

ORAL ARGUMENT NOT YET SCHEDULED

No. 19-1140 (and consolidated cases)

**IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

American Lung Association, *et al.*,
Petitioners,

v.

U.S. Environmental Protection Agency, *et al.*,
Respondents.

On Petition for Review of a Final Action of the
U.S. Environmental Protection Agency

**FINAL AMICUS BRIEF OF THE COALITION
TO PROTECT AMERICA'S NATIONAL PARKS AND THE
NATIONAL PARKS CONSERVATION ASSOCIATION
IN SUPPORT OF PETITIONERS**

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Except for the following, all parties, intervenors, and other amici appearing in this case are listed in the Brief for State and Municipal Petitioners.

Amici

In support of State and Municipal, Public Health and Environmental, Power Company, and Clean Energy Trade Association Petitioners: Dallas Burtraw, Charles T. Driscoll, Amelia Keyes, and Kathy Fallon Lambert; Faith Organizations; Professor Michael Greenstone; Senator Sheldon Whitehouse; Service Employees International Union; Patagonia Works and Columbia Sportswear Company; and Environment America and the National Trust for Historic Preservation.

References to the rulings at issue appear in the Brief for State and Municipal Petitioners.

The final agency action at issue in this proceeding has not been previously reviewed in this or any other court. There are no related cases within the meaning of D.C. Circuit Rule 28(a)(1)(C).

CORPORATE DISCLOSURE STATEMENT

The Coalition to Protect America's National Parks and the National Parks Conservation Association—*amici curiae* in this case—are nonprofit organizations that do not have parent corporations. Neither organization has issued stock, no publicly held company has a 10 percent or greater ownership interest in either organization, and neither the NPCA nor the Coalition have any members who have issued shares or debt securities to the public.

CERTIFICATE OF COUNSEL UNDER CIRCUIT RULE 29(d)

Amici are nonprofit organizations that advocate for the protection of America's national parks. *Amici* have filed this brief to provide the Court with information regarding the significant impacts of climate change on the ecosystems, wildlife, and visitors of our national parks and the urgent need to move forward with meaningful limits on carbon pollution. Because this information is unlikely to be included in the briefs of the parties or other *amici*, a separate brief is necessary.

TABLE OF CONTENTS

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES	i
CORPORATE DISCLOSURE STATEMENT	ii
CERTIFICATE OF COUNSEL UNDER CIRCUIT RULE 29(d)	ii
TABLE OF AUTHORITIES	v
GLOSSARY	xi
STATEMENT OF IDENTITY, INTEREST, AND AUTHORITY TO FILE	1
STATEMENT UNDER RULE 29(a)(4)(E)	2
STATUTES AND REGULATIONS	2
SUMMARY OF ARGUMENT	3
ARGUMENT	4
I. Glaciers in America’s national parks are retreating in the face of climate change—and they could be lost entirely.	11
II. Rising sea levels caused by climate change threaten additional significant harm to national parks.	16
A. Everglades National Park’s complex landscape is uniquely vulnerable to sea-level rise.	17
B. Rising sea levels also harm America’s urban parks, including the National Mall in Washington, D.C.	19
III. If left unchecked, climate change will have catastrophic effects on wildlife and plants that depend on our national parks.	21
A. Rising temperatures will further threaten trees and birds in Joshua Tree National Park.	23
B. Warming streams threaten trout populations in Shenandoah National Park.	25

C.	Tree species are experiencing loss of suitable habitat, increases in disease and insect infestations, and drought stress.....	27
D.	Further loss of wildlife and plants within the parks would likely have negative impacts on visitation and economics...	28
IV.	Increased wildfires are already harming America’s national parks, especially in the West.....	29
A.	As wildfires increase in frequency and intensity, more parkland burns and ecosystems are weakened.....	30
B.	Climate change exacerbates wildfires, resulting in more air pollution, such as particulate matter and ozone, increasing haze and posing a health threat.	32
C.	As wildfires continue to grow in response to climate change, so will the financial burden on the federal government and local communities.	34
D.	Yosemite National Park illustrates how increasing wildfires jeopardize the future of national parks.	35
	CONCLUSION.....	38
	CERTIFICATE OF COMPLIANCE.....	40
	CERTIFICATE OF SERVICE.....	41

TABLE OF AUTHORITIES

Cases

<i>Bicycle Trails Council of Marin v. Babbitt</i> , 82 F.3d 1445 (9th Cir. 1996)	4
<i>Mich. United Conservation Clubs v. Lujan</i> , 949 F.2d 202 (6th Cir. 1991)	4

Statutes

42 U.S.C. § 7408(a)(1)(A) (2018)	7
42 U.S.C. § 7411(b)(1)(A) (2018)	8
42 U.S.C. § 7411(d)(1) (2018)	8
42 U.S.C. § 7472 (2018)	7
42 U.S.C. § 7474 (2018)	7
42 U.S.C. § 7491 (2018)	8
42 U.S.C. § 7491(a)(1) (2018)	33
42 U.S.C. § 7521(a)(1) (2018)	7
42 U.S.C. § 7602 (2018)	7
42 U.S.C. § 7671n (2018)	7
54 U.S.C. § 100101 (2018)	4, 21, 37

Regulations

40 C.F.R. pt. 81 (2019)	33
Repeal of the Clean Power Plan and Affordable Clean Energy Rule, 84 Fed. Reg. 32520, 32533 (July 8, 2019)	8

Other Authorities

A. Buse, <i>Effects of Elevated Temperature on Multi-Species Interactions: The Case of Pedunculate Oak, Winter Moth and Tits</i> , 13 FUNCTIONAL ECOLOGY 74 (2002)	25
--------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

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Abigail Cahill, et al., <i>How Does Climate Change Cause Extinction?</i> , 280 PROCEEDINGS OF THE ROYAL SOC'Y B (2013)	22, 29
<i>About Us</i> , CAMP WAWONA	36
Alex Rudee, <i>Yosemite's Dirty Air Secret</i> , NAT'L PARKS CONSERVATION ASS'N.....	36, 37
Andrew Giambrone, <i>Famed D.C. Cherry Blossoms Face Long-Term Risks from High Tides</i> , CURBED D.C.....	20, 21
Anthony Westerling & Benjamin Bryant, <i>Climate Change and Wildfire in California</i> , 87 CLIMATIC CHANGE (Supp. 1) 231 (2008)	30
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Ben Marzeion et al., <i>Attribution of Global Glacier Mass Loss to Anthropogenic and Natural Causes</i> , 345 SCI. 919 (2014).....	12
Benjamin DeAngelo et al., <i>Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act</i> , U.S. ENVTL. PROT. AGENCY, (2009).....	32
Budget Justifications, U.S. DEP'T OF THE INTERIOR (2019)	35
Camille S. Stevens-Rumann et al, <i>Evidence for Declining Forest Resilience to Wildfires under Climate Change</i> , 21 ECOLOGY LETTERS 243 (2018).	32
Carolyn Gramling, <i>A Freshwater, Saltwater Tug-of-War Is Eating Away at the Everglades</i> , SCI. NEWS, August 20, 2018	18
Catherine Cullinane Thomas et al., 2018 NAT'L PARK VISITOR SPENDING EFFECTS, U.S DEP'T OF THE INTERIOR (2019)	14
Chris D. Thomas et al., <i>Extinction Risk from Climate Change</i> , 427 NATURE 145 (2004).....	22
Chris Erskine, <i>Yosemite Valley to Reopen Tuesday After Nearby Fires Closed It for 20 Days</i> , L.A. TIMES, Aug. 10, 2018.....	35
<i>Climate Hot Map: Glacier National Park</i> , UNION OF CONCERNED SCIENTISTS.....	14

David Peterson, <i>Climate Change Intensifying Wildfire on National Forests</i> , U.S. FOREST SERV.,	29
<i>Discover America’s 11 Most Endangered Historic Places for 2019</i> , NAT’L TR. FOR HISTORIC PRES.....	20
Erik Stabena, et al., <i>Sea-level Rise: Observations, Impacts, and Proactive Measures in Everglades National Park</i> , 28 PARK SCI. 2 (2011)	19
<i>Federal Firefighting Costs (Suppression Only)</i> , NAT’L INTERAGENCY FIRE CENTER.....	34
<i>Fires Increase Surface Ozone</i> , NASA EARTH OBSERVATORY	36
<i>Glacier Nat’l Park: Learn about the Park</i> , NAT’L PARK SERV.	12
<i>Going-to-the-Sun Road General Info</i> , NAT’L PARK SERV.....	14
<i>How to See a Glacier</i> , NAT’L PARK SERV.	13, 14
<i>Interior Department Releases Report Detailing \$40 Billion of National Park Assets at Risk from Sea Level Rise</i> , U.S. DEP’T OF THE INTERIOR	17
<i>Inventory of U.S. Greenhouse Gas Emissions and Sinks</i> , U.S. ENVTL PROTECTION AGENCY 1990-2017 (2019)	8
Jeremy Schulman, <i>Seven More Nat’l Parks Threatened by Fire</i> , CITYLAB	32
Jia Coco Liu et al., <i>Particulate Air Pollution from Wildfires in the Western U.S. Under Climate Change</i> , 138 CLIMATIC CHANGE 655 (2016)	29, 33
Jia Coco Liu et al., <i>Wildfire-Specific Fine Particulate Matter and Risk of Hospital Admissions in Urban and Rural Counties</i> , 28 EPIDEMIOLOGY 77 (2017)	34
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John Abatzoglou & A. Park Williams, <i>Impact of Anthropogenic Climate Change on Wildfire Across Western U.S. Forests</i> , 113(42) PROC. OF THE NAT’L. ACAD. OF SCI. 11770 (2016)	29, 30, 31
John Wiens, <i>Climate-Related Local Extinctions Are Already Widespread Among Plant and Animal Species</i> , 14 PLOS BIOLOGY 1 (2016)	22
Joseph Park et al., <i>Sea-Level Rise and Inundation Scenarios for National Parks in South Florida</i> , NAT’L PARK SERV.....	18

Ken W. Krauss et al., <i>Sea-Level Rise and Landscape Change Influence Mangrove Encroachment onto Marsh in the Ten Thousand Island Region of Florida, USA</i> , 15 J. COASTAL CONSERVATION 62 (2011)	19
Kenneth Cole et al., <i>Past and Ongoing Shifts in Joshua Tree Distribution Support Future Modeled Range Contraction</i> , 21 ECOLOGICAL APPLICATIONS 137 (2011)	23
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Laurel Wamsley, <i>Western Wildfires Endanger Beloved Sites at National Parks</i> , NPR, Sep. 5. 2017.....	31
M.S. Ross et al., <i>The Southeast Saline Everglades Revisited: 50 Years of Coastal Vegetation Change</i> , 11 J. VEGETATION SCI. 10 (2000).....	17, 18
Maria A. Caffrey, <i>Sea Level Rise and Storm Surge Projections for the National Park Service</i> , NAT'L PARK SERV. (2018)	19
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Mark Urban, <i>Accelerating Extinction Risk from Climate Change</i> , 348 SCI. 571 (2015)	21, 26
<i>Melting Glaciers: Grinnell Glacier 1910 and 2017</i> , NAT'L PARK SERV. ..	13
Nathaniel L. Bindoff et al., <i>Detection and Attribution of Climate Change: From Global to Regional</i> , in CONTRIBUTION OF WORKING GRP. I TO THE 5TH ASSESSMENT REPORT, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS (Stocker et al. eds. 2013)	11
<i>NPS Class I Areas</i> , NAT'L PARK SERV.....	33
<i>Ocean and Coastal Resources</i> , NAT'L PARK SERV.	16
<i>Outdoor Recreation Satellite Account, U.S. and Prototype for States, 2017</i> , BUREAU OF ECON. ANALYSIS	14

<i>Ozone Exceedances in National Parks</i> , NAT'L PARK SERV.....	36
Patricia A. Flebbe et al., <i>Spatial Modeling to Project Southern Appalachian Trout Distribution in a Warmer Climate</i> , 135 TRANSACTIONS OF THE AM. FISHERIES SOC'Y 1371 (2006)	26
Patrick Gonzalez et al., <i>Disproportionate Magnitude of Climate Change in United States National Parks</i> , 13 ENVTL. RES. LETTERS 1 (2018) 3, 5, 6, 7, 9	
Patrick Gonzalez, <i>Climate Change Trends, Impacts, and Vulnerabilities in US National Parks</i> , SCIENCE, CONSERVATION, AND NATIONAL PARKS (Beissinger et al. eds. 2017).....	3, 5, 9, 11, 12, 18, 24, 27, 28, 29, 31, 35
<i>Pinon-Juniper Woodlands and Savannahs</i> , NAT'L PARK SERV	28
<i>Post Ferguson Fire</i> , YOSEMITE MARIPOSA CTY TOURISM BUREAU.....	36
<i>Potential Ecological Consequences of Climate Change in South Florida and the Everglades</i> , NAT'L PARK SERV., U.S. Dep't of the Interior (2009)	17
<i>Retreat of Glaciers in Glacier Nat'l Park</i> , U.S. GEOLOGICAL SURVEY	12, 15
Robert Keane, et al., <i>Restoring Whitebark Pine Ecosystems in the Face of Climate Change</i> , U.S. DEP'T OF AGRIC. (2017)	27
Scott J. Cooney et al., <i>Modeling Global Warming Scenarios in Greenback Cutthroat Trout (Oncorhynchus Clarki Stomias) Streams: Implications for Species Recovery</i> , 65 WESTERN N. AM. NATURALIST 371 (2005)	25
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<i>The Outdoor Recreation Economy</i> , OUTDOOR INDUS. ASS'N, (2017) https://perma.cc/6NTS-U58Z	28
<i>The Rising Cost of Wildfire Operations: Effects on the Forest Service's Non-Fire Work</i> , U.S. FOREST SERV. (2015)	31
<i>Threats to Aquatic Species and Habitats</i> , NAT'L PARK SERV.	15, 25
<i>Tidal Basin, Washington, DC</i> , NAT'L PARK SERV.....	20

<i>Two Popular Summer Camps Near Yosemite Close Due to Smoky Air</i> , KTVU FOX 2.....	36
<i>Climate Science Special Report: Fourth National Climate Assessment</i> , U.S. GLOB. CHANGE RESEARCH PROGRAM (D.J. Wuebbles et al. eds., 2017).....	16, 29
Viney Aneja, <i>Ozone and Other Air Quality-Related Variables Affecting Visibility in the Southeast U.S.</i> , 54 J. AIR AND WASTE MGMT. ASS'N 681 (2004)	33
<i>Visitation Numbers</i> , NAT'L PARK SERV.....	12, 30
<i>When Timing Is Everything: Migratory Bird Phenology in a Changing Climate</i> , U.S. GEOLOGICAL SURVEY.....	24, 25
<i>Why Protect Everglades Nat'l Park?</i> , NAT'L PARK SERV.....	17
<i>Wildfire Smoke Waves</i> , CLIMATE CENT.....	33, 34
<i>Wildfire Statistics</i> , CONG. RESEARCH SERV.....	31
William T. Sommers et al., <i>Wildland Fire Emissions, Carbon, and Climate: Science Overview and Knowledge Needs</i> , 317 FOREST ECOLOGY & MGMT 1 (2014).....	29, 30
<i>World of Change: Ice Loss in Glacier Nat'l Park</i> , NASA EARTH OBSERVATORY	12
Xu Yue et al., <i>Ensemble Projections of Wildfire Activity and Carbonaceous Aerosol Concentrations over the Western United States in the Mid-21st Century</i> , 77 ATMOSPHERIC ENV'T 767 (2013)	30
<i>Yosemite: Past Fire Activity</i> , NAT'L PARKS SERV.	35
Yuanyuan Fang, <i>Impacts of 21st Century Climate Change on Global Air Pollution-Related Premature Mortality</i> , 121 CLIMACTIC CHANGE 239 (2013)	33

GLOSSARY

"Coalition"	Coalition to Protect America's National Parks
"EPA"	United States Environmental Protection Agency
"NPCA"	National Parks Conservation Association
"NPS"	National Park Service
"PM _{2.5} "	Fine Particulate Matter

**STATEMENT OF IDENTITY, INTEREST,
AND AUTHORITY TO FILE**

Established in 2003, the Coalition to Protect America's National Parks (Coalition) is a 501(c)(3) non-partisan organization that advocates for the protection of America's national parks. It represents over 1,700 current, former, and retired employees of the National Park Service, including former Park Service directors, regional directors, and superintendents. The Coalition represents nearly 40,000 years of professional experience in national park stewardship. Accordingly, the Coalition represents "voices of experience" regarding conserving national park resources and values.

The National Parks Conservation Association (NPCA) has been the leading voice of American people in protecting and enhancing national parks since 1919. NPCA is a nonpartisan organization dedicated to preserving America's natural, historical, and cultural heritage for future generations. Because climate change and air pollution are the greatest threats to national parks, NPCA works to mitigate unhealthy and climate-disrupting pollution.

Given the mounting impacts of climate change on America's national parks, *amici* have a significant interest in advocating for

protections like those under the Clean Power Plan—protections that were eliminated by the unlawful agency action challenged in this case. *Amici* filed a notice of intent to file this brief pursuant to Federal Rule of Appellate Procedure 29(a)(2) and Circuit Rule 29(b).

STATEMENT UNDER RULE 29(a)(4)(E)

In accordance with Federal Rule of Appellate Procedure 29(a)(4)(E), *amici* state this brief was not authored, in whole or in part, by a party's counsel; no party or party's counsel contributed money that was intended to fund the preparation or submission of this brief; and no persons other than *amici*, their members, or their counsel contributed money intended to fund preparation or submission of the brief.

STATUTES AND REGULATIONS

Pertinent statutes and regulations are reproduced in the Addendum to the Brief of the State and Municipal Petitioners.

SUMMARY OF ARGUMENT

Human-caused climate change is devastating America's national parks. As summarized by leading researchers on global warming and public lands:

Field measurements have detected glaciers melting in Glacier National Park, sea level rising in Golden Gate National Recreation Area, trees dying in Sequoia National Park, vegetation shifting upslope in Yosemite National Park[,] . . . wildfire changing in Yellowstone National Park, and corals bleaching in Virgin Islands National Park.¹

If immediate action is not taken to significantly reduce the release of greenhouse gases from power plants and other sources, these impacts promise to become significantly worse.² As petitioners argue, the U.S. Environmental Protection Agency's (EPA's) "Affordable Clean Energy" rule—premised on erroneous legal interpretations—impermissibly fails to establish effective emission guidelines that would ensure carbon

¹ Patrick Gonzalez, *Climate Change Trends, Impacts, and Vulnerabilities in US National Parks*, SCIENCE, CONSERVATION, AND NATIONAL PARKS 102 (Beissinger et al. eds. 2017) [hereinafter Gonzalez, *Climate Change Trends*] (citations omitted), <https://perma.cc/ED7L-FFBN>

² *Id.*; see also Patrick Gonzalez et al., *Disproportionate Magnitude of Climate Change in United States National Parks*, 13 ENVTL. RES. LETTERS 1, 6-10 (2018) [hereinafter Gonzalez et al., *Disproportionate Magnitude*], <https://perma.cc/99FL-CA3S>.

pollution reductions from power plants consistent with the requirements of the Clean Air Act.³ The Affordable Clean Energy Rule will therefore harm the public welfare and cherished public lands, and this Court should set it aside and remand to the EPA to promulgate a rule consistent with the law.

ARGUMENT

The National Park Service Organic Act of 1916 established the “fundamental purpose” of national parks: to “conserve the scenery, natural and historic objects, and wild life [in the National Parks]... and to provide for the enjoyment [of the same] ... in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” 54 U.S.C. § 100101 (2018). Courts have consistently affirmed the National Park System’s principal purpose, under the Organic Act, is conservation. *E.g.*, *Mich. United Conservation Clubs v. Lujan*, 949 F.2d 202, 207 (6th Cir. 1991); *Bicycle Trails Council of Marin v. Babbitt*, 82 F.3d 1445, 1449-50 (9th Cir. 1996).

³ Pub. Health and Env'tl. Pet. Br. at 5-6.

While among the most protected lands in America, national parks are among the most vulnerable to climate change.⁴ “Between 1895 and 2010,” the mean annual temperature within the National Park System “increased at double the rate of the US as a whole[,]” and a “greater fraction of [the] national park area (63%) experienced significant temperature increases than the US as a whole (42%).”⁵ During the same period, researchers found “precipitation declined significantly for 12% of [the] national park area, compared to 3%” of the United States.⁶ (See Figure 1, next page.⁷) The ecological implications of these changes are significant: forests and wildlife have moved to higher altitudes and latitudes, tree mortality has doubled in some western parks, and wildfires have grown more severe.⁸

⁴ See Gonzalez et al., *Disproportionate Magnitude*, *supra* note 2, at 1.

⁵ *Id.* at 3.

⁶ *Id.* at 5.

⁷ Figure 1 appears in *Id.* at 4.

⁸ Gonzalez, *Climate Change Trends*, *supra* note 1, at 110-12.

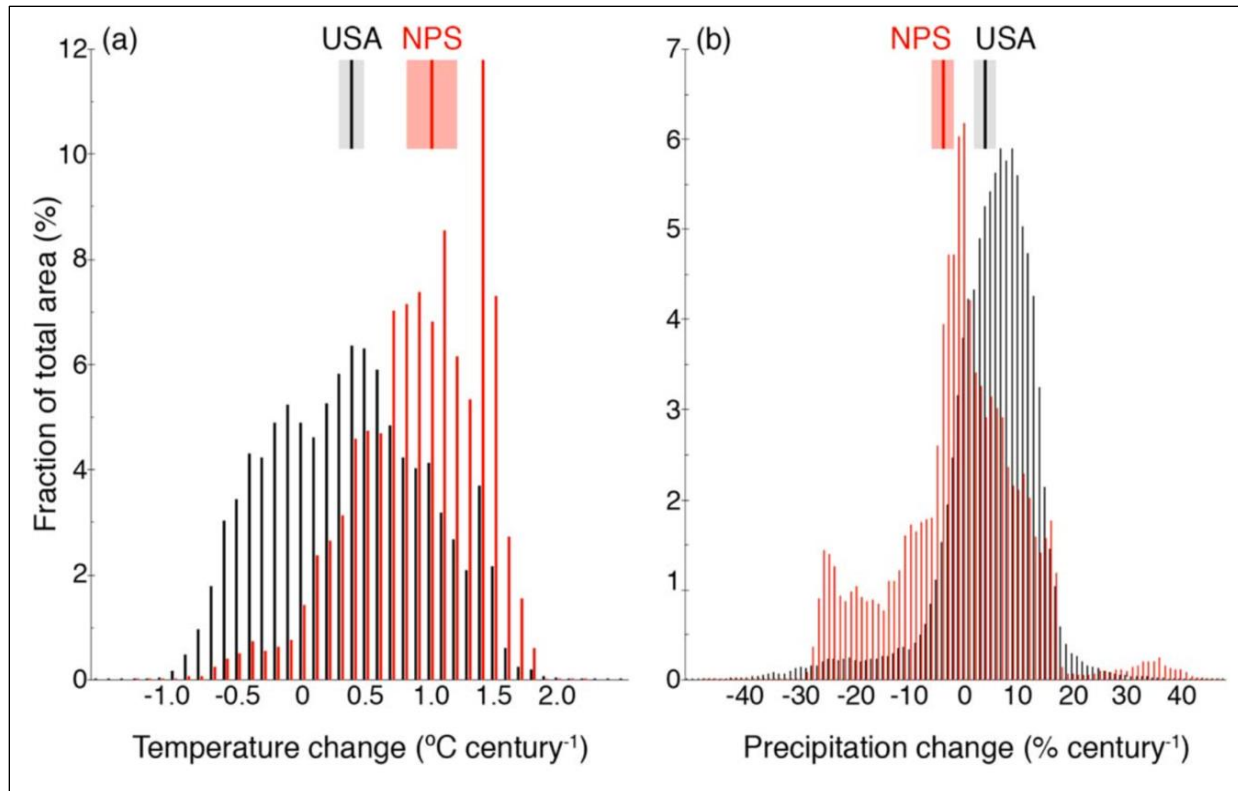


Figure 1: Historical Climate Change Comparison Between U.S. and National Parks

The extraordinary vulnerability of national parks, and the ecosystems they protect, is a consequence of their location. Many National Park Systems sit in the northern reaches of the United States, at higher elevations, or both—places “where warming occurs more quickly due to a thinner atmosphere, melting of reflective snow cover . . . and other factors.”⁹ Many other parks are located in the

⁹ Gonzalez et al., *Disproportionate Magnitude*, *supra* note 2, at 6.

southwestern United States, “which has experienced the sharpest declines in precipitation in the contiguous 48 states.”¹⁰

The Clean Air Act generally directs the EPA to take regulatory action to mitigate pollution where emissions would endanger “public health and welfare.”¹¹ This includes protecting against harms to natural resources conserved in our national parks— the Act defines “welfare” to include “effects on soils, waters . . . vegetation . . . animals, wildlife.” 42 U.S.C. § 7602 (2018).

The Clean Air Act also recognizes the unique vulnerability of national parks in two provisions. In the Prevention of Significant Deterioration program, the Act requires a higher degree of air quality protection for units of the National Park System, designating them as either Class I or Class II areas. 42 U.S.C. §§ 7472, 7474 (2018).

¹⁰ *Id.* at 8.

¹¹ Many Clean Air Act regulatory requirements are triggered by a finding that air pollution may endanger “public health and welfare.” *See, e.g.*, 42 U.S.C. § 7408(a)(1)(A) (2018) (requiring regulation of dispersed pollutants “which may reasonably be anticipated to endanger public health or welfare”); 42 U.S.C. § 7521(a)(1) (2018) (requiring regulation of pollution from new motor vehicles and engines . . . “which may reasonably be anticipated to endanger public health or welfare”); 42 U.S.C. § 7671n (2018) (requiring regulation to control pollution of the stratosphere that “may reasonably be anticipated to endanger public health or welfare”).

Similarly, the Act provides special protections to prevent and remediate any impairment of visibility for national park units designated as mandatory Class I areas. 42 U.S.C. § 7491 (2018).

At issue in this challenge is Section 7411 of the Act. As is common in the Act, this provision requires EPA to take action to reduce air pollution that “may reasonably be anticipated to endanger public health or *welfare*.” 42 U.S.C. § 7411(b)(1)(A) (2018) (emphasis added).

Section 7411(d) directs EPA to identify, and to require that states establish, emission limits for air pollutants from stationary sources that would otherwise be left unregulated by other major Clean Air Act programs. 42 U.S.C. § 7411(d)(1) (2018). Greenhouse gas emissions from existing power plants are subject to this provision.¹²

Carbon emissions from fossil fuel-fired electric power plants and other stationary sources are well-documented as a major contributing cause of climate change.¹³ While climate change is harming parks in

¹² Repeal of the Clean Power Plan and Affordable Clean Energy Rule, 84 Fed. Reg. 32520, 32533 (July 8, 2019).

¹³ *See, e.g.*, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017, U.S. ENVTL. PROT. AGENCY, ES-10 to ES-11 (2019), <https://perma.cc/96J6-7JVU> (noting electric sector as the second largest source of U.S. carbon dioxide emissions).

numerous ways, heightened adverse effects are particularly likely to fall on park glaciers, coastlines, wildlife, forests, and visitors, as described in detail in this brief.

Substantial cuts to carbon pollution are required to protect vulnerable ecosystems protected by national parks. “Ecosystems . . . are altered by climate change, and these impacts are projected to continue. Without substantial and sustained reductions in global greenhouse gas emissions, transformative impacts on some ecosystems will occur.”¹⁴

Given the extraordinary nature of threats posed by human-caused climate change, preservation of national parks requires immediate and meaningful action to sharply limit greenhouse gas emissions from fossil fuel-fired power plants.¹⁵ The Clean Air Act recognizes the need to protect ecosystems through its focus on the protection of “welfare,” and

¹⁴ Katharine Hayhoe et al., *Our Changing Climate*, in U.S. GLOB. CHANGE RESEARCH PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT 29 (D.R. Reidmiller et al. eds., 2018), <https://perma.cc/29D7-C5VX>.

¹⁵ See, e.g., Gonzalez et al., *Disproportionate Magnitude*, *supra* note 2, at 6 (noting “[o]nly under a scenario of substantial emissions reductions . . . would much of the national park area be located in areas of . . . [less than] 2 °C increase by 2100”); Gonzalez, *Climate Change Trends*, *supra* note 1, at 128 (“If we do not reduce greenhouse gas emissions, vulnerability analyses project future damage to the irreplaceable and globally unique wonders of US national parks.”).

also through its special protections for national parks in the Prevention of Significant Deterioration and visibility protection programs. The EPA’s “Affordable Clean Energy” rule, which has been rightly challenged as arbitrary and unlawful by the petitioners in these cases, fails to establish effective emission guidelines that would secure carbon pollution reductions consistent with the requirements of the Clean Air Act.¹⁶ If the rule is allowed to stand, carbon pollution from power plants is likely to increase, accelerating and intensifying effects of climate change within the National Park System.¹⁷

¹⁶ Pub. Health and Env’tl. Pet. Br. at 5-6.

¹⁷ See Amelia Keyes et al., *The Affordable Clean Energy Rule and the Impact of Emissions Rebound on Carbon Dioxide and Criteria Air Pollutant Emissions*, 14 ENVTL. RES. LETTERS 1, 3-4 (2019), <https://perma.cc/ES7Y-JYTD> (concluding “CO₂ emissions are projected to be . . . higher” under the proposed ACE rule than under the CPP).

I. Glaciers in America’s national parks are retreating in the face of climate change—and they could be lost entirely.

Warming temperatures have already caused the retreat and disappearance of glaciers across the globe, including many in America’s national parks.¹⁸ The numbers defy belief. Researchers “have detected decreases in length, area, volume, and mass for almost all” of 168,000 glaciers that have been measured since 1960—among them, glaciers in Denali, Glacier, Glacier Bay, and other national parks.¹⁹ According to the Intergovernmental Panel on Climate Change, these losses are “attributable to human-induced climate change more than natural variation or other non-human factors.”²⁰ Other analyses prove that the melting and loss of mass of the Alaskan and western North American

¹⁸ Gonzalez, *Climate Change Trends*, *supra* note 1, at 106, 107 (Table 6.1).

¹⁹ *Id.* at 106

²⁰ *Id.* (citing Nathaniel L. Bindoff et al., *Detection and Attribution of Climate Change: From Global to Regional*, CONTRIBUTION OF WORKING GRP. I TO THE 5TH ASSESSMENT REPORT, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS (Stocker et al. eds. 2013), <https://perma.cc/6L7H-CKDE>).

glaciers between 1960 and 2010 is likewise attributable to human-induced climate change.²¹

Glacier National Park in northwestern Montana offers a glimpse of the peril confronting park system glaciers. The park is one of the most visited in the country because of its mountain scenery, wildlife, and vast expanses of wilderness.²² Not only are glaciers attractions in their own right, they support important wildlife species.²³

Researchers estimate that before 1850, there were around 150 glaciers in the park.²⁴ As of 2015, only 26 glaciers remained—and all had suffered significant reductions in size.²⁵ Models have projected that the last of Glacier's glaciers will disappear in the coming decades.²⁶ A stark example of this trend is the iconic Grinnell Glacier, which the

²¹ *Id.* (citing Ben Marzeion et al., *Attribution of Global Glacier Mass Loss to Anthropogenic and Natural Causes*, 345 *SCI.* 919, 919 (2014), <https://perma.cc/PTD2-J3RY>).

²² *Visitation Numbers*, NAT'L PARK SERV., <https://perma.cc/AQ5N-FF69>; see *Glacier Nat'l Park: Learn about the Park*, NAT'L PARK SERV., <https://perma.cc/6KUT-DD3B>.

²³ See, e.g., *Retreat of Glaciers in Glacier Nat'l Park*, U.S. GEOLOGICAL SURVEY, <https://perma.cc/XWV3-UCJU>.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*; *World of Change: Ice Loss in Glacier Nat'l Park*, NASA EARTH OBSERVATORY, <https://perma.cc/4S45-Z5HG>.

National Park Service (NPS) reports lost 45 percent of its area between 1966 and 2015.²⁷

Two photographs demonstrate the scale of this loss.²⁸



Grinnell Glacier, 1910



Grinnell Glacier, 2017

²⁷ *How to See a Glacier*, NAT'L PARK SERV., <https://perma.cc/H5AF-NGNS>.

²⁸ *Glaciers: Grinnell Glacier 1910 and 2017*, NAT'L PARK SERV., <https://perma.cc/Y65N-7MYF>.

The park's remaining glaciers are popular attractions. Visitors flock to the Jackson Glacier Overlook along Going-to-the-Sun Road.²⁹ And hikers make the five-mile journey to glimpse the Grinnell Glacier along its namesake trail.³⁰ As park glaciers continue to retreat, however, it will become more difficult for visitors to enjoy them.

Continued loss of glaciers could also reduce visitation to Glacier and lead to significant economic impacts. In 2018 Montana received an estimated \$633 million from visitation to its national parks, with Glacier accounting for over half of that amount.³¹ According to the Bureau of Economic Analysis, the outdoor-recreation industry was responsible for 5.1 percent of Montana's economy in 2017.³² Glacier National Park plays an important role in supporting this economic activity, along with the families and communities that rely on it.³³

²⁹ *Going-to-the-Sun Road General Info*, NAT'L PARK SERV., <https://perma.cc/AB3T-JJJ9>.

³⁰ *How to See a Glacier*, *supra* note 27.

³¹ CATHERINE CULLINANE THOMAS ET AL., 2018 NAT'L PARK VISITOR SPENDING EFFECTS, U.S DEP'T OF THE INTERIOR 26, 50 (2019), <https://perma.cc/87ZA-PHBN>.

³² *Outdoor Recreation Satellite Account, U.S. and Prototype for States, 2017*, BUREAU OF ECON. ANALYSIS, <https://perma.cc/4STH-HQE8>.

³³ *Climate Hot Map: Glacier National Park*, UNION OF CONCERNED SCIENTISTS, <https://perma.cc/9DNF-VL9N>.

Glaciers also play an essential role in the park's ecosystem by providing late-season runoff to keep rivers and streams full of water at a consistent temperature.³⁴ This is crucial for keeping the water within the normal temperature range for trout and other fish species.³⁵ Without glacial runoff, streams may dry up or experience abnormal temperatures that can negatively impact native bull trout and westslope cutthroat trout.³⁶ The bull trout is listed as a threatened species under the Endangered Species Act, and park officials are investigating ways to protect its habitat within the park.³⁷ Unless greenhouse-gas emissions are addressed, however, it is unlikely that these sensitive ecosystems can be safeguarded from additional harm.

In short, Glacier National Park offers a compelling example of the impacts warming temperatures will have on park system glaciers. Given the significant ecological, economic, and cultural costs of glacial retreat, immediate action to curb emissions is required.

³⁴ Stephen Saunders et al., *Glacier National Park in Peril: The Threats of Climate Disruption*, NAT'L RES. DEF. COUNCIL 18-29 (2010), <https://perma.cc/GL9Y-93AB>.

³⁵ *Id.*; see also *Retreat of Glaciers in Glacier Nat'l Park*, *supra* note 23.

³⁶ *Threats to Aquatic Species and Habitats*, NAT'L PARK SERV., <https://perma.cc/F8H6-XDCM>.

³⁷ *Id.*

II. Rising sea levels caused by climate change threaten additional significant harm to national parks.

In the past century, as glaciers have receded world-wide, sea levels have risen by around seven to eight inches due to climate change.³⁸ Although the pace of future sea-level rise largely depends on the continued rate of greenhouse-gas emissions, significant increases in sea levels are projected. The 2018 National Climate Assessment reported that sea levels are likely to increase from one to four feet by 2100 relative to 2000 levels.³⁹

The Park Service manages 86 coastal parks that include over 11,000 miles of coastline and 2.5 million acres of Ocean and Great Lakes waters.⁴⁰ Rising sea levels threaten significant harm to these unique parks, which attract over 88 million visitors and generate over \$4.8 billion annually in local economic benefits.⁴¹ One study conducted by the Interior Department—which examined only a third of coastal

³⁸ Climate Science Special Report: Fourth National Climate Assessment, U.S. GLOB. CHANGE RESEARCH PROGRAM, 25-26, 333, 339, 343 (D.J. Wuebbles et al. eds., 2017), <https://perma.cc/BY2R-QLPS>.

³⁹ Katharine Hayhoe et al., *supra* note 14 at 104.

⁴⁰ *Ocean and Coastal Resources*, NAT'L PARK SERV., <https://perma.cc/L5ES-X3ZN>.

⁴¹ *Id.*

parks threatened by sea-level rise—found that one meter of rise would place \$40 billion worth of park assets at risk.⁴²

A. Everglades National Park’s complex landscape is uniquely vulnerable to sea-level rise.

The southwestern portion of Florida’s Everglades, including Everglades National Park, is a subtropical peatland ecosystem with low elevation and flat topography that make it particularly vulnerable to sea-level rise.⁴³ Congress authorized the park in 1934 to preserve its subtropical ecosystem.⁴⁴ It was the first time federal land was set aside for its abundant natural diversity rather than for “scenic views.”⁴⁵

The Everglades requires both salt water and fresh water to support a unique, hybrid ecosystem.⁴⁶ The park contains the Shark

⁴² *Interior Department Releases Report Detailing \$40 Billion of National Park Assets at Risk from Sea Level Rise*, U.S. DEP’T OF THE INTERIOR (June 23, 2015), <https://perma.cc/79S2-KXQT>.

⁴³ *Potential Ecological Consequences of Climate Change in South Florida and the Everglades*, NAT’L PARK SERV., U.S. Dep’t of the Interior (2009), <https://perma.cc/NZ2J-Y7NP>.

⁴⁴ *Why Protect Everglades Nat’l Park?*, NAT’L PARK SERV., <https://perma.cc/8JH4-7WUG>.

⁴⁵ *Id.*

⁴⁶ See M.S. Ross et al., *The Southeast Saline Everglades Revisited: 50 Years of Coastal Vegetation Change*, 11 J. VEGETATION SCI. 101, 101 (2000), <https://perma.cc/X2L6-WDJ5> (coastal wetlands “reflect a dynamic hydrologic balance”); Carolyn Gramling, *A Freshwater*,

River Slough, which connects the park to the ocean by rivers along the west coast and by small passes flowing south to Florida Bay.⁴⁷ This transition zone between freshwater and saltwater provides a dynamic equilibrium that is vital to supporting life in the region.⁴⁸ Sea-level rise threatens this delicate freshwater-saltwater balance.

While sea-level projections for Florida are consistent with national estimates, observations of actual sea-level rise along the Florida coast are exceeding projections.⁴⁹ These increases threaten significant harm to the Everglades. First, saltwater intrusion will affect numerous distinct ecosystems—including buttonwood forests and mahogany forests—by increasing salinity, degrading roots, and promoting erosion.⁵⁰ Effects on the distribution of the iconic mangrove forests have already been observed.⁵¹ Twenty-seven rare plants—including

Saltwater Tug-of-War Is Eating Away at the Everglades, SCI. NEWS, August 20, 2018, <https://perma.cc/J9N3-FSED>.

⁴⁷ Joseph Park et al., *Sea-Level Rise and Inundation Scenarios for National Parks in South Florida*, NAT'L PARK SERV. (June 2017), <https://perma.cc/K8YF-DD2W>.

⁴⁸ See M.S. Ross et al., *supra* note 46.

⁴⁹ NAT'L PARK SERV., *supra* note 44, at 5.

⁵⁰ See Gonzalez, *Climate Change Trends*, *supra* note 1, at 121 (Table 6.3).

⁵¹ Ken W. Krauss et al., *Sea-Level Rise and Landscape Change Influence Mangrove Encroachment onto Marsh in the Ten Thousand Island*

endangered species, such as tropical orchids and herbs, found only in south Florida—will be affected by the salinization of groundwater and the soil.⁵² It is unclear which species will be able to tolerate the increased salinity.⁵³

B. Rising sea levels also harm America’s urban parks, including the National Mall in Washington, D.C.

Sea-level rise will affect parks we might not expect, including the most visited national park in the country and one of the most iconic, the National Mall in Washington, D.C. According to the NPS, by 2100, “the National Capital Region is projected to experience the highest average rate of sea level change” within the National Park System.⁵⁴ In 2019, the Mall’s Tidal Basin was identified as one of the eleven most endangered historic places by the National Trust for Historic

Region of Florida, USA, 15 J. COASTAL CONSERVATION 629, 632 (2011), <https://perma.cc/U237-42YZ>.

⁵² Erik Stabena, et al., *Sea-level Rise: Observations, Impacts, and Proactive Measures in Everglades National Park*, 28 PARK SCI. 26, 29 (2011).

⁵³ *Id.*

⁵⁴ Maria A. Caffrey, NAT’L PARK SERV., *Sea Level Rise and Storm Surge Projections for the National Park Service* viii (2018), <https://perma.cc/55XX-X466>.

Preservation, in part because of its crumbling infrastructure, but mostly due to persistent flooding.⁵⁵

Twice a day, during high tide, approximately 250 million gallons of water from the Potomac River flow into the 107-acre tidal basin.⁵⁶ This high tide now spills onto the Mall and over sidewalks on a daily basis.⁵⁷ Not only is the continuous flooding an inconvenience to millions of tourists who visit the park each year, it is a threat to the iconic cherry trees that have grown along the Tidal Basin since 1912, when they were given to the United States by Japan.⁵⁸ The exposure of the trees' roots to brackish water, along with makeshift paths created by visitors over the roots to avoid flooded sidewalks, poses risks to the trees' long-term survival.⁵⁹

⁵⁵ *Discover America's 11 Most Endangered Historic Places for 2019*, NAT'L TR. FOR HISTORIC PRES. (May 30, 2019), <https://perma.cc/PL8J-ZX7Q>.

⁵⁶ *Tidal Basin, Washington, DC*, NAT'L PARK SERV. (July 5, 2018), <https://perma.cc/JZZ6-ZTKS>.

⁵⁷ Andrew Giambrone, *Famed D.C. Cherry Blossoms Face Long-Term Risks from High Tides*, CURBED D.C. (Apr. 4, 2019), <https://perma.cc/WCY8-5JZW>.

⁵⁸ *Id.*

⁵⁹ *Id.*

To address impending climate issues at the National Mall, the Park Service has partnered with the National Trust for Historic Preservation on a project to improve the site's resilience and security. The project is expected to cost as much as \$500 million.⁶⁰

III. If left unchecked, climate change will have catastrophic effects on wildlife and plants that depend on national parks.

People from around the world visit America's national parks to view their extraordinary wildlife and plant populations. Parks provide safe havens for diverse ecosystems, rare plant species, and wildlife. Unfortunately, these havens are shrinking due to the changing climate—a problem that will worsen in the absence of meaningful limits on greenhouse-gas emissions.

Many parks contain unique microclimates that species rely on to survive.⁶¹ Even small climatic changes or shifts in these locations can dramatically change the outlook for animals and plants.⁶² These

⁶⁰ *Id.*

⁶¹ *See, e.g.*, 54 U.S.C. § 100101 (2018) (recognizing the distinct character of natural areas found within the National Park System).

⁶² Mark Urban, *Accelerating Extinction Risk from Climate Change*, 348 *SCI.* 571, 571-73 (2015), <https://perma.cc/JEM4-Z9KQ>; John Wiens, *Climate-Related Local Extinctions Are Already Widespread Among*

changes are already manifesting through localized declines and extinctions.⁶³

Many species already inhabit an area at their maximum climatic threshold, meaning there is no suitable habitat for them to move to as warming continues.⁶⁴ This is especially true for elevation-dependent species, such as the American pika, that are native to high alpine fields or mountainsides.⁶⁵ As the climate warms, there often is no option for pika to move to higher elevations in order to find the conditions they require.⁶⁶ This has already led to the extirpation of pika in parts of the Great Basin, a trend that is spreading to similar habitats.⁶⁷ Climate change threatens between 17 to 37 percent of species with extinction.⁶⁸

Plant and Animal Species, 14 PLOS BIOLOGY 1, 9-11 (2016),
<https://perma.cc/D2ZZ-PZBB>.

⁶³ Weins, *supra* note 62, at 9-11.

⁶⁴ *Id.* at 9.

⁶⁵ Abigail Cahill, et al., *How Does Climate Change Cause Extinction?*, 280 PROCEEDINGS OF THE ROYAL SOC'Y B 1, 2-4 (2013),
<https://perma.cc/4GHK-XYLJ>.

⁶⁶ *Id.*

⁶⁷ *Id.* at 4.

⁶⁸ Based on a study of extinction risks in three sample regions. Chris D. Thomas et al., *Extinction Risk from Climate Change*, 427 NATURE 145, 145-48 (2004), <https://perma.cc/ZQ2G-NH8Z>.

A. Rising temperatures will further threaten trees and birds in Joshua Tree National Park.

Warming trends coupled with decreased precipitation resulting from climate change may spell the end of Joshua Tree National Park's namesake tree.⁶⁹ Joshua trees have limited ability to migrate and therefore struggle to escape increasing temperatures by moving to higher altitudes or farther north.⁷⁰ Based on the species' inability to relocate amid current warming trends, researchers have estimated that the park will no longer be inhabited by Joshua trees by the end of the century.⁷¹

Global temperature increase is also causing bird habitats to shrink. This is already occurring in Joshua Tree where the golden eagle, great horned owl, and California thrasher are just a few of many species facing hotter climatic conditions in their preferred habitat

⁶⁹ Kenneth Cole et al., *Past and Ongoing Shifts in Joshua Tree Distribution Support Future Modeled Range Contraction*, 21 *ECOLOGICAL APPLICATIONS* 137 (2011), <https://perma.cc/3GP3-4BHS>.

⁷⁰ *Id.* at 142, 148.

⁷¹ *Id.*; Krishna Dole et al., *The Relative Importance of Climate Change and the Physiological Effects of CO₂ on Freezing Tolerance for the Future Distribution of Yucca Brevifolia*, 36 *GLOBAL AND PLANETARY CHANGE* 137, 141-43 (2003), <https://perma.cc/J3QU-KQS9>.

around the park.⁷² If current warming trends continue, many birds will be potentially extirpated from the park altogether, forcing them to search for new suitable habitat.⁷³

Birds are particularly susceptible to impacts from climate change because climatic changes can decrease the availability of food at key times. North America's bird population has already declined by 29 percent—or nearly three billion birds—since 1970.⁷⁴ One factor in this decline appears to be phenological mismatch, which arises when key life events for birds and their prey no longer align.⁷⁵ Many birds, when raising their young, rely on insects that have large hatches but die quickly thereafter.⁷⁶ Increasing temperatures and earlier thaws lead to

⁷² See Joanna Wu et al., *Projected Avifaunal Responses to Climate Change Across the U.S. National Park System*, 13 PLoS ONE 1, 6-7 (2018), <https://perma.cc/5ECY-HHNL>.

⁷³ *Id.*; see also Gonzalez, *Climate Change Trends*, *supra* note 1, at 122 (Table 6.3).

⁷⁴ Kenneth Rosenberg et al., *Decline of North American Avifauna*, 366 SCI. 120 (2019), <https://perma.cc/2GMX-T6WE>.

⁷⁵ Laura McKinnon et al., *Timing of Breeding, Peak Food Availability, and Effects of Mismatch on Chick Growth in Birds Nesting in the High Arctic*, 90 CAN. J. ZOOLOGY 961, 968 (2012), <https://perma.cc/DH8P-EQJ3>; *When Timing Is Everything: Migratory Bird Phenology in a Changing Climate*, U.S. GEOLOGICAL SURVEY (Feb. 10, 2017), <https://perma.cc/F8E3-Q2TZ>.

⁷⁶ See Laura McKinnon et al., *supra* note 75, at 961.

earlier insect hatches each spring.⁷⁷ Chick hatches, however, have not shifted as quickly, leading to less food availability.⁷⁸ This mismatch is causing some bird populations to become smaller and to experience lower survival rates.⁷⁹

B. Warming streams threaten trout populations in Shenandoah National Park.

Increasing temperatures could negatively impact trout populations in national parks across the country.⁸⁰ For example, trout in Shenandoah National Park are expected to be heavily impacted as

⁷⁷ *When Timing Is Everything: Migratory Bird Phenology in a Changing Climate*, *supra* note 75.

⁷⁸ *Id.*

⁷⁹ A. Buse, *Effects of Elevated Temperature on Multi-Species Interactions: The Case of Pedunculate Oak, Winter Moth and Tits*, 13 *FUNCTIONAL ECOLOGY* 74, 78 (2002), <https://perma.cc/L6XM-N2NF>; Stephen J. Thackery et al., *Trophic Level Asynchrony in Rates of Phenological Change for Marine, Freshwater and Terrestrial Environments*, 16 *GLOBAL CHANGE BIOLOGY* 3304, 3309-10 (2010), <https://perma.cc/SZD8-EWU6>.

⁸⁰ See Scott J. Cooney et al., *Modeling Global Warming Scenarios in Greenback Cutthroat Trout (Oncorhynchus Clarki Stomias) Streams: Implications for Species Recovery*, 65 *WESTERN N. AM. NATURALIST* 371, 377-79 (2005) (impacts on Rocky Mountain National Park trout), <https://perma.cc/ZFL5-L9PA>; *Threats to Aquatic Species and Habitats*, *supra* note 36.

stream temperatures rise and stream flows decrease.⁸¹ Researchers believe that even with a modest temperature increase of 1.5 degrees Celsius, trout will lose up to a quarter of their habitat in the park.⁸² At a temperature increase of 4.5 degrees Celsius, nearly all suitable trout habitat will be eliminated from the park and surrounding lands.⁸³

Decreased precipitation and earlier spring runoff will likely lead to low summer flows, which could trap trout populations.⁸⁴ Populations with smaller ranges are more likely to experience local extinctions since there is little they can do to escape stressors in the stream, such as competitors or increased temperature.⁸⁵

⁸¹ See Patricia A. Flebbe et al., *Spatial Modeling to Project Southern Appalachian Trout Distribution in a Warmer Climate*, 135 TRANSACTIONS OF THE AM. FISHERIES SOC'Y 1371, 1380 (2006), <https://perma.cc/F4KL-AGU5>.

⁸² See *id.* at 1376.

⁸³ See *id.*

⁸⁴ See *id.* at 1380.

⁸⁵ See Urban, *supra* note 62, at 571-73.

C. Tree species are experiencing loss of suitable habitat, increases in disease and insect infestations, and drought stress.

The whitebark pine has experienced significant declines in Yellowstone National Park due to increased mountain-pine-beetle activity and shrinking habitat.⁸⁶ Researchers have concluded that climate change may exacerbate this decline by “(1) accelerating succession to more shade tolerant conifers, (2) creating environments that are unsuitable for the species, (3) increasing the frequency and severity of mountain pine beetle outbreaks and wildland fire events, and (4) facilitating the spread of blister rust.”⁸⁷ With respect to beetle outbreaks, warmer winters are allowing more insects to survive, causing larger-scale impacts on the trees.⁸⁸ In the greater Yellowstone ecosystem, whitebark pine may face habitat losses of 71 to 99 percent.⁸⁹

⁸⁶ Robert Keane, et al., U.S. DEPT OF AGRIC., *Restoring Whitebark Pine Ecosystems in the Face of Climate Change* 29-31, 35-36 (2017), <https://perma.cc/9ZA6-BR8X>.

⁸⁷ *Id.* at ii.

⁸⁸ Keane, *supra* note 86, at 13.

⁸⁹ Gonzalez, *Climate Change Trends*, *supra* note 1, at 122 (Table 6.3) (whitebark pine may face habitat losses of 71 to 99 percent in Yellowstone area).

In Bandelier National Monument, the characteristic piñon trees that provided an important source of food to Ancestral Pueblo peoples may experience die-offs due to increased drought stress resulting from climate change, and these woodlands may even convert to grasslands.⁹⁰

D. Further loss of wildlife and plants within parks would likely have negative impacts on visitation and economics.

One of the main reasons people visit national parks is to see the animals and plants they sustain. According to the Outdoor Industry Association, wildlife watching generates over \$30 billion in annual retail spending—enough to support more than 235,000 jobs.⁹¹ However, continued climate change is likely to negatively impact wildlife viewing

⁹⁰ *Id.* at 126 (citing A. Park Williams et al., *Temperature as a Potent Driver of Regional Forest Frought Stress and Tree Mortality*, 3 NATURE CLIMATE CHANGE 292 (2013)); see *Pinon-Juniper Woodlands and Savannahs*, NAT'L PARK SERV. (Aug. 8, 2017), <https://perma.cc/5ELE-NGVT>.

⁹¹ *The Outdoor Recreation Economy*, OUTDOOR INDUS. ASS'N (2017) <https://perma.cc/6NTS-U58Z>.

in national parks.⁹² Animals and plants that were once abundant are declining, while invasive species thrive under new climate conditions.⁹³

IV. Increased wildfires are already harming America's national parks, especially in the West.

Wildfires are becoming more frequent and intense in the West.⁹⁴ A growing body of scientific evidence links this trend to human-caused climate change.⁹⁵ As the western United States is home to more than half of our national parks, including eight of the ten parks most visited in 2018, more frequent and intense wildfires will pose significant

⁹² See, e.g., Gonzalez, *Climate Change Trends*, *supra* note 1, at 122-25 (Table 6.3).

⁹³ See *id.*; Cahill et al., *supra* note 65, at 1, 2-4.

⁹⁴ See John Abatzoglou & A. Park Williams, *Impact of Anthropogenic Climate Change on Wildfire Across Western U.S. Forests*, 113(42) PROC. OF THE NAT'L. ACAD. OF SCI. 11770 (2016), <https://perma.cc/7M2A-4ASG>; Jia Coco Liu et al., *Particulate Air Pollution from Wildfires in the Western U.S. Under Climate Change*, 138 CLIMATIC CHANGE 655 (2016), <https://perma.cc/R9JQ-5XM3>; William T. Sommers et al., *Wildland Fire Emissions, Carbon, and Climate: Science Overview and Knowledge Needs*, 317 FOREST ECOLOGY & MGMT. 1, 1-8 (2014), <https://perma.cc/XF9Q-VC9E>; David Peterson, *Climate Change Intensifying Wildfire on National Forests*, U.S. FOREST SERV., (June 2, 2016), <https://perma.cc/LF2K-XLFX>; U.S. GLOB. CHANGE RESEARCH PROGRAM, *supra* note 38, at 231.

⁹⁵ See sources cited *supra* note 94.

threats to the National Park System if action is not taken to reduce carbon pollution.⁹⁶

A. As wildfires increase in frequency and intensity, more parkland burns and ecosystems are weakened.

Human-caused carbon emissions are driving an increase in wildfires.⁹⁷ Higher atmospheric concentrations of greenhouse gases lead to longer dry seasons, decreased snowpack, earlier snowmelt, increased insect and disease outbreaks, and extended growing seasons.⁹⁸ All of these factors increase the frequency and intensity of wildfires.⁹⁹

Western lands are burning at an alarming rate. According to researchers, climate change has doubled the number of acres burned by

⁹⁶ *Visitation Numbers*, NAT'L PARKS SERV., <https://perma.cc/AQ5N-FF69>.

⁹⁷ *See, e.g.*, Abatzoglou & Williams, *supra* note 94, at 1; Peterson, *supra* note 94; Sommers et al., *supra* note 94, at 1-8.

⁹⁸ *See* Anthony Westerling & Benjamin Bryant, *Climate Change and Wildfire in California*, 87 CLIMATIC CHANGE (Supp. 1) 231, 231-32 (2008), <https://perma.cc/EYM8-TU7D>; Xu Yue et al., *Ensemble Projections of Wildfire Activity and Carbonaceous Aerosol Concentrations over the Western United States in the Mid-21st Century*, 77 ATMOSPHERIC ENV'T 767, 768, 779 (2013), <https://perma.cc/T53F-FKW2>; Abatzoglou & Williams, *supra* note 94, at 1; Bindoff et al., *supra* note 20.

⁹⁹ *See* sources cited *supra* note 98.

wildfire.¹⁰⁰ Scientists believe this measure may double again by mid-century.¹⁰¹ Fire seasons are on average 78 days longer today than 50 years ago, and scientists expect this upward trend to continue.¹⁰² In 2017, wildfires burned 6.3 million acres of federal land, including several historic national-park sites.¹⁰³ Scientists project that Yellowstone National Park could see fires increase in frequency three to ten times by 2100, compared to 1990.¹⁰⁴

Although wildfires are a natural part of many ecosystems, climate change is also making many forests drier, and therefore less able to

¹⁰⁰ The Rising Cost of Wildfire Operations: Effects on the Forest Service's Non-Fire Work, U.S. FOREST SERV., 2-3 (2015), <https://perma.cc/YA4K-MYUL>; Abatzoglou & Williams, *supra* note 94, at 1 (concluding “human-caused climate change . . . nearly doubl[ed] the forest fire area expected in its absence”).

¹⁰¹ U.S. FOREST SERV., *supra* note 100, at 2.

¹⁰² *Id.*; see also Anthony Westerling, *Increasing Western U.S. Forest Wildfire Activity: Sensitivity to Changes in the Timing of Spring*, 371 PHILOSOPHICAL TRANSACTIONS B (2016) (“timing, extent and severity of wildfire in western US forests is strongly influenced by climate”), <https://perma.cc/VVA4-8TDU>.

¹⁰³ *Wildfire Statistics*, CONG. RESEARCH SERV., (Oct. 3, 2019), <https://perma.cc/J4D8-RWQY>; see Laurel Wamsley, *Western Wildfires Endanger Beloved Sites at National Parks*, NPR, Sep. 5, 2017 (burning of the historic Sperry Chalet in Glacier National Park and Nelder Grove in Yosemite, 2017), <https://perma.cc/ZC6Y-JR6N>.

¹⁰⁴ Gonzalez, *Climate Change Trends*, *supra* note 1, at 121 (Table 6.3) (citation omitted).

rebound from wildfires.¹⁰⁵ In places where forests are found at the edge of their climatic tolerance, dry conditions combined with wild fire may cause those forests to convert to grasslands or shrubs.¹⁰⁶

Saguaro, Glacier, Grand Teton, Joshua Tree, Sequoia, Kings Canyon, and Yosemite are among the many parks expected to be impacted by more frequent and intense wildfires.¹⁰⁷

B. Climate change exacerbates wildfires, resulting in more air pollution, such as particulate matter and ozone, increasing haze and posing a health threat.

Because continued greenhouse gas pollution will lead to increased wildfires, it will also lead to increases in visibility-impairing pollutants emitted by these wildfires.¹⁰⁸ These pollutants include ground-level

¹⁰⁵ Camille S. Stevens-Rumann et al., *Evidence for Declining Forest Resilience to Wildfires under Climate Change*, 21 *ECOLOGY LETTERS* 243, 243 (2018).

¹⁰⁶ *Id.*

¹⁰⁷ Jeremy Schulman, *Seven More Nat'l Parks Threatened by Fire*, CITYLAB (Aug. 30, 2013), <https://perma.cc/PPA9-5GQE>; Saunders et al., *supra* note 34, at 25.

¹⁰⁸ Benjamin DeAngelo et al., *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 89*, U.S. ENVTL. PROT. AGENCY, (2009), <https://perma.cc/J538-7EX7>.

ozone and fine particulate matter, or “PM_{2.5}.”¹⁰⁹ Ozone and PM_{2.5} increase haze, which degrades visibility—obscuring the precious views that Congress mandated be restored at Class I designated national parks and wilderness areas.¹¹⁰

Ozone and PM_{2.5} also jeopardize human health.¹¹¹ A growing number of studies predict an increase in “smoke waves” as a result of climate change.¹¹² “Smoke waves” are defined as two or more days with

¹⁰⁹ See Yuanyuan Fang, *Impacts of 21st Century Climate Change on Global Air Pollution-Related Premature Mortality*, 121 CLIMACTIC CHANGE 239 (2013), <https://perma.cc/V6LV-9NLM>; Mark Jacobson, *On the Causal Link Between Carbon Dioxide and Air Pollution Mortality*, 35 GEOPHYSICAL RESEARCH LETTERS 1 (2008), <https://perma.cc/LYG2-9FDS> (warmer temperatures from climate change alter atmospheric chemistry and dynamics in ways that lead to generally higher levels of ground-level ozone and PM_{2.5} concentrations); Viney Aneja, *Ozone and Other Air Quality-Related Variables Affecting Visibility in the Southeast U.S.*, 54 J. AIR AND WASTE MGMT. ASS'N 681, 681-88 (2004), <https://perma.cc/9BKT-3SGA> (PM_{2.5} the major source of haze pollution in the country, and ozone associated with lower visibility; climate-induced increases in ozone/PM_{2.5} may hinder visibility conditions at 48 “Class I” national parks/wilderness areas—areas with heightened air-quality and visibility protection); see 40 C.F.R. pt. 81 (2019); see 40 C.F.R. pt. 81; *NPS Class I Areas*, NAT'L PARK SERV., <https://perma.cc/9572-GSD7>.

¹¹⁰ 42 U.S.C. § 7491(a)(1) (2018); Aneja, *supra* note 109, at 681-88; Liu et al., *supra* note 94.

¹¹¹ Liu et al., *supra* note 94; *Wildfire Smoke Waves*, CLIMATE CENT., (Aug. 15, 2018), <https://perma.cc/66BF-EW9P>.

¹¹² *Wildfire Smoke Waves*, *supra* note 111.

elevated PM_{2.5} levels that can affect bodily chemistry by slowing blood flow and oxygen to the heart.¹¹³ Exposure to such concentrations of PM_{2.5} raises the risk of respiratory and cardiovascular diseases.¹¹⁴ Smoke waves are likely to keep visitors away from national parks and threaten the health of those who do make the trip.

C. As wildfires continue to grow in response to climate change, so will the financial burden on the federal government and local communities.

As wildfires intensify, so do the costs of fighting them. From 1985 to 1999, federal fire-fighting costs never exceeded \$1 billion per year in any year.¹¹⁵ Since 2011, costs have exceeded \$1 billion every year.¹¹⁶ In 2015 and 2017, costs exceeded \$2 billion, and in 2018, costs exceeded \$3 billion.¹¹⁷ Fire operations take financial resources away from other needs, such as infrastructure maintenance, natural-resource

¹¹³ *Id.*

¹¹⁴ Jia Coco Liu et al., *Wildfire-Specific Fine Particulate Matter and Risk of Hospital Admissions in Urban and Rural Counties*, 28 EPIDEMIOLOGY 77, 77 (2017), <https://perma.cc/A2V2-UL4L>.

¹¹⁵ *See Federal Firefighting Costs (Suppression Only)*, NAT'L INTERAGENCY FIRE CENTER, <https://perma.cc/A7L8-PAQS>.

¹¹⁶ *See id.*

¹¹⁷ *See id.*

preservation, recreational programs, and staffing, which, in turn, harms visitor experience.¹¹⁸

D. Yosemite National Park illustrates how increasing wildfires jeopardize the future of national parks.

Like the rest of the West, Yosemite National Park is experiencing more frequent and intense wildfires.¹¹⁹ Wildfires are impacting the park's ecosystem, deterring visitors and negatively affecting visitor experience, and stifling funding for the park and the local economy.

Yosemite faced the two largest wildfires in its history within the past seven years. In 2013, the Rim Fire burned over 77,000 acres—nearly ten percent of the park.¹²⁰ In 2018, the Ferguson Fire burned over 10,000 acres of park land, closing Yosemite Valley, in its entirety, for twenty days.¹²¹

¹¹⁸ See Budget Justifications, U.S. DEP'T OF THE INTERIOR 6-7, 50 (2019), <https://perma.cc/NDR4-CE43>.

¹¹⁹ See *Yosemite: Past Fire Activity*, NAT'L PARKS SERV. (Aug. 29, 2019), <https://perma.cc/7APT-HEAJ> (Yosemite's fire history map); Gonzalez, *Climate Change Trends*, *supra* note 1, at 115 (Table 6.2) ("Fire frequency and burned area [have] increased with temperature" in western parks).

¹²⁰ *Yosemite: Past Fire Activity*, *supra* note 119.

¹²¹ Chris Erskine, *Yosemite Valley to Reopen Tuesday After Nearby Fires Closed It for 20 Days*, L.A. TIMES (Aug. 10, 2018),

Even after the burning stops, the smoke and other pollution from wildfires threaten Yosemite and its visitors.¹²² Visitors include summer campers and families, who for nearly a century have converged on Yosemite to learn about nature and our nation's history.¹²³ Wildfires leave behind the harmful pollutants ozone and PM_{2.5}.¹²⁴ In July and August of 2018 alone, Yosemite exceeded the National Ambient Air Quality Standard for ozone on 22 days.¹²⁵ So as families and summer campers return to Yosemite, they are often putting their cardiovascular and respiratory health at risk.¹²⁶ The park's ecosystems are likewise vulnerable. Indeed, at least twelve plant species in Yosemite are particularly sensitive to ground-level ozone.¹²⁷ Nearly forty percent of

<https://perma.cc/R3GB-PWYT>; *Post Ferguson Fire*, YOSEMITE MARIPOSA CTY TOURISM BUREAU, <https://perma.cc/528M-V5DM>.

¹²² See *Fires Increase Surface Ozone*, NASA EARTH OBSERVATORY, <https://perma.cc/5UQW-HLHW>; Alex Rudee, *Yosemite's Dirty Air Secret*, NAT'L PARKS CONSERVATION ASS'N (Sept. 19, 2017), <https://perma.cc/G4PT-MQTG>; Liu et al., *supra* note 114.

¹²³ *About Us*, CAMP WAWONA, <https://perma.cc/Q4DJ-VBCK>; *Two Popular Summer Camps Near Yosemite Close Due to Smoky Air*, KTVU FOX 2, <https://perma.cc/V66B-XVAY>.

¹²⁴ *Fires Increase Surface Ozone*, *supra* note 122; Liu et al., *supra* note 114.

¹²⁵ *Ozone Exceedances in National Parks*, NAT'L PARK SERV., <https://perma.cc/Y72E-GBTP>.

¹²⁶ See *id.*

¹²⁷ *Yosemite's Dirty Air Secret*, *supra* note 122.

the park's ponderosa pine trees, for example, have suffered from ozone injury.¹²⁸

Those visitors still determined to experience Yosemite may face a sad reality. The iconic tunnel view of El Capitan, Half Dome, and Bridalveil Falls may be obscured by haze from wildfires exacerbated by climate change.¹²⁹ If the pollution driving climate change is not addressed, the climate crisis will worsen, meaning fewer visitors may come to Yosemite, and those who do may not experience the park in its pristine state. This would undermine the mission of the National Park System, which is to “conserve the scenery, natural and historic objects, and wild life” within the parks and to provide for their enjoyment “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”¹³⁰

¹²⁸ *Id.*

¹²⁹ *See id.*

¹³⁰ 54 U.S.C. § 100101 (2018).

CONCLUSION

In order to help protect the public and America's cherished national parks from the current and intensifying impacts of climate change, this Court should grant the petitions for review challenging the U.S. Environmental Protection Agency's unlawful "Affordable Clean Energy rule" as inadequate under the Clean Air Act and remand to the agency to promulgate a rule consistent with the law.

Respectfully submitted on April 22, 2020,

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CERTIFICATE OF COMPLIANCE

This document complies with the type-volume limit of Federal Rules of Appellate Procedure 29(a)(4)(G) and 32(a)(7)(B) because, excluding the parts of the document exempted by Rule 32(f), this document contains 6,491 words. This document also complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type-style requirements of Federal Rule of Appellate Procedure 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word in fourteen-point Century Schoolbook.

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CERTIFICATE OF SERVICE

I hereby certify that on this day of April 22, 2020, the foregoing Final Amicus Brief of the Coalition to Protect America's National Parks and the National Parks Conservation Association in Support of Petitioners has been served on all registered counsel through the Court's electronic filing system.

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