenty-nine states regulate discharges into groundwater within WOTUS in an effort to

129. Sustainable Groundwater Management Act, ch. 346, S. B. No. 1168, at 89 (2014) (codified at CAL. WATER CODE §§ 10720-10737.8); *Groundwater Management Program*, CAL. WATER BDS., https://www.waterboards.ca.gov/water_issues/programs/sgma/ (stating the need for groundwater management) (last visited Dec. 8, 2020); *Sustainable Groundwater Management*, U.S. GEOLOGICAL SERV., <https://ca.water.usgs.gov/sustainable-groundwater-management/> (last visited Jan. 26, 2021) describing sustainability indicators and planning tools); *Groundwater Law*, WATER EDUC. FOUND., <https://www.watereducation.org/aquapedia-background/groundwater-law> (last visited Jan. 26, 2021) (giving California officials' statements on the reasons for proposing the SGMA).

130. See CAL. WATER CODE §§ 10723-24, 10722.4, 10933(b) (establishing and categorizing basins, and setting standards for the groundwater monitoring program).

131. Maven, *State Water Board: Update on SGMA Implementation*, MAVEN'S NOTEBOOK (June 10, 2020) <https://mavensnotebook.com/2020/06/10/state-water-board-update-on-sgma-implementation-2/>.

132. CAL. WATER CODE § 10720.7(a) (2016).

133. *Id.* § 10720.1.

134. See Maven, *supra* note 131.

protect groundwater quality.¹³⁵ Six states issued NPDES permits for groundwater discharges.¹³⁶ Eleven states used the Resource Conservation and Recovery Act (RCRA) and twenty-seven used the federal Safe Drinking Water Act (SDWA) and Underground Injection Control (UIC) programs as the primary vehicles to regulate groundwater contamination.¹³⁷

The Resource Conservation and Recovery Act (RCRA) is the primary federal statute governing the disposal of solid and hazardous waste.¹³⁸ The EPA is delegated primary RCRA authority to regulate and set the minimum standards for the treatment, storage and disposal of listed hazardous waste,¹³⁹ as well as the basic standards for the management of non-hazardous municipal and industrial waste.¹⁴⁰ While retaining its enforcement and oversight authority, EPA has delegated responsibility to each state's hazardous waste regulatory agency to implement state RCRA programs in lieu of the EPA.¹⁴¹ Under Subtitle D of the RCRA regulations, states assume the primary role in implementing non-hazardous waste programs which provide the criteria for design, location, operation, clean up, and closure of municipal and industrial landfills.¹⁴² Under Subtitle C of the RCRA regulations, states assume responsibility for key components of the comprehensive and safe management of hazardous waste from "cradle to grave."¹⁴³ Subtitle C of RCRA not only provides specific lists and criteria to define "hazardous waste," but also sets standards applicable to: (a) generators and transporters of hazardous waste; and (b) owners and operators of hazardous waste treatment, storage and disposal facilities.¹⁴⁴ Subtitle C also establishes permit, inventory and reporting requirements relating to the treatment, storage, and disposal of hazardous waste.¹⁴⁵

135. Webinar: Groundwater Discharges: Getting to the Source of Concern, held by the Env't. L. Inst. (Sept. 10, 2019), 14:35, https://youtu.be/MA2XsHR_UpI?t=874; *see also* Presentation Slides: Groundwater Discharges: Getting to the Source of Concern, held by the Env't. L. Inst. (Sept. 10, 2019), <https://www.eli.org/sites/default/files/media/19-09-10-/9-10-19-anastasioppt.pdf> (containing presentation slides for webinar).

136. *Id.*

137. *Id.*

138. *See* Resource Conservation and Recovery Act of 1976 (RCRA), Pub. L. No. 94-580, 90 Stat. 2795 (codified at 42 U.S.C. § 6901 *et seq.*) (governing the disposal of solid and hazardous waste).

139. *See* RCRA § 3004, 90 Stat. 2807-08 (codified at 42 U.S.C. § 6924) (governing hazardous waste identification, classification, generation, management, and disposal).

140. *See* 40 C.F.R. §§ 239-259 (2020) (RCRA, Subtitle D - regulations governing the storage, collection and management of non-hazardous solid waste); *see also* 40 C.F.R. §§ 280.10-280.52 (2020) (regulating underground storage tanks).

141. *See, e.g.*, 42 U.S.C. § 6946 (2012) (detailing the procedures States shall follow to develop and implement a plant for regional solid waste management).

142. *See* RCRA Subtitle D, 40 C.F.R. §§ 239-259 (2020) (explaining the RCRA program); *see also* 40 C.F.R. §§ 280.10-280.52 (regulating states implementation of non-hazardous waste programs).

143. *See* RCRA §§ 3003-3004 (governing the transportation, storage, and disposal of hazardous waste).

144. RCRA, 42 U.S.C. §§ 6921-6924 (1976).

145. RCRA, 42 U.S.C. §§ 6925-6939g.

Congress established a basic national standard by directing the EPA to develop minimum national technical standards and mandated state RCRA programs to be at least as stringent as these federal standards.¹⁴⁶ To assure compliance, Congress authorized broad enforcement authority that includes the power to issue compliance orders, civil and criminal penalties, and to issue interim corrective action orders to protect human health or the environment.¹⁴⁷ Recognizing the potential limitations and resources available for government enforcement, Congress also granted citizen suit authority if the EPA chooses not to pursue enforcement directly.¹⁴⁸ In enacting RCRA as amended, Congress intended to build a comprehensive and cooperative federal/state program to promote the protection of human health and the environment.¹⁴⁹

Perhaps most relevant to the interpretation of RCRA as it relates to complimentary environmental statutes, Congress was explicit in its intent to require “that hazardous waste be properly managed in the first instance thereby reducing the need for corrective action at a future date.”¹⁵⁰ Although RCRA empowers government regulators to require monitoring of groundwater at treatment, storage, and disposal facilities to prevent hazardous waste from compromising soil and groundwater quality,¹⁵¹ the goal is to minimize the need for expensive and difficult corrective actions in favor of proactive and protective management.¹⁵² Nonetheless, as discussed *infra* in part III with coal ash ponds, short-sighted or expedient waste management practices routinely result in contamination of the soil and groundwater that RCRA is intended to protect. In recognition of this reality, the EPA’s Corrective Action Program provides guidance for industries to prevent and clean up exposure routes to groundwater.¹⁵³

146. See *State Authorization Under the Resource Conservation and Recovery Act (RCRA)*, ENV’T L. PROT. AGENCY, <https://www.epa.gov/rcra/state-authorization-under-resource-conservation-and-recovery-act-rcra> (last updated Dec. 13, 2020) (explaining authority granted to RCRA waste program); see also *Approved State Hazardous Waste Management Programs*, 40 C.F.R. §§ 272.1–272.2849 (2020) (setting forth the applicable State hazardous waste management programs under § 3006(b) of the Resources Conservation and Recovery Act, 42 U.S.C. § 6929, and 40 C.F.R. § 260.10).

147. See, e.g., RCRA, 42 U.S.C. § 6928 (federal enforcement authority regarding hazardous waste management).

148. RCRA, 42 U.S.C. § 6972 (permitting citizen suit authority and procedures).

149. See *Id.* § 6902 (explaining objectives and national policy).

150. *Id.* at § 6902(a)(5).

151. *Id.* § 6901-6992(k) (providing statutory guidance to prevent soil or groundwater pollution); see also 40 C.F.R. § 264.1 (2020) (establishing regulations to promote minimum national standards for the management of hazardous waste); see 40 C.F.R. §§ 261.31-261.33 (listing regulated hazardous wastes).

152. *Id.* § 6901(b); See RCRA, 42 U.S.C. § 6902(b) (National Policy).

153. *Guidance for Cleaning Up Groundwater, Soil and Air at Corrective Action Facilities, Guidance for Groundwater Cleanups*, ENV’T L. PROT. AGENCY, <https://www.epa.gov/hw/guidance-cleaning-groundwater-soil-and-air-corrective-action-facilities> (last updated Feb. 18, 2020).

In addition to the protections afforded by RCRA, the federal Safe Drinking Water Act (SDWA)¹⁵⁴ provides some protection for the quality of groundwater, but only if that groundwater is used as drinking water.¹⁵⁵ When groundwater is used as municipal drinking water, the state regulates it through authority delegated from the SDWA.¹⁵⁶ Where aquifers are the primary source for drinking water, the SDWA requires states to develop plans to prevent contamination of the public water system.¹⁵⁷

SDWA also regulates wellhead injection through the Underground Injection Control Program (UIC),¹⁵⁸ but exempts most hydraulic fracking fluids.¹⁵⁹ The UIC is a program promulgated under the SDWA (and RCRA) which imposes, technical standards for various classes (six of them) of injection wells.¹⁶⁰ These classes include, for example, Class I (industrial and municipal waste disposal wells) and class II (oil and gas related injection wells).¹⁶¹ The goal is to protect public health by preventing injection wells from contaminating underground sources of drinking water.¹⁶² It is limited to aquifers that are used by the public.¹⁶³ It also imposes certain restrictions as requirements on Class I hazardous waste injection wells.¹⁶⁴

In addition, as another example of cooperative federalism, the UIC includes provisions that permit federal authority to be delegated to the states.¹⁶⁵ In California, for example, the delegation was done and (following audit) the EPA found that it was severely deficient.¹⁶⁶ The EPA imposed oversight and has been enforcing a corrective action plan to get the state back on track.¹⁶⁷ Finally, under the UIC, there are procedures to exempt whole

154. 42 U.S.C. § 300h-6(f).

155. See *About the Office of Water (OW)*, ENV'T'L PROT. AGENCY, <https://www.epa.gov/aboutepa/about-office-water#ground>. (last updated Jan. 29, 2021) (explaining how the Office of Ground Water (OGWDW) ensures safe drinking water and protects ground water).

156. Thomson Reuters, *50 State Regulatory Surveys: Env'tl. Laws: Pollution - Permits for Groundwater and Surface Water Discharge*, Apr. 2020, West, 0070 REGSURVEYS 13 [hereinafter *Groundwater Survey*].

157. Safe Drinking Water Act (SDWA), 42 U.S.C. § 300h-6(a).

158. See 40 C.F.R. § 146 (2015) (establishing underground injection control program criteria and standards); 42 U.S.C. § 300g-9; see also 42 U.S.C. §§ 300h-1(b), 300h-3 (containing underground injection control program provisions requiring well operation permits).

159. See *id.* § 300g-9.

160. 40 C.F.R. §§ 146.1-146.2, 146.5 (2015).

161. 42 U.S.C. § 300h-1(a).

162. 42 U.S.C. §§ 300h(b).

163. 42 U.S.C. §§ 300h-3(e), 300h-6(a).

164. 42 U.S.C. § 300h-5.

165. *Id.*

166. *EPA's Oversight of California's Underground Injection Control (UIC) Program*, U.S. ENV'T'L PROT. AGENCY, <https://www.epa.gov/uic/epa-oversight-californias-underground-injection-control-uic-program#background> (last updated Aug. 21, 2020).

167. See *id.* (discussing the EPA's oversight of state's oil and gas programs).

aquifers.¹⁶⁸ Note that the term “underground source of drinking water” (USDW) means an aquifer or its portion: “(a)(1) Which supplies any public water system; or (2) Which contains a sufficient quantity of ground water to supply a public water system; and (i) Currently supplies drinking water for human consumption; or (ii) Contains fewer than 10,000 mg/l total dissolved solids; and (b) Which is not an exempted aquifer.”¹⁶⁹ As a result, there is heavy pressure from industry to have various aquifers exempted and therefore left without SDWA/UIC protection. In California, there are currently 30 aquifers for which UIC exemption applications are pending.¹⁷⁰ The potential for short-sighted protection with long-term impacts is enormous.¹⁷¹ Implications for subsurface contamination of aquifers would potentially be irreversible during our lifetimes.

Since many states have regulatory programs to address at least some aspects of groundwater, the *Maui* majority couched its “functional equivalent” standard in the context of not unduly infringing on states’ rights.¹⁷² “Decisions should not create serious risks either of undermining state regulation of groundwater or of creating loopholes that undermine the [CWA] statute’s basic federal regulatory objectives.”¹⁷³ The dissenting justices in *Maui* raise federalism issues, arguing that the “functional equivalent” test impinges on the states’ traditional authority to regulate groundwater and nonpoint sources.¹⁷⁴ They noted that nothing in the text of the CWA grants federal jurisdiction over isolated groundwater,¹⁷⁵ but rather Congress intended the States to have the “primary responsibilities and rights ... to prevent, reduce, and eliminate pollution.”¹⁷⁶

When Congress rejected the Aspin Amendment to the CWA, it decided not to include groundwater as per se jurisdictional, but it also did not enact clarifying language that would exclude its regulation per se where groundwater is hydrologically connected to waters of the U.S.¹⁷⁷ When

168. See SDWA, 42 U.S.C. § 300g-4 (allowing injections of unregulated pollutants that would so degrade exempted aquifers as to make them unusable for future use).

169. 40 C.F.R. § 146.3.

170. See Letter from Cal. State Water Control Bd. to David Albright, EPA Region IX (Mar. 23, 2020), <https://www.conservation.ca.gov/calgem/Documents/Aquifer%20Exemptions/EPA-AE-Compliance-Update-ADA.pdf> (providing an update to the EPA regarding the status of aquifer exemption proposals under consideration by the California Geologic Energy Management Division).

171. *Colorado River Compact, 1922*, U.S. BUREAU RECLAMATION, <https://www.usbr.gov/lc/region/g1000/pdfiles/crcompct.pdf> (creating the Colorado River compact which divvied up water without anticipating the population growth in southern Colorado and northern Arizona; resulting in grossly inadequate water resources allocated to the upper Colorado Compact states).

172. *Maui*, 140 S. Ct. 1462, 1476 (2020).

173. *Maui*, 140 S. Ct. at 1477.

174. *Id.* at 1490.

175. Kvien, *supra* note 41, at 958.

176. *Maui*, 140 S. Ct. at 1480 (Thomas, J., dissenting, citing 33 U.S.C. § 1251(b)).

177. See Kvien, *supra* note 41, at 979–80; See also 118 Cong. Rec. H10,669 (daily ed. Mar. 28, 1972) (rejecting the Aspin Amendment).

SDWA was enacted, there was some legislative history indicating that groundwater and deep well injection could be regulated under the CWA, but only if it discharges into navigable water.¹⁷⁸ Where a state has approval to administer and issue NPDES permits, it can regulate those permits to address discharges into wells that impact groundwater.¹⁷⁹

C. Cooperative Federalism under CWA

Federal laws such the CWA and RCRA are crafted to achieve “cooperative federalism” to balance the needs of both federal and state stakeholders in protecting groundwater and surface water from pollutants.¹⁸⁰ Prior to the enactment of the CWA, states were primarily responsible for water quality regulation and there was virtually no federal enforcement. The results were predictably poor. On October 2, 1965, President Lyndon Johnson made the following remarks at the signing of the Water Quality Act of 1965:

Today, we proclaim our refusal to be strangled by the wastes of civilization. Today, we begin to be masters of our environment. But we must act, and act swiftly. The hour is late, the damage is large. The clear, fresh waters that were our national heritage have become dumping grounds for garbage and filth. They poison our fish; they breed disease; they despoil our landscapes. No one has a right to use America's rivers and America's waterways that belong to all the people as a sewer. The banks of a river may belong to one man or even one industry or one State, but the waters which flow between those banks should belong to all the people. There is no excuse for a river flowing red with blood from slaughterhouses. There is no excuse for papermills pouring tons of sulphuric acid into the lakes and the streams of the people of this country. There is no excuse--and we should call a spade a spade--for chemical companies and oil refineries using our major rivers as pipelines for toxic wastes. There is no excuse for communities to use other people's rivers as a dump for their raw sewage.¹⁸¹

178. *See discussion* H.R. REP. NO. 93-1185, pt. 2 at 4 (1974) (discussing regulating ground water under the CWA).

179. *See* CWA, 33 U.S.C. § 1342(b)(1)(D) (authorizing State permit programs to issue permits which control the disposal of pollutants into wells).

180. *Ky. Waterways All. v. Ky. Util. Co.*, 905 F.3d 925, 929 (6th Cir. 2018).

181. *Lyndon B. Johnson: Remarks at the Signing of the Water Quality Act of 1965*, AM. PRESIDENCY PROJECT, <https://www.presidency.ucsb.edu/documents/remarks-the-signing-the-water-quality-act-1965> (last visited Jan. 26, 2021).

The CWA was passed seven years later and marked the start of an effective partnership between state and federal governments to clean up the nations water resources. The foundation for this partnership relies on the establishment of national standards as a floor which permits states to impose more stringent requirements as the states may deem appropriate. The CWA continued the use of water quality standards for the receiving waters but added a federally mandated permitting and treatment process to address point source pollution using the best practicable control technology or best conventional pollutant control technology available before these discharges contaminate the receiving waters.¹⁸²

To make this form of cooperative federalism work, the EPA and the Army Corps of Engineers (Corps) share delegated authority under the CWA, with the EPA establishing the standards and the Corps serving as the primary federal permitting authority.¹⁸³ Cooperative efforts of federal, state and local governments, and regional organizations are needed to accomplish water quality goals.

For waters that do not meet quality standards, states use two additional anti-pollution methods to ensure impaired water bodies ultimately meet standards. First, states will set Total Maximum Daily Loads (TMDLs), which are the maximum allowable amounts of a pollutant in impaired bodies of water. TMDLs are set with the goal of reducing pollution so a body of water can meet quality standards. Second, states will divide the maximum allowable amount of a pollutant discharge into an impaired water among various pollution sources.¹⁸⁴

The states with delegated authority from the EPA implement regulations that satisfy minimum federal requirements and adopt permitting procedures.¹⁸⁵

Pursuant to § 303(d) of the CWA, states are to establish a list of impaired waters based on the severity of the pollution and the designated use of the

182. See 40 C.F.R. § 125.3 (1990) (outlining discharger's technology-based treatment requirements in permits).

183. See *Permit Program under CWA Section 404*, U.S. ENV'T'L PROT. AGENCY, <https://www.epa.gov/cwa-404/permit-program-under-cwa-section-404> (last updated June 17, 2020) (listing the roles and responsibilities of EPA and Army Corps of Engineers under CWA).

184. *Id.*; see also *New Vision for Implementing the CWA Section 303(d) Impaired Waters Program Responsibilities, State Partnerships*, U.S. ENV'T'L PROT. AGENCY, <https://www.epa.gov/tmdl/new-vision-implementing-cwa-section-303d-impaired-waters-program-responsibilities> (last updated Sept. 7, 2018) (announcing a collaborative framework for implementing CWA Section 303(d) impaired waters program with states).

185. *Id.*

waterbody.¹⁸⁶ States assess the water quality of rivers, lakes, streams and creeks within their boundaries. States establish TMDL requirements for each type of pollutant in each type of water body.¹⁸⁷ First, the state must identify the beneficial uses of each water body; second, establish criteria for those uses; and third, establish an anti-degradation policy.¹⁸⁸ For example, when the water body needs to be clean enough that it is fishable and swimmable, the TMDL limits must be set lower than if the primary use is industrial use. In assessing how clean is clean, beneficial use categories include: I. Protection of Aquatic Life, II. Human Health & Fish Consumption, III. Public Drinking Water, IV. Irrigation, V. Livestock watering, VI. “Fishable/Swimmable” whole body contact, VII. Groundwater, and VIII. Industrial Use.¹⁸⁹ The states develop watershed plans and implementation plans to restore the impaired water bodies,¹⁹⁰ commensurate with § 303(d) of the CWA TMDL list. The states also establish standards for publicly owned waste (sewage) treatment facilities (POWT).¹⁹¹

The purpose of adopting water quality standards is to determine which waters are healthy, which need to be restored, and how much restriction is needed per pollutant. Pollutants include conventional pollutants,¹⁹² nonconventional pollutants,¹⁹³ toxic pollutants,¹⁹⁴ and biological contaminants (including sewage).¹⁹⁵ The maximum amount of a pollutant allowed to enter a waterbody is calculated to determine the pollutant loading capacity that each water body can assimilate without exceeding state water

186. See *Statute and Regulations Addressing Impaired Waters and TMDLs*, EPA, <https://www.epa.gov/tmdl/statute-and-regulations-addressing-impaired-waters-and-tmdls#:~:text=The%20objective%20of%20the%20Act,efforts%20to%20attain%20it%20continue> (last updated Sept. 10, 2018).

187. See CWA, 33 U.S.C. § 1313(d)(1)(C) (mandating states establish TMDLs for each identified pollutant).

188. See MO. DEP’T NAT. RES., MISSOURI ANTIDegradation Rule and Implementation Procedure 10 (2008) (defining and explaining the TMDL process); See *generally Impaired Waters and Total Maximum Daily Loads*, MO. DEPT. NAT. RES., <https://dnr.mo.gov/env/wpp/tmdl/index.html> (last visited Jan. 27, 2021) (defining and explaining the TMDL process).

189. See MO. CODE REGS. ANN. tit. 10 § 20-7.031(2)(A)4(D)1 (2019) (using the beneficial use categories in Table G, Lake Classifications and Use Designations).

190. See *id.* § 20-7.031, at 11 (referencing the CWA requirement for the States to develop priorities in implementing plans to restore water quality).

191. See MO. CODE REGS. ANN. tit. 10, § 20-7.015(2)(A) (2020) (establishing POTWs effluent limitations).

192. See 40 C.F.R. §§ 401.16, 122.44(d)(1) (2020) (recognizing conventional pollutants include: pH, oil and grease, total suspended solids, fecal coliform, and biochemical oxygen demand).

193. See 40 C.F.R. § 122.44(d)(1)(i) (2020) (recognizing non-conventional pollutants are subject to State requirements and limitations).

194. See 40 C.F.R. § 401.15 (2020) (listing sixty-five classes of toxic pollutants).

195. See 40 C.F.R. §§ 401.15, 122.23(a), 122.44 (b)(2) (2020) (establishing that State NPDES permitting applies to concentrated animal feeding operations and to standards for sewage sludge use or disposal).

quality standards.¹⁹⁶ The loading capacity is the TMDL, which takes into account federal guidelines.¹⁹⁷ After TMDL implementation plans are developed, water quality-based discharge limits in NPDES permits are authorized under section 402 of the CWA, with quantity and duration limits.¹⁹⁸ The government agency (Department of Natural Resources in Missouri, for example) allocates the load to point sources in the permitting process. In setting the limits for point sources, the agency needs to take into account that the estimated load of pollutants or nutrients from nonpoint sources (that may impact the TMDL but may not require obtaining permits).¹⁹⁹

Under the CWA, the EPA can delegate CWA authority to “each State desiring to administer its own permit program for discharges into navigable waters within its jurisdiction.”²⁰⁰ Once the EPA approves the state permitting program, federal NPDES permitting is suspended. Nonetheless, the CWA does not expressly grant exclusive authority to either the EPA or the administering state agency to determine CWA violations.²⁰¹ Under this schema, the EPA issues NPDES water quality permits in Massachusetts, New Hampshire, New Mexico, the District of Columbia, and U.S. territories, but has delegated authority to the other states to issue their own permits.²⁰² The EPA website provides charts detailing the extent of delegated authority and whether the authority applies to state NPDES permit programs, state pretreatment programs, general permit programs, and regulation of federal facilities and biosolid (sludge) programs.²⁰³ For example, both Missouri and

196. See *Overview of Total Maximum Daily Loads (TMDLs)*, U.S. ENV'T'L PROT. AGENCY, <https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls> (last updated Sept. 13, 2018) (showing calculations for the TMDL).

197. See CWA, 33 U.S.C. § 1313(d)(1)(D) (LexisNexis 2020) (demonstrating that under federal regulations at 40 C.F.R. § 130.7, a TMDL must comply with the following requirements: (1) be designed to attain and maintain the applicable water quality standards, (2) include a total allowable loading and as appropriate, waste load allocations (WLAs) for point sources and load allocations for nonpoint sources, (3) consider the impacts of background pollutant contributions, (4) take critical stream conditions into account (the conditions when water quality is most likely to be violated), (5) consider seasonal variations, (6) include a margin of safety (which accounts for uncertainties in the relationship between pollutant loads and instream water quality), and (7) be subject to public participation).

198. See 33 U.S.C. § 1342(o) (establishing limits through an anti-backsliding provision and applying that provision to 33 U.S.C. § 1313 (d), the provision identifying state TMDLs).

199. See, e.g., 33 U.S.C. § 1344(f)(1)(A) (listing certain exempted agricultural activities).

200. CWA, 33 U.S.C. § 1342(b) (LexisNexis 2020).

201. See generally *id.* § 1342(b) (demonstrating the NPDES-State-Federal relationship in Hawaii Wildlife Fund, 886 F.3d 737, 750).

202. See *NPDES Permits Around the Nation*, U.S. ENV'T'L PROT. AGENCY, <https://www.epa.gov/npdes-permits> (last updated May 22, 2020) (clicking on each state shows whether the permits are issued by the EPA or the delegated to the individual state).

203. See *id.* (showing the various programs when clicking on each state).

California have delegated authority to regulate all except their biosolid programs.²⁰⁴

The states normally have primary jurisdiction over groundwater, while the federal government regulates navigable water.²⁰⁵ States set standards for groundwater, especially to protect drinking water, livestock watering, and irrigation.²⁰⁶ Nevertheless, pollutants disposed in wells that “alter the water quality” of surface waters are “subject to NPDES permitting requirements.”²⁰⁷ The states “cannot create exemptions to the CWA whether or not the EPA has delegated permitting authority to the state.”²⁰⁸ Only Congress can create exemptions to the CWA permitting requirements.²⁰⁹ In so ruling, the 9th Circuit in the Northern Plains Reservation Council case held that:

Just as the EPA does not have the authority to create an exemption for unaltered groundwater, neither does the State of Montana, as the EPA cannot delegate to a state more authority than the EPA has under the CWA. Moreover, absent statutory authority in the CWA for Montana to create such exemptions, it cannot possibly be urged that Montana state law in itself can contradict or limit the scope of the CWA, for that would run squarely afoul of our Constitution’s Supremacy Clause. U.S. Const. art. VI, cl. 2.²¹⁰

Under the Trump Administration’s recently finalized regulatory definition of Waters of the United States, however, groundwater is specifically exempted from the scope of Waters of the United States.²¹¹ The

204. *National Pollutant Discharge Elimination System (NPDES): NPDES State Program Authority*, U.S. ENV’T’L PROT. AGENCY, <https://www.epa.gov/npdes/npdes-state-program-authority> (last updated Aug. 31, 2020).

205. *See Maui*, 140 S. Ct. 1462, 1476 (2020) (implying the relative roles of the state and federal governments).

206. *See, e.g.*, MO. CODE REGS. ANN. tit. 10 § 20-7.031(6)(A) (showing statutory protections for groundwater and uses).

207. *Northern Plains Res. Council v. Fid. Expl. & Dev. Co.*, 325 F.3d 1155, 1161–62 (9th Cir. 2003) (citing CWA, 33 U.S.C. § 1362(6)(B)). Fidelity Exploration & Development Company (“Fidelity”) extracted methane gas for commercial sale from coal seams located deep underground in the Powder River Basin, Montana. *Id.* The Montana Department of Environmental Quality (MDEQ) advised Fidelity that no permit was required to discharge the coal bed methane groundwater because Montana state law (Water Quality Act, Montana Code § 75-5-401(1)(b)) exempts unaltered groundwater from state water quality requirements. The court held that no such exemptions are permissible under the CWA. *Id.* at 1157–58. Wells are specifically listed as a type of point source under the CWA, 33 U.S.C. § 1362(14).

208. *Northern Plains Res. Council*, 325 F.3d at 1157–58.

209. *See id.* at 1165 (citing the Supremacy Clause preempting Montana’s ability to make exemptions and holding that Montana cannot create an exemption to something subject to federal statutory authority).

210. *Id.* at 1164–65.

211. *See Navigable Waters Protection Rule*, 85 Fed. Reg. 22,251, 22,275 (April 20, 2020) (limiting interpretation of the text and the legislative history to exclude groundwater).

Trump administration has narrowed the definition of WOTUS in an effort to “limit” federal jurisdiction under the CWA under the guise of cooperative federalism. This simultaneously restricted the states’ ability to regulate pollutant discharges by preemptively preventing states from exercising permitting authority on water quality grounds,²¹² especially where infrastructure projects are concerned.²¹³ This EPA takes the position that it lacks CWA authority to regulate point source discharges where such polluted discharges flow into “groundwater” and subsequently migrate to “navigable waters,”²¹⁴ in part because groundwater is within the jurisdiction of the state. But this position blunts the tools available for the states to address the problem.

In addition, the Trump administration’s EPA obfuscates the importance of the “hydrological connection”²¹⁵ between these water resources and the pollutants that are “fairly traceable”²¹⁶ from the point source to the navigable water as a nexus for federal CWA jurisdiction.²¹⁷ The goal of CWA cooperative federalism is to prevent pollution of waterways and to clean up water quality throughout the United States.²¹⁸ This goal should not be circumvented by narrow jurisdictional construction.

III. IT IS MORE THAN GROUNDWATER

In *Maui*, the Supreme Court addressed the question of “whether the Act [CWA] ‘requires a permit when pollutants originate from a point source but

212. See Updating Regulations on Water Quality Certification, 84 Fed. Reg. 44080, 44099, 44081 (proposed Aug. 22, 2019) (to be codified at 40 C.F.R. pt. 121) (denying states and tribes the ability to block pipeline construction to assure “predictability and timeliness” of CWA § 401 certification).

213. See Jake Levine and Paulina Slagter, *The Environmental Protection Agency’s (EPA) Proposed Changes to State and Tribal Certification Authority Under Clean Water Act Section 401*, LEXOLOGY (Sept. 26, 2019), <https://www.lexology.com/library/detail.aspx?g=85def4a6-f872-4c96-89ea-6c2d8af6dcf4> (concluding that narrowing of the certification’s scope would delay infrastructure projects).

214. Interpretive Statement on Application of the CWA NPDES Program to Releases of Pollutants From a Point Source to Groundwater, 84 Fed. Reg. 16,810, 16,810 (Apr. 23, 2019) (to be codified at 40 C.F.R. pt. 122), <https://www.federalregister.gov/documents/2019/04/23/2019-08063/interpretive-statement-on-application-of-the-clean-water-act-national-pollutant-discharge>, [hereinafter Interpretive Statement] (concluding that the CWA is best interpreted to exclude from the NPDES program’s coverage all releases of pollutants from a point source to groundwater, regardless of a hydrological connection between the groundwater and jurisdictional surface water).

215. See *Kinder Morgan*, 887 F.3d 637, 652–53 (4th Cir. 2018) (showing how NPDES permitting is required for waterways when gasoline from a pipeline migrated through groundwater).

216. See *Hawaii Wildlife Fund*, 886 F.3d at 749 (concluding that a NPDES permit was required for the treated sewage injected into wells that migrated through groundwater to the Pacific Ocean).

217. See Interpretive Statement, *supra* note 214, 84 Fed. Reg. at 16,810 (concluding that the CWA excludes all pollutants from a point source to groundwater); see also *Kentucky Waterways All. v. Ky. Util. Co.*, 905 F.3d 925, 932–33 (6th Cir. 2018) (concluding that discharges to groundwater from coal ash point sources are not regulated under the CWA).

218. See Interpretive Statement, *supra* note 214, 84 Fed. Reg. at 16,812–13 (describing the cooperative federalism goals of the CWA).

are conveyed to navigable waters by a nonpoint source,” referencing groundwater as the example, but not limiting the scope of its decision to groundwater conveyance.²¹⁹ The Court intended a broader application. As the *Maui* decision is applied to other intermediary conduits, two additional issues may arise. The first issue is whether the discharge was originally from a discrete point source. The second issue is whether the pollutant ended up going to what is still within the definition of WOTUS under the Trump administration’s narrowed definition.²²⁰

In the *Maui* decision, all parties conceded that the well was a point source and the ocean was navigable water.²²¹ When groundwater is the conduit (instead of the point source), it does not have to be “confined and discrete,” as long as there is the “functional equivalent of a direct discharge.”²²² Therefore, the conduit role also avoids having to classify groundwater as “water of the United States.”

Pre-*Maui* case law also supports the reasoning that Congress did not intend to create a loophole for polluters when pollutants migrate from a stormwater settling basin through groundwater, because the objective of the CWA “is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”²²³ “[I]t would hardly make sense for the CWA to encompass a polluter who discharges pollutants via a pipe running from the factory directly to the riverbank, but not a polluter who dumps the same pollutants into a man-made settling basin some distance short of the river and then allows the pollutants to seep into the river via the groundwater.”²²⁴

How will the “functional equivalent to a direct discharge” standard be applied to discharges from concentrated animal feeding operations (CAFOs),²²⁵ industrial wastewater treatment facilities, and potentially leaking or leaching treatment or coal ash ponds? The CWA includes an exemption for agricultural return flows, as well as for “any introduction of

219. *Maui*, 140 S. Ct. at 1468 (citing Petition for Writ of Certiorari, *Maui*, 140 S. Ct. at 1462 (No. 18-260)).

220. See Navigable Waters Protection Rule, 85 Fed. Reg. 22,250, 22,296–97 (April 20, 2020) (showing ambiguities on the scope of the final rule regarding Congressional intent).

221. See Vinson & Elkins LLP, *Justices Find That the Clean Water Act Applies to Pollutants Passing Through Groundwater*, INSIGHT: V&E ENVT’L LAW UPDATE (May 5, 2020), <https://www.velaw.com/insights/justices-find-that-the-clean-water-act-applies-to-pollutants-passing-through-groundwater/> (showing the County of Maui’s concessions in court).

222. *Maui*, 140 S. Ct. at 1477.

223. 33 U.S.C. § 1251(a).

224. *Northern California River Watch v. Mercer Fraser Co.*, No. C-04-4620 SC, 2005 WL 2122052, at *2 (N.D. Cal. Sept. 1, 2005).

225. See 40 C.F.R. § 122.23(b)(1)-(2), (4), (6) (defining “CAFO” as an animal feeding operation (“AFO”) with a lot or facility that contains a specified number and type of animals, e.g., as many as or more than 700 mature dairy cattle, and confines the animals for a total of forty-five days or more out of a 12-month period).

pollutants from non-point source agricultural activities.”²²⁶ This agricultural exemption, however, does not encompass CAFOs, which are deemed to be point source operations that result in point source discharges which are subject to the CWA.²²⁷ Percolation ponds, treatment ponds, and surface application runoffs from municipal or industrial bio-sludge applied to land in sludge drying beds are also potentially implicated by this standard. They may leak, especially if not adequately lined, and may be vulnerable in flooding conditions.²²⁸ “No discharge” mining ponds are intentionally located near streams so they can percolate to the stream,²²⁹ so is that the “functional equivalent” of a direct discharge?

The point source issue has also arisen in recent appellate cases involving coal ash. The Circuit split that led to the Supreme Court’s grant of a writ of certiorari in the Maui case included the Fourth Circuit’s 2018 decision in *Sierra Club v. Virginia Electric & Power Company*,²³⁰ and the Sixth Circuit’s 2018 decisions in *Kentucky Waterways Alliance v. Kentucky Utilities Company*²³¹ and *Tennessee Clean Water Network v. TVA*.²³² In its 2018 decision of *Sierra Club v. Virginia Electric & Power Company*, the Fourth Circuit declined to find coal ash ponds to be “point sources,” concluding that they were not sufficiently discernible conveyances within the meaning of the CWA.²³³ The Dominion coal ash storage facilities in the *Sierra Club* case were unlined.²³⁴ Although coal ash settling ponds and landfills may allow leachate to percolate into groundwater, the court did not

226. See Clean Water Act, 33 U.S.C. § 1342 (l)(1) (setting limitations on permits for agricultural return flows from irrigated agriculture); see also 40 C.F.R. § 122.3(e) (listing agricultural exclusions).

227. See e.g. *Concerned Area Residents*, 34 F.3d 114, 115 (2nd Cir. 1994) (holding that the liquid manure spreading operations are a point source within the meaning of CWA section 1362(14) because defendant farm falls within the definition CAFO and is not subject to the agricultural exemption).

228. See Climate Policy Watcher, *Wastewater Sludge: Drying Beds*, <https://www.climate-policy-watcher.org/wastewater-sludge/drying-beds.html> (last visited Jan. 24, 2021) (noting the time the sludge must remain on the bed depends on the amount of water that must be removed by evaporation).

229. Webinar Video, A.B.A. Virtual SEER 49th Spring Conference, *Surf’s Up! What the Supreme Court’s Maui Ruling Means for the Clean Water Act*, A.B.A. (June 17, 2020), https://www.americanbar.org/groups/environment_energy_resources/events_cle/49thspring/ [hereinafter A.B.A. Virtual SEER].

230. See generally *Sierra Club v. Va. Elec. & Power Co.*, 903 F.3d 403 (4th Cir. 2018) (showing how the Clean Water Act regulates groundwater).

231. *Maui*, 140 S. Ct. 1462, 1469-70 (2020) (citing *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 932-938 (6th Cir. 2018)).

232. See *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436, 441-42, 446 (6th Cir. 2018) (rejecting the “hydrological connection” theory posed in a citizen suit challenging unauthorized discharges of coal ash pollutants through karst sinkholes to groundwater and then to Old Hickory Lake and the Cumberland River).

233. *Sierra Club*, 903 F.3d at 410-11 (4th Cir. 2018) (noting that a point source is “any discernible, confined and discrete conveyance.”); 33 U.S.C. § 1362(14).

234. See Therese Wilkerson, *Sierra Club v. Virginia Electric & Power Co.: How A Clean Water Act Misinterpretation May Open the Floodgates to Future Groundwater Polluters*, 21 Vermont J. Env. L. 442, 461 (2020).

recognize them as point sources.²³⁵ The Fourth Circuit reached this conclusion, despite purportedly adopting its Fourth Circuit's 2018 *Kinder Morgan* position that hydrologically connected groundwater is covered by the CWA.²³⁶ Instead, the court concluded that RCRA (not CWA) regulates the treatment and storage of solid waste like coal ash and its effects on surface waters and groundwaters.²³⁷

Both Sixth Circuit cases also related to pollution of waterways from coal ash. The Kentucky Utilities Company stored coal ash in man-made ponds sitting on top of an aquifer; chemicals from that source reached Herrington Lake surface waters after traveling through groundwater.²³⁸ In the *Kentucky Waterways Alliance* case, the Sixth Circuit rejected both the "point source" theory and the "hydrological connection" theory,²³⁹ concluding instead that the pollutant must make its way to navigable water directly through a point source conveyance.²⁴⁰ The Sixth Circuit then decided that groundwater and the karst topographic through which the pollutant flowed did not constitute "discernable, discrete, nor confined" point sources under the CWA.²⁴¹

In concluding that the diffuse nature of groundwater prevents it from being a point source,²⁴² and thus not subject to CWA jurisdiction, the Sixth Circuit emphasized that Congress intended to "recognize, preserve, and protect the primary responsibilities and rights of the States to prevent, reduce, and eliminate pollution [and] to plan the development and use . . . of land and water resources."²⁴³ The states regulate non-point source pollution through waste treatment management and disposal of solid wastes (including coal ash) through RCRA management plans.²⁴⁴ The Sixth Circuit further concluded that CWA and RCRA jurisdiction were mutually exclusive and recognized plaintiffs' standing to pursue a RCRA claim.²⁴⁵ In reaching its conclusion, the Sixth Circuit relied on flawed assumptions that belied its recognition of the important role of cooperative federalism and the essential

235. *Id.* at 458.

236. *Sierra Club*, 903 F.3d at 409.

237. *Id.*; see also Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 (1976) (stating Congressional findings on solid waste, its disposal, and its impact on the environment and public health).

238. See *Ky. Waterways All. v. Ky. Util. Co.* 905 F. 3d at 931 (citing the plaintiff's concerns about arsenic, lead, calcium, boron, and selenium being among the chemicals found in coal ash).

239. *Id.* at 932; *Tenn. Clean Water Network*, 905 F.3d at 441, 446.

240. *Ky. Waterways All.*, 905 F.3d at 933-934.

241. *Id.* at 934.

242. *Id.* at 934, 936 (interpreting Justice Scalia's opinion in *Rapanos*, 547 U.S. 715, 729-30 (2006) to mean that pollutants can travel through multiple intermediary point sources to reach the ultimate jurisdictional waterway, rather than that pollutants can travel through nonpoint sources en route. In reaching this conclusion, the Sixth Circuit also rejects the reasoning of the Ninth Circuit in *Hawaii Wildlife Fund*, 886 F.3d 737, 748-49 (9th Cir. 2018)).

243. *Ky. Waterways All.*, 905 F.3d at 929 (quoting 33 U.S.C. § 1251(b)).

244. *Ky. Waterways All.*, 905 F.3d at 929.

245. *Id.* at 940.

protections afforded when RCRA and the CWA are applied in coordination.²⁴⁶ Instead, the Court focused solely on the viability of the RCRA claim. Under RCRA, coal combustion residuals (CCRs) from electric utilities and their impoundments were regulated under the 2015 CCR Rule²⁴⁷ to minimize the likelihood of groundwater contamination.²⁴⁸

To provide context as to the importance of how this new standard is to be applied, the EPA has identified over 1,000 coal ash slurry ponds, containing 112 million pounds of coal ash, 46% of which were unlined.²⁴⁹ A 2007 EPA study reported in the *New York Times* estimated that 67 towns in 26 states had groundwater contamination from heavy metals, such as lead, chromium, nickel, and arsenic.²⁵⁰ Runoff and seepage pose significant environmental dangers to waterways, exacerbated by flooding incidents in recent years. In the aftermath of Hurricane Florence in 2018, floodwaters rose, breaching a Duke Energy coal ash pond's retaining wall.²⁵¹ The North

246. *See id.* at 928-30, 37. Despite recognizing that RCRA is “designed to work in tandem with other federal environmental protection laws, including the CWA” and that RCRA expressly “excludes industrial discharges which are point sources subject to NPDES permits under the CWA”, the court ruled that no discharge that reached navigable waters via groundwater could support a claim under the CWA. *Id.* at 929, 937. The court focused solely on the damages to soil and groundwater, without considering that the discharges could extend beyond and into navigable waters that are protected by the CWA. As the Supreme Court later ruled in *Maui*, the fact that a discharge is conveyed through groundwater to navigable waters does not by itself bar application of the CWA. In fact, given the exclusion of industrial discharges from the reach under RCRA, the CWA is precisely the statutory program that should be applied to address damages that extend beyond the soil and groundwater. *Id.* at 940-947 (Clay, Cir. J. dissenting).

247. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 80 Fed. Reg. 21,302 (Apr. 17, 2015) (to be codified in 40 C.F.R. pts. 257, 261). *But see* Trump era amendment creating work arounds and closure exemptions that create alternative requirements for how facilities respond to and remediate releases from landfills and surface impounds, providing greater flexibility in determining locations for CCR landfills or surface impoundments; Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure, 85 Fed. Reg. 12,456 (Mar. 3, 2020) (to be codified 40 C.F.R. pt. 257); *see* Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities, 83 Fed. Reg. 11,584-11,585 (proposed Mar. 15, 2018) (providing supplementary information on the background of the CCR rule); *But see* News Release, U.S. Env't'l Prot. Agency, EPA Proposes First of Two Rules to Amend Coal Ash Disposal Regulations, Saving Up To \$100M Per Year in Compliance Costs (Mar. 1, 2018) (on file with EPA) (creating work arounds and closure exemptions that create alternative requirements for how facilities respond to and remediate releases from landfills and surface impounds, providing greater flexibility in determining locations for CCR landfills or surface impoundments); *see also* Carol Miller, *For a Lump of Coal & a Drop of Oil: An Environmentalist's Critique of the Trump Administration's First Year of Energy Policies*, 36 VA. ENV'T. L. J. 185, 227-230 (2018) (discussing CCR rule's regulation of disposal of coal ash generated by electric utilities and independent power producers).

248. Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure, 85 Fed. Reg. 12,456 (proposed Mar. 3, 2020) (to be codified at 40 C.F.R. pt. 257).

249. Thomas McGarity, *EPA at Helm's Deep: Surviving the Fourth Attack on Environmental Law*, 24 FORDHAM ENV'T. L. REV. 205, 234 (2013).

250. Shaila Dewan, *Coal Ash Spill Revives Issues of Its Hazards*, N.Y. Times (Dec. 24, 2008), <https://www.nytimes.com/2008/12/25/us/25sludge.html>.

251. *See* Glenn Thrush and Kendra Pierre-Louis, *Florence's Floodwaters Breach Defenses at Duke Energy Plant, Sending Toxic Coal Ash Into River*, N.Y. Times, (Sept. 21, 2018),

Carolina Department of Environmental Quality ordered Duke Energy to stop capping coal slurry ponds, and instead dry them and send the coal ash to lined landfills.²⁵² An impoundment wall at the Tennessee Valley Authority's Kingston coal ash impoundment wall broke in 2008, spilling 300 million to one billion gallons of coal ash slurry, contaminating land and waterways and burying fifteen houses.²⁵³ This 2009 Superfund site served as a catalyst for new coal ash legislation and regulation.

The 2016 Water Infrastructure for Improvements to the Nation Act (WIIN) grants states authority to administer RCRA subtitle D operating permit programs,²⁵⁴ pursuant to the 2015 Coal Combustion Residuals Rule (CCR) or its successor.²⁵⁵ CCR regulates the management and disposal of coal ash generated by electric utilities and independent power producers pursuant to subtitle D of RCRA.²⁵⁶ The rule governs location, design, and operating criteria, as well as record keeping for facility expansions. It also requires lining for both new and existing landfills and surface impoundments, which are required to implement groundwater protection and monitoring.²⁵⁷ Facilities that are unlined or have groundwater contamination above the regulated protection standard must stop receiving CCR wastes, adopt corrective action, and either retrofit or close.²⁵⁸ The Trump Administration, however, has continually extended closure dates.²⁵⁹ Both industry and environmentalists challenged the CCR rule in cases that were consolidated into the Utility Solid Waste Activities case.²⁶⁰

In 2018, the Trump administration adopted modified regulations that allow states greater flexibility and alternative ways to achieve compliance.²⁶¹ The 2018 revisions to the CCR Rule also modified the regulation of on-site storage practices and inactive surface impoundments, in addition to

<https://www.nytimes.com/2018/09/21/climate/florences-floodwaters-breach-defenses-at-power-plant-prompting-shutdown.html> (describing the flooding as a result of Hurricane Florence).

252. Yessenia Funes, *A Year After Hurricane Florence, Coal Ash is Still a Huge Concern For North Carolina*, EARTHER (Sept. 14, 2019), <https://earthier.gizmodo.com/a-year-after-hurricane-florence-coal-ash-is-still-a-hu-1838105226>.

253. HARV. ENV'T. & ENERGY L. PROGRAM, *Coal Ash Rule* (Dec. 15, 2017) <http://environment.law.harvard.edu/2017/12/coal-ash-rule/>.

254. Water Infrastructure for Improvements for the Nation Act, Pub. L. No 114-322 (2016).

255. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities ("CCR Rule"), 80 Fed. Reg. 21,301 (Oct. 14, 2015) (to be codified at 40 C.F.R. pt. 257, 261).

256. CCR Rule, 80 Fed. Reg. at 21,310; *See generally*, Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992(k) (detailing the management of hazardous and non-hazardous solid waste).

257. CCR Rule, 80 Fed. Reg. at 21,310.

258. *Id.* at 21,303-21, 21,304.

259. *Id.* at 21,414.

260. *See generally* Utility Solid Waste Activities v. Environmental Protection Agency, 901 F.3d 414, 420 (D.C. Cir. 2017) (consolidating seven cases challenging CCR rule).

261. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities, 80 Fed. Reg. 21,301 (Apr. 17, 2015) (to be codified 40 C.F.R. pts. 257, 261).

extending closure dates by 18 months for sites that do not meet water protection standards.²⁶² The Trump administration adopted rules that provide a less safe alternative and prolong closure of sites without liners.²⁶³

President Trump’s Executive Order for Prompting Energy Independence and Economic Growth prioritizes protection for fossil fuel industries.²⁶⁴ Consistent with this policy, EPA Secretary Wheeler bragged that this regulatory change would save the coal industry \$30 million annually.²⁶⁵ A question remains as to whether RCRA subpart C and D regulation of permitted landfills and the revised CCR rules are adequate to protect waterways if CWA jurisdiction does not apply.

In the *Maui* decision, all parties conceded that the injection well was a point source.²⁶⁶ By contrast, coal ash ponds pose an additional threshold issue of whether or not they qualify as CWA point sources, since the Fourth and Sixth Circuits have concluded that they are not. Assuming arguendo that they are point sources, the migration of chemicals from those locations are now governed by the “functional equivalent of a direct discharge” standard set forth in *Maui*.²⁶⁷

The *Prairie Rivers Network (PRN) v. Dynegy Midwest* case in federal Central District Court in Illinois may be among the first cases to consider the application of the *Maui* decision to coal ash leaks.²⁶⁸ From the mid-1950s until 2011, the Vermilion plant burned coal and generated millions of tons of coal combustion residuals (“coal ash”).²⁶⁹ *Dynegy* and its predecessors mixed the coal ash generated at the plant with water in three unlined coal ash pits.²⁷⁰ The claim further asserts that:

Coal ash, such as that in the coal ash pits at the Vermilion plant, contains heavy metals and other toxic pollutants that are harmful and at times deadly to people, aquatic life, and animals. Among the contaminants found in coal ash are arsenic, barium, boron,

262. *Id.* at 27,371.

263. Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure, 85 Fed. Reg. 12,456 (Mar. 3, 2020) (to be codified 40 C.F.R. pt. 257).

264. *See generally* Exec. Order No. 13,783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093, 16,096 (Mar. 31, 2017) (reviewing fossil fuel guidance, regulations, and rules).

265. Matthew Brown, *U.S. Coal Ash Pollution Rules Eased After Industry Balks*, AP NEWS (July 18, 2018), <https://www.apnews.com/8c1f81c6e0d64d16ac35c1a013af9b19>.

266. *Hawaii Wildlife Fund*, 886 F.3d 737, 744 (9th Cir. 2018).

267. *Maui*, 140 S. Ct. 1462, 1476 (2020).

268. *See Prairie Rivers Network v. Dynegy Midwest Generation, LLC*, 350 F.Supp.3d 697, 706 (C.D. Ill. 2018) (granting motion to dismiss and holding that the discharges into groundwater—not directly into navigable waters—is not within CWA jurisdiction); *see also* Beaven, *supra* note 40.

269. *Prairie Rivers Network, LLC*, 350 F.Supp.3d at 706.

270. *See Prairie Rivers Network*, 350 F.Supp.3d at 699-700 (detailing how *Dynegy* and its predecessors sluiced 3.3 million cubic yards of coal ash between 1950 and 2011).

chromium, lead, manganese, molybdenum, nickel, and sulfate. These contaminants can inflict severe harm, including brain damage, cancer, learning disabilities, birth defects, and reproductive defects. They are also dangerous to aquatic ecosystems, which is a significant concern where that contaminated groundwater is migrating into adjacent surface water bodies.²⁷¹

Arguably, coal ash ponds are a discernible and discrete conveyance from which pollutants are discharged.²⁷² In light of *Maui*, courts addressing coal ash contamination claims need to reconsider whether coal ash contaminants that flow thorough groundwater to reach navigable water are within the jurisdiction of the CWA.

IV. PRACTICAL IMPLICATIONS

What will be the impact of the *Maui* decision on industry, citizen group challenges and regulators' determination of when a CWA NPDES permit is required? The majority in *Maui* included a nonexclusive list of seven factors to be considered in evaluating whether a discharge was the "functional equivalent" of a direct discharge:

- (1) transit time,
- (2) distance traveled,
- (3) the nature of the material through which the pollutant travels,
- (4) the extent to which the pollutant is diluted or chemically changed as it travels,
- (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source,
- (6) the manner by or area in which the pollutant enters the navigable waters,
- (7) the degree to which the pollution (at that point) has maintained its specific identity. [emphasis added]²⁷³

"Time" and "distance" traveled were referenced as the most important in determining "[w]hether pollutants that arrive at navigable waters after traveling through groundwater are 'from' a point source depends upon how

271. *Id.*

272. See Jay Crowder, *Notice to SCOTUS: Coal Ash Should be a Point Source Discharge under the Clean Water Act*, 19 VT. J. ENV'T L. 89, 112 (2018) (describing why coal ash ponds are discernable).

273. *Maui*, 140 S. Ct. at 1476-77.

similar to (or different from) the particular discharge is to a direct discharge.”²⁷⁴ The Court, however, did not provide any guidance on how to weigh the other factors.²⁷⁵ Fact-driven analysis in courts with differing emphasis on the various factors will lead to widely varying results. Whether it is the EPA or a state-delegated agency, they “will be required to develop an administrative record to support its permitting decision using this standard so that permitting decisions survive expected litigation.”²⁷⁶ Litigation over what information is needed to support a standard application is likely, and litigants in the remanded *Maui* case have already filed briefs on whether additional discovery is warranted.²⁷⁷

To assess the collective impact of these factors, studies and reports by geologists will be necessary. Chemical transport and groundwater flow models will be developed to determine how long the transit time is for a particular physical nature of pollutant materials traveling through a particular medium. For example, liquids travel through sand and gravel much more quickly than they travel through silty media; karst topography is more porous. Hence time and distance are affected by the third factor: the nature of the material (soil type) through which the pollutant travels. Whether the pollutant enters navigable waters via a spring, a well, or over land (factor six) also affects time and distance, as does the elevation and slope of the land. What may appear as inconsistent application of the “functional equivalent” standard may instead result from factual differences in the medium. The amount that enters navigable waters (factor five) is in part informed by the extent the pollutant is diluted (factor four) and the extent to which it maintains its initial identity (factor seven). In tracing the flow of the pollutant from the point source to the navigable water, one method is to use an airborne thermal infrared imaging spectrometer that measures temperature at the point source and at the navigable water acceptance point.²⁷⁸

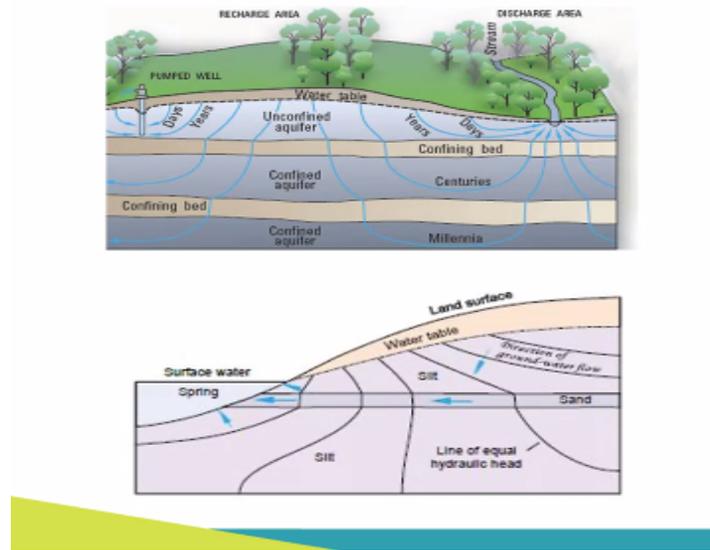
274. *Id.* at 1476.

275. *See generally id.* (lacking any discussion on how to weigh the appropriate factors).

276. Andrew Otis, *Preparing for Water Permitting After the Supreme Court’s County of Maui Decision*, JDSUPRA (June 30, 2020), <https://www.jdsupra.com/legalnews/preparing-for-water-permitting-after-36111/>.

277. *Id.*

278. *See* A.B.A. Virtual SEER, *supra* note 229 (featuring Robert Young exploring the technical strategies for implementing groundwater regulation after the *Maui* decision).



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The *Maui* Court’s opinion should not be viewed as a rejection of the “hydrological connection” standard in that it adopts the same basic factors for consideration as those that were articulated in the *Kinder Morgan* decision that was based on the hydrological connection standard.²⁸⁰ The “hydrological connection” standard in that case included an examination of time, distance geology, flow, and slope.²⁸¹ The fact that the *Maui* majority did not give deference to the EPA’s recent alternative viewpoints further supports this position.

The geological methods, reports, and expert testimony will also be subject to *Daubert* prerequisites²⁸² in federal court and 32 states.²⁸³ Federal Rules of Evidence Rule 402 provides that evidence is admissible only if it is relevant.²⁸⁴ Rule 401 defines “relevant evidence” as that which has “any tendency to make the existence of any fact that is of consequence to the

279. *Id.*

280. See *Kinder Morgan*, 887 F.3d at 647 (discussing the *Maui* opinion).

281. *Id.* at 651 (citing National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3017 (Jan. 12, 2001) (to be codified at 40 C.F.R. pts. 122 and 412)).

282. See generally *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993) (determining the standard for admitting expert testimony in federal courts).

283. Robert Ambrogi, *Two More States Adopt Daubert, Bringing Total to 32*, IMS EXPERT SERVICES, <https://www.ims-expertservices.com/insights/two-more-states-adopt-daubert-bringing-total-to-32/> (last visited Dec. 8, 2020).

284. *Daubert*, 509 U.S. at 587.

determination of the action more probable or less probable than it would be without the evidence.”²⁸⁵ Rule 701 further provides that “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.”²⁸⁶ It is the duty of the trial judge to determine scientific testimony and evidence is admitted only if it is both relevant and reliable.²⁸⁷ The earlier *Frye* standard just focused on whether the expert’s opinion was generally accepted by the relevant scientific community.²⁸⁸ The *Daubert* case established a five-part test to aid in assessing whether testimony or evidence was admissible:

1. Whether the theory or technique employed by the expert is generally accepted in the scientific community;
2. Whether it has been subjected to peer review and publication;
3. Whether it can be and has been tested;
4. Whether the known or potential rate of error is acceptable; and
5. Whether the research was conducted independent of the particular litigation or dependent on an intention to provide the proposed testimony.²⁸⁹

Scientifically valid data questions and data with quality assurance will be needed. If the amount of the pollutant reaching the navigable water cannot be accurately quantified, can the analysis satisfy the *Daubert* standard? If scientists and engineers weigh the seven factors of the *Maui* test, how will that be evaluated under the *Daubert* criteria? Ultimately, will the impact of the pollutant on the navigable water drive the outcome with some judges rather than the details? Should such a complicated process be applied to a jurisdictional question?²⁹⁰ Elber Lin, arguing for the County of Maui in oral arguments, urged that the after-the-fact examination of the “traceability” standard is too unpredictable as a trigger for CWA permitting.²⁹¹ Mr. Lin’s argument makes clear that because of the potential substantial fines associated with noncompliance, “regulated entities need to know beforehand whether a permit is required.”²⁹²

285. *Id.*

286. *Id.* at 588.

287. *Id.* at 589.

288. *Frye v. U.S.*, 293 F. 1013, 1014 (D.C. App. 1923).

289. *Daubert*, 509 U.S. at 589–594.

290. A.B.A. Virtual SEER, *supra* note 229.

291. Transcript of Oral Argument at 4, *Maui*, 140 S. Ct. 1462 (No. 18-260).

292. *Id.*

The cost implications of the testing, reports, and expert testimony are exacerbated when they must occur to establish jurisdiction or satisfy a summary judgment versus if they are only needed if the case is actually tried. The Supreme Court could have established a standard that allowed jurisdiction if the traceable pollutant reached the navigable water through a hydrological connection, but it chose not to do so. By requiring analysis of these seven factors as a precursor to establishing CWA jurisdiction, the analysis becomes much more complex and costly at the threshold. The Kinder Morgan Amici Curiae brief in the *Maui* case projects the substantial burdens and costs on industries of implementing an unpredictable standard:

Given the enormous costs of compliance and sizable penalties for noncompliance, there must be a clear line that will enable potentially regulated entities to determine in advance whether a NPDES permit is required—not an utterly unpredictable standard that will force them to choose between obtaining a costly permit they should not need and risking massive fines for discharges the CWA was not meant to cover.²⁹³

Some state authorities believe, however, that the functional equivalent standard will not make a substantial change in their permitting processes.²⁹⁴

Other legal scholars and opponents argue that “the ‘functional equivalent’ standard could require NPDES permitting obligations for activities related to the construction of pipelines, injection wells associated with oil and gas production, chemical and industrial manufacturing, and even agricultural production.”²⁹⁵ The majority opinion in *Maui* downplays the risk that 650,000 wastewater reclamation facilities and over 20 million septic systems²⁹⁶ used in residential homes will need a permit, stating that

293. Brief for Kinder Morgan Energy Partners, L.P. et al. as Amici Curiae Supporting Petitioner at 28–29, *Maui*, 140 S. Ct. 1462 (2020) (No. 18-260).

294. Joel Reschly, Missouri Department of Natural Resources Legal Counsel, Environment & Energy Committee meeting Zoom presentation, Nov. 16, 2020 (notes on file with authors).

295. Brett A. Miller & Margaret A. Viator, *Supreme Court’s New “Functional Equivalent” Standard Means Regulatory Uncertainty Under an Expanded Clean Water Act*, PHELPS (May 4, 2020), <https://www.phelps.com/supreme-courts-new-functional-equivalent-standard-means-regulatory-uncertainty-under-an-expanded-clean-water-act-5-4-2020>.

296. See e.g., REPORT TO THE TWENTY-NINTH LEGISLATURE STATE OF HAWAII, 2018 REGULAR SESSION RELATING TO CESSPOOLS AND PRIORITIZATION FOR REPLACEMENT (Dec. 2017), <https://health.hawaii.gov/opppd/files/2017/12/Act-125-HB1244-HD1-SD3-CD1-29th-Legislature-Cesspool-Report.pdf> (stating “Hawaii has nearly 88,000 cesspools that put 53 million gallons of raw sewage into the State’s groundwater and surface waters every day. Cesspools are an antiquated technology for disposal of untreated sewage that have the potential to pollute groundwater.”); See also Stuart Coleman, *Finally Tackling a Crappy Situation*, HAW. BUS. MAG. (2019),

states can “mitigate the harms through general permits and judges ‘can mitigate any hardship or injustice . . . with broad discretion to set a penalty’”.²⁹⁷

CWA citizen suits²⁹⁸ are likely to be the primary vehicle for raising the issue of whether a permit is necessary and could be quite costly with the geological reports necessary to establish jurisdiction. Citizen suits provide a mechanism to assure compliance and enforcement when the administering agencies either fail to act or choose not to act. During the Trump administration, has been unlikely that the EPA would raise the issue when the overarching priority of the administration was to lessen regulatory burdens on businesses. The new Trump rule excluding groundwater from the scope of WOTUS²⁹⁹ also makes the application of the “functional equivalent to a direct discharge” standard even more murky to apply.

CONCLUSION

The CWA (1972) envisioned a partnership between the states and federal government to clean up America’s waterways. It was not intended to be a jurisdictional competition to facilitate businesses’ circumvention of that goal. After all, the original expectation—be it naïve—was to have all U.S. waterways fishable and swimmable by the mid-1980s.³⁰⁰ Any standard that hinders the basic goal of the CWA needs to be reevaluated. Clearly, the Trump administration’s abandonment of the “hydrological connection” standard and its declaration that pollutants that migrate through groundwater to reach navigable water are immune from federal NPDES permitting is counterintuitive to the goal of the CWA.

The “functional equivalent to a direct discharge” standard articulated by the Supreme Court in *Maui*—while well-intended and initially hailed as a pro-environmental decision—may devolve into an analysis that lets businesses avoid their role in preventing or minimizing pollution. If the financial burden of proving jurisdiction is moved away from the discharger, then there is a high likelihood that polluters will be able to discharge without

<https://www.hawaiiibusiness.com/tackling-a-crappy-situation/> (discussing scientific studies on sewage waste in Hawai’i). According to Joss Hill (Associate Program Director at the Coral Reef Alliance), “[d]ye tracer studies conducted by the University of Hawai’i at Hilo found that sewage from cesspools, septic tanks and ATUs enters the marine environment through groundwater along the shore within five hours to 10 days – and there is no difference between systems.” *Id.* Further, according to Professor Roger Babcock, “[d]ye tracer studies conducted by the University of Hawaii at Hilo found that sewage from cesspools, septic tanks and ATUs enters the marine environment through groundwater along the shore within five hours to 10 days – and there is no difference between systems.” *Id.*

297. *Maui*, 140 S. Ct. at 1477.

298. 42 U.S.C. § 7604.

299. Navigable Waters Protection Rule, *supra* note 108 at 22,251.

300. CWA, 33 U.S.C. § 1251(a) (1977).

full accountability. As a practical matter, this shift in burden also would eviscerate the viability of the citizen suit provisions of the CWA, as it would impose an enormous financial burden on the non-discharging party.³⁰¹ This consequence is especially possible if the business can convince a sympathetic judge that time and distance are too great—even though their pollutants are clearly traceable to the contamination of the waterway. In addition, the time to develop and decide the threshold jurisdictional issues with an ongoing leak or migration of a pollutant is contrary to the goal and necessity for prompt mitigation. The burden is properly borne by the discharger to either refrain from polluting or to take all steps necessary to comply with the CWA standard that require treatment at the point of discharge using the best available technology.³⁰²

If any of the pollution can get to the sea from a point source, its progress must be prevented or mitigated. The seven factors should not be insurmountable barriers to jurisdiction. Factors such as dilution should not be relevant to the question of jurisdiction, but instead should be related to the remedy imposed. In fact, an essential benefit of the CWA structure is that it addresses treatment of pollutants at the point of discharge as well as in the receiving waters. This eliminated the pre-CWA reliance on dilution as a solution to highly concentrated discharges. Those factors may be relevant to determining the best way to stop or treat pollution, or relevant to assessing cleanup costs, but those factors should not be a prerequisite to jurisdiction.

To foster the CWA's goal of restoring the integrity of the nation's waterways, the following measures should be adopted:

1. Clarify that the pollutant does not have to be directly discharged into a navigable water to necessitate a permit.
2. Clarify (both in regulations and in legislative amendments to the CWA) that pollutants reaching waters of the U.S. can be regulated even if the pollutant travels through groundwater or other conduits or conveyances.³⁰³
3. Re-adopt the "hydrological connection" standard in regulatory policy and statutory language.
4. Link the importance of the hydrological connection to the evaluation of the "functional equivalent of a direct discharge" (if that standard is maintained).
5. Place the burden of proof on a business to demonstrate that its discharge is not the functional equivalent of a direct discharge.

301. *See generally* RCRA, 42 U.S.C. § 6972 (incorporating citizen suit authority and procedures).

302. *See* 40 C.F.R. § 125.3 (1990) (outlining discharger's technology-based treatment requirements in permits).

303. *See* 118 CONG. REC. H10,666 (daily ed. Mar. 28, 1972) (statement of Rep. Aspin) (explaining ambiguities in the language of CWA and the aims of the amendment).

6. Re-broaden the scope of waters subject to CWA jurisdiction, rather than narrowing the definition of WOTUS, with necessary legislative changes. The definition of WOTUS should not be left to a regulatory agency, but rather should be affirmatively articulated by Congress.
7. Reinforce cooperative federalism rather than jurisdictional policies that undermine the purpose of the CWA of maintaining, restoring, and fostering integrity of water quality.

Justice Stevens' *Rapanos* dissent emphasized that "Congress' intent in enacting the [CWA] was clearly to establish an all-encompassing program of water pollution regulation."³⁰⁴ In passing the CWA, Congress emphasized that it is "essential that discharge of pollutants be controlled at the source."³⁰⁵ As Justice Breyer said in his dissent in the *Rapanos* case, where he criticized the "sufficient nexus" standard, if there is not sufficient guidance for administrative agencies, "courts will have to make ad hoc determinations that run the risk of transforming scientific questions into matters of law."³⁰⁶ Unfortunately, that risk of insufficient guidance reemerges with Breyer's "functional equivalent" standard in the *Maui* decision.³⁰⁷ While the impact on navigable waters could drive the outcome of cases, the *Maui* case may lead to an analytical quagmire that could benefit industries that hope to circumvent permits.³⁰⁸ Jurisdictional nuances should not obstruct the goal of minimizing pollutants that contaminate water.

To prevent and minimize pollution, and to improve the quality of the waters throughout the United States, consistent, scientific-based standards need to be applied that recognize the interconnectedness of watersheds and use of water resources beyond individual state boundaries. Where contaminants in groundwater significantly affect the quality of navigable waters, there should be jurisdiction to regulate the discharge of those contaminants. If the contamination has already occurred, a "traceability" standard makes sense. It is counterintuitive to use a hindsight test to determine jurisdiction through the "functional equivalent of a direct discharge," where the goal is to prevent the pollution of groundwater and navigable water.

A hindsight test creates unnecessary costs and hurdles for determining CWA jurisdiction for citizen suits, businesses, and regulators. Businesses and municipalities need to know up front whether their prospective

304. *Milwaukee v. Illinois*, 451 U.S. 304, 318 (1981).

305. *Rapanos v. United States*, 547 U.S. 715, 803 (Stevens, J., dissenting) (citing S. Rep. No. 92-414, at 77 (1972)).

306. *Rapanos*, 547 U.S. at 812.

307. *Maui*, 140 S. Ct. at 1481 (Thomas, J., dissenting).

308. *See id.* (establishing that the Court gives no guidance for apply the standard).

discharges require CWA NPDES permits and the 47 states with delegated NPDES authority also need more specific guidance. The hindsight test hinders the proactive CWA goal of preventing and promptly mitigating contamination of our nation's waterways. If the pollutant is likely to reach navigable waters that are hydrologically connected, the source should be regulated.

A GROWING NEED: INCREASING AGRICULTURAL AND URBAN FORESTATION TO COMBAT CLIMATE CHANGE

*Rebecca Robbins**

ABSTRACT

Centuries of deforestation and reliance on carbon dioxide-emitting technologies have created a growing climate change crisis in the United States and across the globe. Since colonial times, the U.S. has lost approximately 74% of its forest cover. This dramatic loss of carbon-absorbing forest cover significantly contributes to global climate change but tends to receive far less policy attention than strategies focused on curbing carbon dioxide emissions. This Article argues that far more aggressive and innovative forestation policies are warranted across the country and proposes multiple potential policy approaches to increasing the nation's forest cover. After describing America's history of deforestation, this Article highlights several benefits of trees and some basic obstacles governments tend to encounter when seeking to increase tree planting and maintenance. The Article then examines existing federal, state, and local policies aimed at incentivizing reforestation and forest conservation, explaining why these approaches are not nearly aggressive enough to drive optimal levels of tree-related investment. This Article ultimately advocates for bold and innovative new policies at the federal government level, including expanded federal tax incentives and amendments to Farm Bill programs designed to increase farmer participation in agroforestry. The Article also describes specific ways for cities to better leverage the power of trees to improve citizens' health and well-being while also helping to slow the pace of climate change.

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INTRODUCTION

Alaska's Tongass National Forest is the world's largest intact temperate rainforest.¹ This vast area, which is home to over 31 Alaskan communities and a diverse array of wildlife including bears, eagles, and salmon, also hosts millions of valuable old-growth cedar, hemlock, and spruce trees.² Incredibly, within months of President Donald J. Trump's announced support for a global initiative aimed at planting one trillion new trees,³ his administration revealed plans to allow logging in 9.2 million acres of this unique forest.⁴ To accelerate this new logging, the Administration proposed lifting the existing federal Roadless Area Conservation Rule⁵ and expanding road construction.⁶ President Trump's proposed plan would make thousands of acres of old-growth forest newly available for clear-cutting each year.⁷ Not only would cutting thousands of acres of trees in the Tongass forest permanently harm environmental ecosystems and Alaskan communities, it would also significantly contribute to rising carbon dioxide concentrations in the global atmosphere.⁸

1. See Gregory Wallace, *Trump Administration Proposes New Logging in Nation's Largest National Forest*, CNN POLITICS (Oct. 15, 2019), <https://www.cnn.com/2019/10/15/politics/alaska-national-forest-logging/index.html> (discussing the Tongass National Forest).

2. See *id.* (discussing wildlife in the Tongass National Forest).

3. Donald J. Trump, President of the United States, Address Before a Joint Session of the Congress on the State of the Union (Feb. 4, 2020).

4. Marc Heller, *How the Trump Admin Plans to Fast-Track Tongass Logging*, E&E NEWS (Oct. 22, 2019), <https://www.eenews.net/stories/1061347931>.

5. Special Areas, 36 C.F.R. pt. 294 (2012).

6. See Heller, *supra* note 4 (discussing a proposal to ease restrictions on road construction).

7. *Id.*

8. See generally Press Release, Alaska Wilderness League, Audubon Alaska, Center for Biological Diversity, Defenders of Wildlife, Earthjustice, GEOS Institute, Natural Resources Defense Council, Sierra Club, Southeast Alaska Conservation Council, The Wilderness Society, and Women's Earth and Climate Action Network, *Trump Administration Paves Way for Old-growth Clearcutting in Alaska's Tongass National Forest* (Oct. 15, 2019), <https://perma.cc/SYM7-ZV4H> (discussing the potentially disastrous impacts of clearcutting the Tongass temperate rainforest).

Since the dawn of the Industrial Revolution, carbon dioxide levels have steadily increased due to deforestation and increased uses of carbon-emitting technologies.⁹ Ironically, these rising greenhouse gas levels are particularly impacting places like Alaska.¹⁰ Alaska is warming more quickly than any other state in the country—nearly twice as fast as the global average.¹¹ Alaskan sea ice is also decreasing because seawater temperatures are steadily rising.¹² Climate change in Alaska has also led to other adverse effects, such as more frequent and powerful wildfires.¹³ Fires in these cold regions are especially troubling because they break open permafrost and release carbon gases that have been trapped for hundreds or even thousands of years.¹⁴

Never has there been a more crucial time to promote reforestation than in this era when the federal government seems increasingly intent on chopping down trees. Trees remove carbon dioxide from the air, which helps minimize the effects of climate change.¹⁵ Because the U.S. covers a massive geographic area and has a relatively temperate climate,¹⁶ expanding the nation's forests could substantially decrease the amount of carbon dioxide (CO₂) in the atmosphere.¹⁷ The U.S. has approximately 749 million acres of forestland covering about 33% of the nation's total land area.¹⁸ These vast forests remove nearly 13% of total U.S. greenhouse gas emissions per year and offset approximately 16% of annual carbon dioxide emissions, but those positive effects could be greater if there were more trees.¹⁹

9. See Earth Observatory, *Changes in the Carbon Cycle*, NAT'L AERONAUTICS & SPACE ADMIN. (June 16, 2011) <https://earthobservatory.nasa.gov/features/CarbonCycle/page4.php> (describing human influences on Earth's carbon cycle).

10. See John Dos Passos Coggin, *New Report Highlights Alaska's Last Five Years of Dramatic Climate Change*, CLIMATE.GOV (Oct. 15, 2019), <https://www.climate.gov/news-features/understanding-climate/new-report-highlights-alaska%E2%80%99s-last-five-years-dramatic-climate> (describing how climate change is impacting Alaska).

11. *Id.*

12. *Id.* (reporting surface waters along Alaska's west coast were 4°F to 11°F warmer than average in 2019).

13. See generally Maria-José Viñas, *NASA Studies How Arctic Fires Change the World*, NAT'L AERONAUTICS & SPACE ADMIN. (Aug. 13, 2019), <https://climate.nasa.gov/news/2902/nasa-studies-how-arctic-wildfires-change-the-world/> (discussing the positive feedback loop of global warming and fires in the Arctic).

14. *Id.*

15. *Id.*; Stephen Leahy, *How to Erase 100 Years of Carbon Emission? Plant Trees—Lots of Them*, NAT'L GEOGRAPHIC (July 4, 2019), <https://www.nationalgeographic.com/environment/2019/07/how-to-erase-100-years-carbon-emissions-plant-trees/>.

16. See generally *North America*, ENCYC. BRITANNICA, <https://www.britannica.com/place/North-America/The-warm-temperate-zone> (last updated Nov. 10, 2020) (discussing the climate of the United States).

17. Leahy, *supra* note 15.

18. Steve Nix, *U.S. Forest Facts on Forestland*, THOUGHTCO. (Nov. 5, 2019), <https://www.thoughtco.com/us-forest-facts-on-forestland-1343034>.

19. Jennifer Schultz & Jocelyn Durkay, *State Forest Carbon Incentives and Policies*, NAT'L CONF. OF STATE LEG. (Jan. 24, 2018), <http://www.ncsl.org/research/environment-and-na01111111tural->

Reforestation, or the mass replanting of trees to regenerate forest landscapes,²⁰ is an underappreciated potential weapon against climate change. According to the United Nations' Intergovernmental Panel on Climate Change (IPCC), planting trees is "the only technology" currently available to remove atmospheric carbon dioxide at a large scale.²¹ The IPCC's hypothesis was promoted by a major research article released in July 2019, which emphasized the great potential for global reforestation efforts to combat climate change.²² The report also identified several areas in the world—including many regions within the U.S.—where trees could be planted without inhibiting agricultural growth or imposing on urban areas.²³

This Article analyzes existing policies aimed at promoting reforestation within the U.S. and ultimately argues for certain specific policy strategies capable of significantly increasing tree planting activities. Implementing more aggressive and innovative reforestation policies at all levels of government has the potential to reduce the nation's CO₂ emissions and slow the pace of global warming quickly and powerfully.

Part I of this Article provides background information detailing carbon dioxide's effect on climate change, how humans are contributing to these effects, and how trees can help reduce atmospheric carbon dioxide levels. Part I also describes the potential benefits and detriments of increased forestation across the nation. Part II examines current U.S. reforestation policies at the federal, state, and local government levels, and highlights the strengths and weaknesses of these current strategies. Part III suggests that more aggressive federal tax incentives would be a cost-effective means of motivating farmers to embrace agroforestry practices capable of greatly decreasing atmospheric carbon dioxide levels. Part IV explains how stronger tree-related policies at the municipal level would drive rapid increases in forestation activities within urban settings.

resources/state-forest-carbon-incentives-and-policies.aspx (The United States Forestry Service defines forest land as "land that is one acre or greater in size and has at least ten percent tree cover."); Leahy, *supra* note 15.

20. CAL FIRE, *Reforestation*, READYFORWILDFIRE.ORG, <https://www.readyforwildfire.org/prevent-wildfire/landowners-assistance/reforestation/> (last visited Nov. 11, 2020) (defining reforestation).

21. See Emily Atkin, *It's Not Enough to Stop Amazon Deforestation*, NEW REPUBLIC: APOCALYPSE SOON (Aug. 29, 2019), <https://newrepublic.com/article/154882/its-not-enough-stop-amazon-deforestation>.

22. Jean-Francois Bastin, et al., *The Global Tree Restoration Potential*, 365 SCI. 76, 76–78 (2019), <https://science.sciencemag.org/content/365/6448/76/tab-pdf>.

23. *Id.* at 77.

I. CARBON DIOXIDE, HUMANS, AND TREES

There is broad scientific consensus that the global increase in atmospheric carbon dioxide levels documented in recent decades is largely attributable to human activities.²⁴ This section discusses how carbon dioxide contributes to a warmer atmosphere, how human activities throughout history—including activities involving trees—have increased carbon dioxide levels and created the current climate crisis, and why an increased focus on tree planting, maintenance, and preservation could help to address these challenges.

A. Deforestation and Global Warming

It is a well-established scientific fact that the increased level of carbon dioxide (CO₂) in the atmosphere contributes to global warming.²⁵ CO₂ is a greenhouse gas and adds to the greenhouse effect, which occurs when certain gases in the atmosphere block heat from escaping.²⁶ This means that CO₂ absorbs heat within the atmosphere and gradually releases it over time.²⁷ Unlike oxygen or nitrogen, which are the most abundant molecules in the atmosphere, greenhouse gases absorb much of Earth's radiated heat, which causes the atmosphere to warm over time.²⁸ To some extent, this natural greenhouse effect is beneficial because without it, the planet's average temperature would be too cold to support most of the planet's ecosystems.²⁹ However, growing concentrations of greenhouse gases in the atmosphere over the past couple of centuries are raising temperatures and creating numerous costly secondary effects.³⁰ Global warming is shifting agricultural growing seasons, causing glaciers to shrink more rapidly, sea levels to rise, and making weather patterns in the summer and winter more extreme.³¹

24. See generally *The Causes of Climate Change*, NAT'L AERONAUTICS & SPACE ADMIN., <https://climate.nasa.gov/causes/> (last updated Aug. 2, 2021) (providing background on several ways scientists have determined that human activity causes large increases in atmospheric CO₂ levels).

25. *Id.*; Georgios A. Florides & Paul Christodoulides, *Global Warming and Carbon Dioxide Through Sciences*, ENVI. INT'L (2009).

26. NAT'L AERONAUTICS & SPACE ADMIN., *supra* note 24.

27. *Id.*; Rebecca Lindsey, *Climate Change Atmospheric Carbon Dioxide*, CLIMATE.GOV (Sept. 19, 2019), <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide> (explaining that sunlight affects global warming by naturally warming the Earth's land and seas, which both continuously radiate heat back into the atmosphere).

28. NAT'L AERONAUTICS & SPACE ADMIN., *supra* note 24; Lindsey, *supra* note 27.

29. *The Greenhouse Effect*, UC MUSEUM OF PALEONTOLOGY BERKLEY, https://ucmp.berkeley.edu/education/dynamic/session5/sess5_greenhouse.htm (last visited Nov 13, 2020).

30. See generally *The Effect of Climate Change*, NAT'L AERONAUTICS & SPACE ADMIN., <https://climate.nasa.gov/effects/> (last updated Aug. 2, 2021) (discussing likely outcomes of climate change).

31. *Id.*

Unless dramatic actions are taken to reduce concentrations of greenhouse gases in the atmosphere, scientists predict that the warming—and its negative consequences—will only worsen in the coming decades.³²

From a policy standpoint, reducing atmospheric CO₂ is a priority because CO₂ is the most abundant greenhouse gas and remains in the atmosphere longer than most other greenhouse gases.³³ Although CO₂ is released through natural processes such as respiration and volcanic eruptions,³⁴ it is also released through human activities such as burning fossil fuels or other carbon-based materials.³⁵ Some studies suggest that human-caused increases in atmospheric CO₂ levels are likely responsible for at least two-thirds of the temperature increases already experienced across the globe.³⁶ Indeed, researchers have suggested that CO₂ levels today are higher than they have been at any point in the last 800,000 years.³⁷

The U.S. is one of the largest CO₂ emitters in the world, second only to China.³⁸ Since the Industrial Revolution in the late 1700s, emissions from fossil fuel combustion in the U.S. and elsewhere have consistently increased the atmospheric CO₂ levels.³⁹ Processes used to clear land for agricultural use, industry, and other human activities have also increased greenhouse gas concentrations.⁴⁰

Although increased greenhouse gas levels are largely attributed to more recent human activities, the actions of early American settlers also significantly contributed to global warming. When colonization began in earnest in the early 1600s, roughly one billion acres of forest covered the nation.⁴¹ The vast amounts of trees covering the nation in the 1600s intimidated European settlers and even prompted some logging aimed simply

32. *Id.*

33. Duncan Clark & Carbon Brief, *How Long do Greenhouse Gases Stay in the Air?*, GUARDIAN (Jan. 16, 2012), <https://www.theguardian.com/environment/2012/jan/16/greenhouse-gases-remain-air>; See *What are the Main Man-Made Greenhouse Gases?*, GUARDIAN (Feb. 21, 2011), <https://www.theguardian.com/environment/2011/feb/04/man-made-greenhouse-gases> (reporting that CO₂ makes up around three-quarters of greenhouse gasses).

34. See generally NAT'L AERONAUTICS & SPACE ADMIN., *supra* note 24 (explaining atmospheric CO₂ occurs naturally and anthropogenically).

35. See generally *id.* (stating evidence shows atmospheric CO₂ levels have increased by over one third since the Industrial Revolution).

36. See Lindsey, *supra* note 27 (explaining that CO₂ is responsible for two-thirds of energy imbalance causing temperature rise). 27

37. See *id.* (explaining how carbon dioxide levels have increased).

38. *Id.*

39. Earth Observatory, *supra* note 9.

40. See Lindsey, *supra* note 2727 (showing that land use changes have contributed to increase in carbon dioxide emissions); see Ottmar Eenhof et al., *Summary for Policy Makers: Mitigation of Climate Change*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf.

41. See Stephanie Buck, *The First American Settlers Cut Down Millions of Trees to Deliberately Engineer Climate Change*, TIMELINE (Aug. 22, 2017), <https://timeline.com/american-settlers-climate-change-5b7b68bd9064> (discussing the acreage of forests in the United States before colonization).

at ridding the land of its dark forests.⁴² Of course, over the ensuing 200 years, Americans continued to aggressively deforest large swaths of the nation's land.⁴³ They cut down over half of the Northeast's forests to clear land for agricultural use, support the logging industry, and provide wood for railroad companies.⁴⁴ Today, only 286 million acres of trees remain, meaning that the U.S. has already destroyed roughly 71.4% of its native forests.⁴⁵

B. Obstacles to Optimal Tree Planting and Conservation

Several obstacles have historically deterred governments and individuals across the U.S. from adequately investing in planting and maintaining trees. The most basic among them is that existing markets and policies tend to insufficiently promote tree protection and planting.⁴⁶ Planting and maintaining large numbers of trees is expensive. One recent study determined that an average tree costs about \$18 annually for watering and maintenance alone.⁴⁷ Because those who plant and maintain trees rarely capture all the societal benefits of their actions, few governments and individuals are willing to voluntarily make optimal levels of investment in tree planting.⁴⁸

1. Location-Related Constraints on Tree Planting

Climatological constraints further impede tree planting and complicate tree-related policymaking. As the popular motto "Right Tree, Right Place"

42. *Id.*; See George H. Stankey, *Historical Roots of Wilderness Concept*, 29 Nat'l Res. J. 9, 14–19 (1989).

43. Buck, *supra* note 41; see Stankey, *supra* note 42, at 20–21 (describing attitudes towards the wilderness in the new world).

44. See National Geographic Society, *Deforestation*, NAT'L GEOGRAPHIC: RES. LIBR., ENCYCLOPEDIA ENTRY (last updated July 16, 2019) ("In North America, about half of the forests in the eastern part of the continent were cut down from the 1600s to the 1870s for timber and agriculture."), <https://www.nationalgeographic.org/encyclopedia/deforestation/>; See also Stankey, *supra* note 42, at 18 ("Much of the drive to subdue the wilderness was not motivated by the desire to convert it into civilization as it was to capture the values it held—its timber, its minerals, its soils.").

45. Buck, *supra* note 41.

46. See David J. Nowak, *Assessing the Benefits & Economic Values of Trees*, in ROUTLEDGE HANDBOOK OF URBAN FORESTRY 152, 158–161 (Francesco Ferrini et al. eds. 2017) (discussing unmonetized externalities of tree planting). 127

47. See E. GREGORY MCPHERSON ET AL., CTR. FOR URB. FOREST RES., DEP'T OF LAND, AIR, WATER RES., U.C., DAVIS, COASTAL PLAIN COMMUNITY TREE GUIDE: BENEFITS, COSTS, AND STRATEGIC PLANTING 28 (2006), https://www.fs.fed.us/psw/publications/documents/psw_gtr201/psw_gtr201guide.pdf (applying the average cost of tree maintenance on the Coastal Plains).

48. See Kyla Mandel, *Planting Trees Helps Fight Climate Change but We Need Billions More Seedlings*, NAT'L GEOGRAPHIC (Mar. 2, 2021), <https://www.nationalgeographic.com/environment/article/planting-trees-helps-fight-climate-change-but-we-need-billions-more-seedlings> (explaining underinvestment, workforce, rate of return, and yield challenges associated with reforestation efforts).

suggests, certain regions and climates are only capable of supporting the growth of certain tree species.⁴⁹ These locational constraints make it difficult to promote increased forestation as a solution to climate change because it is not always clear which tree species are best suited for any given location. In some locales tree planting is not cost-justifiable at all.⁵⁰ In fact, in some locations, planting too many trees of the same species could ultimately harm or destroy delicate ecosystems.⁵¹ For instance, given the large quantity of water that trees require to survive, planting too many in a given area may have major adverse effects on the area's groundwater supply.⁵² Similarly, overplanting trees in the upstream areas of a watershed can potentially deplete water resources and indirectly impose damages hundreds of miles downstream.⁵³

The extended time it takes for many types of trees to mature only further complicates policymaking related to tree planting and maintenance. Because some trees take upwards of 50 years to mature, some have reasoned that certain forested land may be more valuable in the short term if used differently.⁵⁴ Once trees are planted, the land is often largely unavailable for most other uses, including agricultural activities and real estate development.⁵⁵

2. Potential Warming Effects of Tree Planting

Some opponents of tree planting have argued that it might actually increase global warming, even though in most cases planting trees produces net benefits in the fight against climate change.⁵⁶ One line of arguments made

49. See *Right Tree in the Right Place*, ARBOR DAY FOUND., <https://www.arborday.org/trees/righttreeandplace/> (last visited Feb. 13, 2020) (interpreting a factor list to determine what type of tree will thrive in specific locations and climates).

50. See *id.* (suggesting that it is not cost-justifiable to plant a tree that will not survive or grow due to poor planning).

51. See Daniel B. Blanco, *We Can't Just Plant Billions of Trees to Stop Climate Change*, DISCOVER MAG. (July 10, 2019), <https://www.discovermagazine.com/planet-earth/we-cant-just-plant-billions-of-trees-to-stop-climate-change> (Many commercial tree farms practice monoculture, the growth of a single plant species over a large area of land. Unfortunately, monoculture practices can generate additional environmental costs because a greater biodiversity of plant life often fosters more healthy ecosystems and decreases wildfire risks.).

52. *Id.*

53. Jessica Vomiero & Jesse Ferreras, *Reality Check: Will Planting 1 Billion Hectares of Trees Slow Down Climate Change?*, GLOBALNEWS.CA (July 9, 2019), <https://globalnews.ca/news/5471379/planting-trees-climate-change-theory/> (discussing potential harmful effects of using tree planting to mitigate climate change).

54. *Natural Forest Management*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, <http://www.fao.org/forestry/sfm/en/> (last updated Nov. 4, 2020).

55. *Id.*

56. Alan Buis, *Examining the Viability of Planting Trees to Help Mitigate Climate Change*, NAT'L AERONAUTICS & SPACE ADMIN. (Nov. 7, 2019), <https://climate.nasa.gov/news/2927/examining-the-viability-of-planting-trees-to-help-mitigate-climate-change/>.

against tree planting and maintenance relates to the equipment commonly used for such activities, which is typically gas-powered and thus emits carbon dioxide.⁵⁷ Vehicles for transporting saplings, chain saws for pruning, chippers to clear unhealthy trees, and other tools used in the process of planting and caring for trees can emit large amounts of CO₂, which surely offset some of the decarbonization effects of tree planting.⁵⁸

A few tree planting adversaries argue that trees themselves could increase global warming because of their darker color.⁵⁹ Under this theory, an increase of darker-toned trees across a landscape decreases the planet's albedo or reflection of light back into space, causing more heat to remain in the atmosphere.⁶⁰ It is true that some tree leaves absorb more sunlight than other types of land cover such as fields or bare ground.⁶¹ Accordingly, planting those tree species may decrease the Earth's surface albedo by reflecting less sunlight back into space and thereby slightly increase global warming.⁶² However, in most cases it is highly doubtful that these potential adverse effects outweigh the potential carbon-reducing power of trees.

C. The Many Benefits of Trees

In addition to helping reduce atmospheric CO₂ levels, trees provide multiple other valuable benefits. The following materials describes some of the many societal benefits of trees, many of which are not fully captured by those who plant and maintain them.

1. Trees Decrease Atmospheric CO₂

Trees directly absorb CO₂ in their stems and leaves while they grow. Trees use roots to take in water, chloroplasts to take in carbon dioxide from the air, and energy from the sun to create a photosynthetic reaction that

57. MCPHERSON ET AL., *supra* note 47, at 18.

58. *See id.* (explaining that CO₂ emissions released while planting and maintaining trees with these machines offsets up to 8% of the overall CO₂ reduction obtained by planting the trees).

59. Buis, *supra* note 56; Brent D. Matthies & Lauri T. Valsta, *Optimal Forest Species Mixture with Carbon Storage and Albedo Effect for Climate Change Mitigation*, 123 *ECOLOGICAL ECON.* 95–105 (Mar. 2016).

60. *See generally* Matthies & Valsta, *supra* note 59 (explaining how leaves of different colors affect sunlight absorption); *see* Jordan Hanania, et al., *Albedo*, *ENERGY EDUC.* (Jan. 31, 2020), <https://energyeducation.ca/encyclopedia/Albedo> (explaining albedo).

61. *See* Matthies & Valsta, *supra* note 59. (citing research comparing the albedo of bare land and boreal forest cover).

62. Gabriel Popkin, *How Much can Forests Fight Climate Change?*, *NATURE* (Jan. 15, 2019), <https://www.nature.com/articles/d41586-019-00122-z>.

reorganizes the molecules into sugar and oxygen.⁶³ This sugar is further broken down for the tree to use as energy while the excess oxygen is released back to the atmosphere.⁶⁴ On average, it takes an acre of forest to absorb twice the amount of CO₂ produced by the average car's annual mileage.⁶⁵ Besides CO₂, trees trap other greenhouse gases and airborne pollutants, removing them from the atmosphere in ways that help promote healthy respiratory systems in humans and animals.⁶⁶

Because trees sequester large amounts of CO₂, destroying trees reverses many of their positive benefits. Trees contain large quantities of carbon-based compounds that are turned into wood, leaves, and other essential tree parts.⁶⁷ Therefore, deforestation releases large amounts of carbon back into the atmosphere because the carbon-using tissues in harvested trees no longer need that carbon and thus emit much of it into the air.⁶⁸

2. Broader Societal Benefits of Trees

In addition to reducing atmospheric CO₂ levels, trees provide other benefits to the ecosystems and individuals around them. For example, trees strategically planted near buildings have been proven to provide an array of health benefits for workers, patients, and students because they incentivize outdoor activities and are aesthetically pleasing.⁶⁹ The ability to view trees and green spaces from work or school windows increases learning and work productivity.⁷⁰ And trees near hospitals have even proven to decrease recovery time in patients.⁷¹ One study providing a “comprehensive summary of existing literature on the health impacts of urban trees” mentions greater neighborhood tree canopy cover has been associated to a “12% lower

63. See generally Sci. & Tech. Concepts Middle Sch., *What is Photosynthesis*, SMITHSONIAN SCI. EDU. CTR.: STEMVISIONS BLOG (Apr. 12, 2017), <https://ssec.si.edu/stemvisions-blog/what-photosynthesis> (explaining the process of photosynthesis). 41

64. See *id.* (showing that trees not only sequester CO₂, but also purify the air by providing more oxygen).

65. Keystone 10 Million Trees Partnership, *All About Trees*, TENMILLIONTREES.ORG (last visited Aug. 3, 2021), <http://www.tenmilliontrees.org/trees/>.

66. *Id.*; see also David J. Nowak, *The Effects of Urban Trees on Air Quality*, U.S. DEP'T OF AGRIC.: N. RSCH. CENT. (2002), https://www.nrs.fs.fed.us/units/urban/local-resources/downloads/Tree_Air_Qual.pdf (discussing direct and indirect effects of urban vegetation on local and regional air quality).

67. R. Phillip Bouchard, *Trees and Carbon Dioxide: What is the True Connection?*, MEDIUM.COM: PHILIPENDIUM (Sept. 23, 2018), <https://medium.com/the-philipendium/trees-and-carbon-dioxide-what-is-the-truth-c7f8c9d12602>.

68. *Id.*

69. Tree Advisory Board, *Benefits of Planting Trees*, CITY OF BOWLING GREEN, KY., <https://www.bgky.org/tree/benefits> (last visited Nov. 14, 2020).

70. See MCPHERSON ET AL., *supra* note 47, at 26 (explaining that seeing trees eases mental fatigue). 47

71. *Id.*

prevalence of obesity in preschool children.”⁷² Because trees tend to induce more outdoor interactions, they may likewise help reduce levels of domestic violence and foster safer and more sociable neighborhood environments.⁷³

Trees provide a multiplicity of benefits for homeowners as well. They cast shade on homes, lowering the inside temperatures and thereby reducing demand for electric power to cool homes on hot days.⁷⁴ This increase in shade can greatly decrease a household’s energy bills during the summer.⁷⁵ Likewise, trees can serve as windbreaks in yards, reducing winter heating bills by lowering the wind chill near homes.⁷⁶ In some settings, trees can even increase housing prices.⁷⁷ One study determined that neighborhood trees could increase median neighborhood prices by more than \$9,000.⁷⁸

Trees likewise provide valuable habitat for wildlife, including shelter and food for a wide variety of birds and small animals.⁷⁹ For example: flowers, fruits, and woody parts of trees provide sustenance for some wildlife; bacteria and fungi contained in some tree parts make nesting easier for birds; many trees contributed to increased soil fertility; and many types of trees are capable of providing structures for burrowing by certain land animals.⁸⁰

3. Specific Benefits of Urban Trees

In addition to providing valuable benefits to individuals and animals, trees often have positive broader impacts on urban communities. In many urban areas, tree canopies produce valuable shade in parking lots and along streets where cars park. By shading asphalt surfaces and parked vehicles, trees reduce hydrocarbon emissions—or Volatile Organic Compounds (VOCs)—from gasoline, which can evaporate out of leaky fuel tanks and

72. Wolf et al., *Urban Trees and Human Health: A Scoping Review*, 17 INT’L J. ENV’T RSCH. PUB. HEALTH, June 18, 2020, at 14 (citing Lovasi et al., *Neighborhood Safety and Green Space as Predictors of Obesity Among Preschool Children from Low-income Families in New York City*, 57 PREVENTATIVE MEDICINE 189, 189–193 (2013)).

73. MCPHERSON ET AL., *supra* note 4747, at 25.

74. Ram Pandit & David Laband, *Energy Savings from Tree Shade*, 69 ECOLOGICAL ECON. 1324, 1324 (2010).

75. *Id.* at 1326.

76. *Landscape Windbreaks and Efficiency*, U.S. DEP’T ENERGY, <https://www.energy.gov/energysaver/design/landscaping-energy-efficient-homes/landscape-windbreaks-and-efficiency> (last visited on Feb. 13, 2020).

77. *Big Trees Make your Property Value Grow*, BRIGHTVIEW (Jan. 5, 2018) <https://www.brightview.com/resources/article/big-trees-make-your-property-value-grow#:~:text=Good%20tree%20cover%20increased%20property,without%20trees%20or%20quality%20landscaping.>

78. Geoffrey H. Donovan et al., *Urban Trees, House Price, and Redevelopment Pressure in Tampa, Florida*, 38 URB. FORESTRY & URB. GREENING 330, 334 (2019).

79. *Trees Provide Habitat for Wildlife*, URB. FORESTRY NETWORK, <http://urbanforestrynetwork.org/benefits/wildlife.htm> (last visited Nov. 12, 2020).

80. *Id.*

worn hoses.⁸¹ These reductions in evaporated VOCs help even more to slow the rate of climate change.⁸²

Healthy trees can also reduce pollution from storm water runoff.⁸³ Tree leaves intercept and store rainfall, and tree roots can increase the rate at which rainfall infiltrates soil and the water storage capacity of the soil itself.⁸⁴ These benefits are particularly important for cities, since federal law requires states and localities to control nonpoint-source pollution such as runoff from pavements, buildings, and landscapes.⁸⁵ Trees can likewise reduce wastewater treatment costs because nurseries can often be irrigated with tertiary treated wastewater rather than fresh water.⁸⁶ Irrigating nurseries with wastewater may even help to further clean the water because the soil acts as a natural filter.⁸⁷

II. THE ROOTS OF THE PROBLEM: EXAMINING EXISTING U.S. TREE POLICIES

Despite well-established evidence that trees are critical tools in the fight against climate change and provide numerous other valuable benefits, much of the nation's existing policy structure seems more tailored to promote deforestation than to encourage reforestation. Part II describes several current federal and local policies aimed at encouraging forestation and explains why these incentives, programs, and goals are not nearly aggressive enough to help decrease the nation's net CO₂ emissions levels.

The nation's underinvestment in tree planting and maintenance is attributable—at least in part—to a simple positive externality problem: individuals and businesses that plant and maintain trees ordinarily bear all, or nearly all, of the cost of doing so but reap only some of the benefits.⁸⁸ As highlighted above, trees can produce shade along public sidewalks, clean the air, absorb atmospheric CO₂, decrease stormwater pollution, and serve other valuable functions.⁸⁹ Many of these benefits accrue to those other than those who plant and maintain trees.

81. MCPHERSON ET AL., *supra* note 4747, at 22.

82. *See generally* California Urban Forestry Act, PUB. RES. §§ 4799.07-.09 (1978) (describing that urban forestry improves the health and quality of urban environments).

83. MCPHERSON ET AL., *supra* note 4747, at 23.

84. *Id.*

85. *Id.*

86. *Id.* at 24.

87. *Id.*

88. *See* Mandel, *supra* note 48 (citing problems with underinvestment in nurseries and training); *see also* Heather A. Sander et al., *The Value of Urban Tree Cover: A Hedonic Property Price Model in Ramsey and Dakota Counties, Minnesota, USA*, 69 ECOLOGICAL ECON. 1646, 1646 (2010) (citing data on different urban forestation efforts and their associated costs and benefits).

89. *Supra* Part I.C; *see* Sander et al., *supra* note 88, at 1646–48 (discussing unmonetized positive externalities of trees).

Market forces alone have proven inadequate to produce socially optimal investments in trees. Because trees create positive externality problems, there is a need for governments to intervene more aggressively to help correct this market failure.⁹⁰ Unfortunately, existing federal, state, and local government incentives and policies are not strong enough to effectively do so. The following subsections describe some of the nation's existing forestation policies and highlight how they are falling short in driving optimal levels of tree-related investment.

A. Federal Policy Approaches

Existing federal tax incentives, the 2018 Farm Bill (Farm Bill) programs, and loan guarantees in the U.S. fail to incentivize optimal levels of tree planting and forest conservation. Most existing federal incentive programs related to trees are unsuccessful at encouraging farmers to embrace agroforestry practices because they are too complicated, not sufficiently advertised, or not enticing enough to persuade citizens to act.⁹¹

1. Federal Tax Incentives

Although the Internal Revenue Code (IRC) offers multiple tax incentives that encourage certain forestry practices, existing incentives have largely proven ineffective at promoting forestation goals.⁹² For example, one IRC provision allows qualified timber properties to claim special tax deductions for reforestation expenditures through an accelerated amortization schedule.⁹³ Under IRC § 194(a), a taxpayer may claim a deduction using “amortization of the amortizable basis of qualified timber property based on a period of 84 months.”⁹⁴ In subsection (b) of that section, a farmer may treat certain reforestation expenditures as a deduction.⁹⁵ However, § 194 applies

90. See Sander et al., *supra* note 88, at 1649; see, e.g., Fransico Escobedo & Jennifer Seitz, *Costs of Managing an Urban Forest* (Sch. Forest Res. Conservation Department, Univ. Fla./Inst. Food & Agric. Sciences Extension, Document No. FOR217, 2019), <https://edis.ifas.ufl.edu/pdf/FR/FR27900.pdf> (discussing costs and benefits associated with management and planning urban forests).

91. See generally *Agroforestry Practices*, U.S. DEP'T AGRIC. NAT'L AGROFORESTRY CTR., <https://www.fs.usda.gov/nac/practices/index.shtml> (last visited Nov. 12, 2020) (defining agroforestry and its benefits); see also A. Armstrong et al., *Adoption of the Conservation Reserve Enhancement Program in the New York City Watershed: The Role of Farmer Attitudes*, 66 J. SOIL & WATER CONSERVATION 337 (2011) (analyzing farmer and landowner attitudes towards agroforestry and conservation initiatives).

92. U.S. DEP'T AGRIC., FOREST LANDOWNERS' GUIDE TO THE FEDERAL INCOME TAX 13, 98, 105, 122, 126 (Feb. 2013), https://www.fs.usda.gov/sites/default/files/legacy_files/FS_Landowners_Tax_Guide.pdf (referencing incentives in sections 48, 126, 162, 175, and 194 of the Internal Revenue Code).

93. 26 U.S.C. § 194.

94. *Id.* § 194(a).

95. *Id.* § 194(b).

only to “qualified timber property,” which means that a taxpayer must have commercial quantities of trees used solely for the commercial production of timber products.⁹⁶ Moreover, this tax incentive cannot be used in conjunction with other reimbursements provided under governmental reforestation cost-sharing programs.⁹⁷

Although § 194 is arguably the IRC’s most direct tax incentive for reforestation expenditures, it fails to effectively encourage long-term reforestation investments for a multitude of reasons.⁹⁸ Among other things, § 194 does not provide incentives for small farms because it targets only large commercial timber companies.⁹⁹ Accordingly, it rewards only those taxpayers who plant trees for the purpose of harvesting them later. These limitations ironically provide greater incentives for less environmentally-friendly actors because once commercially harvested trees are cut they stop sequestering carbon and may even release much of their previously stored carbon back into the atmosphere.¹⁰⁰ Moreover, § 194 allows farmers to collect only one-time deductions for their reforestation efforts,¹⁰¹ thus failing to continuously encourage them to plant and maintain trees. Such incentives would better reward continued maintenance and preservation of trees if they somehow allowed for deductions over several years rather than a single deduction.

Another tree-related incentive provision in the IRC excludes cost-share payments that are currently available through environmentally friendly programs.¹⁰² Section 126 protects farmers that participate in these programs from entering into a higher tax bracket and ensures that the money farmers receive from the programs is tax free at the end of the year.¹⁰³ This includes participation in any state program where payments are made to farmers for the purpose of restoring the environment, improving forests, or providing a habitat for wildlife.¹⁰⁴ Unfortunately, § 126 does not directly incentivize tree planting; it simply provides farmers with a monetary safe haven for

96. *Id.* § 194(c)(1) (defining qualified timber). 93

97. *Id.* § 194(c)(3)(B).

98. Steven H. Bullard & Thomas J. Straka, *Structure and Funding of State-Level Forestry Cost-Share Programs*, 5 N. J. APPLIED FORESTRY 132, 133 (1988).

99. 26 U.S.C. § 194(c)(1); U.S. DEP’T AGRIC., *supra* note 92, at 15; *See* U.S. DEP’T AGRIC., AMERICA’S DIVERSE FAMILY FARMS, 3 (2020) (defining a small family farm as having a gross cash farm income of less than \$350,000 a year).

100. Blanco, *supra* note 51.

101. 26 U.S.C. § 194(a) (explaining the deduction is based on a period of 84 months).

102. INTERNAL REVENUE SERV., U.S. DEP’T TREASURY, PUB. NO. 225, CAT. NO. 11049L, FARMER’S TAX GUIDE, at 12 (2020), <https://www.irs.gov/pub/irs-pdf/p225.pdf>.

103. *Id.*; 26 U.S.C. § 126; *Id.* § 126(b)(1)(B) (excluding funds received from under a list of programs from taxation provided they do not significantly increase recipient’s annual income).

104. *Id.* § 126(a)(8).

participation in particular programs.¹⁰⁵ Accordingly, the provision does little to encourage farmers to plant more trees. To better incentivize farmers to engage in tree planting programs, the IRC would need to allow for direct reimbursement for sustained reforestation efforts.

One other noteworthy federal forestation tax incentive is IRC § 175. Section 175 allows for a deduction of expenses incurred for the purpose of soil or water conservation, the prevention of erosion of land, or for endangered species recovery on agricultural land.¹⁰⁶ Deductible actions include the establishment of windbreaks and planting of trees to reduce or prevent erosion.¹⁰⁷ Section 175 is the only IRC section that promotes forestation for the sole reason of protecting the environment.¹⁰⁸ Although § 175 is a positive step, it is unfortunately not strong enough to drive significant increases in private reforestation activities.

2. Farm Bill Programs

In addition to offering general tax incentives, the federal government has crafted certain policies designed specifically to encourage farmers to plant trees. At least three programs administered by the United States Department of Agriculture (USDA) encourage reforestation, but none have proven highly effective at driving tree planting and maintenance on U.S. farms. Six programs administered by the Natural Resources Conservation Service (NRCS), a sub-agency of the USDA, that encourage farmers to maintain in-place foliage have also done little to promote the planting of new trees.¹⁰⁹

The USDA's existing tree-related programs include the Forestry Stewardship Program, the Conservation Reserve Program (CRP), and the Conservation Reserve Enhancement Program (CREP). The Forestry Stewardship Program primarily helps landowners plan for, and maintain, healthy forests.¹¹⁰ Under the CRP and CREP, the federal government essentially leases private farmland for the purpose of planting native species

105. *See id.* § 126 (providing only taxation standards for program fund awards and exceptions to those standards).

106. 26 U.S.C. § 175 (a) (applying to those engaged in the business of farming); *see id.* § 175(b) (explaining that farmers may deduct up to 25% of their gross farm income derived from farming).

107. *Id.* § 175(a); *Id.* § 175(c)(1).

108. *Id.* § 175(c)(1).

109. *See Conservation Programs*, U.S. DEP'T AGRIC., <https://www.fsa.usda.gov/programs-and-services/conservation-programs/index> (last visited Nov. 12, 2020) (explaining and naming the six conservation programs: The Environmental Quality Incentives Program, Conservation Stewardship Program, Agricultural Management Assistance Program, Healthy Forests Reserve Program, and Regional Conservation Partnership Program).

110. *Forest Stewardship*, U.S. DEP'T AGRIC., <https://www.fs.usda.gov/managing-land/private-land/forest-stewardship> (last visited Jan. 18, 2020).

as a means of conserving the “natural land.”¹¹¹ Farmers are compensated under the legislation for voluntarily taking their land out of production and allowing the federal government to maintain native tree species on the property.¹¹²

Programs administered by the NRCS similarly provide funding for private land conservation and stewardship. These programs encourage farmers to maintain current forestry conservation measures but do not incentivize new planting. For example, the Environmental Quality Incentives Program, Conservation Stewardship Program, and Healthy Forest Reserve Program encourage environmental management and stewardship by providing farmers with various modest assistance programs.¹¹³ The Healthy Forest Reserve Program specifically helps landowners restore, enhance, and protect forestland through limited conservation easements and funds.¹¹⁴ Although it is the only federal program to list carbon dioxide sequestration as a positive benefit of reforestation, it does not encourage new planting.¹¹⁵

As just described, existing federal Farm Bill tree programs reward farmers’ conservation efforts but do not go nearly far enough to promote optimal levels of tree planting. Today’s Farm Bill reforestation programs have generally been unsuccessful at encouraging reforestation for a multitude of reasons, including the reality that most farmers are not aware of them. Meanwhile, some other programs have proven less than effective, in part, because they provide only educational tools and no monetary incentives. And even those programs that do provide monetary incentives are not rewarding enough to entice many farmers to participate in them. To address these inefficiencies, the government should revise federal reforestation policies to.

111. *Conservation Reserve Enhancement Program*, U.S. DEP’T AGRIC., <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index> (last visited Jan. 18, 2020).

112. *Id.*; *see also Conservation Reserve Program*, U.S. DEP’T AGRIC., <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index> (last visited Jan. 18, 2020) (describing the Conservation Reserve Program).

113. *Environmental Quality Incentives Program*, U.S. DEP’T AGRIC., NAT’L RES. CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/equip/> (last visited Aug. 4, 2020); *Conservation Stewardship Program*, U.S. DEP’T AGRIC., NAT’L RES. CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/> (last visited Aug. 4, 2020); The Conservation Stewardship Program provides funding for existing agricultural producers who are already practicing conservation methods. *Id.* The more the farmer invests in conservation, the more funding they are likely to receive for those efforts; *Healthy Forests Reserve Program*, U.S. DEP’T AGRIC., NAT’L RES. CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/forests/>; *see also Farm Bill*, U.S. DEP’T AGRIC., NAT’L RES. CONSERVATION SERV., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/> (last visited Aug. 4, 2021).

114. *Healthy Forests Reserve Program*, *supra* note 113.

115. *See id.* (explaining that the program promotes the restoration or protection of forestland rather than planting new trees).

3. Agricultural Loan Guarantees

There are two federal loan programs used to incentivize certain farming activities. These programs should be reworked to encourage tree planting on private agricultural lands. First, the federal Farm Service Agency (FSA)¹¹⁶ makes and administers direct loans to farms in an effort to help “keep America’s agriculture growing.”¹¹⁷ These loans, which are financed and serviced by the FSA with funding from the USDA budget,¹¹⁸ help farmers in several ways: to become owner-operators of family farms; to improve or expand current operations; to increase farm productivity; and to assist with land stewardship to help preserve land for future generations.¹¹⁹

Second, loan guarantee programs are another type of federal loan assistance available to farmers.¹²⁰ Under these programs, a bank provides the loan funding rather than the FSA.¹²¹ However, if a farmer defaults on the loan, the FSA “guarantees” the loan against 95% of significant loss of principal or interest.¹²² Loans to farmers are obviously far less risky to banks when the FSA guarantees them in this way, so these programs can make it much easier for farmers to secure the financing they need on reasonable terms.¹²³ Conceivably, these programs could be similarly used to help farmers to finance various eligible tree planting and maintenance activities.

116. *See Farm Ownership Loans*, U.S. DEP’T AGRIC., <https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/farm-ownership-loans/index> (last visited Jan. 18, 2020) (explaining the FSA’s authority as an agency of the USDA to issue farm ownership loans and their purpose).

117. *See id.* (explaining the types of farm ownership loans available).

118. *Id.*

119. *Id.*; *See also Direct and Guaranteed Farm Loans: Providing Loans to Family Farmers & Ranchers to Purchase Land & Assets, or Finance Annual Operating Expenses*, NAT’L SUSTAINABLE AGRIC. COAL., <https://sustainableagriculture.net/publications/grassrootsguide/farming-opportunities/farm-ownership-operating-loans/#basics> (last visited Nov. 12, 2020) (explaining what farm loans are available and how they work).

120. *See id.* (“Direct loans are made and administered by local FSA offices, while guaranteed loans are made and administered by banks, credit unions, community development financial institutions (CDFIs), or other lenders.”).

121. *Id.*

122. *Guaranteed Farm Loans*, U.S. DEP’T AGRIC., <https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/guaranteed-farm-loans/index> (last visited Nov. 13, 2020).

123. *Farm Service Agency Definition of Family Farm for Loan Programs*, CTR. FOR RURAL AFFS. (July 18, 2010), <https://www.cfra.org/node/2856>. Besides general loan requirements, a farmer applying for a loan under the Farm Bill must run a ‘family farm.’ *Id.* A family farm under the FSA definition means that the farmer’s family provides most of the day-to-day labor, that a family member is the ‘decision maker’ of the farm, and that family members provide both physical labor and management for the farm. If all these requirements are met, then the farmer runs a family farm and can apply for either a Direct or Guarantee loan under the Farm Bill. *Id.*; *see* NAT’L SUSTAINABLE AGRIC. COAL., *supra* note 119 (stating that other requirements include but are not limited to: being a U.S. Citizen, having no previous debt forgiveness from the FSA, being unable to secure a loan elsewhere without the FSA’s help, and being able to show sufficient farm managerial experience through education).¹¹⁹

B. Existing State and Local Urban Forestry Policies

In addition to encouraging more tree planting in rural areas, the government could do much more to incentivize tree planting in urban settings. States and municipalities across the country vary significantly in their approaches to tree planting and conservation policies. The materials that follow highlight several examples of local policies designed to encourage urban forestry.

1. Tree Canopy Goals

Some cities in the U.S. adopted specific tree canopy goals designed to encourage increased tree planting in urban areas.¹²⁴ An urban tree canopy is a layer of tree leaves, branches, and stems that provides shade.¹²⁵ Tree canopy goals are simple standards that promote urban forestry and the various benefits these activities can provide,¹²⁶ including increased shade cover, carbon dioxide absorption, and improved green spaces.¹²⁷ As suggested in Part I, many of these benefits accrue to parties other than the municipal governments in which the trees are situated.¹²⁸ Nonetheless, large cities are increasingly implementing tree canopy goals.¹²⁹ For instance, the City of Phoenix, Arizona, implemented a “Tree Canopy and Shade Master Plan” in 2010 that seeks to increase the use of tree canopy shade to address urban heat issues.¹³⁰ To date, the city’s approach largely appears to be succeeding.¹³¹ Since its implementation, Phoenix has recorded annual benefits that include removal of 1,700 tons of air pollution, sequestration of 35,400 tons of carbon, production of 89,200 tons of oxygen, and about 91.7 million cubic feet of avoided storm water runoff.¹³²

Other cities in Arizona and across the U.S. have similarly reaped significant benefits from tree canopy goals and planning. Tempe, Arizona,

124. Michael Leff, Davey Inst. & U.S. Forest Serv., *Tree Canopy Goals for US Cities*, VIBRANT CITIES LAB (2016), <https://www.vibrantcitieslab.com/resources/tree-canopy-goals-for-us-cities/>.

125. *Urban Natural Resource Stewardship: Urban Tree Canopy*, U.S. DEP’T AGRIC. FOREST SERV., <https://www.nrs.fs.fed.us/urban/utc/> (last visited Nov. 12, 2020).

126. *Urban Tree Canopy*, CTR. FOR WATERSHED PROT., <https://www.cwp.org/urban-tree-canopy/> (last visited Nov. 14, 2020).

127. Nowak, *supra* note 46, at 152.

128. *Id.* at 157.

129. *Id.* at 153.

130. *Forests and Sustainable Cities: Inspiring Stories from Around the World*, FOOD & AGRIC. ORG. OF THE U.N. 11 (2018), <http://www.fao.org/3/i8838en/i8838en.pdf>.

131. See generally Mike Sunnucks, *Phoenix Looks to Increase Planting of New Trees, Improve Shade Canopy*, ROSE L. GROUP REP. (Jan. 2, 2020), <https://roselawgroupreporter.com/2020/01/phoenix-looks-to-increase-planting-of-new-trees-improve-shade-canopy/> (describing how Phoenix is moving forward with the tree canopy project).

132. *Community Forest Assessment*, DAVEY RSCH. GRP. 1 (2014), https://www.itreetools.org/documents/405/Phoenix_Community_Forest_Assessment_1.2.15-Final.pdf.

adopted an Urban Forest Tree Canopy plan to become a “20 minute city” by the year 2040.¹³³ The city plans to use a city urban forester, landscape architects, and community members to help it meet its goal.¹³⁴ Tempe claims that the tree canopy will not only enhance community beautification and livability through encouraging outdoor activities but will also enhance property values, expand shade to maximize urban cooling, support biodiversity and wildlife habitat, and improve walkability for those who do not, or cannot, use automobile transportation.¹³⁵ Many Eastern U.S. cities are also adopting tree canopy goals. Philadelphia recently launched a ten-year urban forest plan to increase the city’s tree canopy by 10% in ten years.¹³⁶ The city plans to target areas in need of trees to reduce the urban heat island and mitigate the impact of climate change.¹³⁷

While citywide tree canopy goals are the most common local-level approach to promoting tree planting, they are not the only strategy. For example, several east coast states created a regional urban canopy goal.¹³⁸ The Chesapeake Bay Program plans to increase the regional urban tree canopy by 2,400 acres by the year 2025.¹³⁹ It is believed that the increased canopy will provide better air and water quality as well as habitat benefits throughout the region.¹⁴⁰ Each state participating in the program has its own specific canopy goal to reach by 2025, and most member states plan to reach that goal through local municipality engagement.¹⁴¹

2. Tree Giveaway Incentives

Some other cities have sought to promote urban forestry through tree giveaway programs that give citizens one or more free trees to plant on their own land. One recent study found that private land is often the most

133. *City of Tempe Urban Forestry Master Plan*, CITY OF TEMPE 4 (2017), <https://www.tempe.gov/home/showdocument?id=54581>. The goal of becoming a “20 minute city” is so that residents can walk 20 minutes in the summer to any municipal hub without worrying about their health or the heat. *Id.*

134. *Id.* at 25.

135. *Id.* at 16–18.

136. See Frank Kummer, *Philadelphia Launching 10-Year ‘Urban Forest’ Plan After Startling Tree Decline*, PHILA. INQUIRER (Dec. 5, 2019), <https://www.inquirer.com/science/climate/philadelphia-climate-change-forest-trees-canopy-heat-island-20191205.html> (reporting that the city plans to increase the tree canopy from 20% to 30%).

137. See *id.* (explaining that the community forestry manager is targeting the vulnerable areas of the city that need trees to reduce local temperatures).

138. *Tree Canopy Outcome Management Strategy: 2015-2025*, CHESAPEAKE BAY PROGRAM 1–4 (2015), https://www.chesapeakebay.net/documents/3b_Urban_Tree_Canopy_final.pdf. The States participating in the Chesapeake Bay Program include Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and Washington DC. *Id.* at 5.

139. *Id.* at 3.

140. *Id.*

141. *Id.* at 6–12.

advantageous place to increase tree canopies,¹⁴² and some cities could increase tree canopies up to 30% by increasing urban forests on private land.¹⁴³ For example, between 2011 and 2019, the City of Vancouver, Washington, increased its canopy by 18.6% just through encouraging planting in residential areas.¹⁴⁴ Programs like this induce residents to enhance their surrounding by planting trees, thereby helping to address the externality problems associated with such actions. Residents are more likely to participate in tree giveaway programs when they receive trees for free. Their resulting participation ultimately benefits cities, and the world, through improved storm water runoff systems, increased shade, and greater carbon dioxide sequestration.¹⁴⁵

Tree giveaway programs have proven enormously successful in certain Californian communities. For instance, Riverside, California, uses a tree giveaway program to increase its tree canopy and encourage citizens to internalize the broad societal benefits trees provide.¹⁴⁶ The city's yearlong program also allows for Riverside Public Utility customers to purchase up to five pre-qualified trees and receive a \$35 rebate per tree.¹⁴⁷ In theory, citizens could receive five trees for free if they are \$35 or less.

Other cities across the country have similarly succeeded in increasing their tree canopy through tree giveaway programs. Utilities in Colorado Springs, Colorado, partnered with the Arbor Day Foundation to provide free trees to the first 300 citizens that showed interest in participation.¹⁴⁸ Unlike Riverside, California's sweeping incentives, Colorado Springs' incentives are limited to the first 300 people, and those participants may only retrieve a tree from a specified nursery.¹⁴⁹ The Colorado Springs Utilities' tree giveaway program is smaller than Riverside's, offers fewer incentives, and has more hoops to jump through. Nevertheless, Colorado Springs' tree

142. Press Release, City of Vancouver, Wash., Urban Forestry Seeks to Make a Difference with Annual Yard Tree Giveaway (Oct. 14, 2020), <https://www.cityofvancouver.us/publicworks/page/urban-forestry-seeks-make-difference-annual-yard-tree-giveaway> 142 (referencing a 2011 study supporting private tree planting in cities); see also NOWAK ET AL., U.S. DEP'T AGRIC., NRS-62, SUSTAINING AMERICA'S URBAN TREES AND FORESTS 4 (2010), https://www.fs.fed.us/openspace/fote/reports/nrs-62_sustaining_americas_urban.pdf (explaining private lands dominate the overall urban forest composition).

143. See City of Vancouver, Wash., *supra* note 142.

144. *Id.*

145. Telephone Interview with Christian Bennett, Assistant Civil Engineer II, City of Sacramento Dep't of Water Res. Div. of Water Supply (Mar. 17, 2020) [hereinafter *Interview with Christian Bennett*].

146. *Energy Rebates*, CITY OF RIVERSIDE PUB. UTILITIES, <https://www.riversideca.gov/utilities/residents/rebates-energy.asp#menu8> (last visited Aug 3, 2021).

147. *Id.* Additionally, between March 1 and June 30, customers can receive a free tree up to a \$35 value if they bring their utility bill to participating retail stores. *Id.*

148. *Arbor Day Foundation Tree Give Away*, COLO. SPRINGS UTIL., <https://www.csu.org/Pages/treegiveaway.aspx> (last visited Mar. 1, 2020) (advising that citizens must follow the three steps listed online to receive their free tree from the nursery).

149. See *id.* (stating vouchers for the free tree must be used at Harding Nursery).

giveaway website stated that all available trees were claimed during the giveaway, which indicates that Colorado Springs boosted its tree canopy by 300 trees.¹⁵⁰

Some states use tree giveaway or rebate programs to encourage tree planting. For example, the State of Maryland provides citizens with a \$25 coupon off the purchase of a native tree at participating nurseries across the state.¹⁵¹ This statewide approach is more inclusive than a city tree canopy goal because it allows all residents of the state to participate. To receive a tree in Maryland, residents simply need to print the online coupon then present it at a participating nursery.¹⁵² Maryland and participating nurseries split the cost of providing \$25 off a tree. The state uses funding from violators of the Clean Air Act to value each coupon at \$20.¹⁵³ Then, the participating nurseries absorb the remaining \$5.¹⁵⁴ This collaboration is possible through the belief that planting trees will provide ecological, economic, and quality-of-life benefits to all citizens of the state.¹⁵⁵

Although state and local tree giveaway programs are a promising step forward in incentivizing increased urban forests on private land, educating participating residents about these programs and persuading them to properly participate remains a major challenge in many parts of the country.¹⁵⁶ Participants often receive little education on tree maintenance after receiving their free trees.¹⁵⁷ While most participants receive a pre-qualified “Right Tree, Right Place” tree, they seldom get user-friendly post-planting instructions regarding how to water, plant, or care for the tree.¹⁵⁸ Trees planted through these programs that never reach maturity do not absorb CO₂, provide ample shade, or produce other benefits. These trees become little more than a waste of effort and precious government dollars.

150. *See generally id.* (“All trees have been claimed for 2021.”).

151. *Marylanders Plant Trees*, MD. DEP’T NAT. RES., <https://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx> (last visited Nov. 12, 2020).

152. *Id.*

153. *Id.*

154. *Id.*

155. *Id.* Mentioned benefits include protection of air and water quality, reduction of energy costs, increased property values, and beautified neighborhoods and highways. *Id.*

156. *See* Vi D Nguyen et al., *Branching Out to Residential Lands: Missions and Strategies of Five Tree Distribution Programs in the U.S.*, 22 URB. FORESTRY & URB. GREENING 24, 25 (2017) (explaining the challenges to tree planting programs).

157. *See* CITY OF RIVERSIDE PUB. UTILITIES, *supra* note 146 (omitting any additional form education or training on tree maintenance). 146

158. *See* ARBOR DAY FOUND., *supra* note 49 (inferring that a planter should consider that every tree species has specific needs for survival). Right Tree, Right Place trees have a better chance of survival for the area in which they are planted. *Id.*

3. Local Incentives to Preserve Existing Trees

Recognizing the importance and value of maintaining and preserving existing trees, some state and local governments have implemented policies aimed specifically at protecting urban trees that are already in the ground.¹⁵⁹ For instance, Chicago, Illinois has adopted a detailed set of tree protection guidelines applicable in that city.¹⁶⁰ Among other things, these guidelines seek to protect street trees by minimizing construction activities near them.¹⁶¹ Hawaii adopted a different approach, hosting local educational programs focused on improving the health and viability of trees in that state's communities.¹⁶²

Chicago and Hawaii also take other steps to incentivize urban forest protection. Chicago adopted detailed guidelines to help promote citywide protection of street trees, in part because many street cleaning crews or construction builders carelessly operate around street trees.¹⁶³ In the past, city workers often snapped nearby branches when working on power lines or accidentally swept the lower canopy away when cleaning streets.¹⁶⁴ Tree guidelines deter these types of damage, providing better protection for street trees so that they are more likely to reach maturity. Moreover, Hawaii's educational programs provide much-needed local instruction on forestation by addressing educational gaps that might otherwise limit effective tree giveaway programs. With proper education, local residents are more likely to actively and properly participate in urban forestation opportunities provided to them.¹⁶⁵

In recent decades, more cities have begun to recognize the need for specific rules to regulate tree urban maintenance.¹⁶⁶ Without tree protection ordinances, it is difficult for cities to protect and maintain the existing trees needed for healthy and beautiful urban environments.¹⁶⁷ Such ordinances provide specific protections for heritage and street trees and specify requirements for the replacement of dead, dying, or diseased trees.¹⁶⁸

159. See CITY OF TEMPE, *supra* note 133, at 25 (expressing need to educate citizens on forestry); See also COLO. SPRINGS UTIL., *supra* note 148 (providing a link for tips on tree planting and care).

160. *Tree Protection Guidelines for Decap Review*, CITY OF CHI. BUREAU OF FORESTRY (2004), https://www.chicago.gov/content/dam/city/depts/streets/supp_info/TreeProtectionGuidelines.pdf.

161. *Id.*

162. *Kaulunani Urban & Community Forestry Program*, DEP'T LAND RES. DIV. OF FORESTRY & WILDLIFE, FORESTRY PROG., <https://dlnr.hawaii.gov/forestry/lap/kaulunani/> (last visited at Aug. 3, 2021).

163. CITY OF CHI. BUREAU OF FORESTRY, *supra* note 160.160

164. *Id.*

165. *Interview with Christian Bennett*, *supra* note 145. 145

166. See, e.g., Am. Fork City, Utah, Ordinance 7-11-63 (2007), <https://www.americanfork.gov/DocumentCenter/View/515/City-Tree-Ordinance-PDF?bidId=>.

167. See *id.* at 1 (specifying how the American Fork City Council wanted to promote maintenance to improve the "aesthetic quality, wildlife habitat, and appearance of the City").

168. See, e.g., CITY OF SAN MATEO, CAL., MUN. CODE ch. 13.40 (2021).

Unfortunately, many citizens have no knowledge of these ordinances or of how to find city rules regarding tree maintenance.¹⁶⁹

A few cities even adopted detailed guidelines designed to educate citizens about pre-existing tree maintenance. As an example, the City of Falls Church, Virginia, produced a Tree Preservation and Replacement Guide for single-family residential homes.¹⁷⁰ This guide provides residents with city guidelines, hand drawn depictions of how to care for existing trees on the lot, and replacement instructions for dead trees.¹⁷¹ The guidelines also include a detailed description of how to calculate tree canopy size and growth.¹⁷² Such guides can be valuable to the extent that they use pictures and accessible language that are far easier for average citizens to understand and follow.

C. Not Nearly Enough

In summary, existing federal, state, and local policies are a noble start toward an effective set of tree planting policies in the U.S., but they do not do nearly enough to promote an optimal level of tree planting in this country. Existing federal tax incentives and Farm Bill programs are not strong or clear enough to incentivize widespread participation. State and local policies similarly fail to encourage broad participation or to adequately educate citizens on these issues. In light of these deficiencies, federal, state, and local governments must improve the promotion of reforestation in rural and urban settings and the many benefits those additional trees could provide.

III. STRENGTHENING FEDERAL AGROFORESTRY INCENTIVES

Money may not grow on trees, but it can certainly promote tree planting. In light of this reality, there are multiple ways the federal government could majorly increase tree planting activity in rural settings. In particular, Congress could greatly increase agroforestry across the nation by enacting stronger, simpler, and more inclusive tax incentives. The federal government could also attach new tree planting requirements to Farm Bill loan programs.

169. *Interview with Christian Bennett, supra* note 145. 145

170. *See Tree Preservation and Replacement Guide for Development and /or Redevelopment on Single Family Residential Lots*, CITY OF FALLS CHURCH (2019), <https://www.fallschurchva.gov/DocumentCenter/View/157/Urban-Forestry-Development-Guidelines?bidId=> (showing checklists, graphs, and images for tree planting and preservation).

171. *Id.*

172. *Id.* at 6–9.

A. Legislating New Agroforestry Tax Credits

Congress could drive major increases in meaningful agroforestry across the U.S. by expanding tax per-tree incentive programs available to farms—large and small—that require educational classes and ongoing certification of tree preservation. There is particularly great opportunity for such agroforestry on small farms which, according to the USDA, comprise approximately 90% of U.S. farms and accounted for 49% of U.S. farmland in 2019.¹⁷³

1. Incentivizing Farms of All Sizes to Plant Trees

The most straightforward way to encourage more small farmers to voluntarily participate in agroforestry is to increase the size of financial incentives for those who participate. For instance, Congress could offer per-tree tax credits for the planting of qualifying trees and agreeing to continue to maintain them for a certain number of years into the future. If, under such an approach, a farmer planted 25 qualifying trees on his farm and was eligible to deduct \$100 per tree from his federal tax liability, he would earn a \$2,500 tax credit. Farmers would presumably opt to plant trees under such programs only to the extent they were able to avoid taking significant amounts of land out of production.¹⁷⁴ After the taxpayer claims its initial tax credit in the year the trees are planted, the farmer could potentially even receive smaller annual tax credits in subsequent years for maintaining the trees and completing a periodic recertification process.

Participants in per-tree tax credit programs should be required to complete educational sessions. USDA officials would lead these lessons instructing farmers on tree maintenance and spacing requirements, watering practices, and other related matters. Trees qualifying under these programs could even vary from region to region and could be selected based on their capacity to sequester large amounts of carbon dioxide upon reaching maturity in particular parts of the country. In short, adopting new per-tree tax credits would address many of the agroforestry tax incentive deficiencies by opening

173. AMERICA'S DIVERSE FAMILY FARMS, *supra* note 99, at 4. 99

174. See generally *The Future of Agriculture*, ECONOMIST: TECH. Q. (June 9, 2016), <https://www.economist.com/technology-quarterly/2016-06-09/factory-fresh> (explaining various forms of technology farmers have used to maximize efficiency of a low producing land, rather than taking the land out of production); cf. Erin Murphy, *Unexpected Number of Iowa Farmers Volunteer Flood-Damaged Land to be Taken out of Production*, SIOUX CITY J. (Dec. 22, 2019), https://siouxcityjournal.com/news/state-and-regional/unexpected-number-of-iowa-farmers-volunteer-flood-damaged-land-to/article_052dd02a-736f-5f30-9100-de1533a251f1.html (explaining that after flooding in 2019, an increased number Iowan farmers voluntarily took land out of production for federal compensation through a natural flood plain conversation program).

the door for small farms to participate and ensuring that participants have enough money and education to integrate trees.

B. Adding Tree Requirements to Federal Farm Loan Programs

A second potential federal policy strategy capable of increasing agroforestry would be to require all new Farm Bill loan applicants to participate in a reforestation program. One option is to offer such requirements in exchange for discounted interest rates. Another is to simply have mandatory requirements for all loan or loan guarantee recipients. Under such expanded programs, the FSA would likely be empowered to determine the required quantities and types of trees planted, which would surely vary across different regions of the country.¹⁷⁵ In climates where tree planting benefits are very limited, loan applicants could perhaps alternatively agree to take on other prescribed climate change mitigation measures.¹⁷⁶ Loan applicants could again be required to complete educational tree maintenance sessions from FSA or USDA officials describing such things as the potential benefits of best practices for strategies such as alley cropping, forest farming, riparian forest buffers, silvopasture, or windbreak trees.¹⁷⁷

IV. IMPROVING URBAN FORESTRY POLICIES

Because urban forests constitute some of the largest and most manageable forests in the nation,¹⁷⁸ state and local urban forestry policies are also an important element of any comprehensive forestry policy strategy. Urban forestry is the science of managing trees and forest resources in urban communities to leverage the physiological, sociological, economic, climate change-fighting and aesthetic benefits that trees can provide.¹⁷⁹

175. See NOWAK ET AL., *supra* note 142, at 10, 11 (positing better data collection may improve planned forestry).

176. See Brie Mazurek, *10 Ways Farmers Can Fight Climate Change*, CULTIVATING HEATHY FOOD SYS. (Sept. 7, 2018), <https://cuesa.org/article/10-ways-farmers-can-fight-climate-change>. (listing a variety of ways farmers can help reduce climate change, such as carbon farming, drip irrigation, planting hedgerows, reducing livestock methane emissions, farming organic, and including renewable energy onsite such as wind turbines or solar panels).

177. See U.S. DEP'T AGRIC., *supra* note 91 (listing common practices in agroforestry).

178. See *generally* NOWAK ET AL., *supra* note 142 (discussing urban forestry in the United States).
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179. Andrea Becker, *Rates of Deforestation & Reforestation in the U.S.*, HEARST SEATTLE MEDIA 93, <https://education.seattlepi.com/rates-deforestation-reforestation-us-3804.html> (last visited Aug. 30, 2019).

A. State-Mandated Tree Canopy Goal Requirements for Cities

State governments should create statutes that mandate city-wide tree canopy goals to motivate municipal engagement in urban forestry. These goals, requiring cities to incrementally expand their tree canopies within prescribed time periods, would promote greater CO₂ absorption while also increasing the shading and beautification of urban areas.¹⁸⁰ Of course, each municipality would be free to determine how best to increase its own tree canopy, whether through planting more public street trees, imposing new requirements on real estate developers, or persuading residents to plant trees on their own land. The following subsections explore each of these potential strategies.

1. Expanding Tree Planting Efforts on City-Owned Lands

The most direct and predictable way a city can increase its tree canopy is by simply planting more trees along streets, in public parks, and on other city-owned lands.¹⁸¹ Such publicly owned tree planting might be increased through new requirements for trees along newly built city streets, sidewalks, or in medians. Specific provisions in such ordinances should detail rules for planting, maintenance, and removal of trees within public rights-of way.¹⁸²

Benefits of increased trees along roads include aesthetic benefits, potential increases in property values, more effective flood control, and decreases in storm water runoff and erosion.¹⁸³ Street trees also help buffer urban noise for neighborhoods located directly next to busy streets and may forewarn drivers of upcoming turns.¹⁸⁴ Officials in Tempe, Arizona, suggest that street trees may extend the life of sidewalks and asphalt in that sunny city while also helping to decrease urban heat island effects.¹⁸⁵ The average annual cost of a street tree in the U.S. is only \$18, which includes the costs of planting, pruning, permitting, and ultimate removal as necessary.¹⁸⁶ In contrast, Tempe's study concluded that an individual street tree may save the city around \$100 or more in energy, carbon, air quality, storm water,

180. NOWAK ET AL., *supra* note 142, 5–7.

181. See CITY OF TEMPE, *supra* note 133, at 17–18 (presenting merits of planting trees in along streets, in public parks, and city-owned lands). 133

182. Robert Bardon et al., *Developing Successful Tree Ordinances*, N.C. STATE EXTENSION PUBL'NS (June 18, 2019), <https://content.ces.ncsu.edu/developing-successful-tree-ordinances>.

183. CITY AND CNTY. OF HONOLULU DEP'T PARKS & RECREATION DIV. OF URBAN FORESTRY, URB. REFORESTATION MASTER PLAN I-1, I-5 (2006); MCPHERSON ET AL., *supra* note 47, at 23–25. 47

184. NOWAK ET AL., *supra* note 142, at 6. 175

185. CITY OF TEMPE, *supra* note 133, at 20. 133

186. MCPHERSON ET AL., *supra* note 47, at 28. 47

aesthetic, and other management costs,¹⁸⁷ making it well worth the investment.

To further encourage urban forestry and to compensate cities for the myriad of positive externalities associated with urban trees, states should offer grants to cities for engaging in urban tree planting. California's Urban Forestry Act,¹⁸⁸ a state grant program administered through CAL FIRE, specifically funds urban forestry through such an approach.¹⁸⁹ Among other things, grants under this program are targeted at socioeconomically disadvantaged cities and neighborhoods.¹⁹⁰

2. Expanding Tree-Related Permitting Requirements for Real Estate Development

Cities can also place some of the financial cost of increasing urban tree canopies on private real estate developers. Many cities have long employed this approach through ordinances requiring new parking lots built within the city to include a certain number of trees per parking space. For instance, the city of Athens, Georgia, requires that one tree be planted for every seven parking spaces.¹⁹¹ Specific provisions in these ordinances require that the trees must be evenly distributed and not planted farther than ten feet or closer than three feet from the edge of parking lots.¹⁹² To maximize CO₂ sequestration potential, cities can likewise impose restrictions related to the trees themselves, such as requirements that mature parking lot trees have a minimum canopy circumference of seven feet. Particularly in warmer climates, a permitted parking lot might also limit trees to certain species that are relatively tolerant of hot, dry conditions, have strong branch attachments, are resistant to attacks by pests, and are unlikely to leave vehicles covered with sticky residues.¹⁹³

Parking lot tree requirements already produce substantial benefits in a number of cities. For instance, a study conducted in Davis, California, determined that parking lot trees dramatically improved air quality and reduced parking lot temperatures by as much as 36°F, vehicle cabin

187. CITY OF TEMPE, *supra* note 133, at 12. 133

188. CAL. PUB. RES. CODE § 4799.12 (2018).

189. *See* CAL FIRE, *Urban & Community Forestry*, CA.GOV <https://www.fire.ca.gov/programs/resource-management/resource-protection-improvement/urban-community-forestry/> (last visited Feb. 13, 2020) (explaining how grants will be administered and for what purposes).

190. CAL. PUB. RES. CODE §§ 4799.12, 4799.08(a)(1)(H), 4799.08(a)(3), 4799.09(a) (2018).

191. ATHENS-CLARKE CNTY., GA., CODE § 8-7-15(j) (2021).

192. *See, e.g., id.* at §8-7-15(j)(8).

193. *See generally* MCPHERSON ET AL., *supra* note 47, at 61–62 (explaining that a planter should consider the characteristics of different types of trees when choosing which tree to plant in a specific area).

temperatures by over 47°F, and fuel tank temperatures by nearly 7°F.¹⁹⁴ Another Davis study found that parking lot trees even greatly reduced components of smog by preventing emissions from evaporating.¹⁹⁵ A study conducted in Sacramento, California, estimated that annual benefits provided by that city's existing parking lot tree requirements were valued at approximately \$700,000 for improved air quality.¹⁹⁶ The City predicted that increasing its parking tree shade from 8% to 50% would bump those annual benefits to \$4 million.¹⁹⁷

Rather than simply mandating tree planting, cities can alternatively offer discounts on development impact fees to motivate real estate developers to plant trees or to plant more than the mandatory number. In many cities, development impact fees are imposed on new development projects.¹⁹⁸ These fees usually fund the public improvements necessary to provide services to new homes, offices, stores, schools, and other uses.¹⁹⁹ Offering discounts on these fees to developers who agree to plant and maintain more trees is a potentially powerful way to increase a city's urban tree canopy, particularly in cities where there is significantly real estate development activity.

3. Residential Tree Planting Programs and Other Residential Incentives

Offering tree giveaway programs or other incentives for tree planting in residential areas is one other means of helping cities to achieve tree canopy goals. Promoting tree planting on private urban land has great potential to help cities toward those goals because such a high proportion of land in most cities is privately owned.²⁰⁰ Tree giveaway programs encourage residents to plant trees in their own yards by offering them free trees or rebates on pre-

194. *Where are all the Cool Parking Lots*, CTR. FOR URBAN FOREST RES., U.S. DEP'T AGRIC. FOREST SERV. 2, <https://sactree.com/assets/files/greenprint/toolkit/b/CoolParkingLots.pdf> (last visited Nov. 12, 2020); *see also* McPherson et al., *Where Are all the Cool Parking Lots?*, GLOBALBIOENERGY.ORG, at 2, http://www.globalbioenergy.org/uploads/media/Where_are_all_the_cool_parking_lots_1.pdf (last visited Aug. 3, 2020) (presenting research on two problems related to tree shade in parking lots).

195. *See generally* MCPHERSON ET AL., *supra* note 47, at 22.

196. CTR. FOR URBAN FOREST RES., *supra* note 194, at 3. 194

197. *Id.*

198. *Impact Fees*, NAT'L APARTMENT ASS'N, <https://www.naahq.org/advocacy/policy-issues/impact-fees> (last visited Aug. 3, 2021); *see, e.g., Impact Fees*, CITY OF PHOENIX, <https://www.phoenix.gov/pdd/devfees/impactfees> (last visited Feb. 13, 2020); *see generally* Gregory S. Burge, *The Effects of Development Impact Fees on Local Fiscal Conditions*, in MUNICIPAL REVIEWS & LAND POLICIES (Gregory K. Ingram & Yu-Hung Hong eds, Lincoln Inst. Land Pol'y 2010) (2010), https://www.lincolnst.edu/sites/default/files/pubfiles/2063_1386_LP2009-ch07-The-Effects-of-Development-Impact-Fees-on-Local-Fiscal-Conditions_0.pdf (discussing the effects of impact fees on local fiscal conditions).

199. Burge, *supra* note 198, at 182.

200. NOWAK ET AL., *supra* note 142, at 4.

qualified trees.²⁰¹ Additional residential incentive strategies include offering reductions in water bills or stormwater fees for citizens who plant one or more trees,²⁰² providing property tax breaks for trees on private land,²⁰³ and approvals of higher density development permits for residential developers who dedicate higher percentages of a project's land to trees.²⁰⁴

The potential benefits of increased tree planting in residential urban areas are numerous and go far beyond potential reductions in atmospheric carbon dioxide levels (which, one study estimated to be 0.1 pounds of carbon sequestration per square foot).²⁰⁵ As highlighted above, trees may also increase property values, aid stormwater drainage, and help decrease flooding in residential areas.²⁰⁶

Cities that choose to offer property tax discounts for tree planting and maintenance might additionally find it worthwhile to adopt enforcement-related provisions to ensure that tax discount recipients properly maintain their trees. For example, one possible enforcement measure could be to require that the landowner allow a municipal arborist to visit participants' homes once every five years to certify the number and type of trees on the residential lot.

Of course, residential tree planting programs may not be justifiable in all cities or climates. For instance, trees can sometimes interfere with rooftop solar panels, which require direct sunlight access to fully function.²⁰⁷ Similarly, some desert cities recommend treeless, xeriscaped yards to promote water conservation.²⁰⁸ Likewise, some underprivileged communities may be less willing to participate, creating inequity issues.²⁰⁹ One study suggested that lack of education, low socio-economic status, and

201. City of Vancouver, Wash., *supra* note 142; MD. DEP'T NAT. RES., *supra* note 151; CITY OF RIVERSIDE PUB. UTILITIES, *supra* note 146.

202. MOORE ET AL., STONE ENVIRONMENTAL INC., TREE CREDIT SYSTEMS & INCENTIVES AT THE SITE SCALE 8–16 (2014) (discussing stormwater fee discounts and other incentives); U.S. ENV'T PROT. AGENCY, EPA-833-F-09-001, MANAGING WET WEATHER WITH GREEN INFRASTRUCTURE MUNICIPAL HANDBOOK: INCENTIVE MECHANISMS 1–5 (2009).

203. MOORE ET AL., *supra* note 202, at 15–16; Schultz & Durkay, *supra* note 19.

204. *Promoting Better Forestry on Private Lands*, VIBRANT CITIES LAB, <https://www.vibrantcitieslab.com/toolkit/promoting-better-forestry-on-private-lands/> (last visited Aug. 5, 2021).

205. MCPHERSON ET AL., *supra* note 47, at 19.

206. NOWAK ET AL., *supra* note 142, at 6, 7.

207. Marla Dickerson, *Hey, Your Shade Trees are Blocking My Solar Panels*, LOS ANGELES TIMES (Nov. 15, 2008), <https://www.latimes.com/archives/la-xpm-2008-nov-15-fi-solarspat15-story.html>.

208. *See* NOWAK ET AL., *supra* note 142, at 11 (discussing water conscious vegetation efforts in low rainfall areas); *see also* Kim Rutledge et al, *Xeriscaping*, NAT'L GEOGRAPHIC: RES. LIBRARY, ENCYCLOPEDIA ENTRY (last updated Jan. 21, 2011), <https://www.nationalgeographic.org/encyclopedia/xeriscaping/> (defining the practice of xeriscaping as landscaping with minimal use of water and drought resistant native vegetation).175

209. Geoffrey H. Donovan & John Mills, *Environmental Justice and Factors that Influence Participation in Tree Planting Programs in Portland, Oregon, U.S.*, 40 ARBORICULTURE & URBAN FORESTRY 70, 74–75 (2014).

average household age were all significant detrimental factors for participation in planting programs.²¹⁰ Many communities in the study that had low participation rates in such programs were primarily comprised of renters and had higher rates of criminal activity.²¹¹ In such communities, even greater financial investment may be needed to achieve robust levels of engagement.²¹²

Despite these potential challenges, there are numerous success stories of urban forestry in residential areas. For instance, New York City has already succeeded in planting one million trees.²¹³ New York City's tree giveaway program was the largest in the country.²¹⁴ The city successfully provided 195,465 trees to residents and ultimately achieved its goals of increasing tree coverage in the city, improving air quality, providing more shade, and offsetting climate change.²¹⁵

B. Managing Large Increases in Urban Forestry Activities

The large increases in urban trees possible under some of the policy approaches just described would create new tasks for cities, most of which are manageable through education and careful planning. Urban forestry master plans are one way for cities to coordinate these new tree management efforts while also creating jobs, clarifying maintenance requirements, and providing educational opportunities for local residents.

1. Hiring More City Arborists

Cities can help residents maintain trees by adding specific new city employee positions for individuals focused on tree maintenance. Many cities already employ one or more "arborists," who care for city trees.²¹⁶ Adding arborists is a valuable way for cities to ensure they are maintaining city tree health, holding developers to their tree-related development requirements,

210. *Id.* at 74–75.

211. *Id.* at 75.

212. *Id.* at 75; see also Elgin Tucker, *Economic Status and Its Influence on Tree Planting in Urban Areas*, YALE ENV'T REV. (Aug. 25, 2014), <https://environment-review.yale.edu/economic-status-and-its-influence-tree-planting-urban-areas-0> (discussing results of the U.S. Forest Service's study in Portland, Oregon determining influential factors of citizen participation in a city-wide tree planting program).

213. *Mayor de Blasio Celebrates One Millionth Tree with Former Mayor Michael Bloomberg, Bette Midler, Volunteers, and Community Members*, NYC.GOV (Nov. 20, 2015) (noting the City partnered with a private company, New York Restoration Project, to meet this large goal).

214. Brent Lomas, *Here's How NYC Hit its 1 Million Tree Target in 2015*, LIVABL (Jan 14, 2016), <https://www.livabl.com/2016/01/how-nyc-hit-million-tree-target-2015.html>.

215. *Id.*

216. See, e.g., *Caring for Urban Trees*, N.Y. DEP'T OF ENV'T CONSERVATION, <https://www.dec.ny.gov/lands/120460.html> (last visited Aug. 3, 2021) (discussing the need for urban tree care and the role of arborists).

and otherwise supporting tree planting and conservation efforts within the city.

Funding for new arborist positions could justifiably come from multiple revenue sources, including water and sewer funds and city general funds. The use of water and sewer funds for these positions is sensible because tree roots can potentially impact water and sewer lines and trees can benefit storm water drainage systems.²¹⁷ Funding arborist salaries through general city funds is also arguably justifiable given the broader citywide benefits of trees highlighted above.²¹⁸

2. Expanding Tree Maintenance Requirements

With the help of arborists, cities should also impose and enforce ordinances designed to ensure that tree planting and maintenance activities within their boundaries are sensible and appropriate. “Right Tree, Right Place” requirements must be followed to build any successful urban tree canopy.²¹⁹ And since every city has unique geological features that restrict or promote tree growth, arborists’ input is needed to ensure that decisions are appropriate given the specific soil types, weather, and other unique environmental factors in any given community.²²⁰

Cities and their residents must also consider water and sewer line locations when planting trees.²²¹ Tree roots grow down into the ground, which is where most, if not all, water and sewer lines are located.²²² Trees on streets, in parking lots, and in residential areas may damage water and sewer lines.²²³ To avoid tree-root damage, city arborists should either provide a pamphlet to companies or hold educational workshops to help workers navigate the planting requirements.

Urban tree canopies can create challenges for electric utilities as well.²²⁴ Many power line companies are responsible for maintaining surrounding

217. *See generally* City of Riverside Public Works Dep’t, URBAN FORESTRY POLICY MANUAL, CITY OF RIVERSIDE (2007), <https://riversideca.gov/PDF2/Urban-Forestry-Policy.pdf> (providing guidelines on tree planting, management, and removal considering impacts to current and future infrastructure).

218. *See generally* *An Introduction to City Finances*, CITY OF PORTLAND BUDGET OFF., https://www.portlandoregon.gov/cbo/article/18178#_Toc44398653 (last visited Nov. 13, 2020) (summarizing the finance structure based on source and use of funds in Portland, Oregon).

219. ARBOR DAY FOUND., *supra* note 49.

220. *Id.*

221. *See, e.g.*, LANCASTER, PA., CODE §§ 260-301, <https://www.ecode360.com/30007662> (demonstrating a city ordinance that requires a tree planting plan).

222. CITY OF RIVERSIDE, *supra* note 217, at 29–30; *Cf.* WILLIAM MOST & STEVEN WEISSMAN, BERKELEY LAW CTR. FOR LAW, ENERGY & THE ENV’T, TREES AND POWER LINES: MINIMIZING CONFLICTS BETWEEN ELECTRIC POWER INFRASTRUCTURE AND THE URBAN FOREST 7–14 (2012) (discussing similar concerns with underground power lines and trees).

223. CITY OF RIVERSIDE, *supra* note 217, at 29–30.

224. CITY OF RIVERSIDE, *supra* note 217, at 30–33. 222

trees to prevent power line damage and potential fires.²²⁵ However, cities should also still be aware of the potential hazards that overall increase of tree canopy can pose and take those issues into account in their planning. Many cities provide online guidelines for city tree maintenance to help mitigate such challenges. For example, the City of Bellevue, Washington, delineates the city's responsibilities versus residents' responsibilities for tree maintenance and provides information regarding how to sustainably water and prune city trees.²²⁶

3. Expanding Educational Programs

Lastly, residents participating in tree giveaway programs offered by a city must have access to accurate information on how to keep new trees alive for such programs to ultimately be successful. Tree maintenance and proper watering is essential to tree survival and canopy growth.²²⁷ Some cities provide online pamphlets that describe planting and maintenance requirements.²²⁸ However, not all residents participating in tree giveaway programs have access to online information.²²⁹ Accordingly, informational pamphlets outlining proper tree maintenance and "help line" telephone numbers staffed by city arborists are crucial to promoting proper tree maintenance after planting the giveaway trees. Arborists can additionally host regular educational and training programs for participating citizens to review maintenance requirements and provide venues for residents to easily ask questions. Ideally, cities would specifically assign arborist services to underprivileged communities to further engage citizens in those communities

225. See MOST & WEISSMAN, *supra* note 222, at 5, 13–15; City of Pasadena Dep't of Water and Power, *Tree Trimming & Power Lines*, CITY OF PASADENA, <https://ww5.cityofpasadena.net/water-and-power/treesandpowerlines/> (last visited Mar. 1, 2020) (stating California law requires utility companies to maintain specified clearances). 204

226. *Street Trees & Arterial Landscapes*, CITY OF BELLEVUE, <https://bellevuewa.gov/city-government/departments/parks/nature-and-environment/street-trees-arterial-landscapes> (last visited Aug. 5, 2021).

227. See generally CITY OF RIVERSIDE, *supra* note 217, at 7 (explaining that trees are a valuable resource that must be maintained).

228. See, e.g., *Tree Planting Instructions*, CITY OF FORT LAUDERDALE, <https://gyr.fortlauderdale.gov/greener-government/natural-resources-preservation/growing-our-green-canopy/tree-planting-care-maintenance/tree-planting-instructions> (last visited Nov. 13, 2020) (listing a series of tree planting instructions); see also CITY OF RIVERSIDE, *supra* note 217, at 6.

229. Kathryn Zickuhr & Aaron Smith, *Digital Differences*, PEW RESEARCH CTR (April 13, 2012), <https://www.pewresearch.org/internet/2012/04/13/digital-differences/> (explaining internet use remains strongly correlated with age, education, and household income). Individuals are unlikely to have access to the internet if their household income is below \$20,000 a year and residents who are above a certain age are unlikely to want to use the internet for finding information. *Id.*; but see Camille Ryan & Jamie Lewis, *Computer and Internet Use in the United States: 2015*, AMERICAN CMTY. SURV. REP. 2 (2017), <https://www.census.gov/content/dam/Census/library/publications/2017/acs/acs-37.pdf> (finding that 78% of American households had computer and that 77% of households had access to broadband internet).

and to address environmental injustice issues.²³⁰ Although very few such post-tree giveaway educational programs exist, many municipalities do reach out to participating residents to check on planted trees.²³¹ Most programs also have post-delivery communication in the form of online surveys, check-up emails, and in-person observations.²³² These surveys and check-ins include questions regarding the tree giveaway process, whether residents watered their tree, and the current health of newly planted trees.²³³ Collectively, efforts like these can help to ensure that residents have the information necessary to help their new trees grow and become valuable fixtures on their land and in their communities.

CONCLUSION

Increased tree planting is necessary to ebb the continual rise of global atmospheric CO₂ concentrations. Although the carbon-reducing power of trees is common knowledge, existing policies in the U.S. fail to encourage tree planting at a pace capable of meaningfully reducing CO₂ levels. The policies fall short in promoting tree planting and conservation throughout the country, from small rural farms to urban settings in the nation's largest cities.

In light of these challenges and President Trump's announcement initiating the U.S.'s participation in the Trillion Trees project, there is a need for new federal state and local policies to more aggressively encourage tree planting. Market failures resulting from tree-related externalities have long prevented citizens and businesses from adequately engaging in forestation activities. Congress should address these challenges through a new tax credit program and expanded loan guarantee program provisions designed to incentivize more tree planting on the nation's agricultural lands. Local governments should also assist in this effort by adopting tree canopy goals, imposing additional tree-related requirements on real estate developers, and adopting or expanding tree giveaway programs. If adopted, such innovations in the nation's reforestation policies would significantly reduce America's contribution to global warming and simultaneously beautify cities and farms throughout the country.

230. Donovan & Mills, *supra* note 209, at 75.

231. Nguyen et al., *supra* note 156, at 30.

232. *Id.*

233. *Id.*

**ENVIRONMENTAL CONSTITUTIONALISM: MARRYING THE
DUE PROCESS CLAUSE AND THE EQUAL PROTECTION
CLAUSE WITH CLIMATE CHANGE**

Terry Ann Campbell

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INTRODUCTION

The environment is man’s first right. Without a clean environment, man cannot exist to claim other rights, be they political, social, or economic.
 - Ken Saro-Wiwa¹

Do the Fifth and Fourteenth Amendments provide citizens a private right of action to sue the United States (“U.S.”) for not protecting them against the adverse effects of climate change?² The short answer is yes. Legal scholars at the Environmental Law Institute (“ELI”) believe that “the text and history of the Constitution, as interpreted by courts and understood by most Americans, provide a firm legal basis for comprehensive, effective environmental protections.”³ It is on this premise that this Note argues that the Fifth and Fourteenth Amendments provide a firm legal basis for effective protections against climate change.⁴ The Fifth and Fourteenth Amendments list fundamental rights like the right to life, liberty, and property; fundamental rights also include unenumerated rights like the right to privacy and the right to marry.⁵ Articles II and VI of the U.S. Constitution compel the President and other officials—like judges and members of Congress—to uphold the

1. UNITED NATIONS ENV’T, NEW FRONTIERS IN ENVIRONMENTAL CONSTITUTIONALISM 24 (Erin Daly et al. eds., 2017), <http://wedocs.unep.org/bitstream/handle/20.500.11822/20819/Frontiers-Environmental-Constitutionalism.pdf?sequence=1&isAllowed=y>; see generally *Ken Saro-Wiwa: 1995 Goldman Prize Recipient Africa*, GOLDMAN ENV’T PRIZE, <https://www.goldmanprize.org/recipient/ken-saro-wiwa/> (last visited May 19, 2021) (providing background information on Ken Saro-Wiwa).

2. U.S. CONST. amend. V. (“No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.”); U.S. CONST. amend. XIV § 1 (“All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside. No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.”).

3. *Program on the Constitution, Courts, and Legislation*, ENV’T L. INST., <https://www.eli.org/constitution-courts-and-legislation> (last visited May 19, 2021).

4. U.S. CONST. amend. V.; U.S. CONST. amend. XIV § 1.

5. *Id.*

Constitution.⁶ It is no wonder that young climate activists like Greta Thunberg agree it is imperative that world leaders care about “collapsing ecosystems, mass extinctions and people suffering due to climate change,” instead of “caring more about money” and “fairy tales of eternal economic growth.”⁷ Greta’s 2019 Climate Strike message echoes back to 2016, when a group of young climate activists brought an unprecedented suit in U.S. courts, arguing that the Government must act with visible urgency to reduce CO2 emissions.⁸ These young activists argued that the U.S. President and executive agencies deliberately allowed pollution and climate change on a catastrophic level.⁹

While the cynics may cry foul, the language of the U.S. Constitution is clear. Because the Government is mandated to uphold the Constitution, the courts and Congress must do everything in their power to enforce it. The plaintiffs’ claims in *Juliana* are a simple revindication of these constitutional rights that government officials have sworn to protect.¹⁰ Conversely, *Juliana* has been called the “trial of the century” because, unlike other cases that have brought climate change claims, it is the first case in U.S. history to have withstood constitutional muster amidst claims of Due Process and Equal Protection violations.¹¹ Even though *Juliana* was dismissed by the Ninth Circuit in January 2020, this case still symbolizes a significant victory for Greta Thunberg and for other climate activists in the U.S. and around the world.¹² The fact that the courts can no longer deny that climate change is real is impactful for future environmental suits.¹³ Moreover, the substantive due process and equal protection claims set forth in *Juliana* have arguably taken the spotlight and have put the world on notice of bigger things to come for the advocates of environmental fundamental rights.

This Note argues for a U.S. framework on environmental constitutionalism to address the urgency of climate change.¹⁴ “Global

6. U.S. CONST. art. II, § 1; U.S. CONST. art. VI.

7. Kalhan Rosenblatt, *Teen Climate Activist Greta Thunberg Delivers Scathing Speech at U.N.*, NBCNEWS (Sept. 23, 2019), <https://www.nbcnews.com/news/world/teen-climate-activist-greta-thunberg-delivers-scathing-speech-u-n-n1057621>.

8. *Juliana v. United States (Juliana I)*, 217 F. Supp. 3d 1224, 1233 (D. Or. 2016).

9. *Id.*

10. *Id.*

11. David A. Murray, *Will Climate Change the Courts?*, NEW ATLANTIS (2019) <https://www.thenewatlantis.com/publicaitons/will-climate-change-the-courts>.

12. *Juliana v. United States (Juliana III)*, 947 F.3d 1159 (9th Cir. 2020).

13. Marisa Martin & James Landman, *Standing: Who Can Sue to Protect the Environment?*, AM. BAR. ASS’N, (Oct. 9, 2020), https://www.americanbar.org/groups/public_education/publications/insights-on-law-and-society/volume-19/insights-vol--19--issue-1/standing--who-can-sue-to-protect-the-environment-/.

14. See generally JAMES R. MAY AND ERIN DALY, GLOBAL ENVIRONMENTAL CONSTITUTIONALISM (Cambridge Univ. Press 2015) (discussing the Constitutionalization of

environmental constitutionalism is a relatively recent phenomenon at the confluence of constitutional law, international law, human rights, and environmental law.”¹⁵ Over the past 50 years, environmental constitutionalism has provided “new causes of action and stretched environmental rights into new forms.”¹⁶ Countries all around the world have proven that constitutional texts effectively address environmental violations, including climate change.¹⁷ All around the world, countries have already implemented the practice of environmental constitutionalism as a global solution to a global problem.¹⁸ It is high time that the federal government here does the same. This Note takes the due process claims made in *Juliana* even further to argue that through application, the Fifth and Fourteenth Amendments already provide protection against the effects of climate change. The Ninth Circuit erroneously dismissed *Juliana III* because the relief that the climate activists sought is inherent and implied in the language of the Fifth and Fourteenth Amendments.¹⁹ To date, the young climate activists have submitted their *en banc* appeal and for just cause, because the time is ripe for the claims made in *Juliana* to become the norm in climate change litigation instead of the exception.²⁰

The language of the Equal Protection Clause of the Fourteenth Amendment supports the idea that unenumerated environmental protections must be recognized as fundamental rights because they are basic human rights. Finally, this Note addresses the critics of this constitutional approach and offers workable solutions to appease the cynicism of those left yet unconvinced. The goal of this Note is to prove that the Fifth and Fourteenth Amendments provide a firm legal basis for effective protections against climate change.

environmental norms witnessed in the last two decades and represent a significant but under-developed trend. Authors provide a critical examination of the usefulness of constitutional environmental provisions); *see infra* Section III.

15. ELGAR ENCYCL. OF ENV'T L., HUMAN RIGHTS AND THE ENVIRONMENT: LEGALITY, INDIVISIBILITY, DIGNITY AND GEOGRAPHY at 93 (James R May & Erin Daly eds., Elgar 2019) (probing key elements of environmental law that could model the International Covenants on Human Rights).

16. *Id.* at 94; *see also* Murray, *supra* note 11 (explaining how new constitutional rights came to be recognized).

17. ELGAR ENCYCL. OF ENV'T L., *supra* note 15 at 95–96.

18. *Id.* at 94.

19. *See Juliana III*, 947 F.3d at 1165 (discussing the 9th circuit’s decision to dismiss the case).

20. *See generally* John Schwartz, *Court Quashes Youth Climate Change Case Against Government*, N.Y. TIMES (Jan. 17, 2020), <https://www.nytimes.com/2020/01/17/climate/juliana-climate-case.html> (stating that this case was novel, and made it much further than anyone expected); *Juliana v. United States*, YOUTH V. GOV., <https://www.youthgov.org/our-case> (last visited May 19, 2021).

I. BACKGROUND

First, to better understand this Note's premise, it is important to clarify a few terms essential to the subject matter. Second, this section will demonstrate that combatting climate change means acknowledging that climate change is a global issue with far reaching effects. Third, any violation of the Fifth and Fourteenth Amendments is contrary to the rule of law because climate change requires the judicial protection of the unenumerated rights rooted in the Bill of Rights. Fourth, by way of the Constitution, the U.S. Government has an obligation to protect its populations against climate change. Finally, by dismissing the *Juliana* case, the U.S. Government has failed to uphold the Fifth and Fourteenth Amendments.

Human rights are fundamental rights in the U.S. context.²¹ Human rights are the “freedoms, immunities, and benefits that, according to modern values (especially at an international level), all human beings should be able to claim as a matter of right in the society in which they live.”²² Similarly, a fundamental right is a “right derived from natural or fundamental law.”²³ It is a significant component of liberty,” to which encroachments “are rigorously tested by courts to ascertain the soundness of purported governmental justifications.”²⁴ According to Professor Erwin Chemerinsky; specialist in constitutional law, Jesse H. Choper distinguished Professor of Law, and Dean at Berkeley Law: “some liberties are so important that they are deemed ‘fundamental rights’ and that generally, the Government cannot infringe upon them unless strict scrutiny is met.”²⁵ In the U.S., a “fundamental right triggers strict scrutiny to determine whether the law violates the Due Process Clause or the Equal Protection Clause of the 14th Amendment.”²⁶

21. See *Moore v. City of E. Cleveland*, 431 U.S. 494, 503 (1977) (stating that limits on substantive due process come from basic societal values); *Washington v. Glucksberg*, 521 U.S. 702 (1997); *Human Rights & The U.S.*, ADVOC. FOR HUM. RTS., https://www.theadvocatesforhumanrights.org/human_rights_and_the_united_states#:~:text=In%20the%20United%20States%2C%20the,provide%20broad%20human%20rights%20protections.&text=In%20a%20dition%2C%20the%20U.S.%20Supreme,trial%20and%20freedom%20of%20movement (last visited May 19, 2021).

22. *Human Rights*, BLACK'S LAW DICTIONARY (11th ed. 2019) (citing G.A. Res. 217 (III) A, Universal Declaration of Human Rights (Dec. 10, 1948), <https://www.un.org/en/universal-declaration-human-rights/>).

23. *Fundamental Right*, BLACK'S LAW DICTIONARY (11th ed. 2019).

24. *Id.*

25. ERWIN CHEMERINSKY, CONSTITUTIONAL LAW 1170 (Richard Epstein & Ronald Gilson eds., 5th ed. 2015).

26. BLACK'S LAW DICTIONARY, *supra* note 23.

A. *The U.S. is Yet to Recognize That Climate Change is a Global Issue That has Nefarious Effects on Human and Civil Rights*

Climate change, though complex, is perhaps the most important environmental challenge of the day, so governmental inaction is a far cry from what climate activists expect of their governments in this impending era.²⁷ Countless research shows that the major cause of climate change seems to be “anthropogenic greenhouse gas (“GHG”) emissions from the use of fossil fuels.”²⁸ The main issue with climate change is that it carries with it a “serious risk of major, irreversible change.”²⁹ Concrete evidence of climate change includes “ice sheet disintegration; regional climate disruptions . . . increasing storm intensity in the Americas . . . warming polar regions . . . and more extreme weather events including droughts, floods, and fires.”³⁰ The U.S. Supreme Court has even acknowledged that “[t]he harms associated with climate change are serious and well recognized.”³¹

Over the past 50 years or so, environmental constitutionalism experts have advocated tirelessly for basic human rights to be at the center of climate change protections, because climate change poses a serious threat to human existence.³² Despite scientific evidence, efforts by the U.S. Government to incorporate human and civil rights protections to combat climate change have been slow.³³ These efforts are important because addressing climate change requires “concerted and coordinated global efforts adjunct to mitigation, adaptation and compensation.”³⁴ For example, many people are currently forced to migrate away from areas vulnerable to rising sea levels, hurricanes, and ravaging forest fires.³⁵ Rising sea levels encroach on coastlines, destroy habitats, and inundate communities.³⁶ Changes in precipitation and temperature destroy agricultural systems, fisheries, water supplies, forests, and other “natural habitats upon which many people depend for their sustenance and livelihoods.”³⁷

27. See UNITED NATIONS ENV'T, *supra* note 1 (stating that although some governments are taking action, it is not yet enough to address the pressing issue of climate change).

28. Sir Nicholas Stern, *The Stern Review on The Economics of Climate Change*, http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf (last visited May 19, 2021).

29. *Id.*

30. MAY & DALY *supra* note 14, at 269.

31. *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007).

32. ELGAR ENCYCL. OF ENV'T L., *supra* note 15, at 101, 198.

33. Elaine Kamarck, *The Challenging Politics on Climate*, BROOKINGS (Sept. 23, 2019), <https://www.brookings.edu/research/the-challenging-politics-of-climate-change/>.

34. MAY & DALY, *supra* note 14, at 270, 272.

35. *Id.* at 269; Kamarck, *supra* note 33.

36. MAY & DALY, *supra* note 14, at 270.

37. *Id.*

The issue of basic human rights certainly came to the fore during the *Juliana III* ruling.³⁸ The Ninth Circuit conceded that the effects of climate change seem undeniably irreversible and catastrophic to the general population.³⁹ The majority opinion openly admitted that “copious expert evidence established that the unprecedented rise in atmospheric carbon dioxide levels stemmed from fossil fuel combustion and will wreak havoc on the Earth’s climate if unchecked.”⁴⁰ In a dissenting opinion almost as long as the majority opinion, Judge Staton zealously made the case that the young plaintiffs have a “constitutional right to be free from *irreversible* and *catastrophic* climate change.”⁴¹ Judge Staton made it unequivocally clear that she would not have dismissed the case because it has been long held that the court’s role is to rule on constitutional issues.⁴² To prove her point, Judge Staton quoted *Obergefell v. Hodges*: “when fundamental rights are at stake, individuals ‘need not await legislative action.’”⁴³ Judge Staton further supports the idea that the Government has more than just a moral responsibility to preserve the Union by protecting individuals from the effects of climate change.⁴⁴ Although the court dismissed the *Juliana* case, all is not lost. It is now more than ever up to climate activists and stakeholders to press the U.S. Government to recognize that protection against climate change is an inherent and implied right enforceable under the Fifth and Fourteenth Amendments.⁴⁵ The impetus is on the U.S. Government to begin implementing policies, procedure and legislation to reverse the effects of climate change and protect its populations from threats of extinction.⁴⁶

B. Violating the Fifth and Fourteenth Amendments is Contrary to the Rule of Law

Since the 19th century, fundamental rights have been an interwoven bedrock principle of U.S. jurisprudence.⁴⁷ For the purposes of this Note, the rule of law is a durable system of laws, institutions, and community

38. Amicus Curiae Brief of Int’l. Org. and Law. at 1-2, *Juliana v. United States*, No. 18-36082 (9th Cir. Mar. 12, 2020).

39. *Juliana III*, 947 F.3d at 1182.

40. *Id.* at 1166.

41. *Id.* at 1182.

42. *Id.* at 1191.

43. *Id.* at 1180.

44. *Id.* at 1177.

45. See MAY & DALY, *supra* note 14, at 202 (describing international cases that found a fundamental right to a healthy environment).

46. See Denise Chow, *Three Islands Disappeared in the Past Year. Is Climate Change to Blame?* June 9, 2019, NBCNEWS (June 9, 2019), <https://www.nbcnews.com/mach/science/three-islands-disappeared-past-year-climate-change-blame-ncna1015316> (stating that “governments should pay attention to the islands in the western Pacific and make their own coastal communities more resilient”).

47. Todd J. Zywicki, *The Rule of Law, Freedom, and Prosperity*, 10 S. CT. ECON. REV. 1, 3 (2003).

commitment that delivers four universal principles: (1) accountability; (2) just laws; (3) open government; (4) accessible and impartial dispute resolution.⁴⁸ In *Griswold v. Connecticut*, the Court defined fundamental rights as “[s]pecific guarantees in the Bill of Rights have penumbras, formed by emanations from those guarantees that help give them life and substance.”⁴⁹ In other words, “[v]arious guarantees create zones of privacy.”⁵⁰ Like the right to privacy, the right to a healthy environment “enables the citizen to create a zone of privacy which government may not force him to surrender to his detriment.”⁵¹ Likewise, embedded in the Ninth Amendment is the principle that “the enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.”⁵² Protection against climate change in U.S. jurisprudence is anchored on the idea that certain fundamental freedoms permeate from these penumbras and emanations not to be trampled on by governmental action.⁵³

Judge Staton equally highlighted in her dissent that the “Supreme Court has recognized that the Due Process Clause, enshrined in the Fifth and Fourteenth Amendments, also safeguards certain ‘interests of the person so fundamental that the [government] must accord them its respect.’”⁵⁴ It is also true that the Constitution protects the right to life, liberty, and property as it protects free speech, freedom of the press, and freedom of worship and assembly.⁵⁵ Judge Staton’s dissent echoes the Supreme Court’s ruling in *Griswold* that “[th]e language and history of the Ninth Amendment reveal that the Framers of the Constitution believed that there are additional fundamental rights, protected from governmental infringement, which exist alongside those fundamental rights specifically mentioned in the first eight constitutional amendment.”⁵⁶

The ruling in *Griswold* reiterates the point that fundamental rights can only be protected if the rule of law prevails.⁵⁷ Since the rule of law is a bedrock principle of U.S. jurisprudence, the U.S. Government is obligated to uphold fundamental freedoms, which include environmental protections against climate change.

48. WORLD JUST. PROJECT, *What is the Rule Of Law?*, <https://worldjusticeproject.org/about-us/overview/what-rule-law> (last visited May 19, 2021).

49. *Griswold v. Connecticut*, 381 U.S. 479, 484 (1965).

50. *Id.*

51. *Id.*

52. *Id.*

53. Hope M. Babcock, *The Federal Government Has an Implied Moral Constitutional Duty to Protect Individuals from Harm Due to Climate Change: Throwing Spaghetti Against the Wall to See What Sticks*, 45 *ECOLOGY L. Q.* 735, 742 (2019).

54. *Juliana III*, 947 F.3d at 1177.

55. *Id.* at 1179.

56. *Griswold*, 381 U.S. at 488.

57. *Id.* at 485.

C. *Climate Change Imposes an Obligation to Protect Fundamental Rights*

The U.S. Constitution imposes an obligation on the U.S. Government to protect the individuals within its borders against factors like climate change.⁵⁸ This obligation stems from the same idea that certain rights are inherent and implied, such as the right to live in a healthy environment.⁵⁹ With regard to environmental protections, the Fifth and Fourteenth Amendments convey four basic responsibilities upon the government: (1) controlling greenhouse gas emissions; (2) promoting adaptation to climate change; (3) cooperating in international negotiations; and (4) providing support to developing countries that are most harmed by and least responsible for climate change.⁶⁰ One could interpret the Fifth and Fourteenth Amendments to convey these responsibilities because U.S. jurisprudence requires constitutional protections of fundamental rights.⁶¹ Therefore, the U.S. Government, as well as private actors, must respect substantive and procedural rights to safeguard against human rights violations. The plain language of the Fifth and Fourteenth Amendments already provide a firm legal basis for effective protections against climate change.

D. *The Juliana III Ruling Proves That the U.S. Government Continues to Violate the Fifth and Fourteenth Amendments Because It Failed to Protect Its Population from the Nefarious Effects of Climate Change*

The background to *Juliana* remains a significant victory for advocates in favor of applying the text of the Constitution to environmental protections, and for those in favor of judicial engagement in the fight against climate change.⁶² According to advocates for the Atmospheric Trust Litigation approach, like Professor Christina Wood, this is a strategy which “calls upon the judicial branches of governments to force carbon reduction on the basis of their fiduciary responsibility to protect the public trust.”⁶³ The Atmospheric Trust Litigation movement came about because “there has been little action at either the international or national level” to address the climate

58. *Substantive Due Process*, CORNELL L. INFO. INST., https://www.law.cornell.edu/wex/substantive_due_process (last visited May 19, 2021).

59. David R. Boyd, *Catalyst for Change: Evaluating Forty Years of Experience in Implementing the Right to a Healthy Environment*, in *THE HUMAN RIGHT TO A HEALTHY ENVIRONMENT* 18 (John H. Knox & Ramin Pejan eds., Cambridge Univ. Press 2018).

60. ELGAR ENCYCL. OF ENV'T L., *supra* note 15.

61. See *Pierce v. Soc’y of Sisters*, 268 U.S. 510, 535 (1925) (ruling that fundamental rights are protected by the Fifth and Fourteenth amendments).

62. *Infra* Section III.

63. Ipshita Mukherjee, *Atmospheric Trust Litigation: Paving the Way for a Fossil-Fuel Free World*, STAN. L. SCH. (July 5, 2017), <https://law.stanford.edu/2017/07/05/atmospheric-trust-litigation-paving-the-way-for-a-fossil-fuel-free-world/>; Murray, *supra* note 11.

change crisis.⁶⁴ Proponents like Professor Wood argue that “exclusive reliance on the political branches for climate response now seems ill-advised.”⁶⁵ Proponents of the Atmospheric Trust Litigation aim to shape public opinion and turn the court system into a “sustained front in the war over climate change.”⁶⁶

In response to the 2016 filing of *Juliana*, a wave of lawsuits—numbering more than 80—with climate-related claims entered the courts in 2018 alone.⁶⁷ Arguably, *Juliana* earned its name as the “trial of the century” because of the public attention it garnered when a group known as “youth plaintiffs”—aged at the time from 10 to 19—joined forces with the Earth Guardians Group.⁶⁸ Along with guardian Dr. James Hanson, the youth plaintiffs filed claims against the U.S. government for its refusal to implement measures that combat the effects of climate change despite knowing about its effects for 50 years.⁶⁹ Unlike many climate lawsuits grounded in statutes like the Clean Air Act, *Juliana* puts forward a sweeping argument that the U.S. Government’s “failure to prevent the present and looming climate crisis constitutes a breach in the government’s basic duty of care to protect plaintiffs’ fundamental constitutional rights.”⁷⁰ Plaintiffs allege that the U.S. Government violated their rights to “life, liberty, and property; equal protection;” as well as their “rights as beneficiaries of the federal public trust.”⁷¹ The *Juliana* plaintiffs are correct in their assertions because these said rights are recognized by the Constitution; thus indicating that plaintiffs should be free from government actions that harm life, liberty, and property.⁷² According to the youth plaintiffs, the government has a contractual duty to protect its citizens.⁷³ Furthermore, it has been long accepted that inherent and inalienable rights evolve; thus demanding the Government to reassert its duties in protecting future generations.⁷⁴

In *Juliana II*, plaintiffs sought injunctive and declaratory relief, asserting that there is “an extremely limited amount of time to preserve a habitable climate system for our country” before “the warming of our nation will

64. Murray, *supra* note 11.

65. *Id.*

66. *Id.*

67. *Id.*

68. *Id.*

69. *The Science, OUR CHILDREN’S TR.*, <https://www.ourchildrenstrust.org/the-science> (last visited May 19, 2021); Murray, *supra* note 11; *Juliana I*, 217 F. Supp. 3d at 1252.

70. OUR CHILDREN’S TR., *supra* note 69; Murray, *supra* note 11.

71. *Juliana v. United States (Juliana II)*, 339 F. Supp. 3d., 1062, 1071 (D. Or. 2018); First Am. Compl. At 98, *Juliana v. United States*, 339 F. Supp. 3d 1062 (D. Or. 2018) (No. 6:15-cv-01517-TC) [hereinafter First Am. Compl.].

72. *Infra* Section II.

73. First Am. Compl. at 98.

74. *Id.* at 278.

become locked in or rendered increasingly severe.”⁷⁵ However, the U.S. has rebutted the plaintiffs’ case by submitting several motions for dismissal.⁷⁶ In the last motions filed, the U.S. contended that:

(1) there are no genuine issues of material fact; (2) plaintiffs lack Article III standing to sue; (3) plaintiffs have failed to assert a valid cause of action under the APA; (4) plaintiffs’ claims violate separation of powers principles; (5) plaintiffs have no due process right to a climate system capable of sustaining human life; and (6) the federal government has no obligations under the public trust doctrine.⁷⁷

At the time, the District Court held that the plaintiffs had standing and there had been a genuine dispute of material fact.⁷⁸ The court reasoned that although the U.S. was aware of the “effects of fossil fuel emissions on atmospheric concentrations of CO₂,” its awareness did not cause the plaintiffs’ injury.⁷⁹

However, upon appeal to the Ninth Circuit, the Ninth Circuit reversed the District Court’s decision and ruled instead that *Juliana* did not have Article III standing because the plaintiffs failed to show that their claims could be redressed at the judicial level.⁸⁰ The majority opinion differentiated *Juliana* from *Massachusetts v. EPA*, because unlike *Massachusetts*, the claimants in *Juliana* claimed substantive rights that the court regrettably could not allow them to assert without meeting all the normal standards of redressability.⁸¹ The Ninth Circuit also asserted that *Juliana* raised a political question that was beyond the scope of the judiciary.⁸² However, this Note, like Judge Staton, refutes the Ninth Circuit’s ruling as erroneous because, as Chief Justice Marshall aptly stated many years ago, “It is emphatically the province and duty of the judicial department to say what the law is.”⁸³ Judge Staton hammered home the point that she would not have dismissed the case because the evidence showed that the young plaintiffs suffered an injury that the court could redress. According to Justice Staton, “there are many constitutional doctrines that are not spelled out in the Constitution but are

75. *Id.* at 10.

76. *YOUTH V. GOV.*, *supra* note 20.

77. *See Juliana II*, 339 F. Supp. 3d at 1073 (discussing what the Defendant’s sought in their motion for summary judgement).

78. *Juliana II*, 339 F. Supp. 3d at 1095–96.

79. First Am. Compl. at 133.

80. *Juliana III*, 947 F.3d at 1175.

81. *Id.* at 1168.

82. *Id.* at 1187.

83. *Marbury v. Madison*, 5 U.S. (1 Cranch) 137, 177 (1803).

nonetheless enforceable as historically rooted principles embedded in the text and structure of the Constitution.”⁸⁴

This Note’s analysis is supported by Judge Staton’s reasoning that:

Plaintiffs bring suit to enforce the most basic structural principle embedded in our system of ordered liberty: that the Constitution does not condone the Nation's willful destruction. So viewed, plaintiffs' claims adhere to a judicially administrable standard. And considering plaintiffs seek no less than to forestall the Nation's demise, even a partial and temporary reprieve would constitute meaningful redress. Such relief, much like the desegregation orders and statewide prison injunctions the Supreme Court has sanctioned, would vindicate plaintiffs' constitutional rights without exceeding the Judiciary's province.⁸⁵

Judge Staton further went on to highlight that the “Supreme Court was explicitly unconcerned with the fact that crafting relief would require individualized review of *thousands of state and local policies* that facilitated segregation. Rather, a unanimous Court held that the judiciary could work to disassemble segregation over time while remaining cognizant of the many public interests at stake.”⁸⁶

Like the vehement dissent of Judge Staton, this Note contends that the Ninth Circuit’s ruling was erroneous because, the judiciary has a duty to interpret the law. Additionally, the language of the Due Process and Equal Protection Clauses confirms procedural as well as substantive remedies for cases like *Juliana* in the struggle to save planet Earth. The current ruling has further set back the tireless efforts of climate activists and the *Juliana* lawyers will have to now work on appealing the case as they remain hopeful that the *en banc* Ninth Circuit will rule in their favor. This Note is therefore timely and will articulate in the next section the importance of upholding the Fifth and Fourteenth Amendments to protect against climate change.

II. ANALYSIS

U.S. courts have long established that fundamental rights tied to life, liberty, and property include even those not enumerated in the Due Process and Equal Protection Clauses.⁸⁷ Courts across the country should well-

84. *Juliana III*, 947 F.3d at 1179.

85. *Id.* at 1175.

86. *Id.* at 1188.

87. See CHEMERINSKY, *supra* note 25, at 1173 (holding that fundamental rights are those that are deeply embedded in the Nation’s traditions).

receive the idea that humans have an implicit right to life in a healthy environment. Plaintiffs posited this argument since predictions about climate change indicate that failure to act will lead to ultimate extinction, as clean air is necessary for humans to survive. However, this is not presently the case.⁸⁸ Unlike the *Juliana* example, courts must recognize the right to a healthy environment and apply it to the Fifth and Fourteenth Amendments. The right to a healthy environment is a fundamental right because it is tied to life, liberty, and property.⁸⁹ This Note will analyze the idea of life, liberty, and property in support of the premise that environmental protections should be treated as fundamental rights under the Constitution. Next, this Note will demonstrate how the constitutional protection against climate change is embedded in the unenumerated rights of the Fifth and Fourteenth Amendments.

*A. No State Shall Deprive Any Person of Life, Liberty, or Property,
Without Due Process of Law and No Person Shall Be Deprived of Life,
Liberty, or Property Without Due Process of Law*

The climate activists in *Juliana* argue that the Government's failure to act on climate change constitutes a "deprivation of life" and many legal scholars agree. According to Ylan Nguyen's article, *Constitutional Protection for Future Generations from Climate Change*, "[t]he right to a secure climate system is critical to future generations' fundamental rights of life"⁹⁰ Nguyen argues that "the Constitution's preamble describes a broad intergenerational goal to 'secure the blessings of liberty to ourselves and our Posterity'"⁹¹ Many rights like "abortion, the right to marry, the right to use contraceptives, among many others," already fall under the constitutional protection of the Fifth Amendment.⁹² It is therefore reasonable to deduce that protection from climate change implies a right to life.

88. See First Am. Compl. at 88 (discussing how a Louisiana resident will not enjoy the beaches of the Gulf of Mexico forever, as a result of the country's lack of unified fight against climate change).

89. Sumudu Atapattu, *The Right to a Healthy Life or the Right to Die Polluted?: The Emergence of a Human Right to a Healthy Environment Under International Law*, 16 TULANE ENV'T L. J. 65, 69 (2002) (discussing the right to a healthy environment as a fundamental right).

90. Ylan Nguyen, *Constitutional Protection for Future Generations from Climate Change*, HASTINGS ENV'T L. J. 183, 199 (2017) (discussing the fundamental right of a healthy environment).

91. *Id.*

92. *Id.*

Moreover, Professor Chemerinsky states that “liberty” includes those rights that are “expressly stated in the text, such as free exercise of religion, and rights that are not enumerated, such as the right to marry.”⁹³ The right to a healthy environment should be included as one of those non-enumerated rights. Freedom from the effects of climate change is a personal right, just like the one established in *Loving v. Virginia* where the Supreme Court held that “the freedom to marry is one of the vital personal rights protected by the Due Process Clause of the Fourteenth Amendment as essential to the orderly pursuit of happiness by free men.”⁹⁴

The Supreme Court further reinforced the concept of individual autonomy in *Obergefell v. Hodges* where the right to marry was considered a fundamental right.⁹⁵ In *Obergefell*, same-sex couples sued various states for violating both the Due Process and Equal Protection Clauses because these states upheld statutes that prevented same-sex marriages.⁹⁶ In his majority opinion, Justice Kennedy ruled that “the right to marry is a fundamental right inherent in the liberty of the person, and under the due process and equal protection clauses of the Fourteenth Amendment, couples of the same-sex may not be deprived of that right and that liberty.”⁹⁷ Justice Kennedy affirmed that “Same-sex couples may exercise the fundamental right to marry,” and because this was a fundamental right, the Constitution prohibited that this “liberty be denied to them.”⁹⁸ Following the standard set in *Obergefell*, the Government’s reluctance to protect future generations from the adverse effects of climate change is a violation of their due process and equal protection rights. The right to live in a healthy environment can be analogous to the inherent rights established in *Loving* and *Obergefell* because these are rights that are tied to life, liberty, and property. Climate change threatens these basic constitutional rights; therefore, courts must begin to enforce the Fifth and Fourteenth Amendments as a firm legal basis for effective protections against climate change.

The *Juliana* litigants also claim that the Government deprived them of property.⁹⁹ Professor Chemerinsky defines a property right as a “crucial

93. CHEMERINSKY, *supra* note 25, at 837.

94. *Loving v. Virginia*, 388 U.S. 1, 12 (1967).

95. *Obergefell v. Hodges*, 576 U.S. 644, 664 (2015).

96. *Id.* at 654–55.

97. *Id.* at 675.

98. *Id.*

99. *Juliana II*, 339 F. Supp. 3d. at 1071.

significance in a person's life."¹⁰⁰ One also has a claim of deprivation of property in cases where "the law creates a justifiable expectation that the benefit will be received in the future."¹⁰¹ *Goldberg v. Kelly* clearly illustrated that plaintiffs were entitled to their food stamps. In other words, plaintiffs had a property interest that could not be deprived without due process of the law.¹⁰² Therefore, the court reasoned that terminating their welfare benefits, deprived plaintiffs (who lacked independent resources) "of the very means necessary to live."¹⁰³ Likewise, future generations have an entitlement against the effects of climate change, which can be asserted through the Fifth Amendment.¹⁰⁴

Notwithstanding, in the summer of 2019, the United States District Court for the District of Oregon ruled against plaintiffs making similar claims in *Animal Legal Def. Fund v. United States*.¹⁰⁵ In *Animal Legal Def. Fund*, plaintiffs claimed that "the government's failure to protect them from the effects of climate change has violated their constitutional right to a safe and sustainable environment."¹⁰⁶ The District Court denied the claims due to a "failure to state a claim" and "lack of standing."¹⁰⁷ Judge Michael J. McShane, dismissed the claims with prejudice because he believed that the plaintiffs' claims were too "revolutionary" in nature.¹⁰⁸ Judge McShane explicitly rejected a ruling that would create a new fundamental right.¹⁰⁹ Judge McShane stated that he cannot recognize a "right to wilderness" under the Fifth and Fourteenth Amendments.¹¹⁰ The Judge distinguished this case from the *Juliana* case because the plaintiffs' claims were overly broad and "sweeping," and were not narrow enough to seek redressability.¹¹¹ Whereas, Judge McShane acknowledges that the courts will recognize claims that are "particularized harms" associated with climate change, the court cannot address "generalized grievances."¹¹²

100. CHEMERINSKY, *supra* note 25, at 830, 836.

101. *Id.*

102. *Goldberg v. Kelly*, 397 U.S. 254, 260–61 (1970).

103. *Id.* at 263–64.

104. Nguyen, *supra* note 90, at 199.

105. *Animal L. Def. Fund v. United States*, 404 F. Supp. 3d 1294, 1297 (D. Or. 2019).

106. *Id.* at 1297, 1299.

107. *Id.* at 1299.

108. *Id.* at 1297.

109. Karen Savage, *Judge Dismisses 'Right to Wilderness' Climate Suit Against U.S. Government*, CLIMATE DOCKET (Aug. 1, 2019), <https://www.climatedocket.com/2019/08/01/right-to-wilderness-climate-lawsuit/>.

110. *Animal Legal Def. Fund*, 404 F. Supp. 3d at 1298.

111. *Id.* at 1297–98.

112. *Id.* at 1300.

Although Judge McShane noted that the “right to a stable climate” claims in *Juliana* are viable under the Fifth and Fourteenth Amendments, sweeping claims like the “right to wilderness” made in *Animal Legal Def. Fund*, are too generalized for the courts to address.¹¹³ This Note is not arguing against the principles of justiciability. Instead, this Note argues that courts throughout the country must begin to recognize that Fifth and Fourteenth Amendments provide a firm legal basis for effective protections against climate change. If courts were to accept and recognize that protection from climate change is a fundamental right, this would create more positive outcomes.¹¹⁴ For example, this would provide speedy relief for climate change victims.¹¹⁵ This recognition would further implore Congress to pass more cutting-edge legislation to reduce carbon emissions and implement policies and guidelines beneficial to vulnerable populations in the U.S.¹¹⁶

B. No State Shall Deny to Any Person Within Its Jurisdictions the Equal Protection of the Laws.

Professor Chemerinsky agrees that substantive due process is the principle that allows courts to protect certain fundamental rights from government interference, even when procedural protections are present or the rights are not specifically mentioned elsewhere in the U.S. Constitution.¹¹⁷ The Constitution should always apply in cases involving protections against climate change because the effects of climate change erode the principle of fundamental rights.¹¹⁸ Combatting climate change means protecting the basic existence of human beings.¹¹⁹ Therefore, climate activists would find it easier to litigate in court when asserting due process and equal protection claims if courts begin to recognize the right to living in a healthy environment as a fundamental right under the Constitution.¹²⁰ The Constitution provides environmental protections for individuals because protection against climate

113. *Id.* at 1302.

114. Carolyn Kormann, *The Right to a Stable Climate is the Constitutional Question of the Twenty-First Century*, NEW YORKER (June 15, 2019), <https://www.newyorker.com/news/daily-comment/the-right-to-a-stable-climate-is-the-constitutional-question-of-the-twenty-first-century>.

115. Margaretha Wewerinke-Singh, *Remedies for Human Rights Violations Caused by Climate Change*, 9 CLIMATE L. 224, 227 (2019).

116. Yvette D. Clarke & Michael Shank, Opinion, *California Fires, Rising Seas: Millions of Climate Refugees Will Dwarf Dust Bowl by 2100*, USA TODAY (Nov. 4, 2019), <https://www.usatoday.com/story/opinion/2019/11/04/california-fires-climate-change-millions-refugees-by-2100-column/2452937001/>.

117. CHEMERINSKY, *supra* note 25, at 825.

118. Neal S. Rubin, *Does Climate Change Compromise Fundamental Human Rights?*, AM. PSYCH. ASS'N (Oct. 2013), <https://www.apa.org/international/pi/2013/10/un-climate>.

119. U.N. OFF. OF THE HIGH COMM'R, *Understanding Human Rights and Climate Change*, <https://www.ohchr.org/Documents/Issues/ClimateChange/COP21.pdf> (last visited May 19, 2021).

120. CORNELL L. INFO. INST., *supra* note 58.

change is an innate right that is “deeply rooted in this Nation’s history and tradition.”¹²¹ *Washington v. Glucksberg* confirmed that fundamental liberty interests are protected by the Due Process Clause, and that a fundamental right is “implicit in the concept of ordered liberty such that neither liberty nor justice would exist if they were sacrificed.”¹²²

Tracing the Fourteenth Amendment to its creation reveals that John Bingham “envisioned a federal Constitution that would protect the *fundamental freedoms* and equality of all Americans.”¹²³ Historical records show that the Fourteenth Amendment was modified several times before it was ratified in 1868.¹²⁴ However, the Congressional documents trace back to Bingham’s original intent that all men had equal protection under the law.¹²⁵ Leading from the premise that man has a natural right, Bingham expressly wrote that everyone had natural rights to be revenged under the Fourteenth Amendment.¹²⁶ Justice Black gave a lengthy dissent in *Adamson v. California*,¹²⁷ arguing that the Court’s reading was overly narrow and against Bingham’s original intent.¹²⁸ He starts by stating, “this Court is endowed by the Constitution with boundless power under ‘natural law’ periodically to expand and contract constitutional standards to conform to the Court’s conception of what at a particular time constitutes ‘civilized decency’ and ‘fundamental liberty and justice.’”¹²⁹ Black continued by scolding the Court for giving “much less effect to the Fourteenth Amendment than some of the public men active in framing it’ had intended it to have.”¹³⁰ Justice Black’s dissent clearly demonstrates the void between how the Fourteenth Amendment is being interpreted today and its original intent. Following this argument, Judge McShane could have created a new fundamental right that would have been more favorable to plaintiffs in climate change cases.

The courts must enforce the fundamental right of climate change protection by applying strict scrutiny.¹³¹ The Supreme Court has long

121. *Washington v. Glucksberg*, 521 U.S. 702, 720–21 (1997).

122. *Id.* at 721.

123. Tom Donnelly, *John Bingham: One of America’s Forgotten “Second Founders,”* NAT’L CONST. CTR. (July 9, 2018), <https://constitutioncenter.org/blog/happy-birthday-john-bingham-one-of-americas-forgotten-second-founders> (emphasis added); Cong. Globe, 34th Cong. 1st Sess. 1580 (1856); Michael Kent Curtis, *John A. Bingham and the Story of American Liberty: The Lost Cause Meets the “Lost Clause,”* 36 AKRON L. REV. 617, 632–63, 635 (2003).

124. *10 Supreme Court Cases About the 14th Amendment*, NAT’L CONST. CTR. (July 9, 2020) <https://constitutioncenter.org/blog/10-huge-supreme-court-cases-about-the-14th-amendment>.

125. Cong. Globe, *supra* note 123.

126. *Twining v. New Jersey*, 211 U.S. 78 (1908).

127. *Adamson v. California*, 332 U.S. 46, 69 (1947).

128. *Id.*

129. *Griswold*, 381 U.S. at 488.

130. *Adamson*, 332 U.S. at 74.

131. *See United States v. Carolene Prods. Co.*, 304 U.S. 144, 152 (1938) (explaining that a court would exercise a stricter standard of review when a law violates a provision of the constitution).

established that a fundamental right triggers the application of strict scrutiny.¹³² *United States v. Carolene Products Co.*¹³³ established that under the strict scrutiny test, the Government must show a compelling interest that the means taken are narrowly tailored to achieve these interests.¹³⁴ *Carolene Products* established that the Fifth and Fourteenth Amendments protect “discrete and insular minorities” that: (1) have suffered a history of discrimination; (2) have distinguishing characteristics that do not inhibit the group from contributing meaningfully to society; (3) the characteristic must be immutable; and (4) they must be politically powerless.¹³⁵ The *Carolene Products* criteria formalized levels of abstraction under the strict scrutiny standard for cases of a similar nature. The criteria originating in *Carolene Products* applies to climate change cases. First, for at least fifty years, the Government knows or has reason to know that catastrophic levels of pollution are detrimental to vulnerable communities.¹³⁶ Second, the Government has done nothing to protect these vulnerable communities.¹³⁷ Third, the effects of climate change have been attributed to cause the onset of certain illnesses like respiratory illness.¹³⁸ Further, many people are being displaced all over the U.S. because of changing weather patterns.¹³⁹ Lastly, these vulnerable populations rarely benefit from political representation and litigation is the only viable solution to protect their interests.¹⁴⁰

These levels of abstraction highlight even further that the U.S. Government has failed to protect “discrete and insular minorities” from the effects of climate change.¹⁴¹ Courts must apply the Fifth and Fourteenth Amendments to climate change cases to offer remedies against recurring violations of people’s fundamental rights. Furthermore, in *Washington v. Davis*, the Supreme Court established that a claim of disparate impact was not enough and that parties must have proof of discrimination or discriminatory purpose.¹⁴² Inaction from the federal government is evidence that discrimination against climate change victims continues to occur.¹⁴³ The

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

136. Clarke & Shank, *supra* note 116.

137. *Juliana I*, 217 F. Supp. 3d 1224, 1250 (D. Or. 2016).

138. *Id.*

139. Clarke & Shank, *supra* note 116.

140. Wewerinke-Singh, *supra* note 115 at 243.

141. *Carolene Prods. Co.*, 304 U.S. at 152.

142. *Washington v. Davis*, 426 U.S. 229, 239 (1976).

143. See generally Kristen Lombardi et al., *Environmental Racism Persists, and The EPA is One Reason Why*, CTR. FOR PUB. INTEGRITY (updated Sept. 4, 2015), <https://publicintegrity.org/environment/environmental-racism-persists-and-the-epa-is-one-reason-why/> (describing, “[t]he EPA office tasked with policing alleged civil rights abuses is chronically unresponsive to complaints and has never made a formal finding of discrimination”).

threat of climate change remains imminent. Humans continue to die or have their lifespan shortened.¹⁴⁴ Food shortages and widespread damage to property are on the rise and the planet's ecosystem continues to deteriorate.¹⁴⁵

At the same time, the recent ruling in *Clean Air Council v. United States* further highlights challenges for plaintiffs wanting to move forward with constitutional claims against climate change.¹⁴⁶ In *Clean Air Council*, the United States Eastern District Court of Pennsylvania rejected plaintiffs' prayer to "declare that the United States of America...have violated and will violate plaintiffs' rights by considering amendments to environmental laws, by 'rolling back' environmental regulations, and by making related personnel and budget changes."¹⁴⁷ The District Court denied the plaintiffs' claims because they did not have any "legally cognizable due process right to environmental quality" ¹⁴⁸ Until courts begin to apply a broader interpretation of the Fifth and Fourteenth Amendment, it will be difficult for climate change victims to receive the redress they deserve. The courts need to apply climate change protections to the Fifth and Fourteenth Amendments because they provide a firm legal basis for effective protections against climate change.

III. SOLUTIONS

Historically, when compared to other methods of environmental protections, constitutional protections against environmental violations have not been the most effective solution.¹⁴⁹ However, this section will demonstrate that when applied effectively, the Fifth and Fourteenth Amendments provide a firm legal basis for effective protections against climate change. When properly applied, the "constitutional incorporation, implementation, and jurisprudence of environmental rights, duties, procedures, policies and other provisions" promote effective environmental

144. *Juliana I*, 217 F. Supp. 3d. at 1250; see *Juliana II*, 339 F. Supp. 3d. at 1098 (explaining that a claim for a due process violation is established when a complaint alleges governmental action that knowingly will cause human deaths); *Juliana III*, 947 F.3d at 1164.

145. *Juliana I*, 217 F. Supp. 3d. at 1250; see *Juliana II*, 339 F. Supp. 3d. at 1098 (explaining that a claim for a due process violation is established when a complaint alleges governmental action that knowingly will cause human deaths); *Juliana III*, 947 F.3d at 1164.

146. *Clean Air Council v. United States*, 362 F. Supp. 3d 237, 242 (E.D. Pa. 2019).

147. *Id.*

148. *Id.* at 250.

149. *Answer Constitutional Challenges To New Climate Change Initiatives*, ENV'T L. INST., <https://www.eli.org/climate-energy/answer-constitutional-challenges-new-climate-change-initiatives> (last visited May 19, 2021); Kyle Burns, *Constitutions & The Environment: Comparative Approaches To Environmental Protection And The Struggle To Translate Rights Into Enforcement* (Nov. 14, 2016), syndicated on Env't L. Rev. Syndicate, <https://harvardelr.com/2016/11/14/constitutions-the-environment-comparative-approaches-to-environmental-protection-and-the-struggle-to-translate-rights-into-enforcement/>.

protections against climate change.¹⁵⁰ This Note supports solutions anchored in the principle of environmental constitutionalism. This Note posits solutions in tandem with the following principles of environmental constitutionalism: (1) all countries should adapt textual incorporation and judicial engagement in the fight against climate change; (2) all countries should include the notion of environmental sustainability in their constitutions and; (3) giving nature itself rights as a legal personality to protect itself against threats to extinction.¹⁵¹ These principles can all serve as a template for plaintiffs in climate change suits to apply legislative and judicial pressure to demand a shift in U.S. constitutional protections.

A. Several International Developments Demonstrate How Constitutional Protections are at the Core of Creating the Right to a Healthy Environment; The U.S. Constitutional Framework Also Allows for the Creation of New Fundamental Rights

The broad scope of environmental constitutionalism has allowed several countries to broaden the paradigm to fit within their constitutional realities.¹⁵² Proponents of “climate constitutionalism” argue for the “express incorporation of climate change into constitutional texts and a judicial interpretation implying obligations to address climate change from other express constitutional rights to life, dignity, due process, or a healthy environment.”¹⁵³ Because of these far-reaching implications of climate change, there has been a “worldwide phase in constitutional litigation regarding the climate.”¹⁵⁴

In 2018, the Constitutional Court of Columbia handed down a landmark decision to protect the Amazon against climate change.¹⁵⁵ This is a riveting example of how 25 plaintiffs—varying from ages 7 to 26—successfully carried individualized constitutional claims that evidenced the loss of the Amazon from deforestation was occurring at such a rapid rate between 2015 and 2016, that Colombia had already lost roughly 44% of its Amazonian

150. ELGAR ENCYCL. OF ENV'T L., *supra* note 15, at 93.

151. *Id.* at 95–96.

152. Nathalie Rühs & Aled Jones, Review, *The Implementation Of Earth Jurisprudence Through Substantive Constitutional Rights Of Nature*, 8 SUSTAINABILITY 174 (2016).

153. ELGAR ENCYCL. OF ENV'T L., *supra* note 15, at 95–96.

154. *Id.* at 96.

155. Germán Gómez Rojas, *Corte Suprema ordena protección inmediata de la Amazonía Colombiana* [Supreme Court Orders Immediate Protection Of The Colombian Amazon], REPÚBLICA DE COLOMBIA CORTE SUPREMA DE Justicia (Apr. 5, 2018), <http://www.cortesuprema.gov.co/corte/index.php/2018/04/05051/corte-suprema-ordena-proteccion-inmediata-de-la-amazonia-colombiana/>; see *Sentencia 4360-2018 de la Corte Suprema de Justicia* [Judgment 4360-2018 of the Supreme Court of Justice], ENV'T L. ALL. WORLDWIDE (Apr. 05, 2018), https://www.elaw.org/CO_Amazon (showing that deforestation in the Amazon lead to a Supreme Court decision about human rights).

forest.¹⁵⁶ The plaintiffs were able to prove that the Colombian Government failed to prevent the deforestation even though they knew of the consequences.¹⁵⁷ The plaintiffs prevailed because the presiding judge ruled “the Amazonian ecosystem is vital for the future of the globe,” and the Colombian Amazon “enjoys legal rights to protection, conservation, maintenance, and restoration from the State.”¹⁵⁸

As of 2019, at least seven countries have expressly addressed climate change in their constitutions.¹⁵⁹ Namely, the Dominican Republic, Venezuela, Ecuador, Vietnam, Tunisia, Cote D’Ivoire, and Thailand.¹⁶⁰ Furthermore, activists and interest groups have successfully made advances in climate justice claims even in countries that have not expressly adapted their constitutions to reflect climate change protections. Climate activists manage to assert protections from their respective constitutions under the right to life and dignity; as well as the rights to health and welfare.¹⁶¹ The worldwide trend is therefore gaining momentum. Fortunately, the U.S. already has a constitutional framework to support environmental constitutionalism.¹⁶² Whereas enforcement is currently lacking, the U.S. Government must begin to apply the Fifth and Fourteenth Amendments as a firm legal basis for effective protections against climate change.

156. ELGAR ENCYCL. OF ENV’T L., *supra* note 15, at 97.

157. ENV’T L. ALL. WORLDWIDE, *supra* note 153.

158. CONST. of Viet. (2013), Ch. III. Art. 63, § 1; ELGAR ENCYCL. OF ENV’T L., *supra* note 15, at 96; Cote d’Ivoire’s Const., 2016, Preamble; DOM. REP. CONST. (2015) tit. IX, ch. 1, art. 194; CONST. OF THE REPUBLIC OF ECUADOR (2008), tit. VII, ch. 2 § 7, art. 414; CONST. OF THAILAND (2017), tit. 2, art. 45; CONST. OF THE TUNISIAN REPUBLIC tit. 2, art. 45 (2014); CONST. OF THE BOLIVARIAN REPUBLIC OF VENEZ., tit. III ch. IX, art. 127 (2017).

159. *Gbemre v. Shell Petroleum Dev. Co. Nigeria Ltd.* [2005] FHCLR 1 (Nigeria); *Urgenda Foundation v. Kingdom of the Netherlands* (2019) C/09/456689/HA_ZA 13-1396 (HR) (Neth.); see ELGAR ENCYCL. OF ENV’T L., *supra* note 15, at 96–99 (“Even in absence of express constitutional incorporation, there is a growing body of jurisprudence from international and regional courts and tribunals worldwide concerning climate change . . . an increasing number of courts has turned to other constitutional rights – including to life, health, dignity, or a healthy environment - to advance climate justice.”); see also *Ashgar Leghari v. Fed. of Pak.*, (2015) W.P. 25501 (Lahore) 1 (Pak.) (stating that fundamental rights to life include the right to a healthy environment).

160. INT’L. HUMAN RTS. CLINIC, HARV. L. SCH., AN ENVIRONMENTAL RIGHT FOR FUTURE GENERATIONS 5 (2008); see INT’L HUM. RTS. CLINIC, HARV. L. SCH., MODELS FOR PROTECTING THE ENVIRONMENT FOR FUTURE GENERATIONS 7 (2008) (“Several U.S. state constitutional provisions have . . . established duties to protect the implied rights of future generations to a healthy environment.”).

161. ELGAR ENCYCL. OF ENV’T L., *supra* note 15, at 99.

162. *Ecuador Adopts Rights of Nature in Constitution*, GLOB. ALL. FOR THE RTS. OF NATURE, <https://therightsofnature.org/ecuador-rights/> [*hereinafter* GARN 1] (last visited May 19, 2021); see *What is Rights of Nature?*, GLOB. ALL. FOR THE RTS. OF NATURE (2019), <https://www.therightsofnature.org/what-is-rights-of-nature/> [*hereinafter* GARN 2] (describing GARN, a network of organizations and individuals committed to the universal adoption and implementation of legal systems that recognize, respect and enforce “Rights of Nature.”).

B. Constitutional Protections Symbolize That Nature is the Bearer of Judicially Cognizable Rights

If nature has these judicially cognizable rights, then nature is the rights holder that can vindicate the integrity of its ecosystems, rather than any individual element thereof in isolation.¹⁶³ Proponents of the rights of nature argue that people “have the legal authority and responsibility to enforce these rights on behalf of ecosystems.”¹⁶⁴ GARN proponents affirm that “[t]he ecosystem itself can be named as the injured party, with its own legal standing rights, in cases alleging rights violations.”¹⁶⁵ Countries such as Ecuador, India, and Colombia have paved the way by creating legal structures that formally recognize these inalienable rights of nature.¹⁶⁶ The leading example has been Ecuador, which has been lauded as the first country to recognize Rights of Nature in its Constitution.¹⁶⁷ Ecuador’s rewritten Constitution was ratified by referendum in September 2008.¹⁶⁸ The Ecuadorian example has become a new driving force for climate litigants to mount cases against the respective governments to protect the Amazon.¹⁶⁹ In many instances, the Amazon cases have resulted in confirmed instance of due process rights violations where the courts would have otherwise ruled against the plaintiffs.¹⁷⁰ The above examples confirm that other countries are reshaping their constitutional protections to address the urgent matter of climate change. Therefore, the time is right for U.S. courts to recognize that the Fifth and Fourteenth Amendments provide a firm legal basis for effective protections against climate change.

163. GARN 2, *supra* note 162.

164. *See* ELGAR ENCYCL. OF ENV’T L., *supra* note 15, at 99–101 (“[A] series of cases recognized the rights of nature but, in 2016, the Constitutional Court of Ecuador firmly committed to its full implementation. . . . [T]he Indian High Court at Uttarakhand issued two decisions in March 2017 that would recognize the rights of important water bodies and flows. . . . In 2016, the Colombian Constitutional Court issued a landmark decision recognizing the Rio Atrato’s legal ability to assert its rights in court. And again in 2018, it recognized the rights of the Colombian Amazon to protect its rights.”); GARN 1, *supra* note 1; Rita Brara, *Courting Nature: Advances in Indian Jurisprudence*, 6 RCC PERSPECTIVES: TRANSFORMATIONS, 31, 32 (2017), <http://www.jstor.org/stable/26268373>; Héctor Herrera-Santoyo, *The Rights of Nature (Rivers) & Constitutional Actions In Colombia*, GLOB. NETWORK FOR HUM. RTS. AND THE ENV’T (GNHRE) (July 8, 2019), <https://gnhre.org/2019/07/08/the-rights-of-nature-rivers-and-constitutional-actions-in-colombia/>.

165. GARN 1, *supra* note 162.

166. *Id.*

167. *See generally* ELGAR ENCYCL. OF ENV’T L., *supra* note 15 (discussing the example of Ecuador as one of the countries to take the lead in protecting rights of nature).

168. GARN 1, *supra* note 162.

169. Justice Mensah, *Sustainable development: Meaning, History, Principles, Pillars, and Implications for Human Action: Literature Review*, 5 Cogent Social Sci. 1 (2019) <https://doi.org/10.1080/23311886.2019.1653531>.

170. *See* Rep. of the U.N. Conf. on the Human Env’t, U.N. Doc. A/CONF.48/14/Rev.1 (June 1972) (detailing that one main focus of the conference was environmental health and sustainability).

C. Environmental Sustainability Should be Incorporated as a Constitutional Right to Foster and Promote Environmental Protections

Sustainability is another viable solution geared towards implementing environmental protection mechanisms.¹⁷¹ The world's movement towards sustainability can be traced from the 1972 Stockholm Declaration on the Human Environment.¹⁷² The next important phase was the 1987 World Commission on Environment Development's report: *Our Common Future*.¹⁷³ The report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."¹⁷⁴ Then came the Earth Summit Declaration of 1992, held in Rio de Janeiro, Brazil.¹⁷⁵ The first principle of the Earth Summit Declaration of 1992 is that "Human beings are at the center of concerns for sustainable development.¹⁷⁶ They are entitled to a healthy and productive life in harmony with nature."¹⁷⁷ This pact was renewed in 2015 with the 2030 Agenda for Sustainable Development.¹⁷⁸ The preamble for the agenda opens with: "This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom."¹⁷⁹ As a result, on these Accords, more than 36 countries have already incorporated sustainability in their constitutions. The Paris Agreement, adopted in 2016, sought as one of its key prerogatives to "[r]ecogniz[e] the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge." Therefore, by applying a constitutional framework to environmental protections, the U.S. would fulfill its commitment to protecting its populations against the effects of climate change.

171. U.N. World Comm'n on Env't & Dev., *Report of the World Commission on Environment and Development: Our Common Future* (Oct. 27, 2019), <http://www.environmentandsociety.org/mml/un-world-commission-environment-and-development-ed-report-world-commission-environment-and>.

172. Report of the United Nations Conference on Human Environment, U.N. Doc. A/CONF.48/14/REV.1 (1972), https://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.48/14/REV.1

173. U.N. Sustainable Development, U.N. Conference on Environment & Development, Rio de Janeiro [sic], Brazil, Agenda 21, <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>.

174. *Report of the World Commission on Environment and Development: Our Common Future*, WORLD COMM'N. ON ENV'T DEV. (1987), <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.

175. *Id.*

176. U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/Conf.151/26/Rev.1 (Vol.1), annex 1 (Aug. 12, 1992).

177. *Id.*

178. See MAY & DALY, *supra* note 14, at 329–42 (providing international constitutions that include a fundamental right to a healthy environment); U.N. Conference on the Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26 (June 14, 1992) <https://www.cbd.int/doc/ref/rio-declaration.shtml>.

179. *Id.* art. 7 § 2.

CONCLUSION

To conclude, I agree with Ken Saro-Wiwa when he said that “[t]he environment is man’s first right. Without a clean environment, man cannot exist to claim other rights, be they political, social, or economic.”¹⁸⁰ Ken Saro-Wiwa died trying to protect the Ogoni people of Nigeria who were at the mercy of multinational oil companies that exploited their oil-rich land for profits.¹⁸¹ This is just one example of what happens when environmental violations go unpunished. With the express protection from the U.S. Constitution, cases like *Juliana* prove that protections against climate change are fundamental rights protected under the Constitution. As Judge Staton correctly stated in so many words, “the time is *now* for the Government to give its unwavering attention to stemming climate change.”¹⁸² The Ninth Circuit ruled erroneously. Climate activists await the Ninth Circuit’s reconsideration of *Juliana*. The time is right to expand the discussion for a U.S. framework on environmental constitutionalism. The U.S. Constitution already has the necessary provisions, and it will be up to us as law students, scholars, lawyers, advocates, and lawmakers to address the issue of climate change head on.

180. UNITED NATIONS ENV’T, *supra* note 1; Laura Westra, *Development and Environmental Racism: The Case Of Ken Saro-Wiwa And The Ogoni*, 6 RACE, GENDER, & CLASS 152, 155 (1998).

181. UNITED NATIONS ENV’T, *supra* note 1; *see* GOLDMAN ENV’T PRIZE, *supra* note 1 (providing a biography for Ken Saro-Wiwa).

182. *Juliana III*, 947 F.3d at 1191.