

Litigating Catastrophe

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Does litigation addressing catastrophes caused by climate change make society more or less fragile? As sea-level rise and wildfires threaten to cause enormous financial and social costs, related litigation presents unmatched concerns of over- and under-deterrence. In this Note, I examine litigation addressing two of climate change's greatest impacts: sea-level rise and wildfires. From these case studies, I distill three heuristics for assessing over- and under-deterrence concerns in the broader catastrophic risk context: (1) whether there is a regulatory scheme addressing the catastrophic risk, (2) whether the lawsuit is against the risk mitigator or the risk perpetrator, and (3) whether the lawsuit targets the ultimate cause of the risk. I posit that litigation makes society more robust in the face of catastrophic risk when there is no regulatory scheme to address the risk, the suit is against the risk perpetrator, and the suit targets the underlying cause of the risk. However, when the opposite conditions are in place, litigation likely does not reduce catastrophic risk. Instead, it may perniciously exacerbate it. The tort system should not just evolve by adding new liabilities; it should also evolve by subtracting.

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DOI: <https://doi.org/10.15779/Z38MK65918>

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* J.D., University of California, Berkeley, School of Law. I wish to thank Professor Seth Davis for fostering my interest in legal scholarship, helping me to brainstorm ideas, and remaining a kind mentor during the pandemic.

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INTRODUCTION

The gravest threats humanity faces are man-made. Our scientific and technological prowess has given us a global civilization with advantages our ancestors could not have imagined. But our progress has brought with it grave risks. Nuclear war, climate change, engineered plagues, and unaligned artificial intelligence pose dangerous odds of causing the extinction of humanity.¹

In contrast with existential risks, Nick Bostrom and Milan Ćirković refer to “global catastrophic risk[s]” as those that “might have the potential to inflict serious damage to human well-being on a global scale.”² Climate change is one such risk, and among its most pernicious effects are sea-level rise and exacerbated wildfires. For better or for worse, sea-level rise and wildfires are the subject of litigation. While some commentators have suggested that wildfire litigation may perversely lead to more destructive wildfires,³ no one has lodged similar complaints regarding sea-level rise litigation. Why? The complaint that liability makes things worse is probably as old as litigation itself. This story has been prominently told in the context of medical malpractice liability, with some commentators urging that liability may lead to defensive medicine, heightened costs, and worse outcomes for patients.⁴ I examine a similar conundrum here, though one that I believe has higher stakes: does civil liability make society more or less fragile in the face of catastrophic risks?

1. TOBY ORD, *THE PRECIPICE: EXISTENTIAL RISK AND THE FUTURE OF HUMANITY* 169 (2020).

2. Nick Bostrom & Milan M. Ćirković, *Introduction*, in *GLOBAL CATASTROPHIC RISKS* 1, 1 (Nick Bostrom & Milan M. Ćirković eds., 2008).

3. See, e.g., Elias Kohn, *Wildfire Litigation: Effects on Forest Management and Wildfire Emergency Response*, 48 ENV'T L. 585, 590 (2018) (arguing that prescribed burning, which can help prevent larger wildfires, is deterred by litigation under the Federal Tort Claims Act).

4. See, e.g., Daniel Kessler & Mark McClellan, *Do Doctors Practice Defensive Medicine?*, 111 Q.J. ECON. 353, 353 (1996) (concluding that malpractice tort reforms reduced defensive medicine and improved social welfare).

To gain a foothold on this problem, I focus on the catastrophic risk that climate change presents, looking specifically at two types of related litigation: sea-level rise and wildfire litigation. Though two case studies cannot provide a conclusive answer, they can distill some preliminary observations about when litigation exacerbates, and when litigation mitigates, catastrophic risk.

In Part I, I provide some background on catastrophic risks and the existing legal scholarship in this sphere. In Part II, I summarize the recent sea-level rise litigation brought by governmental entities against oil companies. In Part III, I detail two prominent species of wildfire litigation: suits brought against the federal government under the Federal Tort Claims Act and suits brought by the government against private parties.

In Part IV, I show how litigation concerning catastrophic risk engenders over- and under-deterrence concerns. The costs of under-deterrence conduct that causes or worsens a catastrophic risk are gargantuan; so, too, are the costs of over-deterrence conduct that mitigates the risk. I distill from the case studies three heuristics for assessing these over- and under-deterrence concerns in the catastrophic risk context: (1) whether there is a regulatory scheme addressing the risk, (2) whether the lawsuit is against the risk mitigator or the risk perpetrator, and (3) whether the lawsuit targets the ultimate cause of the risk.

In Part V, I analyze sea-level rise and wildfire litigation through the lens of these deterrence concerns, and I find that sea-level rise litigation likely makes society less fragile in the face of climate change. Unfortunately, some types of wildfire litigation likely have the opposite effect.

I conclude with a normative prescription: legislatures, courts, and litigants should carefully examine these deterrence concerns before seeking liability that could exacerbate global catastrophic risks. Liability in certain circumstances is indispensable. But in other contexts, it is grievously unwise.

I.

BACKGROUND: CLIMATE CHANGE AS CATASTROPHIC RISK

Toby Ord, a philosopher at Oxford University, has focused on humanity's long-term future and the risks that threaten to destroy our potential. In *The Precipice*, he argues that safeguarding our future is among the most pressing and neglected issues we face.⁵ Because Ord's thinking inspired this Note, a brief summary of his book is deserved.

Ord believes that humanity has recently arrived at a hazardous precipice: for the first time, our scientific and technological development threatens to destroy us. Whereas natural risks like asteroid impacts pose a microscopic risk of extinguishing humanity (less than a 1 in 2,000 risk per century),⁶

5. ORD, *supra* note 1, at 169.

6. After going through several possible methods of quantifying this risk, Ord concludes that "[t]he best-guess estimates range[] from 0.0001 to 0.05 percent per century." *See id.* at 87.

anthropogenic risks—especially nuclear war, climate change, engineered pandemics, and unaligned artificial intelligence—pose much higher odds of ending or permanently crippling humanity.⁷ Ord estimates these odds as 1 in 6 by the end of the century and 1 in 2 in the next half-millennium.⁸ Although this message sounds bleak, Ord’s focus is on achieving humanity’s long-term potential and he believes that navigating this treacherous path gives immense meaning to our time.⁹

This Note’s focus is on the risk posed by climate change. High levels of warming would be “a global calamity of unprecedented scale” and an “immense human tragedy, disproportionately impacting the most vulnerable populations.”¹⁰ But climate change very likely does not pose a direct existential risk to humanity.¹¹ According to Ord, the odds of climate change causing human extinction are very, very low—about 1 in 1,000 in the next hundred years.¹² Scientists have analyzed the extreme possibility that a “runaway greenhouse effect” could boil off the oceans, but the probability is thought to be miniscule.¹³ The worst aspect of climate change is that it may act as a risk-multiplier for other existential risks. For example, it may amplify geopolitical tensions, leading to nuclear war.¹⁴

Climate change is caused by greenhouse gas (GHG) emissions.¹⁵ GHGs like carbon dioxide and methane trap heat in the atmosphere.¹⁶ As humans burn fossil fuels, we add more of these molecules to the atmosphere, creating an increasingly stifling blanket. The overwhelming scientific consensus is that climate change will result in sea-level rise, wildfires, drought, extreme heat, increased tropical disease vectors, ocean acidification, and other serious harms.¹⁷ If that were not enough, there is also the possibility of “abrupt climate change”—global warming causing sudden shifts in the Earth’s ecosystem.¹⁸ Among the most startling mechanisms for this are the collapse of the Greenland and West

7. *Id.* at 169.

8. *Id.*

9. Ord dedicates his book, “To the hundred billion people before us, who fashioned our civilization; To the seven billion now alive, whose actions may determine its fate; To the trillions to come, whose existence lies in the balance.” *Id.*

10. *Id.*

11. *Id.* at 110.

12. *Id.* at 167.

13. *See id.* at 105. Ord makes clear, though, that this is not settled science and that more research is needed.

14. *See id.* at 103.

15. *See, e.g.,* Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1161–64 (2009) (explaining the greenhouse effect).

16. *See id.*

17. *See id.* at 1169.

18. Timothy M. Lenton, Hermann Held, Elmar Kriegler, Jim W. Hall, Wolfgang Lucht, Stefan Rahmstorf & Hans Joachim Schellnhuber, *Tipping Elements in the Earth’s Climate System*, 105 PROC. NAT’L ACAD. SCI. 1786, 1786 (2008); R. Henry Weaver & Douglas A. Kysar, *Courting Disaster: Climate Change and the Adjudication of Catastrophe*, 93 NOTRE DAME L. REV. 295, 305 (2017).

Antarctic ice sheets, the instability of the Gulf Stream, and the rapid dieback of tropical rainforests.¹⁹ The tail ends of the climate change risk curve are not well-defined, meaning that less likely and more severe climate scenarios are impossible to accurately predict and have a wide range of outcomes.²⁰ Richard Lazarus describes climate change as a “super wicked problem” because of the “enormous interdependencies, uncertainties, circularities, and conflicting stakeholders implicated by any effort to develop a solution.”²¹

Legal literature is virtually bereft of scholarship focusing on civilization-scale risks and tactics to ensure humanity’s long-term survival. However, scholars are beginning to offer solutions using disaster law. This field is based on the premise that “[t]he legal system plays a central role in disaster prevention, response, and management,” and its purpose is to formulate legal solutions to better prevent, respond to, and manage disasters.²² In defining disaster law, Professor Daniel Farber explains that “[t]he common conception of disaster focuses on events that are sudden, significant, and natural.”²³ However, nearly all “natural disasters” feature some human contribution.²⁴ He notes that the field does not have “sharp boundaries,” but “[w]hat most characterizes the field is the ‘circle of risk management’: a set of strategies including ‘mitigation, emergency response, compensation, and rebuilding.’”²⁵

The intersection of law and global catastrophic risk that is discussed in this Note might be described as a cousin of disaster law, because global catastrophes are orders of magnitude more destructive than disasters and may encompass numerous individual disasters. Humanity also usually plays a much larger causal

19. Weaver & Kysar, *supra* note 18, at 305.

20. Benjamin Ewing & Douglas A. Kysar, *Prods and Pleas: Limited Government in an Era of Unlimited Harm*, 121 YALE L.J. 350, 352 (2011).

21. Lazarus, *supra* note 15, at 1159.

22. See Daniel Farber, *Navigating the Intersection of Environmental Law and Disaster Law*, 2011 BYU L. REV. 1783, 1786 (2011).

23. *Id.* at 1787. See also DANIEL A. FARBER, JAMES MING CHEN, ROBERT R.M. VERCHICK & LISA GROW SUN, *DISASTER LAW AND POLICY* 3 (3rd ed. 2015) (focusing on “disasters triggered mainly by natural forces such as hurricanes, earthquakes, or wildfires”).

24. FARBER ET AL., *DISASTER LAW AND POLICY*, *supra* note 23, at 3–4.

25. Farber, *Navigating the Intersection of Environmental Law and Disaster Law*, *supra* note 22, at 1788.

role.²⁶ A few legal thinkers have begun to consider catastrophic and existential risks as “legal priorities,”²⁷ but much more work needs to be done.

We now turn to the problem of rising seas and the litigation it has spawned.

II.

SEA-LEVEL RISE

Climate change will cause seas to rise by somewhere between four and eight feet by the end of the century.²⁸ In *The Uninhabitable Earth*, David Wallace-Wells notes that damage to coastal areas caused by sea-level rise will cost between \$14 trillion and \$100 trillion *per year*.²⁹ Jakarta, Indonesia, one of the world’s fastest-growing cities and currently home to ten million people, could be entirely underwater by 2050 due to flooding and “literal sinking.”³⁰ Nearly two-thirds of the world’s major cities are on a coastline.³¹ If we do not halt emissions by 2100, as much as 5 percent of the world’s population will be flooded annually.³² The melt rate of the Antarctic ice sheet tripled in the last decade; from 2012 to 2017, it lost an average of 219 billion tons of ice per year.³³ The “damage mechanics” of rapid ice-shelf loss are new to us, making possible consequences a substantial unknown.³⁴ The four-to-eight-foot sea-level rise estimate may be a serious underestimation. Most of Bangladesh could be underwater, and the world may see hundreds of millions of climate refugees.³⁵ Flooding will not stop at the end of the century, so even in our rosy two degrees Celsius scenario, seas may ultimately rise by around twenty feet.³⁶

26. Professor Farber sometimes uses the term “catastrophic risk” in the context of disaster law, but he uses it more narrowly than I do. Here, I am concerned with *global* catastrophic risks. See Daniel A. Farber, *Introduction: The Role of Lawyers in a Disaster-Prone World*, 31 VILL. L. REV. 403, 404 (2007) (“Disaster law sometimes seems like an unrelated collection of legal rules of various kinds that happen to come into play when communities have suffered severe physical damage. But at a deeper level, disaster law is about assembling the best portfolio of legal rules to deal with catastrophic risks, a portfolio that includes strategies for prevention, emergency response, compensation and insurance, and rebuilding.”).

27. For example, the Legal Priorities Project (LPP), founded by researchers from Harvard University, aims to establish “legal priorities research” as a new field. *Research*, LEGAL PRIORITIES PROJECT, <https://www.legalpriorities.org/research.html> [<https://perma.cc/J6PE-85M2>] (last visited May 19, 2022). It is influenced by “long-termism”—a view in moral philosophy holding “that the primary determinant of the value of our actions today is how those actions affect the very long-term future.” *Id.* The LPP states that “interventions now could play a significant role in mitigating existential risks and ensuring a more positive long-term trajectory.” *Id.*

28. DAVID WALLACE-WELLS, *THE UNINHABITABLE EARTH: LIFE AFTER WARMING* 59–69 (2019).

29. *Id.* at 61.

30. *Id.* at 60.

31. *Id.* at 62.

32. *Id.* at 60.

33. *Id.* at 64.

34. *Id.*

35. *Id.* at 63.

36. *Id.*

A. *The Phenomenon*

Sea-level rise is caused by anthropogenic climate change.³⁷ Increasing GHG concentrations in the atmosphere lead to warmer air and warmer oceans. As the ocean warms, it undergoes thermal expansion.³⁸ Climate change also causes land-based ice sheets to melt, which flow into the ocean and increase sea levels.³⁹ Since the Industrial Revolution, the concentration of carbon dioxide in our atmosphere has risen from about 280 parts per million (ppm) to 412 ppm in 2019, causing Earth's climate to warm by about 1.8 degrees Celsius and sea levels to rise by about 23 centimeters.⁴⁰

Flooding and storm surges are natural phenomena, but climate change has and will continue to increase their magnitude and frequency.⁴¹ Although it is scientifically difficult to blame a discrete event on climate change, it is much easier to show causation when looking at many events in the aggregate. The overwhelming scientific consensus is that climate change will lead to larger and more frequent storm surges.⁴²

B. *Litigation*

There are several subspecies of sea-level rise lawsuits, but they tell a common story. According to the typical plaintiffs' allegations, fossil fuel companies have known since the mid-1960s that their products are very likely causing climate change.⁴³ Even so, they have pursued unchecked extraction and consumption of fossil fuel products.⁴⁴ Instead of informing the public about this danger, these companies engaged in a campaign of misinformation to sow doubt.⁴⁵ They paid think tanks, scientists, and politicians to spread information questioning whether climate change is happening at all, or if it is, to deny that it is human-caused.⁴⁶

Lawsuits brought by the cities of San Francisco and Oakland both name as defendants the "five largest investor-owned fossil fuel corporations in the world

37. *Is Sea Level Rising?*, NAT'L OCEAN SERV., <https://oceanservice.noaa.gov/facts/sealevel.html> [<https://perma.cc/SL9U-CQAV>] (last updated Dec. 10, 2021) ("The ocean is absorbing more than 90 percent of the increased atmospheric heat associated with emissions from human activity.").

38. *Id.*

39. *Id.*

40. ORD, *supra* note 1, at 103.

41. Storm surges are defined as the rising of the ocean above normal tide levels during a storm. *See* WALLACE-WELLS, *supra* note 28, at 62.

42. *Id.* Sea-level rise can also result in widespread salt intrusion into aquifers and wetlands loss. Farber, *Navigating the Intersection of Environmental Law and Disaster Law*, *supra* note 22, at 1804.

43. *See, e.g.*, Complaint at 34, *San Mateo v. Chevron Corp.* (Cal. Super. Ct. Jul. 17, 2017) (No. 17CIV03222) (stating that defendant gas and oil companies promoted fossil fuel products despite knowing the dangers associated with those products).

44. *See id.*

45. *See id.*

46. *See id.*

as measured by their historic production of fossil fuels.”⁴⁷ The big five are BP, Chevron, ConocoPhillips, ExxonMobil, and Royal Dutch Shell (collectively, the “Oil Majors”).⁴⁸ Plaintiffs allege that the Oil Majors have contributed around 11 percent of global fossil fuel product-related CO₂ emissions to the atmosphere since the Industrial Revolution.⁴⁹ And as a result of climate change, plaintiffs allege that coastal cities, counties, and states will suffer serious harms from the rising sea, including increased storm surges and severe flooding.⁵⁰

These lawsuits assert only public nuisance claims and seek abatement orders requiring the defendants to fund adaptation measures like the construction of seawalls and the elevation of low-lying property and buildings.⁵¹ They do not seek money damages. Rather, they are fundamentally about “shifting the costs of abating sea-level rise harm . . . back onto the companies.”⁵²

Two states, several major cities, and local governments across the country have also filed lawsuits against the Oil Majors.⁵³ While a few lawsuits simply allege violations of state consumer protection laws,⁵⁴ most resemble the San Francisco and Oakland lawsuits, but are broader. In addition to public nuisance claims, they allege private nuisance, negligence, strict liability, trespass, failure to warn, and design defect claims.⁵⁵ They also name as defendants many other companies engaged in the production and sale of coal, oil, and natural gas, in addition to the five Oil Majors.⁵⁶ Some suits seek to internalize the costs of other climate change impacts, including drought and wildfire.⁵⁷ Finally, these lawsuits request—along with abatement—disgorgement of profits, compensatory damages, and punitive damages.⁵⁸

These sea-level rise lawsuits are all in their early stages. Plaintiffs strategically brought most of the lawsuits in state courts, asserting only state common law claims, in an attempt to avoid “displacement” by the Clean Air

47. First Amended Complaint for Public Nuisance at 2, *City of San Francisco v. BP P.L.C.* (N.D. Cal. Apr. 3, 2018) (No. 3:17-cv-06012-WHA); First Amended Complaint for Public Nuisance at 2, *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017 (N.D. Cal. Apr. 3, 2018) (No. 3:17-cv-06011-WHA).

48. First Amended Complaint for Public Nuisance at 1, *City of San Francisco v. BP P.L.C.* (N.D. Cal. 2018) (No. 3:17-cv-06012-WHA).

49. *Id.* at 33.

50. *Id.* at 52.

51. *Id.* at 5, 58–61.

52. *Id.* at 5. See also Albert C. Lin & Michael Burger, *State Public Nuisance Claims and Climate Change Adaptation*, 36 PACE ENV'T L. REV. 49, 52 (2018).

53. Lin & Burger, *supra* note 52, at 50–53. See also *U.S. Climate Change Litigation Enforcement Cases*, SABIN CTR. CLIMATE CHANGE L., <http://climatecasechart.com/category/enforcement-cases/> [<https://perma.cc/W6CX-PJJK>] (last visited May 19, 2022).

54. See, e.g., *Complaint for Violations of the Vermont Consumer Protection Act* at 64–67, *Vermont v. ExxonMobil Corp.* (D. Vt. Sept. 14, 2021) (No. 2:21-cv-00260).

55. Lin & Burger, *supra* note 52, at 50–53.

56. *Id.* at 53.

57. See, e.g., *Complaint* at 34–40, *City of Santa Cruz v. Chevron Corp.* (Cal. Super. Ct. Dec. 20, 2017) (No. 17CV03243).

58. Lin & Burger, *supra* note 52, at 54.

Act.⁵⁹ The Oil Majors battled to remove these lawsuits from state to federal court on federal question jurisdiction grounds,⁶⁰ but the First, Fourth, Ninth, and Tenth Circuits rebuffed these attempts.⁶¹ However, New York City's suit was originally filed in federal court and suffered for it. The Second Circuit held that the suit fell under federal law and was displaced by the Clean Air Act, affirming dismissal.⁶²

A recent development took place on May 17, 2021, when the Supreme Court ruled in *BP v. Baltimore* that the City of Baltimore's suit was wrongly sent back to state court.⁶³ The Justices ruled 7-1 that the Fourth Circuit wrongly limited its scope of appellate review by only considering "federal officer removal" grounds on a remand order.⁶⁴ A week later, the Supreme Court vacated all of the circuits' decisions and remanded them back in light of the ruling.⁶⁵ At this point, a circuit split over whether these suits belong in state or federal court appears inevitable.⁶⁶

If they reach the merits, many commentators have prognosticated on the difficulties that sea-level rise plaintiffs will face. As Professor Douglas Kysar has noted,

Built as it is on a paradigm of harm in which *A* wrongfully, directly, and exclusively injures *B*, tort law seems fundamentally ill-equipped to address the causes and impacts of climate change: diffuse and disparate in origin, lagged and latticed in effect, anthropogenic greenhouse gas emissions represent the paradigmatic anti-tort, a collective action

59. *Id.* at 58. ("The Supreme Court directly addressed the availability of federal public nuisance as a means to address greenhouse gas emissions in *American Electric Power Co. v. Connecticut* ("*AEP*"). Led by Connecticut and several other states, the plaintiffs in *AEP* asserted public nuisance claims and sought injunctive relief against electric power companies collectively responsible for one-tenth of U.S. carbon dioxide emissions. The Court held such claims to be unavailable under federal law, explaining that 'the Clean Air Act and the EPA actions it authorizes displace any federal common-law right to seek abatement' of carbon emissions.") (citations omitted) (citing *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 418, 424–26 (2011)).

60. For example, in May 2020, the Ninth Circuit affirmed the district court to the extent it held there was no subject-matter jurisdiction under 28 U.S.C. § 1442(a)(1) (federal officer removal) and dismissed the remainder of the appeals for lack of jurisdiction under § 1447(d). *County of San Mateo v. Chevron Corp.*, 960 F.3d 586, 603 (9th Cir. 2020).

61. See Keith Goldberg, *High Court Inches Toward Resolving Climate Suits*, LAW360 (May 17, 2021). The San Francisco and Oakland complaints were originally dismissed by the district court, but the Ninth Circuit vacated the dismissals and remanded the suits to federal district court to determine if there is an alternative basis for subject-matter jurisdiction. If not, the Ninth Circuit held that the cases should be remanded back to state court. *City of Oakland v. BP P.L.C.*, 960 F.3d 570, 585–86 (9th Cir. 2020).

62. *City of New York v. Chevron Corp.*, 993 F.3d 81, 103 (2d Cir. 2021).

63. *BP P.L.C. v. Mayor and City Council of Baltimore*, 141 S. Ct. 1532, 1543 (2021).

64. *Id.* The federal officer removal statute, 28 U.S.C. § 1442, "promises a federal forum for any action against an 'officer (or any person acting under that officer) of the United States or of any agency thereof, in an official or individual capacity, for or relating to any act under color of such office.'" *Id.* at 1536 (citing 28 U.S.C. § 1442(a)(1)).

65. See, e.g., *Chevron Corp. v. San Mateo Cnty.*, 141 S. Ct. 2666, 2666 (Mem.) (2021).

66. See Goldberg, *supra* note 61.

problem so pervasive and so complicated as to render at once both all of us and none of us responsible.⁶⁷

III. WILDFIRES

In the San Francisco Bay Area on September 10, 2020, the midday sky was a burnt, post-apocalyptic orange.⁶⁸ Smoke from a wildfire in northern California had migrated south and winds kept it in the upper atmosphere, making residents feel like they were living in a dystopian novel. But some have fared much worse than Halloween skies and power shut-offs. I recently sat on a plane next to a man whose home was destroyed in the horrific Camp Fire of 2017. He told me that he lost friends in the blaze. In the aftermath of the fire, the man's marriage fell apart, and now he returns to "Paradise" once a month to see his kids. If we multiply this man's experience by thousands or millions, we can start to see the social costs of catastrophes.

Over the last fifty years, the wildfire season in the western United States has grown by two and a half months.⁶⁹ Wildfires now burn twice as much land, on average, as they did in 1970; by 2050, this figure is predicted to double again.⁷⁰ For every degree of warming, it could quadruple.⁷¹ Globally, between 260,000 and 600,000 people die just from wildfire *smoke* each year.⁷² Fires damage drinking water, lead to mudslides, and release tons upon tons of carbon.⁷³ Wildfires can "upend and turn violently against us everything we have ever thought to be stable . . . homes become weapons, roads become death traps, air becomes poison."⁷⁴

A. *The Phenomenon*

Wildfires are a complex phenomenon with multiple causes. They are naturally occurring, but climate change has and will continue to increase their severity and frequency.⁷⁵ Anyone who has experienced fire season firsthand

67. Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 ENV'T L. 1, 3–4, 9–10 (2011) ("At each stage of the traditional tort analysis—duty, breach, causation, and harm—the climate change plaintiff finds herself bumping up against doctrines that are premised on a classical liberal worldview in which threats such as global climate change simply do not register.")

68. Kelsey Rexroat, *The Day the San Francisco Sky Turned Orange*, NEW YORKER (Apr. 20, 2021), <https://www.newyorker.com/culture/video-dept/the-day-the-san-francisco-sky-turned-orange> [<https://perma.cc/QCV4-2L7B>].

69. WALLACE-WELLS, *supra* note 28, at 74.

70. *Id.*

71. *Id.*

72. *Id.* at 75.

73. *Id.* at 75–76.

74. *Id.* at 77.

75. See, e.g., Tania Schoennagel, Jennifer K. Balch, Hannah Brenkert-Smith, Philip E. Dennison, Brian J. Harvey, Meg A. Krawchuk, Nathan Mietkiewicz, Penelope Morgan, Max A. Moritz,

knows that intermittent rain throughout the summer months can be a lifesaver: if summers are hot and dry, forests are more likely to burn. Wildfires also create insidious positive feedback loops, because they release massive amounts of carbon into the air, causing more atmospheric warming and more wildfires.⁷⁶

Land management policies can also exacerbate wildfires.⁷⁷ For much of the 20th century, the U.S. Forest Service (USFS) engaged in a policy of adamant suppression, extinguishing fires as quickly as possible.⁷⁸ The Smokey the Bear campaign admonished people to do their best to prevent wildfires, and if fires were started, the Forest Service's "10 a.m. policy" sought to extinguish them by 10 a.m. the following morning.⁷⁹ Suppression greatly reduced fires, but it also let dead trees accumulate to unnaturally high levels.⁸⁰ When a fire inevitably started, it raged with the help of the extra fuel. This policy likely led to larger and more destructive fires.⁸¹

In the late twentieth century, policymakers and agency employees started to spot the problems with suppression.⁸² The Forest Service began letting fires burn rather than snuffing them out as quickly as possible.⁸³ Although fire suppression is still the dominant policy in fire management today, a growing consensus realizes that fire must be reintroduced to landscapes.⁸⁴ One way to do this is through prescribed burning,⁸⁵ because smaller, controlled fires are generally preferable to massive, unplanned ones. By reducing the risk of large

Ray Rasker, Monica G. Turner & Cathy Whitlock, *Adapt to More Wildfire in Western North American Forests as Climate Changes*, 114 PROC. NAT'L ACAD. SCI. 4582, 4583 (2017) ("Three primary factors have produced gradual but significant change across western North American landscapes in recent decades: the warming and drying climate, the build-up of fuels, and the expansion of the wildland-urban interface.").

76. WALLACE-WELLS, *supra* note 28, at 76.

77. Kohn, *supra* note 3, at 590.

78. Kirsten H. Engel, *Perverse Incentives: The Case of Wildfire Smoke Regulation*, 40 ECOLOGY L. Q. 623, 629–30 (2013).

79. Robert B. Keiter, *The Law of Fire: Reshaping Public Land Policy in an Era of Ecology and Litigation*, 36 ENV'T L. 301, 307 (2006).

80. Kohn, *supra* note 3, at 590.

81. Dominick A. DellaSala, Bryant C. Baker, Chad T. Hanson, Luke Ruediger & William Baker, *Have Western USA Fire Suppression and Megafire Active Management Approaches Become a Contemporary Sisyphus?*, 268 BIOLOGICAL CONSERVATION 1, 2 (Mar. 3, 2022) ("[S]uppression activities can result in greater fire extent, exaggerated fire severity, lack of burn refugia . . . and damage to both soil and aquatic systems . . .") (citing D.M. Backer, S.E. Jensen & G.R. McPherson, *Impacts of Fire-Suppression Activities on Natural Communities*, 18 CONSERVATION BIOLOGY 937, 937–46 (2004)).

82. STEPHEN J. PYNE, *FIRE IN AMERICA* 290–94 (1982); Kohn, *supra* note 3, at 591.

83. Kohn, *supra* note 3, at 591.

84. *Id.*

85. See *Prescribed Fire*, FOREST SERV. U.S. DEP'T AGRIC., <https://www.fs.usda.gov/managing-land/prescribed-fire> [<https://perma.cc/45U6-7D8G>]. Prescribed burning is also used to fight active wildfires. For example, wildland firefighters will create a fire line and then light prescribed fires into the wildfire to stop the wildfire from moving beyond that fire line. *Id.*

fires, prescribed burning can “address the legacy of fire suppression and the growing challenges of climate change.”⁸⁶

Prescribed burning, however, is not a panacea because prescribed burns can, and do, escape control. Land managers are thus tasked with a delicate balancing act: “[a] sufficient amount of fire will restore forest habitat, replicate disturbance regimes, and promote forest health . . . [but] any reintroduction poses the risk of conflagrating into an uncontrollable fire.”⁸⁷

The U.S. Forest Service is also obligated to suppress some forest fires near housing, which makes prescribed burning even more difficult. Presently, over thirty percent of America’s housing exists in the “Wildland-Urban Interface” (WUI).⁸⁸ Suppression policies helped facilitate this development by assuring people that the Forest Service would act quickly and that it was still obligated to put out fires in the WUI to protect human life and prevent property damage.⁸⁹ With more private property adjacent to public forests and denser populations, the human and financial costs of wildfire are steadily increasing.⁹⁰

B. Litigation

Unlike sea-level rise litigation, which aims to preempt climate change harms *ex ante*, wildfire litigation most often seeks compensation for damage *ex post*. And whereas sea-level rise litigation is explicitly concerned with climate change, wildfire litigation is not. However, wildfire litigation is tied to climate change whether it says so or not. Climate change exacerbates wildfires, and exacerbated wildfires cause more climate change.

Wildfire litigation comes in three main flavors: private parties suing the federal government, the federal government suing private parties, and private parties suing private parties.⁹¹ (The third category is beyond the scope of this Note.) The first category consists mostly of claims brought against the USFS under the Federal Tort Claims Act (FTCA).⁹² Private parties can also sue the federal government for takings under the Fifth Amendment,⁹³ for unreasonable delay under the Administrative Procedure Act (APA) in carrying out a forest

86. Kohn, *supra* note 3, at 591. See Jonathan Yoder, David Engle & Sam Fuhlendorf, *Liability, Incentives, and Prescribed Fire for Ecosystem Management*, 2 FRONTIERS ECOLOGY & ENV’T 361, 361 (2004).

87. Kohn, *supra* note 3, at 591–92.

88. *Id.*

89. *Id.*

90. *Id.*

91. See generally *id.* (discussing the various types of wildfire litigation).

92. See *id.* at 594.

93. Courts have consistently dismissed Fifth Amendment takings claims for property damage based on federal mismanagement of wildfires. See Drew Robertson & Alec Williams, *We’re Falling into a Ring of Fire: Taking Stock of Wildfire Liability Regimes from Varying Perspectives in the United States*, GEO. ENV’T L. REV. ONLINE (2021) <https://www.law.georgetown.edu/environmental-law-review/blog/were-falling-into-a-ring-of-fire-taking-stock-of-wildfire-liability-regimes-from-varying-perspectives-in-the-united-states/> [<https://perma.cc/T89J-5ERL>].

management project,⁹⁴ or under environmental statutes like the Endangered Species Act (ESA).⁹⁵ Private parties have also directly sued wildland firefighters for negligence, though this has mostly been phased out.⁹⁶ This Note will focus primarily on FTCA claims because they are the main source of governmental liability for wildfires. It will also touch on the second category of wildfire litigation—Department of Justice (DOJ) suits against private parties.

1. FTCA Liability

Under the FTCA, the United States is liable for the negligent acts of its employees to the same extent a private individual would be under state law.⁹⁷ However, in wildfire cases, the federal government is typically able to establish a “discretionary function” defense: the government is not liable for its employees’ negligent actions if the claim is “based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty . . . whether or not the discretion involved be abused.”⁹⁸ The principle underlying the discretionary function defense is that the government should not be liable for “acts of a governmental nature or function.”⁹⁹ Courts have employed a two-part test from *Berkovitz v. United States* to determine if actions are discretionary functions.¹⁰⁰ The *Berkovitz* test asks (1) if the challenged action involved a choice, and (2) if the choice was a public policy decision.¹⁰¹

This exception generally shields the Forest Service from negligence liability when *suppressing* active wildfires.¹⁰² Under the *Berkovitz* test, rapid decisions when fighting an active fire almost always involve step one “choices.” However, some courts have found the discretionary function shield is pierced

94. For example, the Governor of South Dakota’s unreasonable delay claim expedited harvesting dead trees to reduce fire danger. *See* *Rounds v. United States Forest Serv.*, 301 F. Supp. 2d 1287, 1297 (D. Wyo. 2004). *But see* *Mountain States Legal Found. v. Glickman*, 92 F.3d 1228, 1229 (D.C. Cir. 1996) (rejecting earlier litigation seeking to increase logging in the Kootenai National Forest to protect against potentially destructive wildfires). *See also* Keiter, *supra* note 79, at 342.

95. *See* Keiter, *supra* note 79, at 332, 336.

96. Kohn, *supra* note 3, at 605.

97. 28 U.S.C. § 1346(b). This provision authorizes suits against the United States for damages for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.

Id. *See also id.* § 2674 (providing that “[t]he United States shall be liable . . . [for tort claims] in the same manner and to the same extent as a private individual under like circumstances”).

98. 28 U.S.C. § 2680(a).

99. *Dalehite v. United States*, 346 U.S. 15, 27–28 (1953) (criticized by *Rayonier Inc. v. United States*, 352 U.S. 315, 317–319 (1957)).

100. *Berkovitz v. United States*, 486 U.S. 531, 536–37 (1988).

101. *Id.*

102. *See, e.g., Miller v. United States*, 163 F.3d 591, 595 (9th Cir. 1998). Courts have also found the exception to apply when the Forest Service allows active fires to keep burning. *See* Kohn, *supra* note 3, at 595.

when the Forest Service ignites a *prescribed burn* for preventative purposes¹⁰³ or fails to communicate suppression efforts to the public while using a prescribed burn.¹⁰⁴

Under the *Berkovitz* test, prescribed burns are more susceptible to FTCA litigation than other wildfires. Forest Service policies reduce a decisionmaker's "choices" when lighting a prescribed burn, making the decisions less discretionary, and thus, less eligible for a discretionary function defense.¹⁰⁵ There is a growing body of case law in the Ninth Circuit distinguishing the use of prescribed burning to prevent a future wildfire from suppressing an active, "natural" one.¹⁰⁶ In Robert Keiter's words, "The lesson is evident: [f]ederal controlled burning projects that go awry will trigger more rigorous judicial scrutiny than other fire management decisions involving naturally ignited blazes."¹⁰⁷

This distinction creates perverse incentives. As Elias Kohn notes, it deters preventative fire management by restricting the use of prescribed burning, which is a primary tool to mitigate wildfire damage.¹⁰⁸ Moreover, Forest Service policies aiming to improve the safety of prescribed burns should lead to less liability, not more. One of the goals of the *Berkovitz* test—to reduce "judicial second-guessing" of agency decisions—has failed with regard to prescribed burning.¹⁰⁹

Kohn opines that "the current litigation model may exacerbate some of the underlying causes of wildfires by deterring preventative fire management."¹¹⁰ As fire suppression is one root cause of the damaging wildfires endured today, continuing to favor fire suppression will exacerbate future fires.¹¹¹ In the same vein, Keiter states, "[I]t is gospel that the current fire crisis is fueled by too

103. See, e.g., *Fla. Dep't Agric. & Consumer Servs. v. United States*, No. 4:09-CV-00386, 2010 WL 3469353 (N.D. Fla. Aug. 30, 2010) (holding that a failure to adequately perform the Burn Plan, and a "significant deviation" from the plan, did not warrant judicial deference over a policy decision under *Berkovitz* step two); *Anderson v. United States*, 55 F.3d 1379 (9th Cir. 1995) (finding the Forest Service negligent when it intentionally set a controlled burn and then lost control of it, destroying a nearby residential neighborhood).

104. See *Green v. United States*, 630 F.3d 1245, 1250–52 (holding that the failure to notify property owners and other firefighters fell outside the exception because it was not "susceptible to policy analysis").

105. Kohn illustrates with the following example: guidelines specify the factors that a burn boss must consider, multiple factors usually dictate whether a burn should occur on a specific day, and the Prescribed Burn Approval Act of 2016 prohibits authorizing a prescribed burn when the national fire danger rating system indicates an extreme fire danger level. Kohn, *supra* note 3, at 597.

106. See, e.g., *Anderson*, 55 F.3d at 1384 (holding the Forest Service liable under the FTCA and noting that the prescribed burn was not used to fight an active wildfire).

107. See Keiter, *supra* note 79, at 354.

108. Kohn, *supra* note 3, at 597–98.

109. See *United States v. Gaubert*, 499 U.S. 315, 323 (1991).

110. Kohn, *supra* note 3, at 585.

111. *Id.* at 598.

much—not too little—law and litigation.”¹¹² If litigation deters preventative fire management and worsens wildfires, it also worsens climate change.

2. DOJ Suits

Out of one side of its mouth, the Government invokes the discretionary function exception to try to achieve complete immunity for its own negligence stemming from wildfires. Out of the other side, the Government has pushed for much larger civil and criminal penalties in wildfire suits against private parties.¹¹³

In 2009, the Department of Justice (DOJ) sought an award of \$790 million in *United States v. Sierra Pacific Industries, Inc.*¹¹⁴ The parties agreed to a settlement requiring the logging company to pay \$7 million and Sierra Pacific Industries to pay \$47 million and convey 22,500 acres directly to the government. And in *United States v. Union Pacific Railroad Co.*, the Forest Service achieved its largest recovery ever when a railroad sparked a fire in northern California and agreed to settle for \$102 million.¹¹⁵ The DOJ achieved such grand sums—six to seven times the fair market value¹¹⁶—by making novel damages arguments that negligent companies should compensate the public for their deprivation of future access and enjoyment of “pristine forests.”¹¹⁷

Increased damages could theoretically encourage private parties to take more precautions, which could reduce human-ignited wildfires.¹¹⁸ But in the event that the U.S. Forest Service ignites a prescribed burn that escapes control, plaintiffs can now rely on this precedent showing enormous damages calculations. Such inflation of damages could further disincentivize preventative prescribed burns.¹¹⁹

112. Keiter, *supra* note 79, at 304.

113. See Charles H. Oldham, *Wildfire Liability and the Federal Government: A Double-Edged Sword*, 48 ARIZ. STATE L.J. 205, 220 (2016) (“The federal government has influenced this increase in liability on both sides of the ledger.”).

114. *United States v. Sierra Pac. Indus.*, 100 F. Supp. 3d 948, 953 (E.D. Cal. 2015). The Federal Government sued the property owner, the logging company, and the contractor when logging equipment started a fire on private property, which eventually burned 46,000 acres of the Plumas National Forest in California. *Id.* See also Kohn, *supra* note 3, at 601.

115. *United States v. Union Pac. R.R. Co.*, 565 F. Supp. 2d 1136 (E.D. Cal. 2008). The United States alleged that Union Pacific Railroad Company employees started a fire while conducting repairs and that the employees failed to take necessary precautions to prevent the fire. *Id.* See also Kohn, *supra* note 3, at 601; Press Release, McGregor W. Scott, U.S. Dep’t Just. E. Dist. Cal., Largest Settlement Ever in a Forest Fire Case (July 22, 2008), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5305710.pdf [<https://perma.cc/VU9C-FUPS>].

116. *Wildfire Liability Factsheet*, CAL. FORESTRY ASS’N (June 2012), <https://www.co.mendocino.ca.us/bos/meetings/MG23300/AS23331/AI23510/DO23516/1.PDF> [<https://perma.cc/BB22-VJDV>].

117. Kohn, *supra* note 3, at 601.

118. See *id.* at 602.

119. See *id.*

IV.

DETERRENCE CONCERNS AND HEURISTICS

As global catastrophic risks threaten supermassive financial and social costs, related litigation engenders unmatched concerns of over- and under-deterrence. As the stakes of catastrophic risk are orders of magnitude greater than average, this makes any efficiency analysis in this risk context unique and weighty.

From the sea-level rise and wildfire case studies, we can elucidate three heuristics for legislatures, courts, and litigants to consider when assessing these peerless over- and under-deterrence concerns and determining if liability should be imposed—or even attempted. These heuristics are non-exhaustive; their purpose is to get at the underlying deterrence concerns.

First, is there a regulatory scheme that is attempting to mitigate the risk, or is there a government failure to address the risk? When there is a government failure to cognize a risk, the prospect of under-deterrence conduct that creates or exacerbates the risk is enormous. Here, liability has the potential to reduce externalities and shine light on the risk.

Second, is the lawsuit directed against the party attempting to mitigate the risk or at the party creating or exacerbating it? If the suit is against the risk mitigator—often the government—the possibility of deterring preventative or responsive measures is of chief concern. Mitigating risks can often be risky and will sometimes go awry and hurt third parties, so courts may think it wise to deter negligent risk management. However, it is extremely difficult to create a perfectly calibrated deterrent, and if there is a possibility that liability may deter risk mitigation, it is likely unwise to impose that liability. Conversely, if the suit is directed at the risk perpetrator, this concern vanishes.

Third, is the suit aimed at the ultimate cause of the risk? If a plaintiff lasers-in on the underlying cause, this greatly reduces over- and under-deterrence concerns. There is a higher likelihood that liability will hit the correct target and a lower likelihood that it will harm mitigation efforts.

As I will discuss throughout this Section, litigation likely makes society less fragile in the face of catastrophic risk when there is a government failure to address the risk, the suit is against the “risk perpetrator,” and the suit targets the ultimate cause of the risk. These factors suggest that the litigation has high upsides and low downsides. Inversely, litigation likely makes society more fragile in the face of catastrophic risk when there is a regulatory regime addressing the risk, the lawsuit is against the “risk mitigator,” and the suit does not focus on the underlying cause. If these factors are present, enormous overdeterrence risks—or the high costs of delay or distraction—likely far outweigh potential gains from litigation, and their presence should put a heavy thumb on the scale against liability.

Importantly, we reach this same destination when we take different methodological routes. For example, fans of law and economics may believe that

“[t]he basic tool for analysing efficient policy towards catastrophe is cost-benefit analysis.”¹²⁰ They can recognize the extreme costs that imperfect deterrence may engender in the catastrophic risk context.¹²¹ Others may be more inclined to take the precautionary approach embodied in many U.S. environmental statutes.¹²² Such precautionary people, in their efforts to mitigate a catastrophe like climate change, should be concerned about liability impeding this effort.

A. *Government Failure v. Regulatory Scheme*

In assessing whether litigation makes society more resilient in the face of a catastrophic risk, the first factor we must consider is whether or not there is a regulatory apparatus cognizing the risk. If there is a regulatory scheme, suing the government could seriously hamper risk mitigation. But if there is a government failure, the prospect of under-detering risk creation should be of great weight. In this event, litigation has big upside potential with little downside.

Comparing wildfire litigation to sea-level rise litigation can illustrate the difference. There is a complex regulatory apparatus to prevent and respond to wildfires. The legal framework governing wildfires on public lands is “an amalgam” of statutory provisions, site-specific legislation, environmental laws, state laws, and court cases.¹²³ In comparison, the United States has no legal framework to deal with climate change generally or sea-level rise specifically. Even after the Supreme Court found GHGs to be an “air pollutant” under the Clean Air Act in *Massachusetts v. EPA*,¹²⁴ and the EPA issued an “Endangerment Finding” for GHGs a couple years later,¹²⁵ regulation has been piecemeal. It is fair to categorize this inaction as government failure.

This Section will focus on government failure to mitigate a catastrophic risk as illustrated by the sea-level rise litigation. The next Section will showcase the potential and actual costs of suing the government when there is a regulatory scheme addressing a catastrophic risk and the government is the chief risk mitigator. Although the existence of a regulatory scheme and suing the risk mitigator often go together, this is not always the case and the concepts are distinct.¹²⁶

120. See Richard A. Posner, *Public Policy Towards Catastrophe*, in GLOBAL CATASTROPHIC RISKS 184, 185 (Nick Bostrom & Milan M. Ćirković eds., 2008).

121. See GUIDO CALABRESI, THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS 26–29 (1970).

122. See Farber, *Navigating the Intersection of Environmental Law and Disaster Law*, *supra* note 22.

123. Keiter, *supra* note 79, at 322.

124. *Massachusetts v. EPA*, 549 U.S. 497, 528–532 (2007).

125. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (2009).

126. As we see from the DOJ suits against utility companies and railroads, even when the chief risk mitigator is not being sued (it is doing the suing!), it can still result in adverse outcomes.

1. *First-Order Effects of Litigation When the Government Fails to Act: Cost-Internalization*

As the market does not account for the costs of sea-level rise and the government has failed to mitigate this risk for coastal communities, the costs of sea-level rise are externalities.¹²⁷ The primary first-order effect of sea-level rise litigation would be cost-internalization to make coastal communities more resilient to sea-level rise.

Using litigation to internalize the costs of risk mitigation when a government failure has allowed a catastrophic risk to spiral powerfully reduces societal fragility.¹²⁸ Efficiently allocating the costs of mitigating a catastrophic risk is obviously preferable to no one bearing its costs. In future risk mitigation litigation, cost internalization is likely to be a common goal. After all, man-made risks only threaten catastrophe when the government fails to prevent their buildup and companies do not self-regulate. In general, cost internalization reduces risk and makes society more resilient.

But who should bear the cost? It is economically efficient to allocate the cost to the risk-creator because they are in the best position to understand the potential risks of an activity and to act based on that knowledge.¹²⁹ Where there may be uncertainty about costs and benefits, a basic principle of law and economics counsels putting liability upon the party that can avoid the harm at the lowest cost. This principle, the cheapest cost avoider principle, was developed by Judge Guido Calabresi and Jon Hirschoff in the context of strict liability, and “does not require that a governmental institution make [the] cost-benefit analysis.”¹³⁰ Instead, “[t]he question for the court reduces to a search for the cheapest cost avoider,” that is, the party that “is in the best position to make the cost-benefit analysis between accident costs and accident avoidance costs and to act on that decision once it is made.”¹³¹

127. Brief of Legal Scholars as Amici Curiae in Support of Plaintiffs-Appellants at 11–12, *City of Oakland v. BP P.L.C.*, 960 F.3d 570 (9th Cir. 2020) (No. 18-16663).

128. Although I argue in favor of this type of litigation, it is obviously no panacea. Litigation in the United States can only move the ball so far. Moreover, the vast majority of oil is controlled by foreign states, which are shielded from suit by sovereign immunity. See Ian Bremmer, *The Long Shadow of the Visible Hand*, WALL ST. J. (May 22, 2010), [https://www.wsj.com/articles/SB10001424052748704852004575258541875590852#:~:text=Collectively%2C%20multinational%20oil%20companies%20produce,of%20all%20crude%20oil%20production \[https://perma.cc/5CPF-8LX5\]](https://www.wsj.com/articles/SB10001424052748704852004575258541875590852#:~:text=Collectively%2C%20multinational%20oil%20companies%20produce,of%20all%20crude%20oil%20production [https://perma.cc/5CPF-8LX5]). See also the Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1603–1604.

129. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1096–97 (1972).

130. Jon T. Hirschoff & Guido Calabresi, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055, 1060 (1972).

131. *Id.* (emphasis omitted). See also A. Bryan Endres & Lisa Schlessinger, *Pollen Drift: Reframing the Biotechnology Liability Debate*, 118 PENN STATE L. REV. 815, 850 (2014) (“[T]he least-cost avoider test is more efficient than waiting for a full cost-benefit analysis by the courts”); *Union Oil Co. v. Oppen*, 501 F.2d 558, 569 (9th Cir. 1974) (“[T]his approach requires the court to fix the

In the sea-level rise litigation, plaintiffs are attempting to shift some of the costs of sea-level rise to the Oil Majors. These corporations are the best cost-avoiders and are in the best position to do the cost-benefit analysis, because they “have an enormous amount of resources with which they can purchase the expertise needed to assess the often conflicting information about climate change and its expected costs.”¹³²

First, and most obviously, the Oil Majors have “better information about the risks of fossil fuel use,” information that, according to the complaints, they “deliberately suppressed from the public.”¹³³ Second, the victims of climate change are not in a good position to avoid the harms or to insure themselves against it. According to the City of Oakland’s Complaint, those most likely to be affected by climate change in the City are “‘socially vulnerable’ individuals such as African Americans, Hispanics and other people of color [who] tend to live at lower elevations most affected by sea level rise and higher storm surges.”¹³⁴ As the “magnitude of the actions needed to abate harms from sea level rise and the amount of property at risk [increase with] rapidly accelerating sea level rise,” cities will face increasingly costly adaptation needs.¹³⁵

Third, Defendants can “spread costs to shareholders or consumers,” and they face lower administrative and transaction costs than the potential victims of climate change, who face collective action barriers to pooling resources and paying Defendants to reduce fossil fuel production.¹³⁶ And, fourth, when the costs fall upon the public, “governments will have little choice but to step in, leaving market deterrence unavailable.”¹³⁷ Given resource constraints, however, underinvestment in adaptation measures is likely if the costs are borne entirely by local governments.¹³⁸ In the parlance of Nassim Taleb, forcing Oil Majors to bear some of the costs of sea-level rise would put their “skin in the game,”

identity of the party who can avoid the costs most cheaply. Once fixed, this determination then controls liability.”).

132. Eduardo M. Peñalver, *Acts of God or Toxic Torts? Applying Tort Principles to the Problem of Climate Change*, 38 NAT. RES. J. 563, 573 (1998).

133. Brief of Legal Scholars as Amici Curiae in Support of Plaintiffs-Appellants at 17, *City of Oakland v. BP P.L.C.*, 960 F.3d 570 (9th Cir. 2020) (No. 18-16663).

134. First Amended Complaint for Public Nuisance at ¶ 135, *City of Oakland v. BP P.L.C.*, 325 F. Supp. 3d 1017 (N.D. Cal. Apr. 3, 2018) (No. 3:17-cv-06011-WHA).

135. *Id.* ¶ 131.

136. See Daniel A. Farber, *Adapting to Climate Change: Who Should Pay*, 23 J. LAND USE 1, 30 (2007).

137. Brief of Legal Scholars as Amici Curiae in Support of Plaintiffs-Appellants at 18, *City of Oakland v. BP P.L.C.*, 960 F.3d 570 (9th Cir. 2020) (No. 18-16663) (quoting Jonathan Zasloff, *The Judicial Carbon Tax: Reconstructing Public Nuisance and Climate Change*, 55 UCLA L. REV. 1827, 1835 (2008)).

138. Cf. First Amended Complaint for Public Nuisance at ¶ 134, *City of San Francisco v. BP P.L.C.* (N.D. Cal. Apr. 3, 2018) (No. 3:17-cv-06012-WHA) (explaining that cities need to invest now in long-term “planning, financing, and implementation” so that “abatement of ongoing and future sea-level rise harms is done most efficiently”).

providing economic incentives to reduce the harmful effects of their products and innovate in clean technology.¹³⁹

If we examine this litigation with our cost-benefit analysis goggles on, the benefits of sea-level rise litigation appear quite high and the downsides look low. Unlike litigation against vaccine manufacturers during the pandemic, where lawsuits could slow down companies trying to produce lifesaving technologies during a crisis, here, the oil companies are not rushing to fill an *extremely* exigent societal demand.¹⁴⁰ Nor would Oil Majors' losses prevent them from producing novel clean energy technologies. We could imagine one possible downside: if litigation is massively successful, it could bankrupt Oil Majors and increase the price of fossil fuels. However, bankruptcy from liability is unlikely, as these companies would rationally prefer a global settlement. At the end of the day, sea-level rise litigation seeking to internalize costs when the government has failed to regulate is likely for the good.

2. *Second-Order Effects of Litigation When the Government Fails to Act: Social and Policy Salience*

When there is a government failure to address catastrophic risks, litigation can have important second-order effects. In the short-term, it can amplify the diagnosis of the risk by making it politically and culturally salient. The fact that lawsuits can take many years from start to finish is a virtue here because it keeps public attention and pressure on the given problem for much longer than a news cycle.

In the longer-term, litigation can influence public policy debates and spur institutional change.¹⁴¹ Litigation can influence legislators and executive branch officials, which can result in new laws and regulations. Importantly, such legislative change does not require the suit to succeed; merely bringing it can catalyze legal change. Professors Benjamin Ewing and Douglas Kysar explain

139. See NASSIM NICHOLAS TALEB, *ANTIFRAGILE: THINGS THAT GAIN FROM DISORDER* 6 (2012).

140. See, e.g., Ian Lopez & Jacquie Lee, *J&J Vaccine Liability Shield a Boon Despite Rare Blood Clots (I)*, BLOOMBERG L. (Apr. 14, 2021), https://www.bloomberglaw.com/bloomberglawnews/health-law-and-business/X30LU55000000?bna_news_filter=health-law-and-business#jcite [<https://perma.cc/8ZA8-T3AC>] (“Covid-19 vaccine makers are shielded from liability for adverse effects on recipients, and attorneys say the protections are a boon for medical innovation that’s critical to combating the pandemic.”).

141. See Anne Bloom, *The Radiating Effects of Torts*, 62 DEPAUL L. REV. 229, 241 (2013) (“[T]he normative messages articulated in tort law have also found a receptive audience in key institutional actors, such as Congress and federal regulators. Moreover, in the tobacco context, the significant changes in public opinion, which took place at about the same time, evidence more widespread enculturation of the messages generated by the litigation. Ultimately, these changes in cultural values seem to have prompted a fundamental reordering of power.”).

that branches of government can “prod and plead” to influence each other.¹⁴² When litigating in the realm of catastrophic risks, even a dismissal on justiciability grounds may serve as a “plead”—catalyzing legislative or executive action.¹⁴³

The sea-level rise litigation has garnered significant media attention for the past few years as prominent cities, counties, and states have brought suits.¹⁴⁴ Word has made its way to Congress, as evidenced by six Senators writing an amicus brief to the U.S. Supreme Court in *BP v. Baltimore*.¹⁴⁵ In addition, although pure conjecture, this wave of litigation may have made the Oil Majors more receptive to a carbon tax. Exxon, BP, Shell, and other fossil fuel companies have recently given public support to the Climate Leadership Council’s carbon tax plan.¹⁴⁶ Then again, perhaps this had nothing to do with the threat of massive liability. In sum, litigation can shine a spotlight on catastrophic risks, and those who have obfuscated their creation, prompting public and governmental response.

In the absence of government regulation, catastrophic risk litigation can reduce externalities and add public pressure. Next, we turn to who is on the wrong side of the “v.”

B. *Suing the Risk Mitigator v. Risk Creator*

Hippocrates admonishes physicians to “first, do no harm.”¹⁴⁷ A common idiom instructs us not to bite the hand that feeds us. In the catastrophic risk litigation context, the analogous principle may be (albeit less catchy), “suing the risk mitigator may over-deter mitigation.” If a lawsuit is directed at the party creating or exacerbating the risk, this concern is eliminated.

142. Ewing & Kysar, *supra* note 20, at 350 (“Not just a system of checks and balances ideally tuned to constrain collective political action, the constitutional division of authority also may be seen as a system of ‘prods and pleas’ in which distinct governmental branches and actors can push each other to entertain collective political action when necessary.”).

143. *See id.* at 358.

144. *See, e.g.*, John Schwartz, *Climate Lawsuits, Once Limited to the Coasts, Jump Inland*, N.Y. TIMES (Apr. 18, 2018), <https://www.nytimes.com/2018/04/18/climate/exxon-climate-lawsuit-colorado.html?searchResultPosition=2> [<https://perma.cc/U9YD-85Y4>]; Justin Gundlach & Linda Kelly, *Should Fossil-Fuel Companies Bear Responsibility for the Damage Their Products Do to the Environment?*, WALL ST. J. (Nov. 19, 2019), <https://www.wsj.com/articles/should-fossil-fuel-companies-bear-responsibility-for-the-damage-their-products-do-to-the-environment-11574190219?page=2> [<https://perma.cc/GY3X-VPRH>].

145. *See* Brief of Amici Curiae Senators Whitehouse, Cardin, Blumenthal, Warren, Markey, and Van Hollen in Support of Respondent, *BP P.L.C. v. Mayor and City Council of Baltimore*, 141 S. Ct. 1532 (2021) (No. 19-1189).

146. *Organizational Partners*, CLIMATE LEADERSHIP COUNCIL, <https://clcouncil.org/founding-members/> [<https://perma.cc/RP5K-Q8PB>] (last visited May 19, 2022).

147. Robert H. Shmerling, *First, Do No Harm*, HARV. HEALTH PUBL’G. (June 22, 2020), <https://www.health.harvard.edu/blog/first-do-no-harm-201510138421> [<https://perma.cc/H35A-MBTE>].

The sea-level rise litigation is directed at fossil fuel companies, primarily those who allegedly spent decades attempting to deceive the public about the causal connection between their products and climate change. *Marin v. Chevron* and other recent suits recall the misinformation campaign perpetrated by the fossil fuel industry in gruesome detail.¹⁴⁸ Plaintiffs state that the industry has been aware that fossil fuels contribute to climate change since at least 1965.¹⁴⁹ In following years, fossil fuel companies commissioned their own studies that largely confirmed this conclusion.¹⁵⁰ However, these companies did not take any steps to warn people of this danger, to make their products safer, or to moderate fossil fuel production and consumption.¹⁵¹ Instead, they actively sought to obfuscate the truth. Companies spent extravagant sums on lobbying groups that spread false information—Exxon spent \$31 million from 1998 to 2014 to fund lobbying groups that distributed misinformation.¹⁵² Distorting the marketplace of ideas and obscuring the truth may have delayed national and global action by decades, and the resulting deaths will be measured in the millions. In the words of the plaintiff, Marin County, “Defendants’ conduct was so vile, base, and contemptible that it would be looked down upon and despised by reasonable people”¹⁵³ The Oil Majors allegedly contributed about 20 percent of global fossil fuel product-related CO₂ emissions between 1965 and 2015.¹⁵⁴ These parties are certainly not risk mitigators. If anyone can be considered the risk perpetrator, it is the Oil Majors.

Sea-level rise litigation against the Oil Majors starkly contrasts with the FTCA wildfire suits against the Forest Service. The Forest Service is empowered with the onerous and delicate tasks of mitigating wildfire risk on public lands and putting out active fires. Although FTCA suits usually fail because of the discretionary function exception, we have seen that the government is sometimes held liable for wildfire damage from prescribed burning.¹⁵⁵ This is perverse because it deters preventative fire management, likely leading to more fuel buildup and larger blowups. Forest Service decision makers are incentivized to wait until fires are raging before they act. Just as we would not want to incentivize an oncologist to favor cancer treatment at a later stage, after the disease has metastasized and the risk has grown, the Forest Service should not be punished for prescribing fires before fuel loads have metastasized out of control.

148. See, e.g., Complaint at ¶ 80, *County of Marin v. Chevron Corp.* (Cal. Super Ct. July 17, 2017) (Case No. CV 1702586).

149. *Id.* at ¶¶ 81–82.

150. *Id.* at ¶¶ 81–109.

151. *Id.* at ¶ 182.

152. *Id.* at ¶ 138.

153. *Id.* at ¶ 187.

154. *Id.* at ¶ 7.

155. See *supra* Part III.

1. *Deterrence or Overdeterrence?*

One might suggest that such liability does not deter prescribed burning generally, just irresponsible prescribed burns. However, such a perfectly calibrated deterrent effect is unlikely here. If agency decision-makers are human beings, they will know that their employees do not always follow the rules to a tee. We have seen that the Forest Service has various guidelines and requirements for prescribed burns, which is good for risk reduction, but bad for liability. This would naturally lead to greater hesitation toward conducting prescribed burns.

While I am not aware of any studies specifically examining how liability affects Forest Service prescribed burning behavior, several empirical analyses concerning prescribed burns by private landowners show that greater potential for liability leads to fewer prescribed burns¹⁵⁶ and fewer escaped prescribed burns.¹⁵⁷ Private landowners are likely to be less knowledgeable about liability than the Forest Service. So, if the specter of liability leads to fewer prescribed burns by private landowners, it likely has an even greater effect on the Forest Service's decision making.

In addition, the Forest Service is already in dire straits. It spent over \$2.4 billion for suppression operations in 2017, the most expensive fire year on record to that point, and for the first time in its 110-year existence, it now spends more than half of its budget attempting to suppress wildfires.¹⁵⁸ In such a precarious financial position, the agency may be increasingly wary of engaging in prescribed burning if it may entail liability. Even if damage awards are ultimately paid with Treasury funds, I suspect that Forest Service decision-makers are not keen to burden their agency with liability. And this likelihood is heightened because the DOJ has pushed for greater and greater damage awards in private

156. Alissa Hinojosa, Urs P. Kreuter & Carissa L. Wonkka, *Liability and the Use of Prescribed Fire in the Southern Plains, USA: A Survey of District Court Judges*, 9 LAND 1, 2 (2020) (“Research shows that prescribed fire is applied more often and to more land in states with gross negligence standards than in neighboring states with simple negligence standards.”) (citing Carissa L. Wonkka, William E. Rogers & Urs P. Kreuter, *Legal Barriers to Effective Ecosystem Management: Exploring Linkages Between Liability, Regulations, and Prescribed Fire*, 25 ECOLOGICAL APPLICATIONS 2382 (2015)).

157. Jonathan Yoder, *Liability, Regulation, and Endogenous Risk: The Incidence and Severity of Escaped Prescribed Fires in the United States*, 51 J.L. & ECON. 297, 297 (2008) (“Regression results show that stringent statutory liability laws and regulations tend to reduce the number and severity of escaped prescribed fires on private land but not on federal land, where state liability laws do not directly apply.”).

158. Press Release, U.S. Dep’t Agric., Forest Service Wildland Suppression Costs Exceed \$2 Billion (Sept. 14, 2017), <https://www.usda.gov/media/press-releases/2017/09/14/forest-service-wildland-fire-suppression-costs-exceed-2-billion> [<https://perma.cc/L9MK-PSMB>]; *Federal Firefighting Costs (Suppression Only)*, NAT’L INTERAGENCY FIRE CTR., <https://www.nifc.gov/fire-information/statistics/suppression-costs> [<https://perma.cc/H5HM-2J8N>] (last updated 2021); *Fiscal Year 2017 Budget Overview*, U.S. DEP’T AGRIC. 6 (2016), <https://www.fs.usda.gov/sites/default/files/fy-2017-fs-budget-overview.pdf> [<https://perma.cc/26V5-H2UE>]. See also Kohn, *supra* note 3, at 589.

wildfire litigation, so the Forest Service could now potentially face *massive* liability for a negligent prescribed burn. As a result, the Forest Service likely will conduct fewer prescribed burns, resulting in more catastrophic fires and more climate change.

More broadly, and more importantly, perfectly calibrated deterrence is *never* possible. Although courts may strive to create immaculate incentives, they do not have perfect information and cannot predict the future. In the catastrophic risk context, courts should be especially mindful of their own limitations. If there is a risk of over-detering preventative or mitigating behavior, this should hold immense weight. Practically speaking, liability should be rarely imposed against risk-mitigating actors.

But is it not just the *Berkovitz* test—or some courts’ interpretation of it—that creates the perverse incentives? Wouldn’t we be out of the woods if there were not perverse rules? No, because again, courts cannot create perfect deterrents. Even if suppression and prescribed burns received equal treatment—negligence liability being sometimes doled out for both—this would still over-deter prescribed burning to some extent. When liability may over-deter catastrophic risk mitigation, even a little overdeterrence is probably too much.

2. *Private Risk Mitigators*

When regulatory schemes mitigate catastrophic risks, the government is the risk mitigator. Sometimes, though, private actors can be important risk mitigators, and when they are, they must be shielded from liability to avoid deterring their efforts. This phenomenon can be illustrated by the lack of litigation against COVID-19 vaccine manufacturers.¹⁵⁹ In the United States, the FDA is the risk mitigator for *vaccine risk* because vaccines had to demonstrate safety and efficacy in mandatory clinical trials.¹⁶⁰ However, the pharmaceutical companies that developed the vaccines are crucial risk mitigators for the global *pandemic*. These companies rapidly developed the lifesaving technologies that are saving millions of lives, reducing economic loss that would otherwise occur, and allowing the world to slowly return to normal.¹⁶¹

Thankfully, the combination of immunity protections, doctrinal barriers, and small damage awards have vastly limited tort suits against COVID-19

159. See Molly E. Flynn & Rebecca Trela, *A Year into the Pandemic, a Review of State, Federal COVID Tort Immunities*, LEGAL INTELLIGENCER (Jan. 18, 2021), <https://www.law.com/thelegalintelligencer/2021/01/18/a-year-into-the-pandemic-a-review-of-state-federal-covid-tort-immunities/?sreturn=20220721144155> [https://perma.cc/MWW4-3E9V].

160. See, e.g., 42 U.S.C. § 262(a) (companies must provide data from clinical trials in a formal application to the FDA for a Biologics License Application (BLA) for biologic drugs, including vaccines); 21 C.F.R. § 601.2(a) (requiring “safety, purity, and potency” for BLAs).

161. See Lopez & Lee, *supra* note 140.

vaccine manufacturers.¹⁶² This is probably for the best, as rampant litigation could have burdened vaccine manufacturers and slowed rollout.¹⁶³ More liability could have easily over-deterred risk mitigation. The wildfire case study showed us that litigation can deter prophylactic measures; the vaccine litigation—or lack thereof—shows us that civil liability can impair responsive measures. When private actors (usually corporations) are responding to an exigent catastrophe, litigation may seriously impair this effort. This may be a scenario where private insurance can best compensate people for incidental injuries without burdening emergency response and hurting others.

C. *Ultimate v. Proximate Cause*

Our third heuristic is whether the suit targets the ultimate cause of the catastrophic risk. If a plaintiff focuses on the underlying cause of the risk, this greatly reduces over- and under-deterrence concerns. Greater precision makes it more likely that the conduct creating or exacerbating the risk is eliminated or reduced. If the suit does not target the ultimate cause, we may be under-detering problematic conduct or over-detering risk mitigation.

By “ultimate cause,” I mean the cause ultimately responsible for the risk. I borrow this term from evolutionary biology, which distinguishes the proximate, physiological cause of an organism’s trait from its ultimate, evolutionary cause.¹⁶⁴ If you prefer a medical analogy, it is preferable that treatment targets the root cause of disease rather than the superficial symptom.

We can spot the difference in our two case studies. Whereas sea-level rise plaintiffs are alleging the “ultimate” cause of climate change and sea-level rise, wildfire plaintiffs nearly always focus on a narrow “proximate” cause of a given wildfire. Sea-level rise plaintiffs explain in their complaints how greater GHG concentrations cause the atmosphere to trap more heat, the ocean to experience thermal expansion, the ice caps to melt, and the sea level to rise.¹⁶⁵ These suits target the root cause of sea-level rise—GHG emissions. In contrast, wildfire plaintiffs nearly always focus on the near-term causes of fires: a mistake in conducting a prescribed burn, a firecracker carelessly tossed, a failure to trim

162. Flynn & Trela, *supra* note 159. The “Public Readiness and Emergency Preparedness Act . . . empowers the HHS secretary to provide legal protection to companies making or distributing critical medical supplies, such as vaccines and treatments, unless there’s ‘willful misconduct’ by the company.” MacKenzie Sigalos, *You Can’t Sue Pfizer or Moderna If You Have Severe Covid Vaccine Side Effects. The Government Likely Won’t Compensate You for Damages Either*, CNBC (Dec. 23, 2020), <https://www.cnbc.com/2020/12/16/covid-vaccine-side-effects-compensation-lawsuit.html> [<https://perma.cc/X67C-BJD3>].

163. See Lopez & Lee, *supra* note 140 (“Health lawyers say fear of liability could dissuade manufacturers from jumping into the vaccine space during a public crisis, given the risk of complications—even rare ones—from any new treatment.”).

164. See generally Thomas C. Scott-Phillips, Thomas E. Dickins & Stuart A. West, *Evolutionary Theory and the Ultimate–Proximate Distinction in the Human Behavioral Sciences*, 6 *PERSP. ON PSYCH. SCI.* 38 (2011).

165. See *supra* Part II.

vegetation by a powerline, or a railroad creating a spark.¹⁶⁶ But as we have seen, wildfires are naturally occurring phenomena exacerbated by climate change and unwise suppression policies,¹⁶⁷ or created by negligence on the part of the Forest Service or a utility company. It may feel counterintuitive, but the near-term cause of a wildfire is *relatively* unimportant. The same fire could have easily been caused by lightning a week or a decade later. Although negligence can be blameworthy in the wildfire context, the stack of underlying wildfire causes makes it much less pernicious than the Oil Majors creating the risk and sowing doubt in the sea-level rise context.

This third heuristic can be a tie-breaker. For example, in the DOJ wildfire lawsuits, there is a regulatory scheme addressing the risk, but the primary risk mitigator is not being sued; it is doing the suing. However, the suits only focus on near-term causes of wildfires: for example, failing to take preventive measures to prevent logging or railroad equipment from creating sparks.¹⁶⁸ This litigation was underinclusive because it did not encompass underlying causes of the wildfires' magnitude and intensity—climate change and fire suppression policies. Moreover, the DOJ seeking larger damage awards may make the Forest Service less likely to conduct prescribed burns because of the prospect of increased liability. When the DOJ is the plaintiff, it must be careful not to deter mitigation by other executive agencies.

Kohn aptly describes what this means for wildfire litigation:

If wildfires are viewed as mistakes caused by individuals, then a litigious model that punishes the culpable individual, or agency, makes sense Litigation's benefits are limited, however, when addressing underlying causes of wildfires, such as the high winds that accelerated the Eagle Creek Fire or the amount of fuel that accumulates in a forest before a firecracker or power line sparks the actual ignition. When fire is properly understood as a natural disturbance that climate change, fuel accumulation, and human housing and development have exacerbated, the current litigious model appears insufficient to address these

166. See *supra* Part III. I say “nearly always” because some sea-level rise plaintiffs also seek damages for wildfires.

167. See *id.*

168. See, e.g., Karen M. Bradshaw, *A Modern Overview of Wildfire Law*, 21 *FORDHAM ENV'T L. REV.* 445, 475–76 (2010) (“Many cases of liability spring from the accidental nature of most wildfires. Humans start the majority of wildfires, but very few are arsons. Power lines and railroads are two notorious sources of fire-starters that can cause wildfire even in the cases of little or no negligence. While public utilities and railroads are required to employ basic safety measures, such as clearing vegetation near a power line or railroad track, it is difficult if not impossible to properly protect thousands of miles of power lines or railroad tracks. Further, where humans directly cause the start of a wildfire, they may be strictly liable for the cost of suppressing it, regardless of the steps they took to avoid fire risk. While many private persons are judgment proof against civil cost recovery efforts, the strict liability standard becomes problematic for companies who are responsible for the actions of their employees under respondeat superior.”).

challenges.¹⁶⁹

Here, too, insurance may function better than litigation. Wildfire insurance can compensate victims whose property is burned, while eliminating any over-deterrence that litigation may engender.

V.

APPLICATION

The table is set to see how the preeminent deterrence concerns in the global catastrophic risk context play out for sea-level rise and wildfire litigation. Again, our heuristics are useful only insofar as they make it easier to identify and analyze these deterrence concerns.

Because the sea-level rise litigation focuses on a catastrophic risk that the government has failed to mitigate, liability could help correct the current under-deterrence of the risk-creating behavior. As the suits are aimed at the risk perpetrators, they do not threaten attempts to mitigate the risk. And, the suits target the ultimate cause of sea-level rise, which gives them a greater chance of addressing the underlying risk. With little over-deterrence risk and the potential to correct for massive under-deterrence, these suits can make society less fragile in the face of sea-level rise and climate change.

The FTCA wildfire litigation possesses all of the opposite qualities. The government has regulated to mitigate wildfire risk, but lawsuits target the Forest Service, the chief risk mitigator, for their risk mitigation efforts gone wrong. Here, liability can over-deter risk mitigation, and we see this play out in practice. Liability for negligent prescribed burns has likely led to less preventative action. As the suits do not aim at the ultimate causes of exacerbated fires, climate change, and suppression policies, they have little potential to result in societal gain.

The DOJ suits are not clear-cut. Here, the government has regulated and the primary risk mitigator is not being sued, lessening our over-deterrence concerns. Liability may incentivize companies and individuals to take more precautions. However, litigation may further disfavor prescribed burns by upping the ante for negligence.

Let us also briefly look at the wildfire claims some plaintiffs snuck into sea-level rise suits. Remember, some of the broader sea-level rise suits also allege that defendants' GHG contributions and their obfuscation exacerbated

169. Kohn, *supra* note 3, at 598–99. Kohn believes that “[l]itigation’s punitive focus may deter cavalier actions that could ignite a wildfire, such as the teenager who threw the firecracker in the Gorge.” *Id.* I disagree—teenagers’ actions are more influenced by underdeveloped frontal cortices than by the threat of liability. See *Teen Brain: Behavior, Problem Solving, and Decision Making*, AM. ACAD. CHILD & ADOLESCENT PSYCHIATRY (Sept. 2017), https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/The-Teen-Brain-Behavior-Problem-Solving-and-Decision-Making-095.aspx [perma.cc/2CDW-JLRY]. Nor is it obvious that anyone, regardless of their age, would engage in less “cavalier actions” if they did not feel the prickle of liability on the back of their neck.

wildfires.¹⁷⁰ According to our heuristics, these claims look socially favorable, especially because they allege one of the deeper causes of worse wildfires. But on a pragmatic note, holding Oil Majors liable for wildfire damages appears difficult because causally attributing wildfires specifically to anthropogenic climate change cannot currently be scientifically achieved with high confidence.¹⁷¹

CONCLUSION

Now we can peer into the future and make some predictions about litigation concerning catastrophic risks. If a risk stems from a new technological development and the government is slow to regulate, litigation has high potential to be prosocial, reducing societal fragility. However, these situations may be rare.

With regard to extant risks that the government has regulated, government liability for attempted risk mitigation may very well discourage preventive efforts. In these scenarios, insurance is likely a better solution than liability.¹⁷² Wildfire insurance has the potential to under-compensate victims, but many more lives are saved if risk mitigators are allowed to move at full speed, preventing more catastrophes to begin with. A robust insurance system can also reduce a “circular litigation approach where [victims] file lawsuits against insurers, government, and private actors, who in turn sue others to recover their losses.”¹⁷³ The Texas energy crisis of 2021 offers an example of a litigious circle, where parties pass the buck until it stops at God.¹⁷⁴

Before we achieve a perfect insurance scheme, and we are stuck with litigious circles, we must confront the painful fact that providing individual redress can be at odds with utilitarian-style risk management. If the best way to prevent more disastrous wildfires is to eliminate governmental liability, then this will leave people with inadequate insurance, or destitute. I do not know the solution, but I raise the problem because it deserves more thought.

170. See *supra* Part II.

171. See Michael Burger, Jessica Wentz & Radley Horton, *The Law and Science of Climate Change Attribution*, 45 COLUM. J. ENV'T L. 57, 237 (2020) (“Plaintiffs may prove most successful where they base their claims on impacts which can be attributed to anthropogenic climate change with high confidence, such as sea level rise, melting snowpack, increases in average temperatures and extreme heat, and ocean acidification.”).

172. See Keiter, *supra* note 79, at 351 (“[T]he insurance industry continues to make property casualty insurance available to private landowners, even those residing in high-risk wildland-urban interface zones.”). Congress has also introduced fire-specific legislation to compensate private landowners injured by fires originating on federal lands. *Id.*

173. Shelley Ross Saxer, *Paying for Disasters*, 68 KAN. L. REV. 413, 491 (2020).

174. Consumers who experienced sky-high prices and the Texas Attorney General are suing an energy company. The energy company said it had no choice because of the Electric Reliability Council of Texas’s (ERCOT) actions. And ERCOT said it had to do what it did to avoid an even worse outcome. It may blame “an act of God,” thus pinning responsibility on the climate, which has been altered by humans.

Professor Kysar wrote that “just as the administrative state is being forced to adapt to grapple with the global, complex, uncertain, and potentially catastrophic nature of twenty-first century threats to social welfare, the tort system also must shift in order to serve its role as the administrative state’s traditional and necessary backdrop.”¹⁷⁵ In the context of catastrophic risks, I agree that the tort system absolutely must evolve to impose liability in certain circumstances, as risk-management litigation can correct for externalities and have powerful second-order effects. But the tort system should not just evolve solely by adding new liabilities; it should also evolve by *subtracting*. It is just as critical to remove liability when it tends to exacerbate global risks.

175. Kysar, *supra* note 67, at 1. *See also* Weaver & Kysar, *supra* note 18, at 295 (“Do we court disaster by stretching the bounds of judicial authority to address problems of massive scale and complexity? Or does disaster lie in refusing to engage the jurisgenerative potential of courts in a domain of such vast significance?”).